NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

September 1, 2022

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

RE: Exempt Modification Application
88 Parsonage Hill Road, North Branford CT 06472
Latitude: 41. 369440000
Longitude: -72.810280000
T-Mobile Site#: CT11230A-Anchor-L600-L1900

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 remove three (3) of the nine (9) existing antennas and replace with three (3) new 600/700/1900/2100 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:
(6) Coax
(1) Hybrid Line
(3) Twin TMA
(3) AIR21 B2A B4P Antenna

Remove and Replace:
(3) AIR21 B2P B4A Antenna (Remove) -(3) AIR6419 B41 Antenna 2500 MHz (Replace)
(3) LNX6515DS Antenna (Remove) - (3) APXVAALL24 Antenna 600/700/1900/2100 MHz (Replace)
(3) Antenna Mount (Remove) - (3) VFA12-HD V-Frame Antenna Mount (Replace)
(3) RRUS11 B12 (Remove) - (3) Radio 4480 B71+B85 (Replace)

Install New:
(3) Hybrid Line
(3) Radio 4460 B25+B66

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Existing to Remain:
NONE

Ground:
5'x7' Concrete pad
(1) 6160 Radio Cabinet
(2) 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.SA. § 16-SOj-73, a copy of this letter is being sent to Jeffrey Macmillen, Mayor, Michael T. Paulhus, Town Manager 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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments
cc:

Jeffrey Macmillen, Mayor
Town of North Branford
909 Foxon Road
North Branford CT 06422

Michael T. Paulhus, Town Manager
Town of North Branford
909 Foxon Road
North Branford CT 06422

Ochenkowski Towers LLC
88 Parsonage Hill Road
Northford CT 06472

Jean Szwabowski
84 Parsonage Hill Road
Northford CT 06472

Exhibit A

Original Facility Approval

TOWN OF NORTH BRANFORD, CT
ZONING PERMIT

Date of Application: 12/5/97

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): 300' TOWER
_____ swimming pool
_____ addition
_____ excavation/filling

Zoning District _____
Assessor's Map # 51
Subdivision Name _____
Property Location _____
Lot Frontage 608
Lot # 7
Lot Area 9.31
Lot # _____

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

Property Use:

_____ single family residence
_____ two family residence
_____ commercial (Specify): _____
_____ industrial (Specify): _____
✓ other (Specify): 300' TOWER (REF. 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 #	_____	Proposed Date:	_____	
Planning & Zoning Approval Required:	Yes	_____	No	Date: _____	App. # _____
Zoning Board of Appeals Approval:	Yes	✓	No	Date: 5/25/68	App. # 68-35
Inland Wetlands & Watercourses Approval:	Yes	_____	No	Date: _____	App. # _____
Flood Plain Encroachment Permit Required:	Yes	_____	No	Date: _____	App. # _____
Streambelt Protection District:	(Sec 33) Yes	_____	No		
Temporary Special Use Permit:	(Sec 43) Yes	_____	No		
Special Use Permit:	(Sec 42) Yes	_____	No		

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 ommission, or failure to comply with the conditions of this permit shall constitute a violation of the north Branford Zoning Regulations.

Signature of Owner _____
Signature of Agent: _____ Date 12/5/97
Agent's Address 188 Parmelee Hill Rd. Date _____
Agent's Telephone 484-2075

This permit is hereby: _____ Approved _____ Denied

By _____ Date _____
Zoning Enforcement Officer

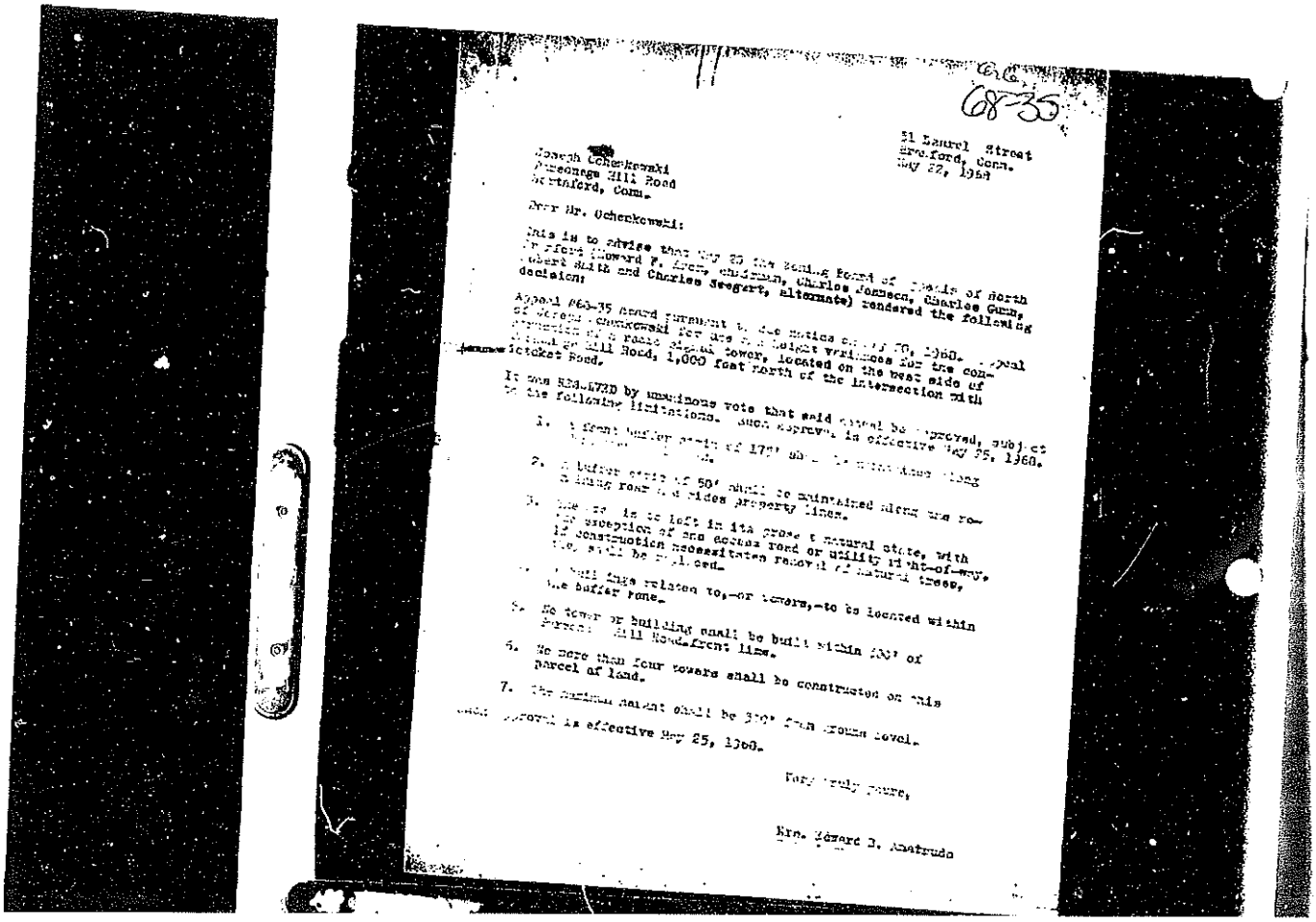
By _____ Date _____
Inland Wetlands Enforcement Officer

By _____ Date 1/2/98 PER ZBA #GB-35 ATTACHED
Planning and Zoning Administrator

By _____ Date _____
Town Engineer

Fee $ _____
Date Paid _____
Permit # _____

LR:dfs
(8/88)



68-35

51 Laurel Street
Branford, Conn.
May 27, 1960

Joseph Ochenkowski
Passonage Hill Road
Northford, Conn.

Dear Mr. Ochenkowski:

This is to advise that [illegible] Board of [illegible] of North Branford, Edward F. Drew, chairman, Charles Jannuca, Charles Gunn, Robert Smith and Charles Swegart, alternate) rendered the following decision:

Appeal #60-35 heard pursuant to due notice on May 20, 1960. [illegible] appeal of Joseph Ochenkowski for area variance for the construction of a radio [illegible] tower, located on the west side of Passonage Hill Road, 1,000 feat north of the intersection with Pickett Road.

It was RESOLVED by unanimous vote that said appeal be approved, subject to the following limitations. Such approval is effective May 25, 1960.

1. A front [illegible] of 175' shall be maintained [illegible]
2. A buffer strip of 50' shall be maintained along the [illegible] along road and side property lines.
3. [illegible] is to be left in its present natural state, with the exception of any access road or utility right-of-way. If construction necessitates removal of natural trees, the same shall be replaced.
4. [illegible] shall [illegible] related to,—or towers,—to be located within the buffer zone.
5. No tower or building shall be built within 200' of present Hill Road[illegible]front line.
6. No more than four towers shall be construction on this parcel of land.
7. The maximum height shall be 370' from ground level.

[illegible] approval is effective May 25, 1960.

Very truly yours,

Mrs. Edward J. Mastruda

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
__X__ addition
_____ excavation/filling

Zoning District R-40
Assessor's Map # 51
Subdivision Name _____
Property Location 88 Parsonage Hill Rd.
Lot Frontage _____
Lot # 7
Lot Area _____
Lot # _____

Property Owner Swiecbowski Jean & Ochenkowski Joseph Jr.
Owner's Address 84 Parsonage Hill Rd. Northford, CT 06472
Owner's Phone No. _____

Property Use:

_____ single family residence
_____ two family residence
__X__ commercial (Specify): Wireless Communication facility
_____ industrial (Specify): _____
_____ other (Specify): _____

Existing Structures:

Description Wireless Communication
Dimensions 7' x 16' x 170' (ht)
Bulk _____
Structures _____
Use wireless communication
Setbacks: Front ____ Rear ____ Side ____
Required Setbacks: From Residence Zone _____ Other _____

Proposed Structures/Signs:

Wireless Communication Tower
7 x 112' x 170' (ht)
_____ sq. ft.
_____
_____
Front ____ Rear ____ Side ____

Parking Spaces Required: 0
Proposed 0

East Shore Health District Approval:	Permit #	_____		Date:		
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 _____	Date:	App. #	
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

Conditions of Approval: _____

Driveway Bond: Amount of Bond $ _____ Date Posted: _____

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

Signature of Owner _____ Date _____
Signature of Agent _____ Date _____
Agent's Address _____
Agent's Telephone _____

This permit is hereby: ✓ Approved _____ Denied

By _____ Date 10-17-02
Zoning Enforcement Officer

By _____ Date 10-25-02
Inland Wetlands Enforcement Officer

By _____ Date 10-25-02
Planning and Zoning Administrator N/A

By _____ Date _____
Town Engineer

Fee $ _____
Date Paid _____
Permit # _____

LR:dfs
(8/88)

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 Facility IS FOUND 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

B) FIRE GRADING 2C AS DEFINED IN ARTICLE 4 AND TABLE 401

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

Joseph Di Natale
INSPECTED BY

Robert F. Linsley
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 _____
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 arrestor 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 _____
Zoning Enforcement Officer

Date 6/15/2012

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

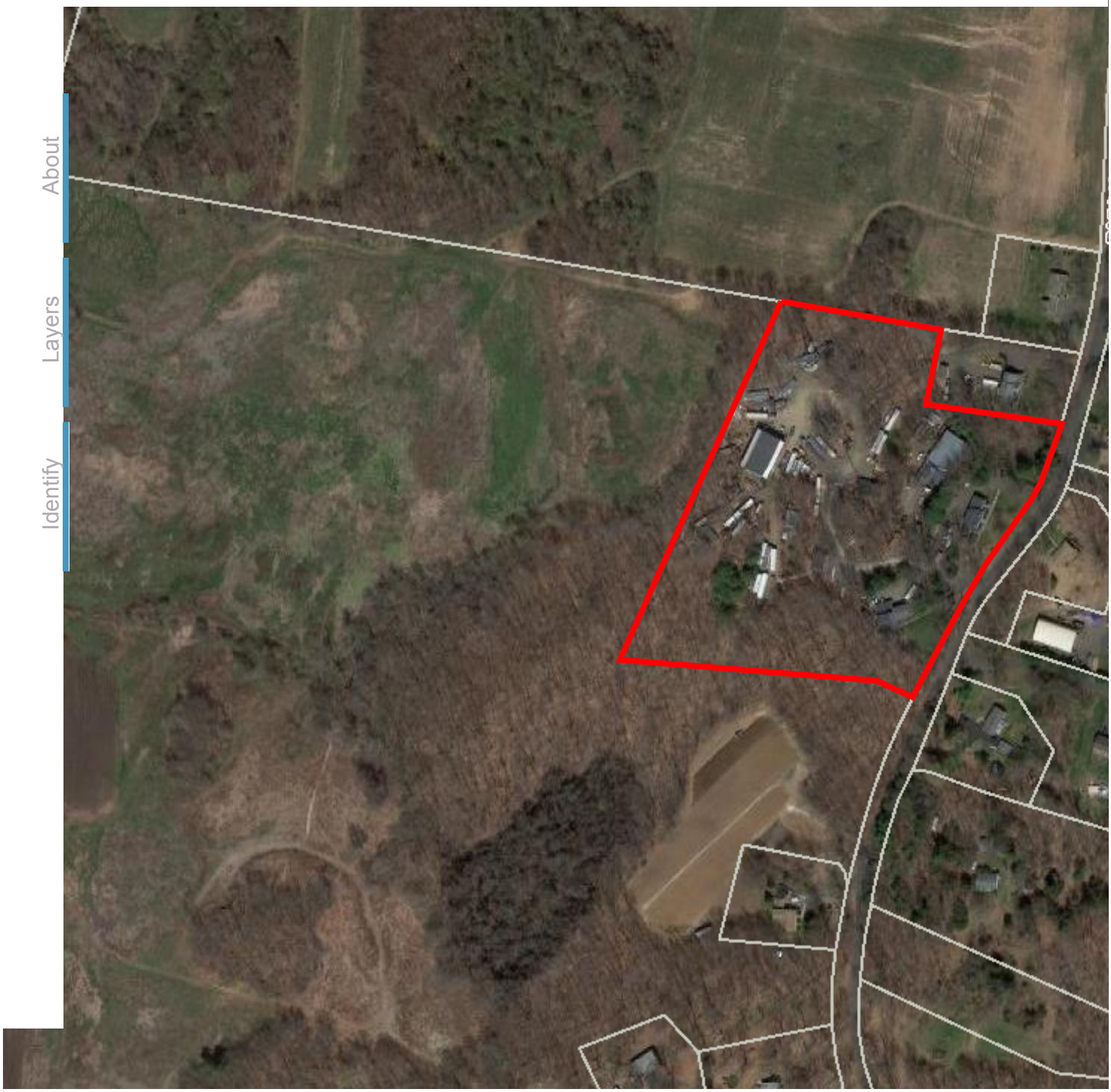
Property Card

Szwabowski

About

Layers

Identify



Email Map Link

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

100m

Close

300ft

Tighe&Bond

lat:41.3682, long:-72.8070

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	**Sale Price**	$90,000
Co-Owner	OCHENKOWSKI J J JR 1/3 & K W 1/3 EACH	**Certificate**	
Address	84 PARSONAGE HL RD NORTHFORD, CT 06472-1445	**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 Good:	55

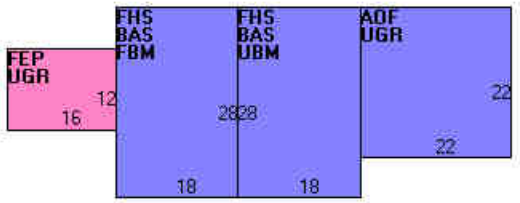
Replacement Cost Less Depreciation: $108,500

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

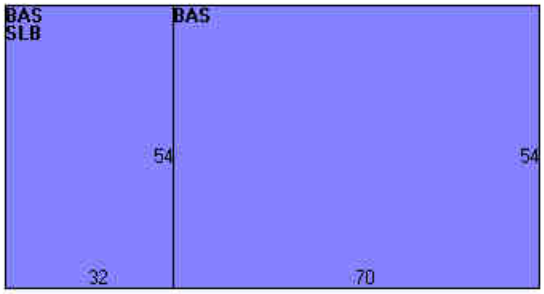
Year Built: 1949
Living Area: 0
Replacement Cost: $197,304
Building Percent Good: 55
Replacement Cost Less Depreciation: $108,500

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

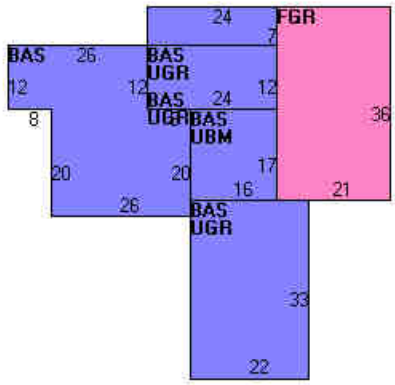
Building Attributes : Bldg 2 of 3	
Field	**Description**
Style	Ranch
Model	Residential
Grade:	Average
Stories:	1 Story
Occupancy	1

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

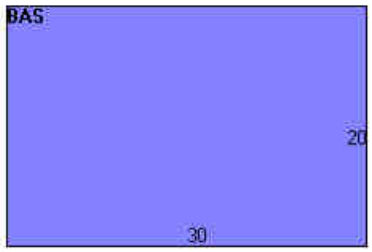
Building Attributes : Bldg 3 of 3	
Field	**Description**
STYLE	Industrial
MODEL	Ind or Comm
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Drywall/Sheet
Interior Wall 2	Minim/Masonry
Interior Floor 1	Vinyl/Asphalt
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	No
Category	

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

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$691,400	$557,400	$1,248,800
2015	$691,400	$557,400	$1,248,800
2014	$548,500	$361,400	$909,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$473,900	$390,100	$864,000
2015	$473,900	$390,100	$864,000
2014	$373,700	$252,900	$626,600

Exhibit C

Construction Drawings

MODIFICATION OF EXISTING WIRELESS FACILITY BY

T-Mobile

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: 67E5998E_1XAIR+1OP)

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 MOUNT EVALUATION REPORT DATED 09/23/20 PREPARED BY EFI GLOBAL INC AND THE STRUCTURAL ANALYSIS REPORT DATED APRIL 28, 2021 PREPARED BY CENTEK ENGINEERING, AND ADHERE TO THE REPORTS 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:

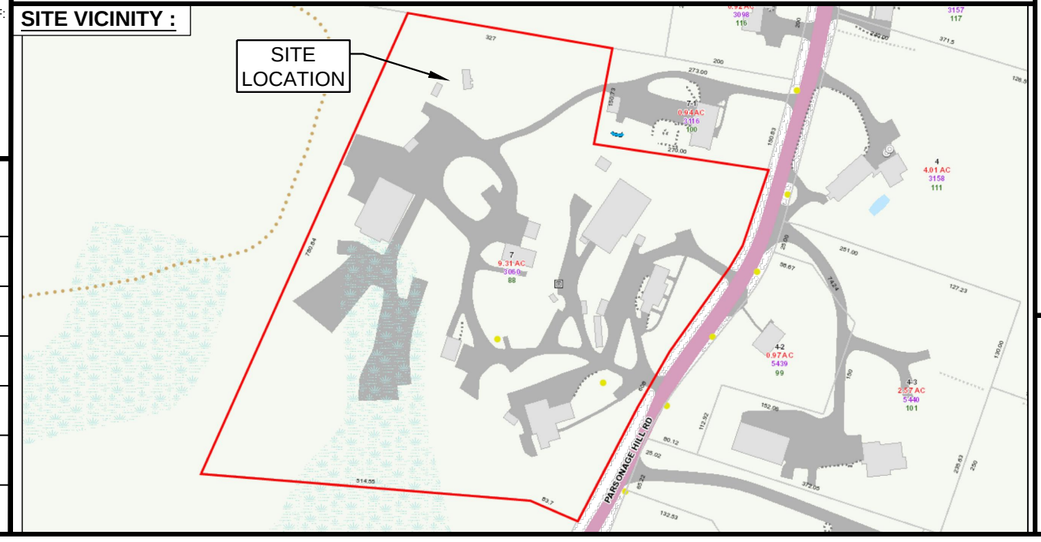
CONNECTICUT STATE BUILDING CODE (CSBC).
ANSI/TIA-222-G STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.
OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.

APPROVALS:

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

SITE IMAGE:

SITE VICINITY :



PROJECT SCOPE:

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:

UPGRADE (E) 6131 CABINET INTERNALLY.
ADD (1) ENCLOSURE 6160.
ADD (1) BATTERY CABINET B160.
REMOVE (9) OF (9) EXISTING ANTENNAS AND REPLACE WITH (6) NEW ANTENNAS.
REMOVE (3) OF (3) EXISTING RRUS AND REPLACE WITH (6) NEW RRUS.
REMOVE (3) OF (3) EXISTING TMAS.
REMOVE ALL EXISTING COAXIAL AND FIBER LINES, ADD (3) 6X24 HCS, FOR FINAL CONFIGURATION OF (3) 6X24 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:

APPLICANT:

T-Mobile

T-MOBILE NORTHEAST LLC

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

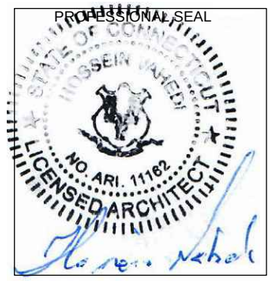
PROJECT MANAGER

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

PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20
1	NEW STRUCTURAL REFERENCE	04/28/21
2	REVISED PER NEW RFDS	03/16/22
3	CABLE COUNTS CORRECTED	08/10/22

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

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"ϕ 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-lH, OBSTRUCTION MARKING AND LIGHTING.

E. FCC - FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES AND FORM 715A, HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.

F. AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS (LATEST EDITION).

G. NEC - NATIONAL ELECTRICAL CODE - ON TOWER LIGHTING KITS.

H. UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

I. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

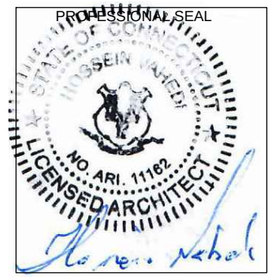
J. 2009 LIFE SAFETY CODE NFPA - 101.

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

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

PROFESSIONAL SEAL

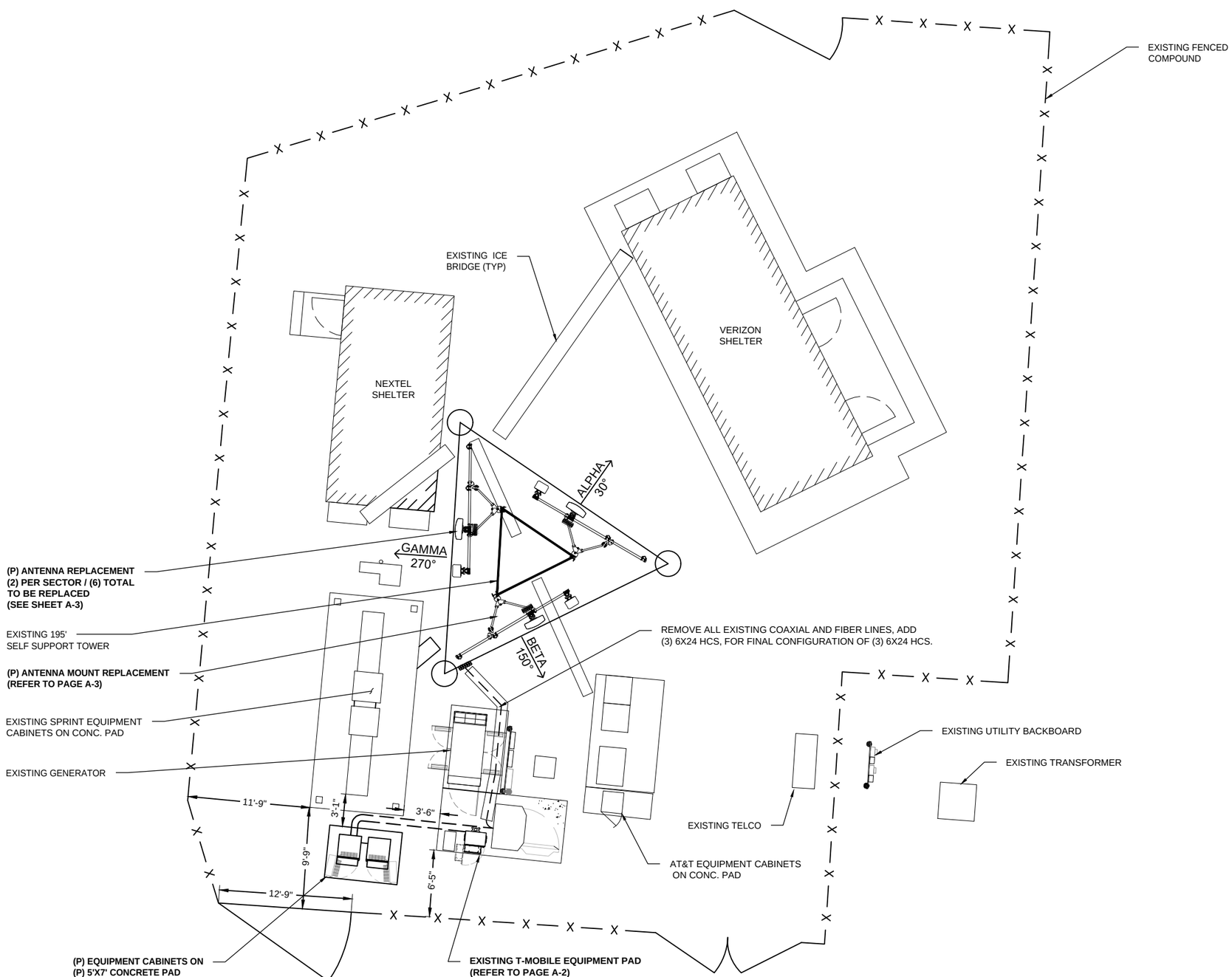


REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20
1	NEW STRUCTURAL REFERENCE	04/28/21
2	REVISED PER NEW RFDS	03/16/22
3	CABLE COUNTS CORRECTED	08/10/22

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

TRUE NORTH



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

1 / A-1

APPLICANT:

T-MOBILE NORTHEAST LLC

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

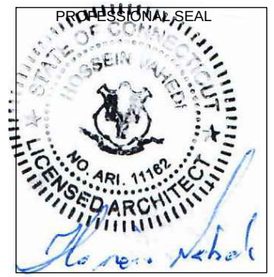
PROJECT MANAGER

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

CONSULTANT:

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

PROFESSIONAL SEAL

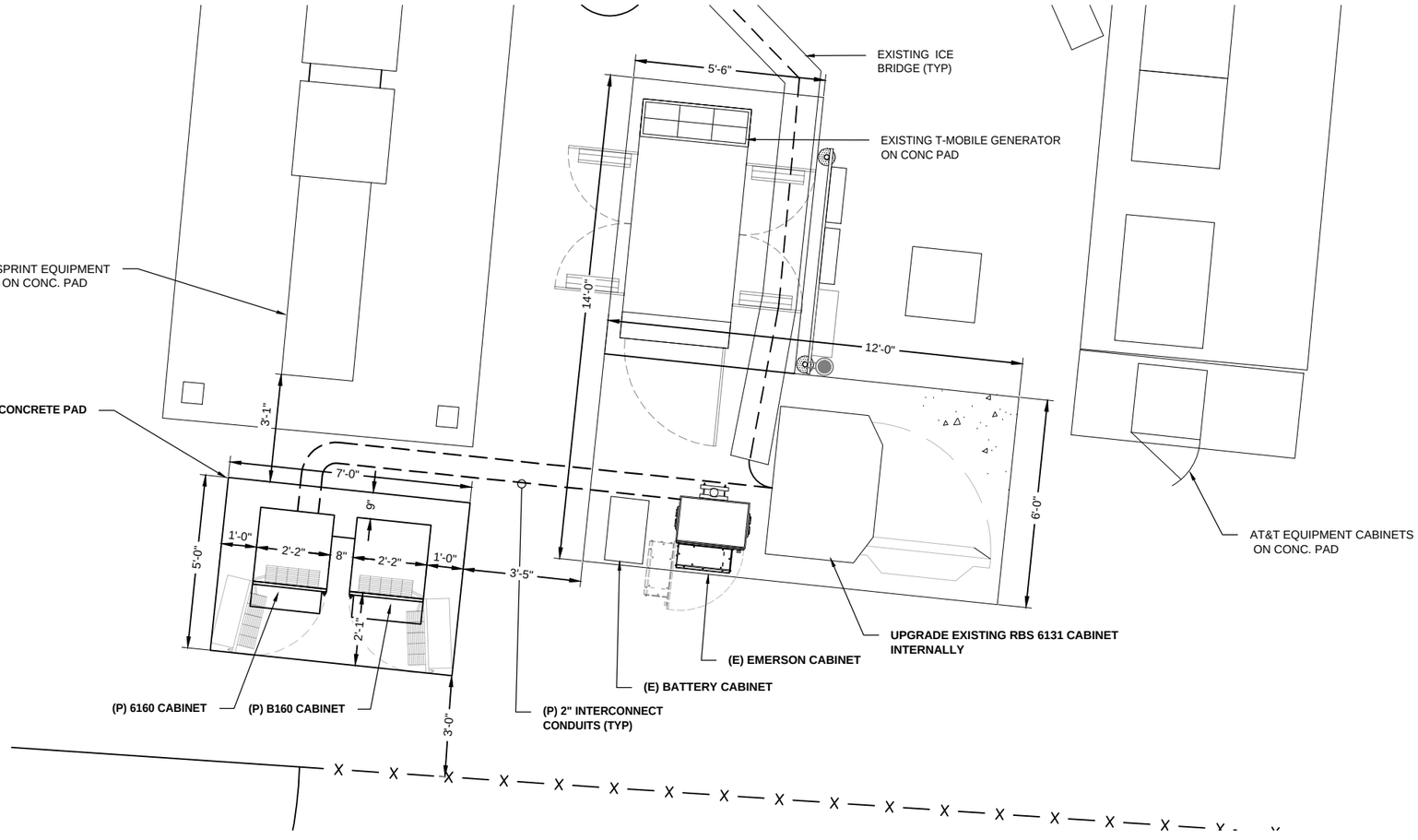


REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20
1	NEW STRUCTURAL REFERENCE	04/28/21
2	REVISED PER NEW RFDS	03/16/22
3	CABLE COUNTS CORRECTED	08/10/22

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

SHEET TITLE:
A-1: SITE PLAN

TRUE NORTH



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

1 / A-2

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

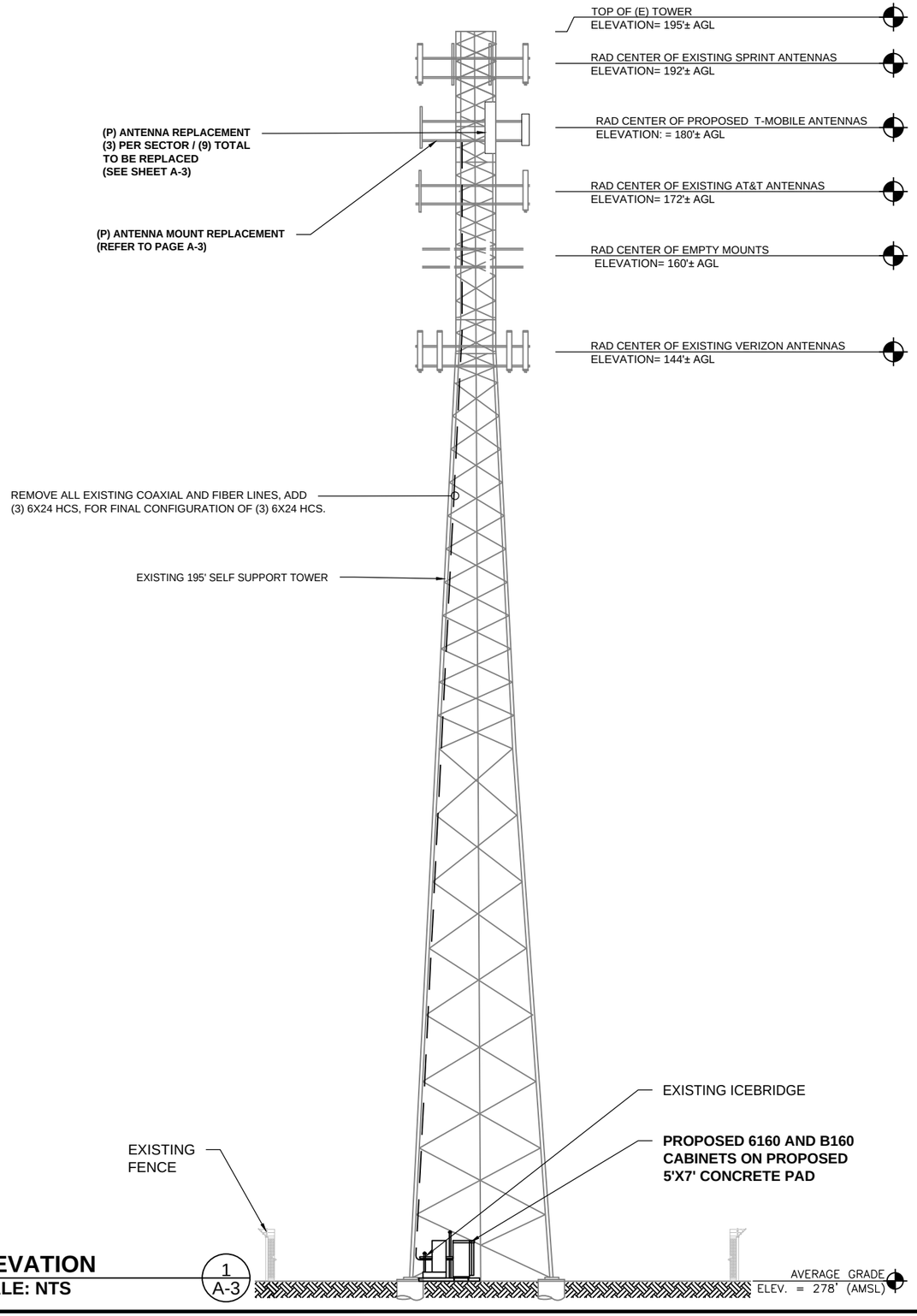
PROFESSIONAL SEAL

STATE OF CONNECTICUT
ROSSEIN WEEN
NO. ARI. 11162
LICENSED ARCHITECT

REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20
1	NEW STRUCTURAL REFERENCE	04/28/21
2	REVISED PER NEW RFDS	03/16/22
3	CABLE COUNTS CORRECTED	08/10/22

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

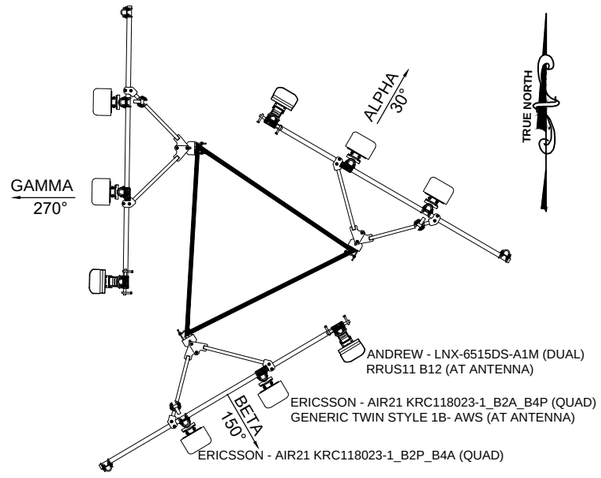
SHEET TITLE:
A-2: PARTIAL SITE PLAN



ELEVATION
SCALE: NTS

1 / A-3

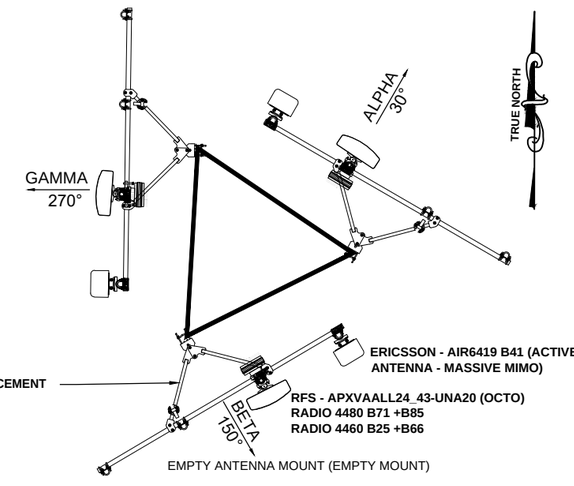
TYPICAL EACH SECTOR



EXISTING ANTENNA PLAN
N.T.S.

