



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

November 17, 2020

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

RE: Notice of Exempt Modification  
88 Parsonage Hill Road, North Branford CT 06472  
Latitude: 41. 369440000  
Longitude: -72.810280000  
T-Mobile Site#: CT11230A-L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 180-foot level of the existing 195-foot self-support tower located at 88 Parsonage Hill Road, North Branford CT 06472. The 195-foot tower is owned by Ochenkowski Towers LLC and property is owned by Jean Szwabowski. T-Mobile now intends to replace nine (9) existing antennas with three (3) new 600/700 MHz antenna, three (3) new 1900/2100 MHz antenna, and three (3) new 2500 MHz antenna.. The new antennas would be installed at the 180-foot level of the tower. T-Mobile is also proposing mount modifications. As shown on the enclosed mount analysis.

**Planned Modifications**

Remove: (3) RRUS11 B12  
(6) Coax  
(3) Antenna mounts

Remove and Replace:

(3) AIR21B2A B4P - 1900 MHz Antenna-(3) AIR32 B2A Antenna 1900/2100 MHz (Replace)  
(3) AIR21B2P B4A – 2100 MHz Antenna-(3) AIR6449 Antenna 2500 MHz (Replace)  
(3) LNX6515 Antenna (Remove) - (3) APXVAARR24 Antenna 600/700/1900/2100 MHz (Replace)

Install New:

(2) Fiber Hybrid Line  
(3) RRU 4449 B12/B71  
(3) Diplexers  
(3) VFA12-HD Antenna Mount (replacement)

Existing to Remain:

(6) 1-5/8” Coax  
(3) Twin TMA  
(1) Fiber Hybrid Line



Ground:

- 5'x7' Concrete pad
- (1) 6160 Radio Cabinet
- (1) B160 Battery Cabinet

This facility was approved by the Town of North Branford P&Z on December 5, 1997. This modification complies with this original approval. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-SOj-73, a copy of this letter is being sent to Town Manager Michael T. Paulhus, Elected Official and Thomas Cowell –Building / Zoning officer for the Town of North Branford, 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,

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



**NSS**

**NORTHEAST**  
SITE SOLUTIONS

*Turnkey Wireless Development*

Attachments

cc: Town Manager Michael T. Paulhus - elected official  
Town of North Branford  
909 Foxon Road  
North Branford CT 06422

Town of North Branford  
909 Foxon Road  
North Branford CT 06422  
Thomas Cowell –Building / Zoning officer

Ochenkowski Towers LLC  
88 Parsonage Hill Road  
Northford CT 06472

Jean Szwabowski  
84 Parsonage Hill Road  
Northford CT 06472

# Exhibit A

TOWN OF NORTH BRANFORD, CT  
ZONING PERMIT

This permit is hereby submitted in accordance with the requirements of Sections 3.1 and 62 of the Town of North Branford's Zoning Regulations for:

Date of Application: 12/5/97

- new construction
- change of use
- sign
- other (specify): 300' TOWER
- swimming pool
- addition
- excavation/filling

Zoning District \_\_\_\_\_  
Assessor's Map # 51 Lot frontage 608  
Subdivision Name \_\_\_\_\_ Lot # 7 Lot Area 9,31  
Property Location \_\_\_\_\_ Lot # \_\_\_\_\_

Property Owner S. Veronica Chybkowski  
Owner's Address 88 Fairways Hill Rd  
Owner's Phone No. 484-9544

**Property Use:**  
 single family residence  
 two family residence  
 commercial (Specify): \_\_\_\_\_  
 industrial (Specify): \_\_\_\_\_  
 other (Specify): 300' TOWER (PER ZBA VARIANCE)

**Existing Structures:**  
 Description SINGLE FAMILY DWELLING  
 Dimensions \_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_ (ht)  
 Bulk \_\_\_\_\_  
 # Structures \_\_\_\_\_  
 Use \_\_\_\_\_  
 Setbacks: Front \_\_\_\_\_ Rear \_\_\_\_\_ Side \_\_\_\_\_  
 Required Setbacks: From Residence Zone \_\_\_\_\_ Other \_\_\_\_\_

**Proposed Structures/Signs:**  
 (2) 300 FT TOWERS  
34 x 34 x 300 (ht)  
 sq. ft. \_\_\_\_\_  
 Front \_\_\_\_\_ Rear 50 Side 50

**Parking Spaces Required:** \_\_\_\_\_  
 East Shore Health District Approval: Permit # \_\_\_\_\_  
 Planning & Zoning Approved Required: Yes \_\_\_\_\_  
 Zoning Board of Appeals Approval: Yes \_\_\_\_\_  
 Inland Wetlands & Watercourses Approval: Yes \_\_\_\_\_  
 Flood Plain Encroachment Permit Required: Yes \_\_\_\_\_

**Proposed:**  
 Date: \_\_\_\_\_  
 No \_\_\_\_\_ Date: \_\_\_\_\_ App. # \_\_\_\_\_  
 No \_\_\_\_\_ Date: 5/27/98 App. # 68-33  
 No \_\_\_\_\_ Date: \_\_\_\_\_ App. # \_\_\_\_\_  
 No \_\_\_\_\_ Date: \_\_\_\_\_ App. # \_\_\_\_\_

Streambelt Protection District: (Sec 33) Yes \_\_\_\_\_  
 Temporary Special Use Permit: (Sec 43) Yes \_\_\_\_\_  
 Special Use Permit: (Sec 42) Yes \_\_\_\_\_

Conditions of Approval: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Driveway Bond: Amount of Bond \$ N/A Date Posted: \_\_\_\_\_

This permit is issued based upon the plot plan submitted. Falsification, by misrepresentation or omission, or failure to comply with the conditions of this permit shall constitute a violation of the north Branford Zoning Regulations.

Signature of Owner: [Signature] Date: 12/1/92  
Signature of Agent: [Signature] Date: \_\_\_\_\_  
Agent's Address: 1788 Danvers Ave. Hill RI  
Agent's Telephone: 484-4075

This permit is hereby: \_\_\_\_\_ Approved \_\_\_\_\_ Denied  
By \_\_\_\_\_ Date \_\_\_\_\_  
Zoning Enforcement Officer  
By \_\_\_\_\_ Date \_\_\_\_\_  
Inland Wetlands Enforcement Officer  
By [Signature] Date 1/2/93 PER ZBA# 66-35  
Planning and Zoning Administrator ATTEND  
By \_\_\_\_\_ Date \_\_\_\_\_  
Town Engineer

Fee \$ \_\_\_\_\_  
Date Paid \_\_\_\_\_  
Permit # \_\_\_\_\_

LR:dfs  
(8/88)

6835  
21 Laurel Street  
Hartford, Conn.  
May 22, 1968

Joseph Uchenkowski  
Pinecone Hill Road  
Hartford, Conn.

Dear Mr. Uchenkowski:

This is to advise that May 22 the Board of Health of the City of Hartford (Howard P. Aron, Chairman, Charles Johnson, Charles Gunn, Robert Smith and Charles Seegart, alternate) rendered the following decision:

Appeal #63-75 heard pursuant to due notice on May 19, 1968. Joseph Uchenkowski has one (1) radio tower located on the west side of Pinecone Hill Road, 1,000 feet north of the intersection with Satchet Road.

It was RESOLVED by unanimous vote that said appeal be approved, subject to the following limitations. Such approval is effective May 25, 1968.

1. A front buffer zone of 175' shall be maintained along the front property line.
2. A buffer zone of 50' shall be maintained along the rear and sides property lines.
3. The tower is to left in its present natural state, with the exception of any access road or utility right-of-way. Construction necessitates removal of natural trees, etc. shall be prohibited.
4. All signs related to, or towers, to be located within the buffer zone.
5. No tower or building shall be built within 100' of Pinecone Hill Road front line.
6. No more than four towers shall be constructed on this parcel of land.
7. The maximum height shall be 300' from ground level.

Such approval is effective May 25, 1968.

Very truly yours,

Mr. Edward D. Amatruda

TOWN OF NORTH BRANFORD, CT  
ZONING PERMIT

Date of Application: \_\_\_\_\_

This permit is hereby submitted in accordance with the requirements of sections 3.1 and 62 of the Town of North Branford's Zoning Regulations for:

- new construction
- change of use
- sign
- other (specify): \_\_\_\_\_
- swimming pool
- addition
- excavation/filling

Zoning District R-40 Lot Frontage \_\_\_\_\_  
Assessor's Map # 51 Lot # 7 Lot Area \_\_\_\_\_  
Subdivision Name \_\_\_\_\_ Lot # \_\_\_\_\_  
Property Location 88 Parsonage Hill Rd.  
Property Owner Szwebauski Jean & Czekanowski Joseph Jr.  
Owner's Address 84 Parsonage Hill Rd. Northford, CT 06457  
Owner's Phone No. \_\_\_\_\_

Property Use:

- single family residence
- two family residence
- commercial (Specify): Wireless Communication Facility
- industrial (Specify): \_\_\_\_\_
- other (Specify): \_\_\_\_\_

Existing Structures:

Description Wireless Communication  
Dimensions 7' x 16' x 120' (ht)  
Bulk \_\_\_\_\_  
# Structures \_\_\_\_\_  
Use Wireless Communication  
Setbacks: Front \_\_\_\_\_ Rear \_\_\_\_\_ Side \_\_\_\_\_  
Required Setbacks: From Residence Zone \_\_\_\_\_ Other \_\_\_\_\_

Proposed Structures/Signs:

Wireless Communication Tower  
7' x 16' x 120' (ht)  
\_\_\_\_\_ sq. ft.  
Front \_\_\_\_\_ Rear \_\_\_\_\_ Side \_\_\_\_\_

Parking Spaces Required: 0  
East Shore Health District Approval: Permit # \_\_\_\_\_  
Planning & Zoning Approved Required: Yes \_\_\_\_\_ No  Date: \_\_\_\_\_ App. # \_\_\_\_\_  
Zoning Board of Appeals Approval: Yes \_\_\_\_\_ No  Date: \_\_\_\_\_ App. # \_\_\_\_\_  
Inland Wetlands & Watercourses Approval: Yes \_\_\_\_\_ No  Date: \_\_\_\_\_ App. # \_\_\_\_\_  
Flood Plain Encroachment Permit Required: Yes \_\_\_\_\_ No \_\_\_\_\_  
Streambelt Protection District: (Sec 33) Yes \_\_\_\_\_ No \_\_\_\_\_  
Temporary Special Use Permit: (Sec 43) Yes \_\_\_\_\_ No \_\_\_\_\_  
Special Use Permit: (Sec 42) Yes \_\_\_\_\_ No \_\_\_\_\_

CT. Siting Council Approval letter dated 7-18-02





**TOWN OF NORTH BRANFORD**  
**BUILDING DEPARTMENT**  
1599 FOXON ROAD  
PO BOX 287  
NORTH BRANFORD, CT 06471  
TELEPHONE: (203) 315-6008  
FAX: (203) 315-6025

**CERTIFICATE OF CODE COMPLIANCE**

NO. 1853

DATE: January 9, 2003

THIS IS TO CERTIFY THAT WORK SPECIFIED BY BUILDING PERMIT # 7043 ISSUED ON 10/30/2002  
LOCATED AT 88 Parsonage Hill Road FOR Wireless Communication IS FOUND  
Facility  
TO SUBSTANTIALLY COMPLY WITH THE PROVISIONS OF THE BUILDING AND/OR ZONING ORDINANCES OF  
THE TOWN OF NORTH BRANFORD AND HAS BEEN COMPLETED TO THE SATISFACTION OF THE NORTH  
BRANFORD BUILDING DEPARTMENT.

- A) USE GROUP B IN ACCORDANCE WITH PROVISIONS OF ARTICLE 3  
D) FIRE GRADING 2C AS DEFINED IN ARTICLE 4 AND TABLE 401

SPECIAL STIPULATIONS OR CONDITIONS: Per 1999 Connecticut State Building Code.

Joseph Di-Montale  
INSPECTED BY

Robert J. ...  
BUILDING OFFICIAL

DFS

CC: ASSESSOR'S OFFICE  
FILES

North Branford Planning & Zoning Commission  
North Branford, Connecticut

4429

ZONING PERMIT

This is to certify that the \_\_\_\_\_ wireless communication facility  
located at \_\_\_\_\_ 83 Parsonage Hill Road  
owned by \_\_\_\_\_ Jean Szwabowski

has been examined by me as required by the ZONING REGULATION OF THE TOWN OF  
NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the  
requirements of said ZONING REGULATIONS and authorize commencement of building  
construction and site development.

Signed \_\_\_\_\_  
Zoning Enforcement Officer

Date \_\_\_\_\_ 1-1-03

Signed \_\_\_\_\_  
Planning and Zoning Administrator

Date \_\_\_\_\_

NOTES:

1. This is not a Building Permit
2. Any Zoning Permit that involves approval of a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT by the Commission, or other action of the commission, shall be countersigned by the Planning and Zoning Administrator.

4429

**CERTIFICATE OF ZONING COMPLIANCE/NONCONFORMITY**

This is to certify that the wireless communication facility

located at 88 Parsonage Hill Road

owned by Jean Szwabowski

has been examined by me as required by the ZONING REGULATIONS OF THE TOWN OF NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the requirements of said ZONING REGULATIONS and may be used and/or occupied because -

It conforms to the Zoning Regulations

It is a lawfully existing nonconforming parcel, use, building or other structure which may be continued in accordance with the provisions of Paragraphs 5.6.1 - 5.6.5 and Section 5 of the ZONING REGULATIONS; or

It is in the process of improvement and completion in accordance with an approved APPLICATION FOR A ZONING PERMIT and is entitled to a temporary PERMIT in accordance with Paragraph 62.7.5 PERMIT terminating on \_\_\_\_\_

Other \_\_\_\_\_

Signed *Robert S. ...*  
Zoning Enforcement Officer

Date 1-9-03

Signed \_\_\_\_\_  
Planning and Zoning Administrator

Date \_\_\_\_\_

Notes:

1. This is not a Certificate of Occupancy
2. Any Certificate that pertains to a use, building structure or site development for which a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT has been approved by the Commission shall be countersigned by the Planning and Zoning Administrator

6068

North Branford Planning & Zoning Commission

ZONING PERMIT

This is to certify that the installation of three (3) antennae to existing antenna array, add six (6) remote radio units to array along with a surge arrester all on existing tower, add one ground cabinet on new 3'x3' concrete pad, as allowed by variance, which must comply with the 2005 CT State Building Code

located at 88 Parsonage Hill Rd.

owned by Jean Szwabowski

has been examined by me as required by the ZONING REGULATIONS OF THE TOWN OF NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the requirements of said ZONING REGULATIONS and authorize commencement of building construction and site development.

Signed *J. J. Bucur*

Zoning Enforcement Officer

Date 6/5/2012

Signed \_\_\_\_\_

Planning and Zoning Administrator

Date \_\_\_\_\_

Notes:

1. This is not a Building Permit.
2. Any Zoning Permit that involves approval of a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT by Commission, or other action of the commission, shall be countersigned by the Planning and Zoning Administrator.

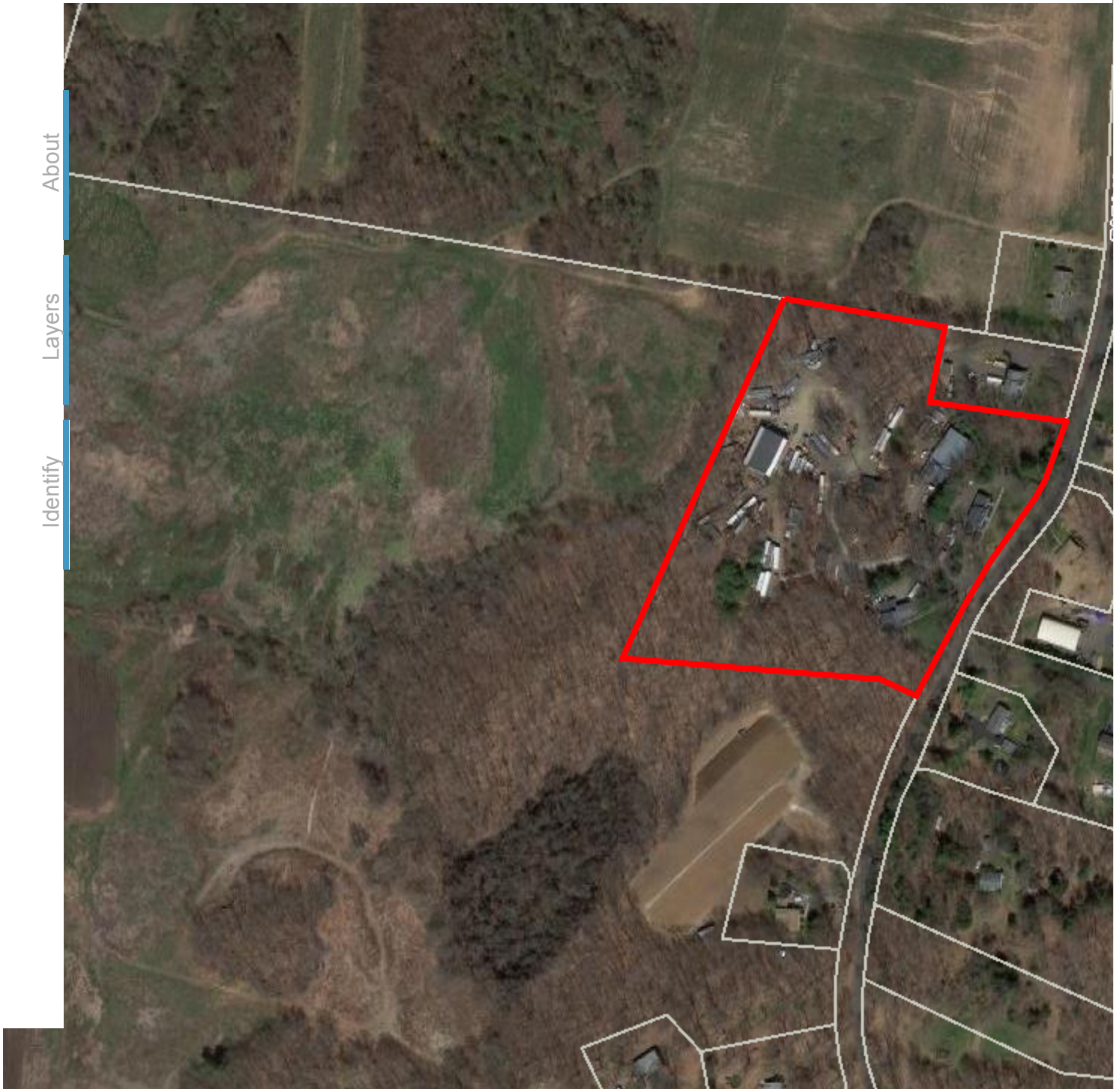
# Exhibit B

Szwabowski

About

Layers

Identify



Email Map Link

Copy and paste the following string into an email to link to the current map view:



lat:41.3682, long:-72.8070

Tighe&Bond

# 88 PARSONAGE HILL RD

**Location** 88 PARSONAGE HILL RD

**Mblu** 51/A 7/ / /

**Acct#** 002953

**Owner** SZWABOWSKI JEAN 1/3

**Assessment** \$864,000

**Appraisal** \$1,248,800

**PID** 3060

**Building Count** 3

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$691,400	\$557,400	\$1,248,800

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$473,900	\$390,100	\$864,000

## Owner of Record

**Owner** SZWABOWSKI JEAN 1/3  
**Co-Owner** OCHENKOWSKI J J JR 1/3 & K W 1/3 EACH  
**Address** 84 PARSONAGE HL RD  
NORTHFORD, CT 06472-1445

**Sale Price** \$90,000  
**Certificate**  
**Book & Page** 429/1132  
**Sale Date** 12/23/2009

## Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
SZWABOWSKI JEAN 1/3	\$90,000		429/1132	12/23/2009
SZWABOWSKI JEAN &	\$90,000		429/1128	12/23/2009
SZWABOWSKI JEAN &	\$0		276/ 749	12/15/1998
OCHENKOWSKI VERONICA TIC +	\$400,000		269/ 844	05/11/1998
OCHENKOWSKI VERONICA	\$0		040/ 206	11/14/1960

## Building Information

### Building 1 : Section 1

**Year Built:** 1949  
**Living Area:** 1,996  
**Replacement Cost:** \$197,304  
**Building Percent** 55  
**Good:**



**Replacement Cost  
Less Depreciation:** \$108,500

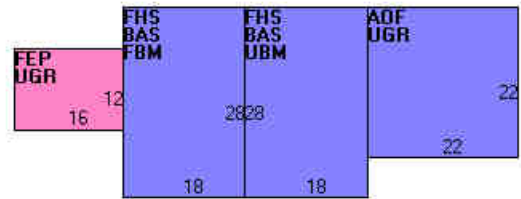
Building Attributes	
Field	Description
Style	RES TYPE COMM
Model	Res Type Com
Grade:	Above Avg
Stories:	1 1/2 Stories
Occupancy	2
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt Shingl
Interior Wall 1	Plastered
Interior Wall 2	Plywood Panel
Interior Flr 1	Carpet
Interior Flr 2	Hardwood
Heat Fuel	Oil
Heat Type:	Forced Air-Duc
AC Type:	Central
Total Bedrooms:	2 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	Average
Kitchen Style:	Average

### Building Photo



(http://images.vgsi.com/photos/NorthBranfordCTPhotos//\00\00)

### Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,008	1,008
FHS	Half Story, Finished	1,008	504
AOF	Office, (Average)	484	484
FBM	Basement, Finished	504	0
FEP	Porch, Enclosed, Finished	192	0
UBM	Basement, Unfinished	504	0
UGR	Garage, Unfinished	676	0
		4,376	1,996

### Building 1 : Section 1

**Year Built:** 1949  
**Living Area:** 0  
**Replacement Cost:** \$197,304  
**Building Percent Good:** 55  
**Replacement Cost Less Depreciation:** \$108,500

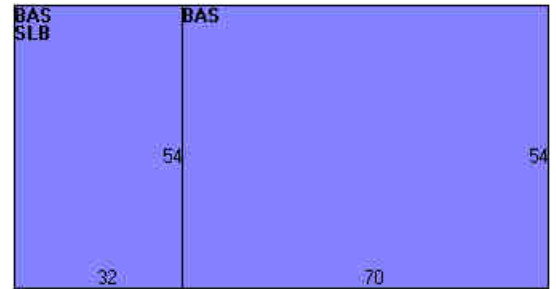
Building Attributes	
Field	Description
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

### Building Photo



(<http://images.vgsi.com/photos/NorthBranfordCTPhotos//default>).

### Building Layout



Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

### Building 2 : Section 1

**Year Built:** 1958  
**Living Area:** 2,286  
**Replacement Cost:** \$183,022  
**Building Percent Good:** 64  
**Replacement Cost Less Depreciation:** \$117,100

Building Attributes : Bldg 2 of 3	
Field	Description
Style	Ranch
Model	Residential
Grade:	Average
Stories:	1 Story
Occupancy	1

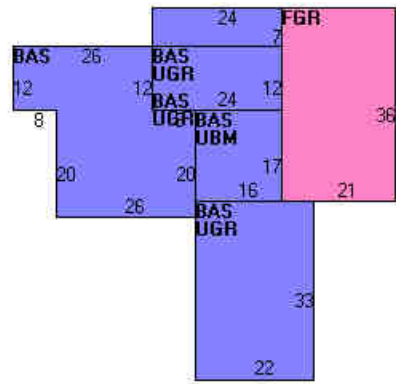
### Building Photo



(<http://images.vgsi.com/photos/NorthBranfordCTPhotos//default>).

### Building Layout

Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	5 Rooms
Bath Style:	Average
Kitchen Style:	Average



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	2,286	2,286
FGR	Garage, Framed	756	0
UBM	Basement, Unfinished	272	0
UGR	Garage, Unfinished	1,182	0
		4,496	2,286

### Building 3 : Section 1

**Year Built:** 1973  
**Living Area:** 600  
**Replacement Cost:** \$38,964  
**Building Percent Good:** 49  
**Replacement Cost Less Depreciation:** \$19,100

Building Attributes : Bldg 3 of 3	
Field	Description
STYLE	Industrial
MODEL	Ind or Comm
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Drywall/Sheet
Interior Wall 2	Minim/Masonry
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	

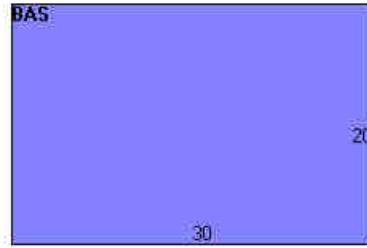
### Building Photo



(<http://images.vgsi.com/photos/NorthBranfordCTPhotos//default>).

Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Heat Pump
Bldg Use	COMM WHSE MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	031I
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	LIGHT
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	0
% Comn Wall	12

## Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	600	600
		600	600

## Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
FPL2	FIREPLACE 1.5 STY	1 UNITS	\$2,800	1

## Land

### Land Use

**Use Code** 010M  
**Description** SINGLE FAM MDL-03  
**Zone** R40  
**Neighborhood**  
**Alt Land Appr Category** No

### Land Line Valuation

**Size (Acres)** 9.31  
**Frontage** 0  
**Depth** 0  
**Assessed Value** \$390,100  
**Appraised Value** \$557,400

## Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
ELCB	ELECTRONIC COMM BLDG			576 S.F.	\$64,800	1
PAV1	PAVING-ASPHALT			4000 S.F.	\$3,400	3
SHD1	SHED FRAME			220 S.F.	\$800	2
ELCB	ELECTRONIC COMM BLDG			576 S.F.	\$64,800	1
FN5	FENCE-10'CHAIN			300 L.F.	\$3,200	3
BRN1	BARN - 1 STORY			5058 S.F.	\$13,000	1

SHD8	SHED UNDER 144 SF			128 S.F.	\$15,000	3
FGR2	GARAGE-GOOD			1200 S.F.	\$27,000	3
SHD1	SHED FRAME			288 S.F.	\$1,700	1
	RADIO TOWER			175	\$17,500	3
	RADIO TOWER			175 HEIGHT	\$87,500	3
TW1	CELL TOWER			125 HEIGHT	\$50,600	3
ELCB	ELECTRONIC COMM BLDG			360 S.F.	\$60,800	3
ELCB	ELECTRONIC COMM BLDG			200 S.F.	\$33,800	3

### Valuation History

<b>Appraisal</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2016	\$691,400	\$557,400	\$1,248,800
2015	\$691,400	\$557,400	\$1,248,800
2014	\$548,500	\$361,400	\$909,900

<b>Assessment</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2016	\$473,900	\$390,100	\$864,000
2015	\$473,900	\$390,100	\$864,000
2014	\$373,700	\$252,900	\$626,600

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# Exhibit C



MODIFICATION OF EXISTING WIRELESS FACILITY BY



**T-MOBILE NORTHEAST LLC**

**ANCHOR PROJECT**

SITE NUMBER: CT11230A

SITE NAME: NORTH HAVEN/RT 17

SITE ADDRESS: 88 PARSONAGE HILL ROAD

NORTH BRANDFORD, CT 06472

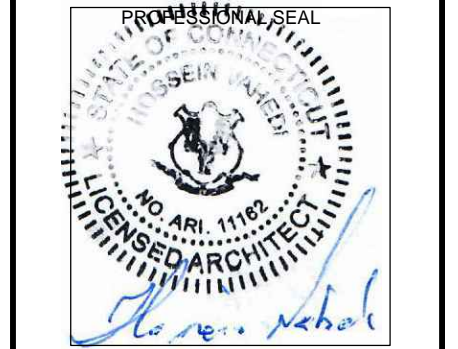
(RF CONFIG: 67D5997DB\_2XAIR+1OP (U21 MARKET)

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

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

**CONSULTANT:**  
  
**FORESITE LLC**  
 Architects . Engineers . Surveyors

462 WALNUT STREET  
 NEWTON, MA 02460  
 617-212-3123



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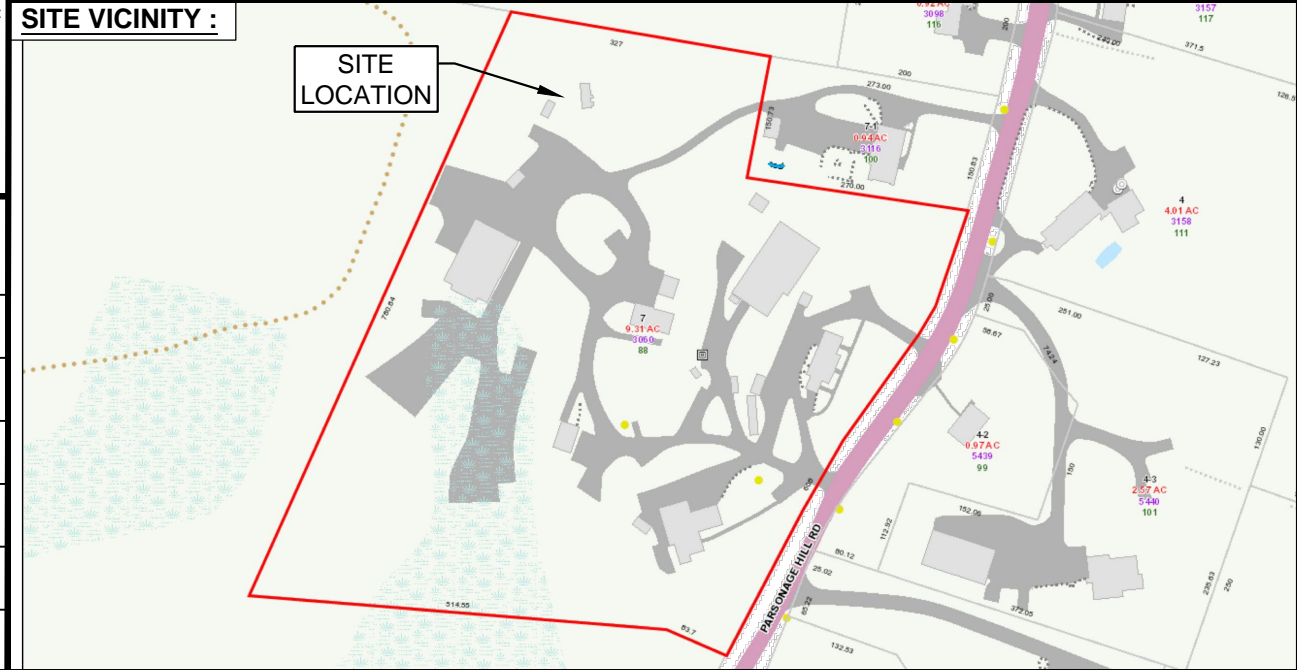
SITE NUMBER: CT11230A  
 SITE NAME: NORTH HAVEN/RT 17  
 SITE ADDRESS: 88 PARSONAGE HILL ROAD  
 NORTH BRANDFORD, CT 06472

SHEET TITLE:  
 T-1: TITLE SHEET

**SITE IMAGE:**



**SITE VICINITY :**



**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.

**STRUCTURAL NOTES:**

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL EVALUATION REPORT AND MOUNT EVALUATION REPORT DATED 09/23/20 PREPARED BY EFI GLOBAL INC. AND ADHERE TO THE REPORT FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.

**CODE COMPLIANCE:**

ALL WORK SHALL COMPLY WITH THE CURRENT NATIONAL AND CONNECTICUT STATE BUILDING AND LIFE SAFETY CODES, SUPPLEMENTS AND AMENDMENTS INCLUDING BUT NOT LIMITED TO THE LATEST EDITION OF:  
 CONNECTICUT STATE BUILDING CODE (CSBC).  
 ANSI/TIA-222-G STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.  
 NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.  
 OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).  
 NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.

**APPROVALS:**

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

**PROJECT SCOPE:**

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:  
 UPGRADE (E) 6131 CABINET INTERNALLY.  
 ADD (1) ENCLOSURE 6160.  
 ADD (1) BATTERY CABINET B160.  
 REPLACE (9) OF (9) EXISTING ANTENNAS.  
 REMOVE EXCESS COAXIAL LINES, ADD (2) 6X12 HCS, FOR FINAL CONFIGURATION OF (6) COAXIAL LINES AND (3) 6X12 HCS.

