

October 27, 2015

Melanie A. Bachman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

**RE: T-Mobile - Exempt Modification - Crown Site BU: 876354
T-Mobile Site ID: CT11295A
Located at: 515 Post Road East, Westport, CT 06880**

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of T-Mobile. T-Mobile is making modifications to certain existing sites in its Connecticut system in order to implement their 700MHz technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies (“R.C.S.A.”), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Jim Marpe, First Selectman, Town of Westport and The Town of Westport (Attn: Donald J. Miklus, Controller) as Property Owner.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **515 Post Road East, Westport, CT**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to T-Mobile’s operations at the site (Exhibit-3).

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes (“C.G.S.”) § 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in the 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 tower. T-Mobile’s additional antennas will be located at the same elevation on the existing tower.
2. There will be no proposed modifications to the ground and no extension of boundaries.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

Melanie A. Bachman

October 27, 2015

Page 2

4. A Structural Modification Report confirming that the tower and foundation can support T-Mobile's proposed modifications is included as Exhibit-2.
5. The operation of the additional antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for T-Mobile's modified facility is included as Exhibit-3.

For the foregoing reasons, T-Mobile respectfully submits the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Kimberly Myl.

Sincerely,



Kimberly Myl
Real Estate Specialist

Enclosures

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes

Tab 2: Exhibit-2: Structural Modification Report

Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: The Honorable Jim Marpe, First Selectman, Town of Westport
Town of Westport
Selectman's Office
110 Myrtle Avenue, Room 310
Westport CT 06880

Town of Westport
Attn: Donald J. Miklus, Controller
110 Myrtle Avenue
Westport CT 06880



T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CT11295A
CROWN CASTLE BU #: 876354
SITE NAME: WESTPORT FIRE DEPARTMENT
515 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY



T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054



CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

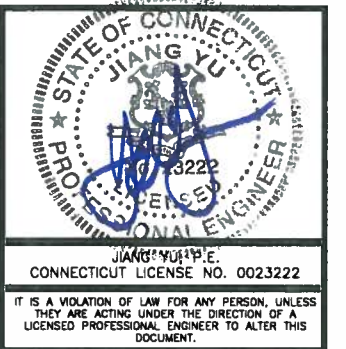
CT11295A
WESTPORT FIRE
DEPARTMENT

CONSTRUCTION DRAWINGS

Table with columns for drawing type and date. Includes entries for 10/26/15 ISSUED AS FINAL and 10/20/15 ISSUED FOR REVIEW.



Dewberry Engineers Inc.
800 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



Form fields for DRAWN BY (RA), REVIEWED BY (BSH), CHECKED BY (GHN), PROJECT NUMBER (50066258), JOB NUMBER (50074818), and SITE ADDRESS.

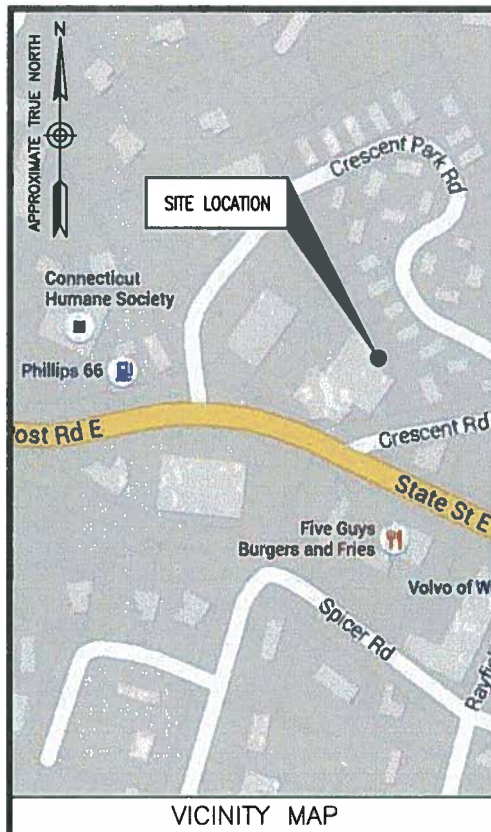
515 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



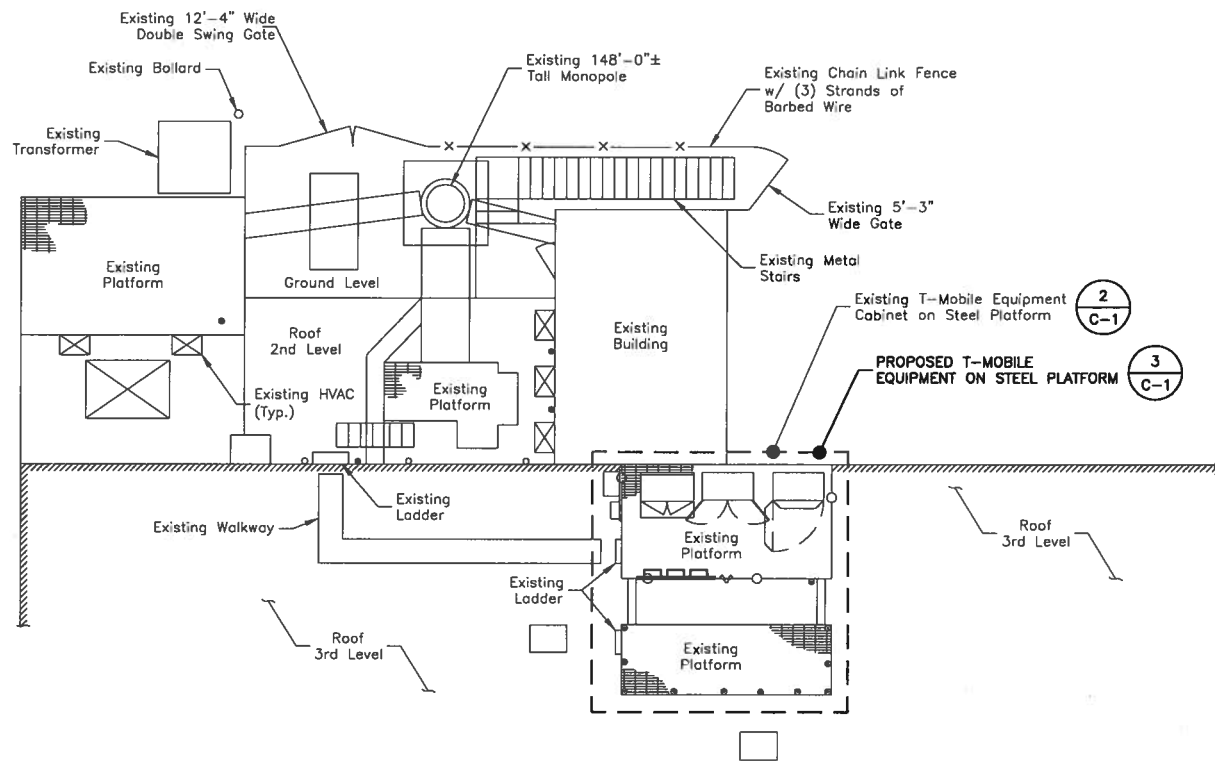
ENGINEER: DEWBERRY ENGINEERS INC.
CONSTRUCTION: CROWN CASTLE
CONTACT: PATRICIA PELON

SITE NAME: WESTPORT FIRE DEPARTMENT
SITE NUMBER: CT11295A
TOWER OWNER: CROWN CASTLE
APPLICANT/DEVELOPER: T-MOBILE NORTHEAST LLC
COORDINATES: LATITUDE: 41°-08'-24.26" N (NAD83)

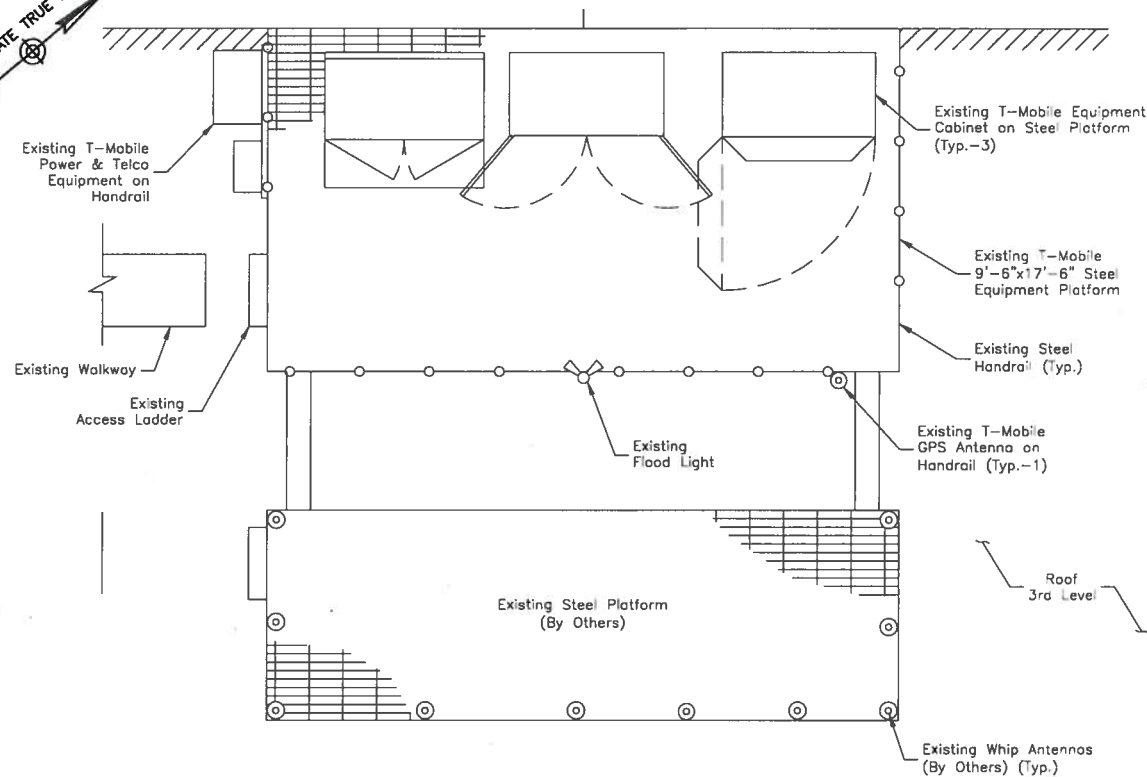
SITE ADDRESS: 515 POST ROAD EAST
PROJECT DIRECTORY
SCOPE OF WORK: REMOVE AND REPLACE (9) EXISTING ANTENNAS WITH (6) NEW ANTENNAS.
THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS...