2 / A-3

TYPICAL EACH SECTOR



FINAL ANTENNA PLAN
N.T.S.

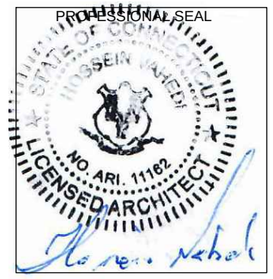
3 / A-3

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

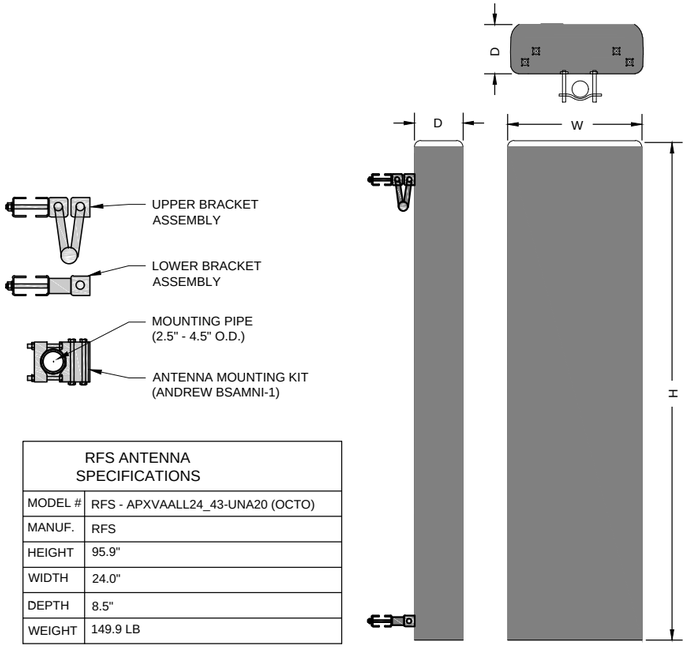
PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20
1	NEW STRUCTURAL REFERENCE	04/28/21
2	REVISED PER NEW RFDS	03/16/22
3	CABLE COUNTS CORRECTED	08/10/22

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

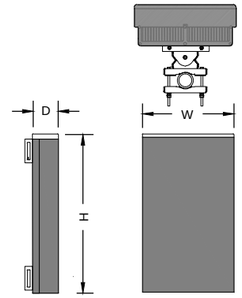
SHEET TITLE:
A-3: ELEVATION AND ANTENNA PLANS



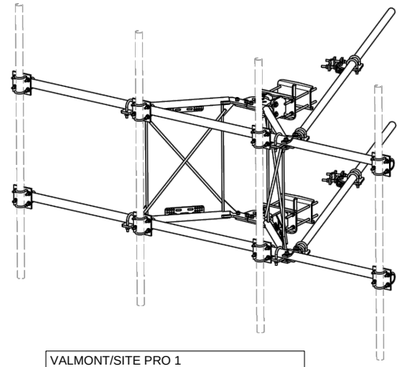
RFS ANTENNA SPECIFICATIONS	
MODEL #	RFS - APXVAALL24_43-UNA20 (OCTO)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.5"
WEIGHT	149.9 LB

RFS APX ANTENNA
N.T.S. — 1 / A-4

ERICSON ANTENNA SPECIFICATIONS	
MODEL #	AIR6419 B41
MANUF.	ERICSSON
HEIGHT	
WIDTH	
DEPTH	
WEIGHT	

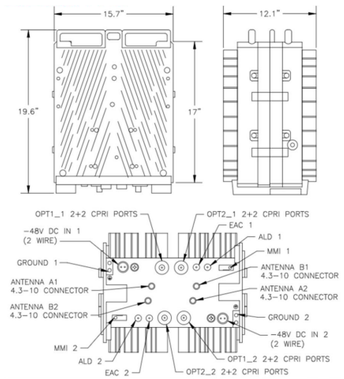


ERICSSON ANTENNA
N.T.S — 1 / A-3



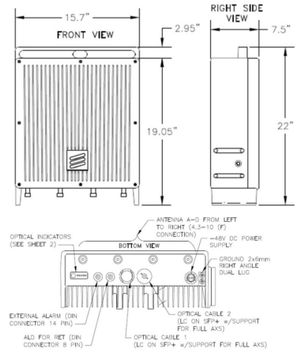
VALMONT/SITE PRO 1
12'-6" HEAVY DUTY V-FRAME ASSEMBLY
WITH TWO STIFF ARMS (P/N: VFA12-HD)

ANTENNA MOUNT REPLACEMENT
N.T.S. — 6 / A-4



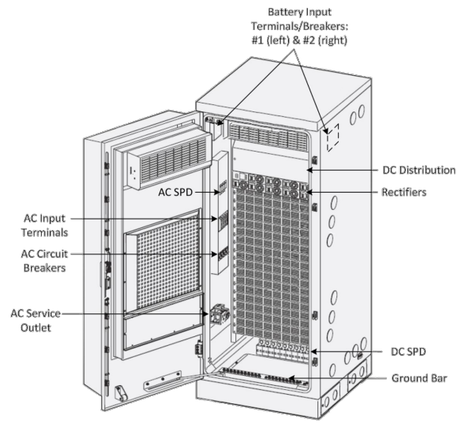
RRU SPECIFICATIONS	
MODEL #	4460 B2/25
MANUF.	ERICSSON
LENGTH	19.6"
WIDTH	15.7"
DEPTH	12.1"
WEIGHT	109 LB

REMOTE RADIO UNIT
N.T.S — 2 / A-4



RRU SPECIFICATIONS	
MODEL #	4480 B71
MANUF.	ERICSSON
LENGTH	22.0"
WIDTH	15.7"
DEPTH	7.5"
WEIGHT	93.0 LB

REMOTE RADIO UNIT
N.T.S — 3 / A-4



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

SITE SUPPORT CABINET
N.T.S. — 4 / A-5

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

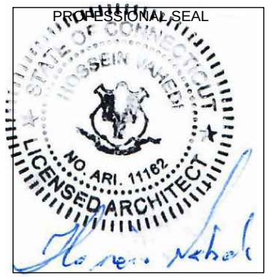
BATTERY CABINET
N.T.S. — 5 / A-5

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

PROFESSIONAL SEAL

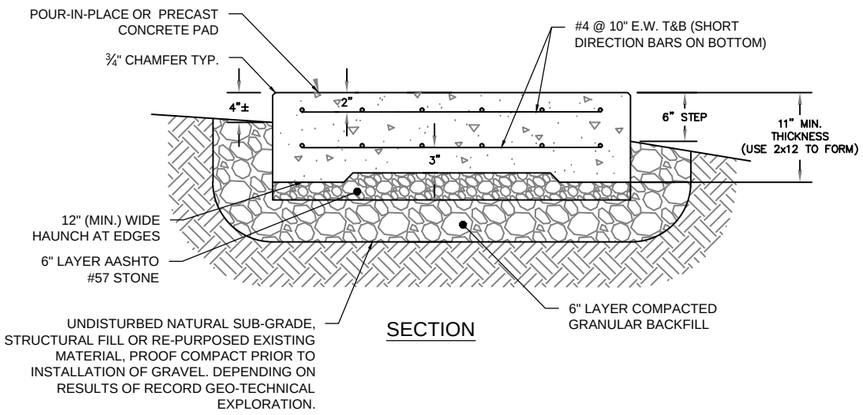


REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20
1	NEW STRUCTURAL REFERENCE	04/28/21
2	REVISED PER NEW RFDS	03/16/22
3	CABLE COUNTS CORRECTED	08/10/22

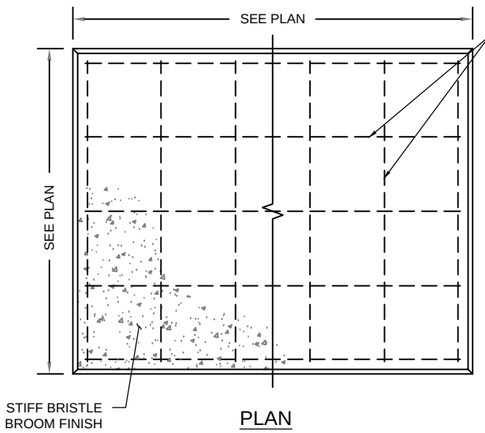
SITE NUMBER: CT11230A
SITE NAME: NORTH HAVEN/RT 17
SITE ADDRESS: 88 PARSONAGE HILL ROAD
NORTH BRANDFORD, CT 06472

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

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.



SECTION

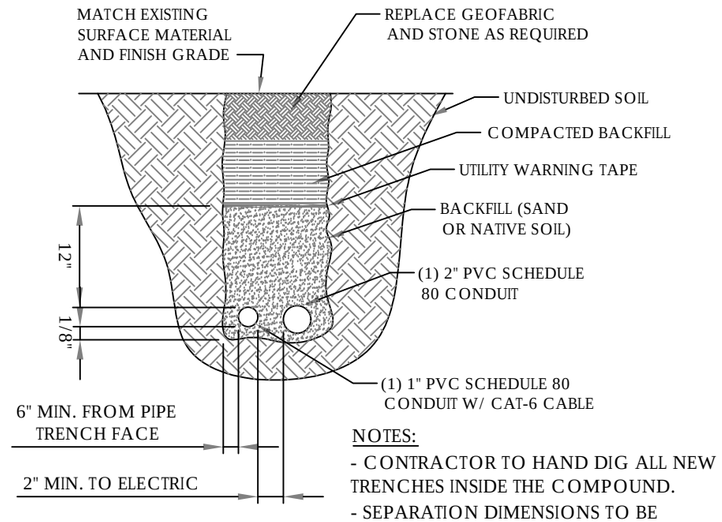


PLAN

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.

CONCRETE PAD DETAIL
N.T.S. 1 / A-5



NOTES:
- CONTRACTOR TO HAND DIG ALL NEW TRENCHES INSIDE THE COMPOUND.
- SEPARATION DIMENSIONS TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS.

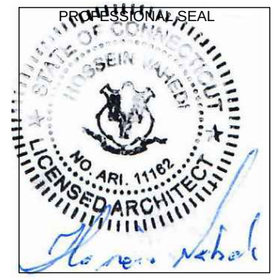
UNDERGROUND UTILITY
N.T.S. 2 / A-5

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
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



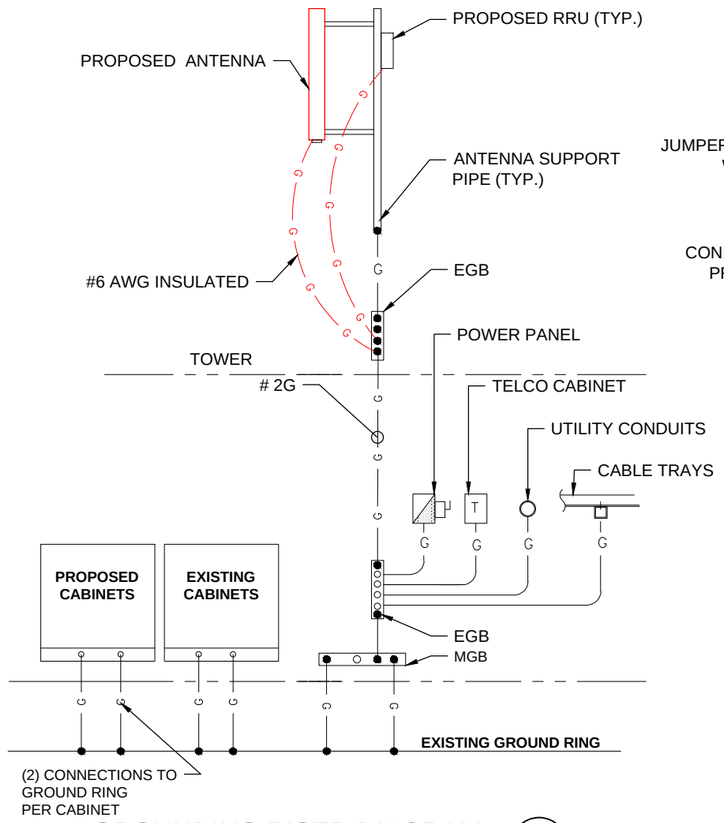
REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20
1	NEW STRUCTURAL REFERENCE	04/28/21
2	REVISED PER NEW RFDS	03/16/22
3	CABLE COUNTS CORRECTED	08/10/22

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

SHEET TITLE:
A-5: CONCRETE PAD AND UNDERGROUND UTILITY DETAILS

ELECTRICAL & GROUNDING NOTES

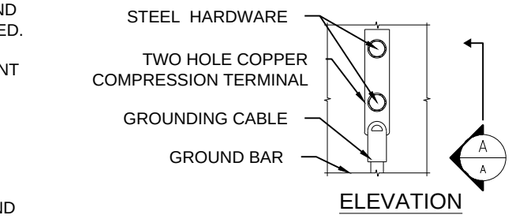
1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PRODUCED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED 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) ND 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 LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTION.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20 BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.



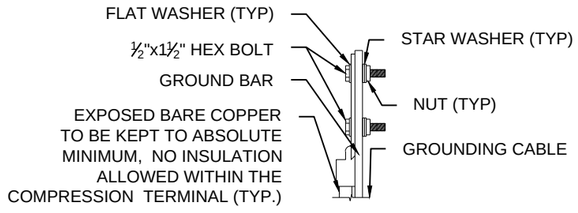
GROUNDING RISER DIAGRAM

1 E-1

SCALE: N.T.S



ELEVATION



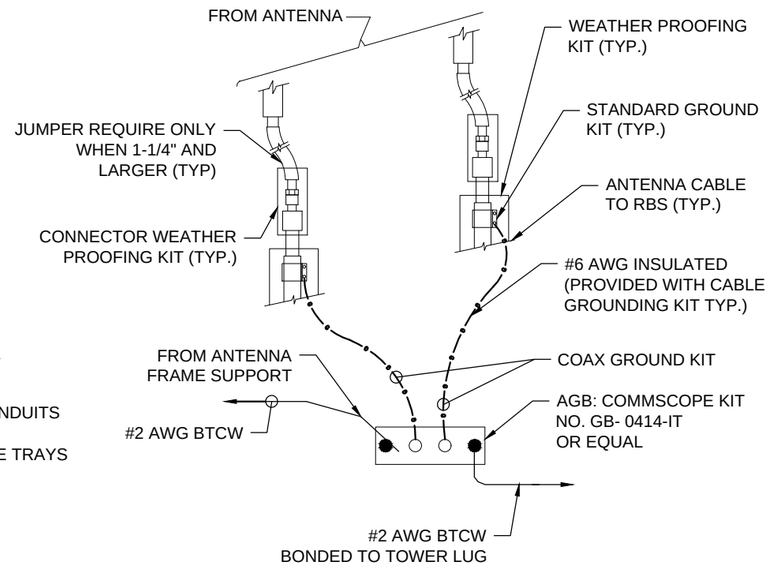
SECTION A-A

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

3 E-1

SCALE: N.T.S



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

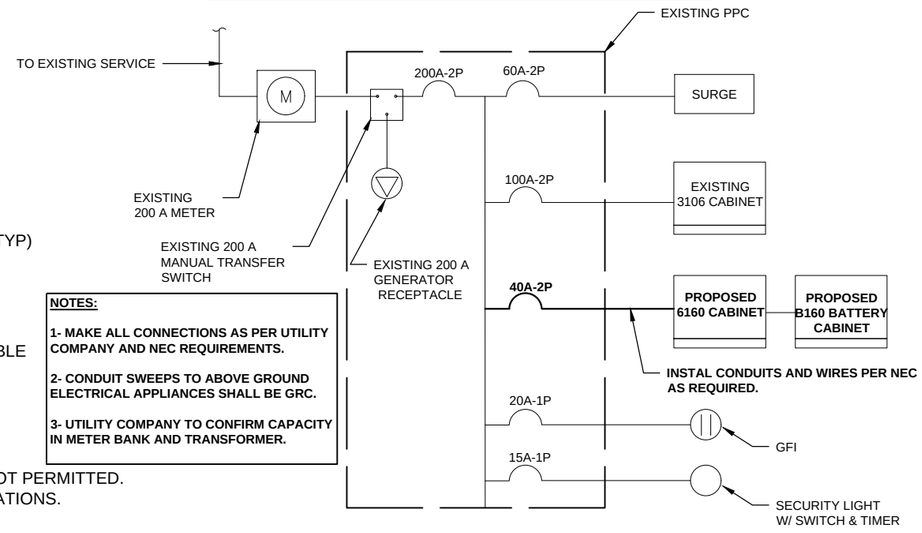
TOWER TOP CABLE GROUNDING DETAIL

2 E-1

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

4 E-1

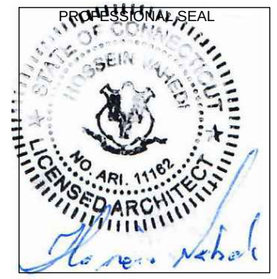
N.T.S.

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

PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	09/15/20
B	REVISED PER COMMENTS	10/06/20
0	FINAL ISSUED	10/06/20
1	NEW STRUCTURAL REFERENCE	04/28/21
2	REVISED PER NEW RFDS	03/16/22
3	CABLE COUNTS CORRECTED	08/10/22

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

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

195' Existing Lattice Tower

Proposed T-Mobile
Antenna Upgrade

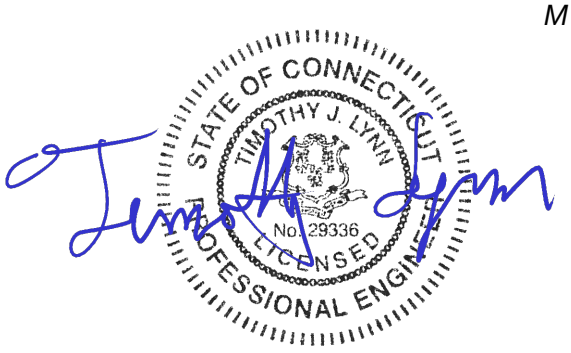
Site Ref: CT11230A

88 Parsonage Hill Road
North Branford, CT

Centek Project No. 22006.08

Date: May 25, 2022

Max Stress Ratio = 74%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna upgrade proposed by T-Mobile on the existing lattice tower located in Northford (North Branford), Connecticut.

The host tower is a 195-ft, three legged, lattice tower originally designed and manufactured by Central Tower project no. F-722 dated 4/9/99. The tower geometry, structure member sizes and foundation information were taken from the aforementioned design documents.

Antenna and appurtenance inventory was taken from a previous structural analysis prepared by Centek dated March 22, 2022 and an RF data sheet dated 3/15/22.

The tower consists of ten (10) vertical sections consisting of solid round pipe legs conforming to ASTM A529 Gr. 50 and steel angle lateral bracing conforming to ASTM A36. The vertical tower sections are connected by bolted flange plates with the diagonal and horizontal bracing to pipe legs consisting of bolted connections. The width of the tower face is 5-ft 0-in at the top and 23-ft 6-in at the bottom.

Antenna and Appurtenance Summary

The existing and proposed loads considered in the analysis consist of the following:

- Sprint (Existing):
  Antenna: Three (3) RFS APXVSPP18-C-A20 panel antennas, three (3) 1900MHz 4X45W RRHs, three (3) 800MHz 2X50W RRHs and three (3) Notch Filters mounted on a triangular platform with a RAD center elevation of ±192-ft above grade level.
  Coax Cable: Three (3) 1-1/4"∅ Hybriflex cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing):
  Antenna: Three (3) Kathrein 800-10121 panel antennas, three (3) CCI OPA65R-BU6DA panel antennas, three (3) CCI DMP65R-BU6DA panel antennas, six (6) Powerwave LGP21401 TMAs, three (3) Ericsson 4478 B14 remote radio heads, three (3) Ericsson 4449 B5/B12 remote radio heads, three (3) Ericsson 8843 B2/B66A remote radio heads and two (2) Raycap DC6-48-60-18-8F surge arrestors mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±172-ft above grade level.
  Coax Cable: Six (6) 1-5/8" ∅ coax cables, two (2) fiber cable and four (4) dc control cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- Dish (Reserved):
  Antennas: Three (3) JMA MX08FR0665-21 panel antennas, three (3) Fujitsu TA08025-B605 remote radio heads, three (3) Fujitsu TA08025-B604 remote radio heads and one (1) main distribution box mounted on three (3) existing 12-ft T-Frames with a RAD center elevation of ±162-ft above grade level.
  Coax Cable: One (1) 1-3/4" ∅ hybrid cable running on a face of the existing tower as specified in Section 3 of this report.

- VERIZON (Existing):
  Antennas: Three (3) Andrew LNX-6513DS panel antennas, six (6) Commscope JAHH-65B-R3B panel antennas, three (3) Samsung B2/B66A remote radio heads, three (3) Samsung B5/B13 remote radio heads, three (3) Commscope CBC78T-DS-43 diplexers and two (2) OVP boxes mounted on (3) 12-ft T-Frames with a RAD center elevation of ±146-ft above grade level.
  Coax Cable: Twelve (12) 1-5/8" ∅ coax cables and two (2) 1-5/8" ∅ fiber cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- Sprint (Existing):
  Antenna: One (1) GPS antenna on a 2-ft standoff with an elevation of ±80-ft above grade level.
  Coax Cable: One (1) 1/2" ∅ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- **T-MOBILE (Existing to Remove):**
  Antennas: Three (3) Commscope LNX6515DS panel antennas, six (6) Ericsson AIR21 panel antennas, three (3) TMAs, and three (3) Ericsson RRUS-11 remote radio heads mounted on three (3) T-Frames with a RAD center elevation of ±180-ft above grade level.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables and one (1) 9x18 hybrid cable running on a face of the existing tower as specified in Section 3 of this report.
- **T-MOBILE (Proposed):**
  Antennas: Three (3) Ericsson AIR6419 panel antennas, three (3) RFS APXVAALL24_43 panel antennas, three (3) Ericsson 4460 remote radio heads and three (3) Ericsson 4480 remote radio heads mounted on three (3) SitePro VFA12-HD V-Frames with a RAD center elevation of ±180-ft above grade level.
  Coax Cables: Three (3) 6x24 hybrid cables running on a face of the existing tower as specified in Section 3 of this report.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables should be routed as specified in section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-G-2005 entitled "Structural Standard for Antenna Support Structures and Antennas", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC[1] and the wind speed data available in the TIA-222-G-2005 Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G-2005, gravity loads of the tower structure and its components, and the application of 0.75" radial ice on the tower structure and its components.

Basic Wind Speed:	Northford; v = 101 mph (Vasd)	*[Appendix N of the 2018 CT Building Code]*
Load Cases:	Load Case 1; 101 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix N of the 2018 CT Building Code]*
	Load Case 2; 50 mph wind speed w/ 0.75" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-G-2005]*

[1] The 2015 International Building Code as amended by the 2018 Connecticut State Building Code (CSBC).

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software tnxTower. Design flexural strength was determined based on section 4.7 and Table 4-8 of the TIA-222-G.

- Calculated stresses **were found to be within allowable limits**.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Diagonal (T2)	155'-0"-175'-0"	74.2%	**PASS**
Leg (T9)	20'-0"-40'-0"	65.7%	**PASS**

Foundation and Anchors

The existing foundation consists of a three (3) 3-ft ∅ x 4-ft long reinforced concrete piers concentrically bearing on a 34-ft square x 2-ft 6-in thick reinforced concrete mat. The sub grade conditions used in the foundation analysis were derived from the aforementioned design documents. The base of the tower is connected to the foundation by means of (8) 1.375"∅, ASTM A449 anchor bolts per leg embedded 5-ft 10-in into the concrete foundation structure.

- The tower reactions developed from the governing Load Case were used in the verification of the foundation and anchor bolts:

Load Effect	Proposed Tower Reactions
Leg Shear	44,702 lbs
Leg Compression	424,486 lbs
Leg Tension	358,929 lbs
Base Moment	8,079,397 ft-lbs
Base Shear	73,051 lbs

- The anchor bolts were found to be within allowable limits.

Tower Section	Component	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	50.5%	**PASS**

- The foundation was found to be within allowable limits.

Foundation	Design Limit	TIA-222-G Section 9.4 FS[1]	Proposed Loading (FS)[1]	Result
Reinforced Concrete Pad and Piers	Overturning	1.0	1.61	**PASS**

Note 1: FS denotes Factor of Safety

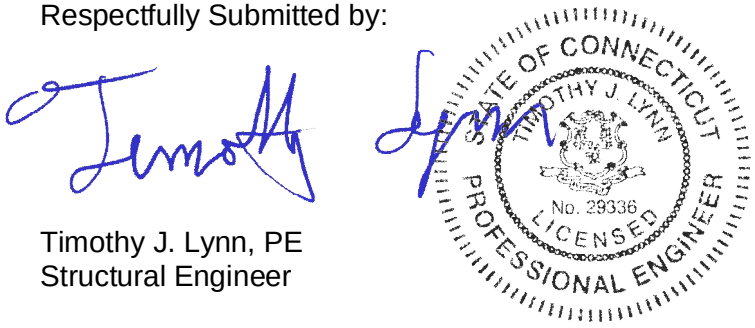
Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed antenna configuration with the below recommendations.

The analysis is based, in part, on the information provided to this office by T-Mobile. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

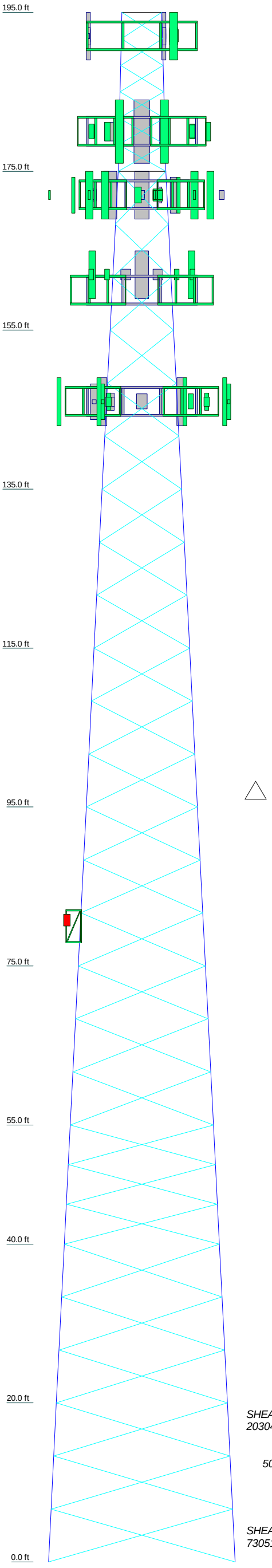
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

tnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, tnxTower, formerly RISA Tower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

tnxTower Features:

- tnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- tnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

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 1/4	SR 4 1/2	SR 4 3/4			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
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			18 @ 6.66667				3 @ 5		6 @ 6.66667
Weight (lb)	2548.7	2793.3	3572.1	4036.1	4788.8	5354.2	5794.0	5023.9	6793.1	8126.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Top Triangular Mount (Sprint)	192	4478 B14 (ATI)	172
APXVSPP18-C-A20 (Sprint)	192	4478 B14 (ATI)	172
APXVSPP18-C-A20 (Sprint)	192	4449 B5/B12 (ATI)	172
APXVSPP18-C-A20 (Sprint)	192	4449 B5/B12 (ATI)	172
FD-RRH 2x50 800 (Sprint)	192	4449 B5/B12 (ATI)	172
FD-RRH 2x50 800 (Sprint)	192	8843 B2/B66A (ATI)	172
FD-RRH 2x50 800 (Sprint)	192	8843 B2/B66A (ATI)	172
Notch Filter (Sprint)	192	8843 B2/B66A (ATI)	172
Notch Filter (Sprint)	192	MX08FRO665-21 (Dish)	162
Notch Filter (Sprint)	192	MX08FRO665-21 (Dish)	162
FD-RRH 4x45 1900 (Sprint)	192	MX08FRO665-21 (Dish)	162
FD-RRH 4x45 1900 (Sprint)	192	TA08025-B604 (Dish)	162
FD-RRH 4x45 1900 (Sprint)	192	TA08025-B604 (Dish)	162
SitePro VFA12-HD (T-Mobile)	180	TA08025-B604 (Dish)	162
SitePro VFA12-HD (T-Mobile)	180	TA08025-B605 (Dish)	162
SitePro VFA12-HD (T-Mobile)	180	TA08025-B605 (Dish)	162
AIR6419 (T-Mobile)	180	TA08025-B605 (Dish)	162
APXVAALL24-43 (T-Mobile)	180	Pirod 12' T-Frame Sector Mount (1) (Empty)	160
AIR6419 (T-Mobile)	180	Pirod 12' T-Frame Sector Mount (1) (Empty)	160
APXVAALL24-43 (T-Mobile)	180	Pirod 12' T-Frame Sector Mount (1) (Empty)	160
AIR6419 (T-Mobile)	180	(2) JAHH-65B-R3B (Verizon)	146
APXVAALL24-43 (T-Mobile)	180	LNX-6513DS-VTM (Verizon)	146
4460 B25+B66 (T-Mobile)	180	(2) JAHH-65B-R3B (Verizon)	146
4460 B25+B66 (T-Mobile)	180	B2/B66A RRH (Verizon)	146
4460 B25+B66 (T-Mobile)	180	B2/B66A RRH (Verizon)	146
4480 B71+B85 (T-Mobile)	180	B2/B66A RRH (Verizon)	146
4480 B71+B85 (T-Mobile)	180	B5/B13 RRH (Verizon)	146
4480 B71+B85 (T-Mobile)	180	B5/B13 RRH (Verizon)	146
Pirod 12' T-Frame Sector Mount (1) (ATI)	172	B5/B13 RRH (Verizon)	146
Pirod 12' T-Frame Sector Mount (1) (ATI)	172	RC2DC-3315-PF-48 (Verizon)	146
Pirod 12' T-Frame Sector Mount (1) (ATI)	172	CBC78T-DS-43 (Verizon)	146
800 10121 (ATI)	172	CBC78T-DS-43 (Verizon)	146
OPA65R-BU6D (ATI)	172	CBC78T-DS-43 (Verizon)	146
DMP65R-BU6D (ATI)	172	RC2DC-3315-PF-48 (Verizon)	146
800 10121 (ATI)	172	LNX-6513DS-VTM (Verizon)	146
OPA65R-BU6D (ATI)	172	(2) JAHH-65B-R3B (Verizon)	146
DMP65R-BU6D (ATI)	172	LNX-6513DS-VTM (Verizon)	146
800 10121 (ATI)	172	Pirod 12' T-Frame Sector Mount (1) (Verizon)	146
OPA65R-BU6D (ATI)	172	Pirod 12' T-Frame Sector Mount (1) (Verizon)	146
DMP65R-BU6D (ATI)	172	Pirod 12' T-Frame Sector Mount (1) (Verizon)	146
(2) LGP21401 TMA (ATI)	172	SitePro SFS-V-L (Verizon)	146
(2) LGP21401 TMA (ATI)	172	SitePro SFS-V-L (Verizon)	146
(2) LGP21401 TMA (ATI)	172	SitePro SFS-V-L (Verizon)	146
DC6-48-60-18-8F Surge Arrestor (ATI)	172	2-ft Stand Off (Sprint)	80
DC6-48-60-18-8F Surge Arrestor (ATI)	172	GPS (Sprint)	80
4478 B14 (ATI)	172		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 74.2%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 424486 lb
SHEAR: 44702 lb

UPLIFT: -358929 lb
SHEAR: 38585 lb

AXIAL 173171 lb
SHEAR 20304 lb *MOMENT 2396667 lb-ft*
TORQUE 29166 lb-ft
50 mph WIND - 0.7500 in ICE

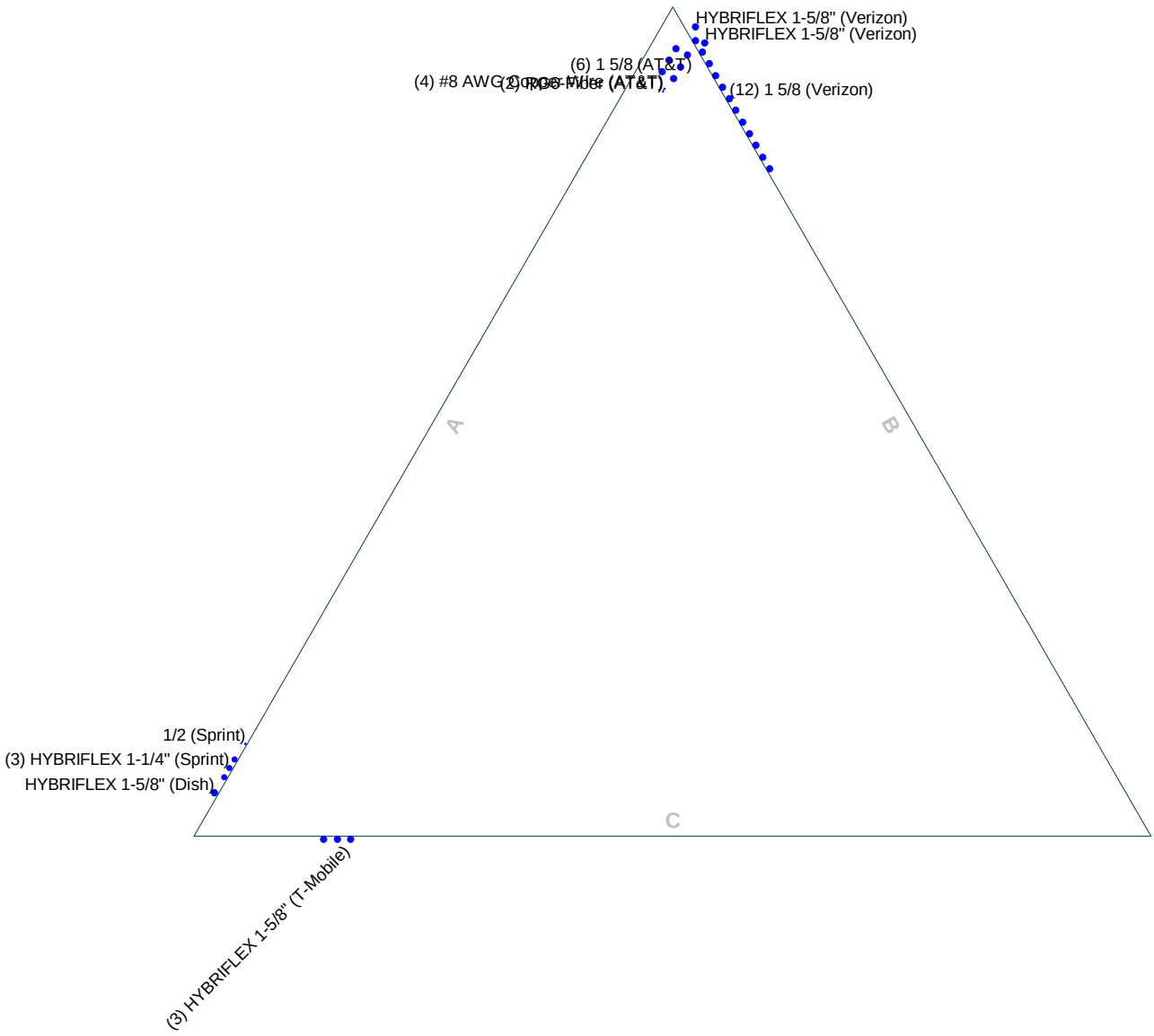
AXIAL 82489 lb
SHEAR 73051 lb *MOMENT 8079397 lb-ft*
TORQUE 70044 lb-ft
REACTIONS - 101 mph WIND

Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: 22006.08 - CT11230			
Project: 195' Lattice Tower - 88 Parsonage Hill Rd., Northford, CT			
Client: T-Mobile	Drawn by: TJL	App'd:	
Code: TIA-222-G	Date: 05/25/22	Scale: NTS	
Path: J:\Jobs\2200600 W\08_CT11230A\05_Structural\Tower\Backup Documentation\Tms\195ft Central Lattice Tower.eri		Dwg No. E-1	

Feed Line Plan

Round Flat App In Face App Out Face

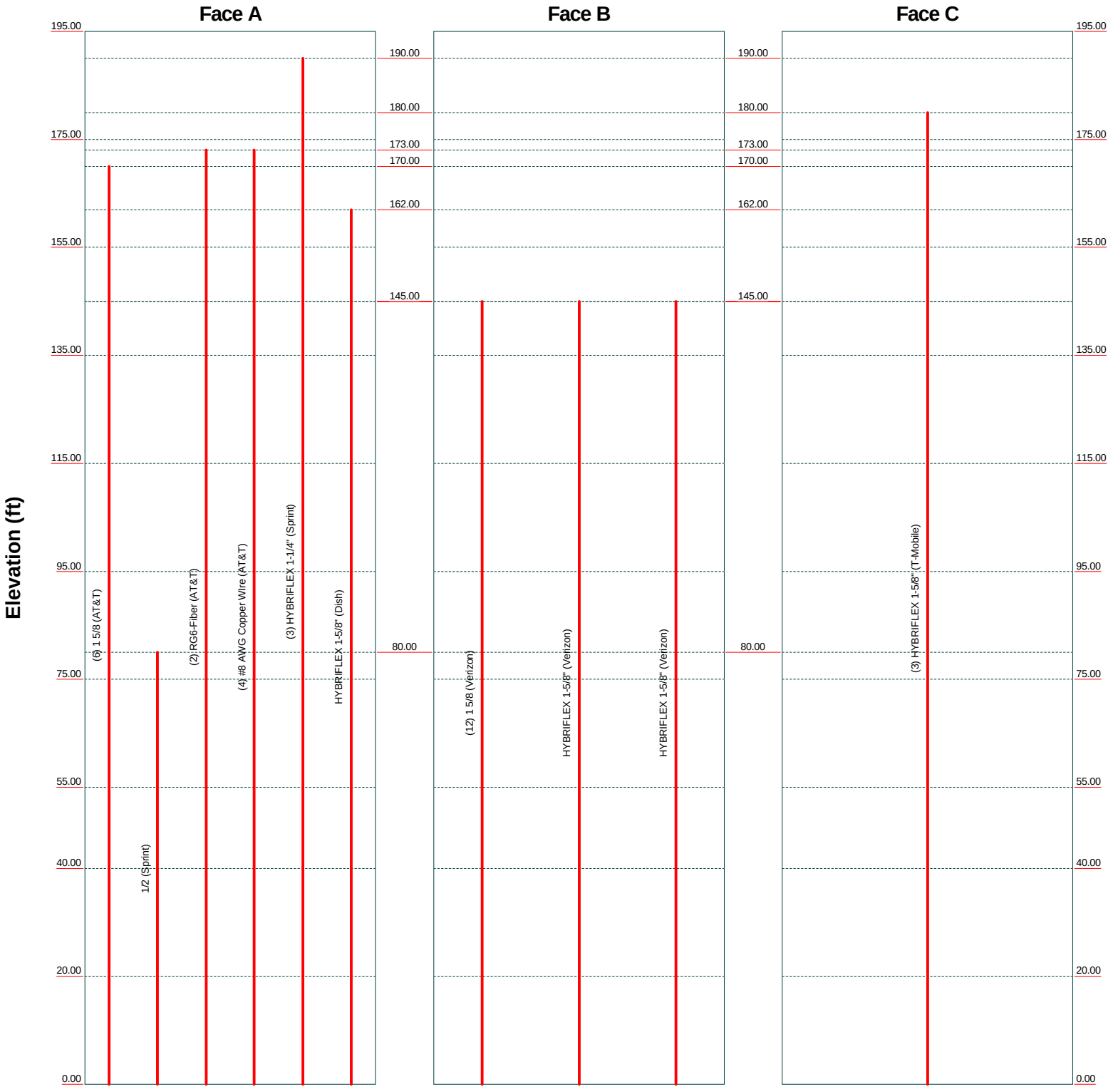


Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job:	***22006.08 - CT11230***		
Project:	***195' Lattice Tower - 88 Parsonage Hill Rd., Northford, CT***		
Client: T-Mobile		Drawn by: TJL	App'd:
Code: TIA-222-G		Date: 05/25/22	Scale: NTS
Path: J:\Jobs\22000\600.WI\08_CT11230A\05_Structural\Tower\Backup Documentation\Tnx\195-ft Central Lattice Tower.eti			Dwg No. E-7

Feed Line Distribution Chart
0' - 195'

Round | Flat | App In Face | App Out Face | Truss Leg



Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: ***22006.08 - CT11230***		
Project: ***195' Lattice Tower - 88 Parsonage Hill Rd., Northford, CT***		
Client: T-Mobile	Drawn by: TJL	App'd:
Code: TIA-222-G	Date: 05/25/22	Scale: NTS
Path: J:\Jobs\22000\600.WI\08_CT11230A\05_Structural\Tower\Backup Documentation\Tnx\195-ft Central Lattice Tower.eri		Dwg No. E-7

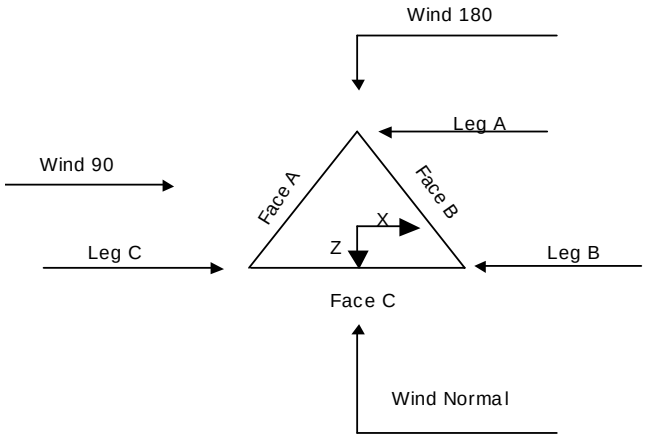
Tower Input Data

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:

Basic wind speed of 101 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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
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 ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
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

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T6	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 ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
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 ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
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 ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 195.00-175.00	0.00	0.0000	A36 (36 ksi)	1	1	1	30.0000	30.0000	36.0000
T2 175.00-155.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 155.00-135.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 135.00-115.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 115.00-95.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 95.00-75.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 75.00-55.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 55.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
195.00-175.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
175.00-155.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
155.00-135.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
135.00-115.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
115.00-95.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
95.00-75.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
75.00-55.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
55.00-40.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 195.00-175.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T2 175.00-155.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 155.00-135.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 135.00-115.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 115.00-95.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 95.00-75.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 75.00-55.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 55.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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	0.75	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	0.75	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	0.75	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	0.75	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	0.75	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	0.75	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	0.75	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	0.75	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	0.75	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	0.75	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 Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1 195.00-175.00	Flange	1.1250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 175.00-155.00	Flange	1.1250 A325N	6	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 155.00-135.00	Flange	1.1250 A325N	6	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 135.00-115.00	Flange	1.1250 A325N	6	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 115.00-95.00	Flange	1.1250 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 95.00-75.00	Flange	1.1250 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 75.00-55.00	Flange	1.2500 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 55.00-40.00	Flange	1.2500 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325X	0
T9 40.00-20.00	Flange	1.2500 A325N	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325X	0
T10 20.00-0.00	Flange	1.3750 A449	8	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon)	B	No	No	Ar (CaAa)	145.00 - 0.00	0.0000	-0.38	12	12	1.9800	1.9800		1.04
1 5/8 (AT&T)	A	No	No	Ar (CaAa)	170.00 - 0.00	-10.0000	0.45	6	3	1.9800	1.9800		1.04
1/2 (Sprint)	A	No	No	Ar (CaAa)	80.00 - 0.00	0.0000	-0.39	1	1	0.5800	0.5800		0.25
RG6-Fiber (AT&T)	A	No	No	Ar (CaAa)	173.00 - 0.00	-10.0000	0.42	2	2	0.5000	0.5000		1.00
#8 AWG Copper WIre (AT&T)	A	No	No	Ar (CaAa)	173.00 - 0.00	-10.0000	0.42	4	4	0.2500	0.1285		0.05
HYBRIFLEX 1-5/8" (T-Mobile)	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.35	3	3	1.9800	1.9800		1.90
HYBRIFLEX 1-1/4" (Sprint)	A	No	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.42	3	3	1.5400	1.5400		1.30
HYBRIFLEX 1-5/8" (Verizon)	B	No	No	Ar (CaAa)	145.00 - 0.00	2.0000	-0.45	1	1	1.9800	1.9800		1.90
HYBRIFLEX 1-5/8" (Verizon)	B	No	No	Ar (CaAa)	145.00 - 0.00	2.0000	-0.47	1	1	1.9800	1.9800		1.90
HYBRIFLEX 1-5/8" (Dish)	A	No	No	Ar (CaAa)	162.00 - 0.00	0.0000	-0.45	1	1	1.9800	1.9800		1.90

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	195.00-175.00	A	0.000	0.000	6.930	0.000	58.50
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	2.970	0.000	28.50
T2	175.00-155.00	A	0.000	0.000	31.171	0.000	224.50
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	11.880	0.000	114.00
T3	155.00-135.00	A	0.000	0.000	39.988	0.000	284.80
		B	0.000	0.000	27.720	0.000	162.80
		C	0.000	0.000	11.880	0.000	114.00
T4	135.00-115.00	A	0.000	0.000	39.988	0.000	284.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T5	115.00-95.00	A	0.000	0.000	39.988	0.000	284.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T6	95.00-75.00	A	0.000	0.000	40.278	0.000	286.05
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T7	75.00-55.00	A	0.000	0.000	41.148	0.000	289.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T8	55.00-40.00	A	0.000	0.000	30.861	0.000	217.35
		B	0.000	0.000	41.580	0.000	244.20
		C	0.000	0.000	8.910	0.000	85.50
T9	40.00-20.00	A	0.000	0.000	41.148	0.000	289.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00
T10	20.00-0.00	A	0.000	0.000	41.148	0.000	289.80
		B	0.000	0.000	55.440	0.000	325.60
		C	0.000	0.000	11.880	0.000	114.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	195.00-175.00	A	1.782	0.000	0.000	23.188	0.000	328.69
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	9.101	0.000	142.87
T2	175.00-155.00	A	1.762	0.000	0.000	93.464	0.000	1448.51
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	36.271	0.000	566.24
T3	155.00-135.00	A	1.739	0.000	0.000	113.284	0.000	1815.87
		B		0.000	0.000	72.569	0.000	1192.88
		C		0.000	0.000	36.123	0.000	560.42
T4	135.00-115.00	A	1.714	0.000	0.000	112.474	0.000	1793.18
		B		0.000	0.000	144.792	0.000	2358.18
		C		0.000	0.000	35.956	0.000	553.86
T5	115.00-95.00	A	1.684	0.000	0.000	111.538	0.000	1767.15
		B		0.000	0.000	144.392	0.000	2326.44
		C		0.000	0.000	35.764	0.000	546.32
T6	95.00-75.00	A	1.649	0.000	0.000	112.365	0.000	1760.19

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B		0.000	0.000	143.916	0.000	2288.86
		C		0.000	0.000	35.535	0.000	537.41
T7	75.00-55.00	A	1.605	0.000	0.000	116.629	0.000	1789.62
		B		0.000	0.000	143.327	0.000	2242.54
		C		0.000	0.000	35.251	0.000	526.45
T8	55.00-40.00	A	1.556	0.000	0.000	86.150	0.000	1307.22
		B		0.000	0.000	106.993	0.000	1642.71
		C		0.000	0.000	26.197	0.000	385.59
T9	40.00-20.00	A	1.486	0.000	0.000	112.384	0.000	1678.43
		B		0.000	0.000	141.715	0.000	2117.22
		C		0.000	0.000	34.478	0.000	496.94
T10	20.00-0.00	A	1.331	0.000	0.000	106.900	0.000	1540.74
		B		0.000	0.000	139.633	0.000	1958.12
		C		0.000	0.000	33.482	0.000	459.78

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	195.00-175.00	-5.0196	2.7976	-5.7700	3.1776
T2	175.00-155.00	-5.5026	-2.8003	-8.4358	-2.8998
T3	155.00-135.00	-5.1726	-12.9800	-7.8182	-14.4786
T4	135.00-115.00	-4.1458	-20.0992	-6.6172	-23.4691
T5	115.00-95.00	-4.8040	-22.5476	-7.7199	-26.7702
T6	95.00-75.00	-5.1375	-23.2653	-8.7493	-28.8584
T7	75.00-55.00	-5.5086	-23.4518	-10.1342	-30.0515
T8	55.00-40.00	-5.1565	-21.9548	-9.9497	-29.7450
T9	40.00-20.00	-6.1404	-25.7220	-11.3513	-34.0639
T10	20.00-0.00	-6.4284	-26.7432	-11.7130	-36.1709

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	7	HYBRIFLEX 1-5/8"	175.00 - 180.00	0.6000	0.5397
T1	8	HYBRIFLEX 1-1/4"	175.00 - 190.00	0.6000	0.5397
T2	2	1 5/8	155.00 - 170.00	0.6000	0.6000
T2	5	RG6-Fiber	155.00 - 173.00	0.6000	0.6000
T2	6	#8 AWG Copper WIre	155.00 - 173.00	0.6000	0.6000
T2	7	HYBRIFLEX 1-5/8"	155.00 - 175.00	0.6000	0.6000
T2	8	HYBRIFLEX 1-1/4"	155.00 - 175.00	0.6000	0.6000
T2	11	HYBRIFLEX 1-5/8"	155.00 - 162.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	1	1 5/8	135.00 - 145.00	0.6000	0.6000
T3	2	1 5/8	135.00 - 155.00	0.6000	0.6000
T3	5	RG6-Fiber	135.00 - 155.00	0.6000	0.6000
T3	6	#8 AWG Copper WIre	135.00 - 155.00	0.6000	0.6000
T3	7	HYBRIFLEX 1-5/8"	135.00 - 155.00	0.6000	0.6000
T3	8	HYBRIFLEX 1-1/4"	135.00 - 155.00	0.6000	0.6000
T3	9	HYBRIFLEX 1-5/8"	135.00 - 145.00	0.6000	0.6000
T3	10	HYBRIFLEX 1-5/8"	135.00 - 145.00	0.6000	0.6000
T3	11	HYBRIFLEX 1-5/8"	135.00 - 155.00	1.0000	1.0000
T4	1	1 5/8	115.00 - 135.00	0.6000	0.6000
T4	2	1 5/8	115.00 - 135.00	0.6000	0.6000
T4	5	RG6-Fiber	115.00 - 135.00	0.6000	0.6000
T4	6	#8 AWG Copper WIre	115.00 - 135.00	0.6000	0.6000
T4	7	HYBRIFLEX 1-5/8"	115.00 - 135.00	0.6000	0.6000
T4	8	HYBRIFLEX 1-1/4"	115.00 - 135.00	0.6000	0.6000
T4	9	HYBRIFLEX 1-5/8"	115.00 - 135.00	0.6000	0.6000
T4	10	HYBRIFLEX 1-5/8"	115.00 - 135.00	0.6000	0.6000
T4	11	HYBRIFLEX 1-5/8"	115.00 - 135.00	1.0000	1.0000
T5	1	1 5/8	95.00 - 115.00	0.6000	0.6000
T5	2	1 5/8	95.00 - 115.00	0.6000	0.6000
T5	5	RG6-Fiber	95.00 - 115.00	0.6000	0.6000
T5	6	#8 AWG Copper WIre	95.00 - 115.00	0.6000	0.6000
T5	7	HYBRIFLEX 1-5/8"	95.00 - 115.00	0.6000	0.6000
T5	8	HYBRIFLEX 1-1/4"	95.00 - 115.00	0.6000	0.6000
T5	9	HYBRIFLEX 1-5/8"	95.00 - 115.00	0.6000	0.6000
T5	10	HYBRIFLEX 1-5/8"	95.00 - 115.00	0.6000	0.6000
T5	11	HYBRIFLEX 1-5/8"	95.00 - 115.00	1.0000	1.0000
T6	1	1 5/8	75.00 - 95.00	0.6000	0.6000
T6	2	1 5/8	75.00 - 95.00	0.6000	0.6000
T6	4	1/2	75.00 - 80.00	0.6000	0.6000
T6	5	RG6-Fiber	75.00 - 95.00	0.6000	0.6000
T6	6	#8 AWG Copper WIre	75.00 - 95.00	0.6000	0.6000
T6	7	HYBRIFLEX 1-5/8"	75.00 - 95.00	0.6000	0.6000
T6	8	HYBRIFLEX 1-1/4"	75.00 - 95.00	0.6000	0.6000
T6	9	HYBRIFLEX 1-5/8"	75.00 - 95.00	0.6000	0.6000
T6	10	HYBRIFLEX 1-5/8"	75.00 - 95.00	0.6000	0.6000
T6	11	HYBRIFLEX 1-5/8"	75.00 - 95.00	1.0000	1.0000
T7	1	1 5/8	55.00 - 75.00	0.6000	0.6000
T7	2	1 5/8	55.00 - 75.00	0.6000	0.6000
T7	4	1/2	55.00 - 75.00	0.6000	0.6000
T7	5	RG6-Fiber	55.00 - 75.00	0.6000	0.6000
T7	6	#8 AWG Copper WIre	55.00 - 75.00	0.6000	0.6000
T7	7	HYBRIFLEX 1-5/8"	55.00 - 75.00	0.6000	0.6000
T7	8	HYBRIFLEX 1-1/4"	55.00 - 75.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	9	HYBRIFLEX 1-5/8"	55.00 - 75.00	0.6000	0.6000
T7	10	HYBRIFLEX 1-5/8"	55.00 - 75.00	0.6000	0.6000
T7	11	HYBRIFLEX 1-5/8"	55.00 - 75.00	1.0000	1.0000
T8	1	1 5/8	40.00 - 55.00	0.6000	0.6000
T8	2	1 5/8	40.00 - 55.00	0.6000	0.6000
T8	4	1/2	40.00 - 55.00	0.6000	0.6000
T8	5	RG6-Fiber	40.00 - 55.00	0.6000	0.6000
T8	6	#8 AWG Copper WIre	40.00 - 55.00	0.6000	0.6000
T8	7	HYBRIFLEX 1-5/8"	40.00 - 55.00	0.6000	0.6000
T8	8	HYBRIFLEX 1-1/4"	40.00 - 55.00	0.6000	0.6000
T8	9	HYBRIFLEX 1-5/8"	40.00 - 55.00	0.6000	0.6000
T8	10	HYBRIFLEX 1-5/8"	40.00 - 55.00	0.6000	0.6000
T8	11	HYBRIFLEX 1-5/8"	40.00 - 55.00	1.0000	1.0000
T9	1	1 5/8	20.00 - 40.00	0.6000	0.6000
T9	2	1 5/8	20.00 - 40.00	0.6000	0.6000
T9	4	1/2	20.00 - 40.00	0.6000	0.6000
T9	5	RG6-Fiber	20.00 - 40.00	0.6000	0.6000
T9	6	#8 AWG Copper WIre	20.00 - 40.00	0.6000	0.6000
T9	7	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.6000
T9	8	HYBRIFLEX 1-1/4"	20.00 - 40.00	0.6000	0.6000
T9	9	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.6000
T9	10	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.6000
T9	11	HYBRIFLEX 1-5/8"	20.00 - 40.00	1.0000	1.0000
T10	1	1 5/8	0.00 - 20.00	0.6000	0.6000
T10	2	1 5/8	0.00 - 20.00	0.6000	0.6000
T10	4	1/2	0.00 - 20.00	0.6000	0.6000
T10	5	RG6-Fiber	0.00 - 20.00	0.6000	0.6000
T10	6	#8 AWG Copper WIre	0.00 - 20.00	0.6000	0.6000
T10	7	HYBRIFLEX 1-5/8"	0.00 - 20.00	0.6000	0.6000
T10	8	HYBRIFLEX 1-1/4"	0.00 - 20.00	0.6000	0.6000
T10	9	HYBRIFLEX 1-5/8"	0.00 - 20.00	0.6000	0.6000
T10	10	HYBRIFLEX 1-5/8"	0.00 - 20.00	0.6000	0.6000
T10	11	HYBRIFLEX 1-5/8"	0.00 - 20.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert ft / ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Top Triangular Mount (Sprint)	C	From Face	2.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice	75.30 86.60 97.90	75.30 86.60 97.90	2500.00 2875.00 3250.00
APXVSPP18-C-A20 (Sprint)	A	From Face	4.00 -4.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	5.28 5.74 6.20	57.00 106.52 162.12
APXVSPP18-C-A20 (Sprint)	B	From Face	4.00 -4.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	5.28 5.74 6.20	57.00 106.52 162.12
APXVSPP18-C-A20 (Sprint)	C	From Face	4.00 -4.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	5.28 5.74 6.20	57.00 106.52 162.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
FD-RRH 2x50 800	A	From Face	4.00	0.0000	192.00	No Ice	2.06	1.93	64.00
(Sprint)			-4.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
FD-RRH 2x50 800	B	From Face	4.00	0.0000	192.00	No Ice	2.06	1.93	64.00
(Sprint)			-4.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
FD-RRH 2x50 800	C	From Face	4.00	0.0000	192.00	No Ice	2.06	1.93	64.00
(Sprint)			-4.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
Notch Filter	A	From Face	4.00	0.0000	192.00	No Ice	0.74	0.32	10.00
(Sprint)			-4.00			1/2" Ice	0.85	0.40	16.32
			0.00			1" Ice	0.97	0.48	24.34
Notch Filter	B	From Face	4.00	0.0000	192.00	No Ice	0.74	0.32	10.00
(Sprint)			-4.00			1/2" Ice	0.85	0.40	16.32
			0.00			1" Ice	0.97	0.48	24.34
Notch Filter	C	From Face	4.00	0.0000	192.00	No Ice	0.74	0.32	10.00
(Sprint)			-4.00			1/2" Ice	0.85	0.40	16.32
			0.00			1" Ice	0.97	0.48	24.34
FD-RRH 4x45 1900	A	From Face	4.00	0.0000	192.00	No Ice	2.32	2.38	60.00
(Sprint)			-4.00			1/2" Ice	2.52	2.59	83.97
			0.00			1" Ice	2.74	2.80	111.21
FD-RRH 4x45 1900	B	From Face	4.00	0.0000	192.00	No Ice	2.32	2.38	60.00
(Sprint)			-4.00			1/2" Ice	2.52	2.59	83.97
			0.00			1" Ice	2.74	2.80	111.21
FD-RRH 4x45 1900	C	From Face	4.00	0.0000	192.00	No Ice	2.32	2.38	60.00
(Sprint)			-4.00			1/2" Ice	2.52	2.59	83.97
			0.00			1" Ice	2.74	2.80	111.21
SitePro VFA12-HD	A	From Leg	2.00	0.0000	180.00	No Ice	21.00	21.00	750.00
(T-Mobile)			0.00			1/2" Ice	25.00	25.00	900.00
			0.00			1" Ice	29.00	29.00	1050.00
SitePro VFA12-HD	B	From Leg	2.00	0.0000	180.00	No Ice	21.00	21.00	750.00
(T-Mobile)			0.00			1/2" Ice	25.00	25.00	900.00
			0.00			1" Ice	29.00	29.00	1050.00
SitePro VFA12-HD	C	From Leg	2.00	0.0000	180.00	No Ice	21.00	21.00	750.00
(T-Mobile)			0.00			1/2" Ice	25.00	25.00	900.00
			0.00			1" Ice	29.00	29.00	1050.00
AIR6419	A	From Leg	4.00	0.0000	180.00	No Ice	3.66	1.66	66.00
(T-Mobile)			-4.00			1/2" Ice	3.91	1.85	91.40
			0.00			1" Ice	4.16	2.05	120.26
APXVAALL24-43	A	From Leg	0.00	0.0000	180.00	No Ice	20.24	8.89	153.00
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
AIR6419	B	From Leg	4.00	0.0000	180.00	No Ice	3.66	1.66	66.00
(T-Mobile)			-4.00			1/2" Ice	3.91	1.85	91.40
			0.00			1" Ice	4.16	2.05	120.26
APXVAALL24-43	B	From Leg	0.00	0.0000	180.00	No Ice	20.24	8.89	153.00
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
AIR6419	C	From Leg	4.00	0.0000	180.00	No Ice	3.66	1.66	66.00
(T-Mobile)			-4.00			1/2" Ice	3.91	1.85	91.40
			0.00			1" Ice	4.16	2.05	120.26
APXVAALL24-43	C	From Leg	0.00	0.0000	180.00	No Ice	20.24	8.89	153.00
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
4460 B25+B66	A	From Leg	4.00	0.0000	180.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38
			0.00			1" Ice	2.97	2.34	163.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
4460 B25+B66	B	From Leg	4.00	0.0000	180.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38
			0.00			1" Ice	2.97	2.34	163.03
4460 B25+B66	C	From Leg	4.00	0.0000	180.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38
			0.00			1" Ice	2.97	2.34	163.03
4480 B71+B85	A	From Leg	4.00	0.0000	180.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
4480 B71+B85	B	From Leg	4.00	0.0000	180.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
4480 B71+B85	C	From Leg	4.00	0.0000	180.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
Pirod 12' T-Frame Sector	A	From Leg	2.00	0.0000	172.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(AT&T)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	B	From Leg	2.00	0.0000	172.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(AT&T)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	C	From Leg	2.00	0.0000	172.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(AT&T)			0.00			1" Ice	23.20	23.20	735.00
800 10121	A	From Leg	4.00	0.0000	172.00	No Ice	5.16	3.29	46.30
(AT&T)			4.00			1/2" Ice	5.51	3.64	79.21
			0.00			1" Ice	5.87	3.99	116.89
OPA65R-BU6D	A	From Leg	4.00	0.0000	172.00	No Ice	12.87	5.67	70.00
(AT&T)			0.00			1/2" Ice	13.37	6.13	145.03
			0.00			1" Ice	13.87	6.59	226.75
DMP65R-BU6D	A	From Leg	4.00	0.0000	172.00	No Ice	12.71	5.62	96.00
(AT&T)			-4.00			1/2" Ice	13.21	6.07	169.96
			0.00			1" Ice	13.71	6.53	250.56
800 10121	B	From Leg	4.00	0.0000	172.00	No Ice	5.16	3.29	46.30
(AT&T)			4.00			1/2" Ice	5.51	3.64	79.21
			0.00			1" Ice	5.87	3.99	116.89
OPA65R-BU6D	B	From Leg	4.00	0.0000	172.00	No Ice	12.87	5.67	70.00
(AT&T)			0.00			1/2" Ice	13.37	6.13	145.03
			0.00			1" Ice	13.87	6.59	226.75
DMP65R-BU6D	B	From Leg	4.00	0.0000	172.00	No Ice	12.71	5.62	96.00
(AT&T)			-4.00			1/2" Ice	13.21	6.07	169.96
			0.00			1" Ice	13.71	6.53	250.56
800 10121	C	From Leg	4.00	0.0000	172.00	No Ice	5.16	3.29	46.30
(AT&T)			4.00			1/2" Ice	5.51	3.64	79.21
			0.00			1" Ice	5.87	3.99	116.89
OPA65R-BU6D	C	From Leg	4.00	0.0000	172.00	No Ice	12.87	5.67	70.00
(AT&T)			0.00			1/2" Ice	13.37	6.13	145.03
			0.00			1" Ice	13.87	6.59	226.75
DMP65R-BU6D	C	From Leg	4.00	0.0000	172.00	No Ice	12.71	5.62	96.00
(AT&T)			-4.00			1/2" Ice	13.21	6.07	169.96
			0.00			1" Ice	13.71	6.53	250.56
(2) LGP21401 TMA	A	From Leg	4.00	0.0000	172.00	No Ice	0.82	0.35	17.50
(AT&T)			5.00			1/2" Ice	0.94	0.44	23.31
			0.00			1" Ice	1.06	0.54	30.86
(2) LGP21401 TMA	B	From Leg	4.00	0.0000	172.00	No Ice	0.82	0.35	17.50
(AT&T)			5.00			1/2" Ice	0.94	0.44	23.31
			0.00			1" Ice	1.06	0.54	30.86

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(2) LGP21401 TMA	C	From Leg	4.00	0.0000	172.00	No Ice	0.82	0.35	17.50
(AT&T)			5.00			1/2" Ice	0.94	0.44	23.31
			0.00			1" Ice	1.06	0.54	30.86
DC6-48-60-18-8F Surge	B	From Face	0.50	0.0000	172.00	No Ice	1.91	1.91	20.00
Arrestor			0.50			1/2" Ice	2.10	2.10	39.36
(AT&T)			0.00			1" Ice	2.29	2.29	61.70
DC6-48-60-18-8F Surge	C	From Face	0.50	0.0000	172.00	No Ice	1.91	1.91	20.00
Arrestor			0.50			1/2" Ice	2.10	2.10	39.36
(AT&T)			0.00			1" Ice	2.29	2.29	61.70
4478 B14	A	From Face	4.00	0.0000	172.00	No Ice	1.84	1.06	60.00
(AT&T)			-2.00			1/2" Ice	2.01	1.20	75.88
			0.00			1" Ice	2.19	1.34	94.39
4478 B14	B	From Face	4.00	0.0000	172.00	No Ice	1.84	1.06	60.00
(AT&T)			-2.00			1/2" Ice	2.01	1.20	75.88
			0.00			1" Ice	2.19	1.34	94.39
4478 B14	C	From Face	4.00	0.0000	172.00	No Ice	1.84	1.06	60.00
(AT&T)			-2.00			1/2" Ice	2.01	1.20	75.88
			0.00			1" Ice	2.19	1.34	94.39
4449 B5/B12	A	From Face	4.00	0.0000	172.00	No Ice	1.97	1.41	71.00
(AT&T)			-2.00			1/2" Ice	2.14	1.56	89.51
			0.00			1" Ice	2.33	1.73	110.84
4449 B5/B12	B	From Face	4.00	0.0000	172.00	No Ice	1.97	1.41	71.00
(AT&T)			-2.00			1/2" Ice	2.14	1.56	89.51
			0.00			1" Ice	2.33	1.73	110.84
4449 B5/B12	C	From Face	4.00	0.0000	172.00	No Ice	1.97	1.41	71.00
(AT&T)			-2.00			1/2" Ice	2.14	1.56	89.51
			0.00			1" Ice	2.33	1.73	110.84
8843 B2/B66A	A	From Face	4.00	0.0000	172.00	No Ice	1.64	1.35	72.00
(AT&T)			-2.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
8843 B2/B66A	B	From Face	4.00	0.0000	172.00	No Ice	1.64	1.35	72.00
(AT&T)			-2.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
8843 B2/B66A	C	From Face	4.00	0.0000	172.00	No Ice	1.64	1.35	72.00
(AT&T)			-2.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
Pirod 12' T-Frame Sector	A	From Leg	2.00	0.0000	160.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Empty)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	B	From Leg	2.00	0.0000	160.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Empty)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	C	From Leg	2.00	0.0000	160.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Empty)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	A	From Leg	2.00	0.0000	146.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Verizon)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	B	From Leg	2.00	0.0000	146.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Verizon)			0.00			1" Ice	23.20	23.20	735.00
Pirod 12' T-Frame Sector	C	From Leg	2.00	0.0000	146.00	No Ice	13.60	13.60	465.00
Mount (1)			0.00			1/2" Ice	18.40	18.40	600.00
(Verizon)			0.00			1" Ice	23.20	23.20	735.00
SitePro SFS-V-L	A	From Leg	2.00	0.0000	146.00	No Ice	5.09	4.75	77.00
(Verizon)			0.00			1/2" Ice	5.74	5.35	100.00
			0.00			1" Ice	6.53	6.07	137.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
SitePro SFS-V-L	B	From Leg	2.00	0.0000	146.00	No Ice	5.09	4.75	77.00
(Verizon)			0.00			1/2" Ice	5.74	5.35	100.00
			0.00			1" Ice	6.53	6.07	137.00
SitePro SFS-V-L	C	From Leg	2.00	0.0000	146.00	No Ice	5.09	4.75	77.00
(Verizon)			0.00			1/2" Ice	5.74	5.35	100.00
			0.00			1" Ice	6.53	6.07	137.00
LNX-6513DS-VTM	A	From Leg	4.00	0.0000	146.00	No Ice	5.85	3.84	32.00
(Verizon)			-6.00			1/2" Ice	6.21	4.19	70.84
			0.00			1" Ice	6.58	4.54	114.65
(2) JAHH-65B-R3B	A	From Leg	4.00	0.0000	146.00	No Ice	9.11	5.98	63.00
(Verizon)			0.00			1/2" Ice	9.58	6.44	121.08
			0.00			1" Ice	10.05	6.91	185.45
LNX-6513DS-VTM	B	From Leg	4.00	0.0000	146.00	No Ice	5.85	3.84	32.00
(Verizon)			-6.00			1/2" Ice	6.21	4.19	70.84
			0.00			1" Ice	6.58	4.54	114.65
(2) JAHH-65B-R3B	B	From Leg	4.00	0.0000	146.00	No Ice	9.11	5.98	63.00
(Verizon)			0.00			1/2" Ice	9.58	6.44	121.08
			0.00			1" Ice	10.05	6.91	185.45
LNX-6513DS-VTM	C	From Leg	4.00	0.0000	146.00	No Ice	5.85	3.84	32.00
(Verizon)			-6.00			1/2" Ice	6.21	4.19	70.84
			0.00			1" Ice	6.58	4.54	114.65
(2) JAHH-65B-R3B	C	From Leg	4.00	0.0000	146.00	No Ice	9.11	5.98	63.00
(Verizon)			0.00			1/2" Ice	9.58	6.44	121.08
			0.00			1" Ice	10.05	6.91	185.45
B2/B66A RRH	A	From Leg	2.00	0.0000	146.00	No Ice	2.54	1.61	60.00
(Verizon)			-4.00			1/2" Ice	2.75	1.79	80.12
			0.00			1" Ice	2.97	1.98	103.35
B2/B66A RRH	B	From Leg	2.00	0.0000	146.00	No Ice	2.54	1.61	60.00
(Verizon)			-4.00			1/2" Ice	2.75	1.79	80.12
			0.00			1" Ice	2.97	1.98	103.35
B2/B66A RRH	C	From Leg	2.00	0.0000	146.00	No Ice	2.54	1.61	60.00
(Verizon)			-4.00			1/2" Ice	2.75	1.79	80.12
			0.00			1" Ice	2.97	1.98	103.35
B5/B13 RRH	A	From Leg	2.00	0.0000	146.00	No Ice	1.87	1.02	70.00
(Verizon)			-4.00			1/2" Ice	2.03	1.15	86.42
			0.00			1" Ice	2.21	1.29	105.50
B5/B13 RRH	B	From Leg	2.00	0.0000	146.00	No Ice	1.87	1.02	70.00
(Verizon)			-4.00			1/2" Ice	2.03	1.15	86.42
			0.00			1" Ice	2.21	1.29	105.50
B5/B13 RRH	C	From Leg	2.00	0.0000	146.00	No Ice	1.87	1.02	70.00
(Verizon)			-4.00			1/2" Ice	2.03	1.15	86.42
			0.00			1" Ice	2.21	1.29	105.50
RC2DC-3315-PF-48	A	From Leg	2.00	0.0000	146.00	No Ice	3.01	1.96	25.00
(Verizon)			0.00			1/2" Ice	3.23	2.15	51.21
			0.00			1" Ice	3.46	2.35	80.79
CBC78T-DS-43	A	From Leg	4.00	0.0000	146.00	No Ice	0.37	0.26	11.00
(Verizon)			-6.00			1/2" Ice	0.45	0.32	15.12
			0.00			1" Ice	0.53	0.40	20.61
CBC78T-DS-43	B	From Leg	4.00	0.0000	146.00	No Ice	0.37	0.26	11.00
(Verizon)			-6.00			1/2" Ice	0.45	0.32	15.12
			0.00			1" Ice	0.53	0.40	20.61
CBC78T-DS-43	C	From Leg	4.00	0.0000	146.00	No Ice	0.37	0.26	11.00
(Verizon)			-6.00			1/2" Ice	0.45	0.32	15.12
			0.00			1" Ice	0.53	0.40	20.61
RC2DC-3315-PF-48	B	From Leg	2.00	0.0000	146.00	No Ice	3.01	1.96	25.00
(Verizon)			0.00			1/2" Ice	3.23	2.15	51.21
			0.00			1" Ice	3.46	2.35	80.79