**PROJECT INFORMATION:**

ADDRESS: 88 PARSONAGE HILL ROAD  
 NORTH BRANDFORD, CT 06472  
 STRUCTURE TYPE: SELF SUPPORT TOWER  
 PARCEL ID: 51A 7  
 USE CODE: 010M  
 ZONING DISTRICT: R40  
 COORDINATES: 41° 22' 09.09" N, 72° 48' 37.64" W  
 AVERAGE GROUND ELEV: 278± (AMSL)

**PROJECT TEAM:**

APPLICANT: T-MOBILE NORTHEAST, LLC.  
 35 GRIFFIN ROAD SOUTH  
 BLOOMFIELD, CT 06002  
 860-692-7100  
 LAND OWNER: OCHENKOWSKI TOWER LLC  
 88 PARSONAGE HILL ROAD  
 NORTHFORD, CT 06472  
 PROJECT MANAGER: NORTHEAST SITE SOLUTIONS  
 420 MAIN STREET, BLDG 4  
 STURBRIDGE, MA 01566  
 SHELDON FREINCLE  
 SHELDON@NORTHEASTSITESOLUTIONS.COM  
 201-776-8521  
 CONSULTANTS: FORESITE LLC  
 462 WALNUT ST  
 NEWTON, MA 02460  
 SAEED MOSSAVAT  
 SMOSSAVAT@FORESITELLC.COM  
 617-212-3123

**SHEET INDEX:**

- T-1: TITLE SHEET
- N-1: GENERAL NOTES
- A-1: SITE PLAN
- A-2: PARTIAL SITE PLAN
- A-3: ELEVATION AND ANTENNA PLANS
- A-4: ANTENNA AND EQUIPMENT SPECIFICATIONS
- A-5: EQUIPMENT SPECIFICATIONS AND CONCRETE PAD DETAILS
- E-1: ELECTRICAL DETAILS DETAILS

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**GENERAL NOTES:**

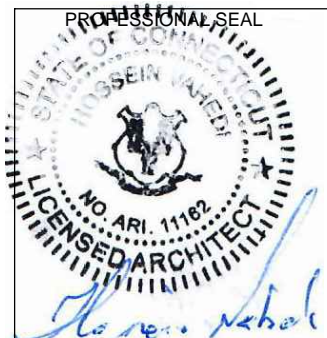
1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER 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 NORTHEAST LLC**  
 35 GRIFFIN ROAD SOUTH  
 BLOOMFIELD, CT 06002  
 860-692-7100

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

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



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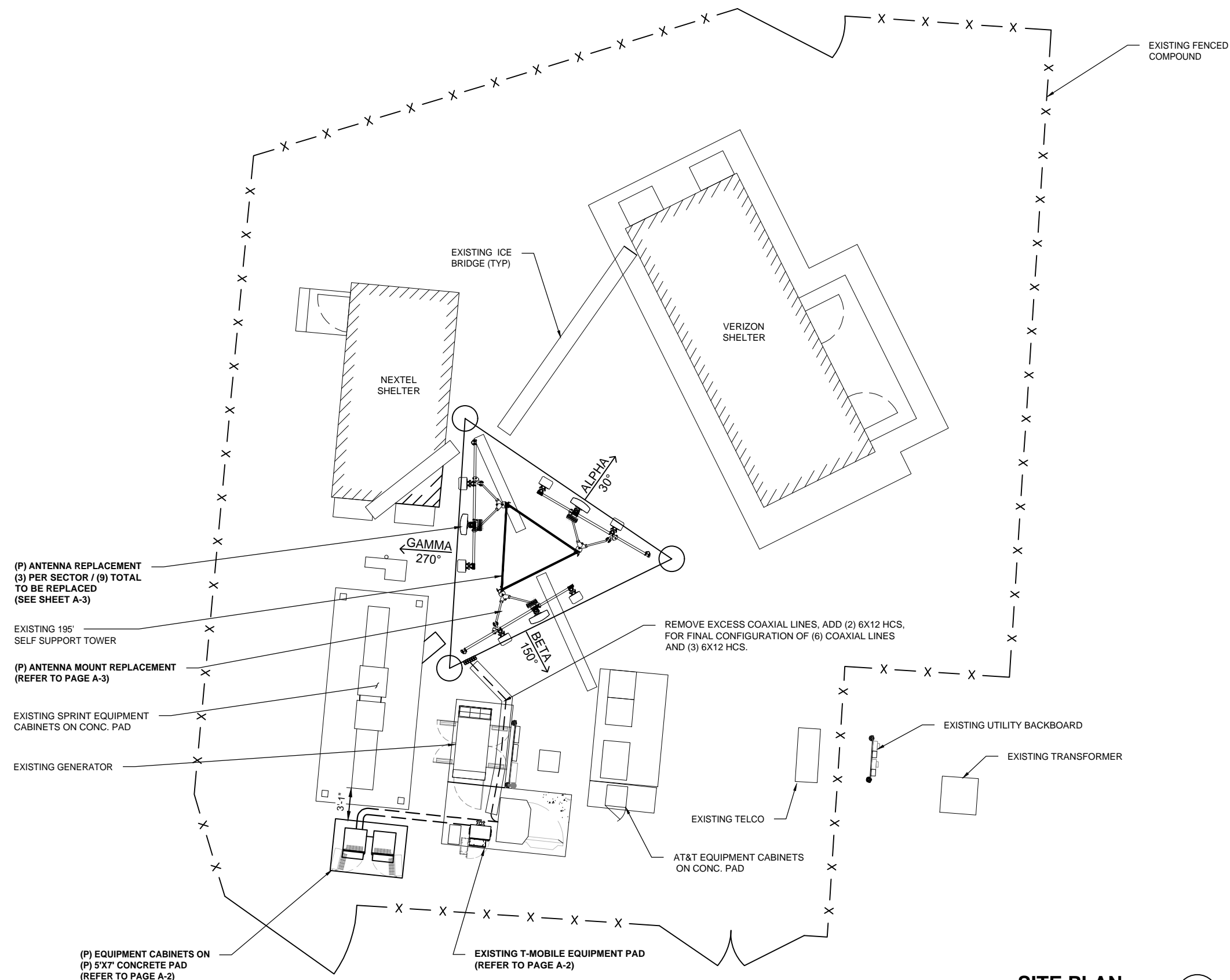
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SITE NUMBER: CT11230A  
 SITE NAME: NORTH HAVEN/RT 17  
 SITE ADDRESS: 88 PARSONAGE HILL ROAD  
 NORTH BRANDFORD, CT 06472

SHEET TITLE:  
**N-1: GENERAL NOTES**



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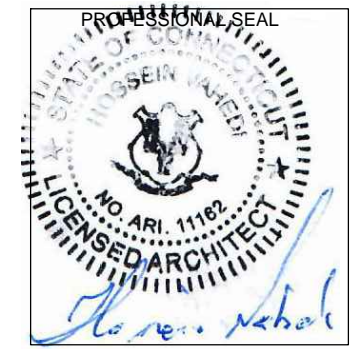


**SITE PLAN**  
 SCALE: 3/32" = 1'-0" 1  
A-1

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

**PROJECT MANAGER**  
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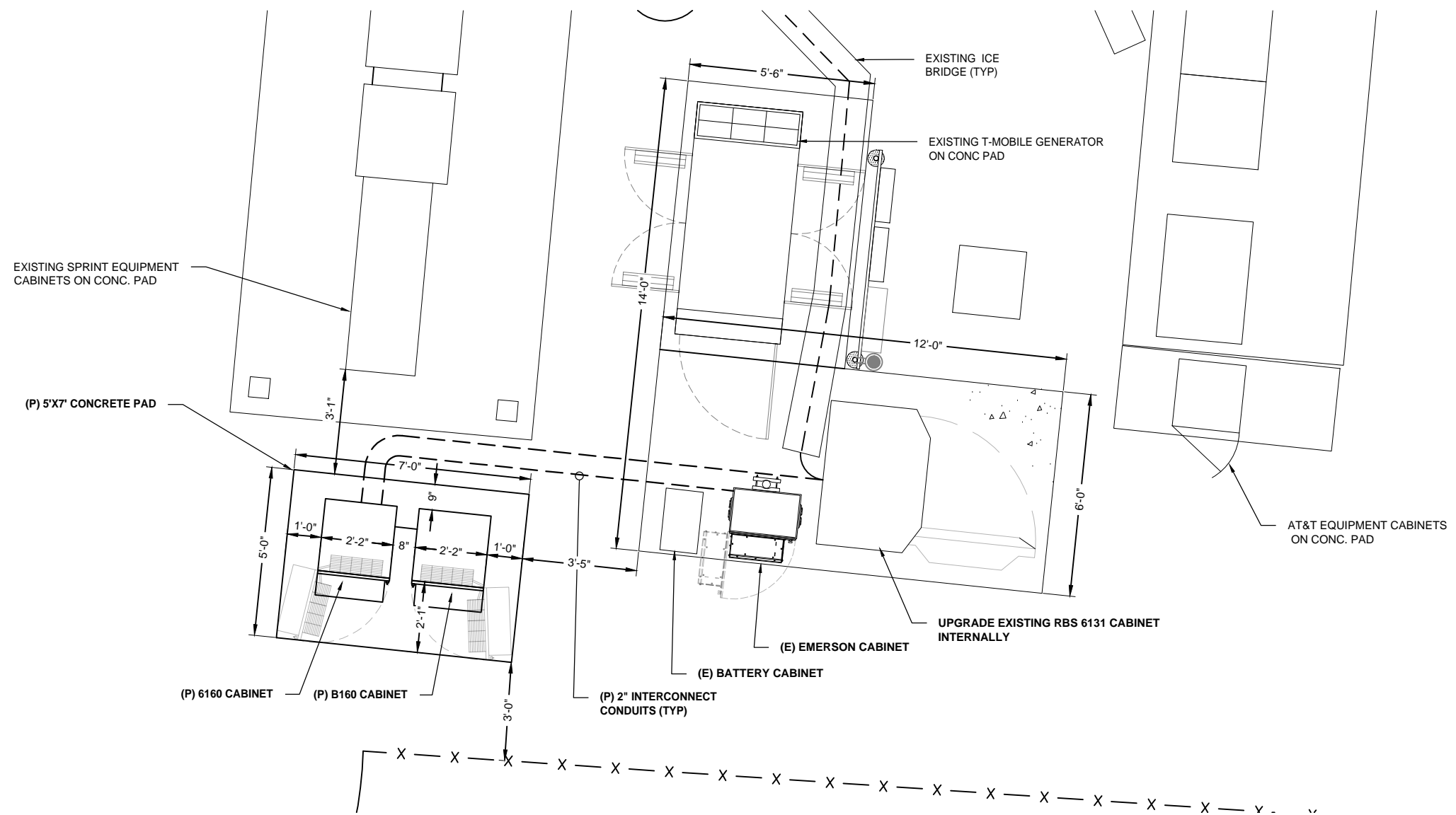
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 A-1: SITE PLAN

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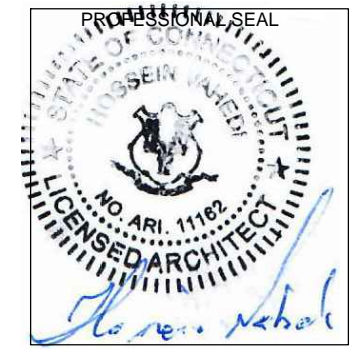


**PARTIAL SITE PLAN** 1  
**SCALE: 1/4" = 1'-0"** A-2

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

**PROJECT MANAGER**  
 **NSS NORTHEAST**  
 SITE SOLUTIONS  
*Turnkey Wireless Development*  
 420 MAIN STREET, BLDG 4  
 STURBRIDGE, MA 01566  
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**CONSULTANT:**  
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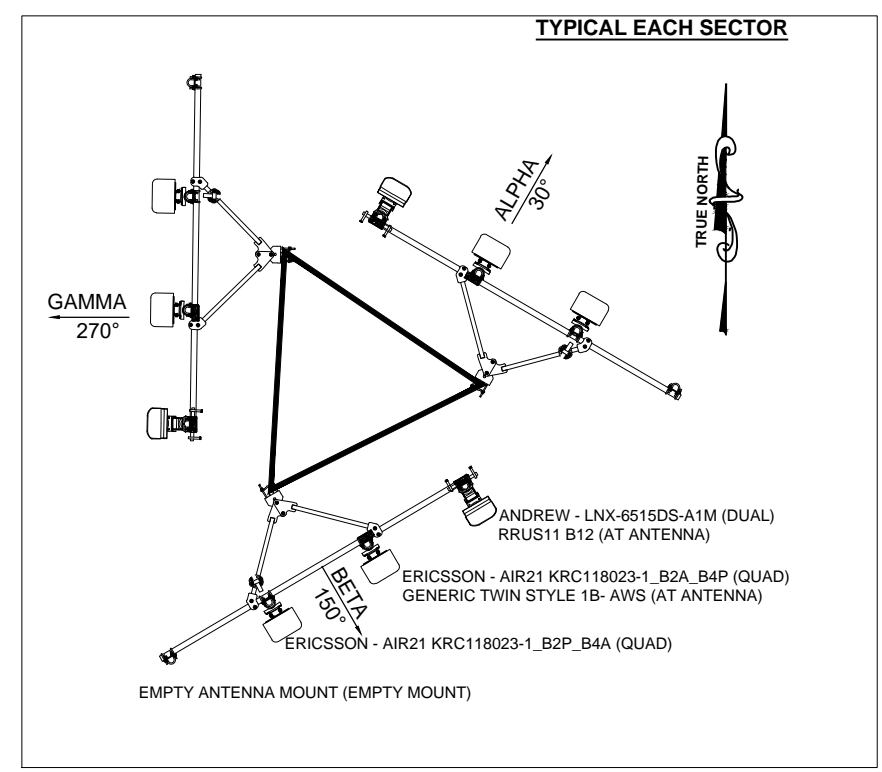
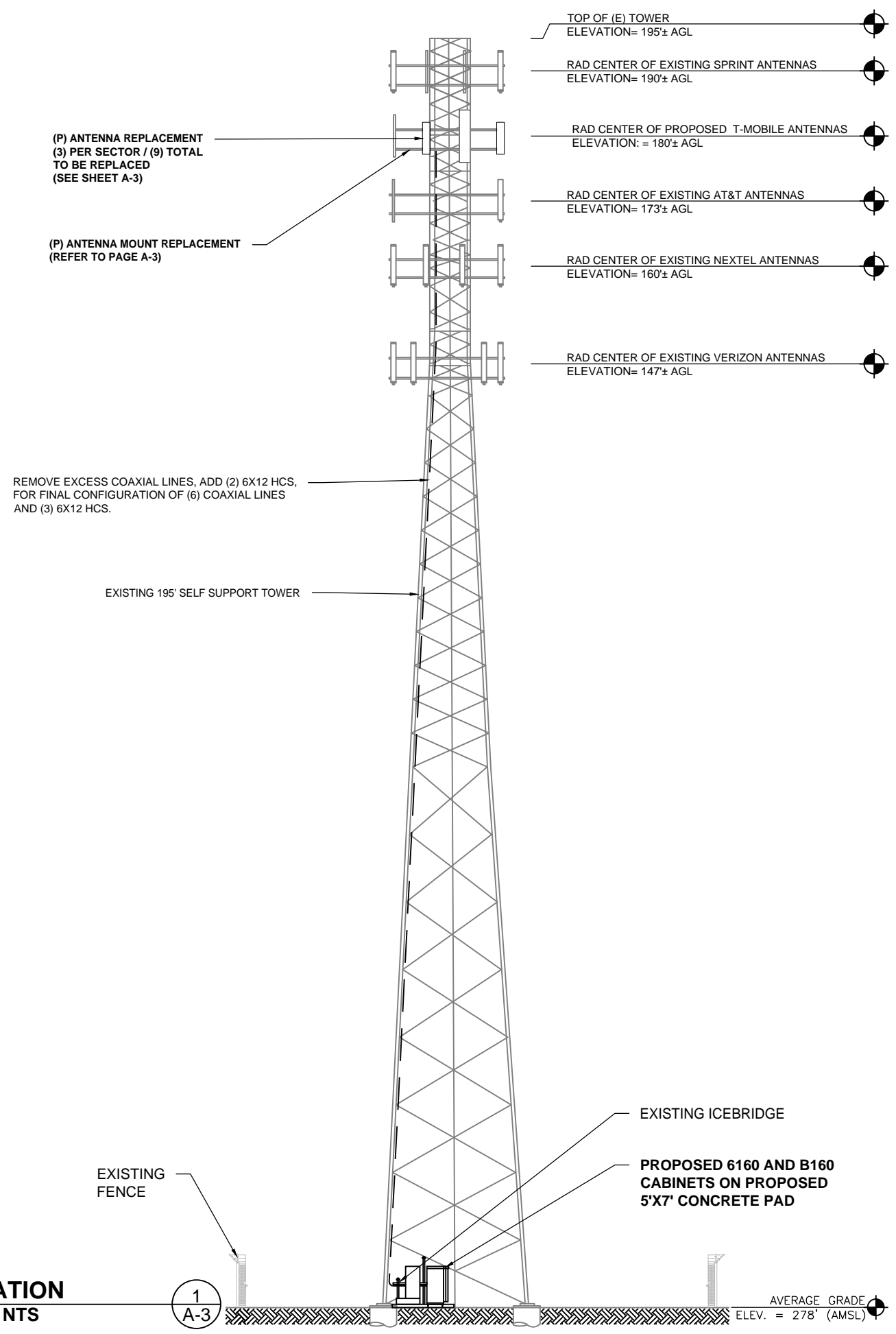
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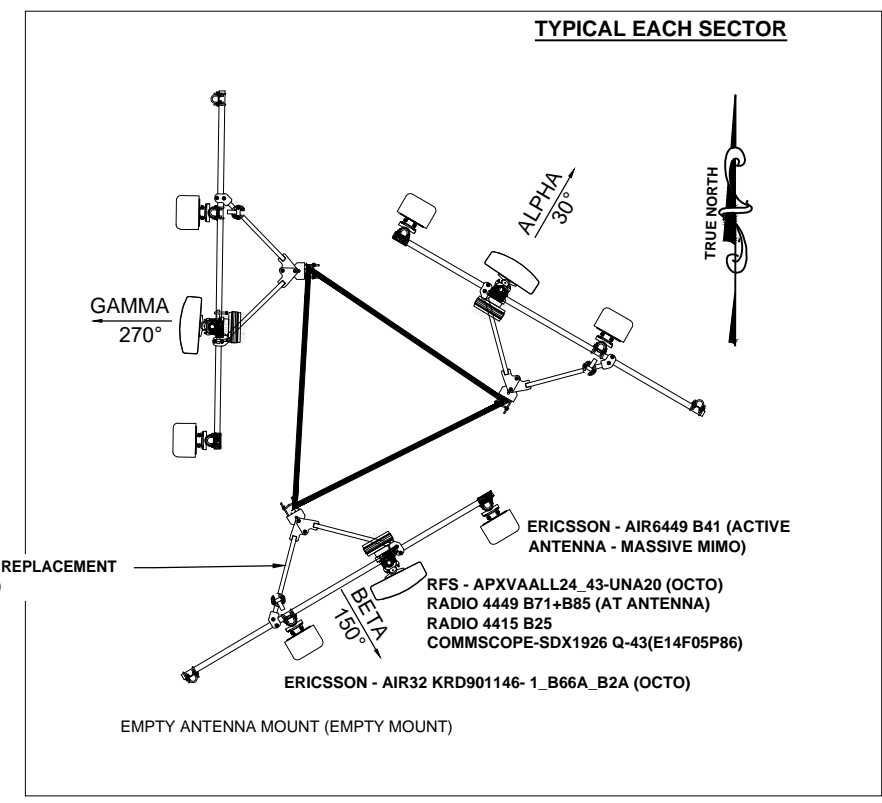
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 NORTH BRANDFORD, CT 06472

SHEET TITLE:  
**A-2: PARTIAL SITE PLAN**

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**EXISTING ANTENNA PLAN** **2**  
N.T.S. **A-3**

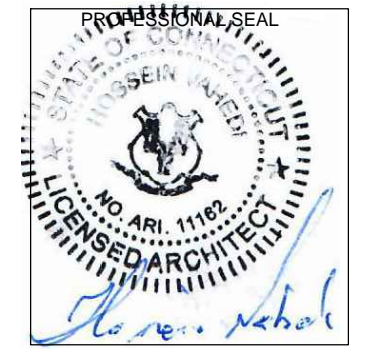


**FINAL ANTENNA PLAN** **3**  
N.T.S. **A-3**

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

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

**CONSULTANT:**  
**FORESITE** LLC  
Architects . Engineers . Surveyors  
462 WALNUT STREET  
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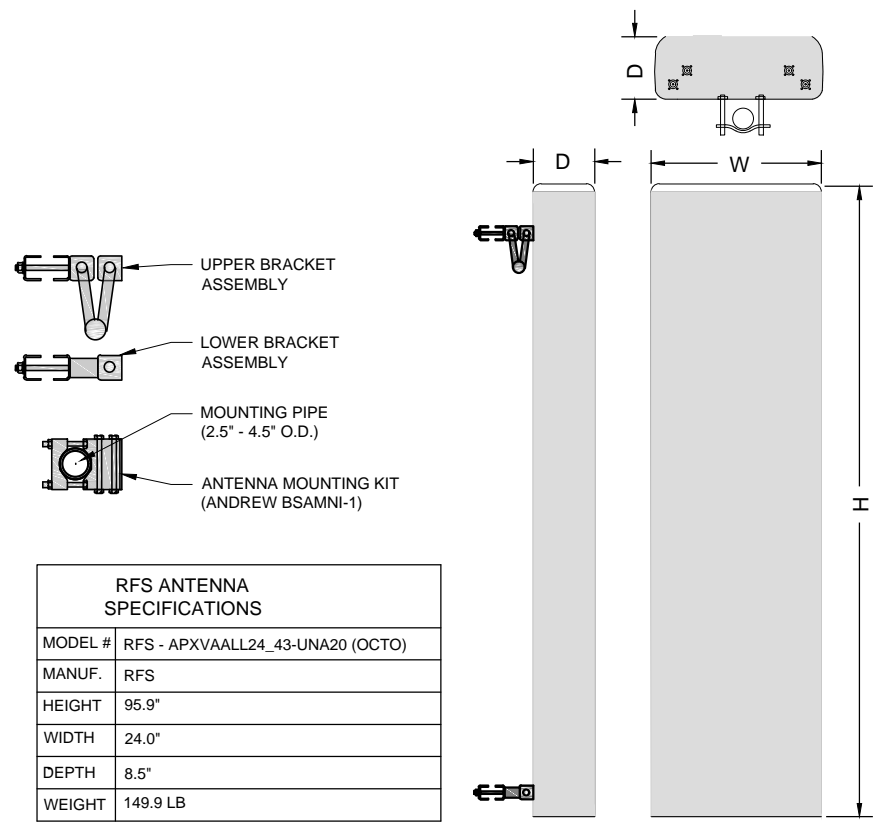
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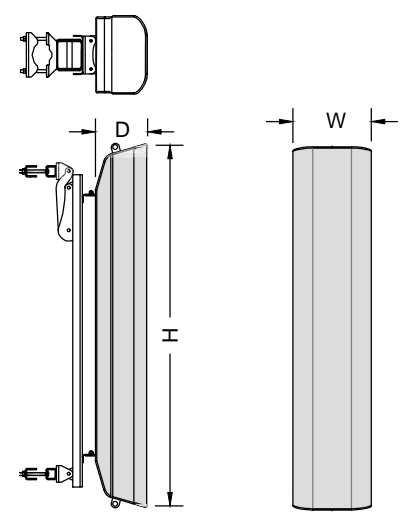
**SHEET TITLE:**  
**A-3: ELEVATION AND**  
**ANTENNA PLANS**

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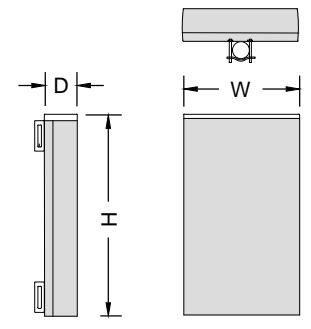
RFS ANTENNA SPECIFICATIONS	
MODEL #	RFS - APXVAALL24_43-UNA20 (OCTO)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.5"
WEIGHT	149.9 LB

**RFS APX ANTENNA**  
N.T.S. 1  
A-4



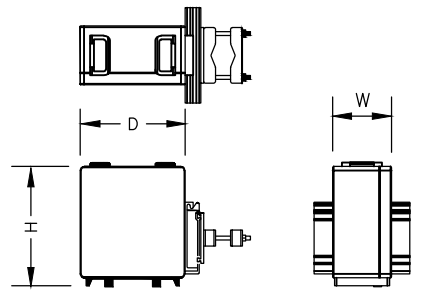
ERICSSON ANTENNA SPECIFICATIONS	
MODEL #	AIR32 KRD901146-1 B66A_B2A
MANUF.	ERICSSON
HEIGHT	56.6"
WIDTH	12.9"
DEPTH	8.7"
WEIGHT	132.2 LB

**AIR32 ANTENNA**  
N.T.S. 2  
A-4



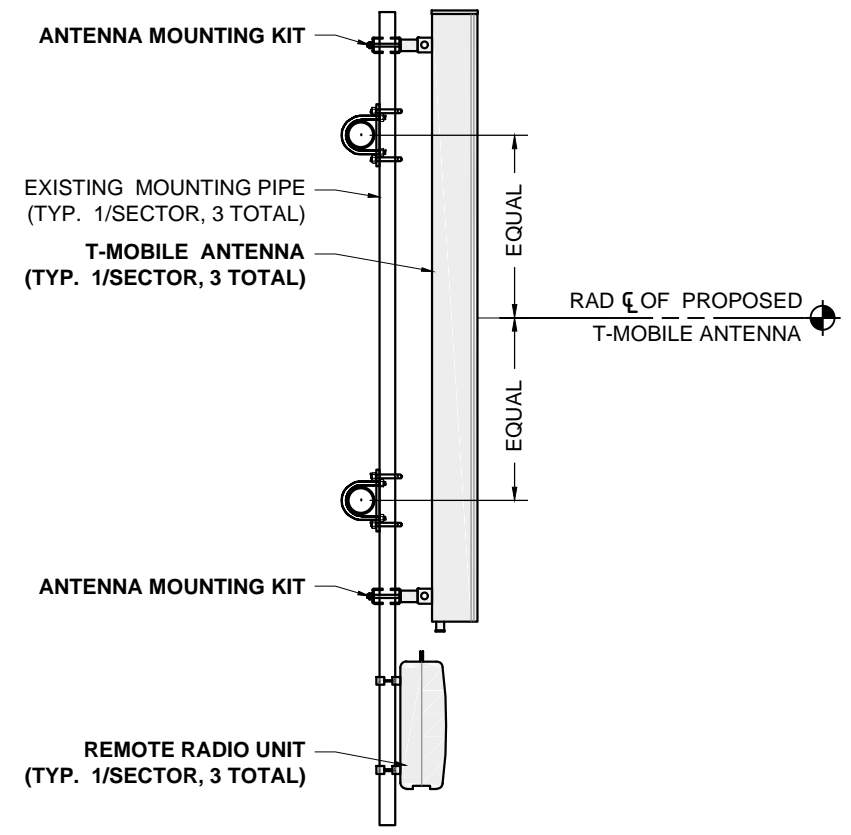
ERICSON ANTENNA SPECIFICATIONS	
MODEL #	AIR6449 B41
MANUF.	ERICSSON
HEIGHT	33.1"
WIDTH	20.5"
DEPTH	8.3"
WEIGHT	103 LB

**ERICSSON ANTENNA**  
N.T.S. 4  
A-4



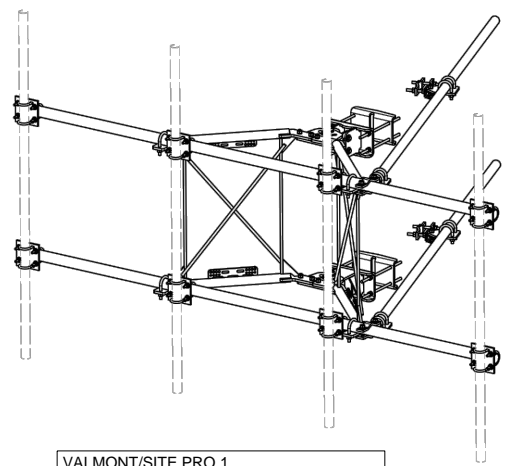
REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4415 B25
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LB

**REMOTE RADIO UNIT**  
N.T.S. 5  
A-4



**SPECIAL WORK NOTE:**  
VERTICALLY CENTER THE PIPE MAST AND THE PROPOSED ANTENNAS BETWEEN THE EXISTING PLATFORM AND HANDRAIL

**ANTENNA MOUNT**  
N.T.S. 3  
A-4



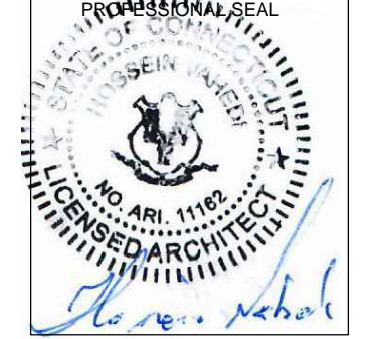
VALMONT/SITE PRO 1  
12'-6" HEAVY DUTY V-FRAME ASSEMBLY  
WITH TWO STIFF ARMS (P/N: VFA12-HD)

**ANTENNA MOUNT REPLACEMENT**  
N.T.S. 6  
A-4

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

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

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



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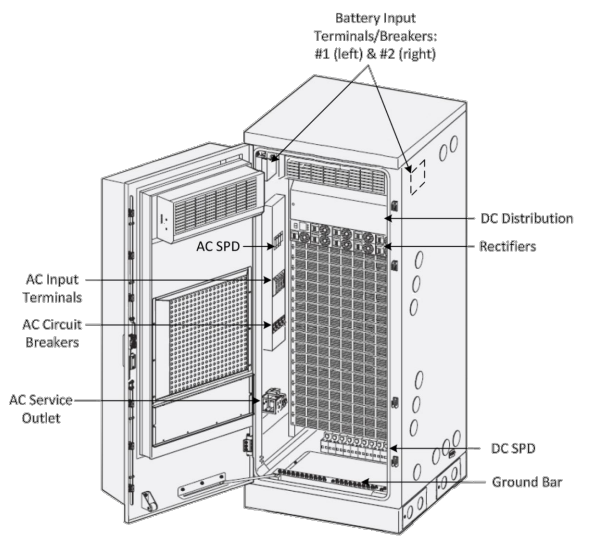
REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20

SITE NUMBER: CT11230A  
SITE NAME: NORTH HAVEN/RT 17  
SITE ADDRESS: 88 PARSONAGE HILL ROAD  
NORTH BRANDFORD, CT 06472

**SHEET TITLE:**  
A-4: ANTENNA SPECIFICATIONS AND ANTENNA PLANS

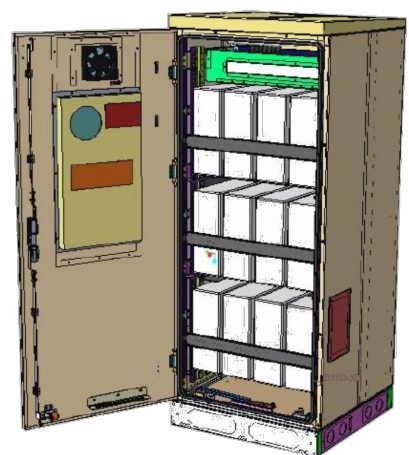


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SITE SUPPORT CABINET SPECIFICATIONS	
MODEL #	6160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	25.6"
DEPTH	33.5"
WEIGHT	605 lbs

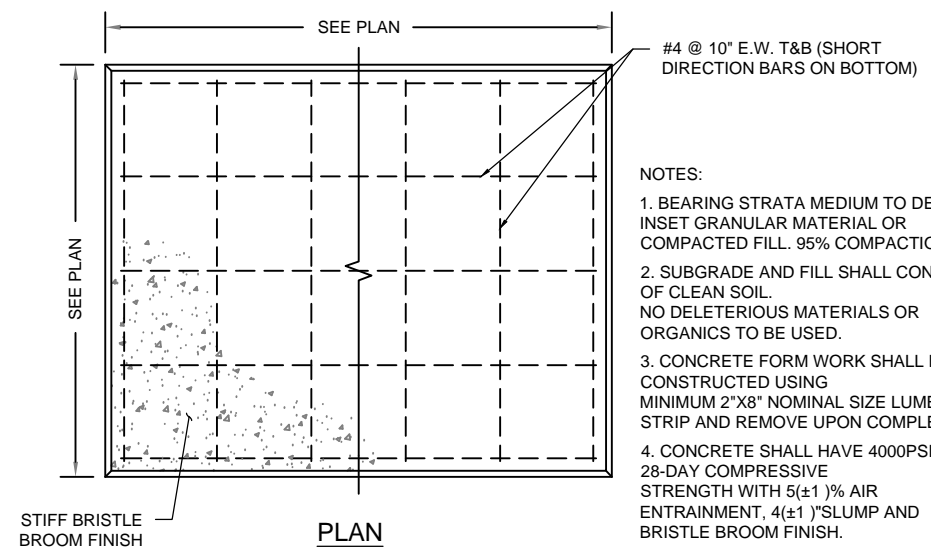
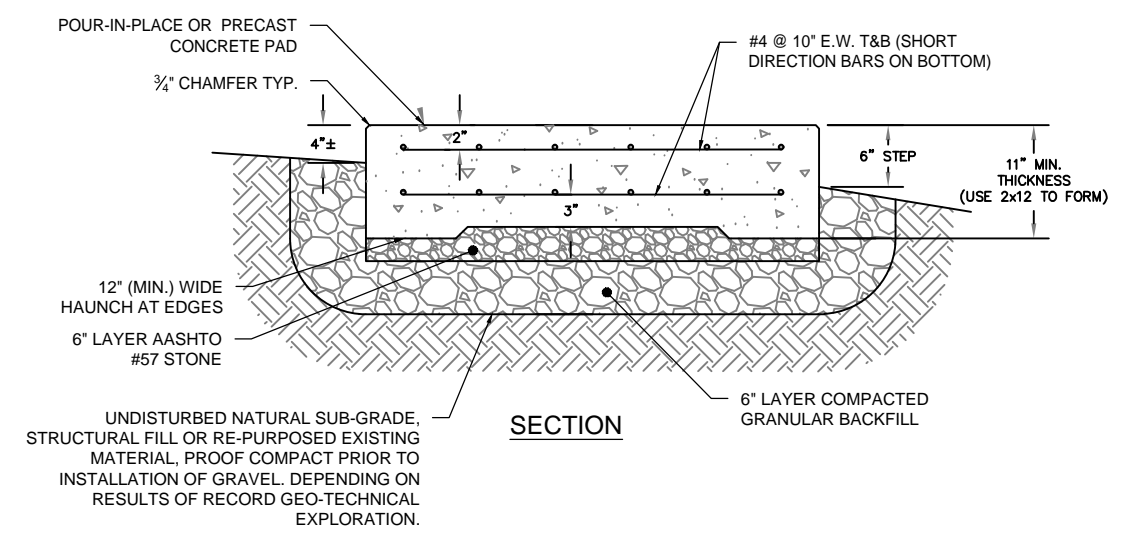
**SITE SUPPORT CABINET** 4  
N.T.S. A-5



BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	1883 lbs

**BATTERY CABINET** 5  
N.T.S. A-5

**CONSTRUCTION NOTES:**  
 - (HAND-DUG UTILITY TRENCH EXCAVATION REQUIRED):  
 - EXISTING UNDERGROUND UTILITY LOCATIONS ARE UNKNOWN. GENERAL CONTRACTOR SHALL HAND-EXCAVATE TO REQUIRED SUB-GRADE DEPTH, SUFFICIENT TEST HOLES. ALL PROPOSED UNDERGROUND UTILITY TRENCHES SHALL BE HAND-EXCAVATE AS REQUIRED.  
 - GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED SPECIAL TEMPORARY PROTECTION OF, PHYSICAL DAMAGE TO, OR REPAIR OF EXISTING UNDERGROUND CONDUIT INCLUDING RESTORATION OF SERVICE.



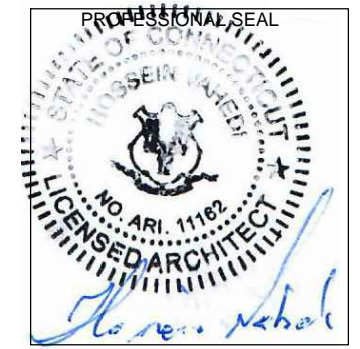
- NOTES:**
1. BEARING STRATA MEDIUM TO DENSE INSET GRANULAR MATERIAL OR COMPACTED FILL. 95% COMPACTION.
  2. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL. NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
  3. CONCRETE FORM WORK SHALL BE CONSTRUCTED USING MINIMUM 2"x8" NOMINAL SIZE LUMBER. STRIP AND REMOVE UPON COMPLETION.
  4. CONCRETE SHALL HAVE 4000PSI 28-DAY COMPRESSIVE STRENGTH WITH 5(±1)% AIR ENTRAINMENT. 4(±1)" SLUMP AND BRISTLE BROOM FINISH.

**BATTERY CABINET** 5  
N.T.S. A-5

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

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

**CONSULTANT:**  
**FORESITE** LLC  
 Architects . Engineers . Surveyors  
 462 WALNUT STREET  
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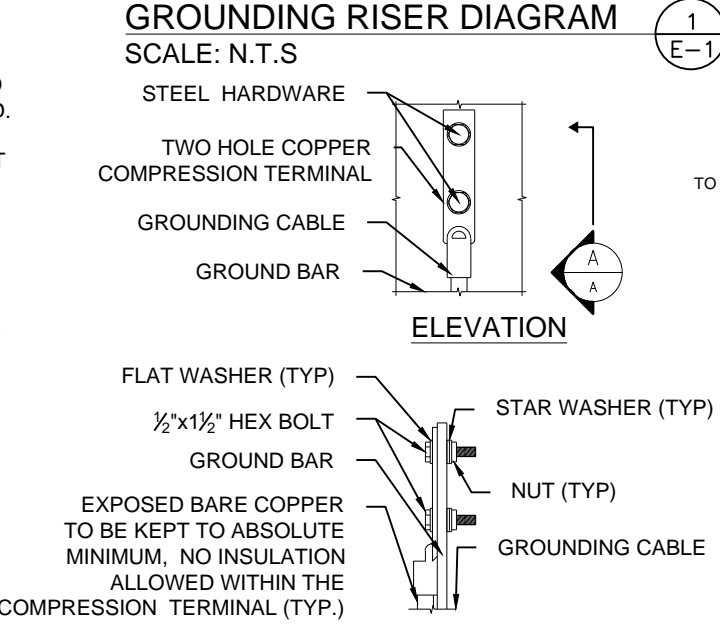
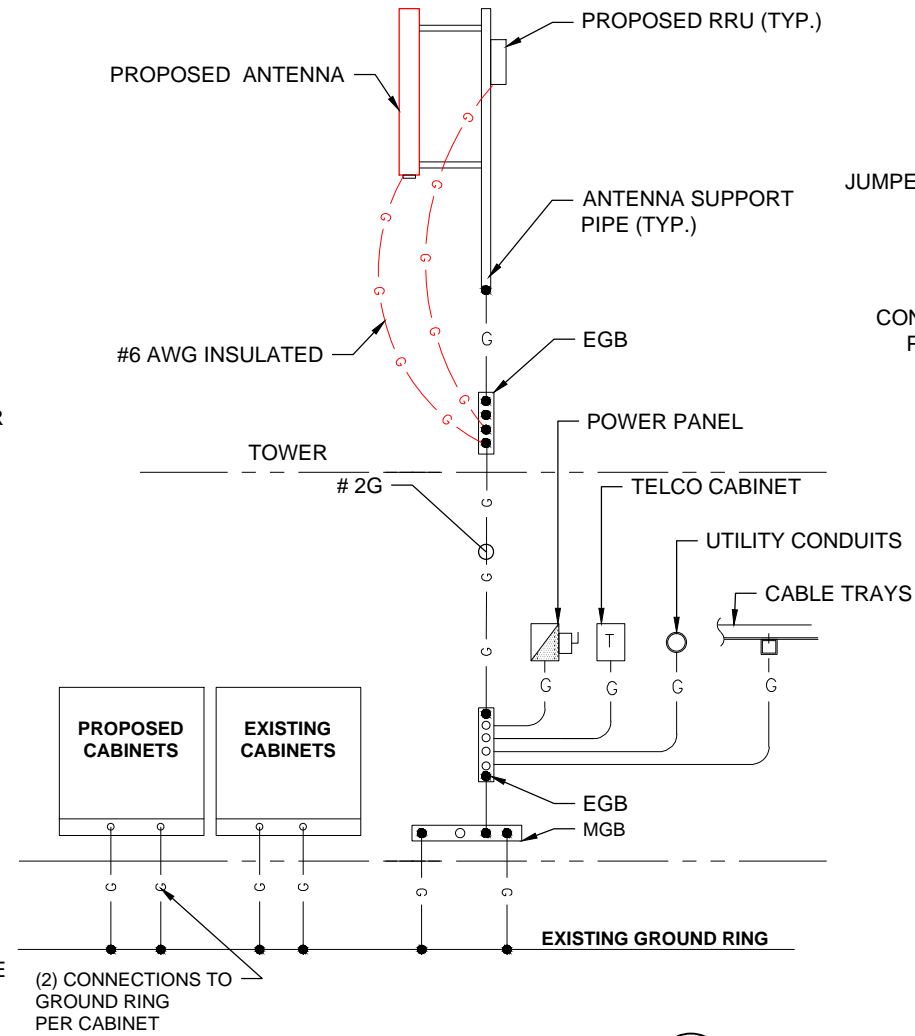
SITE NUMBER: CT11230A  
 SITE NAME: NORTH HAVEN/RT 17  
 SITE ADDRESS: 88 PARSONAGE HILL ROAD  
 NORTH BRANDFORD, CT 06472

SHEET TITLE:  
 A-5: EQUIPMENT SPECIFICATIONS AND CONCRETE PAD DETAILS

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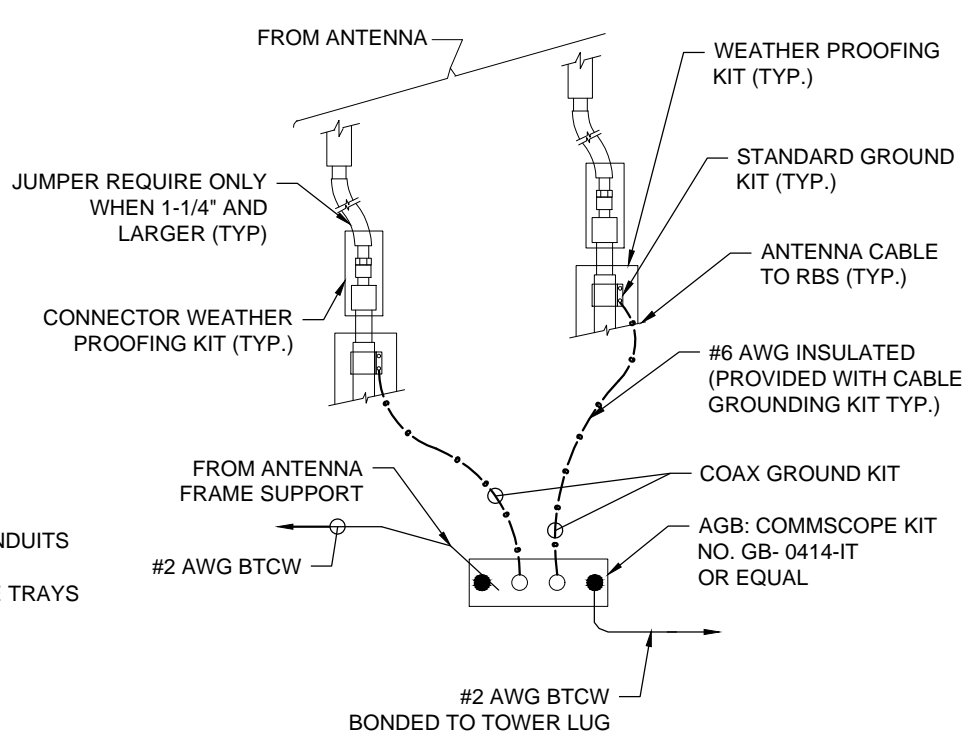
**ELECTRICAL & GROUNDING NOTES**

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PRODUCED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLING BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE ARE PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELECOM CABINET AND RBS CABINET AS INDICATED ON DRAWING A -1. PROVIDE FULL LENGTH PULL ROPE INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NAME 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUNDING COAX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURES COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSTALLATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE GROUND.
14. ALL GROUND CONNECTION TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AS RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY BOND ANY METER OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PROCEDURES (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN RBS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL CONNECTIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTION.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.