Table with columns SHT. NO. and DESCRIPTION. Includes entries for T-1 TITLE SHEET, G-1 GENERAL NOTES, C-1 COMPOUND PLAN & EQUIPMENT PLANS, C-2 ANTENNA LAYOUTS & ELEVATIONS, C-3 CONSTRUCTION DETAILS, and E-1 GROUNDING NOTES & DETAILS.

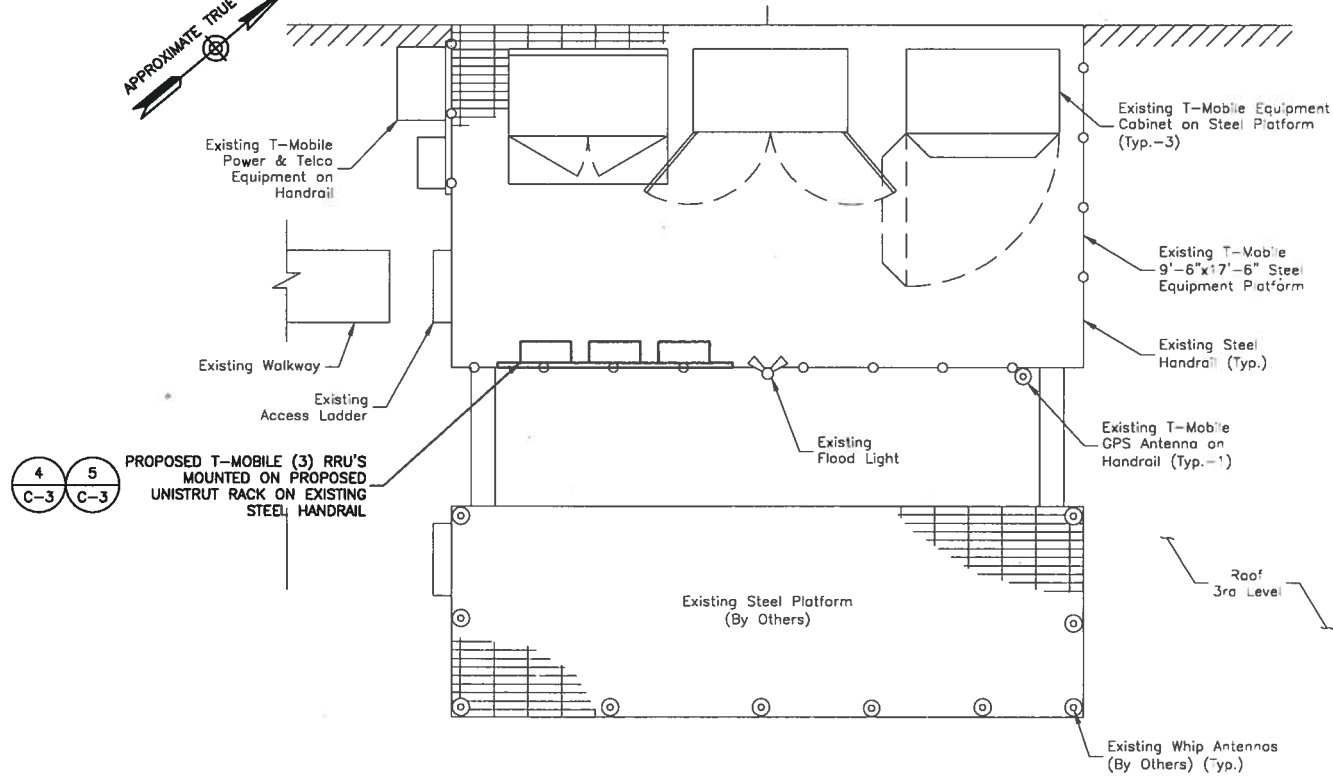
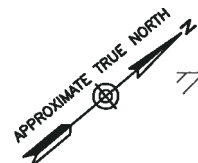
FROM PARSIPPANY, NJ:
DEPART SYLVAN WAY AND TAKE I-287 N TOWARD ALBANY. USE THE RIGHT 2 LANES TO MERGE ONTO I-287 E/I-87 S TOWARD TAPPAN ZEE BR.



COMPOUND PLAN
SCALE: 1/16"=1' FOR 11"x17"
1/8"=1' FOR 22"x34"



EXISTING EQUIPMENT PLAN
SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"



PROPOSED EQUIPMENT PLAN
SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

- NOTES:**
1. NORTH ARROW SHOWN AS APPROXIMATE.
 2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
 3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEES, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY BLACK & VEATCH CORP., DATED SEPTEMBER 30, 2015.



T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054



CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

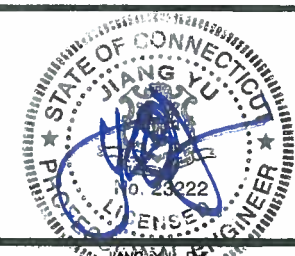
**CT11295A
WESTPORT FIRE
DEPARTMENT**

CONSTRUCTION DRAWINGS

0 10/26/15 ISSUED AS FINAL
A 10/20/15 ISSUED FOR REVIEW



Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



CONNECTICUT LICENSE NO. 0023222

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT.

DRAWN BY: RA

REVIEWED BY: BSH

CHECKED BY: GHN

PROJECT NUMBER: 50066258

JOB NUMBER: 50074816

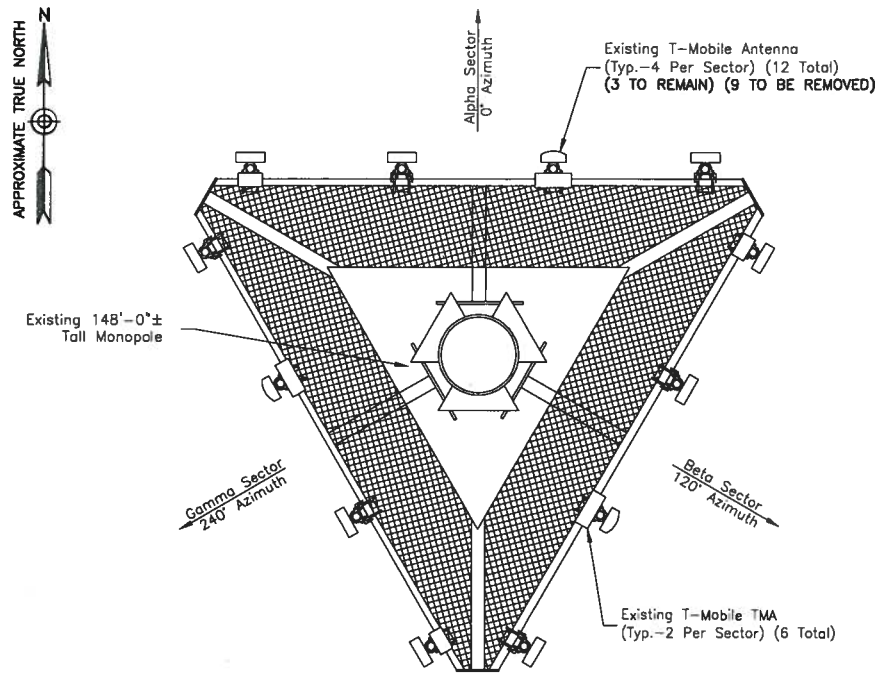
SITE ADDRESS:

515 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY

SHEET TITLE

COMPOUND PLAN &
EQUIPMENT PLANS

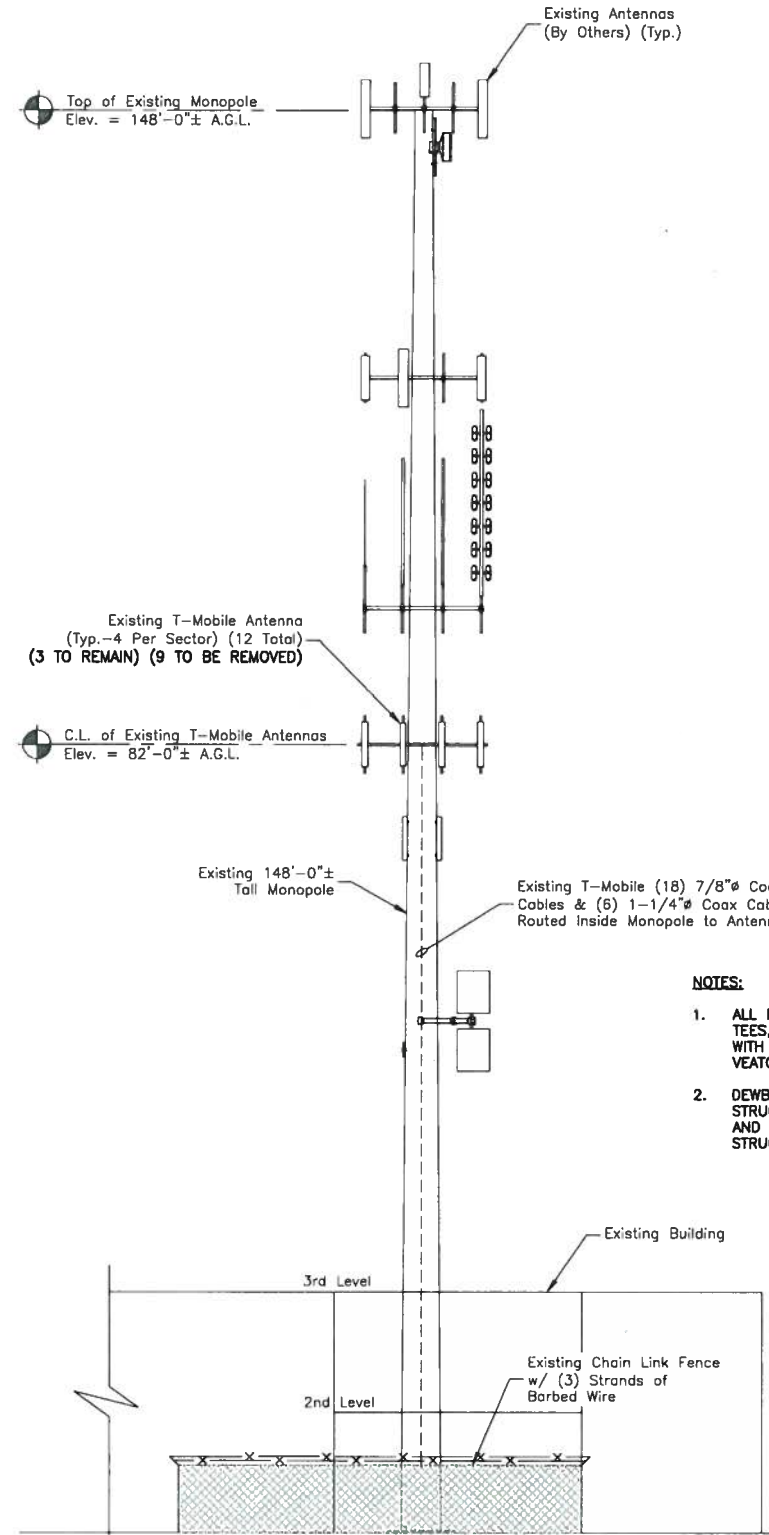
SHEET NUMBER



EXISTING ANTENNA LAYOUT

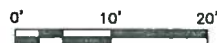
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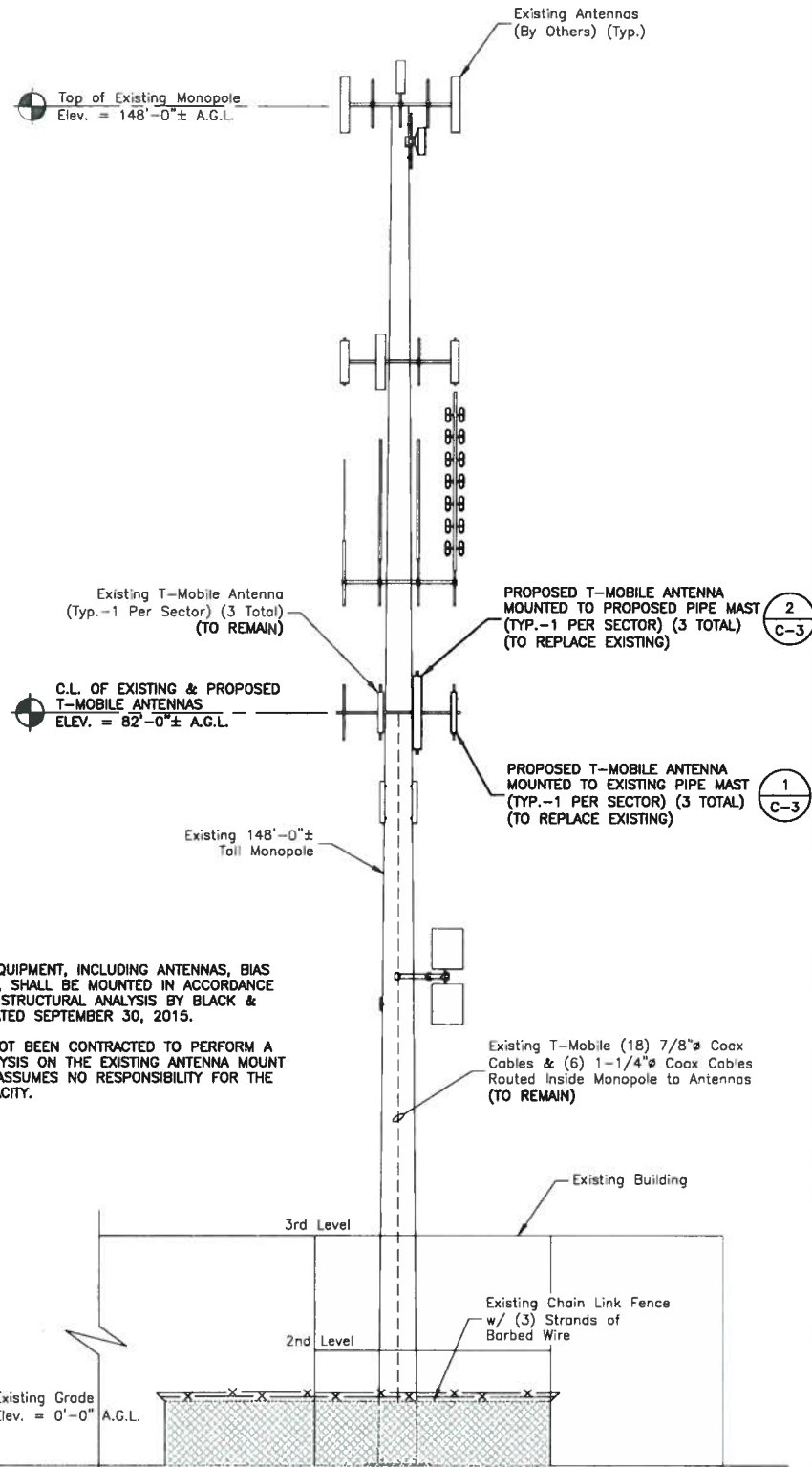


EXISTING ELEVATION

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"



3

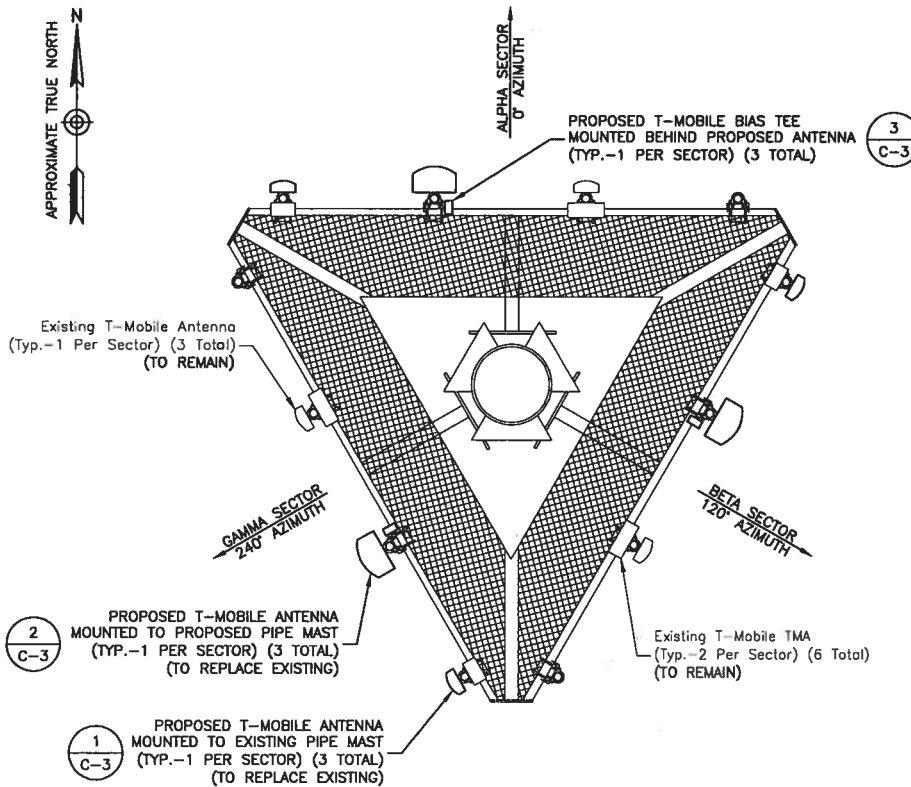


PROPOSED ELEVATION

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"



4



PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.