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
GPS	C	From Leg	2.00	0.0000	80.00	No Ice	1.00	1.00	10.00
(Sprint)			0.00			1/2" Ice	1.50	1.50	15.00
			0.00			1" Ice	2.00	2.00	20.00
2-ft Stand Off	C	From Leg	1.00	0.0000	80.00	No Ice	1.07	1.07	20.00
(Sprint)			0.00			1/2" Ice	1.62	1.62	28.00
			0.00			1" Ice	2.17	2.17	36.00
MX08FRO665-21	A	From Leg	3.00	0.0000	162.00	No Ice	12.49	5.87	83.00
(Dish)			0.00			1/2" Ice	12.99	6.32	156.79
			0.00			1" Ice	13.49	6.79	237.26
MX08FRO665-21	B	From Leg	3.00	0.0000	162.00	No Ice	12.49	5.87	83.00
(Dish)			0.00			1/2" Ice	12.99	6.32	156.79
			0.00			1" Ice	13.49	6.79	237.26
MX08FRO665-21	C	From Leg	3.00	0.0000	162.00	No Ice	12.49	5.87	83.00
(Dish)			0.00			1/2" Ice	12.99	6.32	156.79
			0.00			1" Ice	13.49	6.79	237.26
TA08025-B604	A	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.04	65.00
(Dish)			2.00			1/2" Ice	2.15	1.18	81.85
			0.00			1" Ice	2.33	1.32	101.41
TA08025-B604	B	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.04	65.00
(Dish)			2.00			1/2" Ice	2.15	1.18	81.85
			0.00			1" Ice	2.33	1.32	101.41
TA08025-B604	C	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.04	65.00
(Dish)			2.00			1/2" Ice	2.15	1.18	81.85
			0.00			1" Ice	2.33	1.32	101.41
TA08025-B605	A	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.20	75.00
(Dish)			-2.00			1/2" Ice	2.15	1.34	93.09
			0.00			1" Ice	2.33	1.49	113.96
TA08025-B605	B	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.20	75.00
(Dish)			-2.00			1/2" Ice	2.15	1.34	93.09
			0.00			1" Ice	2.33	1.49	113.96
TA08025-B605	C	From Leg	2.00	0.0000	162.00	No Ice	1.98	1.20	75.00
(Dish)			-2.00			1/2" Ice	2.15	1.34	93.09
			0.00			1" Ice	2.33	1.49	113.96

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1	185.00	1.441	32	115.002	A	0.000	18.774	10.004	53.29	6.930	0.000
195.00-175.00					B	0.000	18.774		53.29	0.000	0.000
					C	0.000	18.774		53.29	2.970	0.000
T2	165.00	1.406	31	146.258	A	11.554	12.521	12.521	52.01	31.171	0.000
175.00-155.00					B	11.554	12.521		52.01	0.000	0.000
					C	11.554	12.521		52.01	11.880	0.000
T3	145.00	1.369	30	186.675	A	13.489	13.356	13.356	49.75	39.988	0.000
155.00-135.00					B	13.489	13.356		49.75	27.720	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	13.489	13.356		49.75	11.880	0.000
T4	125.00	1.326	29	227.092	A	18.679	14.190	14.190	43.17	39.988	0.000
135.00-115.00					B	18.679	14.190		43.17	55.440	0.000
					C	18.679	14.190		43.17	11.880	0.000
T5	105.00	1.279	28	267.092	A	21.322	14.190	14.190	39.96	39.988	0.000
115.00-95.00					B	21.322	14.190		39.96	55.440	0.000
					C	21.322	14.190		39.96	11.880	0.000
T6 95.00-75.00	85.00	1.223	27	307.509	A	28.012	15.025	15.025	34.91	40.278	0.000
					B	28.012	15.025		34.91	55.440	0.000
					C	28.012	15.025		34.91	11.880	0.000
T7 75.00-55.00	65.00	1.156	26	347.927	A	35.675	15.860	15.860	30.78	41.148	0.000
					B	35.675	15.860		30.78	55.440	0.000
					C	35.675	15.860		30.78	11.880	0.000
T8 55.00-40.00	47.50	1.082	24	287.195	A	37.993	11.895	11.895	23.84	30.861	0.000
					B	37.993	11.895		23.84	41.580	0.000
					C	37.993	11.895		23.84	8.910	0.000
T9 40.00-20.00	30.00	0.982	22	417.927	A	42.284	15.860	15.860	27.28	41.148	0.000
					B	42.284	15.860		27.28	55.440	0.000
					C	42.284	15.860		27.28	11.880	0.000
T10 20.00-0.00	10.00	0.85	19	458.344	A	46.067	16.694	16.694	26.60	41.148	0.000
					B	46.067	16.694		26.60	55.440	0.000
					C	46.067	16.694		26.60	11.880	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	185.00	1.441	8	1.7822	120.944	A	0.000	55.666	21.890	39.32	23.188	0.000
195.00-175.00						B	0.000	55.666		39.32	0.000	0.000
						C	0.000	55.666		39.32	9.101	0.000
T2	165.00	1.406	8	1.7619	152.138	A	11.554	40.572	24.287	46.59	93.464	0.000
175.00-155.00						B	11.554	40.572		46.59	0.000	0.000
						C	11.554	40.572		46.59	36.271	0.000
T3	145.00	1.369	7	1.7393	192.480	A	13.489	43.739	24.970	43.63	113.284	0.000
155.00-135.00						B	13.489	43.739		43.63	72.569	0.000
						C	13.489	43.739		43.63	36.123	0.000
T4	125.00	1.326	7	1.7137	232.812	A	18.679	46.974	25.634	39.04	112.474	0.000
135.00-115.00						B	18.679	46.974		39.04	144.792	0.000
						C	18.679	46.974		39.04	35.956	0.000
T5 115.00-95.00	105.00	1.279	7	1.6841	272.713	A	21.322	49.375	25.436	35.98	111.538	0.000
						B	21.322	49.375		35.98	144.392	0.000
						C	21.322	49.375		35.98	35.764	0.000
T6 95.00-75.00	85.00	1.223	7	1.6489	313.012	A	28.012	52.429	26.036	32.37	112.365	0.000
						B	28.012	52.429		32.37	143.916	0.000
						C	28.012	52.429		32.37	35.535	0.000
T7 75.00-55.00	65.00	1.156	6	1.6052	353.284	A	35.675	55.211	26.579	29.24	116.629	0.000
						B	35.675	55.211		29.24	143.327	0.000
						C	35.675	55.211		29.24	35.251	0.000
T8 55.00-40.00	47.50	1.082	6	1.5556	291.089	A	37.993	49.237	19.686	22.57	86.150	0.000
						B	37.993	49.237		22.57	106.993	0.000
						C	37.993	49.237		22.57	26.197	0.000
T9 40.00-20.00	30.00	0.982	5	1.4858	422.885	A	42.284	57.194	25.781	25.92	112.384	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						B	42.284	57.194		25.92	141.715	0.000
						C	42.284	57.194		25.92	34.478	0.000
T10 20.00-0.00	10.00	0.85	5	1.3312	462.787	A	46.067	56.246	25.584	25.01	106.900	0.000
						B	46.067	56.246		25.01	139.633	0.000
						C	46.067	56.246		25.01	33.482	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	185.00	1.441	11	115.002	A	0.000	18.774	10.004	53.29	6.930	0.000
195.00-175.00					B	0.000	18.774		53.29	0.000	0.000
					C	0.000	18.774		53.29	2.970	0.000
T2	165.00	1.406	11	146.258	A	11.554	12.521	12.521	52.01	31.171	0.000
175.00-155.00					B	11.554	12.521		52.01	0.000	0.000
					C	11.554	12.521		52.01	11.880	0.000
T3	145.00	1.369	11	186.675	A	13.489	13.356	13.356	49.75	39.988	0.000
155.00-135.00					B	13.489	13.356		49.75	27.720	0.000
					C	13.489	13.356		49.75	11.880	0.000
T4	125.00	1.326	10	227.092	A	18.679	14.190	14.190	43.17	39.988	0.000
135.00-115.00					B	18.679	14.190		43.17	55.440	0.000
					C	18.679	14.190		43.17	11.880	0.000
T5	105.00	1.279	10	267.092	A	21.322	14.190	14.190	39.96	39.988	0.000
115.00-95.00					B	21.322	14.190		39.96	55.440	0.000
					C	21.322	14.190		39.96	11.880	0.000
T6 95.00-75.00	85.00	1.223	10	307.509	A	28.012	15.025	15.025	34.91	40.278	0.000
					B	28.012	15.025		34.91	55.440	0.000
					C	28.012	15.025		34.91	11.880	0.000
T7 75.00-55.00	65.00	1.156	9	347.927	A	35.675	15.860	15.860	30.78	41.148	0.000
					B	35.675	15.860		30.78	55.440	0.000
					C	35.675	15.860		30.78	11.880	0.000
T8 55.00-40.00	47.50	1.082	8	287.195	A	37.993	11.895	11.895	23.84	30.861	0.000
					B	37.993	11.895		23.84	41.580	0.000
					C	37.993	11.895		23.84	8.910	0.000
T9 40.00-20.00	30.00	0.982	8	417.927	A	42.284	15.860	15.860	27.28	41.148	0.000
					B	42.284	15.860		27.28	55.440	0.000
					C	42.284	15.860		27.28	11.880	0.000
T10 20.00-0.00	10.00	0.85	7	458.344	A	46.067	16.694	16.694	26.60	41.148	0.000
					B	46.067	16.694		26.60	55.440	0.000
					C	46.067	16.694		26.60	11.880	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	32	1	1	10.683	952.22	47.61	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
195.00-175.00			B	0.163	2.723		1	1	10.683			
			C	0.163	2.723		1	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	31	1	1	18.377	2025.68	101.28	C
175.00-155.00			B	0.165	2.718		1	1	18.377			
			C	0.165	2.718		1	1	18.377			
T3	561.60	3572.06	A	0.144	2.794	30	1	1	20.594	2760.03	138.00	C
155.00-135.00			B	0.144	2.794		1	1	20.594			
			C	0.144	2.794		1	1	20.594			
T4	724.40	4036.07	A	0.145	2.791	29	1	1	26.109	3474.84	173.74	C
135.00-115.00			B	0.145	2.791		1	1	26.109			
			C	0.145	2.791		1	1	26.109			
T5	724.40	4789.76	A	0.133	2.835	28	1	1	28.771	3559.52	177.98	C
115.00-95.00			B	0.133	2.835		1	1	28.771			
			C	0.133	2.835		1	1	28.771			
T6	725.65	5354.18	A	0.14	2.809	27	1	1	35.815	3847.75	192.39	C
95.00-75.00			B	0.14	2.809		1	1	35.815			
			C	0.14	2.809		1	1	35.815			
T7	729.40	5794.03	A	0.148	2.778	26	1	1	43.858	4111.49	205.57	C
75.00-55.00			B	0.148	2.778		1	1	43.858			
			C	0.148	2.778		1	1	43.858			
T8	547.05	5023.91	A	0.174	2.686	24	1	1	44.281	3449.09	229.94	C
55.00-40.00			B	0.174	2.686		1	1	44.281			
			C	0.174	2.686		1	1	44.281			
T9	729.40	6793.06	A	0.139	2.812	22	1	1	50.690	3877.10	193.86	C
40.00-20.00			B	0.139	2.812		1	1	50.690			
			C	0.139	2.812		1	1	50.690			
T10	729.40	8126.54	A	0.137	2.82	19	1	1	54.975	3555.60	177.78	C
20.00-0.00			B	0.137	2.82		1	1	54.975			
			C	0.137	2.82		1	1	54.975			
Sum Weight:	5896.80	48831.58						OTM	2628715.4 2 lb-ft	31613.34		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	32	0.825	1	10.683	952.22	47.61	C
195.00-175.00			B	0.163	2.723		0.825	1	10.683			
			C	0.163	2.723		0.825	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	31	0.825	1	16.355	1879.84	93.99	C
175.00-155.00			B	0.165	2.718		0.825	1	16.355			
			C	0.165	2.718		0.825	1	16.355			
T3	561.60	3572.06	A	0.144	2.794	30	0.825	1	18.233	2589.70	129.48	C
155.00-135.00			B	0.144	2.794		0.825	1	18.233			
			C	0.144	2.794		0.825	1	18.233			
T4	724.40	4036.07	A	0.145	2.791	29	0.825	1	22.840	3246.51	162.33	C
135.00-115.00			B	0.145	2.791		0.825	1	22.840			
			C	0.145	2.791		0.825	1	22.840			
T5	724.40	4789.76	A	0.133	2.835	28	0.825	1	25.039	3304.29	165.21	C
115.00-95.00			B	0.133	2.835		0.825	1	25.039			
			C	0.133	2.835		0.825	1	25.039			
T6	725.65	5354.18	A	0.14	2.809	27	0.825	1	30.913	3530.01	176.50	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
95.00-75.00			B	0.14	2.809		0.825	1	30.913			
			C	0.14	2.809		0.825	1	30.913			
T7	729.40	5794.03	A	0.148	2.778	26	0.825	1	37.615	3733.19	186.66	C
75.00-55.00			B	0.148	2.778		0.825	1	37.615			
			C	0.148	2.778		0.825	1	37.615			
T8	547.05	5023.91	A	0.174	2.686	24	0.825	1	37.632	3084.48	205.63	C
55.00-40.00			B	0.174	2.686		0.825	1	37.632			
			C	0.174	2.686		0.825	1	37.632			
T9	729.40	6793.06	A	0.139	2.812	22	0.825	1	43.290	3491.48	174.57	C
40.00-20.00			B	0.139	2.812		0.825	1	43.290			
			C	0.139	2.812		0.825	1	43.290			
T10	729.40	8126.54	A	0.137	2.82	19	0.825	1	46.913	3190.98	159.55	C
20.00-0.00			B	0.137	2.82		0.825	1	46.913			
			C	0.137	2.82		0.825	1	46.913			
Sum Weight:	5896.80	48831.58						OTM	2440480.2 7 lb-ft	29002.69		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	32	0.8	1	10.683	952.22	47.61	C
195.00-175.00			B	0.163	2.723		0.8	1	10.683			
			C	0.163	2.723		0.8	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	31	0.8	1	16.066	1859.00	92.95	C
175.00-155.00			B	0.165	2.718		0.8	1	16.066			
			C	0.165	2.718		0.8	1	16.066			
T3	561.60	3572.06	A	0.144	2.794	30	0.8	1	17.896	2565.36	128.27	C
155.00-135.00			B	0.144	2.794		0.8	1	17.896			
			C	0.144	2.794		0.8	1	17.896			
T4	724.40	4036.07	A	0.145	2.791	29	0.8	1	22.373	3213.89	160.69	C
135.00-115.00			B	0.145	2.791		0.8	1	22.373			
			C	0.145	2.791		0.8	1	22.373			
T5	724.40	4789.76	A	0.133	2.835	28	0.8	1	24.506	3267.83	163.39	C
115.00-95.00			B	0.133	2.835		0.8	1	24.506			
			C	0.133	2.835		0.8	1	24.506			
T6	725.65	5354.18	A	0.14	2.809	27	0.8	1	30.213	3484.62	174.23	C
95.00-75.00			B	0.14	2.809		0.8	1	30.213			
			C	0.14	2.809		0.8	1	30.213			
T7	729.40	5794.03	A	0.148	2.778	26	0.8	1	36.723	3679.15	183.96	C
75.00-55.00			B	0.148	2.778		0.8	1	36.723			
			C	0.148	2.778		0.8	1	36.723			
T8	547.05	5023.91	A	0.174	2.686	24	0.8	1	36.682	3032.39	202.16	C
55.00-40.00			B	0.174	2.686		0.8	1	36.682			
			C	0.174	2.686		0.8	1	36.682			
T9	729.40	6793.06	A	0.139	2.812	22	0.8	1	42.233	3436.39	171.82	C
40.00-20.00			B	0.139	2.812		0.8	1	42.233			
			C	0.139	2.812		0.8	1	42.233			
T10	729.40	8126.54	A	0.137	2.82	19	0.8	1	45.762	3138.89	156.94	C
20.00-0.00			B	0.137	2.82		0.8	1	45.762			
			C	0.137	2.82		0.8	1	45.762			
Sum Weight:	5896.80	48831.58						OTM	2413589.5	28629.75		

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
									3 lb-ft			

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	32	0.85	1	10.683	952.22	47.61	C
195.00-175.00			B	0.163	2.723		0.85	1	10.683			
			C	0.163	2.723		0.85	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	31	0.85	1	16.644	1900.67	95.03	C
175.00-155.00			B	0.165	2.718		0.85	1	16.644			
			C	0.165	2.718		0.85	1	16.644			
T3	561.60	3572.06	A	0.144	2.794	30	0.85	1	18.571	2614.03	130.70	C
155.00-135.00			B	0.144	2.794		0.85	1	18.571			
			C	0.144	2.794		0.85	1	18.571			
T4	724.40	4036.07	A	0.145	2.791	29	0.85	1	23.307	3279.13	163.96	C
135.00-115.00			B	0.145	2.791		0.85	1	23.307			
			C	0.145	2.791		0.85	1	23.307			
T5	724.40	4789.76	A	0.133	2.835	28	0.85	1	25.572	3340.75	167.04	C
115.00-95.00			B	0.133	2.835		0.85	1	25.572			
			C	0.133	2.835		0.85	1	25.572			
T6	725.65	5354.18	A	0.14	2.809	27	0.85	1	31.613	3575.40	178.77	C
95.00-75.00			B	0.14	2.809		0.85	1	31.613			
			C	0.14	2.809		0.85	1	31.613			
T7	729.40	5794.03	A	0.148	2.778	26	0.85	1	38.507	3787.24	189.36	C
75.00-55.00			B	0.148	2.778		0.85	1	38.507			
			C	0.148	2.778		0.85	1	38.507			
T8	547.05	5023.91	A	0.174	2.686	24	0.85	1	38.582	3136.56	209.10	C
55.00-40.00			B	0.174	2.686		0.85	1	38.582			
			C	0.174	2.686		0.85	1	38.582			
T9	729.40	6793.06	A	0.139	2.812	22	0.85	1	44.347	3546.57	177.33	C
40.00-20.00			B	0.139	2.812		0.85	1	44.347			
			C	0.139	2.812		0.85	1	44.347			
T10	729.40	8126.54	A	0.137	2.82	19	0.85	1	48.065	3243.07	162.15	C
20.00-0.00			B	0.137	2.82		0.85	1	48.065			
			C	0.137	2.82		0.85	1	48.065			
Sum Weight:	5896.80	48831.58						OTM	2467371.0 0 lb-ft	29375.64		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	471.56	4920.60	A	0.46	1.957	8	1	1	36.982	598.21	29.91	C
195.00-175.00			B	0.46	1.957		1	1	36.982			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	0.46	1.957		1	1	36.982			
T2	2014.75	5492.44	A	0.343	2.189	8	1	1	36.438	1034.85	51.74	C
175.00-155.00			B	0.343	2.189		1	1	36.438			
			C	0.343	2.189		1	1	36.438			
T3	3569.17	6566.06	A	0.297	2.303	7	1	1	39.649	1448.38	72.42	C
155.00-135.00			B	0.297	2.303		1	1	39.649			
			C	0.297	2.303		1	1	39.649			
T4	4705.23	7674.74	A	0.282	2.345	7	1	1	46.559	1775.34	88.77	C
135.00-115.00			B	0.282	2.345		1	1	46.559			
			C	0.282	2.345		1	1	46.559			
T5	4639.91	8731.00	A	0.259	2.41	7	1	1	50.321	1777.18	88.86	C
115.00-95.00			B	0.259	2.41		1	1	50.321			
			C	0.259	2.41		1	1	50.321			
T6	4586.47	10026.74	A	0.257	2.417	7	1	1	58.774	1817.36	90.87	C
95.00-75.00			B	0.257	2.417		1	1	58.774			
			C	0.257	2.417		1	1	58.774			
T7	4558.61	11224.75	A	0.257	2.416	6	1	1	68.073	1847.89	92.39	C
75.00-55.00			B	0.257	2.416		1	1	68.073			
			C	0.257	2.416		1	1	68.073			
T8	3335.52	10352.39	A	0.3	2.297	6	1	1	67.477	1449.18	96.61	C
55.00-40.00			B	0.3	2.297		1	1	67.477			
			C	0.3	2.297		1	1	67.477			
T9	4292.59	12504.55	A	0.235	2.483	5	1	1	75.544	1656.21	82.81	C
40.00-20.00			B	0.235	2.483		1	1	75.544			
			C	0.235	2.483		1	1	75.544			
T10	3958.63	13546.27	A	0.221	2.527	5	1	1	78.605	1455.68	72.78	C
20.00-0.00			B	0.221	2.527		1	1	78.605			
			C	0.221	2.527		1	1	78.605			
Sum Weight:	36132.44	91039.54						OTM	1307621.7 6 lb-ft	14860.28		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	471.56	4920.60	A	0.46	1.957	8	0.825	1	36.982	598.21	29.91	C
195.00-175.00			B	0.46	1.957		0.825	1	36.982			
			C	0.46	1.957		0.825	1	36.982			
T2	2014.75	5492.44	A	0.343	2.189	8	0.825	1	34.416	1006.07	50.30	C
175.00-155.00			B	0.343	2.189		0.825	1	34.416			
			C	0.343	2.189		0.825	1	34.416			
T3	3569.17	6566.06	A	0.297	2.303	7	0.825	1	37.288	1413.97	70.70	C
155.00-135.00			B	0.297	2.303		0.825	1	37.288			
			C	0.297	2.303		0.825	1	37.288			
T4	4705.23	7674.74	A	0.282	2.345	7	0.825	1	43.290	1728.32	86.42	C
135.00-115.00			B	0.282	2.345		0.825	1	43.290			
			C	0.282	2.345		0.825	1	43.290			
T5	4639.91	8731.00	A	0.259	2.41	7	0.825	1	46.590	1724.01	86.20	C
115.00-95.00			B	0.259	2.41		0.825	1	46.590			
			C	0.259	2.41		0.825	1	46.590			
T6	4586.47	10026.74	A	0.257	2.417	7	0.825	1	53.872	1750.36	87.52	C
95.00-75.00			B	0.257	2.417		0.825	1	53.872			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.257	2.417		0.825	1	53.872			
T7	4558.61	11224.75	A	0.257	2.416	6	0.825	1	61.830	1767.28	88.36	C
75.00-55.00			B	0.257	2.416		0.825	1	61.830			
			C	0.257	2.416		0.825	1	61.830			
T8	3335.52	10352.39	A	0.3	2.297	6	0.825	1	60.828	1372.78	91.52	C
55.00-40.00			B	0.3	2.297		0.825	1	60.828			
			C	0.3	2.297		0.825	1	60.828			
T9	4292.59	12504.55	A	0.235	2.483	5	0.825	1	68.144	1572.77	78.64	C
40.00-20.00			B	0.235	2.483		0.825	1	68.144			
			C	0.235	2.483		0.825	1	68.144			
T10	3958.63	13546.27	A	0.221	2.527	5	0.825	1	70.543	1375.61	68.78	C
20.00-0.00			B	0.221	2.527		0.825	1	70.543			
			C	0.221	2.527		0.825	1	70.543			
Sum Weight:	36132.44	91039.54						OTM	1268556.4 0 lb-ft	14309.37		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	471.56	4920.60	A	0.46	1.957	8	0.8	1	36.982	598.21	29.91	C
195.00-175.00			B	0.46	1.957		0.8	1	36.982			
			C	0.46	1.957		0.8	1	36.982			
T2	2014.75	5492.44	A	0.343	2.189	8	0.8	1	34.127	1001.96	50.10	C
175.00-155.00			B	0.343	2.189		0.8	1	34.127			
			C	0.343	2.189		0.8	1	34.127			
T3	3569.17	6566.06	A	0.297	2.303	7	0.8	1	36.951	1409.06	70.45	C
155.00-135.00			B	0.297	2.303		0.8	1	36.951			
			C	0.297	2.303		0.8	1	36.951			
T4	4705.23	7674.74	A	0.282	2.345	7	0.8	1	42.823	1721.60	86.08	C
135.00-115.00			B	0.282	2.345		0.8	1	42.823			
			C	0.282	2.345		0.8	1	42.823			
T5	4639.91	8731.00	A	0.259	2.41	7	0.8	1	46.057	1716.41	85.82	C
115.00-95.00			B	0.259	2.41		0.8	1	46.057			
			C	0.259	2.41		0.8	1	46.057			
T6	4586.47	10026.74	A	0.257	2.417	7	0.8	1	53.172	1740.79	87.04	C
95.00-75.00			B	0.257	2.417		0.8	1	53.172			
			C	0.257	2.417		0.8	1	53.172			
T7	4558.61	11224.75	A	0.257	2.416	6	0.8	1	60.939	1755.76	87.79	C
75.00-55.00			B	0.257	2.416		0.8	1	60.939			
			C	0.257	2.416		0.8	1	60.939			
T8	3335.52	10352.39	A	0.3	2.297	6	0.8	1	59.878	1361.86	90.79	C
55.00-40.00			B	0.3	2.297		0.8	1	59.878			
			C	0.3	2.297		0.8	1	59.878			
T9	4292.59	12504.55	A	0.235	2.483	5	0.8	1	67.087	1560.85	78.04	C
40.00-20.00			B	0.235	2.483		0.8	1	67.087			
			C	0.235	2.483		0.8	1	67.087			
T10	3958.63	13546.27	A	0.221	2.527	5	0.8	1	69.391	1364.17	68.21	C
20.00-0.00			B	0.221	2.527		0.8	1	69.391			
			C	0.221	2.527		0.8	1	69.391			
Sum Weight:	36132.44	91039.54						OTM	1262975.6 3 lb-ft	14230.67		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	471.56	4920.60	A	0.46	1.957	8	0.85	1	36.982	598.21	29.91	C
195.00-175.00			B	0.46	1.957		0.85	1	36.982			
			C	0.46	1.957		0.85	1	36.982			
T2	2014.75	5492.44	A	0.343	2.189	8	0.85	1	34.705	1010.18	50.51	C
175.00-155.00			B	0.343	2.189		0.85	1	34.705			
			C	0.343	2.189		0.85	1	34.705			
T3	3569.17	6566.06	A	0.297	2.303	7	0.85	1	37.625	1418.89	70.94	C
155.00-135.00			B	0.297	2.303		0.85	1	37.625			
			C	0.297	2.303		0.85	1	37.625			
T4	4705.23	7674.74	A	0.282	2.345	7	0.85	1	43.757	1735.04	86.75	C
135.00-115.00			B	0.282	2.345		0.85	1	43.757			
			C	0.282	2.345		0.85	1	43.757			
T5	4639.91	8731.00	A	0.259	2.41	7	0.85	1	47.123	1731.60	86.58	C
115.00-95.00			B	0.259	2.41		0.85	1	47.123			
			C	0.259	2.41		0.85	1	47.123			
T6	4586.47	10026.74	A	0.257	2.417	7	0.85	1	54.573	1759.93	88.00	C
95.00-75.00			B	0.257	2.417		0.85	1	54.573			
			C	0.257	2.417		0.85	1	54.573			
T7	4558.61	11224.75	A	0.257	2.416	6	0.85	1	62.722	1778.80	88.94	C
75.00-55.00			B	0.257	2.416		0.85	1	62.722			
			C	0.257	2.416		0.85	1	62.722			
T8	3335.52	10352.39	A	0.3	2.297	6	0.85	1	61.778	1383.69	92.25	C
55.00-40.00			B	0.3	2.297		0.85	1	61.778			
			C	0.3	2.297		0.85	1	61.778			
T9	4292.59	12504.55	A	0.235	2.483	5	0.85	1	69.201	1584.69	79.23	C
40.00-20.00			B	0.235	2.483		0.85	1	69.201			
			C	0.235	2.483		0.85	1	69.201			
T10	3958.63	13546.27	A	0.221	2.527	5	0.85	1	71.695	1387.05	69.35	C
20.00-0.00			B	0.221	2.527		0.85	1	71.695			
			C	0.221	2.527		0.85	1	71.695			
Sum Weight:	36132.44	91039.54						OTM	1274137.1 6 lb-ft	14388.07		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	11	1	1	10.683	336.05	16.80	C
195.00-175.00			B	0.163	2.723		1	1	10.683			
			C	0.163	2.723		1	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	11	1	1	18.680	722.61	36.13	C
175.00-155.00			B	0.165	2.718		1	1	18.680			
			C	0.165	2.718		1	1	18.680			
T3	561.60	3572.06	A	0.144	2.794	11	1	1	21.061	985.92	49.30	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
155.00-135.00			B	0.144	2.794		1	1	21.061			
			C	0.144	2.794		1	1	21.061			
T4	724.40	4036.07	A	0.145	2.791	10	1	1	26.725	1241.48	62.07	C
135.00-115.00			B	0.145	2.791		1	1	26.725			
			C	0.145	2.791		1	1	26.725			
T5	724.40	4789.76	A	0.133	2.835	10	1	1	29.354	1270.27	63.51	C
115.00-95.00			B	0.133	2.835		1	1	29.354			
			C	0.133	2.835		1	1	29.354			
T6	725.65	5354.18	A	0.14	2.809	10	1	1	36.525	1374.13	68.71	C
95.00-75.00			B	0.14	2.809		1	1	36.525			
			C	0.14	2.809		1	1	36.525			
T7	729.40	5794.03	A	0.148	2.778	9	1	1	44.673	1468.39	73.42	C
75.00-55.00			B	0.148	2.778		1	1	44.673			
			C	0.148	2.778		1	1	44.673			
T8	547.05	5023.91	A	0.174	2.686	8	1	1	44.777	1226.81	81.79	C
55.00-40.00			B	0.174	2.686		1	1	44.777			
			C	0.174	2.686		1	1	44.777			
T9	729.40	6793.06	A	0.139	2.812	8	1	1	51.269	1378.90	68.95	C
40.00-20.00			B	0.139	2.812		1	1	51.269			
			C	0.139	2.812		1	1	51.269			
T10	729.40	8126.54	A	0.137	2.82	7	1	1	55.522	1263.52	63.18	C
20.00-0.00			B	0.137	2.82		1	1	55.522			
			C	0.137	2.82		1	1	55.522			
Sum Weight:	5896.80	48831.58						OTM	937441.42 lb-ft	11268.07		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	11	0.825	1	10.683	336.05	16.80	C
195.00-175.00			B	0.163	2.723		0.825	1	10.683			
			C	0.163	2.723		0.825	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	11	0.825	1	16.658	671.14	33.56	C
175.00-155.00			B	0.165	2.718		0.825	1	16.658			
			C	0.165	2.718		0.825	1	16.658			
T3	561.60	3572.06	A	0.144	2.794	11	0.825	1	18.700	925.80	46.29	C
155.00-135.00			B	0.144	2.794		0.825	1	18.700			
			C	0.144	2.794		0.825	1	18.700			
T4	724.40	4036.07	A	0.145	2.791	10	0.825	1	23.456	1160.90	58.04	C
135.00-115.00			B	0.145	2.791		0.825	1	23.456			
			C	0.145	2.791		0.825	1	23.456			
T5	724.40	4789.76	A	0.133	2.835	10	0.825	1	25.623	1180.20	59.01	C
115.00-95.00			B	0.133	2.835		0.825	1	25.623			
			C	0.133	2.835		0.825	1	25.623			
T6	725.65	5354.18	A	0.14	2.809	10	0.825	1	31.623	1262.00	63.10	C
95.00-75.00			B	0.14	2.809		0.825	1	31.623			
			C	0.14	2.809		0.825	1	31.623			
T7	729.40	5794.03	A	0.148	2.778	9	0.825	1	38.430	1334.88	66.74	C
75.00-55.00			B	0.148	2.778		0.825	1	38.430			
			C	0.148	2.778		0.825	1	38.430			
T8	547.05	5023.91	A	0.174	2.686	8	0.825	1	38.128	1098.13	73.21	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
55.00-40.00			B	0.174	2.686		0.825	1	38.128			
			C	0.174	2.686		0.825	1	38.128			
T9	729.40	6793.06	A	0.139	2.812	8	0.825	1	43.869	1242.82	62.14	C
40.00-20.00			B	0.139	2.812		0.825	1	43.869			
			C	0.139	2.812		0.825	1	43.869			
T10	729.40	8126.54	A	0.137	2.82	7	0.825	1	47.460	1134.84	56.74	C
20.00-0.00			B	0.137	2.82		0.825	1	47.460			
			C	0.137	2.82		0.825	1	47.460			
Sum Weight:	5896.80	48831.58						OTM	871012.00 lb-ft	10346.76		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	11	0.8	1	10.683	336.05	16.80	C
195.00-175.00			B	0.163	2.723		0.8	1	10.683			
			C	0.163	2.723		0.8	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	11	0.8	1	16.370	663.78	33.19	C
175.00-155.00			B	0.165	2.718		0.8	1	16.370			
			C	0.165	2.718		0.8	1	16.370			
T3	561.60	3572.06	A	0.144	2.794	11	0.8	1	18.363	917.22	45.86	C
155.00-135.00			B	0.144	2.794		0.8	1	18.363			
			C	0.144	2.794		0.8	1	18.363			
T4	724.40	4036.07	A	0.145	2.791	10	0.8	1	22.989	1149.39	57.47	C
135.00-115.00			B	0.145	2.791		0.8	1	22.989			
			C	0.145	2.791		0.8	1	22.989			
T5	724.40	4789.76	A	0.133	2.835	10	0.8	1	25.090	1167.33	58.37	C
115.00-95.00			B	0.133	2.835		0.8	1	25.090			
			C	0.133	2.835		0.8	1	25.090			
T6	725.65	5354.18	A	0.14	2.809	10	0.8	1	30.923	1245.98	62.30	C
95.00-75.00			B	0.14	2.809		0.8	1	30.923			
			C	0.14	2.809		0.8	1	30.923			
T7	729.40	5794.03	A	0.148	2.778	9	0.8	1	37.538	1315.81	65.79	C
75.00-55.00			B	0.148	2.778		0.8	1	37.538			
			C	0.148	2.778		0.8	1	37.538			
T8	547.05	5023.91	A	0.174	2.686	8	0.8	1	37.179	1079.75	71.98	C
55.00-40.00			B	0.174	2.686		0.8	1	37.179			
			C	0.174	2.686		0.8	1	37.179			
T9	729.40	6793.06	A	0.139	2.812	8	0.8	1	42.812	1223.37	61.17	C
40.00-20.00			B	0.139	2.812		0.8	1	42.812			
			C	0.139	2.812		0.8	1	42.812			
T10	729.40	8126.54	A	0.137	2.82	7	0.8	1	46.308	1116.46	55.82	C
20.00-0.00			B	0.137	2.82		0.8	1	46.308			
			C	0.137	2.82		0.8	1	46.308			
Sum Weight:	5896.80	48831.58						OTM	861522.08 lb-ft	10215.14		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	87.00	2548.67	A	0.163	2.723	11	0.85	1	10.683	336.05	16.80	C
195.00-175.00			B	0.163	2.723		0.85	1	10.683			
			C	0.163	2.723		0.85	1	10.683			
T2	338.50	2793.29	A	0.165	2.718	11	0.85	1	16.947	678.49	33.92	C
175.00-155.00			B	0.165	2.718		0.85	1	16.947			
			C	0.165	2.718		0.85	1	16.947			
T3	561.60	3572.06	A	0.144	2.794	11	0.85	1	19.037	934.39	46.72	C
155.00-135.00			B	0.144	2.794		0.85	1	19.037			
			C	0.144	2.794		0.85	1	19.037			
T4	724.40	4036.07	A	0.145	2.791	10	0.85	1	23.923	1172.41	58.62	C
135.00-115.00			B	0.145	2.791		0.85	1	23.923			
			C	0.145	2.791		0.85	1	23.923			
T5	724.40	4789.76	A	0.133	2.835	10	0.85	1	26.156	1193.06	59.65	C
115.00-95.00			B	0.133	2.835		0.85	1	26.156			
			C	0.133	2.835		0.85	1	26.156			
T6	725.65	5354.18	A	0.14	2.809	10	0.85	1	32.323	1278.02	63.90	C
95.00-75.00			B	0.14	2.809		0.85	1	32.323			
			C	0.14	2.809		0.85	1	32.323			
T7	729.40	5794.03	A	0.148	2.778	9	0.85	1	39.321	1353.95	67.70	C
75.00-55.00			B	0.148	2.778		0.85	1	39.321			
			C	0.148	2.778		0.85	1	39.321			
T8	547.05	5023.91	A	0.174	2.686	8	0.85	1	39.078	1116.52	74.43	C
55.00-40.00			B	0.174	2.686		0.85	1	39.078			
			C	0.174	2.686		0.85	1	39.078			
T9	729.40	6793.06	A	0.139	2.812	8	0.85	1	44.926	1262.26	63.11	C
40.00-20.00			B	0.139	2.812		0.85	1	44.926			
			C	0.139	2.812		0.85	1	44.926			
T10	729.40	8126.54	A	0.137	2.82	7	0.85	1	48.612	1153.23	57.66	C
20.00-0.00			B	0.137	2.82		0.85	1	48.612			
			C	0.137	2.82		0.85	1	48.612			
Sum Weight:	5896.80	48831.58						OTM	880501.92 lb-ft	10478.37		