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

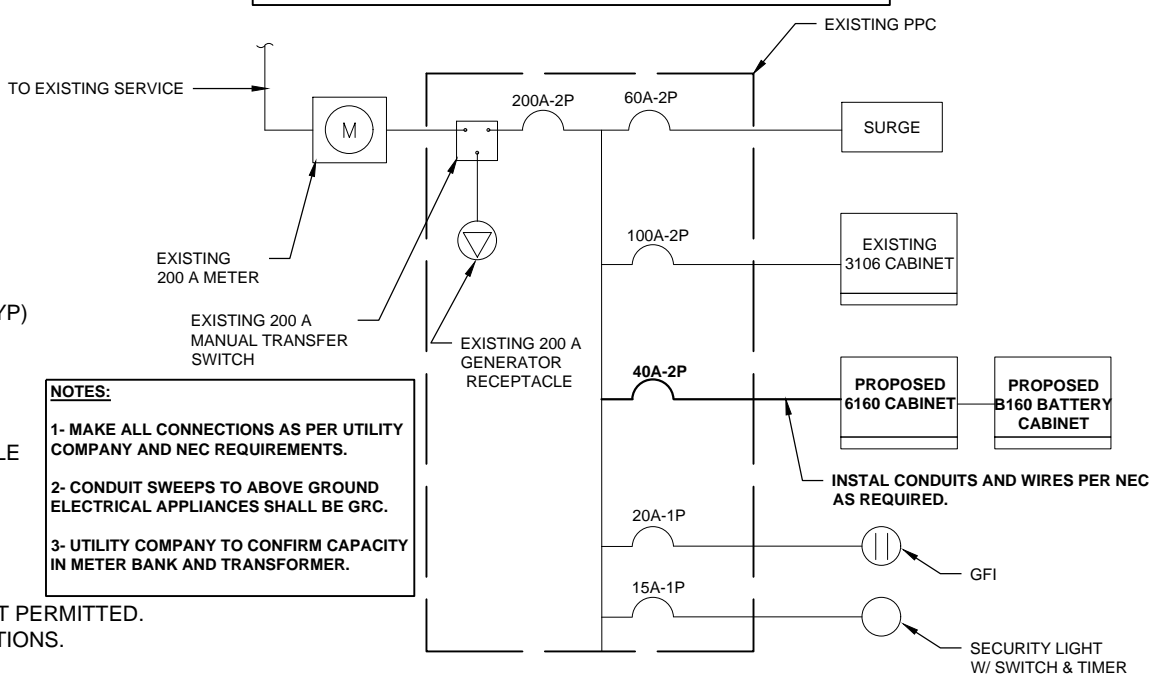
**TYPICAL GROUND BAR CONNECTIONS DETAIL**  
SCALE: N.T.S.



**NOTES:**  
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB

**TOWER TOP CABLE GROUNDING DETAIL**  
SCALE: N.T.S.

**SPECIAL CONTRACTOR NOTES:**  
CONTRACTOR TO VERIFY THE POWER FEED & PHASE OF METER BANK AND THAT THE EXISTING AND PROPOSED CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.



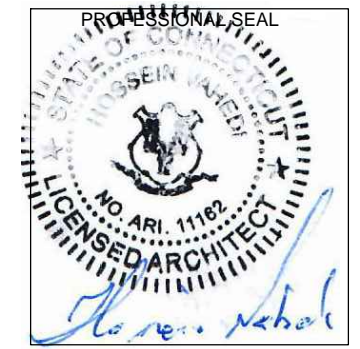
- NOTES:**
- 1- MAKE ALL CONNECTIONS AS PER UTILITY COMPANY AND NEC REQUIREMENTS.
  - 2- CONDUIT SWEEPS TO ABOVE GROUND ELECTRICAL APPLIANCES SHALL BE GRC.
  - 3- UTILITY COMPANY TO CONFIRM CAPACITY IN METER BANK AND TRANSFORMER.

**ONE LINE DIAGRAM**  
N.T.S.

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

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

**CONSULTANT:**  
**FORESITE** LLC  
Architects . Engineers . Surveyors  
462 WALNUT STREET  
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617-212-3123



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SITE NUMBER: CT11230A  
SITE NAME: NORTH HAVEN/RT 17  
SITE ADDRESS: 88 PARSONAGE HILL ROAD  
NORTH BRANDFORD, CT 06472

SHEET TITLE:  
E-1: GROUNDING DETAILS

# Exhibit D



**STRUCTURAL ANALYSIS REPORT  
SELF-SUPPORT TOWER**



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



**Structure Rating:**

<b>Tower:</b>	<b>Pass (67.4%)</b>
<b>Anchor Bolts:</b>	<b>Pass (57.3%)</b>
<b>Base Foundation:</b>	<b>Pass (49.6%)</b>

Sincerely,  
EFI Global, Inc.



Ahmet Colakoglu, PE  
Connecticut Professional Engineer  
License No: 27057

**Site ID: CT11230A**  
**Site Name: North Haven / Rt17**  
**88 Parsonage Hill Road**  
**North Branford, CT 06472**



**CONTENTS**

1.0 - SUBJECT AND REFERENCES

1.1 - STRUCTURE

2.0 - EXISTING AND PROPOSED APPURTENANCES

3.0 - CODES AND LOADING

4.0 - STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING  
STRUCTURES

5.0 - ANALYSIS AND ASSUMPTIONS

6.0 - RESULTS AND CONCLUSION

APPENDICES

A - SOFTWARE OUTPUT

**1.0 SUBJECT AND REFERENCES**

The purpose of this analysis is to evaluate the structural capacity of a 195 ft. tall self-support tower located at 88 Parsonage Hill Road, North Branford, CT 06472 for the additions and alterations proposed by T-Mobile.

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

- Structural Analysis Report prepared by Destek Engineering, dated 07/16/2019.
- Mount Structural Analysis Report prepared by EFI Global, Inc., dated 09/23/2020.
- RFDS prepared by T-Mobile, dated 08/24/2020.
- Construction Drawings prepared by Atlantis Group, dated 09/04/2014.
- SST Tower Mapping Form prepared by ProVertic.
- Site Photos dated 04/15/2019.

**1.1 STRUCTURE**

The subject structure is a 3-sided, 195'-0" tall self-support tower formed by nine 20'-0" sections and one 15'-0" section. Solid rod legs are X-braced at all sections with single angle diagonals. The tower is 5' wide at the top and 23.5' wide at the base, with a slope change at 175'-0" level. The tower is supported on a mat foundation. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

**2.0 EXISTING AND PROPOSED APPURTENANCES**

T-Mobile is proposing the following appurtenance changes on the tower:

**Existing Configuration of T-Mobile Appurtenances:**

<b>Rad Center (ft.)</b>	<b>Antennas &amp; Equipment</b>	<b>Coax</b>	<b>Mounts</b>
180	(3) Andrew LNX-6515DS-A1M – Antennas (3) Ericsson AIR21 B2A B4P – Antennas (3) Ericsson AIR21 B2P B4A – Antennas (3) RRUS11 B12 – RRUs (3) Generic Twin Style 1B AWS – TMAs	(12) 1-5/8" (1) 6x12 HCS	(3) Sector Mounts

**Proposed & Final Configuration of T-Mobile Appurtenances:**

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
180	(3) Ericsson AIR 6449 B41 – Antennas (3) RFS APXVAALL24_43-U-NA20 – Antennas (3) Ericsson AIR 32 B2A/B66A – Antennas (3) Radio 4449 B71+B85 – RRUs* (3) Radio 4415 B25 – RRUs* (3) Commscope SDX1923Q-43 – Diplexers* (3) Generic Twin Style 1B AWS – TMAs*	(6) 1-5/8" (3) 6x12 HCS	(3) Valmont/ SitePro1 Sector Mounts (P/N:VFA12-HD)

**\*To be mounted behind antennas.**

**Existing Appurtenances by Others:**

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
190 Sprint	(3) APXVSP18-C-A20 (3) APXVTM14-C-12 (3) RRH 2x50 800Mhz (3) RRH 8x20-25 2500Mhz	(3) Hybrid cables (4) RET Cables	(3) 20' Triangular Mount
173 AT&T	(3) Kathrein 800-10121 (6) Kathrein 800-10965 (6) Powerwave LGP21401 (3) Ericsson Radio B14 4478 (3) Ericsson RRUS B5/B12 4449 (3) Ericsson RRUS-32 (3) Ericsson RRUS-12 (3) Raycap DC6-48-60-18-8C	(6) 1-5/8" (2) Fiber Cable (6) DC Cables	(3) T-Frame Sector Mounts
160 Nextel	-	-	(3) Sector Mounts
147 Verizon	(3) BXA17106312CFEDIN5 (3) BXA171085/8BFEDIN2 (3) BXA70063/6CFEDIN2 (3) LNX-6513DS-VTM (3) 9442 RRH2x40-AWS (1) RC2DC-3315-PF-48 (3) RFS Diplexers	(12) 1-5/8" (1) 1-1/2"	(3) Sector Mounts
80	(2) GPS	(2) 1/2"	(2) 2' Stand Off

### 3.0 CODES AND LOADING

This analysis has been performed in accordance with the 2018 Connecticut State Building Code (2015 IBC), based upon an ultimate wind speed of 125 mph (Risk Category II) converted to a nominal 3-second gust wind speed of 97 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. The following loading criteria were used in the analysis:

- Basic wind speed 97 mph without ice ( $V$ )
- Basic wind speed 50 mph concurrent with design ice thickness of 0.75" ( $V_i$  and  $t_i$ )
- Exposure Category C, Risk Category II
- Topographic Category 1,  $K_{zt} = 1.00$

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

- $1.2 D + 1.6 W_o$
- $0.9 D + 1.6 W_o$
- $1.2 D + 1.0 D_i + 1.0 W_i + 1.0 T_i$

D: Dead load of structures and appurtenances

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

$T_i$ : Load effects due to temperature

$W_o$ : Wind load without ice (based upon  $V$ )

$W_i$ : Wind load with ice (based upon  $V_i$ )

#### **4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES**

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

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

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

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

#### **5.0 ANALYSIS AND ASSUMPTIONS**

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

## 6.0 **RESULTS AND CONCLUSION**

Based on an analysis per ANSI/TIA-222-G, the existing tower is found to have **adequate** structural capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, tower diagonal bolts between 40 feet and 55 feet are stressed to **67.4%** of their structural capacity. The tower legs, diagonals and anchor bolts are stressed to **56.9%, 66.9% and 57.3%** of their structural capacity, respectively.

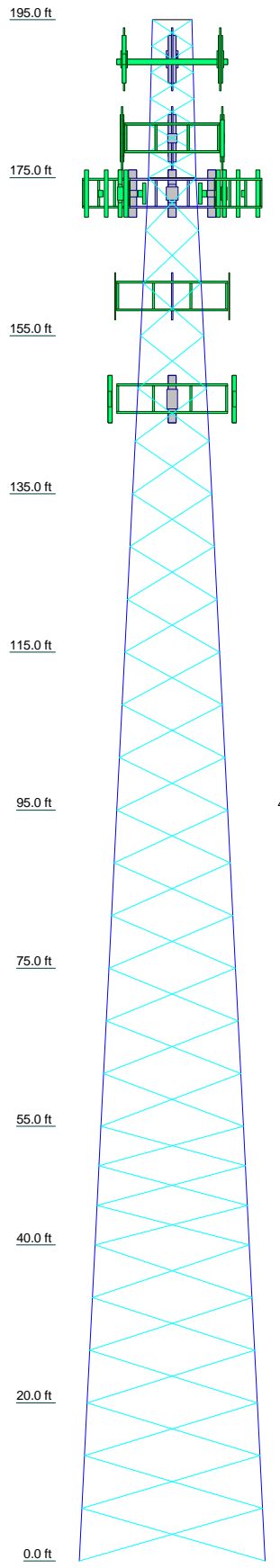
The existing tower foundation has **adequate** capacity for the proposed loading by T-Mobile. For the code specified load combinations and as a maximum, the tower foundation is stressed to **49.6%** of its structural capacity.

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

Should you have any questions about this report, please contact EFI at [telecom@efiglobal.com](mailto:telecom@efiglobal.com).

**APPENDIX A**  
**SOFTWARE OUTPUT**

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	5
Legs	SR 3	SR 3 3/4	SR 4	SR 4 1/4	SR 4 1/4	SR 4 1/2	SR 4 3/4	SR 4 3/4	SR 5	SR 5	5
Leg Grade						A529-50					
Diagonals	SR 1 1/4	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x5/16	L3x3x1/4	L3x3x3/8	L3 1/2x3 1/2x5/16	L4x4x1/4	L4x4x5/16	L4x4x3/8	L4x4x1/4	
Diagonal Grade					A36						
Top Girts	SR 1 1/4				N.A.						
Bottom Girts	SR 1 1/4				N.A.						
Face Width (ft)	23.5								21.5		
# Panels @ (ft)	6 @ 3.33333								6 @ 6.66667		
Weight (K)	2.7	2.9	3.8	4.2	5.0	5.6	6.1	7.1	8.5		



### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSP18-C-A20 w/ Mount Pipe	190	(2) 80010965 w/ Mount Pipe	173
APXVSP18-C-A20 w/ Mount Pipe	190	(2) LGP21401	173
APXVSP18-C-A20 w/ Mount Pipe	190	(2) LGP21401	173
APXVTM14-C-120 w/ Mount Pipe	190	(2) LGP21401	173
APXVTM14-C-120 w/ Mount Pipe	190	RRUS 4478 B14	173
APXVTM14-C-120 w/ Mount Pipe	190	RRUS 4478 B14	173
RRH2X50-800	190	RRUS 4478 B14	173
RRH2X50-800	190	RRUS 4449 B5/B12	173
RRH2X50-800	190	RRUS 4449 B5/B12	173
TD-RRH8x20-25	190	RRUS 4449 B5/B12	173
TD-RRH8x20-25	190	RRUS 32	173
TD-RRH8x20-25	190	RRUS 32	173
(2) 8'-P2x0.203	190	RRUS 32	173
(2) 8'-P2x0.203	190	RRUS 12	173
(2) 8'-P2x0.203	190	RRUS 12	173
Platform Mount [LP 1101-1]	190	RRUS 12	173
AIR 6449 B41	180	DC6-48-60-18-8C	173
AIR 6449 B41	180	DC6-48-60-18-8C	173
AIR 6449 B41	180	DC6-48-60-18-8C	173
APXVAALL24_43-U-NA20	180	Sector Mount [SM 409-3]	173
APXVAALL24_43-U-NA20	180	Sector Mount [SM 410-3]	160
APXVAALL24_43-U-NA20	180	(4) 6'-P2x0.154	160
AIR 32 B2a/B66Aa	180	(4) 6'-P2x0.154	160
AIR 32 B2a/B66Aa	180	(4) 6'-P2x0.154	160
AIR 32 B2a/B66Aa	180	BXA-171063-12CF-EDIN-X w/ Mount Pipe	147
RADIO 4449 B71+ B85	180	BXA-171063-12CF-EDIN-X w/ Mount Pipe	147
RADIO 4449 B71+ B85	180	BXA-171063-12CF-EDIN-X w/ Mount Pipe	147
RRUS 4415 B25	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
RRUS 4415 B25	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
RRUS 4415 B25	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
SDX1926Q-43	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
SDX1926Q-43	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
SDX1926Q-43	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
TMA	180	BXA-70063/6CF-EDIN w/ Mount Pipe	147
TMA	180	BXA-70063/6CF-EDIN w/ Mount Pipe	147
TMA	180	BXA-70063/6CF-EDIN w/ Mount Pipe	147
(4) 8'-P2x0.203	180	BXA-70063/6CF-EDIN w/ Mount Pipe	147
(4) 8'-P2x0.203	180	LNx-6513DS-VTM w/ Mount Pipe	147
(4) 8'-P2x0.203	180	LNx-6513DS-VTM w/ Mount Pipe	147
12.5'-P2x0.154 H	180	LNx-6513DS-VTM w/ Mount Pipe	147
12.5'-P2x0.154 H	180	9442 RRH2X40-AWS	147
12.5'-P2x0.154 H	180	9442 RRH2X40-AWS	147
Pipe Mount [PM 601-3]	180	9442 RRH2X40-AWS	147
Sector Mount [SM 502-3]	180	RFS Diplexers	147
800 10121 w/ Mount Pipe	173	RFS Diplexers	147
800 10121 w/ Mount Pipe	173	RFS Diplexers	147
800 10121 w/ Mount Pipe	173	RC2DC-3315-PF-48	147
(2) 80010965 w/ Mount Pipe	173	Sector Mount [SM 410-3]	147
(2) 80010965 w/ Mount Pipe	173		

ALL RE  
ARE FA  
MAX. C  
DOV  
SHE

### MATERIAL STRENGTH

UPL	GRADE	Fy	Fu	GRADE	Fy	Fu
SHE	A529-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

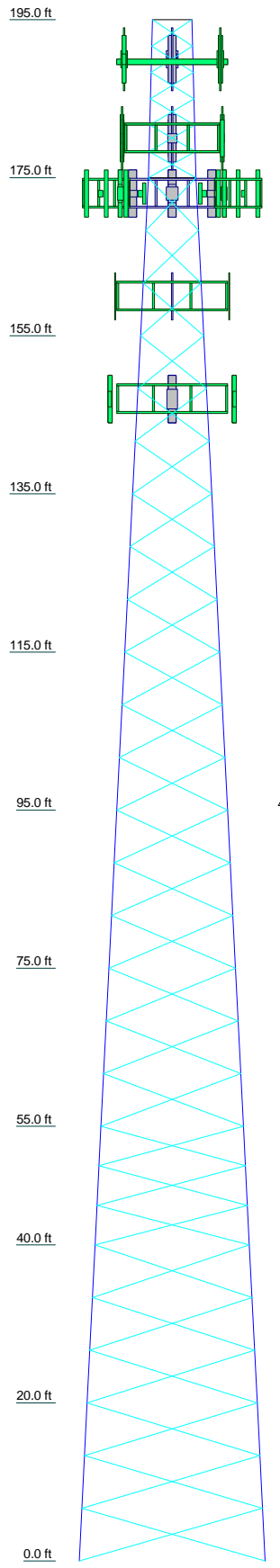
### TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
  2. Tower designed for Exposure C to the TIA-222-G Standard.
  3. Tower designed for a 97 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 is in Exposure Class II.
  7. Topographic Category 1 with Crest Height of 0.00 ft
  8. TOWER RATING: 67.4%
- SHEAR 18 K  
 TORQUE 50 kip-ft  
 SHEAR 64 K  
 MOMENT 6929 kip-ft  
 TORQUE 61 kip-ft  
 REACTIONS - 97 mph WIND

<b>EFI Global, Inc.</b> efi global 1117 Perimeter Center West, Suite 500 Atlanta, GA 30338 Phone: (770) 693 - 0835 FAX:		Job: <b>CT11230A</b> Project: <b>049.00850 - 2075059</b> Client: <b>ForeSite, LLC</b> Drawn by: <b>Patrick.Baxter</b> App'd: Code: <b>TIA-222-G</b> Date: <b>09/23/20</b> Scale: <b>NTS</b> Path:
---	--	---



Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs	SR 3	SR 3 3/4	SR 4	SR 4 1/4	SR 4 1/2	SR 4 3/4	SR 4 3/4	SR 4 3/4	SR 5	SR 5
Leg Grade					A529-50					
Diagonals	SR 1 1/4	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x5/16	L3x3x1/4	L3x3x3/8	L3 1/2x3 1/2x5/16	L4x4x1/4	L4x4x5/16	L4x4x3/8	L4x4x3/8
Diagonal Grade					A36					
Top Girts	SR 1 1/4				N.A.					
Bottom Girts	SR 1 1/4				N.A.					
Face Width (ft)	5	6	8	10	12	14	16	18	19.5	21.5
# Panels @ (ft)	6 @ 3.33333	2.9	3.8	4.2	5.0	5.6	6.1	6.3	7.1	8.5
Weight (K)	2.7				18 @ 6.66667					



### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A529-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

### TOWER DESIGN NOTES

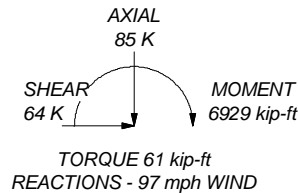
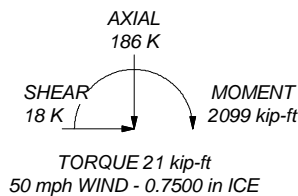
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness 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: 67.4%

ALL REACTIONS  
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 369 K  
SHEAR: 39 K

UPLIFT: -302 K  
SHEAR: 33 K



**EFI Global, Inc.**  
 efi global 1117 Perimeter Center West, Suite 500  
 Atlanta, GA 30338  
 Phone: (770) 693 - 0835  
 FAX:

Job: **CT11230A**  
 Project: **049.00850 - 2075059**  
 Client: **ForeSite, LLC** Drawn by: **Patrick.Baxter** App'd:  
 Code: **TIA-222-G** Date: **09/23/20** Scale: **NTS**  
 Path: **Dwg No. E-1**

<p><b>tnxTower</b></p> <p><b>EFI Global, Inc.</b>  1117 Perimeter Center West, Suite 500  Atlanta, GA 30338  Phone: (770) 693 - 0835  FAX:</p>	<b>Job</b> CT11230A	<b>Page</b> 1 of 28
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	<b>Client</b> ForeSite, LLC	<b>Designed by</b> Patrick.Baxter

## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 195.00 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 23.50 ft at the base.

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

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category C.

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.

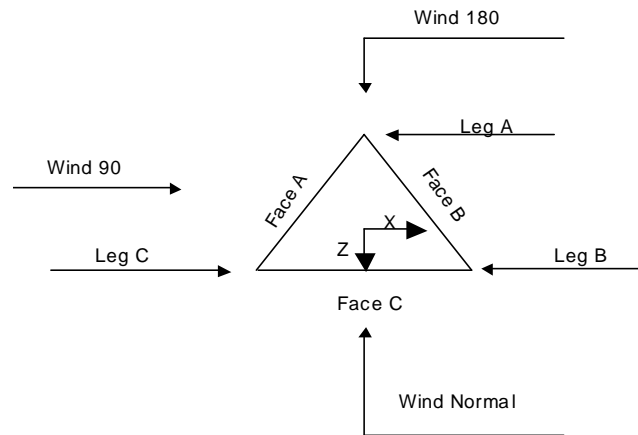
Stress ratio used in tower member design is 1.

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	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are
		Known

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**Triangular Tower**

**Tower Section Geometry**

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	195.00-175.00			5.00	1	20.00
T2	175.00-155.00			6.00	1	20.00
T3	155.00-135.00			8.00	1	20.00
T4	135.00-115.00			10.00	1	20.00
T5	115.00-95.00			12.00	1	20.00
T6	95.00-75.00			14.00	1	20.00
T7	75.00-55.00			16.00	1	20.00
T8	55.00-40.00			18.00	1	15.00
T9	40.00-20.00			19.50	1	20.00
T10	20.00-0.00			21.50	1	20.00

**Tower Section Geometry (cont'd)**

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	195.00-175.00	3.33	X Brace	No	Yes	0.0000	0.0000
T2	175.00-155.00	6.67	X Brace	No	No	0.0000	0.0000
T3	155.00-135.00	6.67	X Brace	No	No	0.0000	0.0000
T4	135.00-115.00	6.67	X Brace	No	No	0.0000	0.0000
T5	115.00-95.00	6.67	X Brace	No	No	0.0000	0.0000

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Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T6	95.00-75.00	6.67	X Brace	No	No	0.0000	0.0000
T7	75.00-55.00	6.67	X Brace	No	No	0.0000	0.0000
T8	55.00-40.00	5.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	6.67	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	6.67	X Brace	No	No	0.0000	0.0000

### Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 195.00-175.00	Solid Round	3	A529-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T2 175.00-155.00	Solid Round	3 3/4	A529-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T3 155.00-135.00	Solid Round	4	A529-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T4 135.00-115.00	Solid Round	4 1/4	A529-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T5 115.00-95.00	Solid Round	4 1/4	A529-50 (50 ksi)	Single Angle	L3x3x3/8	A36 (36 ksi)
T6 95.00-75.00	Solid Round	4 1/2	A529-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T7 75.00-55.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)
T8 55.00-40.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)
T9 40.00-20.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x5/16	A36 (36 ksi)
T10 20.00-0.00	Solid Round	5	A529-50 (50 ksi)	Single Angle	L4x4x3/8	A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
ft						
T1 195.00-175.00	Solid Round	1 1/4	A36 (36 ksi)	Solid Round	1 1/4	A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in

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Tower Elevation	Gusset Area (per face)	Gusset Thickness	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
ft	ft <sup>2</sup>	in							
T1 195.00-175.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T2 175.00-155.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T3 155.00-135.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T4 135.00-115.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T5 115.00-95.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T6 95.00-75.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T7 75.00-55.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T8 55.00-40.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T9 40.00-20.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T10 20.00-0.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000

### Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors <sup>1</sup>							
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
											X
ft			Y	Y	Y	Y	Y	Y	Y	Y	
T1 195.00-175.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T2 175.00-155.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T3 155.00-135.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T4 135.00-115.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T5 115.00-95.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T6 95.00-75.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T7 75.00-55.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T8 55.00-40.00	Yes	Yes	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
T10 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1	1

<sup>1</sup>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.

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**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 195.00-175.00	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 175.00-155.00	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 155.00-135.00	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 135.00-115.00	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 115.00-95.00	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 95.00-75.00	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 75.00-55.00	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 55.00-40.00	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

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 195.00-175.00	Flange	1.1250	4	0.7500	0	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.6250	0
T2 175.00-155.00	Flange	1.1250	6	0.8750	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.6250	0
T3 155.00-135.00	Flange	1.1250	6	0.8750	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	0
T4 135.00-115.00	Flange	1.1250	6	0.8750	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	0
T5 115.00-95.00	Flange	1.1250	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	0
T6 95.00-75.00	Flange	1.1250	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	0
T7 75.00-55.00	Flange	1.2500	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	2
T8 55.00-40.00	Flange	1.2500	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	2
T9 40.00-20.00	Flange	1.2500	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	2
T10 20.00-0.00	Flange	1.3750	0	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	2
		A449		A325N		A325N		A325N		A325N		A325N		A325N	

**Feed Line/Linear Appurtenances - Entered As Round Or Flat**

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	<b>Client</b> ForeSite, LLC	<b>Designed by</b> Patrick.Baxter

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	# Per Row	# Rows	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***ATT***													
LDF7-50A(1-5/8")	A	No	No	Ar (CaAa)	173.00 - 0.00	-9.0000	0.45	6	3	1.0000	1.9800		0.82
Fiber Cable	A	No	No	Ar (CaAa)	173.00 - 0.00	-9.0000	0.45	2	2	0.5000	0.5000		1.00
DC Cable	A	No	No	Ar (CaAa)	173.00 - 0.00	-9.0000	0.45	6	3	0.2500	0.1285		0.05
*****													
**190ft Sprint**													
Hybrid Cable	A	No	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.4	3	3	1.0000	1.5500		0.66
RET Cable	A	No	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.38	4	4	0.6300	0.6300		0.15
**180ft T-Mobile**													
LDF7-50A(1-5/8")	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.4	9	6	1.0000	1.9800		0.82
Feedline Ladder (Rail)	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.4	2	2	38.0000	1.7500	1.7500	3.00
**145ft Verizon**													
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	145.00 - 0.00	0.0000	-0.38	13	13	1.0000	1.9800		0.82
**81ft**													
LDF4-50A(1/2")	A	No	No	Ar (CaAa)	81.00 - 0.00	0.0000	-0.39	1	1	0.6300	0.6300		0.15

**Feed Line/Linear Appurtenances - Entered As Area**

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA ft <sup>2</sup> /ft	Weight plf
*****								

**Feed Line/Linear Appurtenances Section Areas**

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	CAAA In Face ft <sup>2</sup>	CAAA Out Face ft <sup>2</sup>	Weight K
T1	195.00-175.00	A	0.000	0.000	10.755	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	10.660	0.000	0.07
T2	175.00-155.00	A	0.000	0.000	38.912	0.000	0.18
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	42.640	0.000	0.27
T3	155.00-135.00	A	0.000	0.000	41.642	0.000	0.20
		B	0.000	0.000	25.740	0.000	0.11

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Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T4	135.00-115.00	C	0.000	0.000	42.640	0.000	0.27
		A	0.000	0.000	41.642	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
T5	115.00-95.00	C	0.000	0.000	42.640	0.000	0.27
		A	0.000	0.000	41.642	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
T6	95.00-75.00	C	0.000	0.000	42.640	0.000	0.27
		A	0.000	0.000	42.020	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
T7	75.00-55.00	C	0.000	0.000	42.640	0.000	0.27
		A	0.000	0.000	42.902	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
T8	55.00-40.00	C	0.000	0.000	42.640	0.000	0.27
		A	0.000	0.000	32.176	0.000	0.15
		B	0.000	0.000	38.610	0.000	0.16
T9	40.00-20.00	C	0.000	0.000	31.980	0.000	0.20
		A	0.000	0.000	42.902	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
T10	20.00-0.00	C	0.000	0.000	42.640	0.000	0.27
		A	0.000	0.000	42.902	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
		C	0.000	0.000	42.640	0.000	0.27

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T1	195.00-175.00	A	1.782	0.000	0.000	38.313	0.000	0.44
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	19.158	0.000	0.36
T2	175.00-155.00	A	1.762	0.000	0.000	110.824	0.000	1.44
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	76.339	0.000	1.43
T3	155.00-135.00	A	1.739	0.000	0.000	116.711	0.000	1.51
		B		0.000	0.000	51.973	0.000	0.80
		C		0.000	0.000	76.010	0.000	1.42
T4	135.00-115.00	A	1.714	0.000	0.000	115.826	0.000	1.49
		B		0.000	0.000	103.802	0.000	1.58
		C		0.000	0.000	75.638	0.000	1.40
T5	115.00-95.00	A	1.684	0.000	0.000	114.804	0.000	1.47
		B		0.000	0.000	103.636	0.000	1.56
		C		0.000	0.000	75.207	0.000	1.38
T6	95.00-75.00	A	1.649	0.000	0.000	115.946	0.000	1.47
		B		0.000	0.000	103.439	0.000	1.54
		C		0.000	0.000	74.696	0.000	1.36
T7	75.00-55.00	A	1.605	0.000	0.000	119.766	0.000	1.49
		B		0.000	0.000	103.195	0.000	1.51
		C		0.000	0.000	74.062	0.000	1.33
T8	55.00-40.00	A	1.556	0.000	0.000	88.395	0.000	1.09
		B		0.000	0.000	77.189	0.000	1.11
		C		0.000	0.000	55.007	0.000	0.97
T9	40.00-20.00	A	1.486	0.000	0.000	115.175	0.000	1.39
		B		0.000	0.000	102.529	0.000	1.43
		C		0.000	0.000	72.330	0.000	1.25
T10	20.00-0.00	A	1.331	0.000	0.000	109.247	0.000	1.25
		B		0.000	0.000	101.671	0.000	1.32
		C		0.000	0.000	70.090	0.000	1.16



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### Feed Line Center of Pressure

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub> Ice	CP <sub>z</sub> Ice
	ft	in	in	in	in
T1	195.00-175.00	-8.2136	3.6726	-6.7375	3.3389
T2	175.00-155.00	-11.4289	-0.9834	-11.9910	-1.2061
T3	155.00-135.00	-11.9660	-10.1634	-13.0924	-9.3015
T4	135.00-115.00	-11.6360	-16.8753	-13.6280	-15.8626
T5	115.00-95.00	-13.0057	-18.9060	-15.3531	-17.9646
T6	95.00-75.00	-13.3843	-19.4138	-16.6468	-18.9667
T7	75.00-55.00	-13.6577	-19.4892	-18.1152	-19.2951
T8	55.00-40.00	-12.5642	-18.1821	-17.2022	-18.7267
T9	40.00-20.00	-14.8662	-21.3341	-19.8368	-21.7086
T10	20.00-0.00	-15.3998	-22.1544	-20.4104	-23.0494

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T1	7	Hybrid Cable	175.00 - 190.00	0.6000	0.5397
T1	8	RET Cable	175.00 - 190.00	0.6000	0.5397
T1	11	LDF7-50A(1-5/8")	175.00 - 180.00	0.6000	0.5397
T1	12	Feedline Ladder (Rail)	175.00 - 180.00	0.6000	0.5397
T2	2	LDF7-50A(1-5/8")	155.00 - 173.00	0.6000	0.6000
T2	3	Fiber Cable	155.00 - 173.00	0.6000	0.6000
T2	4	DC Cable	155.00 - 173.00	0.6000	0.6000
T2	7	Hybrid Cable	155.00 - 175.00	0.6000	0.6000
T2	8	RET Cable	155.00 - 175.00	0.6000	0.6000
T2	11	LDF7-50A(1-5/8")	155.00 - 175.00	0.6000	0.6000
T2	12	Feedline Ladder (Rail)	155.00 - 175.00	0.6000	0.6000
T3	2	LDF7-50A(1-5/8")	135.00 - 155.00	0.6000	0.6000
T3	3	Fiber Cable	135.00 - 155.00	0.6000	0.6000
T3	4	DC Cable	135.00 - 155.00	0.6000	0.6000
T3	7	Hybrid Cable	135.00 - 155.00	0.6000	0.6000
T3	8	RET Cable	135.00 - 155.00	0.6000	0.6000
T3	11	LDF7-50A(1-5/8")	135.00 -	0.6000	0.6000

# tnxTower

**EFI Global, Inc.**  
1117 Perimeter Center West, Suite 500  
Atlanta, GA 30338  
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FAX:

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T3	12	Feedline Ladder (Rail)	155.00 - 135.00	0.6000	0.6000
T3	14	LDF7-50A(1-5/8")	155.00 - 135.00	0.6000	0.6000
T4	2	LDF7-50A(1-5/8")	145.00 - 115.00	0.6000	0.6000
T4	3	Fiber Cable	135.00 - 115.00	0.6000	0.6000
T4	4	DC Cable	135.00 - 115.00	0.6000	0.6000
T4	7	Hybrid Cable	135.00 - 115.00	0.6000	0.6000
T4	8	RET Cable	135.00 - 115.00	0.6000	0.6000
T4	11	LDF7-50A(1-5/8")	135.00 - 115.00	0.6000	0.6000
T4	12	Feedline Ladder (Rail)	135.00 - 115.00	0.6000	0.6000
T4	14	LDF7-50A(1-5/8")	135.00 - 115.00	0.6000	0.6000
T5	2	LDF7-50A(1-5/8")	95.00 - 115.00	0.6000	0.6000
T5	3	Fiber Cable	115.00 - 95.00	0.6000	0.6000
T5	4	DC Cable	115.00 - 95.00	0.6000	0.6000
T5	7	Hybrid Cable	115.00 - 95.00	0.6000	0.6000
T5	8	RET Cable	115.00 - 95.00	0.6000	0.6000
T5	11	LDF7-50A(1-5/8")	115.00 - 95.00	0.6000	0.6000
T5	12	Feedline Ladder (Rail)	115.00 - 95.00	0.6000	0.6000
T5	14	LDF7-50A(1-5/8")	115.00 - 95.00	0.6000	0.6000
T6	2	LDF7-50A(1-5/8")	75.00 - 95.00	0.6000	0.6000
T6	3	Fiber Cable	95.00 - 75.00	0.6000	0.6000
T6	4	DC Cable	95.00 - 75.00	0.6000	0.6000
T6	7	Hybrid Cable	95.00 - 75.00	0.6000	0.6000
T6	8	RET Cable	95.00 - 75.00	0.6000	0.6000
T6	11	LDF7-50A(1-5/8")	95.00 - 75.00	0.6000	0.6000
T6	12	Feedline Ladder (Rail)	95.00 - 75.00	0.6000	0.6000
T6	14	LDF7-50A(1-5/8")	95.00 - 75.00	0.6000	0.6000
T6	16	LDF4-50A(1/2")	81.00 - 75.00	0.6000	0.6000
T7	2	LDF7-50A(1-5/8")	55.00 - 75.00	0.6000	0.6000
T7	3	Fiber Cable	75.00 - 55.00	0.6000	0.6000
T7	4	DC Cable	75.00 - 55.00	0.6000	0.6000
T7	7	Hybrid Cable	75.00 - 55.00	0.6000	0.6000
T7	8	RET Cable	75.00 - 55.00	0.6000	0.6000
T7	11	LDF7-50A(1-5/8")	75.00 - 55.00	0.6000	0.6000
T7	12	Feedline Ladder (Rail)	75.00 - 55.00	0.6000	0.6000
T7	14	LDF7-50A(1-5/8")	75.00 - 55.00	0.6000	0.6000
T7	16	LDF4-50A(1/2")	75.00 - 55.00	0.6000	0.6000
T8	2	LDF7-50A(1-5/8")	40.00 - 55.00	0.6000	0.6000
T8	3	Fiber Cable	55.00 - 40.00	0.6000	0.6000
T8	4	DC Cable	55.00 - 40.00	0.6000	0.6000
T8	7	Hybrid Cable	55.00 - 40.00	0.6000	0.6000
T8	8	RET Cable	55.00 - 40.00	0.6000	0.6000
T8	11	LDF7-50A(1-5/8")	55.00 - 40.00	0.6000	0.6000
T8	12	Feedline Ladder (Rail)	55.00 - 40.00	0.6000	0.6000
T8	14	LDF7-50A(1-5/8")	55.00 - 40.00	0.6000	0.6000
T8	16	LDF4-50A(1/2")	55.00 - 40.00	0.6000	0.6000
T9	2	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	3	Fiber Cable	40.00 - 20.00	0.6000	0.6000
T9	4	DC Cable	40.00 - 20.00	0.6000	0.6000
T9	7	Hybrid Cable	40.00 - 20.00	0.6000	0.6000
T9	8	RET Cable	40.00 - 20.00	0.6000	0.6000
T9	11	LDF7-50A(1-5/8")	40.00 - 20.00	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T9	12	Feedline Ladder (Rail)	20.00 - 40.00	0.6000	0.6000
T9	14	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	16	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T10	2	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	3	Fiber Cable	0.00 - 20.00	0.6000	0.6000
T10	4	DC Cable	0.00 - 20.00	0.6000	0.6000
T10	7	Hybrid Cable	0.00 - 20.00	0.6000	0.6000
T10	8	RET Cable	0.00 - 20.00	0.6000	0.6000
T10	11	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	12	Feedline Ladder (Rail)	0.00 - 20.00	0.6000	0.6000
T10	14	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	16	LDF4-50A(1/2")	0.00 - 20.00	0.6000	0.6000

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight K	
***190ft Sprint***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	190.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	190.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	190.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00	0.0000	190.00	No Ice	4.09	2.86	0.08
			0.00			1/2" Ice	4.48	3.23	0.13
			0.00			1" Ice	4.88	3.61	0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00	0.0000	190.00	No Ice	4.09	2.86	0.08
			0.00			1/2" Ice	4.48	3.23	0.13
			0.00			1" Ice	4.88	3.61	0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00	0.0000	190.00	No Ice	4.09	2.86	0.08
			0.00			1/2" Ice	4.48	3.23	0.13
			0.00			1" Ice	4.88	3.61	0.19
RRH2X50-800	A	From Leg	4.00	0.0000	190.00	No Ice	1.70	1.28	0.05
			0.00			1/2" Ice	1.86	1.43	0.07
			0.00			1" Ice	2.03	1.58	0.09
RRH2X50-800	B	From Leg	4.00	0.0000	190.00	No Ice	1.70	1.28	0.05
			0.00			1/2" Ice	1.86	1.43	0.07
			0.00			1" Ice	2.03	1.58	0.09
RRH2X50-800	C	From Leg	4.00	0.0000	190.00	No Ice	1.70	1.28	0.05
			0.00			1/2" Ice	1.86	1.43	0.07
			0.00			1" Ice	2.03	1.58	0.09
TD-RRH8x20-25	A	From Leg	4.00	0.0000	190.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
TD-RRH8x20-25	B	From Leg	4.00	0.0000	190.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Lateral						Vert
			ft	ft						
TD-RRH8x20-25	C	From Leg	0.00		0.0000	190.00	1" Ice	4.56	1.90	0.13
			4.00				No Ice	4.05	1.53	0.07
			0.00				1/2" Ice	4.30	1.71	0.10
(2) 8'-P2x0.203	A	From Leg	0.00		0.0000	190.00	1" Ice	4.56	1.90	0.13
			4.00				No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
(2) 8'-P2x0.203	B	From Leg	0.00		0.0000	190.00	1" Ice	3.40	3.40	0.06
			4.00				No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
(2) 8'-P2x0.203	C	From Leg	0.00		0.0000	190.00	1" Ice	3.40	3.40	0.06
			4.00				No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
Platform Mount [LP 1101-1]	C	None	0.00		0.0000	190.00	1" Ice	3.40	3.40	0.06
			4.00				No Ice	51.45	51.45	2.94
			0.00				1/2" Ice	66.50	66.50	3.70
*** 180ft T-Mobile***										
AIR 6449 B41	A	From Leg	0.00		0.0000	180.00	1" Ice	6.27	2.94	0.20
			4.00				No Ice	5.66	2.48	0.11
			0.00				1/2" Ice	5.96	2.70	0.15
AIR 6449 B41	B	From Leg	0.00		0.0000	180.00	1" Ice	6.27	2.94	0.20
			4.00				No Ice	5.66	2.48	0.11
			0.00				1/2" Ice	5.96	2.70	0.15
AIR 6449 B41	C	From Leg	0.00		0.0000	180.00	1" Ice	6.27	2.94	0.20
			4.00				No Ice	5.66	2.48	0.11
			0.00				1/2" Ice	5.96	2.70	0.15
APXVAALL24_43-U-NA20	A	From Leg	0.00		0.0000	180.00	1" Ice	6.27	2.94	0.20
			4.00				No Ice	20.24	8.73	0.15
			0.00				1/2" Ice	20.89	9.33	0.26
APXVAALL24_43-U-NA20	B	From Leg	0.00		0.0000	180.00	1" Ice	21.54	9.93	0.38
			4.00				No Ice	20.24	8.73	0.15
			0.00				1/2" Ice	20.89	9.33	0.26
APXVAALL24_43-U-NA20	C	From Leg	0.00		0.0000	180.00	1" Ice	21.54	9.93	0.38
			4.00				No Ice	20.24	8.73	0.15
			0.00				1/2" Ice	20.89	9.33	0.26
AIR 32 B2a/B66Aa	A	From Leg	0.00		0.0000	180.00	1" Ice	21.54	9.93	0.38
			4.00				No Ice	6.51	4.71	0.13
			0.00				1/2" Ice	6.89	5.07	0.18
AIR 32 B2a/B66Aa	B	From Leg	0.00		0.0000	180.00	1" Ice	7.27	5.43	0.23
			4.00				No Ice	6.51	4.71	0.13
			0.00				1/2" Ice	6.89	5.07	0.18
AIR 32 B2a/B66Aa	C	From Leg	0.00		0.0000	180.00	1" Ice	7.27	5.43	0.23
			4.00				No Ice	6.51	4.71	0.13
			0.00				1/2" Ice	6.89	5.07	0.18
RADIO 4449 B71+ B85	A	From Leg	0.00		0.0000	180.00	1" Ice	7.27	5.43	0.23
			4.00				No Ice	1.97	1.59	0.07
			0.00				1/2" Ice	2.15	1.75	0.09
RADIO 4449 B71+ B85	B	From Leg	0.00		0.0000	180.00	1" Ice	2.33	1.92	0.12
			4.00				No Ice	1.97	1.59	0.07
			0.00				1/2" Ice	2.15	1.75	0.09
RADIO 4449 B71+ B85	C	From Leg	0.00		0.0000	180.00	1" Ice	2.33	1.92	0.12
			4.00				No Ice	1.97	1.59	0.07
			0.00				1/2" Ice	2.15	1.75	0.09
RRUS 4415 B25	A	From Leg	0.00		0.0000	180.00	1" Ice	2.33	1.92	0.12
			4.00				No Ice	1.64	0.68	0.04
			0.00				1/2" Ice	1.80	0.79	0.06
RRUS 4415 B25	B	From Leg	0.00		0.0000	180.00	1" Ice	1.97	0.91	0.07
			4.00				No Ice	1.64	0.68	0.04
			0.00				1/2" Ice	1.80	0.79	0.06

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	<b>Client</b>		ForeSite, LLC					<b>Designed by</b>		Patrick.Baxter

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
			Lateral	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
			0.00			1/2" Ice	1.80	0.79	0.06
			0.00			1" Ice	1.97	0.91	0.07
RRUS 4415 B25	C	From Leg	4.00	0.0000	180.00	No Ice	1.64	0.68	0.04
			0.00			1/2" Ice	1.80	0.79	0.06
			0.00			1" Ice	1.97	0.91	0.07
SDX1926Q-43	A	From Leg	4.00	0.0000	180.00	No Ice	0.24	0.10	0.01
			0.00			1/2" Ice	0.31	0.14	0.01
			0.00			1" Ice	0.38	0.19	0.01
SDX1926Q-43	B	From Leg	4.00	0.0000	180.00	No Ice	0.24	0.10	0.01
			0.00			1/2" Ice	0.31	0.14	0.01
			0.00			1" Ice	0.38	0.19	0.01
SDX1926Q-43	C	From Leg	4.00	0.0000	180.00	No Ice	0.24	0.10	0.01
			0.00			1/2" Ice	0.31	0.14	0.01
			0.00			1" Ice	0.38	0.19	0.01
TMA	A	From Leg	4.00	0.0000	180.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00			1" Ice	7.43	5.20	0.16
TMA	B	From Leg	4.00	0.0000	180.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00			1" Ice	7.43	5.20	0.16
TMA	C	From Leg	4.00	0.0000	180.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00			1" Ice	7.43	5.20	0.16
(4) 8'-P2x0.203	A	From Leg	4.00	0.0000	180.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(4) 8'-P2x0.203	B	From Leg	4.00	0.0000	180.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(4) 8'-P2x0.203	C	From Leg	4.00	0.0000	180.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
12.5'-P2x0.154 H	A	From Leg	4.00	0.0000	180.00	No Ice	2.96	0.01	0.05
			0.00			1/2" Ice	4.24	0.02	0.07
			0.00			1" Ice	5.54	0.03	0.10
12.5'-P2x0.154 H	B	From Leg	4.00	0.0000	180.00	No Ice	2.96	0.01	0.05
			0.00			1/2" Ice	4.24	0.02	0.07
			0.00			1" Ice	5.54	0.03	0.10
12.5'-P2x0.154 H	C	From Leg	4.00	0.0000	180.00	No Ice	2.96	0.01	0.05
			0.00			1/2" Ice	4.24	0.02	0.07
			0.00			1" Ice	5.54	0.03	0.10
Pipe Mount [PM 601-3]	C	None		0.0000	180.00	No Ice	3.17	3.17	0.20
						1/2" Ice	3.79	3.79	0.23
						1" Ice	4.42	4.42	0.28
Sector Mount [SM 502-3]	C	None		0.0000	180.00	No Ice	29.82	29.82	1.67
						1/2" Ice	42.21	42.21	2.27
						1" Ice	54.43	54.43	3.05
***173ft AT&T***									
800 10121 w/ Mount Pipe	A	From Leg	4.00	0.0000	173.00	No Ice	3.60	2.95	0.07
			0.00			1/2" Ice	4.00	3.34	0.11
			0.00			1" Ice	4.42	3.74	0.17
800 10121 w/ Mount Pipe	B	From Leg	4.00	0.0000	173.00	No Ice	3.60	2.95	0.07
			0.00			1/2" Ice	4.00	3.34	0.11
			0.00			1" Ice	4.42	3.74	0.17
800 10121 w/ Mount Pipe	C	From Leg	4.00	0.0000	173.00	No Ice	3.60	2.95	0.07
			0.00			1/2" Ice	4.00	3.34	0.11
			0.00			1" Ice	4.42	3.74	0.17

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	<b>Client</b>	ForeSite, LLC	<b>Designed by</b>	Patrick.Baxter

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
(2) 80010965 w/ Mount Pipe	A	From Leg	4.00	0.0000	173.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
(2) 80010965 w/ Mount Pipe	B	From Leg	4.00	0.0000	173.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
(2) 80010965 w/ Mount Pipe	C	From Leg	4.00	0.0000	173.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
(2) LGP21401	A	From Leg	4.00	0.0000	173.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
(2) LGP21401	B	From Leg	4.00	0.0000	173.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
(2) LGP21401	C	From Leg	4.00	0.0000	173.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
RRUS 4478 B14	A	From Leg	4.00	0.0000	173.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	B	From Leg	4.00	0.0000	173.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	C	From Leg	4.00	0.0000	173.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
RRUS 4449 B5/B12	A	From Leg	4.00	0.0000	173.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	B	From Leg	4.00	0.0000	173.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	C	From Leg	4.00	0.0000	173.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
RRUS 32	A	From Leg	4.00	0.0000	173.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
RRUS 32	B	From Leg	4.00	0.0000	173.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
RRUS 32	C	From Leg	4.00	0.0000	173.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
RRUS 12	A	From Leg	4.00	0.0000	173.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			0.00			1" Ice	3.59	1.60	0.11
RRUS 12	B	From Leg	4.00	0.0000	173.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			0.00			1" Ice	3.59	1.60	0.11
RRUS 12	C	From Leg	4.00	0.0000	173.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			0.00			1" Ice	3.59	1.60	0.11
DC6-48-60-18-8C	A	From Leg	0.50	0.0000	173.00	No Ice	1.14	1.14	0.03
			0.00			1/2" Ice	1.79	1.79	0.05
			0.00			1" Ice	2.00	2.00	0.07

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	<b>Project</b>	049.00850 - 2075059	<b>Date</b>	13:19:59 09/23/20
	<b>Client</b>	ForeSite, LLC	<b>Designed by</b>	Patrick.Baxter

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral Vert					
DC6-48-60-18-8C	B	From Leg	0.50	0.0000	173.00	No Ice	1.14	1.14	0.03
			0.00			1/2" Ice	1.79	1.79	0.05
			0.00			1" Ice	2.00	2.00	0.07
DC6-48-60-18-8C	C	From Leg	0.50	0.0000	173.00	No Ice	1.14	1.14	0.03
			0.00			1/2" Ice	1.79	1.79	0.05
			0.00			1" Ice	2.00	2.00	0.07
Sector Mount [SM 409-3]	A	None		0.0000	173.00	No Ice	22.33	22.33	1.03
						1/2" Ice	31.79	31.79	1.48
						1" Ice	41.13	41.13	2.07
***160ft Nextel***									
Sector Mount [SM 410-3]	A	None		0.0000	160.00	No Ice	23.83	23.83	1.10
						1/2" Ice	33.87	33.87	1.58
						1" Ice	43.79	43.79	2.21
(4) 6'-P2x0.154	A	From Leg	4.00	0.0000	160.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(4) 6'-P2x0.154	B	From Leg	4.00	0.0000	160.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(4) 6'-P2x0.154	C	From Leg	4.00	0.0000	160.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
***147ft Verizon***									
BXA-171063-12CF-EDIN-X w/ Mount Pipe	A	From Leg	4.00	0.0000	147.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
BXA-171063-12CF-EDIN-X w/ Mount Pipe	B	From Leg	4.00	0.0000	147.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
BXA-171063-12CF-EDIN-X w/ Mount Pipe	C	From Leg	4.00	0.0000	147.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	147.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	147.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00	0.0000	147.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
BXA-70063/6CF-EDIN w/ Mount Pipe	A	From Leg	4.00	0.0000	147.00	No Ice	7.81	5.40	0.04
			0.00			1/2" Ice	8.36	6.55	0.10
			0.00			1" Ice	8.87	7.41	0.17
BXA-70063/6CF-EDIN w/ Mount Pipe	B	From Leg	4.00	0.0000	147.00	No Ice	7.81	5.40	0.04
			0.00			1/2" Ice	8.36	6.55	0.10
			0.00			1" Ice	8.87	7.41	0.17
BXA-70063/6CF-EDIN w/ Mount Pipe	C	From Leg	4.00	0.0000	147.00	No Ice	7.81	5.40	0.04
			0.00			1/2" Ice	8.36	6.55	0.10
			0.00			1" Ice	8.87	7.41	0.17
LNX-6513DS-VTM w/ Mount Pipe	A	From Leg	4.00	0.0000	147.00	No Ice	2.84	2.29	0.06
			0.00			1/2" Ice	3.12	2.57	0.11
			0.00			1" Ice	3.41	2.85	0.17
LNX-6513DS-VTM w/ Mount Pipe	B	From Leg	4.00	0.0000	147.00	No Ice	2.84	2.29	0.06
			0.00			1/2" Ice	3.12	2.57	0.11
			0.00			1" Ice	3.41	2.85	0.17
LNX-6513DS-VTM w/	C	From Leg	4.00	0.0000	147.00	No Ice	2.84	2.29	0.06



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	<b>Project</b>	049.00850 - 2075059	<b>Date</b>	13:19:59 09/23/20
	<b>Client</b>	ForeSite, LLC	<b>Designed by</b>	Patrick.Baxter

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
Mount Pipe			0.00			1/2" Ice 3.12	2.57	0.11
			0.00			1" Ice 3.41	2.85	0.17
9442 RRH2X40-AWS	A	From Leg	4.00	0.0000	147.00	No Ice 2.16	1.42	0.04
			0.00			1/2" Ice 2.35	1.59	0.06
			0.00			1" Ice 2.56	1.77	0.08
9442 RRH2X40-AWS	B	From Leg	4.00	0.0000	147.00	No Ice 2.16	1.42	0.04
			0.00			1/2" Ice 2.35	1.59	0.06
			0.00			1" Ice 2.56	1.77	0.08
9442 RRH2X40-AWS	C	From Leg	4.00	0.0000	147.00	No Ice 2.16	1.42	0.04
			0.00			1/2" Ice 2.35	1.59	0.06
			0.00			1" Ice 2.56	1.77	0.08
RFS Diplexers	A	From Leg	4.00	0.0000	147.00	No Ice 0.31	0.08	0.00
			0.00			1/2" Ice 0.39	0.12	0.01
			0.00			1" Ice 0.47	0.17	0.01
RFS Diplexers	B	From Leg	4.00	0.0000	147.00	No Ice 0.31	0.08	0.00
			0.00			1/2" Ice 0.39	0.12	0.01
			0.00			1" Ice 0.47	0.17	0.01
RFS Diplexers	C	From Leg	4.00	0.0000	147.00	No Ice 0.31	0.08	0.00
			0.00			1/2" Ice 0.39	0.12	0.01
			0.00			1" Ice 0.47	0.17	0.01
RC2DC-3315-PF-48	A	From Leg	4.00	0.0000	147.00	No Ice 4.05	2.96	0.03
			0.00			1/2" Ice 4.31	3.19	0.07
			0.00			1" Ice 4.57	3.43	0.11
Sector Mount [SM 410-3]	A	None		0.0000	147.00	No Ice 23.83	23.83	1.10
						1/2" Ice 33.87	33.87	1.58
						1" Ice 43.79	43.79	2.21

\*\*\*80ft\*\*\*

## 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
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

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Comb. No.	Description
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	195 - 175	Leg	Max Tension	15	12.50	-0.25	0.00
			Max. Compression	2	-19.68	0.51	0.04
			Max. Mx	6	7.37	1.02	0.00
			Max. My	24	-4.09	-0.02	-1.03
			Max. Vy	6	-0.94	-0.53	0.00
			Max. Vx	24	-0.86	-0.02	0.38
		Diagonal	Max Tension	8	3.64	0.00	0.00
			Max. Compression	8	-3.68	0.00	0.00
			Max. Mx	34	0.49	-0.02	0.00
			Max. My	14	-1.72	-0.01	0.00
			Max. Vy	36	-0.02	-0.02	0.00
			Max. Vx	22	0.00	0.00	0.00
		Top Girt	Max Tension	7	0.06	0.00	0.00
			Max. Compression	18	-0.09	0.00	0.00
			Max. Mx	26	-0.05	0.04	0.00
			Max. My	24	-0.02	0.00	-0.00
			Max. Vy	26	-0.03	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Bottom Girt	Max Tension	3	0.33	0.00	0.00
			Max. Compression	14	-0.38	0.00	0.00
			Max. Mx	26	-0.09	0.05	0.00
Max. My	24		-0.02	0.00	-0.00		

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	175 - 155	Leg	Max. Vy	26	0.04	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
			Max Tension	15	48.51	-0.23	-0.04
			Max. Compression	2	-60.76	0.28	0.06
			Max. Mx	6	19.32	1.45	0.01
			Max. My	24	-5.89	-0.05	-1.45
			Max. Vy	6	-1.01	-0.54	0.02
		Diagonal	Max. Vx	24	0.98	-0.02	0.46
			Max Tension	4	6.08	0.00	0.00
			Max. Compression	4	-6.18	0.00	0.00
			Max. Mx	37	1.44	0.04	0.01
			Max. My	38	-1.03	0.03	0.01
			Max. Vy	37	0.04	0.04	0.01
			Max. Vx	38	-0.00	0.00	0.00
T3	155 - 135	Leg	Max Tension	15	87.01	-0.38	-0.05
			Max. Compression	2	-104.87	0.12	0.04
			Max. Mx	14	72.01	0.62	-0.04
			Max. My	8	-9.15	-0.03	-0.73
			Max. Vy	14	-0.88	-0.53	-0.04
			Max. Vx	20	-0.87	-0.02	-0.41
			Max Tension	4	7.42	0.00	0.00
		Diagonal	Max. Compression	4	-7.46	0.00	0.00
			Max. Mx	37	1.71	0.07	0.01
			Max. My	27	-0.03	0.06	0.01
			Max. Vy	37	0.05	0.07	0.01
			Max. Vx	27	-0.00	0.00	0.00
			Max Tension	15	123.72	-0.18	-0.04
			Max. Compression	2	-146.32	0.32	0.06
T4	135 - 115	Leg	Max. Mx	3	-143.12	0.33	0.06
			Max. My	20	-11.89	-0.01	-0.37
			Max. Vy	14	0.09	-0.32	-0.06
			Max. Vx	20	0.14	-0.01	-0.28
			Max Tension	4	7.74	0.00	0.00
			Max. Compression	4	-7.83	0.00	0.00
			Max. Mx	37	1.58	0.10	0.01
		Diagonal	Max. My	27	-0.04	0.09	0.01
			Max. Vy	37	0.07	0.10	0.01
			Max. Vx	27	-0.00	0.00	0.00
			Max Tension	15	156.70	-0.23	-0.04
			Max. Compression	2	-184.93	0.21	0.04
			Max. Mx	3	-155.63	0.33	0.06
			Max. My	20	-12.18	-0.01	-0.37
T5	115 - 95	Leg	Max. Vy	14	-0.09	-0.32	-0.06
			Max. Vx	8	0.13	-0.01	0.37
			Max Tension	4	8.46	0.00	0.00
			Max. Compression	4	-8.58	0.00	0.00
			Max. Mx	37	1.56	0.15	0.02
			Max. My	35	-0.02	0.13	-0.02
			Max. Vy	37	0.09	0.15	0.02
		Diagonal	Max. Vx	35	0.00	0.00	0.00
			Max Tension	15	187.66	-0.24	-0.04
			Max. Compression	2	-222.32	0.19	0.03
			Max. Mx	14	173.99	-0.26	-0.04
			Max. My	20	-15.95	-0.01	-0.31
			Max. Vy	14	0.08	-0.26	-0.04
			Max. Vx	20	0.12	-0.01	-0.31
T6	95 - 75	Leg	Max Tension	4	9.37	0.00	0.00
			Max. Compression	4	-9.44	0.00	0.00
			Max. Mx	37	1.61	0.20	0.02
			Max. My	35	0.02	0.18	-0.03
			Max. Vy	37	0.11	0.20	0.02
			Max Tension	15	187.66	-0.24	-0.04
			Max. Compression	2	-222.32	0.19	0.03
		Diagonal	Max. Mx	14	173.99	-0.26	-0.04
			Max. My	20	-15.95	-0.01	-0.31
			Max. Vy	14	0.08	-0.26	-0.04
			Max. Vx	20	0.12	-0.01	-0.31
			Max Tension	4	9.37	0.00	0.00
			Max. Compression	4	-9.44	0.00	0.00
			Max. Mx	37	1.61	0.20	0.02

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T7	75 - 55	Leg	Max. Vx	35	0.01	0.00	0.00
			Max Tension	15	217.68	-0.31	-0.04
			Max. Compression	2	-259.37	0.07	-0.02
			Max. Mx	14	213.30	-0.32	-0.04
			Max. My	20	-18.69	-0.04	-0.40
			Max. Vy	6	-0.11	-0.32	0.06
			Max. Vx	8	0.16	-0.04	0.40
		Diagonal	Max Tension	4	10.39	0.00	0.00
			Max. Compression	4	-10.51	0.00	0.00
			Max. Mx	37	1.57	0.25	0.03
			Max. My	35	-0.03	0.23	-0.03
			Max. Vy	37	0.13	0.25	0.03
			Max. Vx	35	0.01	0.00	0.00
			Max Tension	15	241.13	-0.10	0.00
T8	55 - 40	Leg	Max Tension	15	241.13	-0.10	0.00
			Max. Compression	2	-289.15	0.64	0.11
			Max. Mx	29	28.43	-0.73	0.04
			Max. My	20	-21.96	-0.02	-0.62
			Max. Vy	33	0.24	-0.73	-0.03
			Max. Vx	8	-0.17	-0.02	0.62
			Max Tension	16	10.97	0.00	0.00
		Diagonal	Max. Compression	16	-11.06	0.00	0.00
			Max. Mx	37	1.37	0.26	0.03
			Max. My	29	-1.98	0.23	0.03
			Max. Vy	37	0.13	0.25	-0.03
			Max. Vx	29	0.01	0.00	0.00
			Max Tension	15	269.37	-0.29	-0.03
			Max. Compression	2	-325.48	0.34	0.05
T9	40 - 20	Leg	Max. Mx	31	-136.97	2.04	-0.00
			Max. My	20	-22.38	-0.02	-0.62
			Max. Vy	33	-0.50	-1.29	-0.01
			Max. Vx	20	0.15	-0.03	-0.57
			Max Tension	16	12.15	0.00	0.00
			Max. Compression	16	-12.33	0.00	0.00
			Max. Mx	37	0.50	0.40	0.05
		Diagonal	Max. My	29	-3.78	0.37	0.05
			Max. Vy	37	0.16	0.40	0.05
			Max. Vx	29	0.01	0.00	0.00
			Max Tension	15	297.71	-0.30	-0.03
			Max. Compression	2	-363.25	-0.00	-0.00
			Max. Mx	31	-146.12	3.33	-0.00
			Max. My	20	-27.47	-0.06	-0.65
T10	20 - 0	Leg	Max. Vy	33	-0.96	-3.04	-0.01
			Max. Vx	20	-0.18	-0.06	-0.65
			Max Tension	16	13.04	0.00	0.00
			Max. Compression	16	-13.30	0.00	0.00
			Max. Mx	37	-1.22	0.54	0.06
			Max. My	29	-6.66	0.52	0.06
			Max. Vy	37	0.18	0.54	0.06
		Diagonal	Max. Vx	29	-0.01	0.00	0.00

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	367.94	33.44	-20.97
	Max. H <sub>x</sub>	18	367.94	33.44	-20.97

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg B	Max. H <sub>z</sub>	5	-265.90	-23.69	18.27
	Min. Vert	7	-300.98	-28.01	17.88
	Min. H <sub>x</sub>	7	-300.98	-28.01	17.88
	Min. H <sub>z</sub>	18	367.94	33.44	-20.97
	Max. Vert	10	361.16	-33.24	-19.39
	Max. H <sub>x</sub>	23	-296.94	27.85	16.29
	Max. H <sub>z</sub>	23	-296.94	27.85	16.29
	Min. Vert	23	-296.94	27.85	16.29
Leg A	Min. H <sub>x</sub>	10	361.16	-33.24	-19.39
	Min. H <sub>z</sub>	10	361.16	-33.24	-19.39
	Max. Vert	2	368.87	-1.23	39.21
	Max. H <sub>x</sub>	21	21.74	6.47	1.67
	Max. H <sub>z</sub>	2	368.87	-1.23	39.21
	Min. Vert	15	-301.75	1.27	-32.96
	Min. H <sub>x</sub>	9	21.74	-6.49	1.67
	Min. H <sub>z</sub>	15	-301.75	1.27	-32.96

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	70.99	-0.00	-0.00	-9.85	15.24	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	85.18	-0.00	-63.57	-6929.21	18.43	-50.89
0.9 Dead+1.6 Wind 0 deg - No Ice	63.89	0.00	-63.57	-6918.94	13.83	-50.88
1.2 Dead+1.6 Wind 30 deg - No Ice	85.18	30.91	-53.56	-5872.65	-3362.82	-54.17
0.9 Dead+1.6 Wind 30 deg - No Ice	63.89	30.91	-53.56	-5863.49	-3363.85	-54.16
1.2 Dead+1.6 Wind 60 deg - No Ice	85.18	51.56	-29.79	-3300.44	-5673.19	-59.38
0.9 Dead+1.6 Wind 60 deg - No Ice	63.89	51.56	-29.79	-3293.97	-5671.75	-59.36
1.2 Dead+1.6 Wind 90 deg - No Ice	85.18	60.16	0.00	-11.95	-6586.82	-60.82
0.9 Dead+1.6 Wind 90 deg - No Ice	63.89	60.16	0.00	-8.97	-6584.43	-60.79
1.2 Dead+1.6 Wind 120 deg - No Ice	85.18	53.98	31.18	3387.08	-5864.51	-7.06
0.9 Dead+1.6 Wind 120 deg - No Ice	63.89	53.97	31.18	3386.46	-5862.90	-7.06
1.2 Dead+1.6 Wind 150 deg - No Ice	85.18	29.10	50.43	5652.27	-3249.25	52.21
0.9 Dead+1.6 Wind 150 deg - No Ice	63.89	29.10	50.42	5649.17	-3250.36	52.18
1.2 Dead+1.6 Wind 180 deg - No Ice	85.18	0.00	59.05	6578.53	18.44	50.88
0.9 Dead+1.6 Wind 180 deg - No Ice	63.89	0.00	59.05	6574.45	13.84	50.87
1.2 Dead+1.6 Wind 210 deg - No Ice	85.18	-30.91	53.56	5848.86	3399.67	54.17
0.9 Dead+1.6 Wind 210 deg - No Ice	63.89	-30.91	53.56	5845.64	3391.50	54.16
1.2 Dead+1.6 Wind 240 deg - No Ice	85.18	-55.48	32.04	3440.08	5993.15	59.39

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Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 240 deg - No Ice	63.89	-55.47	32.04	3439.42	5982.28	59.38
1.2 Dead+1.6 Wind 270 deg - No Ice	85.18	-60.16	0.00	-11.92	6623.53	60.82
0.9 Dead+1.6 Wind 270 deg - No Ice	63.89	-60.16	0.00	-8.95	6611.93	60.79
1.2 Dead+1.6 Wind 300 deg - No Ice	85.18	-50.06	-28.92	-3247.30	5618.04	7.06
0.9 Dead+1.6 Wind 300 deg - No Ice	63.89	-50.06	-28.92	-3240.87	5607.45	7.06
1.2 Dead+1.6 Wind 330 deg - No Ice	85.18	-29.10	-50.43	-5675.90	3286.11	-52.21
0.9 Dead+1.6 Wind 330 deg - No Ice	63.89	-29.10	-50.42	-5666.86	3278.00	-52.18
1.2 Dead+1.0 Ice+1.0 Temp	185.90	0.00	0.00	-76.73	92.60	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	185.90	0.00	-17.26	-2074.06	93.07	-16.20
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	185.90	8.67	-15.01	-1806.44	-904.92	-17.26
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	185.90	15.15	-8.75	-1081.14	-1645.18	-21.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	185.90	17.20	0.00	-77.12	-1891.22	-16.15
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	185.90	15.03	8.68	926.85	-1645.02	1.96
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	185.90	8.27	14.33	1612.13	-881.71	14.73
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	185.90	0.00	16.62	1873.70	93.10	16.20
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	185.90	-8.67	15.01	1652.26	1091.08	17.26
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	185.90	-15.71	9.07	950.04	1871.34	21.04
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	185.90	-17.20	0.00	-77.08	2077.38	16.15
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	185.90	-14.47	-8.36	-1057.94	1791.19	-1.96
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	185.90	-8.27	-14.33	-1766.30	1067.88	-14.73
Dead+Wind 0 deg - Service	70.99	-0.00	-15.20	-1662.86	15.29	-12.16
Dead+Wind 30 deg - Service	70.99	7.39	-12.81	-1410.38	-792.70	-12.95
Dead+Wind 60 deg - Service	70.99	12.33	-7.12	-795.71	-1344.79	-14.20
Dead+Wind 90 deg - Service	70.99	14.39	0.00	-9.88	-1563.10	-14.54
Dead+Wind 120 deg - Service	70.99	12.91	7.46	802.34	-1390.50	-1.69
Dead+Wind 150 deg - Service	70.99	6.96	12.06	1343.62	-765.55	12.48
Dead+Wind 180 deg - Service	70.99	0.00	14.12	1564.97	15.29	12.17
Dead+Wind 210 deg - Service	70.99	-7.39	12.81	1390.63	823.28	12.95
Dead+Wind 240 deg - Service	70.99	-13.27	7.66	815.03	1443.04	14.19
Dead+Wind 270 deg - Service	70.99	-14.39	0.00	-9.88	1593.67	14.54
Dead+Wind 300 deg - Service	70.99	-11.97	-6.92	-783.02	1353.39	1.69
Dead+Wind 330 deg - Service	70.99	-6.96	-12.06	-1363.36	796.14	-12.48