2

NOTES:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEES, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY BLACK & VEATCH CORP. DATED SEPTEMBER 30, 2015.
2. DEWBERRY HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THE EXISTING ANTENNA MOUNT AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY.

T-Mobile

T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

**CT11295A
WESTPORT FIRE
DEPARTMENT**

CONSTRUCTION DRAWINGS

0	10/26/15	ISSUED AS FINAL
A	10/20/15	ISSUED FOR REVIEW

Dewberry

Dewberry Engineers Inc.

600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



DRAWN BY: RA

REVIEWED BY: BSH

CHECKED BY: GHN

PROJECT NUMBER: 50066258

JOB NUMBER: 50074616

SITE ADDRESS:

515 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY

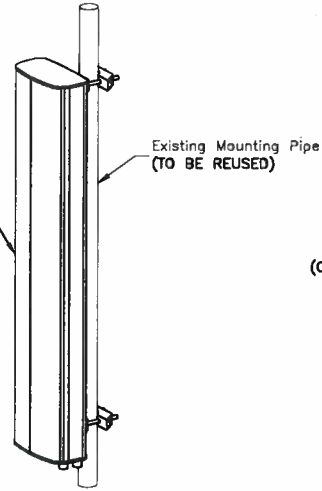
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ANTENNA LAYOUTS &
ELEVATIONS

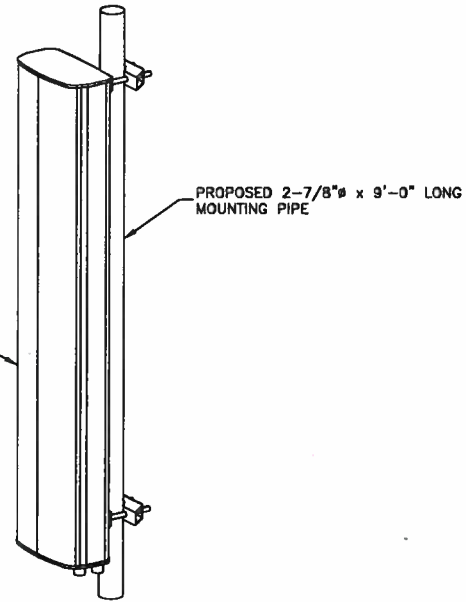
SHEET NUMBER

C-2

PROPOSED SECTOR ANTENNA
(RFS APXV18-206516S-C-A20)
(53.1"H x 8.9"W x 3.15"D)
(18.7 LBS)



PROPOSED SECTOR ANTENNA
(COMMSCOPE LNX-6515DS-VTM)
(96.4"H x 11.9"W x 7.1"D)
(50.3 LBS)



- NOTES:**
1. MOUNT ANTENNAS PER MANUFACTURER'S RECOMMENDATIONS.
 2. GROUND ANTENNAS AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND T-MOBILE STANDARDS.
 3. CONFIRM REQUIRED ANTENNAS WITH THE LATEST RFDS.

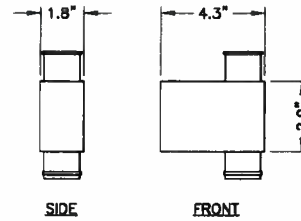
ISOMETRIC ANTENNA DETAIL
SCALE: N.T.S.

1

- NOTES:**
1. MOUNT ANTENNAS PER MANUFACTURER'S RECOMMENDATIONS.
 2. GROUND ANTENNAS AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND T-MOBILE STANDARDS.
 3. CONFIRM REQUIRED ANTENNAS WITH THE LATEST RFDS.

ISOMETRIC ANTENNA DETAIL
SCALE: N.T.S.

2

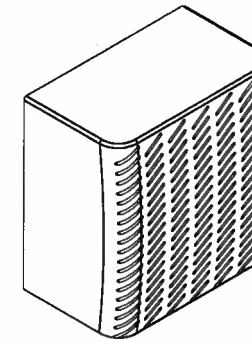


BIAS TEE DETAIL
SCALE: N.T.S.

- NOTES:**
1. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
 2. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND T-MOBILE STANDARDS.
 3. CONFIRM REQUIRED EQUIPMENT WITH THE LATEST RFDS.

BIAS TEE DETAIL
SCALE: N.T.S.

3



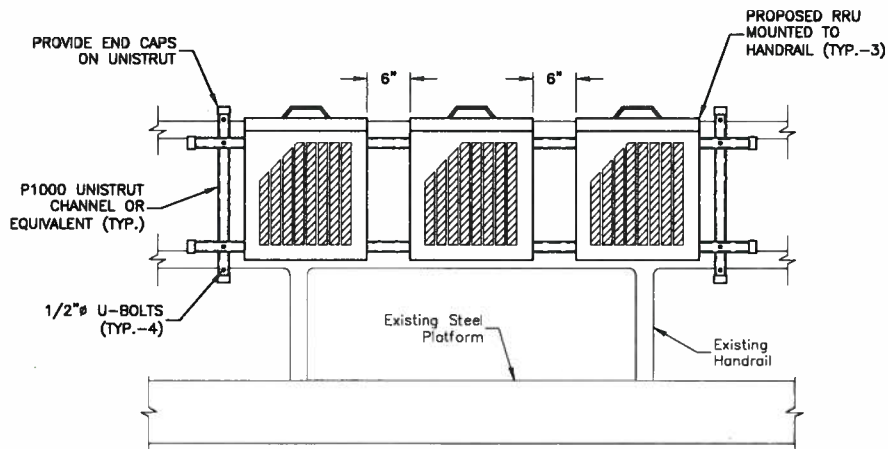
SPECIFICATIONS:
HEIGHT: 20.0"
WIDTH: 17.0"
DEPTH: 7.0"
WEIGHT: 50.7 LBS

ERICSSON RRUS-11 B12

- RRU NOTES:**
1. MOUNT EQUIPMENT WITH MANUFACTURER PROVIDED MOUNTING BRACKETS.
 2. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND T-MOBILE STANDARDS.
 3. CONFIRM REQUIRED EQUIPMENT WITH THE LATEST RFDS.

RRUS-11 - REMOTE RADIO UNIT
SCALE: N.T.S.

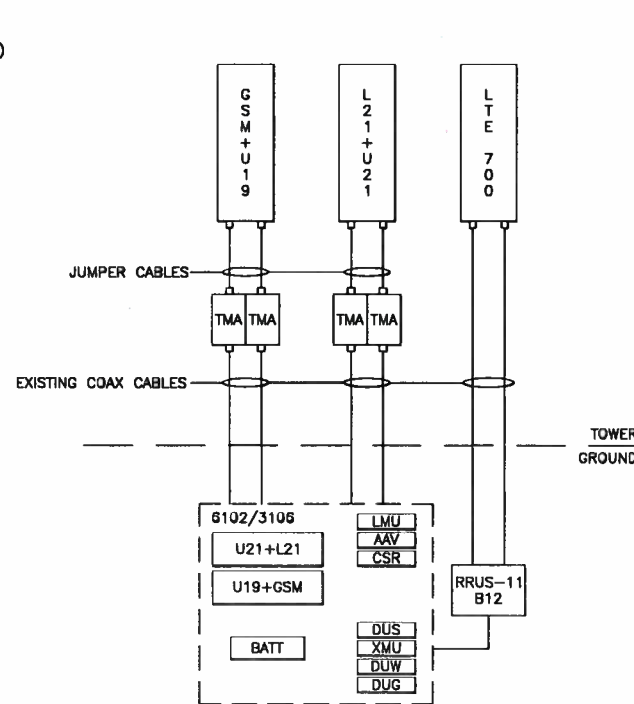
4



- NOTES:**
1. CONTRACTOR SHALL SUPPLY AND INSTALL UNISTRUT (OR EQUIVALENT) MOUNTING CHANNELS.
 2. CONTRACTOR SHALL SUPPLY (BUT NOT INSTALL) 3/8 inch UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER RRU. CONTRACTOR SHALL BAG THE BOLTING HARDWARE AND HANG FROM INSTALLED UNISTRUT FRAME.
 3. SPACING MAY VARY BASED ON SELECTED EQUIPMENT. ADJUSTMENTS TO SPACING WILL BE MADE BY RRU INSTALLER.
 4. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

RRU RACK DETAIL
SCALE: N.T.S.

5



SITE CONFIGURATION 704Bu
SCALE: N.T.S.