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Leg Weight	29308.81					
Bracing Weight	19522.77					
Total Member Self-Weight	48831.58			-13056.54	10017.85	
Total Weight	68740.28			-13056.54	10017.85	
Wind 0 deg - No Ice		-9.41	-45657.08	-5033051.35	11391.56	-14150.79
Wind 30 deg - No Ice		21696.12	-37597.59	-4220084.35	-2417324.56	-33435.75
Wind 45 deg - No Ice		30424.10	-30431.78	-3428655.19	-3404459.17	-39960.31
Wind 60 deg - No Ice		36942.22	-21328.60	-2414301.33	-4149060.12	-43761.63
Wind 90 deg - No Ice		43408.53	9.41	-11682.83	-4847046.31	-42361.62
Wind 120 deg - No Ice		39535.49	22836.69	2498130.53	-4336738.32	-29610.84
Wind 135 deg - No Ice		31492.26	31499.94	3480543.32	-3482460.38	-19948.07
Wind 150 deg - No Ice		21712.41	37607.00	4195344.97	-2419703.89	-8925.86

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Wind 180 deg - No Ice		9.41	42673.49	4791812.37	8644.14	14150.79
Wind 210 deg - No Ice		-21696.12	37597.59	4193971.26	2437360.27	33435.75
Wind 225 deg - No Ice		-30424.10	30431.78	3402542.11	3424494.88	39960.31
Wind 240 deg - No Ice		-39526.08	22820.39	2495751.19	4355400.32	43761.63
Wind 270 deg - No Ice		-43408.53	-9.41	-14430.25	4867082.01	42361.62
Wind 300 deg - No Ice		-36951.63	-21344.90	-2416680.66	4170469.53	29610.84
Wind 315 deg - No Ice		-30437.40	-30445.09	-3430597.91	3426437.59	19948.07
Wind 330 deg - No Ice		-21712.41	-37607.00	-4221458.06	2439739.60	8925.86
Member Ice	42207.96					
Total Weight Ice	159423.36			-145399.91	43228.46	
Wind 0 deg - Ice		-2.54	-20304.13	-2374938.30	43599.09	-11270.84
Wind 30 deg - Ice		9912.30	-17173.69	-2047052.97	-1054263.48	-23280.30
Wind 45 deg - Ice		13963.77	-13965.85	-1694036.17	-1505105.18	-27089.10
Wind 60 deg - Ice		17034.83	-9835.07	-1237525.07	-1848387.80	-29051.82
Wind 90 deg - Ice		19829.00	2.54	-145029.28	-2152397.37	-27038.93
Wind 120 deg - Ice		17582.62	10154.26	969690.26	-1887423.12	-17780.98
Wind 135 deg - Ice		14189.96	14192.04	1419545.29	-1521414.12	-11149.72
Wind 150 deg - Ice		9916.70	17176.22	1756623.78	-1054905.43	-3758.63
Wind 180 deg - Ice		2.54	19674.53	2039492.35	42857.83	11270.84
Wind 210 deg - Ice		-9912.30	17173.69	1756253.15	1140720.40	23280.30
Wind 225 deg - Ice		-13963.77	13965.85	1403236.35	1591562.10	27089.10
Wind 240 deg - Ice		-17580.09	10149.87	969048.31	1973509.40	29051.82
Wind 270 deg - Ice		-19829.00	-2.54	-145770.54	2238854.29	27038.93
Wind 300 deg - Ice		-17037.37	-9839.46	-1238167.01	1935215.35	17780.98
Wind 315 deg - Ice		-13967.36	-13969.44	-1694560.32	1592086.25	11149.72
Wind 330 deg - Ice		-9916.70	-17176.22	-2047423.60	1141362.35	3758.63
Total Weight	68740.28			-13056.54	10017.85	
Wind 0 deg - Service		-3.32	-16224.20	-1772526.10	562.22	-4993.91
Wind 30 deg - Service		7712.46	-13365.01	-1484318.39	-861422.90	-11799.70
Wind 45 deg - Service		10815.72	-10818.43	-1203468.30	-1211808.59	-14102.26
Wind 60 deg - Service		13133.73	-7582.76	-843476.77	-1476132.69	-15443.77
Wind 90 deg - Service		15430.67	3.32	9298.33	-1723762.92	-14949.69
Wind 120 deg - Service		14048.91	8114.98	899903.21	-1542365.56	-10449.86
Wind 135 deg - Service		11192.68	11195.39	1248622.53	-1239335.73	-7039.80
Wind 150 deg - Service		7718.21	13368.33	1502430.26	-862262.59	-3150.00
Wind 180 deg - Service		3.32	15171.27	1714233.85	-407.36	4993.91
Wind 210 deg - Service		-7712.46	13365.01	1501945.47	861577.76	11799.70
Wind 225 deg - Service		-10815.72	10818.43	1221095.39	1211963.45	14102.26
Wind 240 deg - Service		-14045.59	8109.23	899063.52	1542035.63	15443.77
Wind 270 deg - Service		-15430.67	-3.32	8328.75	1723917.78	14949.69
Wind 300 deg - Service		-13137.05	-7588.51	-844316.45	1476772.34	10449.86
Wind 315 deg - Service		-10820.41	-10823.12	-1204153.90	1212649.04	7039.80
Wind 330 deg - Service		-7718.21	-13368.33	-1484803.18	862417.45	3150.00

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 45 deg - No Ice
7	0.9 Dead+1.6 Wind 45 deg - No Ice
8	1.2 Dead+1.6 Wind 60 deg - No Ice

Comb. No.	Description
9	0.9 Dead+1.6 Wind 60 deg - No Ice
10	1.2 Dead+1.6 Wind 90 deg - No Ice
11	0.9 Dead+1.6 Wind 90 deg - No Ice
12	1.2 Dead+1.6 Wind 120 deg - No Ice
13	0.9 Dead+1.6 Wind 120 deg - No Ice
14	1.2 Dead+1.6 Wind 135 deg - No Ice
15	0.9 Dead+1.6 Wind 135 deg - No Ice
16	1.2 Dead+1.6 Wind 150 deg - No Ice
17	0.9 Dead+1.6 Wind 150 deg - No Ice
18	1.2 Dead+1.6 Wind 180 deg - No Ice
19	0.9 Dead+1.6 Wind 180 deg - No Ice
20	1.2 Dead+1.6 Wind 210 deg - No Ice
21	0.9 Dead+1.6 Wind 210 deg - No Ice
22	1.2 Dead+1.6 Wind 225 deg - No Ice
23	0.9 Dead+1.6 Wind 225 deg - No Ice
24	1.2 Dead+1.6 Wind 240 deg - No Ice
25	0.9 Dead+1.6 Wind 240 deg - No Ice
26	1.2 Dead+1.6 Wind 270 deg - No Ice
27	0.9 Dead+1.6 Wind 270 deg - No Ice
28	1.2 Dead+1.6 Wind 300 deg - No Ice
29	0.9 Dead+1.6 Wind 300 deg - No Ice
30	1.2 Dead+1.6 Wind 315 deg - No Ice
31	0.9 Dead+1.6 Wind 315 deg - No Ice
32	1.2 Dead+1.6 Wind 330 deg - No Ice
33	0.9 Dead+1.6 Wind 330 deg - No Ice
34	1.2 Dead+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
39	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
40	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
41	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
42	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
43	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
44	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
45	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
46	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
47	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
48	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
49	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
51	Dead+Wind 0 deg - Service
52	Dead+Wind 30 deg - Service
53	Dead+Wind 45 deg - Service
54	Dead+Wind 60 deg - Service
55	Dead+Wind 90 deg - Service
56	Dead+Wind 120 deg - Service
57	Dead+Wind 135 deg - Service
58	Dead+Wind 150 deg - Service
59	Dead+Wind 180 deg - Service
60	Dead+Wind 210 deg - Service
61	Dead+Wind 225 deg - Service
62	Dead+Wind 240 deg - Service
63	Dead+Wind 270 deg - Service
64	Dead+Wind 300 deg - Service
65	Dead+Wind 315 deg - Service
66	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T1	195 - 175	Leg	Max Tension	19	17922.92	-237.92	-0.31
			Max. Compression	24	-23643.46	680.25	-32.51
			Max. Mx	8	10062.32	1064.83	1.80
			Max. My	32	-3041.76	-2.50	-1043.64
			Max. Vy	8	1522.42	-227.04	-108.92
			Max. Vx	12	2279.77	-118.05	-209.75
		Diagonal	Max Tension	10	5096.39	0.00	0.00
			Max. Compression	10	-5166.11	0.00	0.00
			Max. Mx	45	806.04	-15.35	0.93
			Max. My	26	-3566.68	-4.89	-4.61
			Max. Vy	44	-21.89	-15.30	-1.45
			Max. Vx	26	1.51	-4.89	-4.61
		Top Girt	Max Tension	19	348.62	0.00	0.00
			Max. Compression	12	-368.55	0.00	0.00
			Max. Mx	34	-34.16	36.29	0.00
			Max. My	14	70.14	0.00	-0.00
			Max. Vy	34	-29.03	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Bottom Girt	Max Tension	3	269.71	0.00	0.00
			Max. Compression	28	-298.06	0.00	0.00
			Max. Mx	34	-53.58	52.26	0.00
			Max. My	16	-12.81	0.00	-0.00
			Max. Vy	34	-34.84	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
T2	175 - 155	Leg	Max Tension	19	56475.97	-304.82	-19.62
			Max. Compression	24	-67689.99	229.49	-6.23
			Max. Mx	8	23048.79	2060.41	-4.11
			Max. My	32	-6072.94	-55.71	-2001.71
			Max. Vy	18	-951.16	-718.55	-13.27
			Max. Vx	10	895.11	-24.44	624.48
		Diagonal	Max Tension	10	8228.85	0.00	0.00
			Max. Compression	10	-8339.15	0.00	0.00
			Max. Mx	44	898.96	40.24	-5.37
			Max. My	26	-7264.54	1.68	18.63
			Max. Vy	43	37.79	40.19	-5.75
			Max. Vx	26	-4.51	0.00	0.00
T3	155 - 135	Leg	Max Tension	19	102180.92	-842.99	-9.52
			Max. Compression	24	-119421.79	8.97	-64.28
			Max. Mx	28	82835.78	1682.38	-59.44
			Max. My	10	-7614.56	-46.79	-1749.53
			Max. Vy	18	-1185.54	-1032.67	-4.19
			Max. Vx	26	-1150.21	-30.46	-849.91
		Diagonal	Max Tension	10	9326.51	0.00	0.00
			Max. Compression	10	-9383.73	0.00	0.00
			Max. Mx	43	1877.19	66.95	-9.28
			Max. My	10	-8943.64	5.22	-11.78
			Max. Vy	43	53.98	66.95	-9.28
			Max. Vx	50	-3.18	0.00	0.00
T4	135 - 115	Leg	Max Tension	19	147284.10	-183.08	-15.16
			Max. Compression	24	-169149.72	389.20	-82.44
			Max. Mx	13	-165659.67	391.29	56.76
			Max. My	26	-10802.70	-6.27	-412.92
			Max. Vy	18	119.08	-304.97	-15.79
			Max. Vx	26	177.05	-13.00	-314.44
		Diagonal	Max Tension	4	8815.25	0.00	0.00
			Max. Compression	4	-8922.18	0.00	0.00
			Max. Mx	48	1942.72	97.21	-12.50
			Max. My	46	-5.98	84.21	-13.75

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vy	48	69.14	97.21	-12.50
			Max. Vx	35	-3.84	0.00	0.00
T5	115 - 95	Leg	Max Tension	19	187121.38	-261.17	-17.46
			Max. Compression	24	-214518.50	240.80	-71.25
			Max. Mx	13	-180632.05	391.29	56.76
			Max. My	26	-11148.45	-6.28	-412.91
			Max. Vy	18	-96.90	-376.93	-24.89
			Max. Vx	10	153.90	-6.56	412.46
		Diagonal	Max Tension	4	9471.86	0.00	0.00
			Max. Compression	4	-9612.55	0.00	0.00
			Max. Mx	48	1882.93	145.57	-18.42
			Max. My	46	-46.25	127.69	-19.85
			Max. Vy	48	91.54	145.57	-18.42
			Max. Vx	46	4.90	0.00	0.00
T6	95 - 75	Leg	Max Tension	29	224159.65	-291.04	-42.92
			Max. Compression	24	-257878.44	236.26	-57.18
			Max. Mx	18	220623.13	-298.30	-28.14
			Max. My	26	-15186.65	-13.78	-378.92
			Max. Vy	18	-99.29	-298.30	-28.14
			Max. Vx	24	-157.77	-164.16	-352.55
		Diagonal	Max Tension	4	10387.36	0.00	0.00
			Max. Compression	4	-10475.67	0.00	0.00
			Max. Mx	48	1917.94	192.76	-24.49
			Max. My	46	-48.64	171.34	-26.39
			Max. Vy	48	109.48	192.76	-24.49
			Max. Vx	46	5.79	0.00	0.00
T7	75 - 55	Leg	Max Tension	29	260026.84	-346.59	-53.30
			Max. Compression	2	-300427.69	80.39	-8.06
			Max. Mx	18	255491.76	-361.79	-20.32
			Max. My	26	-18030.64	-42.69	-479.62
			Max. Vy	18	-120.62	-361.79	-20.32
			Max. Vx	26	-187.88	-42.70	-479.61
		Diagonal	Max Tension	4	11424.25	0.00	0.00
			Max. Compression	4	-11556.73	0.00	0.00
			Max. Mx	48	1876.66	245.60	-31.14
			Max. My	46	-779.80	239.08	-33.36
			Max. Vy	48	125.25	245.59	27.53
			Max. Vx	46	6.56	0.00	0.00
T8	55 - 40	Leg	Max Tension	29	287823.14	-129.50	-4.66
			Max. Compression	2	-334488.72	746.90	47.38
			Max. Mx	43	35376.07	-760.03	-22.59
			Max. My	26	-21359.22	-14.50	-714.84
			Max. Vy	43	252.47	-760.03	-22.59
			Max. Vx	10	-197.35	-14.88	714.73
		Diagonal	Max Tension	20	11970.87	0.00	0.00
			Max. Compression	20	-12091.27	0.00	0.00
			Max. Mx	48	1665.40	257.35	-31.87
			Max. My	38	-2405.87	228.43	35.23
			Max. Vy	48	130.18	249.47	-32.39
			Max. Vx	38	6.64	0.00	0.00
T9	40 - 20	Leg	Max Tension	29	320978.80	-333.67	-36.42
			Max. Compression	2	-375677.13	390.03	24.13
			Max. Mx	40	-142707.69	2053.23	18.41
			Max. My	26	-21770.10	-14.51	-714.84
			Max. Vy	43	-504.14	-1302.50	-8.02
			Max. Vx	26	181.00	-32.97	-671.86
		Diagonal	Max Tension	20	13207.88	0.00	0.00
			Max. Compression	20	-13416.99	0.00	0.00
			Max. Mx	48	805.56	397.23	-45.92
			Max. My	38	-4245.57	363.93	48.75
			Max. Vy	48	157.56	397.23	-45.92

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T10	20 - 0	Leg	Max. Vx	38	-8.04	0.00	0.00
			Max Tension	29	354136.59	-336.37	-41.53
			Max. Compression	2	-418166.47	-0.00	-0.03
			Max. Mx	40	-153047.28	3339.62	4.99
			Max. My	26	-26891.17	-57.23	-778.11
			Max. Vy	43	-964.84	-3054.06	-4.79
			Max. Vx	26	-217.78	-57.24	-778.11
		Diagonal	Max Tension	20	14127.74	0.00	0.00
			Max. Compression	20	-14404.70	0.00	0.00
			Max. Mx	48	-928.96	533.44	-56.82
			Max. My	38	-7135.97	514.67	60.44
			Max. Vy	48	176.26	533.44	-56.82
			Max. Vx	38	-9.06	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	24	423658.36	37843.52	-23799.33
	Max. H_x	24	423658.36	37843.52	-23799.33
	Max. H_z	7	-347113.80	-30936.35	21414.19
	Min. Vert	9	-357971.85	-32498.85	20788.01
	Min. H_x	9	-357971.85	-32498.85	20788.01
	Min. H_z	24	423658.36	37843.52	-23799.33
Leg B	Max. Vert	12	422819.34	-38118.58	-23322.41
	Max. H_x	29	-358928.52	32804.85	20314.06
	Max. H_z	31	-348092.93	31357.50	20733.61
	Min. Vert	29	-358928.52	32804.85	20314.06
	Min. H_x	12	422819.34	-38118.58	-23322.41
	Min. H_z	12	422819.34	-38118.58	-23322.41
Leg A	Max. Vert	2	424486.32	-550.67	44698.91
	Max. H_x	27	21311.11	7280.61	1601.61
	Max. H_z	2	424486.32	-550.67	44698.91
	Min. Vert	19	-357677.50	563.51	-38547.18
	Min. H_x	11	21095.04	-7294.57	1583.48
	Min. H_z	19	-357677.50	563.51	-38547.18

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	68740.28	0.00	0.00	-13057.16	10017.89	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	82488.33	-15.05	-73051.34	-8079384.64	14313.00	-22689.46
0.9 Dead+1.6 Wind 0 deg - No Ice	61866.25	-15.05	-73051.34	-8067485.59	11287.43	-22677.68
1.2 Dead+1.6 Wind 30 deg - No Ice	82488.33	34713.79	-60156.15	-6773732.79	-3887091.12	-53534.63
0.9 Dead+1.6 Wind 30 deg - No Ice	61866.25	34713.79	-60156.15	-6763079.66	-3886221.18	-53524.39
1.2 Dead+1.6 Wind 45 deg - No	82488.33	48678.56	-48690.85	-5502462.45	-5472829.59	-63958.37

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Ice						
0.9 Dead+1.6 Wind 45 deg - No Ice	61866.25	48678.56	-48690.85	-5493066.81	-5470369.51	-63953.59
1.2 Dead+1.6 Wind 60 deg - No Ice	82488.33	59107.55	-34125.76	-3873066.77	-6668993.91	-70031.97
0.9 Dead+1.6 Wind 60 deg - No Ice	61866.25	59107.55	-34125.76	-3865293.10	-6665329.50	-70026.99
1.2 Dead+1.6 Wind 90 deg - No Ice	82488.33	69453.65	15.05	-13543.82	-7790196.51	-67783.03
0.9 Dead+1.6 Wind 90 deg - No Ice	61866.25	69453.65	15.05	-9625.51	-7785430.64	-67754.33
1.2 Dead+1.6 Wind 120 deg - No Ice	82488.33	63256.79	36538.71	4018063.13	-6970265.99	-47360.69
0.9 Dead+1.6 Wind 120 deg - No Ice	61866.25	63256.79	36538.71	4017984.61	-6966370.49	-47365.74
1.2 Dead+1.6 Wind 135 deg - No Ice	82488.33	50387.63	50399.91	5596226.17	-5598093.37	-31891.97
0.9 Dead+1.6 Wind 135 deg - No Ice	61866.25	50387.62	50399.91	5594575.93	-5595540.26	-31910.98
1.2 Dead+1.6 Wind 150 deg - No Ice	82488.33	34739.86	60171.21	6744576.12	-3890975.47	-14240.06
0.9 Dead+1.6 Wind 150 deg - No Ice	61866.25	34739.86	60171.21	6741747.93	-3890103.58	-14251.95
1.2 Dead+1.6 Wind 180 deg - No Ice	82488.33	15.05	68277.60	7702806.29	9896.07	22682.53
0.9 Dead+1.6 Wind 180 deg - No Ice	61866.25	15.05	68277.60	7699000.56	6875.48	22671.56
1.2 Dead+1.6 Wind 210 deg - No Ice	82488.33	-34713.78	60156.15	6742338.11	3911336.44	53534.74
0.9 Dead+1.6 Wind 210 deg - No Ice	61866.25	-34713.79	60156.15	6739511.11	3904424.53	53524.49
1.2 Dead+1.6 Wind 225 deg - No Ice	82488.33	-48678.56	48690.85	5471010.41	5497072.76	63974.44
0.9 Dead+1.6 Wind 225 deg - No Ice	61867.10	-48677.87	48691.55	5469442.41	5488569.57	63967.55
1.2 Dead+1.6 Wind 240 deg - No Ice	82489.28	-63241.20	36513.27	4014205.02	6992203.07	70040.04
0.9 Dead+1.6 Wind 240 deg - No Ice	61866.25	-63241.73	36512.63	4014139.94	6982263.72	70044.39
1.2 Dead+1.6 Wind 270 deg - No Ice	82488.33	-69453.65	-15.06	-17941.62	7814320.65	67782.87
0.9 Dead+1.6 Wind 270 deg - No Ice	61866.25	-69453.65	-15.06	-14022.79	7803508.29	67754.25
1.2 Dead+1.6 Wind 300 deg - No Ice	82488.33	-59122.61	-34151.84	-3876839.27	6695346.69	47349.25
0.9 Dead+1.6 Wind 300 deg - No Ice	61866.25	-59122.61	-34151.84	-3869065.02	6685633.40	47355.27
1.2 Dead+1.6 Wind 315 deg - No Ice	82488.33	-48699.85	-48712.14	-5505530.47	5500118.09	31880.10
0.9 Dead+1.6 Wind 315 deg - No Ice	61866.25	-48699.85	-48712.14	-5496134.31	5491608.16	31890.92
1.2 Dead+1.6 Wind 330 deg - No Ice	82488.33	-34739.86	-60171.20	-6775898.72	3915103.54	14239.85
0.9 Dead+1.6 Wind 330 deg - No Ice	61866.25	-34739.86	-60171.20	-6765242.98	3908183.09	14251.79
1.2 Dead+1.0 Ice+1.0 Temp	173171.41	0.00	0.00	-148368.91	45363.52	-1.04
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	173171.41	-2.54	-20304.13	-2396227.22	45935.69	-11314.33
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	173171.41	9912.30	-17173.68	-2065693.88	-1060747.92	-23370.95
1.2 Dead+1.0 Wind 45 deg+1.0	173171.41	13963.77	-13965.84	-1709867.65	-1515207.67	-27195.11

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Ice+1.0 Temp						
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	173171.41	17034.83	-9835.06	-1249709.67	-1861253.93	-29164.06
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	173171.41	19828.99	2.54	-148462.90	-2167680.30	-27144.04
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	173171.41	17582.62	10154.26	975150.22	-1900519.66	-17852.60
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	173171.41	14189.96	14192.03	1428619.56	-1531602.92	-11195.91
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	173171.41	9916.70	17176.22	1768424.16	-1061369.68	-3777.50
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	173171.41	2.54	19674.52	2053583.08	45203.39	11310.81
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	173171.41	-9912.30	17173.68	1768058.15	1151869.98	23369.47
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	173171.41	-13963.77	13965.84	1412223.45	1606330.35	27193.24
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	173171.41	-17580.08	10149.87	974518.53	1991271.17	29166.27
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	173171.41	-19828.99	-2.54	-149182.82	2258785.52	27143.95
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	173171.41	-17037.37	-9839.46	-1250327.88	1952717.95	17850.66
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	173171.41	-13967.36	-13969.43	-1710369.79	1606823.02	11194.74
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	173171.41	-9916.69	-17176.22	-2066048.10	1152476.94	3775.40
Dead+Wind 0 deg - Service	68740.28	-3.32	-16224.20	-1800261.13	10534.85	-5002.45
Dead+Wind 30 deg - Service	68740.28	7712.46	-13365.01	-1511142.53	-854311.80	-11803.41
Dead+Wind 45 deg - Service	68740.28	10815.72	-10818.43	-1229366.61	-1205867.25	-14105.29
Dead+Wind 60 deg - Service	68740.28	13133.73	-7582.76	-868182.77	-1471077.90	-15445.80
Dead+Wind 90 deg - Service	68740.28	15430.67	3.32	-12576.83	-1719519.74	-14949.52
Dead+Wind 120 deg - Service	68740.28	14048.91	8114.98	880969.73	-1537483.17	-10445.93
Dead+Wind 135 deg - Service	68740.28	11192.68	11195.39	1230852.97	-1233466.41	-7032.02
Dead+Wind 150 deg - Service	68740.28	7718.21	13368.33	1485522.51	-855155.62	-3141.56
Dead+Wind 180 deg - Service	68740.28	3.32	15171.27	1698042.14	9561.32	5001.79
Dead+Wind 210 deg - Service	68740.28	-7712.46	13365.01	1485033.44	874410.94	11803.40
Dead+Wind 225 deg - Service	68740.28	-10815.72	10818.43	1203254.58	1225964.59	14107.29
Dead+Wind 240 deg - Service	68740.28	-14045.59	8109.23	880128.27	1557090.19	15448.50
Dead+Wind 270 deg - Service	68740.28	-15430.67	-3.32	-13546.82	1739612.37	14949.49
Dead+Wind 300 deg - Service	68740.28	-13137.05	-7588.51	-869021.57	1491657.62	10445.19
Dead+Wind 315 deg - Service	68740.28	-10820.41	-10823.12	-1230050.39	1226649.74	7032.43
Dead+Wind 330 deg - Service	68740.28	-7718.21	-13368.33	-1511624.79	875253.55	3141.58

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-68740.28	0.00	-0.00	68740.28	-0.00	0.000%
2	-15.05	-82488.33	-73051.33	15.05	82488.33	73051.34	0.000%
3	-15.05	-61866.25	-73051.33	15.05	61866.25	73051.34	0.000%
4	34713.78	-82488.33	-60156.15	-34713.79	82488.33	60156.15	0.000%
5	34713.78	-61866.25	-60156.15	-34713.79	61866.25	60156.15	0.000%
6	48678.55	-82488.33	-48690.85	-48678.56	82488.33	48690.85	0.000%
7	48678.55	-61866.25	-48690.85	-48678.56	61866.25	48690.85	0.000%
8	59107.55	-82488.33	-34125.76	-59107.55	82488.33	34125.76	0.000%
9	59107.55	-61866.25	-34125.76	-59107.55	61866.25	34125.76	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
10	69453.64	-82488.33	15.05	-69453.65	82488.33	-15.05	0.000%
11	69453.64	-61866.25	15.05	-69453.65	61866.25	-15.05	0.000%
12	63256.78	-82488.33	36538.70	-63256.79	82488.33	-36538.71	0.000%
13	63256.78	-61866.25	36538.70	-63256.79	61866.25	-36538.71	0.000%
14	50387.62	-82488.33	50399.91	-50387.63	82488.33	-50399.91	0.000%
15	50387.62	-61866.25	50399.91	-50387.62	61866.25	-50399.91	0.000%
16	34739.86	-82488.33	60171.20	-34739.86	82488.33	-60171.21	0.000%
17	34739.86	-61866.25	60171.20	-34739.86	61866.25	-60171.21	0.000%
18	15.05	-82488.33	68277.59	-15.05	82488.33	-68277.60	0.000%
19	15.05	-61866.25	68277.59	-15.05	61866.25	-68277.60	0.000%
20	-34713.78	-82488.33	60156.15	34713.78	82488.33	-60156.15	0.000%
21	-34713.78	-61866.25	60156.15	34713.79	61866.25	-60156.15	0.000%
22	-48678.55	-82488.33	48690.85	48678.56	82488.33	-48690.85	0.000%
23	-48678.55	-61866.25	48690.85	48677.87	61867.10	-48691.55	0.001%
24	-63241.73	-82488.33	36512.63	63241.20	82489.28	-36513.27	0.001%
25	-63241.73	-61866.25	36512.63	63241.73	61866.25	-36512.63	0.000%
26	-69453.64	-82488.33	-15.05	69453.65	82488.33	15.06	0.000%
27	-69453.64	-61866.25	-15.05	69453.65	61866.25	15.06	0.000%
28	-59122.60	-82488.33	-34151.83	59122.61	82488.33	34151.84	0.000%
29	-59122.60	-61866.25	-34151.83	59122.61	61866.25	34151.84	0.000%
30	-48699.84	-82488.33	-48712.14	48699.85	82488.33	48712.14	0.000%
31	-48699.84	-61866.25	-48712.14	48699.85	61866.25	48712.14	0.000%
32	-34739.86	-82488.33	-60171.20	34739.86	82488.33	60171.20	0.000%
33	-34739.86	-61866.25	-60171.20	34739.86	61866.25	60171.20	0.000%
34	0.00	-173171.41	0.00	-0.00	173171.41	-0.00	0.000%
35	-2.54	-173171.41	-20304.13	2.54	173171.41	20304.13	0.000%
36	9912.30	-173171.41	-17173.69	-9912.30	173171.41	17173.68	0.000%
37	13963.77	-173171.41	-13965.85	-13963.77	173171.41	13965.84	0.000%
38	17034.83	-173171.41	-9835.07	-17034.83	173171.41	9835.06	0.000%
39	19829.00	-173171.41	2.54	-19828.99	173171.41	-2.54	0.000%
40	17582.62	-173171.41	10154.26	-17582.62	173171.41	-10154.26	0.000%
41	14189.96	-173171.41	14192.04	-14189.96	173171.41	-14192.03	0.000%
42	9916.70	-173171.41	17176.22	-9916.70	173171.41	-17176.22	0.000%
43	2.54	-173171.41	19674.53	-2.54	173171.41	-19674.52	0.000%
44	-9912.30	-173171.41	17173.69	9912.30	173171.41	-17173.68	0.000%
45	-13963.77	-173171.41	13965.85	13963.77	173171.41	-13965.84	0.000%
46	-17580.09	-173171.41	10149.87	17580.08	173171.41	-10149.87	0.000%
47	-19829.00	-173171.41	-2.54	19828.99	173171.41	2.54	0.000%
48	-17037.37	-173171.41	-9839.46	17037.37	173171.41	9839.46	0.000%
49	-13967.36	-173171.41	-13969.44	13967.36	173171.41	13969.43	0.000%
50	-9916.70	-173171.41	-17176.22	9916.69	173171.41	17176.22	0.000%
51	-3.32	-68740.28	-16224.20	3.32	68740.28	16224.20	0.000%
52	7712.46	-68740.28	-13365.01	-7712.46	68740.28	13365.01	0.000%
53	10815.72	-68740.28	-10818.43	-10815.72	68740.28	10818.43	0.000%
54	13133.73	-68740.28	-7582.76	-13133.73	68740.28	7582.76	0.000%
55	15430.67	-68740.28	3.32	-15430.67	68740.28	-3.32	0.000%
56	14048.91	-68740.28	8114.98	-14048.91	68740.28	-8114.98	0.000%
57	11192.68	-68740.28	11195.39	-11192.68	68740.28	-11195.39	0.000%
58	7718.21	-68740.28	13368.33	-7718.21	68740.28	-13368.33	0.000%
59	3.32	-68740.28	15171.27	-3.32	68740.28	-15171.27	0.000%
60	-7712.46	-68740.28	13365.01	7712.46	68740.28	-13365.01	0.000%
61	-10815.72	-68740.28	10818.43	10815.72	68740.28	-10818.43	0.000%
62	-14045.59	-68740.28	8109.23	14045.59	68740.28	-8109.23	0.000%
63	-15430.67	-68740.28	-3.32	15430.67	68740.28	3.32	0.000%
64	-13137.05	-68740.28	-7588.51	13137.05	68740.28	7588.51	0.000%
65	-10820.41	-68740.28	-10823.12	10820.41	68740.28	10823.12	0.000%
66	-7718.21	-68740.28	-13368.33	7718.21	68740.28	13368.33	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000050
5	Yes	4	0.00000001	0.00000048
6	Yes	4	0.00000001	0.00000054
7	Yes	4	0.00000001	0.00000049
8	Yes	4	0.00000001	0.00000054
9	Yes	4	0.00000001	0.00000048
10	Yes	4	0.00000001	0.00000054
11	Yes	4	0.00000001	0.00000051
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000047
17	Yes	4	0.00000001	0.00000001
18	Yes	4	0.00000001	0.00000049
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000050
21	Yes	4	0.00000001	0.00000048
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000130
24	Yes	4	0.00000001	0.00000135
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000054
27	Yes	4	0.00000001	0.00000051
28	Yes	4	0.00000001	0.00000051
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000051
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000048
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000135
36	Yes	4	0.00000001	0.00000140
37	Yes	4	0.00000001	0.00000143
38	Yes	4	0.00000001	0.00000144
39	Yes	4	0.00000001	0.00000141
40	Yes	4	0.00000001	0.00000173
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000141
44	Yes	4	0.00000001	0.00000138
45	Yes	4	0.00000001	0.00000137
46	Yes	4	0.00000001	0.00000138
47	Yes	4	0.00000001	0.00000143
48	Yes	4	0.00000001	0.00000146
49	Yes	4	0.00000001	0.00000144
50	Yes	4	0.00000001	0.00000141
51	Yes	4	0.00000001	0.00000001
52	Yes	4	0.00000001	0.00000001
53	Yes	4	0.00000001	0.00000001
54	Yes	4	0.00000001	0.00000001
55	Yes	4	0.00000001	0.00000001
56	Yes	4	0.00000001	0.00000001
57	Yes	4	0.00000001	0.00000001
58	Yes	4	0.00000001	0.00000001
59	Yes	4	0.00000001	0.00000001