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-70.99	0.00	0.00	70.99	0.00	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
2	0.00	-85.18	-63.57	0.00	85.18	63.57	0.001%
3	0.00	-63.89	-63.57	-0.00	63.89	63.57	0.002%
4	30.91	-85.18	-53.56	-30.91	85.18	53.56	0.000%
5	30.91	-63.89	-53.56	-30.91	63.89	53.56	0.002%
6	51.56	-85.18	-29.79	-51.56	85.18	29.79	0.000%
7	51.56	-63.89	-29.79	-51.56	63.89	29.79	0.002%
8	60.16	-85.18	0.00	-60.16	85.18	-0.00	0.000%
9	60.16	-63.89	0.00	-60.16	63.89	-0.00	0.002%
10	53.98	-85.18	31.18	-53.98	85.18	-31.18	0.000%
11	53.98	-63.89	31.18	-53.97	63.89	-31.18	0.002%
12	29.10	-85.18	50.43	-29.10	85.18	-50.43	0.000%
13	29.10	-63.89	50.43	-29.10	63.89	-50.42	0.002%
14	0.00	-85.18	59.05	-0.00	85.18	-59.05	0.000%
15	0.00	-63.89	59.05	-0.00	63.89	-59.05	0.002%
16	-30.91	-85.18	53.56	30.91	85.18	-53.56	0.000%
17	-30.91	-63.89	53.56	30.91	63.89	-53.56	0.002%
18	-55.48	-85.18	32.05	55.48	85.18	-32.04	0.001%
19	-55.48	-63.89	32.05	55.47	63.89	-32.04	0.002%
20	-60.16	-85.18	0.00	60.16	85.18	-0.00	0.000%
21	-60.16	-63.89	0.00	60.16	63.89	-0.00	0.002%
22	-50.06	-85.18	-28.92	50.06	85.18	28.92	0.000%
23	-50.06	-63.89	-28.92	50.06	63.89	28.92	0.002%
24	-29.10	-85.18	-50.43	29.10	85.18	50.43	0.000%
25	-29.10	-63.89	-50.43	29.10	63.89	50.42	0.002%
26	0.00	-185.90	0.00	-0.00	185.90	-0.00	0.000%
27	0.00	-185.90	-17.27	-0.00	185.90	17.26	0.000%
28	8.67	-185.90	-15.01	-8.67	185.90	15.01	0.000%
29	15.15	-185.90	-8.75	-15.15	185.90	8.75	0.000%
30	17.20	-185.90	0.00	-17.20	185.90	-0.00	0.000%
31	15.03	-185.90	8.68	-15.03	185.90	-8.68	0.000%
32	8.27	-185.90	14.33	-8.27	185.90	-14.33	0.000%
33	0.00	-185.90	16.62	-0.00	185.90	-16.62	0.000%
34	-8.67	-185.90	15.01	8.67	185.90	-15.01	0.000%
35	-15.71	-185.90	9.07	15.71	185.90	-9.07	0.000%
36	-17.20	-185.90	0.00	17.20	185.90	-0.00	0.000%
37	-14.47	-185.90	-8.36	14.47	185.90	8.36	0.000%
38	-8.27	-185.90	-14.33	8.27	185.90	14.33	0.000%
39	0.00	-70.99	-15.20	0.00	70.99	15.20	0.001%
40	7.39	-70.99	-12.81	-7.39	70.99	12.81	0.001%
41	12.33	-70.99	-7.12	-12.33	70.99	7.12	0.001%
42	14.39	-70.99	0.00	-14.39	70.99	-0.00	0.001%
43	12.91	-70.99	7.46	-12.91	70.99	-7.46	0.001%
44	6.96	-70.99	12.06	-6.96	70.99	-12.06	0.001%
45	0.00	-70.99	14.12	-0.00	70.99	-14.12	0.001%
46	-7.39	-70.99	12.81	7.39	70.99	-12.81	0.001%
47	-13.27	-70.99	7.66	13.27	70.99	-7.66	0.001%
48	-14.39	-70.99	0.00	14.39	70.99	-0.00	0.001%
49	-11.97	-70.99	-6.92	11.97	70.99	6.92	0.001%
50	-6.96	-70.99	-12.06	6.96	70.99	12.06	0.001%

## Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	9	0.00000001	0.00004422



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3	Yes	8	0.0000001	0.00012870
4	Yes	9	0.0000001	0.00004522
5	Yes	8	0.0000001	0.00013250
6	Yes	9	0.0000001	0.00004628
7	Yes	8	0.0000001	0.00013640
8	Yes	9	0.0000001	0.00004529
9	Yes	8	0.0000001	0.00013275
10	Yes	9	0.0000001	0.00004424
11	Yes	8	0.0000001	0.00012880
12	Yes	9	0.0000001	0.00004551
13	Yes	8	0.0000001	0.00013338
14	Yes	9	0.0000001	0.00004641
15	Yes	8	0.0000001	0.00013676
16	Yes	9	0.0000001	0.00004524
17	Yes	8	0.0000001	0.00013253
18	Yes	9	0.0000001	0.00004415
19	Yes	8	0.0000001	0.00012848
20	Yes	9	0.0000001	0.00004529
21	Yes	8	0.0000001	0.00013274
22	Yes	9	0.0000001	0.00004639
23	Yes	8	0.0000001	0.00013671
24	Yes	9	0.0000001	0.00004550
25	Yes	8	0.0000001	0.00013334
26	Yes	6	0.0000001	0.00011092
27	Yes	9	0.0000001	0.00008695
28	Yes	9	0.0000001	0.00008593
29	Yes	9	0.0000001	0.00008515
30	Yes	9	0.0000001	0.00008380
31	Yes	9	0.0000001	0.00008378
32	Yes	9	0.0000001	0.00008392
33	Yes	9	0.0000001	0.00008489
34	Yes	9	0.0000001	0.00008590
35	Yes	9	0.0000001	0.00008709
36	Yes	9	0.0000001	0.00008748
37	Yes	9	0.0000001	0.00008810
38	Yes	9	0.0000001	0.00008765
39	Yes	8	0.0000001	0.00013675
40	Yes	8	0.0000001	0.00013711
41	Yes	8	0.0000001	0.00013766
42	Yes	8	0.0000001	0.00013673
43	Yes	8	0.0000001	0.00013629
44	Yes	8	0.0000001	0.00013753
45	Yes	8	0.0000001	0.00013825
46	Yes	8	0.0000001	0.00013723
47	Yes	8	0.0000001	0.00013640
48	Yes	8	0.0000001	0.00013710
49	Yes	8	0.0000001	0.00013815
50	Yes	8	0.0000001	0.00013777

**Maximum Tower Deflections - Service Wind**

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	2.581	39	0.1019	0.0273
T2	175 - 155	2.149	39	0.0998	0.0264
T3	155 - 135	1.717	39	0.0933	0.0228
T4	135 - 115	1.328	39	0.0827	0.0199
T5	115 - 95	0.984	39	0.0708	0.0174
T6	95 - 75	0.698	39	0.0573	0.0153

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T7	75 - 55	0.464	39	0.0445	0.0127
T8	55 - 40	0.275	47	0.0328	0.0094
T9	40 - 20	0.157	47	0.0239	0.0060
T10	20 - 0	0.053	47	0.0115	0.0028

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	APXVSPP18-C-A20 w/ Mount Pipe	39	2.474	0.1016	0.0273	Inf
180.00	AIR 6449 B41	39	2.258	0.1006	0.0269	357111
173.00	800 10121 w/ Mount Pipe	39	2.106	0.0994	0.0262	532054
160.00	Sector Mount [SM 410-3]	39	1.822	0.0954	0.0237	112344
147.00	BXA-171063-12CF-EDIN-X w/ Mount Pipe	39	1.555	0.0894	0.0215	92420

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	10.768	2	0.4255	0.1143
T2	175 - 155	8.967	2	0.4167	0.1106
T3	155 - 135	7.160	2	0.3894	0.0953
T4	135 - 115	5.539	2	0.3447	0.0832
T5	115 - 95	4.104	2	0.2952	0.0729
T6	95 - 75	2.912	2	0.2387	0.0642
T7	75 - 55	1.937	2	0.1855	0.0531
T8	55 - 40	1.151	18	0.1365	0.0392
T9	40 - 20	0.657	18	0.0995	0.0251
T10	20 - 0	0.222	18	0.0477	0.0118

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	APXVSPP18-C-A20 w/ Mount Pipe	2	10.321	0.4242	0.1142	258932
180.00	AIR 6449 B41	2	9.421	0.4202	0.1126	86311
173.00	800 10121 w/ Mount Pipe	2	8.784	0.4150	0.1095	129806
160.00	Sector Mount [SM 410-3]	2	7.601	0.3983	0.0993	26879
147.00	BXA-171063-12CF-EDIN-X w/ Mount Pipe	2	6.487	0.3728	0.0901	22149

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### Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	195	Leg	A325N	1.1250	4	3.12	67.10	0.047	1	Bolt Tension
T2	175	Leg	A325N	1.1250	6	8.08	67.10	0.120	1	Bolt Tension
		Diagonal	A325N	0.8750	1	6.08	9.07	0.670	1	Member Block Shear
T3	155	Leg	A325N	1.1250	6	14.50	67.10	0.216	1	Bolt Tension
		Diagonal	A325N	0.8750	1	7.42	15.12	0.491	1	Member Block Shear
T4	135	Leg	A325N	1.1250	6	20.62	67.10	0.307	1	Bolt Tension
		Diagonal	A325N	0.8750	1	7.74	13.46	0.575	1	Member Block Shear
T5	115	Leg	A325N	1.1250	8	19.59	67.10	0.292	1	Bolt Tension
		Diagonal	A325N	1.0000	1	8.46	20.33	0.416	1	Member Block Shear
T6	95	Leg	A325N	1.1250	8	23.46	67.10	0.350	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9.37	20.34	0.461	1	Member Block Shear
T7	75	Leg	A325N	1.2500	8	27.21	82.83	0.328	1	Bolt Tension
		Diagonal	A325N	1.0000	1	10.39	16.27	0.639	1	Member Block Shear
T8	55	Leg	A325N	1.2500	8	30.14	82.83	0.364	1	Bolt Tension
		Diagonal	A325N	1.0000	1	10.97	16.27	0.674	1	Member Block Shear
T9	40	Leg	A325N	1.2500	8	33.67	82.83	0.406	1	Bolt Tension
		Diagonal	A325N	1.0000	1	12.15	20.34	0.598	1	Member Block Shear
T10	20	Diagonal	A325N	1.0000	1	13.04	24.41	0.534	1	Member Block Shear

### Compression Checks

#### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.01	3.33	53.4 K=1.00	7.0686	-19.68	258.31	0.076 <sup>1</sup>
T2	175 - 155	3 3/4	20.03	6.68	85.5 K=1.00	11.0447	-60.76	291.32	0.209 <sup>1</sup>
T3	155 - 135	4	20.03	6.68	80.1 K=1.00	12.5664	-104.87	353.60	0.297 <sup>1</sup>
T4	135 - 115	4 1/4	20.03	6.68	75.4 K=1.00	14.1863	-146.32	421.17	0.347 <sup>1</sup>
T5	115 - 95	4 1/4	20.03	6.68	75.4 K=1.00	14.1863	-184.93	421.17	0.439 <sup>1</sup>
T6	95 - 75	4 1/2	20.03	6.68	71.2 K=1.00	15.9043	-222.32	493.88	0.450 <sup>1</sup>
T7	75 - 55	4 3/4	20.03	6.68	67.5 K=1.00	17.7205	-259.37	571.60	0.454 <sup>1</sup>

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Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T8	55 - 40	4 3/4	15.03	5.01	50.6 K=1.00	17.7205	-289.15	661.23	0.437 <sup>1</sup>
T9	40 - 20	4 3/4	20.03	6.68	67.5 K=1.00	17.7205	-325.48	571.60	0.569 <sup>1</sup>
T10	20 - 0	5	20.03	6.68	64.1 K=1.00	19.6350	-363.25	654.25	0.555 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.79	3.30	114.0 K=0.90	1.2272	-3.68	20.05	0.184 <sup>1</sup>
T2	175 - 155	L2 1/2x2 1/2x3/16	10.16	4.94	119.9 K=1.00	0.9020	-6.18	13.71	0.451 <sup>1</sup>
T3	155 - 135	L2 1/2x2 1/2x5/16	11.74	5.72	140.4 K=1.00	1.4600	-7.46	16.73	0.446 <sup>1</sup>
T4	135 - 115	L3x3x1/4	13.44	6.56	132.9 K=1.00	1.4400	-7.83	18.41	0.425 <sup>1</sup>
T5	115 - 95	L3x3x3/8	15.21	7.43	151.8 K=1.00	2.1100	-8.58	20.69	0.415 <sup>1</sup>
T6	95 - 75	L3 1/2x3 1/2x5/16	17.03	8.32	144.8 K=1.00	2.0900	-9.44	22.53	0.419 <sup>1</sup>
T7	75 - 55	L4x4x1/4	18.88	9.24	139.5 K=1.00	1.9400	-10.51	22.52	0.467 <sup>1</sup>
T8	55 - 40	L4x4x1/4	19.89	9.70	146.5 K=1.00	1.9400	-11.06	20.43	0.541 <sup>1</sup>
T9	40 - 20	L4x4x5/16	22.19	10.90	165.3 K=1.00	2.4000	-12.33	19.84	0.622 <sup>1</sup>
T10	20 - 0	L4x4x3/8	24.11	11.84	180.4 K=1.00	2.8600	-13.30	19.86	0.669 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.00	4.75	127.7 K=0.70	1.2272	-0.09	16.86	0.006 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

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### Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.00	5.75	154.6 K=0.70	1.2272	-0.38	11.61	0.033 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Tension Checks

### Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.01	3.33	53.4	7.0686	12.50	318.09	0.039 <sup>1</sup>
T2	175 - 155	3 3/4	20.03	6.68	85.5	11.0447	48.51	497.01	0.098 <sup>1</sup>
T3	155 - 135	4	20.03	6.68	80.1	12.5664	87.01	565.49	0.154 <sup>1</sup>
T4	135 - 115	4 1/4	20.03	6.68	75.4	14.1863	123.72	638.38	0.194 <sup>1</sup>
T5	115 - 95	4 1/4	20.03	6.68	75.4	14.1863	156.70	638.38	0.245 <sup>1</sup>
T6	95 - 75	4 1/2	20.03	6.68	71.2	15.9043	187.66	715.69	0.262 <sup>1</sup>
T7	75 - 55	4 3/4	20.03	6.68	67.5	17.7205	217.68	797.42	0.273 <sup>1</sup>
T8	55 - 40	4 3/4	15.03	5.01	50.6	17.7205	241.13	797.42	0.302 <sup>1</sup>
T9	40 - 20	4 3/4	20.03	6.68	67.5	17.7205	269.37	797.42	0.338 <sup>1</sup>
T10	20 - 0	5	20.03	6.68	64.1	19.6350	297.71	883.57	0.337 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.79	3.30	126.7	1.2272	3.64	39.76	0.091 <sup>1</sup>
T2	175 - 155	L2 1/2x2 1/2x3/16	10.16	4.94	78.6	0.5359	6.08	23.31	0.261 <sup>1</sup>
T3	155 - 135	L2 1/2x2 1/2x5/16	11.74	5.72	92.6	0.8606	7.42	37.44	0.198 <sup>1</sup>
T4	135 - 115	L3x3x1/4	13.44	6.56	86.5	0.8925	7.74	38.82	0.199 <sup>1</sup>
T5	115 - 95	L3x3x3/8	15.21	7.43	99.8	1.2661	8.46	55.08	0.154 <sup>1</sup>
T6	95 - 75	L3 1/2x3 1/2x5/16	17.03	8.32	94.3	1.3038	9.37	56.72	0.165 <sup>1</sup>
T7	75 - 55	L4x4x1/4	18.88	9.24	90.3	1.2441	10.39	54.12	0.192 <sup>1</sup>
T8	55 - 40	L4x4x1/4	19.89	9.70	94.7	1.2441	10.97	54.12	0.203 <sup>1</sup>
T9	40 - 20	L4x4x5/16	22.19	10.90	107.1	1.5363	12.15	66.83	0.182 <sup>1</sup>
T10	20 - 0	L4x4x3/8	24.11	11.84	117.2	1.8286	13.04	79.54	0.164 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls



<b>tnxTower</b>  <b>EFI Global, Inc.</b> 1117 Perimeter Center West, Suite 500 Atlanta, GA 30338 Phone: (770) 693 - 0835 FAX:	<b>Job</b>	CT11230A	<b>Page</b>	28 of 28
	<b>Project</b>	049.00850 - 2075059	<b>Date</b>	13:19:59 09/23/20
	<b>Client</b>	ForeSite, LLC	<b>Designed by</b>	Patrick.Baxter

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
						Diagonal (T8)	67.4	Pass
						Top Girt (T1)	0.6	Pass
						Bottom Girt (T1)	3.3	Pass
						Bolt Checks	67.4	Pass
						<b>RATING =</b>	<b>67.4</b>	<b>Pass</b>

Program Version 8.0.5.0 - 11/28/2018 File:C:/Users/patrick.baxter/inSync Share/EFI Marietta Workspace/Projects/2020/75 - ForeSite LLC/059 - CT11230A/TOWER SA/TNX/CT11230A.eri



Project Information	
Site #	CT11230A

Tower Information	
Tower Type	Self Support
TIA-222 Rev	G

Load Z Normalization

Applied Loads		
	Comp.	Uplift
Axial (k)	369.00	302.00
Shear (k)	39.00	33.00

Anchor Rod Data	
Quantity:	8
Diameter (in):	1.375
<a href="#">Material Grade:</a>	A449
Grout Considered:	No
$l_{ar}$ (in):	1
Eta Factor, $\eta$ :	0.5
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=81 ksi Fu=105 ksi

Anchor Rod Results	
Axial, $Pu_c$ (kips)	46.13
Shear, $Vu$ (kips)	4.88
Moment, $Mu$ (kip-in)	-
Axial Cap., $\phi Pn_t$ (kips)	97.44
Shear Cap., $\phi Vn$ (kips)	-
Moment Cap., $\phi Mn$ (kip-in)	-
Stress Rating	57.3%

Pass

# SST Unit Base Foundation

Site #:	CT11230A
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TIA-222 Revision:	G
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Top & Bot. Pad Rein. Different?:	<input type="checkbox"/>
Tower Centroid Offset?:	<input type="checkbox"/>
Block Foundation?:	<input type="checkbox"/>

Superstructure Analysis Reactions		
Global Moment, <b>M</b> :	6929	ft-kips
Global Axial, <b>P</b> :	85	kips
Global Shear, <b>V</b> :	64	kips
Leg Compression, <b>P<sub>comp</sub></b> :	369	kips
Leg Comp. Shear, <b>V<sub>u,comp</sub></b> :	39	kips
Leg Uplift, <b>P<sub>uplift</sub></b> :	302	kips
Leg Uplift. Shear, <b>V<sub>u,uplift</sub></b> :	33	kips
Tower Height, <b>H</b> :	195	ft
Base Face Width, <b>BW</b> :	23.5	ft
BP Dist. Above Fdn, <b>bp<sub>dist</sub></b> :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	446.03	64.00	14.3%	Pass
<i>Bearing Pressure (ksf)</i>	9.54	1.85	19.4%	Pass
<i>Overtuning (kip*ft)</i>	14845.40	7361.00	49.6%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	1045.65	156.00	14.9%	Pass
<i>Pier Flexure (Tension) (kip*ft)</i>	644.11	132.00	20.5%	Pass
<i>Pier Compression (kip)</i>	3374.26	374.09	11.1%	Pass
<i>Pad Flexure (kip*ft)</i>	2988.57	1373.32	46.0%	Pass
<i>Pad Shear - 1-way (kips)</i>	854.78	231.65	27.1%	Pass
<i>Pad Shear - Comp 2-way (ksi)</i>	0.164	0.079	48.2%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, <b>dpier</b> :	3.0	ft
Ext. Above Grade, <b>E</b> :	0.50	ft
Pier Rebar Size, <b>Sc</b> :	8	
Pier Rebar Quantity, <b>mc</b> :	20	
Pier Tie/Spiral Size, <b>St</b> :	3	
Pier Tie/Spiral Quantity, <b>mt</b> :	6	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, <b>cc<sub>pier</sub></b> :	3	in

Soil Rating:	49.6%
Structural Rating:	48.2%

Pad Properties		
Depth, <b>D</b> :	6.00	ft
Pad Width, <b>W</b> :	34.00	ft
Pad Thickness, <b>T</b> :	2.50	ft
Pad Rebar Size (Bottom), <b>Sp</b> :	8	
Pad Rebar Quantity (Bottom), <b>mp</b> :	34	
Pad Clear Cover, <b>cc<sub>pad</sub></b> :	3	in

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

Soil Properties		
Total Soil Unit Weight, <b>γ</b> :	120	pcf
Ultimate Net Bearing, <b>Qnet</b> :	12.000	ksf
Cohesion, <b>Cu</b> :	0.000	ksf
Friction Angle, <b>φ</b> :	30	degrees
SPT Blow Count, <b>N<sub>blows</sub></b> :		
Base Friction, <b>μ</b> :	0.5	
Neglected Depth, <b>N</b> :	3.3	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, <b>gw</b> :	N/A	ft

-- Toggle between Gross and Net

# Exhibit E

Date: 9/23/2020

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

**Subject: Mount Structural Analysis Report – Replacement**

**T-Mobile Designation:**                      **Site Name:**                      North Haven/ Rt 17  
**Site Number:**                      CT11230A

**EFI Designation:**                      **Project Number:** 049.00850 - 2075059

**Site Data:**                      **88 Parsonage Hill Road, North Branford, CT 06472**  
**Latitude 41.369440°, Longitude -72.810280°**

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

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

Existing + Proposed Equipment                      **Adequate Capacity (56.8%)**  
Note: See Analysis Criteria for loading configuration

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

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

Sincerely,  
EFI Global, Inc.  
License No: PEC0001245



Ahmet Colakoglu, PE  
Connecticut Professional Engineer  
License No: 27057

## 1) ANALYSIS CRITERIA

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

**Table 1 – Loading and Analysis Criteria**

<b>Rad Center</b>	180'
<b>Structure Type</b>	Self-Support Tower
<b>Exposure Category</b>	C
<b>Basic Wind Speed (3-Second Gust)</b>	$125 * \sqrt{0.6} = 97$ mph (Nominal)
<b>Ice Loading</b>	0.75" with 50 mph Wind
<b>Risk Category</b>	II
<b>Topographic Factor</b>	Kzt = 1.0

**Table 1.1 – Existing Appurtenance Configuration**

Qty	Model
3	Andrew LNX-6515DS-A1M – Antennas
3	Ericsson AIR21 B2A B4P – Antennas
3	Ericsson AIR21 B2P B4A – Antennas
3	RRUS 11 B12 – RRUs
3	Generic Twin Style 1B - AWS – TMAs

**Table 1.2 – Proposed and Final Appurtenance Configuration**

Qty	Model
3	Ericsson AIR6449 B41 – Antennas
3	RFS APXVAALL24_43-U-NA20 – Antennas
3	Ericsson AIR32 B66A B2A – Antennas
3	Radio 4449 B71 + B85 – RRUs*
3	Radio 4415 B25 – RRUs*
3	Generic Twin Style 1B - AWS – TMAs*
3	Commscope SDX1926Q-43 – Diplexers*
-	Valmont/Site Pro 1 12'-6" Heavy Duty V-Frame Assembly with Two Stiff Arms (P/N: VFA12-HD)

**\*To be mounted behind antennas**

**Table 1.3 – Assumed Material Properties**

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

## 2) ANALYSIS PROCEDURE

The analysis is based on the following information:

**Table 2 – Documents**

Document	Provided By	Date
RFDS	T-Mobile	08/24/2020
Mount Structural Evaluation	Destek Engineering	07/16/2019
Structural Analysis Report	Destek Engineering	07/16/2019
Site Photographs	-	04/15/2019

## 2.1) Analysis Method

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

## 2.2) Analysis Conditions and Assumptions

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

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



### 3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

**Table 3.1 – Mount Component Stresses vs. Capacity**

Component	% Capacity	Pass / Fail
Horizontal Face Pipe	27.7	Pass
Horizontal Standoff Pipe	34.6	Pass
Vertical Standoff Solid Rod	52.8	Pass
Diagonal Standoff Solid Rod	29.1	Pass
Antenna Mount Pipe	56.8	Pass
Connection Plates	41.6	Pass
Pipe Kicker	<20.0	Pass

**Sector Mounts:** The proposed sector mounts have **adequate** capacity for the proposed changes by T-Mobile. **The existing sector mount at each sector should be replaced with Valmont/Site Pro 1 12'-6" Heavy Duty V-Frame Assembly with Two Stiff Arms (P/N: VFA12-HD), specs as attached on appendix.** For the code specified load combinations and as a maximum, the mount members are stressed to **56.8%** of their structural capacity.

**This analysis also assumes the following:**

- **The mount centerline is equal to the antenna RAD centerline.**
- **(4) 96" long 2.0 STD mount pipes are equally spaced along the face.**
- **The (2) tieback arms are attached directly to the adjacent mount's tower legs.**

**APPENDIX**

**INPUT LOADS**  
**ANALYSIS OUTPUT**  
**MOUNT SPECIFICATIONS**

CLIENT: Foresite LLC / T-Mobile  
 PROJECT: CT11230A  
 SUBJECT: Antenna Loads - G Code with Sections 16 Revisions

Tower Height 195.00 ft Type of Mount Sector  
 Basic Wind Speed, V 97 mph (=Ultimate Speed\* $\sqrt{0.6}$ )  
 Basic Wind Speed with Ice,  $V_i$  50 mph  
 Maintenance Load Factor,  $L_{FM}$  0.0957 Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)  
 Design Ice Thickness,  $t_i$  0.75 inches

Table 2-3 Importance Factors

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

Table 2-4 Exposure Category Coefficients

Exposure Category	Zg	$\alpha$	Kzmin	Ke	m
C	900	9.5	0.85	1	0.6

Table 2-5 Topographic Categories

Kzt 1.000

Table 2-2 Wind Directionality Factor, Kd

Structure Type	Kd
Lattice Tower	0.95

DOES NOT CHANGE

Gust Effect Factor Gh

Structure Type	Gh
Lattice Tower	1.00

DOES NOT CHANGE

Shielding Factor, Ka

Structure Type	Ka
Lattice Tower	0.90

DOES NOT CHANGE

CLIENT: Foresite LLC / T-Mobile  
 PROJECT: CT11230A  
 SUBJECT: Antenna Loads - G Code with Sections 16 Revisions

Rad Center 180.00 ft

**Antenna AND Mount Without Ice**

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A <sub>N</sub> (ft <sup>2</sup> )	***A <sub>T</sub> (ft <sup>2</sup> )	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K <sub>z</sub>	q <sub>z</sub> (psf)	Pounds					
																	Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load
Pos. 1	180.00	Ericsson AIR6449 B41	1	114.6	33.1	20.5	8.5	0.90	4.72	1.96	1.61	3.88	1.20	1.26	1.432	32.8	166.9	73.0	114.63	167	73	115
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	84	37	58
Pos.2	180.00	RFS APXVAALL24_43-U-NA20	1	149.9	95.9	24.0	8.5	0.90	15.98	5.66	4.00	11.28	1.27	1.54	1.432	32.8	597.1	257.6	149.9	597	333	284
		Commscope SDX1926Q-43	1	6.2	4.2	N/A	2.9	0.90	-	0.08	-	1.43	-	1.20	1.432	32.8	0.0	3.0	6.17			
		Radio 4449 B71+B85	1	73.2	17.9	N/A	10.6	0.90	-	1.32	-	1.68	-	1.20	1.432	32.8	0.0	46.8	73.21			
		Radio 4415 B25	1	44.0	15.0	N/A	5.4	0.90	-	0.56	-	2.78	-	1.21	1.432	32.8	0.0	20.0	44			
		Generic Twin Style 1B - AWS	1	11.0	7.0	N/A	3.0	0.90	-	0.15	-	2.33	-	1.20	1.432	32.8	0.0	5.2	11	299	167	143
Pos.3	180.00	Ericsson AIR32 B66A_B2A	1	172.0	59.3	12.9	8.7	0.90	5.30	3.58	4.60	6.81	1.29	1.39	1.432	32.8	202.0	146.9	171.96	202	147	172
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	102	74	86
Pos.4	180.00	Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	0	0	0
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	0	0	0

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

\*\* A<sub>N</sub> is the product of H and W

\*\*\* A<sub>T</sub> is the product of H and D

DL #REF!

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	*** Ca	K <sub>z</sub>	q <sub>z</sub> (psf)	Wind Load (PLF)
	180.00	2.5 STD Pipe	12.00	2.88	0.00	1.20	1.432	29.5	8
	180.00	2.0 STD Pipe	12.00	2.38	0.00	1.20	1.432	29.5	7
	180.00	5/8" SR	12.00	0.63	0.00	1.20	1.432	29.5	2
	180.00	3/4" SR	12.00	0.75	0.00	1.20	1.432	29.5	2
	180.00	L3x3x4	0.00	3.00	3.00	-	-	-	-
	180.00	L3x1.75x3	0.00	3.00	1.75	-	-	-	-
	180.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-
	180.00	Plate Horizontal (PL0.625x3.5)	12.00	0.63	3.50	2.00	1.432	29.5	3
	180.00	Plate Horizontal (PL2x0.625)	0.00	2.00	0.63	-	-	-	-
	180.00	Tube Radial (4x4)	0.00	4.00	4.00	-	-	-	-
	180.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00	-	-	-	-
	180.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-
	180.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-
	180.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38	-	-	-	-

\* The dimension L is the longest dimension of the member

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

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

CLIENT: Foresite LLC / T-Mobile  
 PROJECT: CT11230A  
 SUBJECT: Antenna Loads - G Code with Sections 16 Revisions

ti (in) 1.777326 Kiz 1.1848841 reduction 0.2657

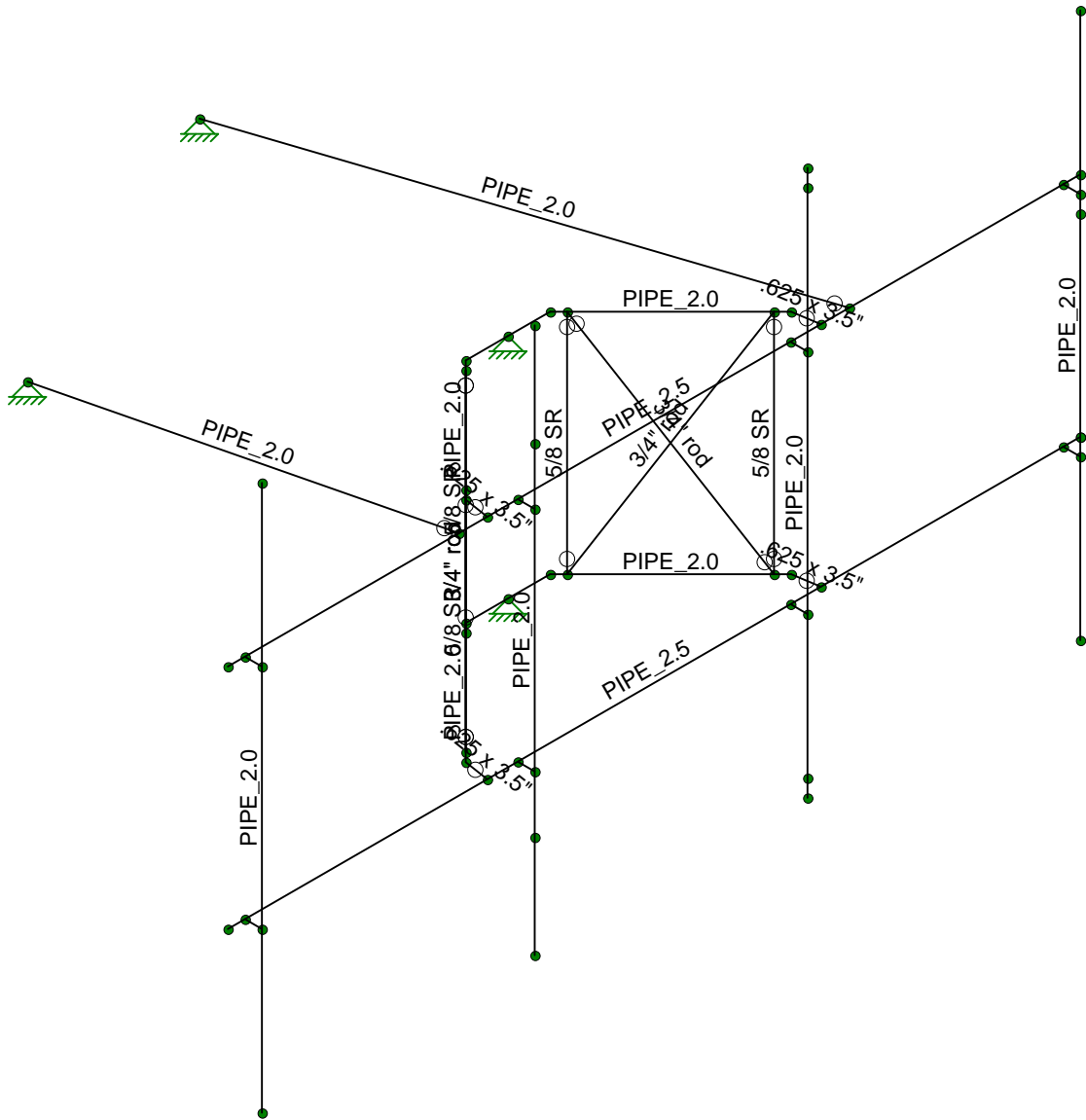
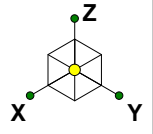
Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A <sub>N</sub> (ft2)	*A <sub>T</sub> (ft2)	*Volume Ice (ft3)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q <sub>z</sub> (psf)	Pounds							
																Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	***Total Wind Load (Front)	***Total Wind Load (Side)	Total Ice Load
Pos. 1	180.00	Ericsson AIR6449 B41	1	33.1	20.5	8.5	0.90	1.41	1.12	2.82	157.89	0.70	0.71	1.432	8.7	7.7	6.2	52.1	25.6	158	52	26	158
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.2	180.00	RFS APXVAALL24_43-U-NA20	1	95.9	24.0	8.5	0.90	3.05	2.66	7.80	436.57	0.72	0.83	1.432	8.7	17.3	17.3	176.0	85.7	437	176	117	607
		Commscope SDX1926Q-43	1	4.2	6.9	2.9	0.90	-	0.26	0.25	14.25	0.70	0.70	1.432	8.7	0.0	1.4	0.0	2.2	14			
		Radio 4449 B71+B85	1	17.9	13.2	10.6	0.90	-	0.79	1.50	83.88	0.70	0.70	1.432	8.7	0.0	4.3	0.0	16.8	84			
		Radio 4415 B25	1	15.0	13.2	5.4	0.90	-	0.59	0.99	55.40	0.70	0.70	1.432	8.7	0.0	3.2	0.0	8.6	55			
		Generic Twin Style 1B - AWS	1	7.0	6.0	3.0	0.90	-	0.33	0.31	17.34	0.70	0.70	1.432	8.7	0.0	1.8	0.0	3.2	17			
Pos.3	180.00	Ericsson AIR32 B66A_B2A	1	59.3	12.9	8.7	0.90	1.87	1.77	3.48	194.67	0.73	0.76	1.432	8.7	10.7	10.5	64.4	49.5	195	64	50	195
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.4	180.00	Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	0	0	0
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
															0	0	0	0	0	0	0	0	

\* A<sub>N</sub>, A<sub>T</sub>, Volume Ice and Weight Ice are calculated per unit  
 \*\* Ca will equal 1.2 for all ice load calculations

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A <sub>N</sub> (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q <sub>z</sub> (psf)	PLF		
												Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	180.00	2.5 STD Pipe	12.00	2.88	0.00	0.45	0.18	10.10	1.20	1.432	7.8	4.3	6.5	10
	180.00	2.0 STD Pipe	12.00	2.38	0.00	0.44	0.16	9.02	1.20	1.432	7.8	4.2	6.0	9
	180.00	5/8" SR	12.00	0.63	0.00	0.40	0.09	5.22	1.20	1.432	7.8	3.8	4.2	5
	180.00	3/4" SR	12.00	0.75	0.00	0.40	0.10	5.49	1.20	1.432	7.8	3.8	4.4	5
	180.00	L3x3x4	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	180.00	L3x1.75x3	0.00	3.00	1.75	-	-	-	-	-	-	-	-	-
	180.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	180.00	Plate Horizontal (PL0.625x3.5)	12.00	0.63	3.50	0.40	0.25	14.01	1.20	1.432	7.8	3.8	4.6	14
	180.00	Plate Horizontal (PL2x0.625)	0.00	2.00	0.63	-	-	-	-	-	-	-	-	-
	180.00	Tube Radial (4x4)	0.00	4.00	4.00	-	-	-	-	-	-	-	-	-
	180.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00	-	-	-	-	-	-	-	-	-
	180.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	180.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	180.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38	-	-	-	-	-	-	-	-	-

\* The dimension L is the longest dimension of the member  
 \*\* The dimension W is the height or width of the member that resists wind load  
 \*\*\* A<sub>N</sub> is the area of ice built up on the LW plane  
 \*\*\*\* Ca will equal 1.2 for all ice load calculations