6

DESIGN CONFIGURATION					
	ANTENNAS		COAX		COAX LENGTH
	EXISTING	PROPOSED	EXISTING	PROPOSED	
ALPHA	EMS RR90-17-00DPL2	RFS APXV18-206516S-C-A20	(6) 7/8"Ø, (2) 1-1/4"Ø	-	132'-0"
	EMS RR90-17-00DPL2	COMMSCOPE LNX-6515DS-VTM			
	RFS APXV18-206516S-C-A20	EXISTING TO REMAIN			
	EMS RR90-17-00DPL2	EXISTING TO BE REMOVED			
BETA	EMS RR90-17-00DPL2	RFS APXV18-206516S-C-A20	(6) 7/8"Ø, (2) 1-1/4"Ø	-	132'-0"
	EMS RR90-17-00DPL2	COMMSCOPE LNX-6515DS-VTM			
	RFS APXV18-206516S-C-A20	EXISTING TO REMAIN			
	EMS RR90-17-00DPL2	EXISTING TO BE REMOVED			
GAMMA	EMS RR90-17-00DPL2	RFS APXV18-206516S-C-A20	(6) 7/8"Ø, (2) 1-1/4"Ø	-	132'-0"
	EMS RR90-17-00DPL2	COMMSCOPE LNX-6515DS-VTM			
	RFS APXV18-206516S-C-A20	EXISTING TO REMAIN			
	EMS RR90-17-00DPL2	EXISTING TO BE REMOVED			

T-Mobile

T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

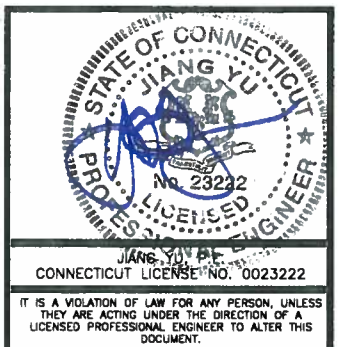
**CT11295A
WESTPORT FIRE
DEPARTMENT**

CONSTRUCTION DRAWINGS

10/26/15 ISSUED AS FINAL
10/20/15 ISSUED FOR REVIEW

Dewberry

Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



DRAWN BY: RA

REVIEWED BY: BSH

CHECKED BY: GHN

PROJECT NUMBER: 50066258

JOB NUMBER: 50074816

SITE ADDRESS:

515 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY

SHEET TITLE

CONSTRUCTION
DETAILS

SHEET NUMBER

Date: **September 30, 2015**

Rebecca Klein
Crown Castle
525 Alderman Lane
Fort Mill, SC 29715



Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
(913) 458-7245

Subject: Structural Analysis Report

Carrier Designation: **T-Mobile Co-Locate**
Carrier Site Number: CT11295A
Carrier Site Name: Westport FD Sprint Tower

Crown Castle Designation: **Crown Castle BU Number:** 876354
Crown Castle Site Name: WESTPORT FIRE DEPARTMENT
Crown Castle JDE Job Number: 347600
Crown Castle Work Order Number: 1122522
Crown Castle Application Number: 310061 Rev. 1

Engineering Firm Designation: **Black & Veatch Corp. Project Number:** 182896

Site Data: **515 Post Road East, Westport, Fairfield County, CT**
Latitude 41° 8' 24.26", Longitude -73° 20' 51.61"
148 Foot - Monopole Tower

Dear Rebecca Klein,

Black & Veatch Corp. is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural ‘Statement of Work’ and the terms of Crown Castle Purchase Order Number 827323, in accordance with application 310061, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code based upon a wind speed of 85 mph fastest mile with a 1.15 Importance Factor (91.2 mph fastest mile).

We at *Black & Veatch Corp.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Dhanashri Kolekar / Saowalak Hanruk

Respectfully submitted by:

Ping Jiang, P.E.
Professional Engineer



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tnxTower Output

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7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 148 ft Monopole tower designed by Paul J. Ford and Company in February of 1997. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

Tower was modified multiple times in the past to accommodate additional loading.

The tower has been reinforced per reinforcement drawings prepared by Paul J. Ford and Company in February of 2008. This modification consisted of the installation of (24) new base plate stiffeners.

The tower was later reinforced per reinforcement drawings prepared by Sabre in April of 2011. Modifications consisted of shaft reinforcement from 0' to 72'-2".

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice with a 1.15 Importance Factor (91.2 mph fastest mile), 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
82.0	82.0	3	andrew	LNx-6515DS-VTM w/ Mount Pipe	-	-	-
		3	commscope	ATSBT-BOTTOM-FM-4G			
		3	rfs celwave	APXV18-206516S-C-A20 w/ Mount Pipe			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
148.0	160.0	1	decibel	DB420	6 2 3	5/16 1/2 1-1/4	1
	152.0	2	andrew	VHLP800-11			
	151.0	3	argus technologies	LLPX310R w/ Mount Pipe			
		3	samsung telecommunications	FDD_R6_RRH			
	148.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	alcatel lucent	800MHZ RRH			
		9	alcatel lucent	PCS 1900MHz 4x45W-65MHz			
		9	rfs celwave	ACU-A20-N			
		3	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe			
	1	cci tower mounts	Platform Mount [LP 1201-1]				

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
144.0	144.0	1	andrew	VHLP2.5-10W	1	EW90	1
		1	cci tower mounts	Pipe Mount [PM 601-1]			
120.0	120.0	3	ericsson	RRUS 11	-	-	2
		12	powerwave technologies	7020.00			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		12	powerwave technologies	LGP2140X			
		3	powerwave technologies	P65-16-XLH-RR w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
		3	ericsson	RRUS-11			
		1	cci tower mounts	Platform Mount [LP 1201-1]			
96.0	110.0	1	rfs celwave	PD220	5 8	1/2 7/8	1
	108.0	1	decibel	DB205-A			
	107.0	1	decibel	DB224			
		1	decibel	DB420-B			
	105.0	1	andrew	DB806E-XT			
		2	rfs celwave	PD1110			
	2	rfs celwave	PD201-1				
	96.0	1	cci tower mounts	Platform Mount [LP 1201-1]			
90.0	3	rfs celwave	PD83-1				
82.0	82.0	3	andrew	ETW190VS12UB	-	-	3
		9	ems wireless	RR90-17-00DPL2 w/ Mount Pipe			
		3	rfs celwave	APXV18-206516S-C-A20 w/ Mount Pipe			
		3	rfs celwave	ATMAA1412D-1A20			
		3	andrew	ETW190VS12UB			
		1	cci tower mounts	Platform Mount [LP 1201-1]			
72.0	72.0	1	cci tower mounts	Side Arm Mount [SO 102-3]	6	1-5/8	1
		3	kathrein	800 10504 w/ Mount Pipe			
53.0	56.0	1	radiall larsen	BSA150B	2	1/2	1
	53.0	1	cci tower mounts	Side Arm Mount [SO 702-1]			
	50.0	1	radiall larsen	BSA150B			
50.0	50.0	1	trimble	BULLET III	1	1/2	1

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment
- 3) Equipment To Be Removed; not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	148.0	12	unknown	08980 H90	-	-
140.0	140.0	2	unknown	084200	-	-
120.0	120.0	12	unknown	ALP9212N	-	-
100.0	100.0	1	unknown	08230	-	-
		1	unknown	P01100		
		1	unknown	P01109		
		4	unknown	P01142		
		1	unknown	P0220		
50.0	50.0	2	unknown	CHANNELMASTRES	-	-
15.0	15.0	1	unknown	GPS	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Tower Engineering Professionals	1531886	CCISITES
4-POST-MODIFICATION INSPECTION	Paul J. Ford and Company	2485808	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	2971197	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Paul J. Ford and Company	1448194	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Paul J. Ford and Company	1446984	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford and Company	2848812	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Paul J. Ford and Company	5641033	CCISITES

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
- 5) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading, tower/foundation details, and geotechnical data. The existing/proposed loading on the

structure is based on CAD level drawings and carrier applications provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
148 - 143	Pole	TP23.015x22x0.25	Pole	10.9	Pass
143 - 138	Pole	TP24.03x23.015x0.25	Pole	19.3	Pass
138 - 133	Pole	TP25.045x24.03x0.25	Pole	26.9	Pass
133 - 128	Pole	TP26.06x25.045x0.25	Pole	33.9	Pass
128 - 123	Pole	TP27.075x26.06x0.25	Pole	40.3	Pass
123 - 118	Pole	TP28.09x27.075x0.25	Pole	48.5	Pass
118 - 113	Pole	TP29.105x28.09x0.25	Pole	58.4	Pass
113 - 108	Pole	TP30.12x29.105x0.25	Pole	67.4	Pass
108 - 104.5	Pole	TP31.643x30.12x0.25	Pole	73.1	Pass
104.5 - 99.5	Pole	TP31.346x30.331x0.375	Pole	56.3	Pass
99.5 - 94.5	Pole	TP32.361x31.346x0.375	Pole	62.1	Pass
94.5 - 89.5	Pole	TP33.376x32.361x0.375	Pole	67.7	Pass
89.5 - 84.5	Pole	TP34.391x33.376x0.375	Pole	72.8	Pass
84.5 - 79.5	Pole	TP35.406x34.391x0.375	Pole	78.3	Pass
79.5 - 74.5	Pole	TP36.421x35.406x0.375	Pole	83.8	Pass
74.5 - 70.67	Pole	TP37.199x36.421x0.375	Pole	87.7	Pass
70.67 - 70.42	Pole + Reinf.	TP37.25x37.199x0.5	Reinf. 5 Compression	82.5	Pass
70.42 - 65.42	Pole + Reinf.	TP38.265x37.25x0.5	Reinf. 5 Compression	87.5	Pass
65.42 - 63.67	Pole + Reinf.	TP38.62x38.265x0.5	Reinf. 5 Compression	89.3	Pass
63.67 - 63.42	Pole	TP38.671x38.62x0.375	Pole	94.6	Pass
63.42 - 63.25	Pole	TP39.72x38.671x0.375	Pole	94.8	Pass
63.25 - 57.25	Pole	TP39.121x37.955x0.4375	Pole	89.6	Pass
57.25 - 53.23	Pole	TP39.902x39.121x0.4375	Pole	92.5	Pass
53.23 - 52.98	Pole + Reinf.	TP39.951x39.902x0.6	Reinf. 4 Bolt Shear	79.3	Pass
52.98 - 47.98	Pole + Reinf.	TP40.922x39.951x0.5875	Reinf. 4 Compression	81.5	Pass
47.98 - 42.98	Pole + Reinf.	TP41.894x40.922x0.5875	Reinf. 4 Compression	84.8	Pass
42.98 - 37.98	Pole + Reinf.	TP42.866x41.894x0.5875	Reinf. 4 Compression	87.9	Pass
37.98 - 35.13	Pole + Reinf.	TP43.42x42.866x0.575	Reinf. 4 Bolt Shear	91.0	Pass
35.13 - 34.88	Pole + Reinf.	TP43.469x43.42x0.6375	Reinf. 1 Bolt Shear	83.0	Pass
34.88 - 34.5	Pole + Reinf.	TP44.659x43.469x0.6375	Reinf. 1 Compression	81.8	Pass
34.5 - 27.75	Pole + Reinf.	TP44.086x42.667x0.7	Reinf. 1 Compression	80.2	Pass
27.75 - 25.88	Pole + Reinf.	TP44.48x44.086x0.6875	Reinf. 3 Bolt Shear	82.3	Pass
25.88 - 25.75	Pole + Reinf.	TP44.506x44.48x0.55	Pole	97.2	Pass