60	Yes	4	0.00000001	0.00000001
61	Yes	4	0.00000001	0.00000001
62	Yes	4	0.00000001	0.00000001
63	Yes	4	0.00000001	0.00000001
64	Yes	4	0.00000001	0.00000001
65	Yes	4	0.00000001	0.00000001
66	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	2.804	62	0.1131	0.0181
T2	175 - 155	2.329	62	0.1089	0.0100
T3	155 - 135	1.861	62	0.1014	0.0135
T4	135 - 115	1.439	62	0.0898	0.0160
T5	115 - 95	1.066	51	0.0769	0.0160
T6	95 - 75	0.756	51	0.0621	0.0148
T7	75 - 55	0.502	51	0.0483	0.0126
T8	55 - 40	0.297	51	0.0356	0.0095
T9	40 - 20	0.169	51	0.0259	0.0062
T10	20 - 0	0.056	51	0.0124	0.0030

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	Top Triangular Mount	62	2.733	0.1126	0.0166	667194
180.00	SitePro VFA12-HD	62	2.448	0.1102	0.0118	222398
172.00	Pirod 12' T-Frame Sector Mount (1)	62	2.257	0.1081	0.0098	315869
162.00	MX08FRO665-21	62	2.021	0.1045	0.0112	117908
160.00	Pirod 12' T-Frame Sector Mount (1)	62	1.975	0.1037	0.0117	102680
146.00	Pirod 12' T-Frame Sector Mount (1)	62	1.664	0.0965	0.0157	92975
80.00	GPS	51	0.560	0.0516	0.0132	88831

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	12.593	24	0.5008	0.0821
T2	175 - 155	10.481	24	0.4867	0.0453
T3	155 - 135	8.379	24	0.4549	0.0613
T4	135 - 115	6.483	2	0.4038	0.0726
T5	115 - 95	4.800	2	0.3461	0.0726
T6	95 - 75	3.401	2	0.2797	0.0669
T7	75 - 55	2.257	2	0.2174	0.0571
T8	55 - 40	1.336	2	0.1599	0.0432
T9	40 - 20	0.759	2	0.1165	0.0282

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T10	20 - 0	0.253	2	0.0558	0.0135

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	Top Triangular Mount	24	12.277	0.4992	0.0753	239162
180.00	SitePro VFA12-HD	24	11.012	0.4914	0.0537	79721
172.00	Pirod 12' T-Frame Sector Mount (1)	24	10.161	0.4834	0.0445	180450
162.00	MX08FRO665-21	24	9.100	0.4686	0.0508	29075
160.00	Pirod 12' T-Frame Sector Mount (1)	24	8.891	0.4650	0.0531	24348
146.00	Pirod 12' T-Frame Sector Mount (1)	24	7.497	0.4334	0.0714	20986
80.00	GPS	2	2.521	0.2324	0.0598	19728

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	195	Leg	A325N	1.1250	4	4480.73	67096.30	0.067 ✓	1	Bolt Tension
T2	175	Leg	A325N	1.1250	6	9412.66	67096.30	0.140 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	8228.84	11092.50	0.742 ✓	1	Member Bearing
T3	155	Leg	A325N	1.1250	6	17030.20	67096.30	0.254 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	9326.51	18487.50	0.504 ✓	1	Member Bearing
T4	135	Leg	A325N	1.1250	6	24547.30	67096.30	0.366 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	8815.25	14790.00	0.596 ✓	1	Member Bearing
T5	115	Leg	A325N	1.1250	8	23390.20	67096.30	0.349 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9471.86	25447.50	0.372 ✓	1	Member Bearing
T6	95	Leg	A325N	1.1250	8	28020.00	67096.30	0.418 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	10387.40	21206.30	0.490 ✓	1	Member Bearing
T7	75	Leg	A325N	1.2500	8	32503.40	82835.00	0.392 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	11424.30	16965.00	0.673 ✓	1	Member Bearing
T8	55	Leg	A325N	1.2500	8	35977.90	82835.00	0.434 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	11970.90	16965.00	0.706 ✓	1	Member Bearing
T9	40	Leg	A325N	1.2500	8	40122.40	82835.00	0.484 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	13207.90	21206.30	0.623 ✓	1	Member Bearing
T10	20	Leg	A449	1.3750	8	44267.10	87701.50	0.505 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	14127.70	25447.50	0.555 ✓	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.01	3.33	53.4 K=1.00	7.0686	-23643.50	258313.00	0.092 [1] ✔
T2	175 - 155	3 3/4	20.03	6.68	85.5 K=1.00	11.0447	-67690.00	291317.00	0.232 [1] ✔
T3	155 - 135	4	20.03	6.68	80.1 K=1.00	12.5664	-119422.00	353604.00	0.338 [1] ✔
T4	135 - 115	4 1/4	20.03	6.68	75.4 K=1.00	14.1863	-169150.00	421170.00	0.402 [1] ✔
T5	115 - 95	4 1/4	20.03	6.68	75.4 K=1.00	14.1863	-214519.00	421170.00	0.509 [1] ✔
T6	95 - 75	4 1/2	20.03	6.68	71.2 K=1.00	15.9043	-257878.00	493875.00	0.522 [1] ✔
T7	75 - 55	4 3/4	20.03	6.68	67.5 K=1.00	17.7205	-300428.00	571599.00	0.526 [1] ✔
T8	55 - 40	4 3/4	15.03	5.01	50.6 K=1.00	17.7205	-334489.00	661231.00	0.506 [1] ✔
T9	40 - 20	4 3/4	20.03	6.68	67.5 K=1.00	17.7205	-375677.00	571599.00	0.657 [1] ✔
T10	20 - 0	5	20.03	6.68	64.1 K=1.00	19.6350	-418166.00	654248.00	0.639 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.79	3.30	114.0 K=0.90	1.2272	-5166.11	20048.60	0.258 [1] ✔
T2	175 - 155	L2 1/2x2 1/2x3/16	10.16	4.94	119.9 K=1.00	0.9020	-8339.15	13713.70	0.608 [1] ✔
T3	155 - 135	L2 1/2x2 1/2x5/16	11.74	5.72	140.4 K=1.00	1.4600	-9383.73	16733.60	0.561 [1] ✔
T4	135 - 115	L3x3x1/4	13.44	6.56	132.9 K=1.00	1.4400	-8922.18	18412.40	0.485 [1] ✔
T5	115 - 95	L3x3x3/8	15.21	7.43	151.8 K=1.00	2.1100	-9612.55	20687.10	0.465 [1] ✔
T6	95 - 75	L3 1/2x3 1/2x5/16	17.03	8.32	144.8 K=1.00	2.0900	-10475.70	22528.10	0.465 [1] ✔
T7	75 - 55	L4x4x1/4	18.88	9.24	139.5	1.9400	-11556.70	22521.80	0.513 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	55 - 40	L4x4x1/4	19.89	9.70	146.5 K=1.00	1.9400	-12091.30	20433.10	0.592 [1] ✔
T9	40 - 20	L4x4x5/16	22.19	10.90	165.3 K=1.00	2.4000	-13417.00	19839.90	0.676 [1] ✔
T10	20 - 0	L4x4x3/8	24.11	11.84	180.4 K=1.00	2.8600	-14404.70	19861.70	0.725 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.00	4.75	127.7 K=0.70	1.2272	-368.55	16855.20	0.022 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.00	5.75	154.6 K=0.70	1.2272	-1173.89	11605.30	0.101 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.01	3.33	53.4	7.0686	17922.90	318086.00	0.056 [1] ✔
T2	175 - 155	3 3/4	20.03	6.68	85.5	11.0447	56476.00	497010.00	0.114 [1] ✔
T3	155 - 135	4	20.03	6.68	80.1	12.5664	102181.00	565487.00	0.181 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	135 - 115	4 1/4	20.03	6.68	75.4	14.1863	147284.00	638381.00	0.231 [1]
T5	115 - 95	4 1/4	20.03	6.68	75.4	14.1863	187121.00	638381.00	0.293 [1]
T6	95 - 75	4 1/2	20.03	6.68	71.2	15.9043	224160.00	715694.00	0.313 [1]
T7	75 - 55	4 3/4	20.03	6.68	67.5	17.7205	260027.00	797425.00	0.326 [1]
T8	55 - 40	4 3/4	15.03	5.01	50.6	17.7205	287823.00	797425.00	0.361 [1]
T9	40 - 20	4 3/4	20.03	6.68	67.5	17.7205	320979.00	797425.00	0.403 [1]
T10	20 - 0	5	20.03	6.68	64.1	19.6350	354137.00	883573.00	0.401 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.79	3.30	126.7	1.2272	5096.39	39760.80	0.128 [1]
T2	175 - 155	L2 1/2x2 1/2x3/16	10.16	4.94	78.6	0.9020	8228.84	29224.80	0.282 [1]
T3	155 - 135	L2 1/2x2 1/2x5/16	11.74	5.72	92.6	1.4600	9326.51	47304.00	0.197 [1]
T4	135 - 115	L3x3x1/4	13.44	6.56	86.5	1.4400	8815.25	46656.00	0.189 [1]
T5	115 - 95	L3x3x3/8	15.21	7.43	99.8	2.1100	9471.86	68364.00	0.139 [1]
T6	95 - 75	L3 1/2x3 1/2x5/16	17.03	8.32	94.3	2.0900	10387.40	67716.00	0.153 [1]
T7	75 - 55	L4x4x1/4	18.88	9.24	90.3	1.9400	11424.30	62856.00	0.182 [1]
T8	55 - 40	L4x4x1/4	19.89	9.70	94.7	1.9400	11970.90	62856.00	0.190 [1]
T9	40 - 20	L4x4x5/16	22.19	10.90	107.1	2.4000	13207.90	77760.00	0.170 [1]
T10	20 - 0	L4x4x3/8	24.11	11.84	117.2	2.8600	14127.70	92664.00	0.152 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.00	4.75	182.4	1.2272	348.62	39760.80	0.009 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.00	5.75	220.8	1.2272	1173.89	39760.80	0.030 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	195 - 175	Leg	3	1	-23643.50	258313.00	9.2	Pass
T2	175 - 155	Leg	3 3/4	46	-67690.00	291317.00	23.2	Pass
T3	155 - 135	Leg	4	67	-119422.00	353604.00	33.8	Pass
T4	135 - 115	Leg	4 1/4	88	-169150.00	421170.00	40.2	Pass
T5	115 - 95	Leg	4 1/4	109	-214519.00	421170.00	50.9	Pass
T6	95 - 75	Leg	4 1/2	130	-257878.00	493875.00	52.2	Pass
T7	75 - 55	Leg	4 3/4	153	-300428.00	571599.00	52.6	Pass
T8	55 - 40	Leg	4 3/4	174	-334489.00	661231.00	50.6	Pass
T9	40 - 20	Leg	4 3/4	195	-375677.00	571599.00	65.7	Pass
T10	20 - 0	Leg	5	216	-418166.00	654248.00	63.9	Pass
T1	195 - 175	Diagonal	1 1/4	11	-5166.11	20048.60	25.8	Pass
T2	175 - 155	Diagonal	L2 1/2x2 1/2x3/16	50	-8339.15	13713.70	60.8	Pass
							74.2 (b)	
T3	155 - 135	Diagonal	L2 1/2x2 1/2x5/16	71	-9383.73	16733.60	56.1	Pass
T4	135 - 115	Diagonal	L3x3x1/4	95	-8922.18	18412.40	48.5	Pass
							59.6 (b)	
T5	115 - 95	Diagonal	L3x3x3/8	116	-9612.55	20687.10	46.5	Pass
T6	95 - 75	Diagonal	L3 1/2x3 1/2x5/16	137	-10475.70	22528.10	46.5	Pass
							49.0 (b)	
T7	75 - 55	Diagonal	L4x4x1/4	158	-11556.70	22521.80	51.3	Pass
							67.3 (b)	
T8	55 - 40	Diagonal	L4x4x1/4	180	-12091.30	20433.10	59.2	Pass
							70.6 (b)	
T9	40 - 20	Diagonal	L4x4x5/16	201	-13417.00	19839.90	67.6	Pass
T10	20 - 0	Diagonal	L4x4x3/8	222	-14404.70	19861.70	72.5	Pass
T1	195 - 175	Top Girt	1 1/4	6	-368.55	16855.20	2.2	Pass
T1	195 - 175	Bottom Girt	1 1/4	9	-1173.89	11605.30	10.1	Pass
							Summary	
						Leg (T9)	65.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						Diagonal (T2)	74.2	Pass
						Top Girt (T1)	2.2	Pass
						Bottom Girt (T1)	10.1	Pass
						Bolt Checks	74.2	Pass
						RATING =	**74.2**	**Pass**

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: FOUNDATION ANALYSIS

Location: Northford, CT

Rev. 0: 5/25/22

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 22006.08

Pier and Mat Foundation Analysis:

Input Data:

Tower Data

Overturning Moment =	$OM := 8080 \cdot ft \cdot kips$	(User Input from tnxTower)	
Shear Force =	$S_t := 73 \cdot kip$	(User Input from tnxTower)	
Axial Force =	$WT_t := 83 \cdot kip$	(User Input from tnxTower)	
Max Compression Force =	$C_t := 425 \cdot kip$	(User Input from tnxTower)	
Max Uplift Force =	$U_t := 359 \cdot kip$	(User Input from tnxTower)	
Tower Height =	$H_t := 195 \cdot ft$	(User Input)	
Tower Width =	$W_t := 23.5 \cdot ft$	(User Input)	
Tower Position on Foundation (1=offset, 2=centered) =	$Pos_t := 2$	(User Input)	

Footing Data:

Overall Depth of Footing =	$D_f := 6.0 \cdot ft$	(User Input)	
Length of Pier =	$L_p := 4.0 \cdot ft$	(User Input)	
Extension of Pier Above Grade =	$L_{pag} := 0.5 \cdot ft$	(User Input)	
Diameter of Pier =	$d_p := 3.0 \cdot ft$	(User Input)	
Thickness of Footing =	$T_f := 2.5 \cdot ft$	(User Input)	
Width of Footing =	$W_f := 34.0 \cdot ft$	(User Input)	

Material Properties:

Concrete Compressive Strength =	$f_c := 3000 \cdot psi$	(User Input)	
Steel Reinforcment Yield Strength =	$f_y := 60000 \cdot psi$	(User Input)	
Internal Friction Angle of Soil =	$\Phi_s := 30 \cdot deg$	(User Input)	
Allowable Soil Bearing Capacity =	$q_s := 4000 \cdot psf$	(User Input)	
Unit Weight of Soil =	$\gamma_{soil} := 110 \cdot pcf$	(User Input)	
Unit Weight of Concrete =	$\gamma_{conc} := 150 \cdot pcf$	(User Input)	
Foundation Bouyancy =	$Bouyancy := 0$	(User Input)	(Yes=1 / No=0)
Depth to Neglect =	$n := 0 \cdot ft$	(User Input)	
Cohesion of Clay Type Soil =	$c := 0 \cdot ksf$	(User Input)	(Use 0 for Sandy Soil)
Seismic Zone Factor =	$Z := 2$	(User Input)	(UBC-1997 Fig 23-2)
Coefficient of Friction Between Concrete =	$\mu := 0.45$	(User Input)	

Pier Reinforcement:

Bar Size =	$BS_{pier} := 8$	(User Input)	
Bar Diameter =	$d_{bpier} := 1.0 \cdot in$	(User Input)	
Number of Bars =	$NB_{pier} := 20$	(User Input)	
Clear Cover of Reinforcement =	$Cvr_{pier} := 3 \cdot in$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Diameter of Tie =	$d_{Tie} := 4 \cdot in$	(User Input)	

Pad Reinforcement:

Bar Size =	$BS_{top} := 8$	(User Input)	(Top of Pad)
Bar Diameter =	$d_{btop} := 1.0 \cdot in$	(User Input)	(Top of Pad)
Number of Bars =	$NB_{top} := 34$	(User Input)	(Top of Pad)
Bar Size =	$BS_{bot} := 8$	(User Input)	(Bottom of Pad)
Bar Diameter =	$d_{bbot} := 1.000 \cdot in$	(User Input)	(Bottom of Pad)
Number of Bars =	$NB_{bot} := 34$	(User Input)	(Bottom of Pad)
Clear Cover of Reinforcement =	$Cvr_{pad} := 3.0 \cdot in$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)

Calculated Factors:

Pier Reinforcement Bar Area = $A_{bpier} := \frac{\pi \cdot d_{bpier}^2}{4} = 0.785 \cdot in^2$

Pad Top Reinforcement Bar Area = $A_{btop} := \frac{\pi \cdot d_{btop}^2}{4} = 0.785 \cdot in^2$

Pad Bottom Reinforcement Bar Area = $A_{bbot} := \frac{\pi \cdot d_{bbot}^2}{4} = 0.785 \cdot in^2$

Coefficient of Lateral Soil Pressure = $K_p := \frac{1 + \sin(\Phi_s)}{1 - \sin(\Phi_s)} = 3$

Load Factor = $LF := 1$

Stability of Footing:

Adjusted Concrete Unit Weight = $\gamma_c := if(Bouyancy = 1, \gamma_{conc} - 62.4pcf, \gamma_{conc}) = 150 \cdot pcf$

Adjusted Soil Unit Weight = $\gamma_s := if(Bouyancy = 1, \gamma_{soil} - 62.4pcf, \gamma_{soil}) = 110 \cdot pcf$

Passive Pressure = $P_{pn} := K_p \cdot \gamma_s \cdot n + c \cdot 2 \cdot \sqrt{K_p} = 0 \cdot ksf$

$P_{pt} := K_p \cdot \gamma_s \cdot (D_f - T_f) + c \cdot 2 \cdot \sqrt{K_p} = 1.155 \cdot ksf$

$P_{top} := if[n < (D_f - T_f), P_{pt}, P_{pn}] = 1.155 \cdot ksf$

$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p} = 1.98 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 1.568 \cdot ksf$

$T_p := if[n < (D_f - T_f), T_f, (D_f - n)] = 2.5 \cdot ft$

$A_p := W_f \cdot T_p = 85 \cdot ft^2$

Ultimate Shear = $S_u := P_{ave} \cdot A_p = 133.238 \cdot kip$

Weight of Concrete = $WT_c := \left[\left(W_f^2 \cdot T_f\right) + (3) \cdot \left(\frac{d_p^2 \cdot \pi}{4} L_p\right)\right] \cdot \gamma_c = 446.223 \cdot kip$

Weight of Soil Above Footing = $WT_{s1} := \left[\left[W_f^2 - (3) \cdot \left(\frac{d_p^2 \cdot \pi}{4}\right)\right] \cdot \left(|L_p - L_{pag} - n|\right)\right] \cdot \gamma_s = 436.9 \cdot kip$

Tower Offset = $X_{t1} := \left[\frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \cdot deg))}{2}\right]$ $X_{t2} := \frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \cdot deg))}{3}$

$X_t := if(Pos_t = 1, X_{t1}, X_{t2}) = 10.216$

$X_{off1} := \frac{W_f}{2} - \left[\frac{(W_t \cdot \cos(30 \cdot deg))}{3} + X_t\right] = 0$ $X_{off2} := 0$

$X_{off} := if(Pos_t = 1, X_{off1}, X_{off2})$ $X_{off} = 0 \cdot ft$

Total Weight = $WT_{tot} := 0.9WT_c + 0.75WT_{s1} = 729.3 \cdot kip$

Resisting Moment = $M_r := (WT_{tot}) \cdot \frac{W_f}{2} + 0.9WT_t \cdot \left(\frac{W_f}{2} - X_{off}\right) + 0.75\left(S_u \cdot \frac{T_p}{3}\right) = 13751 \cdot kip \cdot ft$

Overturning Moment = $M_{ot} := OM + S_t \cdot (L_p + T_f) = 8554.5 \cdot kip \cdot ft$

Factor of Safety Actual = $FS := \frac{M_r}{M_{ot}} = 1.61$

Factor of Safety Required = $FS_{req} := 1$ $OverTurning\_Moment\_Check := if(FS \geq FS_{req}, "Okay", "No Good")$

$OverTurning\_Moment\_Check = "Okay"$

Shear Capacity in Pier:

Shear Resistance of Pier = $S_p := \frac{P_{ave} \cdot A_p + \mu \cdot WT_{tot}}{FS_{req}} = 461.41 \cdot kips$

$Shear\_Check := if(S_p > S_t, "Okay", "No Good")$

Shear_Check = "Okay"

Bearing Pressure Caused by Footing:

Total Load = $Load_{tot} := WT_c + WT_{s1} + WT_t = 966 \cdot kip$

Area of the Mat = $A_{mat} := W_f^2 = 1.156 \times 10^3$

Section Modulus of Mat = $S := \frac{W_f^3}{6} = 6550.67 \cdot ft^3$

Maximum Pressure in Mat = $P_{max} := \frac{Load_{tot}}{A_{mat}} + \frac{M_{ot}}{S} = 2.142 \cdot ksf$

$Max\_Pressure\_Check := if(P_{max} < 0.75q_s, "Okay", "No Good")$

Max_Pressure_Check = "Okay"

Minimum Pressure in Mat = $P_{min} := \frac{Load_{tot}}{A_{mat}} - \frac{M_{ot}}{S} = -0.47 \cdot ksf$

$Min\_Pressure\_Check := if[(P_{min} \geq 0) \cdot (P_{min} < 0.75q_s), "Okay", "No Good"]$

Min_Pressure_Check = "No Good"

Distance to Resultant of Pressure Distribution = $X_p := \frac{P_{max}}{\frac{P_{max} - P_{min}}{W_f}} \cdot \frac{1}{3} = 9.293$

Distance to Kern = $X_k := \frac{W_f}{6} = 5.667$

Since Resultant Force is Not in Kern, Area to which Pressure is Applied Must be Reduced.

Eccentricity = $e := \frac{M_{ot}}{Load_{tot}} = 8.854$

Adjusted Soil Pressure = $P_a := \frac{2 \cdot Load_{tot}}{3 \cdot W_f \cdot \left(\frac{W_f}{2} - e\right)} = 2.326 \cdot ksf$

$q_{adj} := if(P_{min} < 0, P_a, P_{max}) = 2.326 \cdot ksf$

$Pressure\_Check := if(q_{adj} < 0.75q_s, "Okay", "No Good")$

Pressure_Check = "Okay"

Concrete Bearing Capacity:

Strength Reduction Factor = $\Phi_c := 0.65$ (ACI-2008 9.3.2.2)

Bearing Strength Between Pier and Pad = $P_b := \Phi_c \cdot 0.85 \cdot f_c \cdot \frac{\pi \cdot d_p^2}{4} = 1.687 \times 10^3 \cdot kips$ (ACI-2008 10.14)

$Bearing\_Check := if(P_b > LF \cdot C_t, "Okay", "No Good")$

Bearing_Check = "Okay"

Shear Strength of Concrete:

Beam Shear: (Critical section located at a distance d from the face of Pier) (ACI 11.3.1.1)

$\phi_c := 0.85$ (ACI 9.3.2.5)

$d := T_f - Cvr_{pad} - d_{bbot} = 26 \cdot in$

$FL := LF \cdot \frac{C_t}{W_f^2} = 0.368 \cdot ksf$

$V_{req} := FL \cdot (X_t - .5 \cdot d_p - d) \cdot W_f = 81.868 \cdot kips$

$V_{Avail} := \phi_c \cdot 2 \cdot \sqrt{f_c \cdot psi} \cdot W_f \cdot d = 988 \cdot kip$ (ACI-2008 11.2.1.1)

$Beam\_Shear\_Check := if(V_{req} < V_{Avail}, "Okay", "No Good")$

Beam_Shear_Check = "Okay"

Punching Shear: (Critical Section Located at a distance of d/2 from the face of pier) (ACI 11.11.1.2)

Critical Perimeter of Punching Shear = $b_o := (d_p + d) \cdot \pi = 16.2$

Area Included Inside Perimeter = $A_{bo} := \frac{\pi \cdot (d_p + d)^2}{4} = 21$

Required Shear Strength = $V_{req} := FL \cdot (W_f^2 - A_{bo}) = 417 \cdot kips$

Available Shear Strength = $V_{Avail} := \phi_c \cdot 4 \cdot \sqrt{f_c \cdot psi} \cdot b_o \cdot d = 943.1 \cdot kip$ (ACI-2008 11.11.2.1)

$Punching\_Shear\_Check := if(V_{req} < V_{Avail}, "Okay", "No Good")$

Punching_Shear_Check = "Okay"

Steel Reinforcement in Pad:

Required Reinforcement for Bending:

Strength Reduction Factor = $\phi_m := .90$ (ACI-2008 9.3.2.1)

Maximum Moment in Pad = $M_{max} := 1400 \cdot kip \cdot ft$ (User Input)

Design Moment = $M_n := \frac{LF \cdot M_{max}}{\phi_m} = 1.556 \times 10^3 \cdot kips \cdot ft$

$$\beta := \begin{cases} 0.85 & \text{if } 2500 \cdot psi \le f_c \le 4000 \cdot psi \\ 0.65 & \text{if } f_c > 8000 \cdot psi \\ \left[0.85 - \left[\frac{\left(\frac{f_c}{psi} - 4000\right)}{1000}\right] \cdot 0.5\right] & \text{otherwise} \end{cases} = 0.85$$

(ACI-200810.2.7.3)

$b_{eff} := W_t \cdot \cos(30 \cdot deg) + d_p = 280.219 \cdot in$

$A_s := \frac{M_n}{(f_y \cdot d)} = 11.966 \cdot in^2$

$a := \frac{A_s \cdot f_y}{\beta \cdot f_c \cdot b_{eff}} = 1.005 \cdot in$

$A_s := \frac{M_n}{f_y \cdot \left(d - \frac{a}{2}\right)} = 12.202 \cdot in^2$

$\rho := \frac{A_s}{b_{eff} d} = 0.0201 \cdot in$

Required Reinforcement for Temperature and Shrinkage:

$$\rho_{sh} := \begin{cases} .0018 & \text{if } f_y \geq 60000 \cdot psi \\ .0020 & \text{otherwise} \end{cases} = 0.0018 \qquad \text{(ACI-2008 7.12.2.1)}$$

Check Bottom Bars:

$$As := if\left(\rho \geq \rho_{sh}, A_s, \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d\right) = 6.6 \cdot in^2$$

$$As_{prov} := A_{bbot} \cdot NB_{bot} = 26.7 \cdot in^2$$

$$Pad\_Reinforcement\_Bot := if\left(As_{prov} > As, \text{"Okay"}, \text{"No Good"}\right)$$

Pad_Reinforcement_Bot = "Okay"

Check top Bars:

$$As := if\left(\rho \geq \rho_{sh}, A_s, \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d\right) = 6.6 \cdot in^2$$

$$As_{prov} := A_{btop} \cdot NB_{top} = 26.7 \cdot in^2$$

$$Pad\_Reinforcement\_Top := if\left(As_{prov} > As, \text{"Okay"}, \text{"No Good"}\right)$$

Pad_Reinforcement_Top = "Okay"

Developement Length Pad Reinforcement:

Bar Spacing =

$$B_{sPad} := \frac{W_f - 2 \cdot Cvr_{pad} - NB_{bot} \cdot d_{bbot}}{NB_{bot} - 1} = 11.15 \cdot in$$

Spacing or Cover Dimension =

$$c := if\left(Cvr_{pad} < \frac{B_{sPad}}{2}, Cvr_{pad}, \frac{B_{sPad}}{2}\right) = 3 \cdot in$$

Transverse Reinforcement Index =

$$k_{tr} := 0 \qquad \text{(ACI-2008 12.2.3)}$$

$$L_{dbt} := \frac{3 \cdot f_y \alpha_{pad} \cdot \beta_{pad} \cdot \gamma_{pad} \cdot \lambda_{pad}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \frac{c + k_{tr}}{d_{bbot}}} \cdot d_{bbot} = 27.4 \cdot in$$

Minimum Development Length =

$$L_{dbmin} := 12 \cdot in \qquad \text{(ACI-2008 12.2.1)}$$

$$L_{dbtCheck} := if\left(L_{dbt} \geq L_{dbmin}, \text{"Use L.dbt"}, \text{"Use L.dbmin"}\right) = \text{"Use L.dbt"}$$

Available Length in Pad =

$$L_{Pad} := \frac{W_f}{2} - \frac{W_t}{2} - Cvr_{pad} = 60 \cdot in$$

$$Lpad\_Check := if\left(L_{Pad} > L_{dbt}, \text{"Okay"}, \text{"No Good"}\right)$$

Lpad_Check = "Okay"

Steel Reinforcement in Pier:

Area of Pier = $A_p := \frac{\pi \cdot d_p^2}{4} = 1017.88 \cdot in^2$

$A_{smin} := 0.01 \cdot 0.5 \cdot A_p = 5.09 \cdot in^2$ (ACI-2008 10.8.4 & 10.9.1)

$A_{sprov} := NB_{pier} \cdot A_{bpier} = 15.71 \cdot in^2$

$Steel\_Area\_Check := if(A_{sprov} > A_{smin}, "Okay", "No Good")$

Steel_Area_Check = "Okay"

Bar Spacing In Pier = $B_{sPier} := \frac{d_p \cdot \pi}{NB_{pier}} - d_{bpier} = 4.655 \cdot in$

Diameter of Reinforcement Cage = $Diam_{cage} := d_p - 2 \cdot Cvr_{pier} = 30 \cdot in$

Maximum Moment in Pier = $M_p := S_t \cdot (L_p) \cdot LF = 3504 \cdot in \cdot kips$

Pier Check evaluated from outside program and results are listed below;

$(D \ N \ n \ P_u \ M_{xu}) := \left(d_p \cdot 12 \ \ NB_{pier} \ \ BS_{pier} \ \ \frac{C_t \cdot 1.333}{kips} \ \ \frac{M_p}{in \cdot kips}\right)$

$(D \ N \ n \ P_u \ M_{xu}) = (36 \ \ 20 \ \ 8 \ \ 566.525 \ \ 3.504 \times 10^3)$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) := (0 \ \ 0 \ \ 0 \ \ 0)$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) := \phi P'_n(D, N, n, P_u, M_{xu})^T$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) = (1.516 \times 10^3 \ \ 9.376 \times 10^3 \ \ -28.535 \ \ 0.016)$

$Axial\_Load\_Check := if(\phi P_n \geq P_u, "Okay", "No Good")$

Axial_Load_Check = "Okay"

$Bending\_Check := if(\phi M_{xn} \geq M_{xu}, "Okay", "No Good")$

Bending_Check = "Okay"

Development Length Pier Reinforcement:

Available Length in Foundation:

$L_{pier} := L_p - Cvr_{pier} = 45 \cdot in$

$L_{pad} := T_f - Cvr_{pad} = 27 \cdot in$

Tension: (ACI-2008 12.2.3)

Spacing or Cover Dimension =

$c := if\left(Cvr_{pier} < \frac{B_{sPier}}{2}, Cvr_{pier}, \frac{B_{sPier}}{2}\right) = 2.327 \cdot in$

Transverse Reinforcement = $k_{tr} := 0$ (ACI-2008 12.2.3)

$L_{dbt} := \frac{3 \cdot f_y \cdot \alpha_{pier} \cdot \beta_{pier} \cdot \gamma_{pier} \cdot \lambda_{pier}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \left(\frac{c + k_{tr}}{d_{bpier}}\right)} \cdot d_{bpier} = 35.3 \cdot in$

Minimum Development Length = $L_{dh} := \frac{1200 \cdot d_{bpier}}{\sqrt{\frac{f_c}{psi}}} \cdot .7 = 15.336 \cdot in$ (ACI 12.2.1)

Pier reinforcement bars are standard 90 degree hooks and therefore developement in the pad is computed as follows:

$L_{db} := \max\left(L_{dbt}, L_{dbmin}\right) = 35.3 \cdot in$

$L_{tension\_Check} := if\left(L_{pier} + L_{pad} > L_{dbt}, "Okay", "No Good"\right)$

$L_{tension\_Check} = "Okay"$

Compression: (ACI-2008 12.3.2)

$L_{dbc1} := \frac{.02 \cdot d_{bpier} \cdot f_y}{\sqrt{f_c \cdot psi}} = 21.909 \cdot in$

$L_{dbmin} := 0.0003 \cdot \frac{in^2}{lb} \cdot \left(d_{bpier} \cdot f_y\right) = 18 \cdot in$

$L_{dbc} := if\left(L_{dbc1} \geq L_{dbmin}, L_{dbc1}, L_{dbmin}\right) = 21.909 \cdot in$

$L_{compression\_Check} := if\left(L_{pier} + L_{pad} > L_{dbc}, "Okay", "No Good"\right)$

$L_{compression\_Check} = "Okay"$

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Section 1 - Site Information

Site ID: CT11230A
Status: Draft
Version: 7
Project Type: Anchor
Approved: Not Approved
Approved By: Not Approved
Last Modified: 3/2/2022 1:14:07 PM
Last Modified By: Pratik.Patil30@T-Mobile.com