Envelope Only Solution

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AG

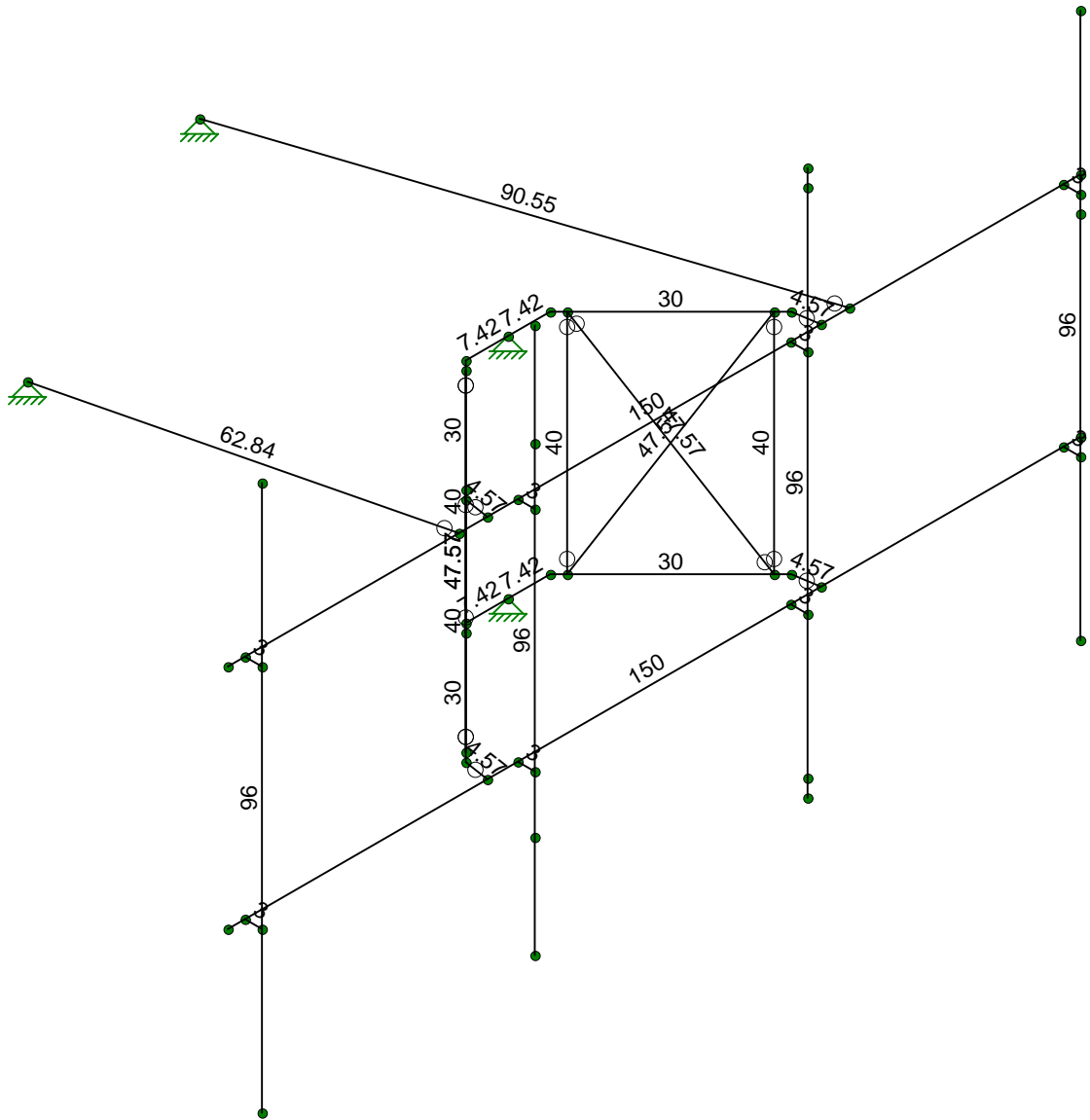
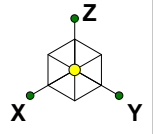
2075059

CT11230A

SK - 1

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Member Length (in) Displayed  
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AG  
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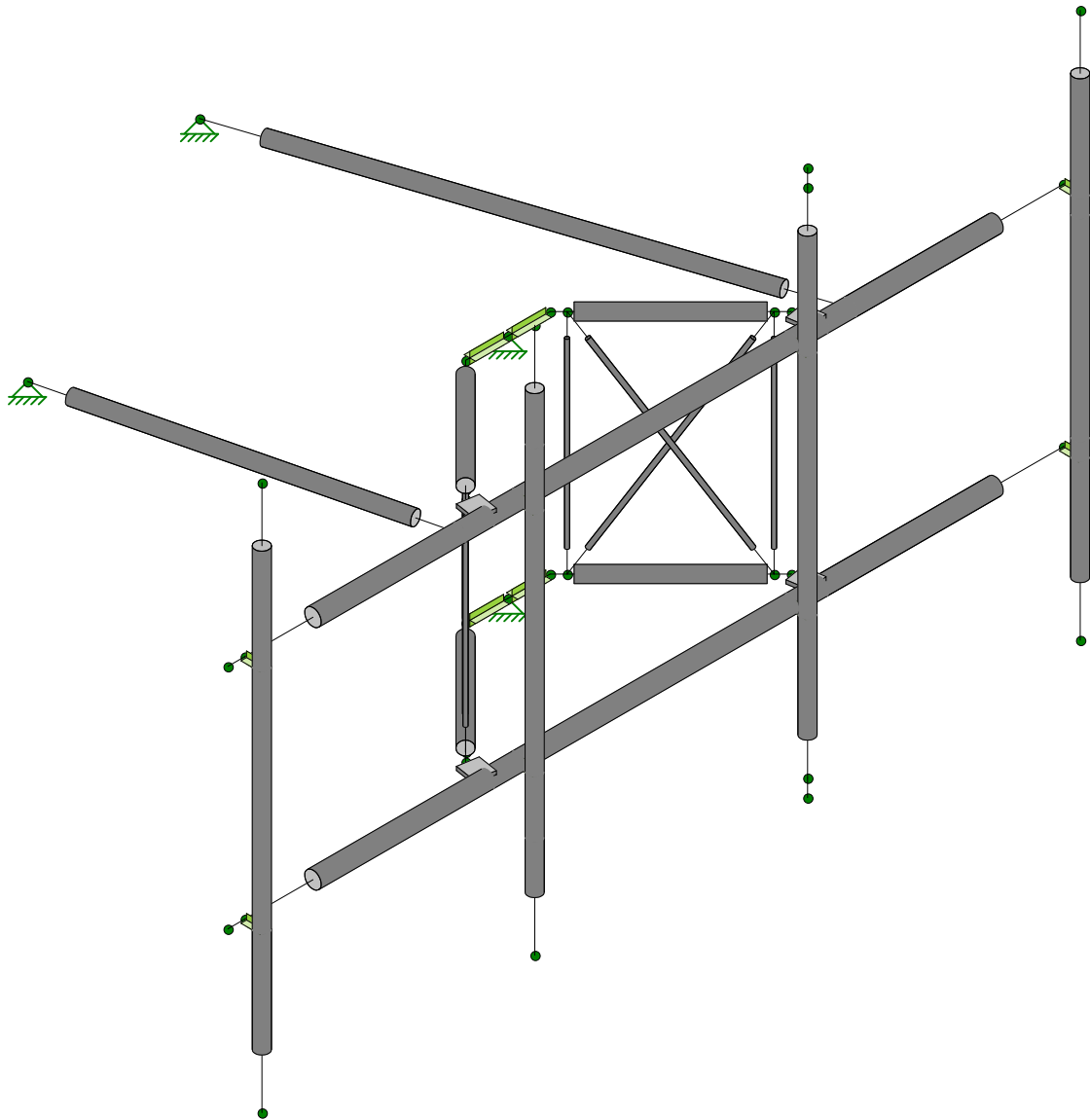
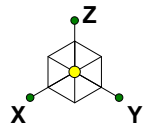
CT11230A

SK - 2

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AG

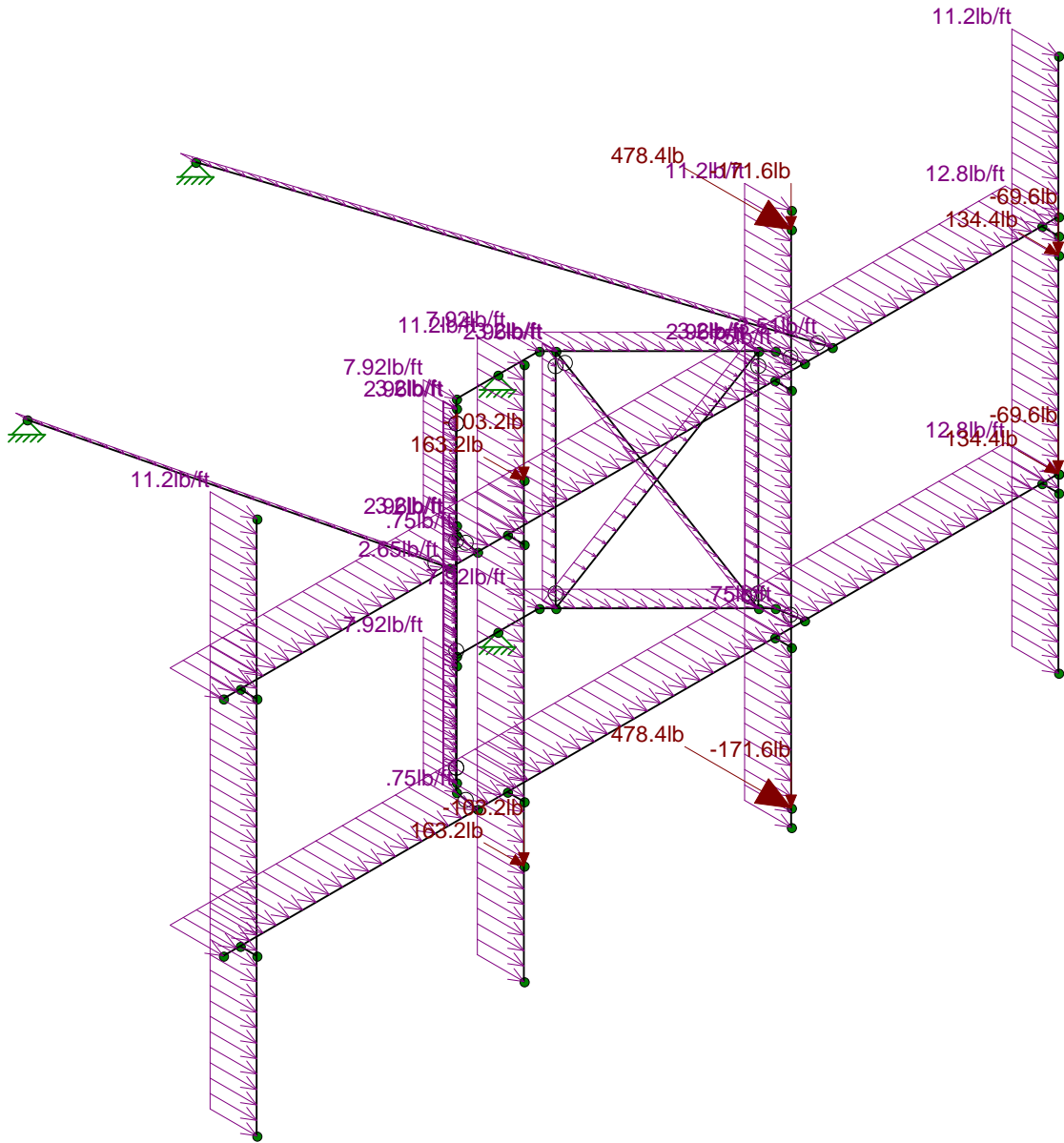
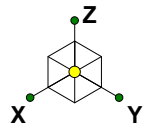
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CT11230A

SK - 3

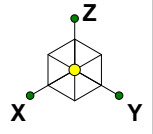
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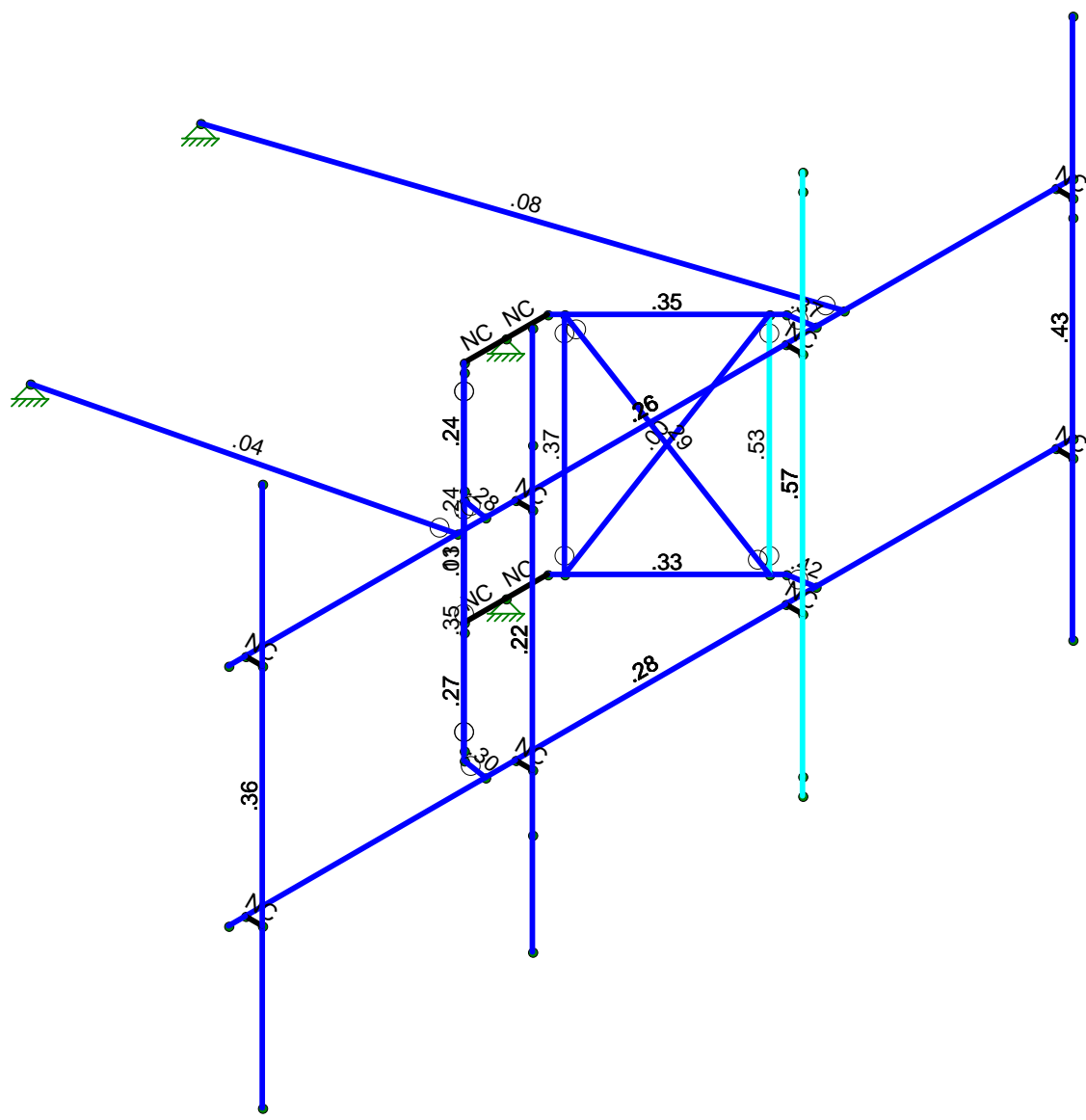
Loads: LC 1, DL + WL (NO ICE) 0 Degree  
Envelope Only Solution

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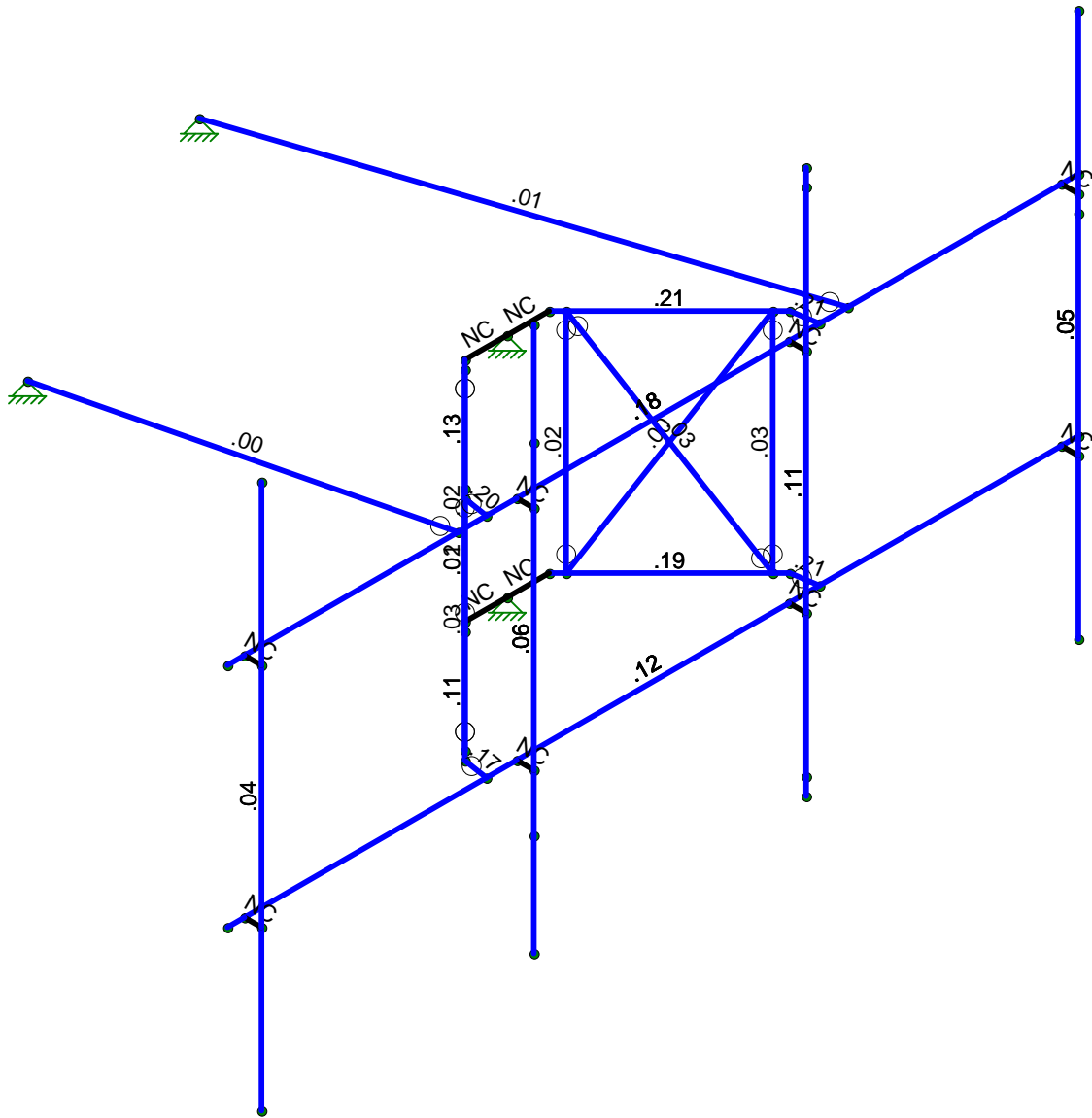
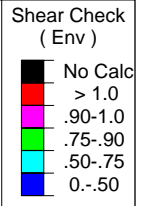
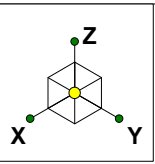
Code Check (Env)

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



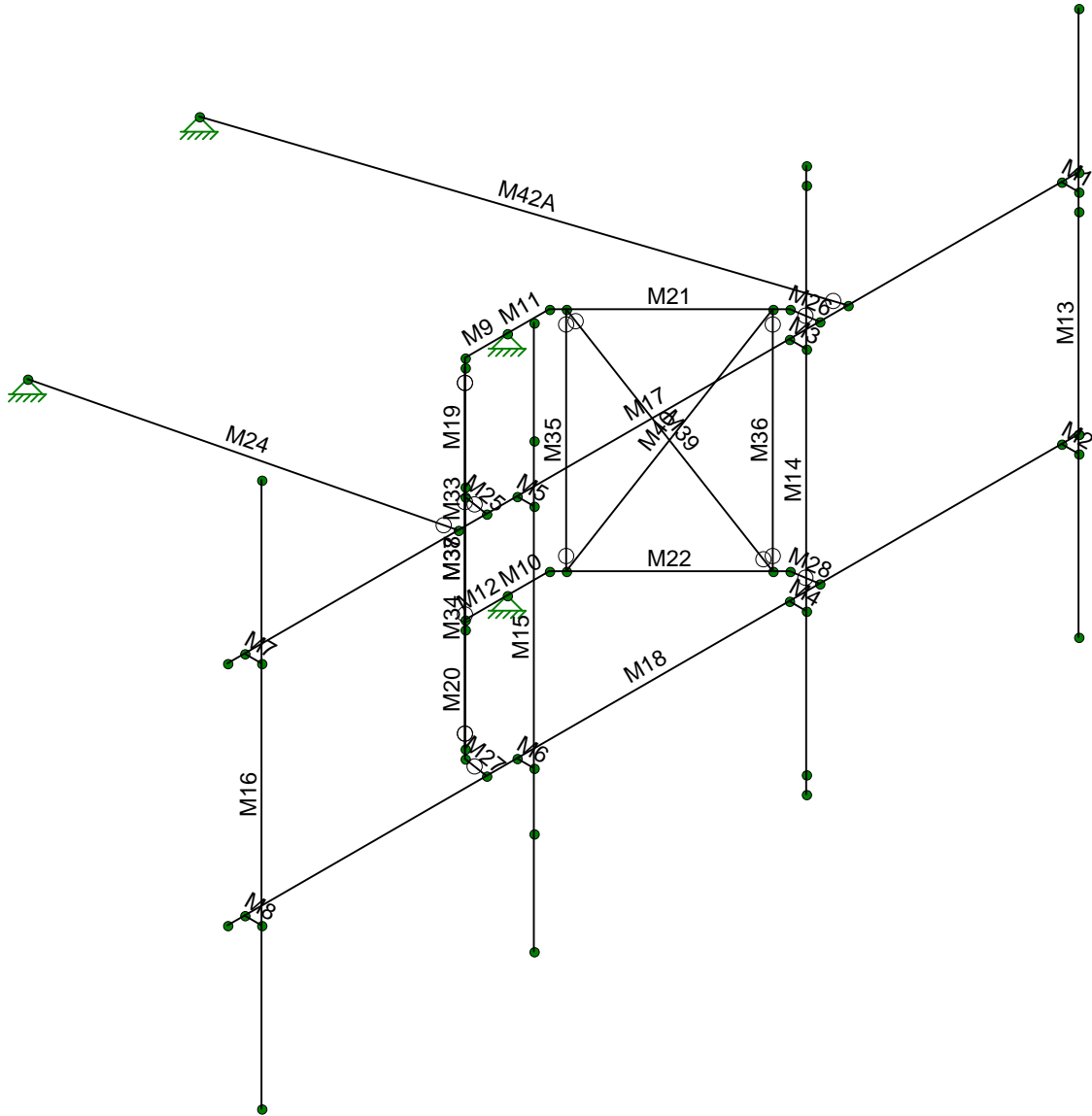
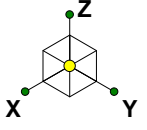
Member Code Checks Displayed (Enveloped)  
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AG	CT11230A	Sept 21, 2020 at 10:29 AM
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Member Shear Checks Displayed (Enveloped)  
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AG		Sept 21, 2020 at 10:30 AM
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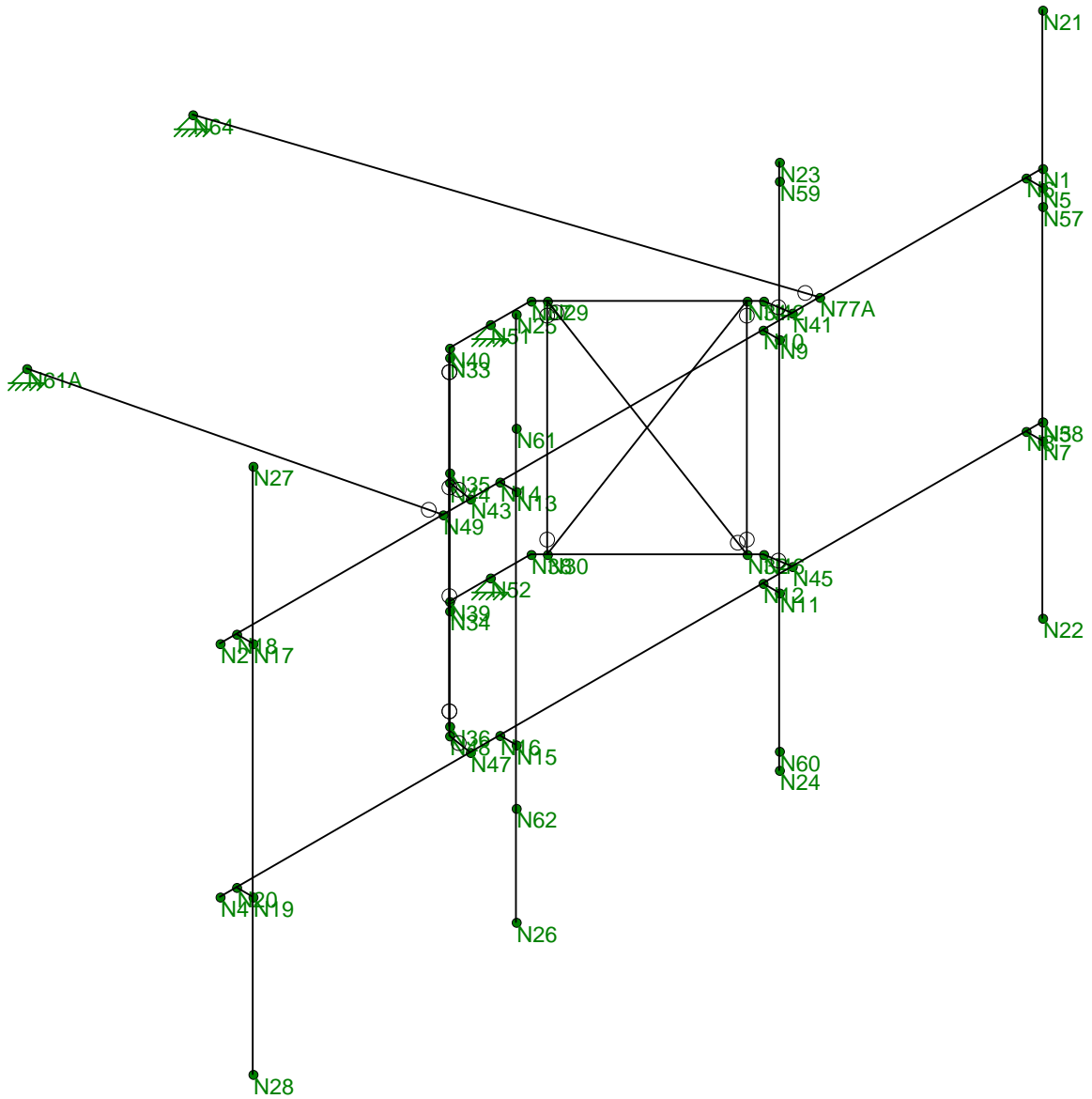
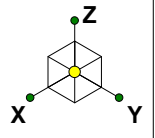


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AG
2075059

CT11230A

SK - 7
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AG	CT11230A	Sept 21, 2020 at 10:30 AM
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Company : Foresite LLC / EFI Global Inc.  
 Designer : AG  
 Job Number : 2075059  
 Model Name : CT11230A

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**(Global) Model Settings**

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Z
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISACONNECTION CODE	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI NAS-01: ASD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building AISC 14th(360-10): ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8



Company : Foresite LLC / EFI Global Inc.  
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**(Global) Model Settings, Continued**

Seismic Code	ASCE 7-05
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	Not Entered
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

**Project Grid Lines**

Label	Start X [in]	End X [in]	Start Y [in]	End Y [in]	Start Bubble	End Bubble
No Data to Print ...						

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm (1E...Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.5	60	1.2
7	A529 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rules	A [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	HR1A	C15x50	Beam	Wide Flange	A36 Gr.36	Typical	14.7	11	404	2.65

**Member Primary Data**

	Label	I Joint	J Joint	... Rotate...	Section/Shape	Type	Design List	Material	Design ...
1	M12	N52	N39		RIGID	None	None	LINK	Typical
2	M11	N51	N37		RIGID	None	None	LINK	Typical
3	M10	N38	N52		RIGID	None	None	LINK	Typical
4	M9	N40	N51		RIGID	None	None	LINK	Typical
5	M8	N19	N20		RIGID	None	None	LINK	Typical
6	M7	N17	N18		RIGID	None	None	LINK	Typical
7	M6	N15	N16		RIGID	None	None	LINK	Typical
8	M5	N13	N14		RIGID	None	None	LINK	Typical





Company : Foresite LLC / EFI Global Inc.  
 Designer : AG  
 Job Number : 2075059  
 Model Name : CT11230A

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**Member Primary Data (Continued)**

	Label	I Joint	J Joint	... Rotate...	Section/Shape	Type	Design List	Material	Design ...
9	M4	N11	N12		RIGID	None	None	LINK	Typical
10	M3	N9	N10		RIGID	None	None	LINK	Typical
11	M2	N7	N8		RIGID	None	None	LINK	Typical
12	M1	N5	N6		RIGID	None	None	LINK	Typical
13	M18	N3	N4		PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical
14	M17	N1	N2		PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical
15	M24	N49	N61A		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
16	M22	N38	N46		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
17	M21	N37	N42		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
18	M20	N39	N48		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
19	M19	N40	N44		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
20	M16	N27	N28		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
21	M15	N25	N26		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
22	M14	N23	N24		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
23	M13	N21	N22		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
24	M42A	N77A	N64		PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
25	M36	N31	N32		5/8 SR	Beam	BAR	A36 Gr.36	Typical
26	M35	N29	N30		5/8 SR	Beam	BAR	A36 Gr.36	Typical
27	M34	N35	N36		5/8 SR	Beam	BAR	A36 Gr.36	Typical
28	M33	N33	N34		5/8 SR	Beam	BAR	A36 Gr.36	Typical
29	M40	N31	N30		3/4" rod	Beam	BAR	A36 Gr.36	Typical
30	M39	N29	N32		3/4" rod	Beam	BAR	A36 Gr.36	Typical
31	M38	N33	N36		3/4" rod	Beam	BAR	A36 Gr.36	Typical
32	M37	N35	N34		3/4" rod	Beam	BAR	A36 Gr.36	Typical
33	M28	N46	N45		.625 x 3.5"	None	None	A36 Gr.36	Typical
34	M27	N48	N47		.625 x 3.5"	None	None	A36 Gr.36	Typical
35	M26	N42	N41		.625 x 3.5"	None	None	A36 Gr.36	Typical
36	M25	N44	N43		.625 x 3.5"	None	None	A36 Gr.36	Typical

**Member Advanced Data**

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M12						Yes			None
2	M11						Yes			None
3	M10						Yes			None
4	M9						Yes			None
5	M8						Yes			None
6	M7						Yes			None
7	M6						Yes			None
8	M5						Yes			None
9	M4						Yes			None
10	M3						Yes			None
11	M2						Yes			None
12	M1						Yes			None
13	M18						Yes			None
14	M17						Yes			None
15	M24	BenPIN					Yes			None
16	M22						Yes			None
17	M21						Yes			None
18	M20						Yes			None
19	M19						Yes			None
20	M16						Yes			None
21	M15						Yes			None
22	M14						Yes			None
23	M13						Yes			None
24	M42A	BenPIN					Yes			None



Company : Foresite LLC / EFI Global Inc.  
 Designer : AG  
 Job Number : 2075059  
 Model Name : CT11230A

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### Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
25	M36	BenPIN	BenPIN				Yes			None
26	M35	BenPIN	BenPIN				Yes			None
27	M34	BenPIN	BenPIN				Yes			None
28	M33	BenPIN	BenPIN				Yes			None
29	M40					Tension O...	Yes			None
30	M39	BenPIN	BenPIN				Yes			None
31	M38	BenPIN	BenPIN				Yes			None
32	M37					Tension O...	Yes			None
33	M28		BenPIN				Yes			None
34	M27		BenPIN				Yes			None
35	M26		BenPIN				Yes			None
36	M25		BenPIN				Yes			None

### Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M18	PIPE 2.5	150									Lateral
2	M17	PIPE 2.5	150									Lateral
3	M24	PIPE 2.0	62.84									Lateral
4	M22	PIPE 2.0	30									Lateral
5	M21	PIPE 2.0	30									Lateral
6	M20	PIPE 2.0	30									Lateral
7	M19	PIPE 2.0	30									Lateral
8	M16	PIPE 2.0	96									Lateral
9	M15	PIPE 2.0	96									Lateral
10	M14	PIPE 2.0	96									Lateral
11	M13	PIPE 2.0	96									Lateral
12	M42A	PIPE 2.0	90.55									Lateral
13	M36	5/8 SR	40	33.62	33.62				.7	.7		Lateral
14	M35	5/8 SR	40	33.62	33.62				.7	.7		Lateral
15	M34	5/8 SR	40	33.62	33.62				.7	.7		Lateral
16	M33	5/8 SR	40	33.62	33.62				.7	.7		Lateral
17	M40	3/4" rod	47.57									Lateral
18	M39	3/4" rod	47.57						.7	.7		Lateral
19	M38	3/4" rod	47.57						.7	.7		Lateral
20	M37	3/4" rod	47.57									Lateral
21	M28	.625 x 3.5"	4.57									Lateral
22	M27	.625 x 3.5"	4.57									Lateral
23	M26	.625 x 3.5"	4.57									Lateral
24	M25	.625 x 3.5"	4.57									Lateral

### Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	-75	0	40	0	
2	N2	75	0	40	0	
3	N3	-75	0	0	0	
4	N4	75	0	0	0	
5	N5	-72	3	40	0	
6	N6	-72	0	40	0	
7	N7	-72	3	0	0	
8	N8	-72	0	0	0	
9	N9	-24	3	40	0	
10	N10	-24	0	40	0	
11	N11	-24	3	0	0	
12	N12	-24	0	0	0	



**Joint Coordinates and Temperatures (Continued)**

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
13	N13	24	3	40	0	
14	N14	24	0	40	0	
15	N15	24	3	0	0	
16	N16	24	0	0	0	
17	N17	72	3	40	0	
18	N18	72	0	40	0	
19	N19	72	3	0	0	
20	N20	72	0	0	0	
21	N21	-72	3	68	0	
22	N22	-72	3	-28	0	
23	N23	-24	3	68	0	
24	N24	-24	3	-28	0	
25	N25	24	3	68	0	
26	N26	24	3	-28	0	
27	N27	72	3	68	0	
28	N28	72	3	-28	0	
29	N29	-8.927223	-24.223102	40	0	
30	N30	-8.927223	-24.223102	0	0	
31	N31	-27.135223	-6.015102	40	0	
32	N32	-27.135223	-6.015102	0	0	
33	N33	8.927223	-24.223102	40	0	
34	N34	8.927223	-24.223102	0	0	
35	N35	27.135223	-6.015102	40	0	
36	N36	27.135223	-6.015102	0	0	
37	N37	-7.424621	-25.725704	40	0	
38	N38	-7.424621	-25.725704	0	0	
39	N39	7.424621	-25.725704	0	0	
40	N40	7.424621	-25.725704	40	0	
41	N41	-29.35	0	40	0	
42	N42	-28.637825	-4.5125	40	0	
43	N43	29.35	0	40	0	
44	N44	28.637825	-4.5125	40	0	
45	N45	-29.35	0	-7.1e-15	0	
46	N46	-28.637825	-4.5125	0	0	
47	N47	29.35	0	7.1e-15	0	
48	N48	28.637825	-4.5125	0	0	
49	N49	34.35	0	39.999996	0	
50	N51	0	-25.725704	40	0	
51	N52	0	-25.725704	0	0	
52	N77A	-34.35	0	39.999996	0	
53	N64	-6	-86	39.999998	0	
54	N57	-72	3	37	0	
55	N58	-72	3	3	0	
56	N59	-24	3	65	0	
57	N60	-24	3	-25	0	
58	N61	24	3	50	0	
59	N62	24	3	-10	0	
60	N61A	49.199072	-61.059004	40	0	

**Joint Boundary Conditions**

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N51	Reaction	Reaction	Reaction			
2	N52	Reaction	Reaction	Reaction			
3	N64	Reaction	Reaction	Reaction			
4	N61A	Reaction	Reaction	Reaction			



**Basic Load Cases**

	BLC Description	Category	X Gravi..	Y Gravi..	Z Gravity	Joint	Point	Distrib...	Area(M..	Surfac...
1	DEAD LOAD	None			-1	6				
2	DEAD LOAD ICE	None				6		24		
3	WIND LOAD (NO ICE) FRONT	None				6		24		
4	WIND LOAD (NO ICE) SIDE	None				6		24		
5	WIND LOAD (ICE) FRONT	None				6		24		
6	WIND LOAD (ICE) SIDE	None				6		24		
7	LIVE LOAD1	None				1				
8	LIVE LOAD2	None				1				
9	LIVE LOAD3	None								
10	MAINTENANCE LOAD 1	None				1				
11	MAINTENANCE LOAD 2	None				1				
12	MAINTENANCE LOAD 3	None				1				
13	MAINTENANCE LOAD 4	None				1				

**Joint Loads and Enforced Displacements (BLC 1 : DEAD LOAD)**

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N57	L	Z	-58
2	N58	L	Z	-58
3	N60	L	Z	-143
4	N59	L	Z	-143
5	N61	L	Z	-86
6	N62	L	Z	-86

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N57	L	Z	-79
2	N58	L	Z	-79
3	N60	L	Z	-304
4	N59	L	Z	-304
5	N61	L	Z	-98
6	N62	L	Z	-98

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N57	L	Y	84
2	N58	L	Y	84
3	N60	L	Y	299
4	N59	L	Y	299
5	N61	L	Y	102
6	N62	L	Y	102

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N57	L	X	37
2	N58	L	X	37
3	N60	L	X	167
4	N59	L	X	167
5	N61	L	X	74
6	N62	L	X	74

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
--	-------------	-------	-----------	---



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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N57	L	Y	27
2	N58	L	Y	27
3	N60	L	Y	88
4	N59	L	Y	88
5	N61	L	Y	33
6	N62	L	Y	33

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N57	L	X	13
2	N58	L	X	13
3	N60	L	X	59
4	N59	L	X	59
5	N61	L	X	25
6	N62	L	X	25

**Joint Loads and Enforced Displacements (BLC 7 : LIVE LOAD1)**

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N3	L	Z	-250

**Joint Loads and Enforced Displacements (BLC 8 : LIVE LOAD2)**

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N4	L	Z	-250

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N22	L	Z	-500

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N24	L	Z	-500

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N26	L	Z	-500

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N28	L	Z	-500

**Member Point Loads**

Member Label	Direction	Magnitude[lb.k-ft]	Location[in,%]
No Data to Print ...			