25.75 - 25.63	Pole + Reinf.	TP44.533x44.506x0.75	Reinf. 1 Compression	76.8	Pass
25.63 - 25.5	Pole + Reinf.	TP44.559x44.533x0.75	Reinf. 1 Compression	76.8	Pass
25.5 - 20.5	Pole + Reinf.	TP45.61x44.559x0.75	Reinf. 1 Compression	78.7	Pass
20.5 - 15.5	Pole + Reinf.	TP46.661x45.61x0.7375	Reinf. 1 Compression	80.5	Pass
15.5 - 10.5	Pole + Reinf.	TP47.712x46.661x0.7375	Reinf. 1 Compression	82.2	Pass
10.5 - 5.5	Pole + Reinf.	TP48.764x47.712x0.725	Reinf. 1 Compression	83.8	Pass
5.5 - 0.5	Pole + Reinf.	TP49.815x48.764x0.725	Reinf. 1 Compression	85.3	Pass
0.5 - 0	Pole + Reinf.	TP49.92x49.815x0.725	Reinf. 1 Compression	85.4	Pass
				Summary	
			Pole	97.2	Pass
			Reinforcement	91.0	Pass
			Overall	97.2	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	85.1	Pass
	Base Plate		19.4	Pass
	Plate Stiffeners		51.4	Pass
	Pole Punching Shear		9.5	Pass
1	Base Foundation		61.1	Pass
	Base Foundation Soil Interaction		75.7	Pass

Structure Rating (max from all components) =	97.2%
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing, reserved, and proposed loads. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Platform Mount [LP 1201-1]	148	4' x 2" Pipe Mount	120
APXVSP18-C-A20 w/ Mount Pipe	148	6' x 2" Horizontal Mount Pipe	120
APXVSP18-C-A20 w/ Mount Pipe	148	6' x 2" Horizontal Mount Pipe	120
APXVSP18-C-A20 w/ Mount Pipe	148	6' x 2" Horizontal Mount Pipe	120
LLPX310R w/ Mount Pipe	148	(2) 7770.00 w/ Mount Pipe	120
LLPX310R w/ Mount Pipe	148	Platform Mount [LP 1201-1]	120
LLPX310R w/ Mount Pipe	148	(2) 7770.00 w/ Mount Pipe	120
DB420	148	PD1110	96
(3) PCS 1900MHz 4x45W-65MHz	148	PD1110	96
(3) PCS 1900MHz 4x45W-65MHz	148	PD201-1	96
(3) PCS 1900MHz 4x45W-65MHz	148	PD83-1	96
(3) ACU-A20-N	148	DB205-A	96
(3) ACU-A20-N	148	PD201-1	96
(3) ACU-A20-N	148	PD83-1	96
800MHZ RRH	148	DB806E-XT	96
800MHZ RRH	148	PD220	96
800MHZ RRH	148	DB224	96
800 EXTERNAL NOTCH FILTER	148	(4) 6' x 2" Mount Pipe	96
800 EXTERNAL NOTCH FILTER	148	(2) 6' x 2" Mount Pipe	96
800 EXTERNAL NOTCH FILTER	148	(3) 6' x 2" Mount Pipe	96
FDD_R6_RRH	148	Platform Mount [LP 1201-1]	96
FDD_R6_RRH	148	DB420-B	96
FDD_R6_RRH	148	PD83-1	96
6' x 2" Mount Pipe	148	APXV18-206516S-C-A20 w/ Mount Pipe	82
6' x 2" Mount Pipe	148	APXV18-206516S-C-A20 w/ Mount Pipe	82
6' x 2" Mount Pipe	148	APXV18-206516S-C-A20 w/ Mount Pipe	82
6' x 2" Mount Pipe	148	APXV18-206516S-C-A20 w/ Mount Pipe	82
6' x 2" Mount Pipe	148	LNX-6515DS-VTM w/ Mount Pipe	82
6' x 2" Mount Pipe	148	LNX-6515DS-VTM w/ Mount Pipe	82
VHLP800-11	148	LNX-6515DS-VTM w/ Mount Pipe	82
VHLP800-11	148	ETW190VS12UB	82
Pipe Mount [PM 601-1]	144	ETW190VS12UB	82
VHLP2.5-10W	144	ETW190VS12UB	82
(2) 7770.00 w/ Mount Pipe	120	ATMAA1412D-1A20	82
P65-16-XLH-RR w/ Mount Pipe	120	ATMAA1412D-1A20	82
P65-16-XLH-RR w/ Mount Pipe	120	ATMAA1412D-1A20	82
P65-16-XLH-RR w/ Mount Pipe	120	ATMAA1412D-1A20	82
(4) LGP2140X	120	ATSBT-BOTTOM-FM-4G	82
(4) LGP2140X	120	ATSBT-BOTTOM-FM-4G	82
(4) LGP2140X	120	ATSBT-BOTTOM-FM-4G	82
RRUS-11	120	Platform Mount [LP 1201-1]	82
RRUS-11	120	APXV18-206516S-C-A20 w/ Mount Pipe	82
RRUS-11	120	APXV18-206516S-C-A20 w/ Mount Pipe	82
RRUS-11	120	800 10504 w/ Mount Pipe	72
RRUS 11	120	Side Arm Mount [SO 102-3]	72
RRUS 11	120	800 10504 w/ Mount Pipe	72
RRUS 11	120	800 10504 w/ Mount Pipe	72
(4) 7020.00	120	BSA150B	53
(4) 7020.00	120	Side Arm Mount [SO 702-1]	53
(4) 7020.00	120	8'x2" Antenna Mount Pipe	53
DC6-48-60-18-8F	120	BSA150B	53
4' x 2" Pipe Mount	120	BULLET III	50
4' x 2" Pipe Mount	120		

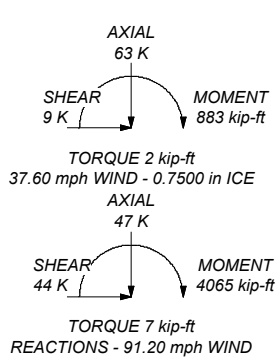
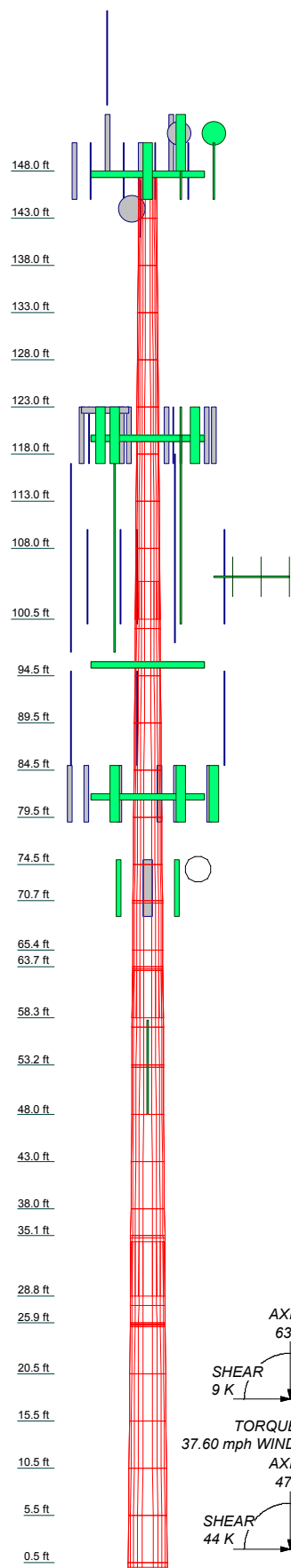
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

- Tower is located in Fairfield County, Connecticut.
- Tower designed for a 91.20 mph basic wind in accordance with the TIA/EIA-222-F Standard.
- Tower is also designed for a 37.60 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
- Deflections are based upon a 50.00 mph wind
- Tower Structure Rating = 97.2%.