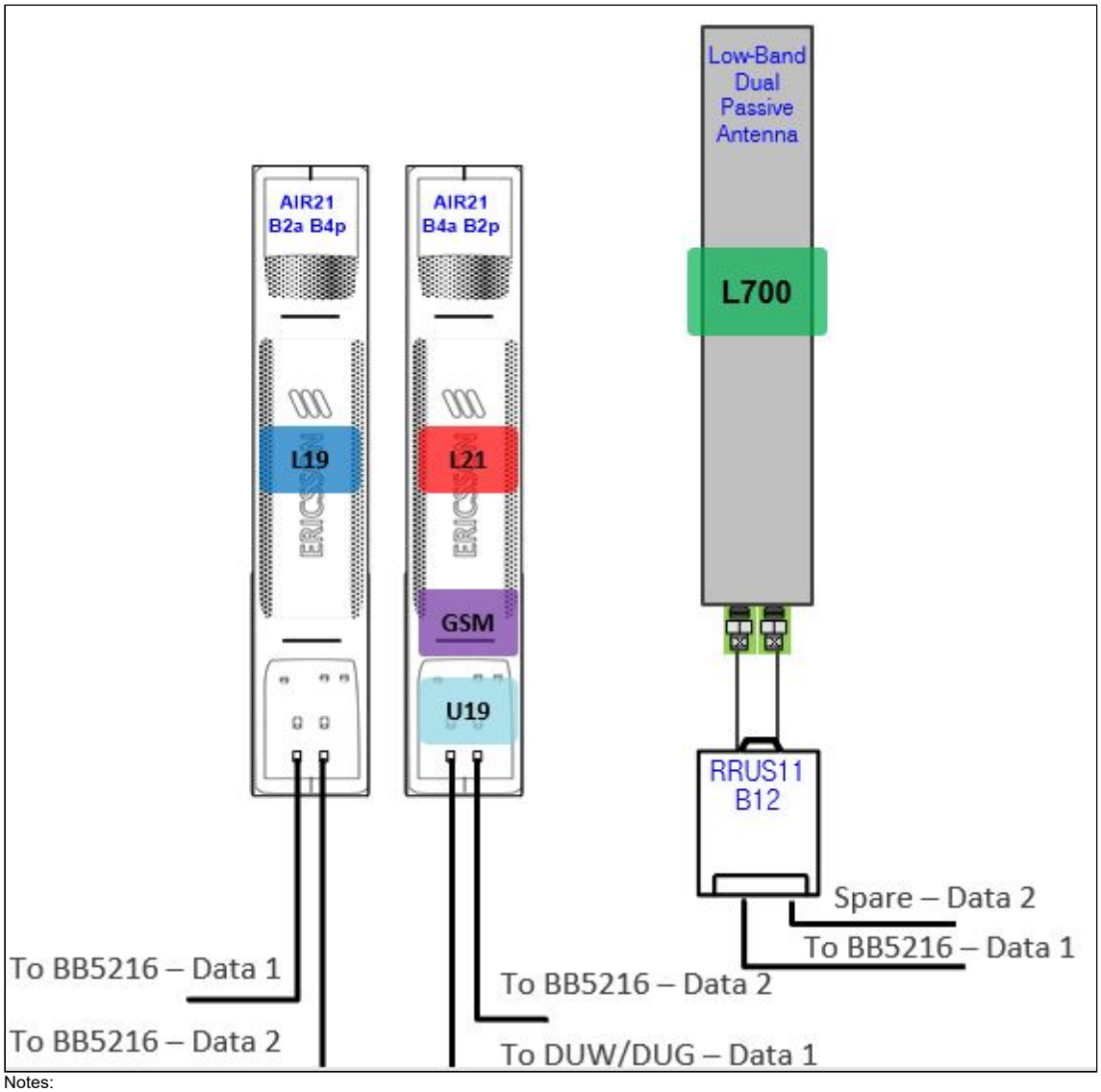
Site Name: North Haven/ Rt 17
Site Class: Self Support Tower
Site Type: Structure Non Building
Plan Year: 2020
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Ochenkowski Tower LLC

Latitude: 41.36944000
Longitude: -72.81028000
Address: 88 Parsonage Hill Rd.
City, State: North Branford, CT
Region: NORTHEAST

RAN Template: 67E5D998E Outdoor		**AL Template:** 67E5998E_1xAIR+1OP		
Sector Count: 3	**Antenna Count:** 6	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

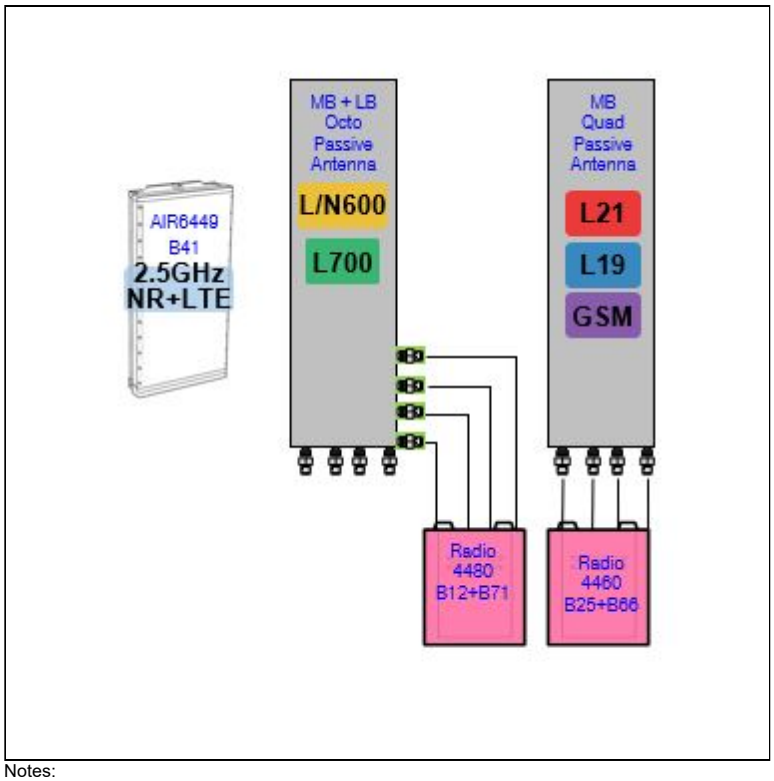
792Cu.JPG



Notes:

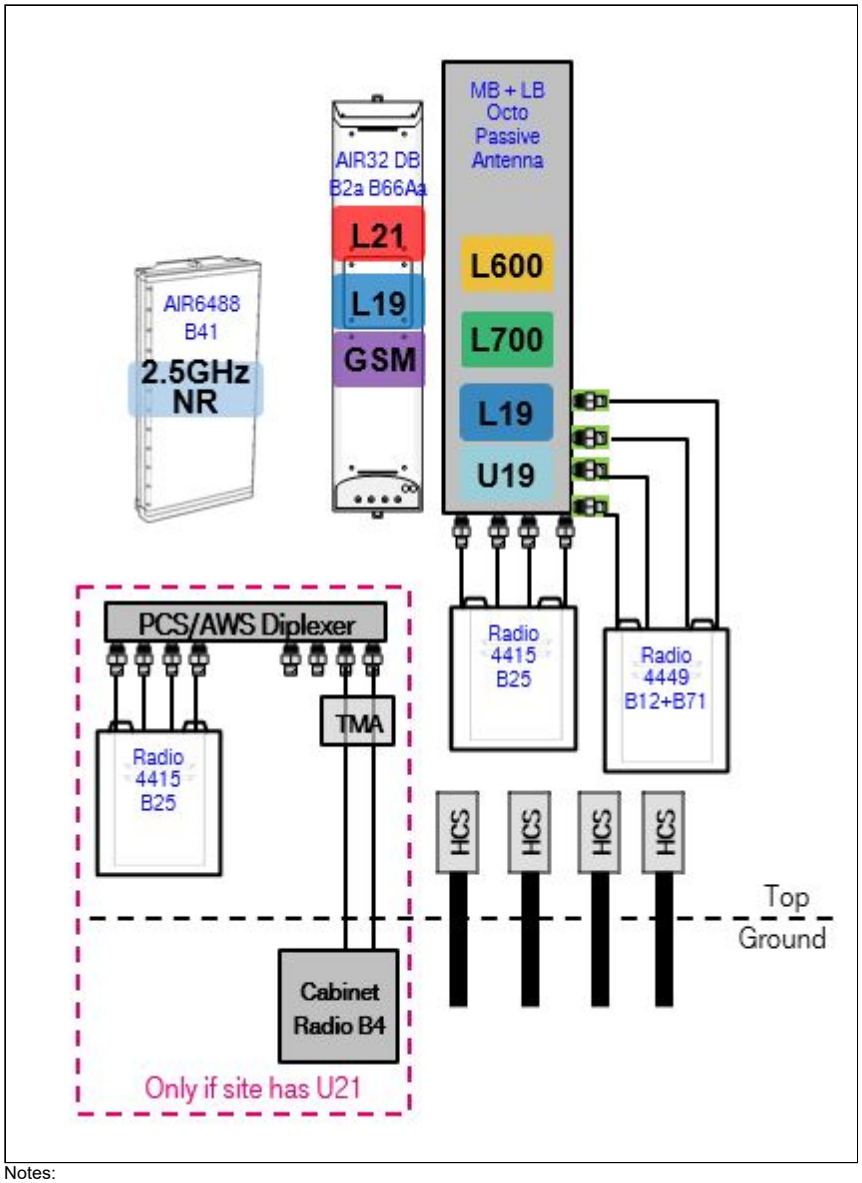
Section 3 - Proposed Template Images

67E5A998E.JPG



Notes:

67D5997DB_2xAIR+1OP.JPG


MB + LB
Octo
Passive
Antenna
AIR32 DB
B2a B66Aa
L21
L19
GSM
L600
L700
L19
U19
AIR6488
B41
2.5GHz
NR
PCS/AWS Diplexer
TMA
Radio
4415
B25
Radio
4415
B25
Radio
4449
B12+B71
HCS
HCS
HCS
HCS
Top
Ground
Cabinet
Radio B4
Only if site has U21

Notes:

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 792Cu Outdoor

Enclosure	1	2
Enclosure Type	RBS 6131	Ancillary Equipment (Ericsson)
Baseband	DUW30 (U2100); DUG20 (G1900); BB 5216 (L700, L1900, L2100)	
Hybrid Cable System		Ericsson 9x18 HCS *Select Length*
Multiplexer	XMU	
Radio	RU22 **(x 6)** (U2100)	

Proposed RAN Equipment

Template: 67E5D998E Outdoor

Enclosure	1	2	3
Enclosure Type	RBS 6131	Enclosure 6160 AC V1	B160
Baseband	DUW30 (U2100); DUG20 (G1900); BB 6648 (L700, L600, N600, L1900, L2100)	RP 6651 (L2500); RP 6651 (N2500)	
Hybrid Cable System	Ericsson Hybrid Trunk 6/24 4AWG 100m	PSU 4813 vR4A (Kit) Ericsson Hybrid Trunk 6/24 4AWG 100m **(x 2)**	
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Remove all Cabinet radios.

Replace BB5216 and XMU with (1) BB6648 for L2100 and L1900 (both carriers) L600, L700, and N600 (MMBB - Mixed Mode Baseband).

Add (1) Enclosure 6160.

Add (1) Battery Cabinet B160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) RP6651 for L2500

Add (1) RP6651 for N2500 to new Enclosure 6160.

Add (1) PSU 4813 to new Enclosure 6160.

Existing: (1) 9x18 HCS.

Remove all coaxial lines. remove (1)9x18

Add (3) 6X24 HCS.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Section 6 - A&L Equipment

Existing Template: 792Cu_2xAIR+1DP
Proposed Template: 67E5998E_1xAIR+1OP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	**1**	**2**		**3**		**4**
Antenna Model	Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Empty Antenna Mount (Empty mount)
Azimuth	30	30		30		
M. Tilt	0	0		0		
Height	180	180		180		
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	
Active Tech.	L700	L1900 G1900	U2100	L2100		
Dark Tech.						
Restricted Tech.						
Decomm. Tech.		U1900				
E. Tilt	2	2	2	2		
Cables	Fiber Jumper - 15 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)** 1-5/8" LMU Coax - 200 ft. **(x2)**	1-5/8" Coax - 200 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)**		
TMAs			Generic Twin Style 1B - AWS (AtAntenna)			
Diplexers / Combiners						
Radio	RRUS11 B12 (At Antenna)					
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*** Existing Four Mounts Per Sector. ***
*** LNX in Position 1 ***
*** AIR21 B2A/B4P with TMAs in Position 2 ***
*** AIR21 B2P/B4A in Position 3 ***
*** Empty Mount at 4 ***

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Sector 1 (Proposed) view from behind								
Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	4
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAALL24_43-U-NA20 (Octo)				Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)
Azimuth	30		30					
M. Tilt	0		0					
Height	180		180					
Ports	P1	P2	P3	P4	P5	P6		
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L1900 U2100 L2100 G1900	L1900 U2100 L2100 G1900		
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2	2	2		
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper		
TMAs								
Diplexers / Combiners								
Radio			Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Remove PCS TMAs.

Remove all coaxial lines.

Remove all antennas

Install (1) AIR6419 B41 for L2500 and N2500 in Position 1.

Install (1) Low-Band/Mid-Band Octo in Position 2.

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 to Position 2 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Add (1) Radio 4460 B25+B66 for L2100, L1900(Both Carriers), U2100 and GSM to Position 2 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents.

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	**1**	**2**		**3**		**4**
Antenna Model	Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Empty Antenna Mount (Empty mount)
Azimuth	150	150		150		
M. Tilt	0	0		0		
Height	180	180		180		
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	
Active Tech.	L700	L1900 G1900	U2100	L2100		
Dark Tech.						
Restricted Tech.						
Decomm. Tech.		U1900				
E. Tilt	2	2	2	2		
Cables	Fiber Jumper - 15 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)** 1-5/8" LMU Coax - 200 ft. **(x2)**	1-5/8" Coax - 200 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)**		
TMAs			Generic Twin Style 1B - AWS (AtAntenna)			
Diplexers / Combiners						
Radio	RRUS11 B12 (At Antenna)					
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*** Existing Four Mounts Per Sector. ***
*** LNX in Position 1 ***
*** AIR21 B2A/B4P with TMAs in Position 2 ***
*** AIR21 B2P/B4A in Position 3 ***
*** Empty Mount at 4 ***

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Sector 2 (Proposed) view from behind								
Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	4
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAALL24_43-U-NA20 (Octo)				Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)
Azimuth	150		150					
M. Tilt	0		0					
Height	180		180					
Ports	P1	P2	P3	P4	P5	P6		
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L1900 U2100 L2100 G1900	L1900 U2100 L2100 G1900		
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2	2	2		
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper		
TMAs								
Diplexers / Combiners								
Radio			Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Remove PCS TMAs.

Remove all coaxial lines.

Remove all antennas

Install (1) AIR6419 B41 for L2500 and N2500 in Position 1.

Install (1) Low-Band/Mid-Band Octo in Position 2.

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 to Position 2 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Add (1) Radio 4460 B25+B66 for L2100, L1900(Both Carriers), U2100 and GSM to Position 2 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents.

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	**1**	**2**		**3**		**4**
Antenna Model	Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Empty Antenna Mount (Empty mount)
Azimuth	270	270		270		
M. Tilt	0	4		4		
Height	180	180		180		
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	
Active Tech.	L700	L1900 G1900	U2100	L2100		
Dark Tech.						
Restricted Tech.						
Decomm. Tech.		U1900				
E. Tilt	2	2	2	2		
Cables	Fiber Jumper - 15 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)** 1-5/8" LMU Coax - 200 ft. **(x2)**	1-5/8" Coax - 200 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)**		
TMAs			Generic Twin Style 1B - AWS (AtAntenna)			
Diplexers / Combiners						
Radio	RRUS11 B12 (At Antenna)					
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*** Existing Four Mounts Per Sector. ***
*** LNX in Position 1 ***
*** AIR21 B2A/B4P with TMAs in Position 2 ***
*** AIR21 B2P/B4A in Position 3 ***
*** Empty Mount at 4 ***

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Sector 3 (Proposed) view from behind								
Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	4
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAALL24_43-U-NA20 (Octo)				Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)
Azimuth	270		270					
M. Tilt	0		0					
Height	180		180					
Ports	P1	P2	P3	P4	P5	P6		
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L1900 U2100 L2100 G1900	L1900 U2100 L2100 G1900		
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2	2	2		
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper		
TMAs								
Diplexers / Combiners								
Radio			Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Remove PCS TMAs.

Remove all coaxial lines.

Remove all antennas

Install (1) AIR6419 B41 for L2500 and N2500 in Position 1.

Install (1) Low-Band/Mid-Band Octo in Position 2.

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 to Position 2 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Add (1) Radio 4460 B25+B66 for L2100, L1900(Both Carriers), U2100 and GSM to Position 2 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents.

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5D998E Outdoor	67E5998E_1xAIR+1OP

CT11230A_Anchor_7_draft

Print Name: Preliminary (RFDS_Corrections)
PORs: Anchor_Phase 3
L600_CMP5
L1900 Capacity_Regional Capacity

Section 7 - Power Systems Equipment

Existing Power Systems Equipment
----- This section is intentionally blank. -----

	Proposed Power Systems Equipment
Enclosure	**1**
Enclosure Type	Enclosure 6160 AC V1

Exhibit E

Mount Analysis

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

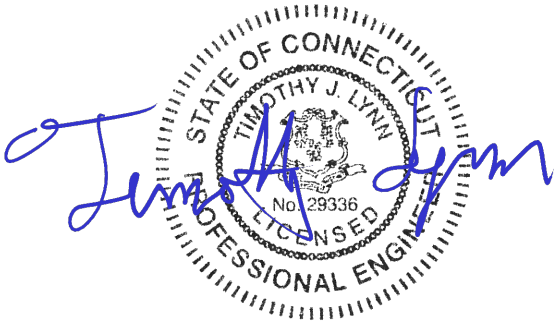
T-Mobile Site #: CT11230A

88 Parsonage Hill Road
North Branford, CT

Centek Project No. 22006.08

Date: May 31, 2022

Max Stress Ratio = 44%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

CENTEK engineering

Centered on Solutions℠

May 31, 2022

Mr. Derek Waite
Northeast Site Solutions
199 Brickyard Road
Farmington, CT 06032

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CT11230A
88 Parsonage Hill Road
North Branford, CT

Centek Project No. 22006.08

Dear Mr. Waite,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the **proposed mount, consisting of three (3) V-frame sector mounts (SitePro P/N: VFA12-HD)** to support the proposed equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- **T-Mobile:**
  V-Frames: Three (3) Ericsson AIR6419 panel antennas, three (3) RFS APXVAALL24_43-U-NA20 panel antennas, three (3) Ericsson 4480 B71+B85 remote radio heads and three (3) Ericsson 4460 B25+B66 remote radio heads mounted on three (3) V-Frames with a RAD center elevation of 180-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 101 mph for Northford as required in Appendix N of the 2018 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the **subject antenna mount has sufficient capacity** to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Section 2 - Calculations

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: TIA-222-G Loads

Location: Northford, CT

Rev. 0: 5/31/22

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 22006.08

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed $V := 101$ mph (User Input - 2018 CSBC Appendix N)

Basic Wind Speed with Ice $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type = Structure_Type := Lattice (User Input)

Structure Category = $SC := II$ (User Input)

Exposure Category = $Exp := C$ (User Input)

Structure Height = $h := 195$ ft (User Input)

Height to Center of Antennas = $z_{Ant} := 180$ ft (User Input)

Radial Ice Thickness = $t_i := 0.75$ in (User Input per Annex B of TIA-222-G)

Radial Ice Density = $Id := 56.00$ pcf (User Input)

Topograpic Factor = $K_{zt} := 1.0$ (User Input)

$K_a := 1.0$ (User Input)

Gust Response Factor = $G_H = 0.85$ (User Input)

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if Structure\_Type = Pole} \\ 0.85 & \text{if Structure\_Type = Lattice} \end{cases} = 0.85$$

(Per Table 2-2 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \end{cases} = 1$$

(Per Table 2-3 of TIA-222-G)

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.00 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \end{cases} = 1$$

$$K_{iz} := \left(\frac{z_{Ant}}{33}\right)^{0.1} = 1.185$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.777$$

Velocity Pressure Coefficient Antennas =

$$Kz_{Ant} := 2.01\left(\left(\frac{z_{Ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.432$$

Velocity Pressure w/o Ice Antennas =

$$qz_{Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V^2 \cdot I_{Wind} = 31.794$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V_i^2 \cdot I_{Wind} = 7.792$$

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	TIA-222-G Loads
Location:	Northford, CT
Rev. 0: 5/31/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22006.08

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS APXVAALL24-43		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 150$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.27$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 547$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.7$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 194$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 19$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 160$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.3$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 70$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 150$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 437$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 437$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR6419		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 36.3$	in	(User Input)
Antenna Width =	$W_{ant} := 20.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 9.0$	in	(User Input)
Antenna Weight =	$WT_{ant} := 83$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 1.7$		
Antenna Force Coefficient =	$Ca_{ant} = 1.2$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.3$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 171$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 2.3$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 74$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.8$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 54$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 3.5$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 28$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 83$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6828$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5408$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 175$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 175$	lbs

Development of Wind & Ice Load on RRUS

RRUS Data:

RRUS Model = Ericsson 4460

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 19.6$ in (User Input)

RRUS Width = $W_{RRUS} := 15.7$ in (User Input)

RRUS Thickness = $T_{RRUS} := 12.1$ in (User Input)

RRUS Weight = $WT_{RRUS} := 109$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.2$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 69$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.6$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 53$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.1$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 25$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 2.5$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 20$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 109$ lbs

Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 3723$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 3256$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 106$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 106$ lbs

Development of Wind & Ice Load on RRUS

RRUS Data:

RRUS Model = Ericsson 4480

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 21.8$ in (User Input)

RRUS Width = $W_{RRUS} := 15.7$ in (User Input)

RRUS Thickness = $T_{RRUS} := 7.5$ in (User Input)

RRUS Weight = $WT_{RRUS} := 84$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.4$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.4$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 77$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 37$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.4$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 27$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.9$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 15$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 84$ lbs

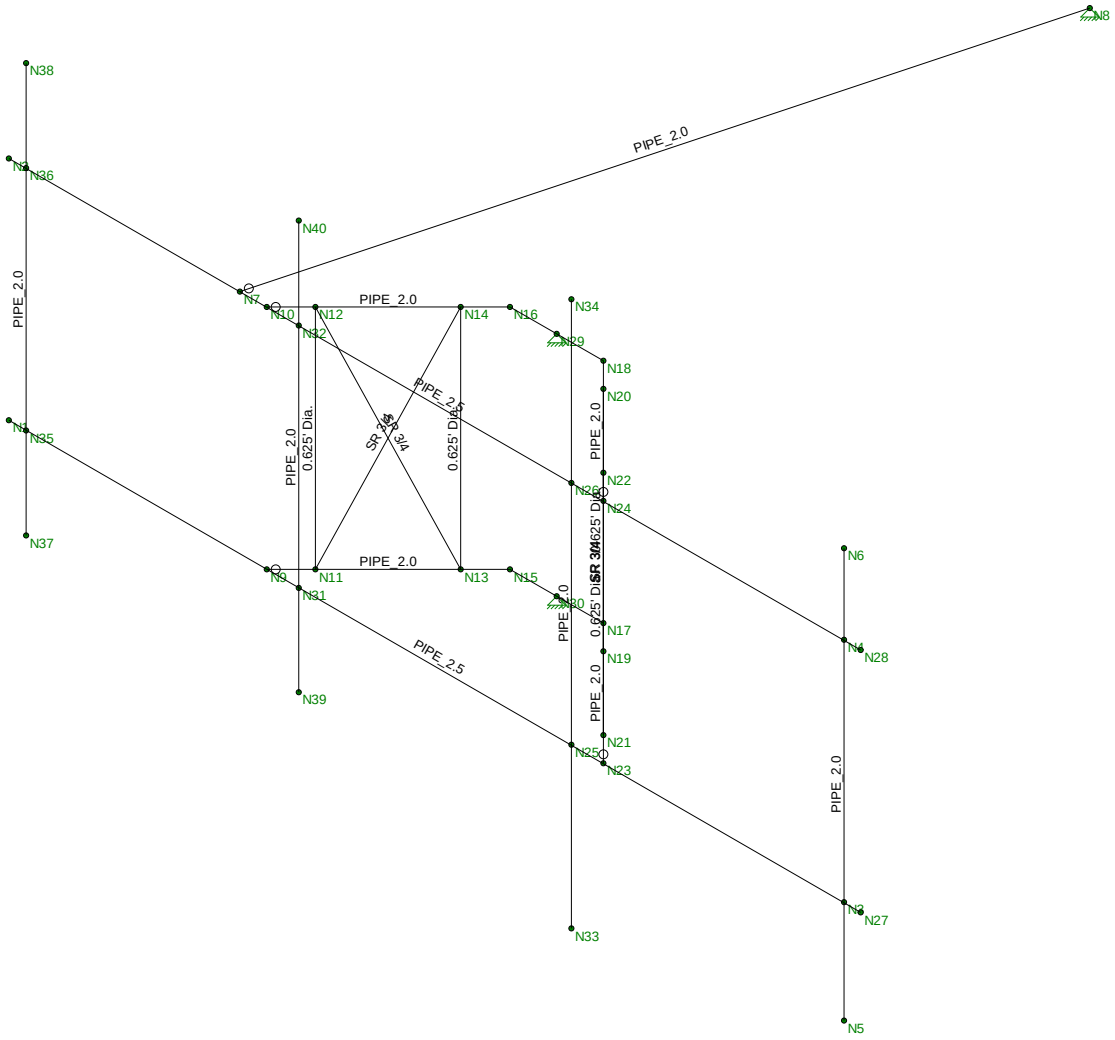
Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2567$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2830$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 92$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 92$ lbs



Envelope Only Solution

Centek Engineering		
TJL	CT11230A	May 31, 2022 at 8:44 AM
22006.08	Member Framing	Mount.R3D

(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?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme 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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\...	Density[k/ft^3]	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	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	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 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Antenna Mast_2.0 STD...	PIPE_2.0	Column	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
2	Horizontal_2.5 STD Pipe	PIPE_2.5	Beam	Pipe	A53 Grade B	Typical	1.61	1.45	1.45	2.89
3	Outrigger_2.0 STD Pipe	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
4	Stabilizer_2.0 STD Pipe	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
5	0.625" Dia. Bar	0.625' Dia.	Column	BAR	A36 Gr.36	Typical	.307	.007	.007	.015
6	0.75"Dia. Bar	SR 3/4	Column	BAR	A36 Gr.36	Typical	.442	.016	.016	.031

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	Horizontal_2.5 STD...	12.5	Segment		Lbyy						Lateral
2	M2	Horizontal_2.5 STD...	12.5	Segment		Lbyy						Lateral
3	M3	Stabilizer_2.0 STD ...	10.18			Lbyy						Lateral
4	M4	Outrigger_2.0 STD ...	2.521	Segment	Segment	Lbyy						Lateral
5	M5	Outrigger_2.0 STD ...	2.521	Segment	Segment	Lbyy						Lateral
6	M6	Outrigger_2.0 STD ...	2.521	Segment	Segment	Lbyy						Lateral
7	M7	Outrigger_2.0 STD ...	2.521	Segment	Segment	Lbyy						Lateral
8	M8	0.625" Dia. Bar	3.333									Lateral
9	M9	0.625" Dia. Bar	3.333									Lateral
10	M10	0.75"Dia. Bar	3.659	1.83	1.83	Lbyy						Lateral
11	M11	0.625" Dia. Bar	3.333									Lateral
12	M12	0.75"Dia. Bar	3.659	1.83	1.83	Lbyy						Lateral
13	M13	0.625" Dia. Bar	3.333									Lateral
14	M14	0.75"Dia. Bar	3.659	1.83	1.83	Lbyy						Lateral
15	M15	0.75"Dia. Bar	3.659	1.83	1.83	Lbyy						Lateral
16	M16	Antenna Mast_2.0 ...	6			Lbyy						Lateral
17	M17	Antenna Mast_2.0 ...	8			Lbyy						Lateral
18	M18	Antenna Mast_2.0 ...	6			Lbyy						Lateral
19	M21	Antenna Mast_2.0 ...	6			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N2	N28			Horizontal_2.5 STD Pipe	Beam	Pipe	A53 Grade B	Typical
2	M2	N1	N27			Horizontal_2.5 STD Pipe	Beam	Pipe	A53 Grade B	Typical
3	M3	N7	N8			Stabilizer_2.0 STD Pipe	Beam	Pipe	A53 Grade B	Typical
4	M4	N10	N16			Outrigger_2.0 STD Pipe	Beam	Pipe	A53 Grade B	Typical
5	M5	N9	N15			Outrigger_2.0 STD Pipe	Beam	Pipe	A53 Grade B	Typical
6	M6	N24	N18			Outrigger_2.0 STD Pipe	Beam	Pipe	A53 Grade B	Typical
7	M7	N23	N17			Outrigger_2.0 STD Pipe	Beam	Pipe	A53 Grade B	Typical
8	M8	N12	N11			0.625" Dia. Bar	Column	BAR	A36 Gr.36	Typical
9	M9	N14	N13			0.625" Dia. Bar	Column	BAR	A36 Gr.36	Typical
10	M10	N12	N13			0.75"Dia. Bar	Column	BAR	A36 Gr.36	Typical
11	M11	N22	N21			0.625" Dia. Bar	Column	BAR	A36 Gr.36	Typical
12	M12	N14	N11			0.75"Dia. Bar	Column	BAR	A36 Gr.36	Typical
13	M13	N20	N19			0.625" Dia. Bar	Column	BAR	A36 Gr.36	Typical
14	M14	N22	N19			0.75"Dia. Bar	Column	BAR	A36 Gr.36	Typical
15	M15	N20	N21			0.75"Dia. Bar	Column	BAR	A36 Gr.36	Typical
16	M16	N6	N5			Antenna Mast_2.0 STD Pi...	Column	Pipe	A53 Grade B	Typical
17	M17	N34	N33			Antenna Mast_2.0 STD Pi...	Column	Pipe	A53 Grade B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
18	M18	N37	N38			Antenna Mast_2.0 STD Pi...	Column	Pipe	A53 Grade B	Typical
19	M19	N15	N17			RIGID	None	None	RIGID	Typical
20	M20	N16	N18			RIGID	None	None	RIGID	Typical
21	M21	N39	N40			Antenna Mast_2.0 STD Pi...	Column	Pipe	A53 Grade B	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0.	-0.	0	
2	N2	0	3.333334	-0.	0	
3	N3	12.25	0.	-0.	0	
4	N4	12.25	3.333334	-0.	0	
5	N5	12.25	-1.5	0	0	
6	N6	12.25	4.5	0	0	
7	N7	3.390625	3.333334	-0.	0	
8	N8	6.025403	3.333334	-9.833125	0	
9	N9	3.78125	0.	-0.	0	
10	N10	3.78125	3.333334	-0.	0	
11	N11	4.138628	0.	-0.357378	0	
12	N12	4.138628	3.333334	-0.357378	0	
13	N13	5.206335	0.	-1.425085	0	
14	N14	5.206335	3.333334	-1.425085	0	
15	N15	5.563713	0.	-1.782463	0	
16	N16	5.563713	3.333334	-1.782463	0	
17	N17	6.936287	0.	-1.782463	0	
18	N18	6.936287	3.333334	-1.782463	0	
19	N19	7.293665	0.	-1.425085	0	
20	N20	7.293665	3.333334	-1.425085	0	
21	N21	8.361372	0.	-0.357378	0	
22	N22	8.361372	3.333334	-0.357378	0	
23	N23	8.71875	0.	-0.	0	
24	N24	8.71875	3.333334	-0.	0	
25	N25	8.25	0.	-0.	0	
26	N26	8.25	3.333334	-0.	0	
27	N27	12.5	0.	-0.	0	
28	N28	12.5	3.333334	-0.	0	
29	N29	6.25	3.333334	-1.782463	0	
30	N30	6.25	0.	-1.782463	0	
31	N31	4.25	0.	-0.	0	
32	N32	4.25	3.333334	-0.	0	
33	N33	8.25	-2.333333	0	0	
34	N34	8.25	5.666667	0	0	
35	N35	.25	0.	-0.	0	
36	N36	.25	3.333334	-0.	0	
37	N37	.25	-1.333333	-0.	0	
38	N38	.25	4.666667	-0.	0	
39	N39	4.25	-1.333333	-0.	0	
40	N40	4.25	4.666667	-0.	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	N8	Reaction	Reaction	Reaction			
2	N15						
3	N16						
4	N13						
5	N14						
6	N17						
7	N18						
8	N19						
9	N20						
10	N29	Reaction	Reaction	Reaction			
11	N30	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M17	Y	-.075	.5
2	M17	Y	-.075	7.5
3	M16	Y	-.042	.5
4	M16	Y	-.042	3.5
5	M17	Y	-.109	1.5
6	M17	Y	-.084	5

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M17	Y	-.219	.5
2	M17	Y	-.219	7.5
3	M16	Y	-.088	.5
4	M16	Y	-.088	3.5
5	M17	Y	-.106	1.5
6	M17	Y	-.092	5

Member Point Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M17	X	.035	.5
2	M17	X	.035	7.5
3	M16	X	.014	.5
4	M16	X	.014	3.5
5	M17	X	.02	1.5
6	M17	X	.015	5

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M17	X	.097	.5
2	M17	X	.097	7.5
3	M16	X	.037	.5
4	M16	X	.037	3.5
5	M17	X	.053	1.5
6	M17	X	.037	5

Member Point Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M17	Z	.08	.5
2	M17	Z	.08	7.5
3	M16	Z	.027	.5
4	M16	Z	.027	3.5

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M17	Z	.274	.5
2	M17	Z	.274	7.5
3	M16	Z	.086	.5
4	M16	Z	.086	3.5

Member Distributed Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M3	X	.002	.002	0	0
2	M4	X	.002	.002	0	0
3	M5	X	.002	.002	0	0
4	M6	X	.002	.002	0	0
5	M7	X	.002	.002	0	0
6	M8	X	.002	.002	0	0
7	M9	X	.002	.002	0	0
8	M10	X	.002	.002	0	0
9	M11	X	.002	.002	0	0
10	M12	X	.002	.002	0	0
11	M13	X	.002	.002	0	0
12	M14	X	.002	.002	0	0
13	M15	X	.002	.002	0	0
14	M16	X	.002	.002	0	0
15	M17	X	.002	.002	0	0
16	M18	X	.002	.002	0	0
17	M21	X	.002	.002	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M3	X	.008	.008	0	0
2	M4	X	.008	.008	0	0
3	M5	X	.008	.008	0	0
4	M6	X	.008	.008	0	0
5	M7	X	.008	.008	0	0
6	M8	X	.008	.008	0	0
7	M9	X	.008	.008	0	0
8	M10	X	.008	.008	0	0
9	M11	X	.008	.008	0	0
10	M12	X	.008	.008	0	0
11	M13	X	.008	.008	0	0
12	M14	X	.008	.008	0	0
13	M15	X	.008	.008	0	0
14	M16	X	.008	.008	0	0
15	M17	X	.008	.008	0	0

Member Distributed Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
16	M18	X	.008	.008	0	0
17	M21	X	.008	.008	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	Z	.002	.002	0	0
2	M2	Z	.002	.002	0	0
3	M4	Z	.002	.002	0	0
4	M5	Z	.002	.002	0	0
5	M6	Z	.002	.002	0	0
6	M7	Z	.002	.002	0	0
7	M8	Z	.002	.002	0	0
8	M9	Z	.002	.002	0	0
9	M10	Z	.002	.002	0	0
10	M11	Z	.002	.002	0	0
11	M12	Z	.002	.002	0	0
12	M13	Z	.002	.002	0	0
13	M14	Z	.002	.002	0	0
14	M15	Z	.002	.002	0	0
15	M18	Z	.002	.002	0	0
16	M21	Z	.002	.002	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	Z	.008	.008	0	0
2	M2	Z	.008	.008	0	0
3	M4	Z	.008	.008	0	0
4	M5	Z	.008	.008	0	0
5	M6	Z	.008	.008	0	0
6	M7	Z	.008	.008	0	0
7	M8	Z	.008	.008	0	0
8	M9	Z	.008	.008	0	0
9	M10	Z	.008	.008	0	0
10	M11	Z	.008	.008	0	0
11	M12	Z	.008	.008	0	0
12	M13	Z	.008	.008	0	0
13	M14	Z	.008	.008	0	0
14	M15	Z	.008	.008	0	0
15	M18	Z	.008	.008	0	0
16	M21	Z	.008	.008	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	None		-1						
2	Equipment Weight	None					6			
3	Ice Weight	None					6			
4	Wind w/ Ice X	None					6	17		
5	Wind X	None					6	17		
6	Wind w/ Ice Z	None					4	16		

Basic Load Cases (Continued)

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib...	Area(...	Surfa...
7	Wind Z	None					4	16		