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M18	Z	-10	-10	0	0
2	M17	Z	-10	-10	0	0
3	M24	Z	-9	-9	0	0
4	M22	Z	-9	-9	0	0



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 Designer : AG  
 Job Number : 2075059  
 Model Name : CT11230A

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

	Member Label	Direction	Start Magnitude[lb/ft,...]	End Magnitude[lb/ft,...]	Start Location[in, %]	End Location[in, %]
5	M21	Z	-9	-9	0	0
6	M20	Z	-9	-9	0	0
7	M19	Z	-9	-9	0	0
8	M16	Z	-9	-9	0	0
9	M15	Z	-9	-9	0	0
10	M14	Z	-9	-9	0	0
11	M13	Z	-9	-9	0	0
12	M42A	Z	-9	-9	0	0
13	M36	Z	-5	-5	0	0
14	M35	Z	-5	-5	0	0
15	M34	Z	-5	-5	0	0
16	M33	Z	-5	-5	0	0
17	M40	Z	-5	-5	0	0
18	M39	Z	-5	-5	0	0
19	M38	Z	-5	-5	0	0
20	M37	Z	-5	-5	0	0
21	M28	Z	-14	-14	0	0
22	M27	Z	-14	-14	0	0
23	M26	Z	-14	-14	0	0
24	M25	Z	-14	-14	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,...]	End Magnitude[lb/ft,...]	Start Location[in, %]	End Location[in, %]
1	M18	PY	8	8	0	0
2	M17	PY	8	8	0	0
3	M24	PY	7	7	0	0
4	M22	PY	7	7	0	0
5	M21	PY	7	7	0	0
6	M20	PY	7	7	0	0
7	M19	PY	7	7	0	0
8	M16	PY	7	7	0	0
9	M15	PY	7	7	0	0
10	M14	PY	7	7	0	0
11	M13	PY	7	7	0	0
12	M42A	PY	7	7	0	0
13	M36	PY	2	2	0	0
14	M35	PY	2	2	0	0
15	M34	PY	2	2	0	0
16	M33	PY	2	2	0	0
17	M40	PY	2	2	0	0
18	M39	PY	2	2	0	0
19	M38	PY	2	2	0	0
20	M37	PY	2	2	0	0
21	M28	PY	3	3	0	0
22	M27	PY	3	3	0	0
23	M26	PY	3	3	0	0
24	M25	PY	3	3	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,...]	End Magnitude[lb/ft,...]	Start Location[in, %]	End Location[in, %]
1	M18	PX	8	8	0	0
2	M17	PX	8	8	0	0
3	M24	PX	7	7	0	0
4	M22	PX	7	7	0	0
5	M21	PX	7	7	0	0
6	M20	PX	7	7	0	0



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

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in,%]	End Location[in,%]
7	M19	PX	7	7	0	0
8	M16	PX	7	7	0	0
9	M15	PX	7	7	0	0
10	M14	PX	7	7	0	0
11	M13	PX	7	7	0	0
12	M42A	PX	7	7	0	0
13	M36	PX	2	2	0	0
14	M35	PX	2	2	0	0
15	M34	PX	2	2	0	0
16	M33	PX	2	2	0	0
17	M40	PX	2	2	0	0
18	M39	PX	2	2	0	0
19	M38	PX	2	2	0	0
20	M37	PX	2	2	0	0
21	M28	PX	3	3	0	0
22	M27	PX	3	3	0	0
23	M26	PX	3	3	0	0
24	M25	PX	3	3	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in,%]	End Location[in,%]
1	M18	PY	6.5	6.5	0	0
2	M17	PY	6.5	6.5	0	0
3	M24	PY	6	6	0	0
4	M22	PY	6	6	0	0
5	M21	PY	6	6	0	0
6	M20	PY	6	6	0	0
7	M19	PY	6	6	0	0
8	M16	PY	6	6	0	0
9	M15	PY	6	6	0	0
10	M14	PY	6	6	0	0
11	M13	PY	6	6	0	0
12	M42A	PY	6	6	0	0
13	M36	PY	4.2	4.2	0	0
14	M35	PY	4.2	4.2	0	0
15	M34	PY	4.2	4.2	0	0
16	M33	PY	4.2	4.2	0	0
17	M40	PY	4.4	4.4	0	0
18	M39	PY	4.4	4.4	0	0
19	M38	PY	4.4	4.4	0	0
20	M37	PY	4.4	4.4	0	0
21	M28	PY	4.6	4.6	0	0
22	M27	PY	4.6	4.6	0	0
23	M26	PY	4.6	4.6	0	0
24	M25	PY	4.6	4.6	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in,%]	End Location[in,%]
1	M18	PX	6.5	6.5	0	0
2	M17	PX	6.5	6.5	0	0
3	M24	PX	6	6	0	0
4	M22	PX	6	6	0	0
5	M21	PX	6	6	0	0
6	M20	PX	6	6	0	0
7	M19	PX	6	6	0	0
8	M16	PX	6	6	0	0





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

Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in,%]	End Location[in,%]
9	M15	PX	6	6	0
10	M14	PX	6	6	0
11	M13	PX	6	6	0
12	M42A	PX	6	6	0
13	M36	PX	4.2	4.2	0
14	M35	PX	4.2	4.2	0
15	M34	PX	4.2	4.2	0
16	M33	PX	4.2	4.2	0
17	M40	PX	4.4	4.4	0
18	M39	PX	4.4	4.4	0
19	M38	PX	4.4	4.4	0
20	M37	PX	4.4	4.4	0
21	M28	PX	4.6	4.6	0
22	M27	PX	4.6	4.6	0
23	M26	PX	4.6	4.6	0
24	M25	PX	4.6	4.6	0

**Member Area Loads**

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

**Load Combinations**

Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1 DL + WL (NO ICE) 0 Degree	Yes	Y			1	1.2			3	1.6											
2 DL + WL (NO ICE) 30 Degree	Yes	Y			1	1.2			3	1.39	4	.8									
3 DL + WL (NO ICE) 60 Degree	Yes	Y			1	1.2			3	.8	4	1.39									
4 DL + WL (NO ICE) 90 Degree	Yes	Y			1	1.2					4	1.6									
5 DL + WL (NO ICE) 120 Degree	Yes	Y			1	1.2			3	-.8	4	1.39									
6 DL + WL (NO ICE) 150 Degree	Yes	Y			1	1.2			3	-1....	4	.8									
7 DL + WL (NO ICE) 180 Degree	Yes	Y			1	1.2			3	-1.6											
8 DL + WL (NO ICE) 210 Degree	Yes	Y			1	1.2			3	-1....	4	-.8									
9 DL + WL (NO ICE) 240 Degree	Yes	Y			1	1.2			3	-.8	4	-1....									
10 DL + WL (NO ICE) 270 Degree	Yes	Y			1	1.2					4	-1.6									
11 DL + WL (NO ICE) 300 Degree	Yes	Y			1	1.2			3	.8	4	-1....									
12 DL + WL (NO ICE) 330 Degree	Yes	Y			1	1.2			3	1.39	4	-.8									
13 DL + DL ICE + WL (ICE) 0 Degr...	Yes	Y			1	1.2	2	1	5	1											
14 DL + DL ICE + WL (ICE) 30 De...	Yes	Y			1	1.2	2	1	5	.87	6	.5									
15 DL + DL ICE + WL (ICE) 60 De...	Yes	Y			1	1.2	2	1	5	.5	6	.87									
16 DL + DL ICE + WL (ICE) 90 De...	Yes	Y			1	1.2	2	1			6	1									
17 DL + DL ICE + WL (ICE) 120 D...	Yes	Y			1	1.2	2	1	5	-.5	6	.87									
18 DL + DL ICE + WL (ICE) 150 D...	Yes	Y			1	1.2	2	1	5	-.87	6	.5									
19 DL + DL ICE + WL (ICE) 180 D...	Yes	Y			1	1.2	2	1	5	-1											
20 DL + DL ICE + WL (ICE) 210 D...	Yes	Y			1	1.2	2	1	5	-.87	6	-.5									
21 DL + DL ICE + WL (ICE) 240 D...	Yes	Y			1	1.2	2	1	5	-.5	6	-.87									
22 DL + DL ICE + WL (ICE) 270 D...	Yes	Y			1	1.2	2	1			6	-1									
23 DL + DL ICE + WL (ICE) 300 D...	Yes	Y			1	1.2	2	1	5	.5	6	-.87									
24 DL + DL ICE + WL (ICE) 330 D...	Yes	Y			1	1.2	2	1	5	.87	6	-.5									
25 DEAD LOAD + LIVE LOAD1	Yes	Y			1	1.2					7	1.5									
26 DEAD LOAD + LIVE LOAD2	Yes	Y			1	1.2					8	1.5									
27 DEAD LOAD + LIVE LOAD3	Yes	Y			1	1.2					9	1.5									
28 DL + MAIN L1+30MPH WL FR...	Yes	Y			1	1.2	10	1.5	3	.1											
29 DL + MAIN L2+30MPH WL FR...	Yes	Y			1	1.2	11	1.5	3	.1											
30 DL + MAIN L3+30MPH WL FR...	Yes	Y			1	1.2	12	1.5	3	.1											
31 DL + MAIN L4+30MPH WL FR...	Yes	Y			1	1.2	13	1.5	3	.1											





**Load Combinations (Continued)**

Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
32 DL + MAIN L1+30MPH WL SIDE	Yes	Y		1	1.2	10	1.5	4	.1										
33 DL + MAIN L2+30MPH WL SIDE	Yes	Y		1	1.2	11	1.5	4	.1										
34 DL + MAIN L3+30MPH WL SIDE	Yes	Y		1	1.2	12	1.5	4	.1										
35 DL + MAIN L4+30MPH WL SIDE	Yes	Y		1	1.2	13	1.5	4	.1										
36 DL + MAIN L1+30MPH WL FR...	Yes	Y		1	1.2	10	1.5	3	-.1										
37 DL + MAIN L2+30MPH WL FR...	Yes	Y		1	1.2	11	1.5	3	-.1										
38 DL + MAIN L3+30MPH WL FR...	Yes	Y		1	1.2	12	1.5	3	-.1										
39 DL + MAIN L4+30MPH WL FR...	Yes	Y		1	1.2	13	1.5	3	-.1										
40 DL + MAIN L1+30MPH WL SID...	Yes	Y		1	1.2	10	1.5	4	-.1										
41 DL + MAIN L2+30MPH WL SID...	Yes	Y		1	1.2	11	1.5	4	-.1										
42 DL + MAIN L3+30MPH WL SID...	Yes	Y		1	1.2	12	1.5	4	-.1										
43 DL + MAIN L4+30MPH WL SID...	Yes	Y		1	1.2	13	1.5	4	-.1										

**Envelope Joint Reactions**

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1 N51 max	1513.5563	40	-134.4136	10	2401.4374	24	0	1	0	1	0	1
2 min	-949.1075	35	-1725.3789	17	873.8622	4	0	1	0	1	0	1
3 N52 max	1052.0087	43	2320.675	19	557.343	18	0	1	0	1	0	1
4 min	-1724.0682	32	-452.8558	1	162.9308	10	0	1	0	1	0	1
5 N64 max	470.1828	1	1251.9901	7	50.5469	13	0	1	0	1	0	1
6 min	-408.7617	7	-1440.3025	1	14.6735	7	0	1	0	1	0	1
7 N61A max	231.4276	10	710.8699	4	34.5558	23	0	1	0	1	0	1
8 min	-201.1489	4	-832.7096	10	10.5833	35	0	1	0	1	0	1
9 Totals: max	1561.2171	10	2440.6675	7	3012.5701	18						
10 min	-1561.2174	4	-2440.6635	1	1140.2469	2						

**Envelope Joint Displacements**

Joint	X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...]	LC
1 N1 max	.0247	3	.2746	2	.0164	43	2.0015e-03	5	6.9271e-04	43	8.3184e-03	7
2 min	-.0366	9	-.2855	8	-.4912	32	-2.1967e-03	11	-6.7356e-03	32	-8.026e-03	1
3 N2 max	.0241	3	.0754	1	.1228	32	3.982e-03	8	5.2633e-03	43	2.0094e-03	1
4 min	-.0355	9	-.0937	7	-.3822	43	-4.3368e-03	2	-2.0726e-03	32	-2.419e-03	7
5 N3 max	.1048	3	.4303	2	.0164	43	6.2606e-03	2	6.3335e-04	43	8.5938e-03	7
6 min	-.0843	9	-.4413	8	-.4915	32	-6.626e-03	8	-6.7174e-03	32	-8.2857e-03	1
7 N4 max	.1041	3	.0873	10	.123	32	2.2392e-03	10	5.2927e-03	43	2.1495e-03	1
8 min	-.0839	9	-.1204	4	-.3827	43	-2.7213e-03	4	-2.0763e-03	32	-2.6442e-03	7
9 N5 max	.0461	2	.2505	2	.0104	43	2.0015e-03	5	6.9279e-04	43	8.3183e-03	7
10 min	-.0588	8	-.2607	8	-.4698	32	-2.1967e-03	11	-6.7355e-03	32	-8.0258e-03	1
11 N6 max	.0247	3	.2505	2	.0143	43	2.0015e-03	5	6.9279e-04	43	8.3183e-03	7
12 min	-.0366	9	-.2607	8	-.471	32	-2.1967e-03	11	-6.7355e-03	32	-8.0258e-03	1
13 N7 max	.1224	3	.4057	2	.0104	43	6.2606e-03	2	6.3342e-04	43	8.5937e-03	7
14 min	-.1027	9	-.4158	8	-.4704	32	-6.626e-03	8	-6.7173e-03	32	-8.2856e-03	1
15 N8 max	.1048	3	.4057	2	.0145	43	6.2606e-03	2	6.3342e-04	43	8.5937e-03	7
16 min	-.0843	9	-.4158	8	-.4714	32	-6.626e-03	8	-6.7173e-03	32	-8.2856e-03	1
17 N9 max	.0285	3	.0066	7	.0012	31	6.4471e-03	7	8.6222e-04	35	1.7418e-03	8
18 min	-.0413	9	-.0055	1	-.1003	20	-6.7711e-03	1	-4.2693e-03	40	-1.3859e-03	2
19 N10 max	.0246	3	.0066	7	.0046	31	6.4471e-03	7	8.6222e-04	35	1.7418e-03	8
20 min	-.0363	9	-.0055	1	-.102	19	-6.7711e-03	1	-4.2693e-03	40	-1.3859e-03	2
21 N11 max	.1175	3	.0756	3	.0013	31	8.5896e-03	1	9.2793e-04	43	4.7328e-03	8
22 min	-.0971	9	-.0704	9	-.1003	20	-9.1656e-03	7	-4.2416e-03	32	-4.728e-03	2
23 N12 max	.1046	3	.0756	3	.0037	39	8.5896e-03	1	9.2793e-04	43	4.7328e-03	8
24 min	-.0843	9	-.0704	9	-.095	23	-9.1656e-03	7	-4.2416e-03	32	-4.728e-03	2
25 N13 max	.0221	3	.0091	8	.0266	36	4.5729e-03	7	3.0892e-03	43	7.6816e-04	2
26 min	-.0326	9	-.0073	2	-.065	31	-5.0048e-03	1	-1.9336e-03	36	-1.1063e-03	8



**Envelope Joint Displacements (Continued)**

Joint	X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...]	LC		
27	N14	max	.0241	3	.0091	8	.0283	40	4.5729e-03	7	3.0892e-03	43	7.6816e-04	2
28		min	-.0356	9	-.0073	2	-.0649	39	-5.0048e-03	1	-1.9336e-03	36	-1.1063e-03	8
29	N15	max	.1098	3	.081	9	.0266	36	2.9798e-03	12	3.0478e-03	39	1.4976e-03	10
30		min	-.0883	9	-.0876	3	-.0649	31	-3.6023e-03	6	-1.9458e-03	28	-1.9279e-03	4
31	N16	max	.1042	3	.081	9	.0295	36	2.9798e-03	12	3.0478e-03	39	1.4976e-03	10
32		min	-.0839	9	-.0876	3	-.065	31	-3.6023e-03	6	-1.9458e-03	28	-1.9279e-03	4
33	N17	max	.0222	3	.0694	1	.1137	32	3.982e-03	8	5.2632e-03	43	2.0092e-03	1
34		min	-.0324	9	-.0864	7	-.3668	43	-4.3368e-03	2	-2.0727e-03	32	-2.4188e-03	7
35	N18	max	.0241	3	.0694	1	.1166	32	3.982e-03	8	5.2632e-03	43	2.0092e-03	1
36		min	-.0355	9	-.0864	7	-.3664	43	-4.3368e-03	2	-2.0727e-03	32	-2.4188e-03	7
37	N19	max	.1022	3	.0869	10	.1137	32	2.2392e-03	10	5.2926e-03	43	2.1493e-03	1
38		min	-.0806	9	-.1185	4	-.3674	43	-2.7213e-03	4	-2.0764e-03	32	-2.6441e-03	7
39	N20	max	.1041	3	.0869	10	.1168	32	2.2392e-03	10	5.2926e-03	43	2.1493e-03	1
40		min	-.0839	9	-.1185	4	-.3668	43	-2.7213e-03	4	-2.0764e-03	32	-2.6441e-03	7
41	N21	max	.0375	31	.2795	1	.0104	43	2.1192e-03	5	6.7883e-04	43	8.3183e-03	7
42		min	-.2201	36	-.2845	7	-.4698	32	-2.3144e-03	11	-6.7224e-03	32	-8.0258e-03	1
43	N22	max	.2548	32	.5853	2	.0104	43	6.4631e-03	2	6.4738e-04	43	8.5937e-03	7
44		min	-.0977	9	-.6056	8	-.4713	32	-6.8285e-03	8	-6.5964e-03	32	-8.2856e-03	1
45	N23	max	.1422	4	.3942	1	.001	31	1.7011e-02	7	6.0415e-03	4	1.7418e-03	8
46		min	-.1943	10	-.384	7	-.1008	20	-1.7336e-02	1	-7.4489e-03	10	-1.3859e-03	2
47	N24	max	.2758	4	.4978	1	.0011	31	1.9042e-02	1	6.793e-03	10	4.7328e-03	8
48		min	-.2175	10	-.5085	7	-.1008	20	-1.9616e-02	7	-8.1121e-03	4	-4.728e-03	2
49	N25	max	.1054	31	.1536	1	.0265	36	5.3709e-03	7	3.0861e-03	31	7.6816e-04	2
50		min	-.0821	36	-.1396	7	-.065	31	-5.803e-03	1	-1.9344e-03	36	-1.1063e-03	8
51	N26	max	.1521	3	.0966	11	.0265	36	3.6676e-03	12	3.0747e-03	43	1.4976e-03	10
52		min	-.1371	43	-.1212	5	-.0649	31	-4.2897e-03	6	-1.9741e-03	32	-1.9279e-03	4
53	N27	max	.1641	39	.1892	2	.1137	32	4.1859e-03	8	5.2499e-03	43	2.0092e-03	1
54		min	-.0825	28	-.196	8	-.3668	43	-4.5408e-03	2	-2.0589e-03	32	-2.4188e-03	7
55	N28	max	.149	3	.1496	10	.1137	32	2.2836e-03	11	5.2002e-03	43	2.1493e-03	1
56		min	-.1976	43	-.1947	4	-.3683	43	-2.7684e-03	5	-2.0901e-03	32	-2.6441e-03	7
57	N29	max	.003	40	.0213	40	.0234	43	-8.4033e-04	25	2.7638e-03	43	1.1111e-03	35
58		min	-.002	35	-.0136	35	-.0442	32	-2.3432e-03	21	-4.1892e-03	32	-1.746e-03	40
59	N30	max	.0037	2	.0204	2	.0231	43	1.5962e-04	28	2.5426e-03	43	3.2906e-03	8
60		min	-.0048	8	-.0284	8	-.0391	32	-9.0733e-04	21	-3.8421e-03	32	-2.6369e-03	2
61	N31	max	.0107	35	.0033	7	.0265	31	7.1068e-04	1	1.4502e-03	31	3.1229e-03	9
62		min	-.0162	40	-.0022	1	-.0831	36	-4.1322e-03	20	-2.8401e-03	36	-2.1622e-03	3
63	N32	max	.076	3	.0894	2	.0279	31	-1.9595e-04	7	1.0775e-03	43	3.2771e-03	9
64		min	-.0653	9	-.0882	8	-.0762	36	-4.3086e-03	13	-3.1105e-03	32	-4.7676e-03	3
65	N33	max	.0032	40	.0138	35	.0401	32	-8.1088e-04	9	2.4827e-03	43	1.2315e-03	35
66		min	-.002	35	-.0213	40	-.0276	43	-2.7168e-03	15	-4.4505e-03	32	-1.8858e-03	40
67	N34	max	.0035	2	.028	8	.0386	32	-2.4288e-05	31	2.2668e-03	43	3.0051e-03	8
68		min	-.0047	8	-.0202	2	-.0238	43	-1.1829e-03	15	-4.0853e-03	32	-2.393e-03	2
69	N35	max	.008	3	.005	35	.0535	36	-9.9068e-04	12	1.845e-03	43	3.3759e-03	9
70		min	-.0124	9	-.0071	40	-.0555	31	-4.4781e-03	18	-2.2442e-03	32	-2.2962e-03	3
71	N36	max	.0719	3	.0796	9	.0539	36	-7.7906e-04	7	2.135e-03	31	3.6509e-03	9
72		min	-.061	9	-.085	3	-.0501	31	-4.4094e-03	14	-1.9278e-03	36	-5.1375e-03	3
73	N37	max	0	2	.0181	40	.0214	43	-9.1472e-04	9	2.8873e-03	43	1.5633e-03	35
74		min	0	20	-.0116	35	-.0354	32	-2.6394e-03	15	-4.7694e-03	32	-2.4346e-03	40
75	N38	max	0	18	.0167	2	.0197	43	-1.6485e-04	28	2.6559e-03	43	3.162e-03	8
76		min	0	12	-.0235	8	-.0326	32	-1.0491e-03	21	-4.3965e-03	32	-2.2519e-03	2
77	N39	max	0	2	.0235	8	.0326	32	-1.6485e-04	28	2.6559e-03	43	3.162e-03	8
78		min	0	39	-.0167	2	-.0197	43	-1.0491e-03	21	-4.3965e-03	32	-2.2519e-03	2
79	N40	max	0	35	.0116	35	.0354	32	-9.1472e-04	9	2.8873e-03	43	1.5633e-03	35
80		min	0	40	-.0181	40	-.0214	43	-2.6394e-03	15	-4.7694e-03	32	-2.4346e-03	40
81	N41	max	.0246	3	.0042	4	.0082	31	5.799e-03	7	6.3543e-04	39	2.1543e-03	8
82		min	-.0363	9	-.0052	9	-.1174	36	-6.134e-03	1	-5.6355e-03	28	-1.7602e-03	2
83	N42	max	.0134	3	.0029	4	.0243	31	6.9333e-04	1	1.3166e-03	31	3.38e-03	9



**Envelope Joint Displacements (Continued)**

Joint	X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...]	LC		
84		min	-.0208	9	-.0032	10	-.0907	36	-4.7619e-03	20	-3.2437e-03	36	-2.4084e-03	3
85	N43	max	.024	3	.0021	8	.0383	40	4.4156e-03	7	4.2816e-03	43	1.1373e-03	2
86		min	-.0355	9	-.0023	2	-.0842	39	-4.8564e-03	1	-1.8988e-03	32	-1.5494e-03	8
87	N44	max	.0117	3	.0018	35	.0522	36	-9.9164e-04	12	2.1885e-03	43	3.7936e-03	9
88		min	-.0178	9	-.0026	28	-.0614	31	-4.798e-03	18	-2.1726e-03	32	-2.6292e-03	3
89	N45	max	.1046	3	.0991	3	.0076	39	8.289e-03	1	6.6878e-04	43	5.4081e-03	8
90		min	-.0843	9	-.094	9	-.1152	28	-8.8576e-03	7	-5.612e-03	32	-5.3004e-03	2
91	N46	max	.0832	3	.0957	3	.0248	31	-1.3506e-04	7	9.7361e-04	43	3.1719e-03	9
92		min	-.0702	9	-.0917	9	-.0846	36	-5.0442e-03	13	-3.5101e-03	32	-4.7602e-03	3
93	N47	max	.1041	3	.0878	9	.0395	36	2.803e-03	12	4.2534e-03	39	1.2424e-03	10
94		min	-.0839	9	-.0966	3	-.084	31	-3.4185e-03	6	-1.8953e-03	28	-1.6969e-03	4
95	N48	max	.0798	3	.0851	9	.0525	36	-8.6086e-04	7	2.4667e-03	31	3.7963e-03	9
96		min	-.0666	9	-.0928	3	-.0573	31	-4.7698e-03	13	-1.881e-03	36	-5.3301e-03	3
97	N49	max	.024	3	.0046	31	.0473	40	4.3028e-03	8	5.5316e-03	43	1.3884e-03	2
98		min	-.0355	9	-.0068	8	-.1088	39	-4.7222e-03	2	-1.8245e-03	32	-1.814e-03	8
99	N51	max	0	35	0	17	0	4	-9.1472e-04	9	2.8873e-03	43	1.5633e-03	35
100		min	0	40	0	10	0	24	-2.6394e-03	15	-4.7694e-03	32	-2.4346e-03	40
101	N52	max	0	32	0	1	0	10	-1.6485e-04	28	2.6559e-03	43	3.162e-03	8
102		min	0	43	0	19	0	18	-1.0491e-03	21	-4.3965e-03	32	-2.2519e-03	2
103	N77A	max	.0246	3	.0132	2	.0102	31	5.2112e-03	7	3.4539e-04	39	3.111e-03	8
104		min	-.0364	9	-.0163	8	-.1493	36	-5.5319e-03	1	-7.0845e-03	28	-2.7627e-03	2
105	N64	max	0	7	0	1	0	7	-1.2318e-04	32	3.977e-04	31	2.1536e-03	10
106		min	0	1	0	7	0	13	-2.686e-03	22	-7.2307e-03	36	-2.0205e-03	4
107	N57	max	.0535	2	.2521	2	.0103	43	1.9927e-03	4	1.0866e-03	43	8.339e-03	7
108		min	-.0601	8	-.2627	8	-.4698	32	-2.0772e-03	10	-5.0042e-03	32	-8.0453e-03	1
109	N58	max	.1163	3	.3873	2	.0104	43	6.0416e-03	2	1.0319e-03	43	8.573e-03	7
110		min	-.1029	9	-.3965	8	-.4704	32	-6.2747e-03	8	-4.9847e-03	32	-8.2661e-03	1
111	N59	max	.1241	4	.3422	1	.001	31	1.7011e-02	7	6.0412e-03	4	1.7418e-03	8
112		min	-.172	10	-.333	7	-.1008	20	-1.7336e-02	1	-7.4486e-03	10	-1.3859e-03	2
113	N60	max	.2515	4	.4407	1	.0011	31	1.9042e-02	1	6.7927e-03	10	4.7328e-03	8
114		min	-.1974	9	-.4497	7	-.1008	20	-1.9616e-02	7	-8.1118e-03	4	-4.728e-03	2
115	N61	max	.0501	35	.0494	1	.0265	36	5.3084e-03	7	3.086e-03	31	7.6816e-04	2
116		min	-.0475	40	-.0432	7	-.065	31	-5.7404e-03	1	-1.9344e-03	36	-1.1063e-03	8
117	N62	max	.1236	3	.0718	9	.0265	36	3.6137e-03	12	3.0711e-03	43	1.4976e-03	10
118		min	-.0926	9	-.0845	3	-.0649	31	-4.2358e-03	6	-1.9705e-03	32	-1.9279e-03	4
119	N61A	max	0	4	0	10	0	35	8.7997e-04	36	4.8105e-03	31	1.1354e-03	9
120		min	0	10	0	4	0	23	-3.2017e-03	31	-1.4926e-03	7	-9.4916e-04	3

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

Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...]	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M18	PIPE 2.5	.277	45.3...	40	.119	51.5...	2	14558.7...	50715	3.5963	3.5963	2...	H1-1b
2	M17	PIPE 2.5	.257	45.3...	32	.176	42.1...	1	14558.7...	50715	3.5963	3.5963	1...	H1-1b
3	M24	PIPE 2.0	.037	31.4...	4	.004	62.8...	22	23127.2...	32130	1.8716	1.8716	1...	H1-1b
4	M22	PIPE 2.0	.329	2.18...	32	.190	28.1...	14	29810.2...	32130	1.8716	1.8716	1...	H1-1b
5	M21	PIPE 2.0	.346	1.875	40	.209	0	18	29810.2...	32130	1.8716	1.8716	1...	H1-1b
6	M20	PIPE 2.0	.266	0	32	.114	28.1...	30	29810.2...	32130	1.8716	1.8716	1...	H1-1b
7	M19	PIPE 2.0	.235	1.875	39	.128	0	38	29810.2...	32130	1.8716	1.8716	1...	H1-1b
8	M16	PIPE 2.0	.360	68	31	.043	28	31	14916.0...	32130	1.8716	1.8716	4...	H1-1b
9	M15	PIPE 2.0	.219	68	8	.062	28	9	14916.0...	32130	1.8716	1.8716	1...	H1-1b
10	M14	PIPE 2.0	.568	28	1	.106	28	2	14916.0...	32130	1.8716	1.8716	1...	H1-1b
11	M13	PIPE 2.0	.426	68	36	.054	28	40	14916.0...	32130	1.8716	1.8716	4...	H1-1b
12	M42A	PIPE 2.0	.081	90.5...	7	.006	0	22	16233.2...	32130	1.8716	1.8716	1...	H1-1b*
13	M36	5/8 SR	.528	20.8...	18	.031	0	32	2855.26...	9946.8	.0968	.0968	1...	H1-1a
14	M35	5/8 SR	.365	20.8...	15	.023	0	8	2855.26...	9946.8	.0968	.0968	1...	H1-1a
15	M34	5/8 SR	.350	22.9...	39	.032	0	32	2855.26...	9946.8	.0968	.0968	1...	H1-1a

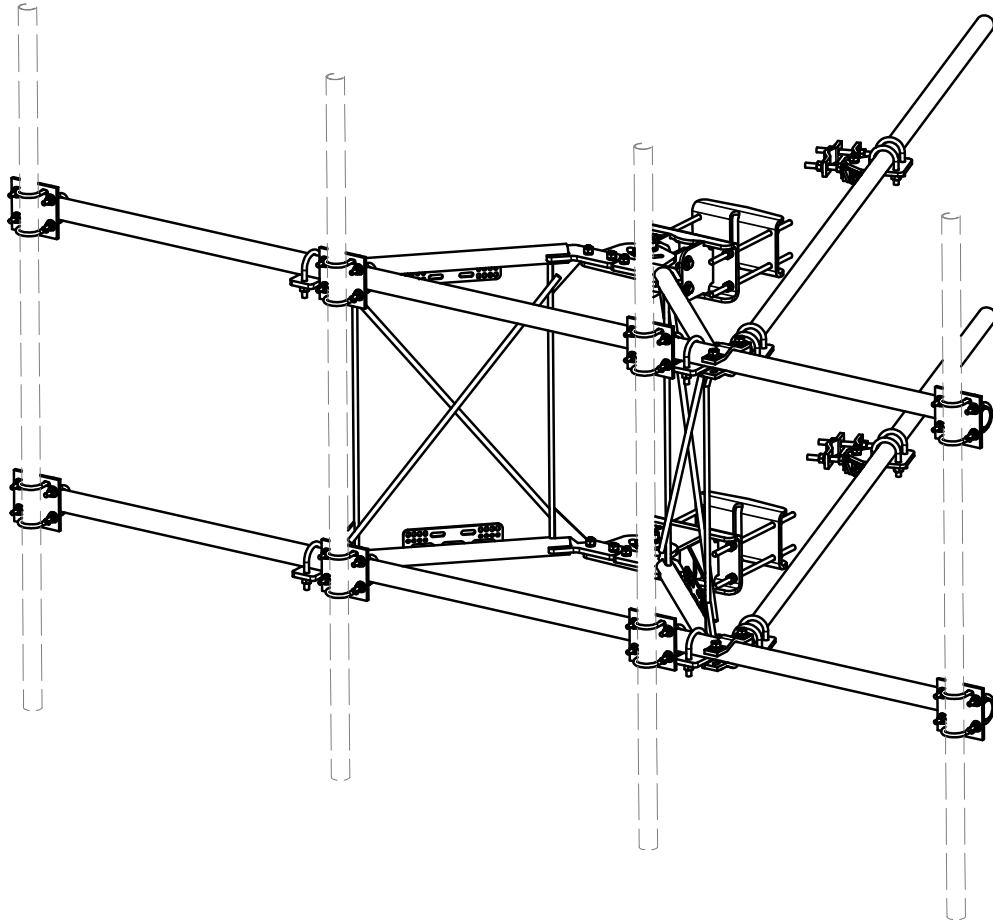


Company : Foresite LLC / EFI Global Inc.  
 Designer : AG  
 Job Number : 2075059  
 Model Name : CT11230A

Sept 21, 2020  
 10:31 AM  
 Checked By: \_\_\_\_\_

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

Member	Shape	Code Check	Loc[in]	LC	Shear	Loc[in]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn	phi*Mn	Cb	Eqn
16	M33	5/8 SR	.240	22.9...	43	.022	0	8	2855.26...	9946.8	.0968	.0968	1	H1-1a
17	M40	3/4" rod	.000	0	1	.000	0	1	1550.49...	14313.8...	.1789	.1789	1	H1-1a
18	M39	3/4" rod	.291	23.7...	16	.027	0	3	3164.27...	14313.8...	.1789	.1789	1...	H1-1a
19	M38	3/4" rod	.134	23.7...	21	.024	0	3	3164.27...	14313.8...	.1789	.1789	1...	H1-1b
20	M37	3/4" rod	.006	47.5...	2	.007	0	40	1550.49...	14313.8...	.1789	.1789	2...	H1-1b*
21	M28	.625 x 3.5"	.416	0	15	.205	0	y 28	68522.7...	70875	.9229	5.168	1...	H1-1b
22	M27	.625 x 3.5"	.303	0	43	.175	0	y 43	68522.7...	70875	.9229	5.168	1...	H1-1b
23	M26	.625 x 3.5"	.368	0	19	.212	0	y 36	68522.7...	70875	.9229	5.168	1...	H1-1b
24	M25	.625 x 3.5"	.280	0	39	.198	0	y 39	68522.7...	70875	.9229	5.168	1...	H1-1b