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.0000	12	0.2500	4.0000	29.1054	30.1204	0.3	0.3
2	5.0000	12	0.2500	4.0000	28.0903	29.1054	0.3	0.3
3	5.0000	12	0.2500	4.0000	27.0753	28.0903	0.3	0.3
4	5.0000	12	0.2500	4.0000	26.0602	27.0753	0.4	0.4
5	5.0000	12	0.2500	4.0000	25.0452	26.0602	0.4	0.4
6	5.0000	12	0.2500	4.0000	24.0301	25.0452	0.4	0.4
7	5.0000	12	0.2500	4.0000	23.0151	24.0301	0.4	0.4
8	5.0000	12	0.2500	4.0000	22.0000	23.0151	0.4	0.4
9	5.0000	12	0.2500	4.0000	20.9850	22.0000	0.6	0.6
10	5.0000	12	0.2500	4.0000	19.9700	20.9850	0.6	0.6
11	5.0000	12	0.2500	4.0000	18.9550	19.9700	0.6	0.6
12	5.0000	12	0.2500	4.0000	17.9400	18.9550	0.7	0.7
13	5.0000	12	0.2500	4.0000	16.9250	17.9400	0.7	0.7
14	5.0000	12	0.2500	4.0000	15.9100	16.9250	0.7	0.7
15	5.0000	12	0.2500	4.0000	14.8950	15.9100	0.7	0.7
16	5.0000	12	0.2500	4.0000	13.8800	14.8950	0.7	0.7
17	5.0000	12	0.2500	4.0000	12.8650	13.8800	0.6	0.6
18	5.0000	12	0.2500	4.0000	11.8500	12.8650	0.6	0.6
19	5.0000	12	0.2500	4.0000	10.8350	11.8500	0.4	0.4
20	5.0000	12	0.2500	4.0000	9.8200	10.8350	0.4	0.4
21	5.0000	12	0.2500	4.0000	8.8050	9.8200	0.4	0.4
22	5.0000	12	0.2500	4.0000	7.7900	8.8050	0.4	0.4
23	5.0000	12	0.2500	4.0000	6.7750	7.7900	0.4	0.4
24	5.0000	12	0.2500	4.0000	5.7600	6.7750	0.4	0.4
25	5.0000	12	0.2500	4.0000	4.7450	5.7600	0.4	0.4
26	5.0000	12	0.2500	4.0000	3.7300	4.7450	0.4	0.4
27	5.0000	12	0.2500	4.0000	2.7150	3.7300	0.4	0.4
28	5.0000	12	0.2500	4.0000	1.7000	2.7150	0.4	0.4
29	5.0000	12	0.2500	4.0000	0.6850	1.7000	0.4	0.4
30	5.0000	12	0.2500	4.0000	0.6700	0.6850	0.4	0.4
31	5.0000	12	0.2500	4.0000	0.6550	0.6700	0.4	0.4
32	5.0000	12	0.2500	4.0000	0.6400	0.6550	0.4	0.4
33	5.0000	12	0.2500	4.0000	0.6250	0.6400	0.4	0.4
34	5.0000	12	0.2500	4.0000	0.6100	0.6250	0.4	0.4
35	5.0000	12	0.2500	4.0000	0.5950	0.6100	0.4	0.4
36	5.0000	12	0.2500	4.0000	0.5800	0.5950	0.4	0.4
37	5.0000	12	0.2500	4.0000	0.5650	0.5800	0.4	0.4
38	5.0000	12	0.2500	4.0000	0.5500	0.5650	0.4	0.4
39	5.0000	12	0.2500	4.0000	0.5350	0.5500	0.4	0.4
40	5.0000	12	0.2500	4.0000	0.5200	0.5350	0.4	0.4
41	5.0000	12	0.2500	4.0000	0.5050	0.5200	0.4	0.4



BLACK & VEATCH Building a world of difference.	Black & Veatch Corp. 10950 Grandview Drive Overland Park, KS Phone: (913) 458-7245 FAX: (913) 458-8136	Job: WESTPORT FIRE DEPARTMENT (BU#876354)
		Project: 182896 (876354.1122522)
	Client: Crown Castle	Drawn by: Brennan J. Sedlacek, E.I.T.
	Code: TIA/EIA-222-F	Date: 09/30/15
	Path:	Scale: NTS Dwg No. E-1

APPENDIX A
TNXTOWER OUTPUT

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

- 1) Tower is located in Fairfield County, Connecticut.
- 2) Basic wind speed of 91.20 mph.
- 3) Nominal ice thickness of 0.7500 in.
- 4) Ice thickness is considered to increase with height.
- 5) Ice density of 56.00 pcf.
- 6) A wind speed of 37.60 mph is used in combination with ice.
- 7) Temperature drop of 50.00 °F.
- 8) Deflections calculated using a wind speed of 50.00 mph.
- 9) A non-linear (P-delta) analysis was used.
- 10) Pressures are calculated at each section.
- 11) Stress ratio used in pole design is 1.333.
- 12) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys ✓ Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Use TIA-222-G Tension Splice Capacity Exemption	Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feedline Torque Include Angle Block Shear Check <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	148.0000- 143.0000	5.0000	0.00	12	22.0000	23.0151	0.2500	1.0000	A607-60 (60 ksi)
L2	143.0000- 138.0000	5.0000	0.00	12	23.0151	24.0301	0.2500	1.0000	A607-60 (60 ksi)
L3	138.0000- 133.0000	5.0000	0.00	12	24.0301	25.0452	0.2500	1.0000	A607-60 (60 ksi)
L4	133.0000- 128.0000	5.0000	0.00	12	25.0452	26.0602	0.2500	1.0000	A607-60 (60 ksi)
L5	128.0000- 123.0000	5.0000	0.00	12	26.0602	27.0753	0.2500	1.0000	A607-60 (60 ksi)
L6	123.0000- 118.0000	5.0000	0.00	12	27.0753	28.0903	0.2500	1.0000	A607-60 (60 ksi)
L7	118.0000- 113.0000	5.0000	0.00	12	28.0903	29.1054	0.2500	1.0000	A607-60 (60 ksi)
L8	113.0000- 108.0000	5.0000	0.00	12	29.1054	30.1204	0.2500	1.0000	A607-60 (60 ksi)
L9	108.0000- 100.5000	7.5000	4.00	12	30.1204	31.6430	0.2500	1.0000	A607-60 (60 ksi)
L10	100.5000- 99.5000	5.0000	0.00	12	30.3310	31.3460	0.3750	1.5000	A607-60 (60 ksi)
L11	99.5000- 94.5000	5.0000	0.00	12	31.3460	32.3610	0.3750	1.5000	A607-60 (60 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L12	94.5000-89.5000	5.0000	0.00	12	32.3610	33.3761	0.3750	1.5000	A607-60 (60 ksi)
L13	89.5000-84.5000	5.0000	0.00	12	33.3761	34.3911	0.3750	1.5000	A607-60 (60 ksi)
L14	84.5000-79.5000	5.0000	0.00	12	34.3911	35.4061	0.3750	1.5000	A607-60 (60 ksi)
L15	79.5000-74.5000	5.0000	0.00	12	35.4061	36.4211	0.3750	1.5000	A607-60 (60 ksi)
L16	74.5000-70.6670	3.8330	0.00	12	36.4211	37.1993	0.3750	1.5000	A607-60 (60 ksi)
L17	70.6670-70.4170	0.2500	0.00	12	37.1993	37.2500	0.5000	2.0000	A607-60 (60 ksi)
L18	70.4170-65.4170	5.0000	0.00	12	37.2500	38.2651	0.5000	2.0000	A607-60 (60 ksi)
L19	65.4170-63.6670	1.7500	0.00	12	38.2651	38.6203	0.5000	2.0000	A607-60 (60 ksi)
L20	63.6670-63.4170	0.2500	0.00	12	38.6203	38.6711	0.3750	1.5000	A607-60 (60 ksi)
L21	63.4170-58.2500	5.1670	5.00	12	38.6711	39.7200	0.3750	1.5000	A607-60 (60 ksi)
L22	58.2500-57.2500	6.0000	0.00	12	37.9550	39.1209	0.4375	1.7500	A607-60 (60 ksi)
L23	57.2500-53.2290	4.0210	0.00	12	39.1209	39.9022	0.4375	1.7500	A607-60 (60 ksi)
L24	53.2290-52.9790	0.2500	0.00	12	39.9022	39.9508	0.6000	2.4000	A607-60 (60 ksi)
L25	52.9790-47.9790	5.0000	0.00	12	39.9508	40.9224	0.5875	2.3500	A607-60 (60 ksi)
L26	47.9790-42.9790	5.0000	0.00	12	40.9224	41.8940	0.5875	2.3500	A607-60 (60 ksi)
L27	42.9790-37.9790	5.0000	0.00	12	41.8940	42.8656	0.5875	2.3500	A607-60 (60 ksi)
L28	37.9790-35.1250	2.8540	0.00	12	42.8656	43.4202	0.5750	2.3000	A607-60 (60 ksi)
L29	35.1250-34.8750	0.2500	0.00	12	43.4202	43.4688	0.6375	2.5500	A607-60 (60 ksi)
L30	34.8750-28.7500	6.1250	5.75	12	43.4688	44.6590	0.6375	2.5500	A607-60 (60 ksi)
L31	28.7500-27.7500	6.7500	0.00	12	42.6667	44.0858	0.7000	2.8000	A607-60 (60 ksi)
L32	27.7500-25.8750	1.8750	0.00	12	44.0858	44.4800	0.6875	2.7500	A607-60 (60 ksi)
L33	25.8750-25.7500	0.1250	0.00	12	44.4800	44.5063	0.5500	2.2000	A607-60 (60 ksi)
L34	25.7500-25.6250	0.1250	0.00	12	44.5063	44.5326	0.7500	3.0000	A607-60 (60 ksi)
L35	25.6250-25.5000	0.1250	0.00	12	44.5326	44.5588	0.7500	3.0000	A607-60 (60 ksi)
L36	25.5000-20.5000	5.0000	0.00	12	44.5588	45.6100	0.7500	3.0000	A607-60 (60 ksi)
L37	20.5000-15.5000	5.0000	0.00	12	45.6100	46.6613	0.7375	2.9500	A607-60 (60 ksi)
L38	15.5000-10.5000	5.0000	0.00	12	46.6613	47.7125	0.7375	2.9500	A607-60 (60 ksi)
L39	10.5000-5.5000	5.0000	0.00	12	47.7125	48.7637	0.7250	2.9000	A607-60 (60 ksi)
L40	5.5000-0.5000	5.0000	0.00	12	48.7637	49.8149	0.7250	2.9000	A607-60 (60 ksi)
L41	0.5000-0.0000	0.5000		12	49.8149	49.9200	0.7250	2.9000	A607-60 (60 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	22.7761	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	23.8269	18.3259	1212.2378	8.1499	11.9218	101.6825	2456.3223	9.0194	5.4980	21.992
L2	23.8269	18.3259	1212.2378	8.1499	11.9218	101.6825	2456.3223	9.0194	5.4980	21.992