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.2D + 1.6W (X...	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X...	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + ...	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (Z...	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (Z...	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + ...	Yes	Y		1	1.2	2	1.2	3	1	6	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N8	max	.178	1	.021	4	1.168	4	0	6	0	6	0	6
2		min	-.313	4	.016	2	-.909	1	0	1	0	1	0	1
3	N29	max	.002	5	.864	3	.568	2	0	6	0	6	0	6
4		min	-1.492	1	.155	5	-2.748	4	0	1	0	1	0	1
5	N30	max	1.113	6	.882	6	.888	3	0	6	0	6	0	6
6		min	-.313	2	.303	2	-.646	5	0	1	0	1	0	1
7	Totals:	max	0	6	1.725	6	0	3						
8		min	-1.523	1	.684	2	-2.113	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	.046	2	.115	6	.079	2	2.055e-03	4	3.346e-03	5	4.573e-04	2
2		min	-.081	4	.006	2	-.039	6	-1.668e-03	2	-3.071e-04	3	-1.272e-03	6
3	N2	max	.03	1	.115	6	.141	5	3.768e-03	4	3.707e-03	5	3.215e-04	2
4		min	-.025	5	.006	2	-.003	1	-1.715e-03	2	-2.119e-04	3	-1.304e-03	6
5	N3	max	.046	2	-.06	2	.48	4	1.045e-03	2	1.952e-03	2	-5.762e-04	2
6		min	-.081	4	-.227	6	-.15	2	-3.012e-03	4	-9.937e-03	4	-2.813e-03	6
7	N4	max	.031	1	-.06	2	.45	4	2.132e-03	5	2.004e-03	2	-1.55e-04	2
8		min	-.026	5	-.227	6	-.1	2	-3.644e-04	3	-1.129e-02	4	-2.775e-03	6
9	N5	max	.037	2	-.06	2	.534	4	1.045e-03	2	1.952e-03	2	-5.049e-04	2
10		min	-.118	4	-.227	6	-.169	2	-3.012e-03	4	-9.937e-03	4	-2.813e-03	6
11	N6	max	.057	3	-.06	2	.483	5	2.435e-03	5	2.004e-03	2	-3.188e-04	2
12		min	-.004	5	-.227	6	-.084	1	-3.646e-04	3	-1.129e-02	4	-2.776e-03	6
13	N7	max	.03	1	.058	6	.013	1	3.276e-03	4	3.783e-03	5	-4.646e-06	2
14		min	-.025	5	.014	2	-.013	5	-8.502e-04	2	-9.726e-04	1	-1.686e-03	6
15	N8	max	0	6	0	6	0	6	2.009e-03	4	5.646e-03	1	5.299e-04	2
16		min	0	1	0	1	0	1	1.145e-03	2	-2.214e-04	5	-1.552e-03	6
17	N9	max	.046	2	.05	3	.062	2	6.556e-04	6	1.121e-03	2	-3.251e-04	2
18		min	-.081	4	.013	5	-.104	4	-6.52e-04	2	-4.986e-04	6	-1.873e-03	6
19	N10	max	.03	1	.05	3	.018	1	3.215e-03	4	3.359e-03	4	-8.54e-05	2
20		min	-.024	5	.012	5	-.031	5	-7.427e-04	2	-8.919e-04	2	-1.818e-03	6
21	N11	max	.037	2	.053	6	.053	2	1.886e-03	6	2.15e-03	2	-1.303e-04	5
22		min	-.062	4	.014	2	-.086	4	-1.941e-04	2	-4.155e-03	4	-1.257e-03	3
23	N12	max	.019	1	.053	6	.008	2	2.333e-03	4	2.293e-03	1	1.553e-04	2

Envelope Joint Displacements (Continued)

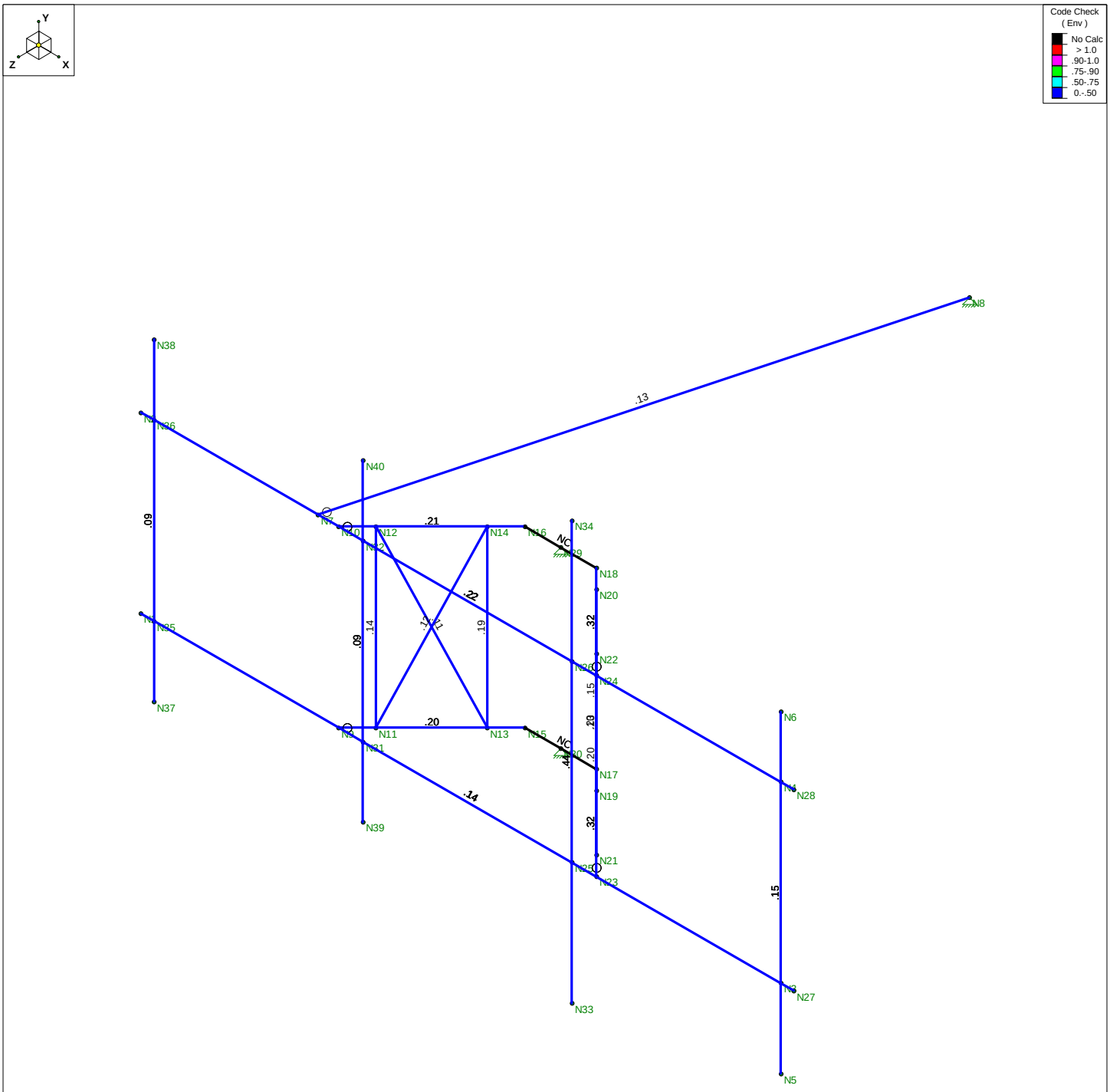
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
24		min	-.019	5	.014	2	-.026	4	-3.131e-04	2	-1.136e-03	5	-1.438e-03	6
25	N13	max	.009	1	.049	6	.026	1	1.67e-03	6	2.124e-03	2	-6.961e-04	2
26		min	-.014	5	.007	2	-.039	5	3.097e-04	2	-3.316e-03	4	-3.447e-03	6
27	N14	max	-.001	2	.049	6	-.01	2	1.727e-03	6	3.098e-04	2	-4.961e-04	2
28		min	-.005	4	.007	2	-.017	6	1.112e-04	2	-1.04e-03	4	-3.526e-03	6
29	N15	max	0	6	.038	6	.017	1	1.309e-03	3	2.038e-03	1	-7.349e-04	2
30		min	0	1	.006	2	-.025	5	3.579e-04	5	-3.059e-03	5	-4.633e-03	6
31	N16	max	0	6	.038	6	-.008	2	1.368e-03	6	-1.016e-03	2	-7.383e-04	2
32		min	0	1	.006	2	-.013	6	4.185e-04	2	-1.551e-03	6	-4.625e-03	6
33	N17	max	0	6	-.006	2	.025	5	1.309e-03	3	2.038e-03	1	-7.349e-04	2
34		min	0	1	-.038	6	-.017	1	3.579e-04	5	-3.059e-03	5	-4.633e-03	6
35	N18	max	0	6	-.006	2	.013	6	1.368e-03	6	-1.016e-03	2	-7.383e-04	2
36		min	0	1	-.038	6	.008	2	4.185e-04	2	-1.551e-03	6	-4.625e-03	6
37	N19	max	.009	1	-.011	2	.039	5	5.034e-04	1	2.134e-03	2	-6.526e-04	2
38		min	-.014	5	-.06	6	-.026	1	-6.251e-04	5	-3.509e-03	4	-3.419e-03	6
39	N20	max	-.001	2	-.011	2	.017	6	4.514e-04	4	3.523e-04	2	-5.104e-04	2
40		min	-.005	4	-.06	6	.01	2	2.661e-04	3	-1.319e-03	4	-3.221e-03	6
41	N21	max	.037	2	-.02	2	.089	4	4.403e-04	2	2.17e-03	2	-3.529e-04	2
42		min	-.064	4	-.072	6	-.053	2	-2.801e-03	4	-4.078e-03	4	-2.929e-03	4
43	N22	max	.02	1	-.021	2	.033	4	1.026e-03	5	2.401e-03	1	9.635e-04	5
44		min	-.021	5	-.072	6	-.01	2	-3.599e-04	3	-1.235e-03	5	-2.293e-03	3
45	N23	max	.046	2	-.024	2	.106	4	5.984e-04	2	2.322e-03	2	-3.293e-04	2
46		min	-.081	4	-.083	6	-.062	2	-5.753e-03	4	-6.726e-03	4	-2.476e-03	6
47	N24	max	.031	1	-.027	5	.038	5	4.303e-03	5	1.644e-03	2	-1.016e-03	2
48		min	-.026	5	-.084	3	-.02	1	-1.617e-04	3	-6.172e-03	4	-2.552e-03	6
49	N25	max	.046	2	-.021	5	.071	4	5.756e-04	2	2.386e-03	2	5.897e-05	2
50		min	-.081	4	-.071	3	-.049	2	-6.35e-03	4	-6.053e-03	4	-2.1e-03	6
51	N26	max	.03	1	-.021	5	.007	5	4.795e-03	5	1.551e-03	1	-1.041e-03	5
52		min	-.026	5	-.071	3	-.012	1	-1.404e-04	3	-4.958e-03	5	-2.2e-03	3
53	N27	max	.046	2	-.061	2	.51	4	1.045e-03	2	1.952e-03	2	-5.763e-04	2
54		min	-.081	4	-.236	6	-.156	2	-3.012e-03	4	-9.937e-03	4	-2.813e-03	6
55	N28	max	.031	1	-.06	2	.484	4	2.132e-03	5	2.004e-03	2	-1.55e-04	2
56		min	-.026	5	-.236	6	-.106	2	-3.644e-04	3	-1.129e-02	4	-2.775e-03	6
57	N29	max	0	6	0	6	0	6	1.368e-03	6	-1.016e-03	2	-7.383e-04	2
58		min	0	1	0	1	0	1	4.185e-04	2	-1.551e-03	6	-4.625e-03	6
59	N30	max	0	6	0	6	0	6	1.309e-03	3	2.038e-03	1	-7.349e-04	2
60		min	0	1	0	1	0	1	3.579e-04	5	-3.059e-03	5	-4.633e-03	6
61	N31	max	.046	2	.04	3	.055	2	4.617e-04	6	1.364e-03	2	-4.349e-04	2
62		min	-.081	4	.008	5	-.103	4	-6.135e-04	5	-6.76e-04	6	-1.918e-03	6
63	N32	max	.03	1	.04	3	.022	1	3.197e-03	4	2.395e-03	4	-1.141e-04	2
64		min	-.025	5	.008	5	-.047	5	-6.515e-04	2	-4.569e-04	2	-1.877e-03	6
65	N33	max	.108	2	-.021	5	.401	4	5.751e-04	2	2.386e-03	2	2.907e-03	2
66		min	-.11	4	-.071	3	-.065	2	-1.363e-02	4	-6.053e-03	4	-2.091e-03	6
67	N34	max	.136	1	-.021	5	.294	5	1.211e-02	5	1.551e-03	1	-1.044e-03	5
68		min	.003	5	-.072	3	-.009	3	-1.415e-04	3	-4.958e-03	5	-4.522e-03	1
69	N35	max	.046	2	.111	6	.079	2	2.055e-03	4	3.346e-03	5	4.572e-04	2
70		min	-.081	4	.007	2	-.039	6	-1.668e-03	2	-3.071e-04	3	-1.272e-03	6
71	N36	max	.03	1	.111	6	.129	4	3.768e-03	4	3.707e-03	5	3.214e-04	2
72		min	-.025	5	.007	2	-.003	2	-1.715e-03	2	-2.119e-04	3	-1.304e-03	6
73	N37	max	.054	2	.111	6	.106	2	2.005e-03	4	3.346e-03	5	5.073e-04	2
74		min	-.098	4	.007	2	-.059	6	-1.668e-03	2	-3.071e-04	3	-1.272e-03	6
75	N38	max	.037	3	.111	6	.19	4	3.818e-03	4	3.707e-03	5	2.714e-04	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
76		min	-.007	5	.007	2	-.03	2	-1.715e-03	2	-2.119e-04	3	-1.304e-03	6
77	N39	max	.04	2	.04	3	.064	2	4.538e-04	6	1.364e-03	2	-3.849e-04	2
78		min	-.097	4	.008	5	-.094	4	-6.635e-04	5	-6.76e-04	6	-1.917e-03	6
79	N40	max	.049	3	.04	3	.015	3	3.247e-03	4	2.395e-03	4	-1.642e-04	2
80		min	-.013	5	.008	5	.004	5	-6.515e-04	2	-4.569e-04	2	-1.877e-03	6

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Memb...	Shape	Code Check	L...	LC	Sh...	L...	Dir	...phi*P...	phi*Pn...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
1	M17	PIPE_2.0	.439	2....	4	.065	2....		4 14.916	32.13	1.872	1.872	4....	H1...
2	M6	PIPE_2.0	.323	2....	6	.126	.4...		4 32.032	32.13	1.872	1.872	1....	H1...
3	M7	PIPE_2.0	.317	2....	6	.128	.4...		4 32.032	32.13	1.872	1.872	1....	H1...
4	M1	PIPE_2.5	.222	8....	4	.119	8....		4 14.559	50.715	3.596	3.596	2....	H1...
5	M4	PIPE_2.0	.212	2....	3	.092	2....		3 32.032	32.13	1.872	1.872	1....	H1...
6	M5	PIPE_2.0	.203	2....	6	.086	2....		6 32.032	32.13	1.872	1.872	1....	H1...
7	M14	SR 3/4	.200	3....	6	.021	0		4 6.954	14.314	.179	.179	1	H1...
8	M11	0.625' Dia.	.198	0	1	.019	3....		6 1.058	9.94	.104	.104	2....	H1...
9	M9	0.625' Dia.	.188	0	4	.015	0		4 1.058	9.94	.104	.104	2....	H1...
10	M13	0.625' Dia.	.155	0	4	.015	0		4 1.058	9.94	.104	.104	2....	H1...
11	M16	PIPE_2.0	.151	4.5	3	.034	3....		4 20.867	32.13	1.872	1.872	1....	H1...
12	M2	PIPE_2.5	.140	4....	4	.115	8....		4 14.559	50.715	3.596	3.596	2....	H1...
13	M8	0.625' Dia.	.138	0	4	.020	0		6 1.058	9.94	.104	.104	1....	H1...
14	M15	SR 3/4	.130	3....	4	.012	0		2 6.954	14.314	.179	.179	1	H1...
15	M3	PIPE_2.0	.127	0	4	.007	1...		1 9.492	32.13	1.872	1.872	1....	H1...
16	M12	SR 3/4	.119	0	1	.020	0		4 6.954	14.314	.179	.179	2....	H1...
17	M10	SR 3/4	.114	0	1	.014	0		6 6.954	14.314	.179	.179	1	H1...
18	M21	PIPE_2.0	.092	1....	5	.058	1....		4 20.867	32.13	1.872	1.872	1....	H1...
19	M18	PIPE_2.0	.085	1....	4	.015	1....		4 20.867	32.13	1.872	1.872	1....	H1...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering		
TJL	CT11230A	May 31, 2022 at 8:44 AM
22006.08	Unity Check	Mount.R3D

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Connection to Host Building

Location: North Branford, CT

Rev. 0: 5/31/22

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 22006.08

Antenna Mount Connection:

Anchor Data:

A307 Thru-Bolt =

Number of Anchor Bolts = $N := 4$ (User Input)

Diameter of Bolts = $D := 0.625in$ (User Input)

Design Tension = $T_{design} := 10.4 \cdot kips$ (User Input)

Design Shear = $V_{design} := 6.23 \cdot kips$ (User Input)

Design Reactions:

Shear X = $F_x := 1.5 \cdot kips$ (User Input)

Shear Y = $F_y := 0.9 \cdot kips$ (User Input)

Shear Z = $F_z := 2.8 \cdot kips$ (User Input)

Anchor Check:

Max Tension Force = $T_{Max} := \frac{F_z}{N} = 700 lb$

Max Shear Force = $V_{Max} := \frac{F_y + F_x}{N} = 600 lb$

Condition 1 = $Condition1 := if\left(\frac{T_{Max}}{T_{design}} + \frac{V_{Max}}{V_{design}} \le 1.0, "OK", "NG"\right) = "OK"$

% of Capacity = $\max\left[\frac{T_{Max}}{T_{design}}, \frac{V_{Max}}{V_{design}}, \left(\frac{\frac{T_{Max}}{T_{design}} + \frac{V_{Max}}{V_{design}}}{1.0}\right)\right] = 16.4 \cdot \%$

Exhibit F

Power Density/RF Emissions Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CT11230A

North Haven / Rt 17
88 Parsonage Hill Road
North Brandford, CT 06472

August 15, 2022

Fox Hill Telecom Project Number: 221582

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**15.65 %**

Fox Hill Telecom

August 15, 2022

T-MOBILE
Attn: RF Manager
35 Griffin Road South
Bloomfield, CT 06009

Emissions Analysis for Site: **CT11230A – North Haven / Rt 17**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **88 Parsonage Hill Road, North Brandford, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

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

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **88 Parsonage Hill Road, North Brandford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	40
GSM	1900 MHz (PCS)	1	15
LTE	2100 MHz (AWS)	4	40
LTE / 5G NR	2500 MHz (BRS)	8	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAALL24_43-U-NA20	180
A	2	Ericsson AIR6419 B41	180
B	1	RFS APXVAALL24_43-U-NA20	180
B	2	Ericsson AIR6419 B41	180
C	1	RFS APXVAALL24_43-U-NA20	180
C	2	Ericsson AIR6419 B41	180

Table 2: Antenna Data

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

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	455	18,843.43	2.70
Antenna A2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	2.68
						Sector A Composite MPE%	**5.38**
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	455	18,843.43	2.70
Antenna B2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	2.68
						Sector B Composite MPE%	**5.38**
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	455	18,843.43	2.70
Antenna C2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	2.68
						Sector C Composite MPE%	**5.38**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**5.38 %**
Nextel	0.24 %
Motient	0.54 %
Sprint	1.56 %
AT&T	3.78 %
Verizon Wireless	4.15 %
Site Total MPE %:	**15.65 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	5.38 %
T-MOBILE Sector B Total:	5.38 %
T-MOBILE Sector C Total:	5.38 %
Site Total:	15.65 %

Table 5: Site MPE Summary

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	2	926.96	180	2.20	600 MHz	400	0.55%
T-Mobile 700 MHz LTE	2	485.32	180	1.15	700 MHz	467	0.25%
T-Mobile 1900 MHz (PCS) LTE	4	1,849.52	180	8.78	1900 MHz (PCS)	1000	0.88%
T-Mobile 1900 MHz (PCS) GSM	1	693.57	180	0.82	1900 MHz (PCS)	1000	0.08%
T-Mobile 2100 MHz (AWS) LTE	4	1,981.80	180	9.41	2100 MHz (AWS)	1000	0.94%
T-Mobile 2500 MHz (BRS) LTE / 5G NR	8	2,825.08	180	26.84	2500 MHz (BRS)	1000	2.68%
						Total:	**5.38%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	5.38 %
Sector B:	5.38 %
Sector C:	5.38 %
T-MOBILE Maximum Total (per sector):	5.38 %
Site Total:	15.65 %
Site Compliance Status:	**COMPLIANT**

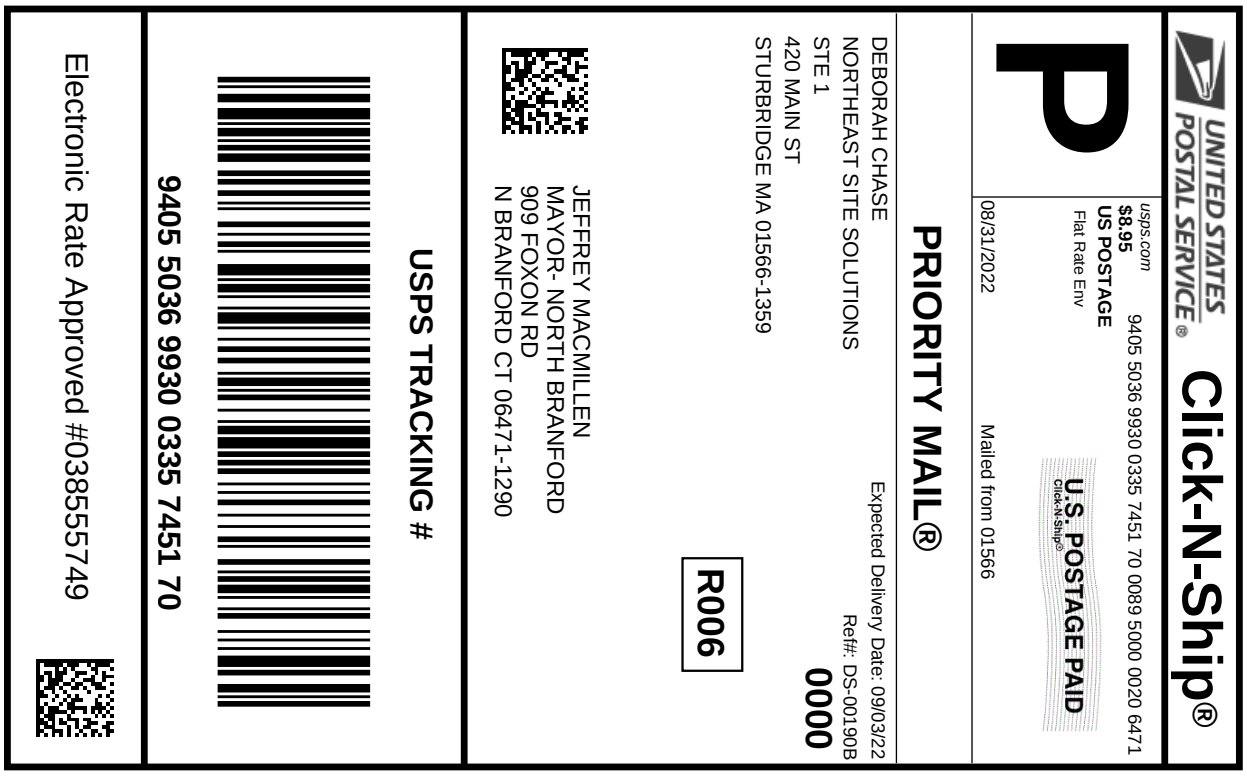
The anticipated composite MPE value for this site assuming all carriers present is **15.65 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

Exhibit G

Recipient Mailings



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0335 7451 70

Trans. #:	570900459
Print Date:	08/31/2022
Ship Date:	08/31/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

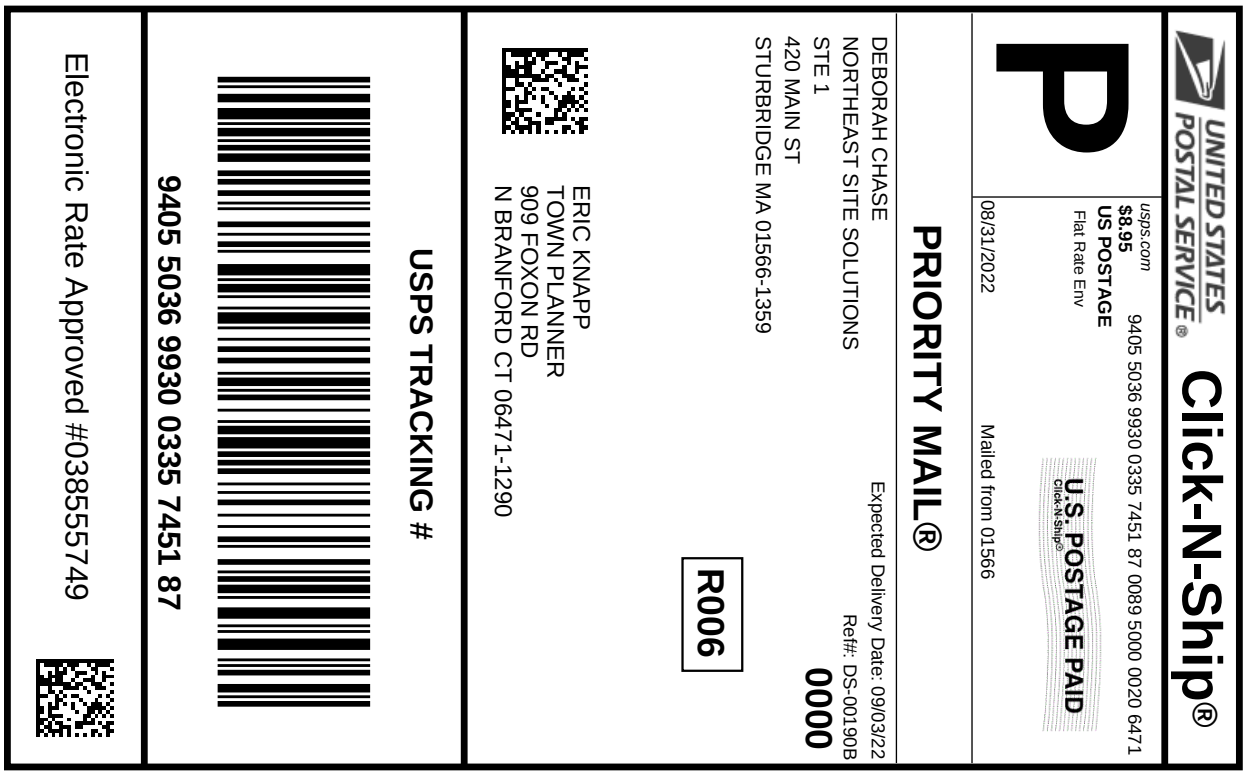
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DS-00190B

To: JEFFREY MACMILLEN
MAYOR- NORTH BRANFORD
909 FOXON RD
N BRANFORD CT 06471-1290

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0335 7451 87

Trans. #:	570900459
Print Date:	08/31/2022
Ship Date:	08/31/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

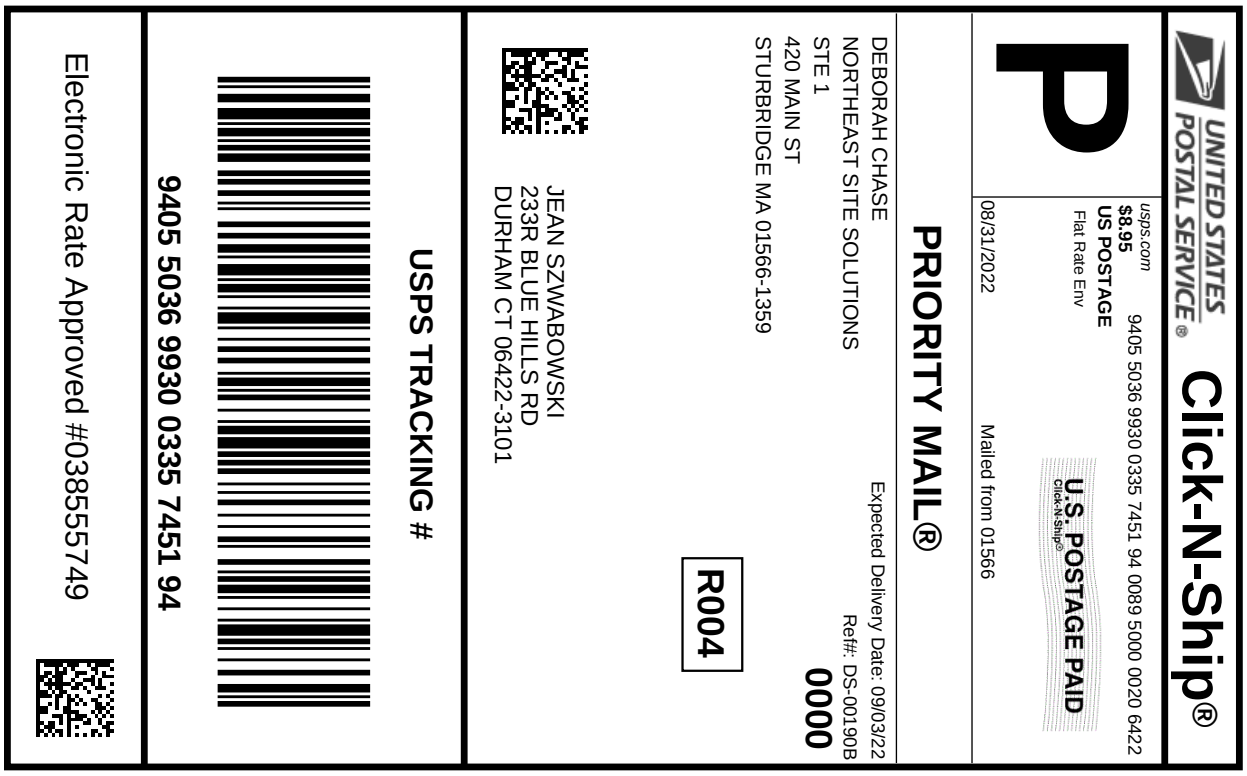
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DS-00190B

To: ERIC KNAPP
TOWN PLANNER
909 FOXON RD
N BRANFORD CT 06471-1290

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0335 7451 94

Trans. #:	570900459
Print Date:	08/31/2022
Ship Date:	08/31/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

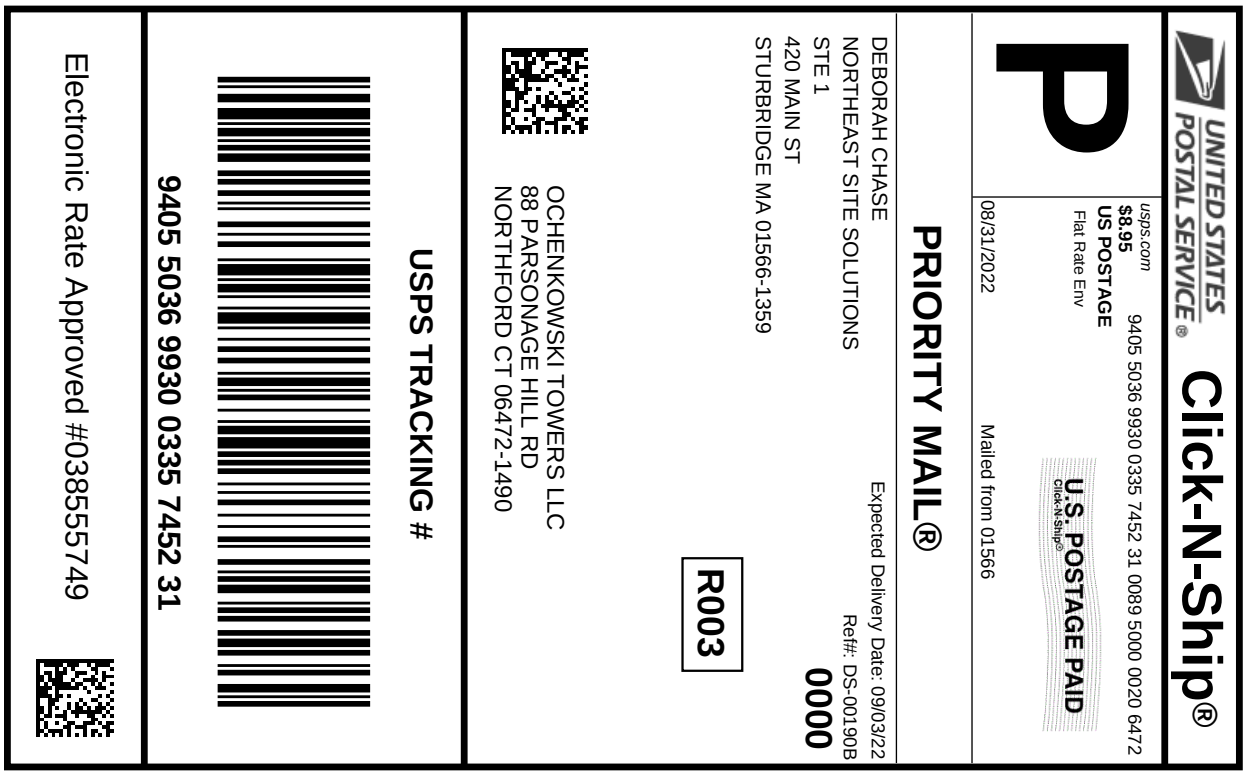
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DS-00190B

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

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0335 7452 31

Trans. #:	570900459
Print Date:	08/31/2022
Ship Date:	08/31/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DS-00190B

To: OCHENKOWSKI TOWERS LLC
88 PARSONAGE HILL RD
NORTHFORD CT 06472-1490

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

CT1230A - Timo Archer
L600 - L1900

UNITED STATES POSTAL SERVICE.

FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

09/07/2022 08:52 AM

Product	Qty	Unit Price	Price
Prepaid Mail North Branford, CT 06471 Weight: 0 lb 9.50 oz Acceptance Date: Wed 09/07/2022 Tracking #: 9405 5036 9930 0335 7451 70	1		$0.00
Prepaid Mail Durham, CT 06422 Weight: 0 lb 9.40 oz Acceptance Date: Wed 09/07/2022 Tracking #: 9405 5036 9930 0335 7451 94	1		$0.00
Prepaid Mail Northford, CT 06472 Weight: 0 lb 9.50 oz Acceptance Date: Wed 09/07/2022 Tracking #: 9405 5036 9930 0335 7452 31	1		$0.00
Prepaid Mail North Branford, CT 06471 Weight: 0 lb 9.40 oz Acceptance Date: Wed 09/07/2022 Tracking #: 9405 5036 9930 0335 7451 87	1		$0.00
Grand Total:			$0.00

****
Every household in the U.S. is now
eligible to receive a third set
of 8 free test kits.
Go to www.covidtests.gov
****

Preview your Mail
Track your Packages
Sign up for FREE @
https://informeddelivery.usps.com

All sales final on stamps and postage.
Refunds for guaranteed services only.
Thank you for your business.

Tell us about your experience.
Go to: https://postalexperience.com/Pos
or scan this code with your mobile device,

Exhibit H

Letter of Authorization

Letter of Authorization

June 29, 2022

T-Mobile Site ID: CT11230A

Site Address: 88 Parsonage Hill Rd, North Branford CT

RE: Zoning and Permitting Application

This letter authorizes T-Mobile, LLC and its authorized agents from Northeast Site Solutions, LLC to file all necessary administrative approvals, zoning approvals and building permits for the purposes of upgrading their existing antennas on the tower at 88 Parsonage Hill Rd, North Branford CT.

By: Jean Szwabowski

Name: Jean Szwabowski

Title: Member LLC

Date: 7/5/2022