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	1	X-HDCAMTBW	CLAMP WELDMENT FOR BCAM-HD		33.86	33.86
3	1	X-MHTPHD	MULTI-HOLE TAPER PLATE WELDMENT		36.24	36.24
4	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
5	2	X-LCBP4	BENT BACKING PLATE	13 in	19.00	38.01
6	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-HDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM-HD		2.58	2.58
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CTR TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
14	2	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	153.87
15	4	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	1.92
16	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
17	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
18	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
19	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)	18 in	0.40	3.19
20	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
21	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
22	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
23	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
24	2	G5807	5/8" x 7" HDG HEX BOLT GR5 FULL THREAD	7 in	0.70	1.41
25	1	G5806	5/8" x 6" HDG HEX BOLT GR5 FULL THREAD	6 in	0.62	0.62
26	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
27	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
28	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
29	25	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.76
30	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
31	71	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.22
32	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
33	16	X-UB1212	1/2" X 2" X 3" X 1-1/4" U-BOLT (HDG.)		0.60	9.56
34	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
35	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
36	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					<b>TOTAL WT. #</b>	<b>738.06</b>

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

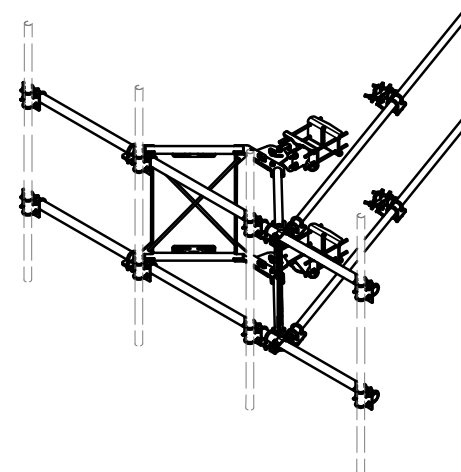
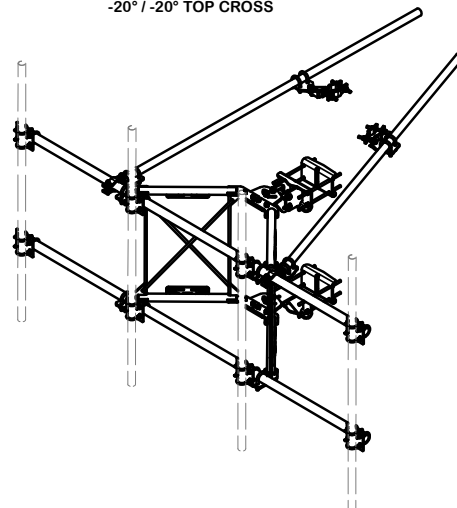
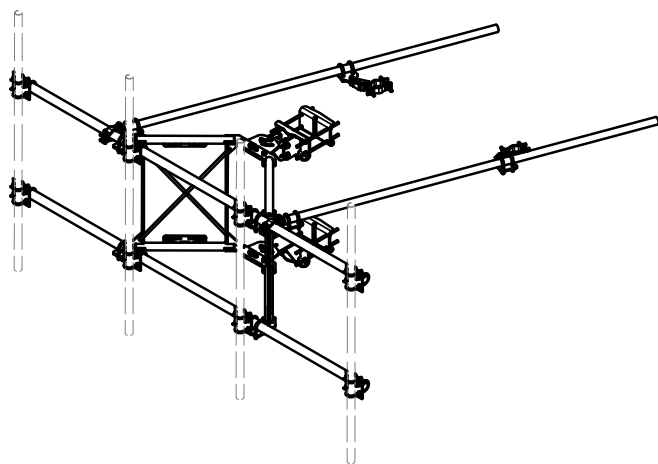
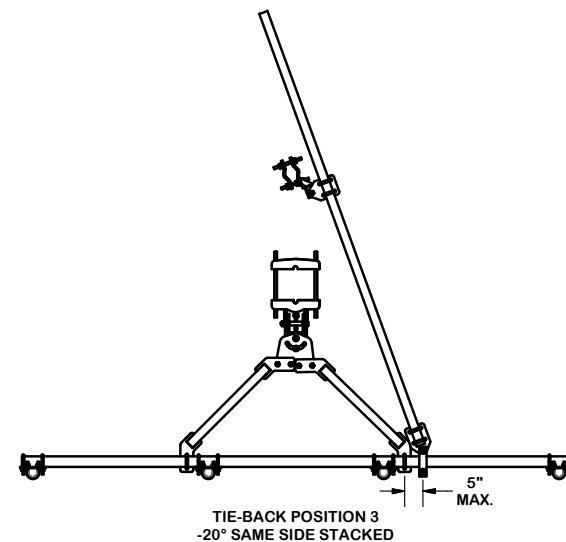
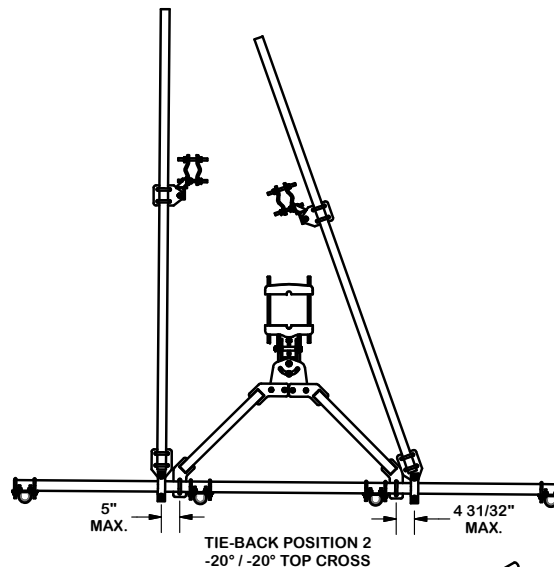
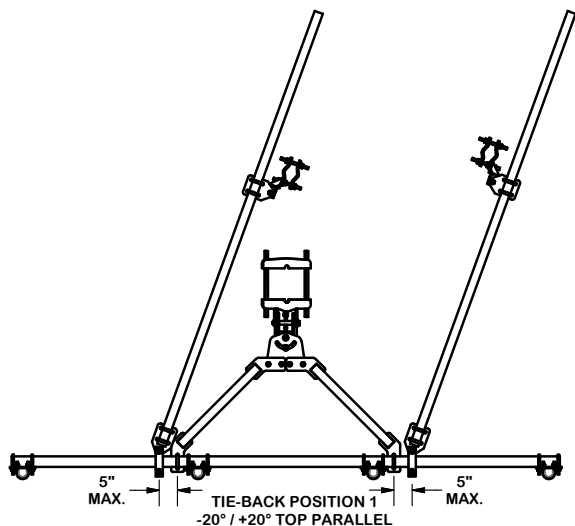
**TOLERANCE NOTES**  
**TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:  
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 DRILLED AND GAS CUT HOLES ( $\pm 0.030"$ ) - NO CONING OF HOLES  
 LASER CUT EDGES AND HOLES ( $\pm 0.010"$ ) - NO CONING OF HOLES  
 BENDS ARE  $\pm 1/2$  DEGREE  
 ALL OTHER MACHINING ( $\pm 0.030"$ )  
 ALL OTHER ASSEMBLY ( $\pm 0.060"$ )**

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DESCRIPTION		
12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS		
CPD NO.	DRAWN BY	ENG. APPROVAL
	CEK 1/25/2017	
CLASS	SUB	DRAWING USAGE
81	02	CUSTOMER
		CHECKED BY
		BMC 12/13/2017

	Engineering Support Team: 1-888-753-7446	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	<b>A valmont COMPANY</b>	
PART NO. <b>VFA12-HD</b>	DWG. NO. <b>VFA12-HD</b>	PAGE <b>1 OF 5</b>

# TIE-BACK POSITIONS



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

**TOLERANCE NOTES**

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DESCRIPTION  
 12' 6" HEAVY DUTY  
 V-FRAME ASSEMBLY  
 WITH TWO STIFF ARMS

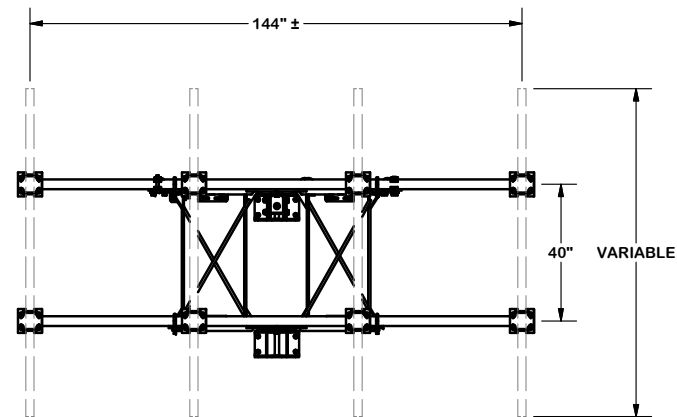
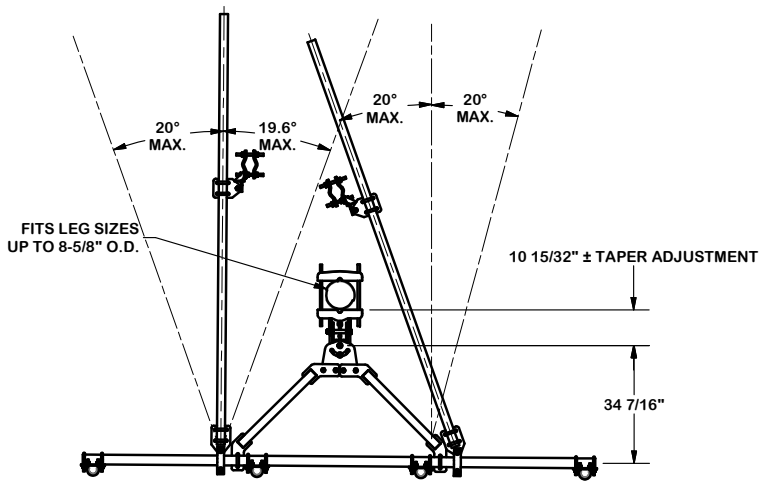
CPD NO.	DRAWN BY	ENG. APPROVAL
	CEK 1/25/2017	
CLASS	DRAWING USAGE	CHECKED BY
81	CUSTOMER	BMC 12/13/2017

**SITE PRO 1**  
 Engineering Support Team:  
 1-888-753-7446

Locations:  
 New York, NY  
 Atlanta, GA  
 Los Angeles, CA  
 Plymouth, IN  
 Salem, OR  
 Dallas, TX

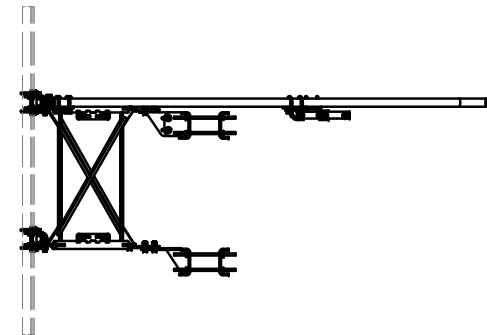
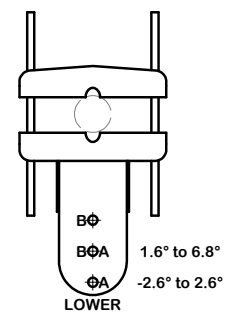
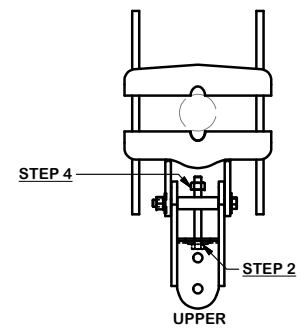
PART NO.	VFA12-HD
DWG. NO.	VFA12-HD





**ANGLE CALIBRATING PROCEDURE:**

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
  - HOLE A = -2.6° TO 2.6°
  - HOLE B = 1.6° TO 6.8°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 100 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.



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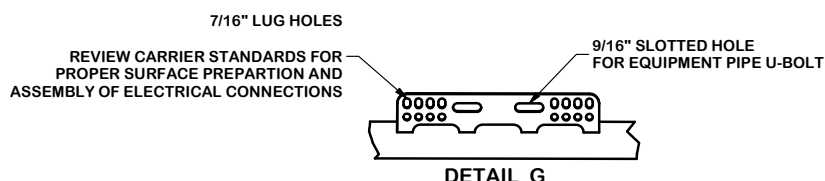
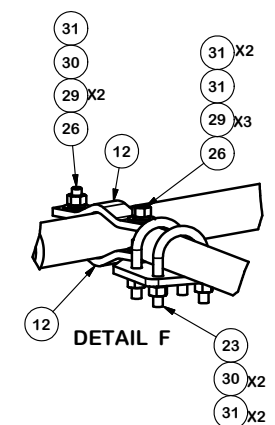
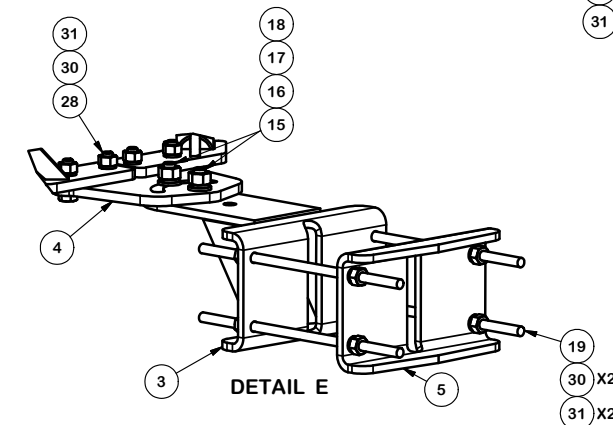
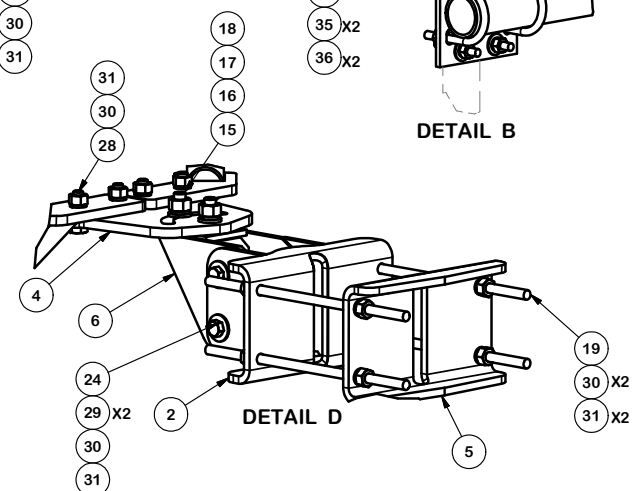
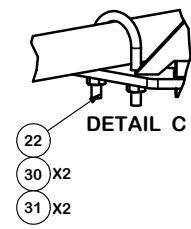
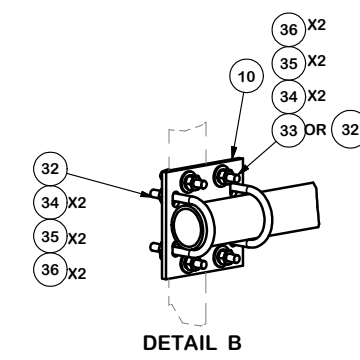
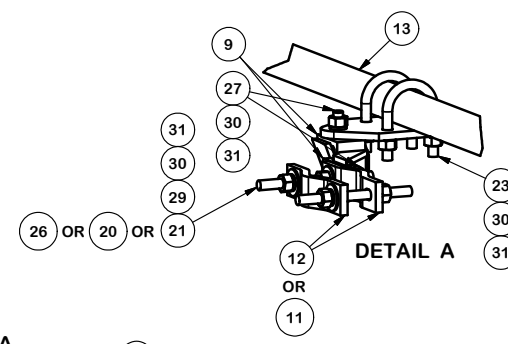
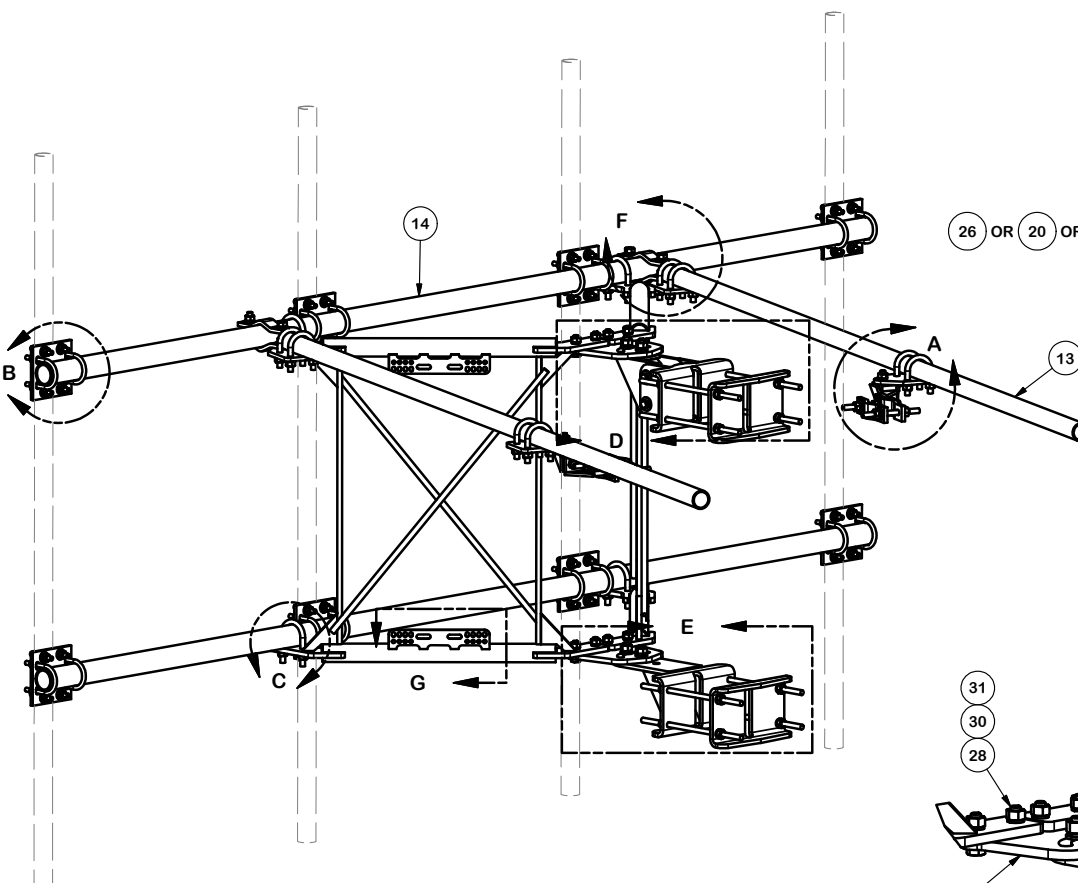
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CPD NO.	DRAWN BY	ENG. APPROVAL	
	CEK 1/25/2017		
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	02	CUSTOMER	BMC 12/13/2017

 A valmont COMPANY	Engineering Support Team: 1-888-753-7446	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	PART NO. <b>VFA12-HD</b>	DWG. NO. <b>VFA12-HD</b>



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REVISION HISTORY				

**TOLERANCE NOTES**

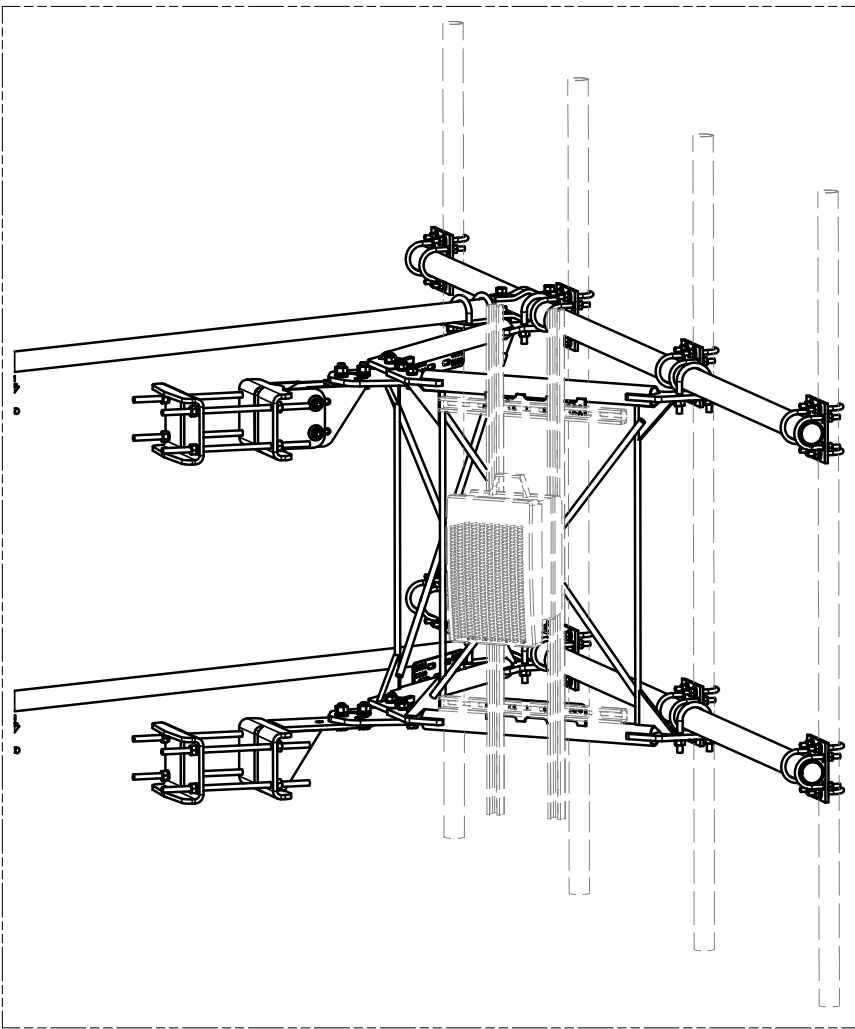
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CLASS	ENG. APPROVAL
81	BMC 12/13/2017
SUB	CHECKED BY
02	CUSTOMER

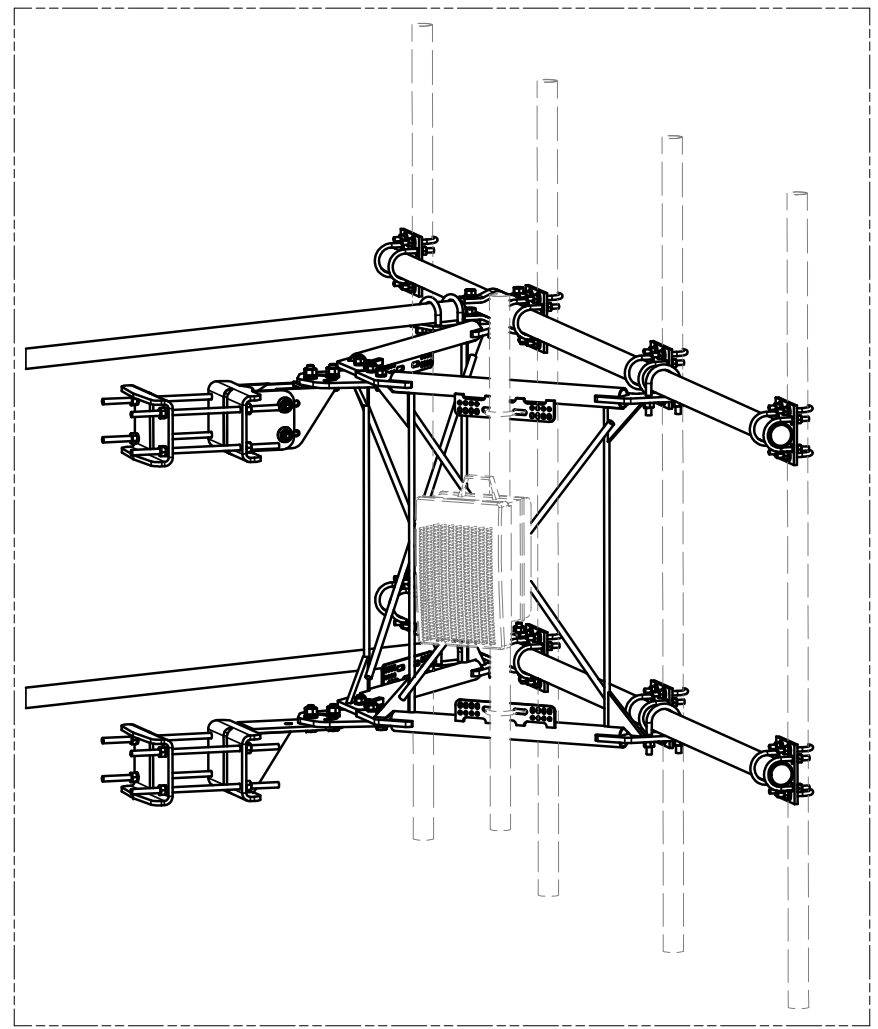
SITE PRO 1	
A valmont COMPANY	
Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX	
Engineering Support Team: 1-888-753-7446	
PART NO.	VFA12-HD
DWG. NO.	VFA12-HD





UNISTRUT AND HARDWARE  
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE  
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE  
AND 2-3/8" TO 4-1/2" O.D. PIPE

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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	CEK 1/25/2017	
CLASS	DRAWING USAGE	CHECKED BY
81	CUSTOMER	BMC 12/13/2017

 A valmont COMPANY	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	Engineering Support Team: 1-888-753-7446
PART NO.	VFA12-HD
DWG. NO.	VFA12-HD

# Exhibit F

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

T-Mobile Existing Facility

Site ID: CTI1230A

North Haven/RT 17  
88 Parsonage Hill Road  
North Brandford, Connecticut 06472

**November 8, 2020**

**EBI Project Number: 6220005793**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>16.13%</b>

November 8, 2020

T-Mobile

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

Emissions Analysis for Site: CT11230A - North Haven/RT 17

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **88 Parsonage Hill Road in North Brandford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 88 Parsonage Hill Road in North Brandford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 8) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 9) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 11) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 12) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a

very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 13) The antenna mounting height centerline of the proposed antennas is 180 feet above ground level (AGL).
- 14) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 15) All calculations were done with respect to uncontrolled / general population threshold limits.

## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	38,477.89	ERP (W):	38,477.89	ERP (W):	38,477.89
Antenna A1 MPE %:	4.27%	Antenna B1 MPE %:	4.27%	Antenna C1 MPE %:	4.27%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	11,010.27	ERP (W):	11,010.27	ERP (W):	11,010.27
Antenna A2 MPE %:	1.86%	Antenna B2 MPE %:	1.86%	Antenna C2 MPE %:	1.86%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,841.53	ERP (W):	12,841.53	ERP (W):	12,841.53
Antenna A3 MPE %:	1.42%	Antenna B3 MPE %:	1.42%	Antenna C3 MPE %:	1.42%



Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	7.55%
Clearwire	0.12%
UI	0.02%
Nextel	0.24%
Motient	0.54%
Sprint	1.56%
AT&T	4.04%
Verizon	2.06%
<b>Site Total MPE % :</b>	<b>16.13%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	7.55%
T-Mobile Sector B Total:	7.55%
T-Mobile Sector C Total:	7.55%
<b>Site Total MPE % :</b>	<b>16.13%</b>

### T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 2500 MHz LTE	1	19238.94	180.0	21.35	2500 MHz LTE	1000	2.13%
T-Mobile 2500 MHz NR	1	19238.94	180.0	21.35	2500 MHz NR	1000	2.13%
T-Mobile 600 MHz LTE	2	591.73	180.0	1.31	600 MHz LTE	400	0.33%
T-Mobile 600 MHz NR	1	1577.94	180.0	1.75	600 MHz NR	400	0.44%
T-Mobile 700 MHz LTE	2	695.22	180.0	1.54	700 MHz LTE	467	0.33%
T-Mobile 1900 MHz LTE	2	2104.51	180.0	4.67	1900 MHz LTE	1000	0.47%
T-Mobile 2100 MHz UMTS	2	1324.71	180.0	2.94	2100 MHz UMTS	1000	0.29%
T-Mobile 1900 MHz GSM	4	1028.30	180.0	4.56	1900 MHz GSM	1000	0.46%
T-Mobile 1900 MHz LTE	2	2056.61	180.0	4.56	1900 MHz LTE	1000	0.46%
T-Mobile 2100 MHz LTE	2	2307.55	180.0	5.12	2100 MHz LTE	1000	0.51%
						<b>Total:</b>	<b>7.55%</b>

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

## Summary

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


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

T-Mobile Sector	Power Density Value (%)
Sector A:	7.55%
Sector B:	7.55%
Sector C:	7.55%
T-Mobile Maximum MPE % (Sector A):	7.55%
Site Total:	16.13%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **16.13%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

# Exhibit G




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Expected Delivery Date: 11/23/20  
 Ref#: 230-ANCHOR

DEBORAH CHASE  
 NORTHEAST SITE SOLUTIONS, LLC  
 420 MAIN ST STE 2  
 STURBRIDGE MA 01566-1359

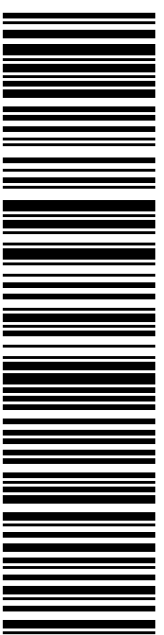
**0006**

Carrier -- Leave if No Response

**R006**

SHIP TO: THOMAS COWELL  
 BUILDING/ZONING OFFICER-TOWN OF NORTH  
 909 FOXON RD  
 N BRANFORD CT 06471-1290

**USPS TRACKING #**



**9405 5036 9930 0131 4224 28**

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**9405 5036 9930 0131 4224 28**

Trans. #: 514239086	Priority Mail® Postage: <b>\$7.75</b>
Print Date: 11/18/2020	Total: <b>\$7.75</b>
Ship Date: 11/20/2020	
Expected Delivery Date: 11/23/2020	


**From:** DEBORAH CHASE Ref#: 230-ANCHOR  
 NORTHEAST SITE SOLUTIONS, LLC  
 420 MAIN ST STE 2  
 STURBRIDGE MA 01566-1359

**To:** THOMAS COWELL  
 BUILDING/ZONING OFFICER-TOWN OF NORTH  
 BRANFORD  
 909 FOXON RD  
 N BRANFORD CT 06471-1290

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Mailed from 01566 062S0000000313

**PRIORITY MAIL 2-DAY™**

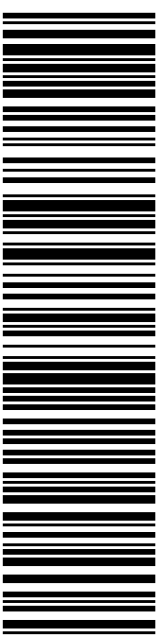
Expected Delivery Date: 11/23/20  
 Ref#: 230A-ANCH  
**0006**

SHIP TO: JEAN SZWABOWSKI  
 OCHENKOWSKI TOWERS  
 88 PARSONAGE HILL RD  
 NORTHFORD CT 06472-1490

**Carrier -- Leave if No Response**

**R003**

**USPS TRACKING #**



**9405 5036 9930 0131 4224 42**

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### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0131 4224 42**

Trans. #: 514239086	Priority Mail® Postage: <b>\$7.75</b>
Print Date: 11/18/2020	Total: <b>\$7.75</b>
Ship Date: 11/20/2020	
Expected Delivery Date: 11/23/2020	


**From:** DEBORAH CHASE Ref#: 230A-ANCH  
 NORTHEAST SITE SOLUTIONS, LLC  
 420 MAIN ST STE 2  
 STURBRIDGE MA 01566-1359

**To:** JEAN SZWABOWSKI  
 OCHENKOWSKI TOWERS  
 88 PARSONAGE HILL RD  
 NORTHFORD CT 06472-1490

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**9405 5036 9930 0131 4224 59 0077 5000 0010 6051**  
**\$7.75**

**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 11/23/20

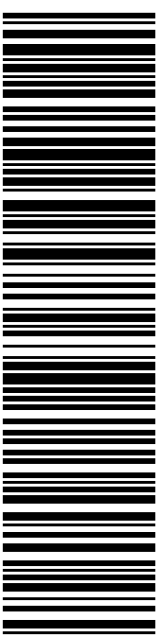
**0006**

**Carrier -- Leave if No Response**

**C006**

SHIP TO: LISA A MATTHEWS  
 CT SITING COUNCIL  
 10 FRANKLIN SQ  
 NEW BRITAIN CT 06051-2655

**USPS TRACKING #**



**9405 5036 9930 0131 4224 59**

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### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0131 4224 59**

Trans. #:	514239086	Priority Mail® Postage:	<b>\$7.75</b>
Print Date:	11/18/2020	Total:	<b>\$7.75</b>
Ship Date:	11/20/2020		
Expected Delivery Date:	11/23/2020		


**From:** DEBORAH CHASE  
 NORTHEAST SITE SOLUTIONS, LLC  
 420 MAIN ST STE 2  
 STURBRIDGE MA 01566-1359

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

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11/20/2020 Mailed from 01566 062S0000000101

**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 11/23/20  
Ref#: 230A-ANCH  
**0006**

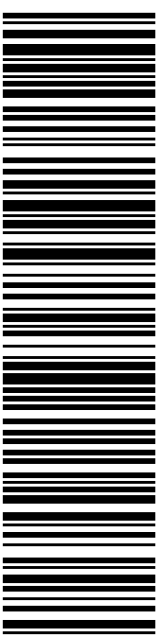
Carrier -- Leave if No Response

**R004**

SHIP TO:

JEAN SZWABOWSKI  
 233R BLUE HILLS RD  
 DURHAM CT 06422-3101

**USPS TRACKING #**



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**9405 5036 9930 0131 4224 73**

Trans. #: 514239086	Priority Mail® Postage: <b>\$7.75</b>
Print Date: 11/18/2020	Total: <b>\$7.75</b>
Ship Date: 11/20/2020	
Expected Delivery Date: 11/23/2020	


**From:** DEBORAH CHASE Ref#: 230A-ANCH  
 NORTHEAST SITE SOLUTIONS, LLC  
 420 MAIN ST STE 2  
 STURBRIDGE MA 01566-1359

**To:** JEAN SZWABOWSKI  
 233R BLUE HILLS RD  
 DURHAM CT 06422-3101

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Mailed from 01566 062S0000001309

**9405 5036 9930 0131 4224 11 0077 5000 0010 6471**

**\$7.75**

**PRIORITY MAIL 2-DAY™**

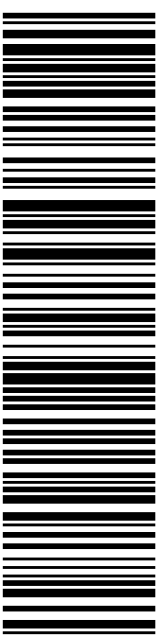
Expected Delivery Date: 11/23/20  
Ref#: 230-ANCHOR  
**0006**

**Carrier -- Leave if No Response**

**R006**

SHIP  
TO: MICHAEL T PAULHUS  
TOWN MANGER- TOWN OF NORTH BRANFORD  
909 FOXON RD  
N BRANFORD CT 06471-1290

**USPS TRACKING #**



**9405 5036 9930 0131 4224 11**

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### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0131 4224 11**

Trans. #: 514239086	Priority Mail® Postage: <b>\$7.75</b>
Print Date: 11/18/2020	Total: <b>\$7.75</b>
Ship Date: 11/20/2020	
Expected Delivery Date: 11/23/2020	

**From:** DEBORAH CHASE Ref#: 230-ANCHOR  
NORTHEAST SITE SOLUTIONS, LLC  
420 MAIN ST STE 2  
STURBRIDGE MA 01566-1359

**To:** MICHAEL T PAULHUS  
TOWN MANGER- TOWN OF NORTH BRANFORD  
909 FOXON RD  
N BRANFORD CT 06471-1290

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# Exhibit H

## Deborah Chase

---

**From:** Deborah Chase  
**Sent:** Wednesday, November 18, 2020 11:25 AM  
**To:** 'townmanager@townofnorthbranfordct.com'; 'Buildingofficial@townofnorthbranfordct.com'; 'zeo@townofnorthbranfordct.com'  
**Cc:** 'Jochenkowski@juno.com'  
**Subject:** 88 PARSONAGE HILL ROAD NORTH BRANFORD CT 06472 T-MOBILE EM APPLICATION (CT11230A-L600)  
**Attachments:** 88 PARSONAGE HILL ROAD NORTH BRANFORD CT 06472 T-MOBILE EM APPLICATION (CT11230A-L600).pdf

Good morning,

On behalf of our client, (T-Mobile), I am forwarding copies of T-Mobile Tower Share Application Request to collocate on a wireless telecommunications facility located at 88 Parsonage Hill Road in North Branford CT.

Hard copies will be sent as well for your records.

Please do not hesitate to contact me with any questions.

Thank you very much

## Deborah Chase

Senior Project Coordinator & Analyst

Mobile: 860-490-8839



🌱 Save a tree. Refuse. Reduce. Reuse. Recycle.