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
	24.8778	19.1430	1381.7299	8.5133	12.4476	111.0038	2799.7593	9.4216	5.7701	23.08
L3	24.8778	19.1430	1381.7299	8.5133	12.4476	111.0038	2799.7593	9.4216	5.7701	23.08
	25.9287	19.9601	1566.3271	8.8767	12.9734	120.7338	3173.8034	9.8238	6.0421	24.168
L4	25.9287	19.9601	1566.3271	8.8767	12.9734	120.7338	3173.8034	9.8238	6.0421	24.168
	26.9795	20.7772	1766.6742	9.2401	13.4992	130.8726	3579.7609	10.2259	6.3141	25.257
L5	26.9795	20.7772	1766.6742	9.2401	13.4992	130.8726	3579.7609	10.2259	6.3141	25.257
	28.0304	21.5943	1983.4160	9.6034	14.0250	141.4202	4018.9385	10.6281	6.5862	26.345
L6	28.0304	21.5943	1983.4160	9.6034	14.0250	141.4202	4018.9385	10.6281	6.5862	26.345
	29.0812	22.4115	2217.1971	9.9668	14.5508	152.3765	4492.6424	11.0302	6.8582	27.433
L7	29.0812	22.4115	2217.1971	9.9668	14.5508	152.3765	4492.6424	11.0302	6.8582	27.433
	30.1321	23.2286	2468.6624	10.3302	15.0766	163.7415	5002.1793	11.4324	7.1302	28.521
L8	30.1321	23.2286	2468.6624	10.3302	15.0766	163.7415	5002.1793	11.4324	7.1302	28.521
	31.1830	24.0457	2738.4566	10.6936	15.6024	175.5153	5548.8555	11.8346	7.4023	29.609
L9	31.1830	24.0457	2738.4566	10.6936	15.6024	175.5153	5548.8555	11.8346	7.4023	29.609
	32.7592	25.2714	3178.9251	11.2387	16.3911	193.9425	6441.3640	12.4378	7.8103	31.241
L10	32.7592	25.2714	3178.9251	11.2387	16.3911	193.9425	6441.3640	12.4378	7.8103	31.241
	32.4518	37.3975	4578.6593	11.0876	16.2372	281.9854	9277.6051	18.4059	7.3957	19.722
L11	32.4518	37.3975	4578.6593	11.0876	16.2372	281.9854	9277.6051	18.4059	7.3957	19.722
	33.5026	38.6231	5043.7523	11.4510	16.7630	300.8859	10220.009	19.0091	7.6678	20.447
L12	33.5026	38.6231	5043.7523	11.4510	16.7630	300.8859	10220.009	19.0091	7.6678	20.447
	34.5534	39.8488	5539.3202	11.8144	17.2888	320.3994	11224.164	19.6124	7.9398	21.173
L13	34.5534	39.8488	5539.3202	11.8144	17.2888	320.3994	11224.164	19.6124	7.9398	21.173
	35.6043	41.0744	6066.3302	12.1778	17.8146	340.5261	12292.029	20.2156	8.2118	21.898
L14	35.6043	41.0744	6066.3302	12.1778	17.8146	340.5261	12292.029	20.2156	8.2118	21.898
	36.6551	42.3001	6625.7493	12.5411	18.3404	361.2659	13425.564	20.8188	8.4838	22.624
L15	36.6551	42.3001	6625.7493	12.5411	18.3404	361.2659	13425.564	20.8188	8.4838	22.624
	37.7059	43.5257	7218.5447	12.9045	18.8662	382.6188	14626.728	21.4220	8.7559	23.349
L16	37.7059	43.5257	7218.5447	12.9045	18.8662	382.6188	14626.728	21.4220	8.7559	23.349
	38.5115	44.4653	7696.1859	13.1831	19.2692	399.4030	15594.559	21.8845	8.9644	23.905
L17	38.5115	44.4653	7696.1859	13.1831	19.2692	399.4030	15594.559	21.8845	8.9644	23.905
	38.5641	59.1675	10157.436	13.1383	19.2692	527.1327	20581.720	29.0802	8.6294	17.259
L18	38.5641	59.1675	10199.635	13.1565	19.2955	528.6014	20667.226	29.1205	8.6430	17.286
	39.6149	60.8017	11068.331	13.5199	19.8213	558.4060	22427.439	29.9248	8.9150	17.83
L19	39.6149	60.8017	11068.331	13.5199	19.8213	558.4060	22427.439	29.9248	8.9150	17.83
	39.9827	61.3737	11383.642	13.6471	20.0053	569.0307	23066.346	30.2063	9.0102	18.02
L20	39.9827	61.3737	11383.642	13.6471	20.0053	569.0307	23066.346	30.2063	9.0102	18.02
	40.0352	46.2425	8621.9958	13.6918	20.0053	430.9851	17470.501	22.7290	9.3452	24.921
L21	40.0352	46.2425	8656.3656	13.7100	20.0316	432.1352	17540.143	22.7592	9.3588	24.957
	41.1212	47.5091	9387.3225	14.0855	20.5750	456.2499	19021.260	23.3825	9.6400	25.707
L22	40.2997	52.8527	9495.5572	13.4313	19.6607	482.9721	19240.573	26.0125	8.9994	20.57
	40.5009	54.4952	10408.624	13.8487	20.2646	513.6353	21090.695	26.8209	9.3119	21.284
L23	40.5009	54.4952	10408.624	13.8487	20.2646	513.6353	21090.695	26.8209	9.3119	21.284
	41.3098	55.5960	11052.177	14.1284	20.6694	534.7130	22394.707	27.3626	9.5213	21.763
L24	41.3098	75.9319	14970.806	14.0702	20.6694	724.2993	30334.913	37.3714	9.0858	15.143
	41.3601	76.0258	15026.389	14.0876	20.6945	726.1045	30447.539	37.4176	9.0988	15.165

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L25	41.3601	74.4656	14727.365 ₈	14.0921	20.6945	711.6551	29841.635 ₇	36.6497	9.1323	15.544
	42.3660	76.3036	15845.044 ₈	14.4399	21.1978	747.4848	32106.356 ₉	37.5543	9.3927	15.988
L26	42.3660	76.3036	15845.044 ₇	14.4399	21.1978	747.4848	32106.356 ₃	37.5543	9.3927	15.988
	43.3719	78.1416	17017.887 ₇	14.7877	21.7011	784.1945	34482.853 ₃	38.4589	9.6531	16.431
L27	43.3719	78.1416	17017.887 ₅	14.7877	21.7011	784.1945	34482.853 ₉	38.4589	9.6531	16.431
	44.3778	79.9796	18247.223 ₅	15.1356	22.2044	821.7844	36973.821 ₉	39.3635	9.9135	16.874
L28	44.3778	78.3011	17874.829 ₃	15.1400	22.2044	805.0132	36219.251 ₄	38.5374	9.9470	17.299
	44.9519	79.3279	18587.310 ₈	15.3386	22.4917	826.4086	37662.929 ₂	39.0428	10.0956	17.558
L29	44.9519	87.8222	20517.617 ₀	15.3162	22.4917	912.2319	41574.255 ₃	43.2234	9.9281	15.574
	45.0022	87.9219	20587.590 ₆	15.3336	22.5168	914.3199	41716.039 ₈	43.2725	9.9411	15.594
L30	45.0022	87.9219	20587.590 ₅	15.3336	22.5168	914.3199	41716.039 ₉	43.2725	9.9411	15.594
	46.2344	90.3651	22352.006 ₅	15.7597	23.1334	966.2239	45291.225 ₉	44.4750	10.2601	16.094
L31	45.4233	94.5929	21264.399 ₈	15.0241	22.1013	962.1321	43087.438 ₇	46.5557	9.5587	13.655
	45.6410	97.7916	23495.380 ₆	15.5321	22.8364	1028.8547	47608.010 ₆	48.1300	9.9390	14.199
L32	45.6410	96.0730	23095.770 ₂	15.5366	22.8364	1011.3560	46798.293 ₂	47.2842	9.9725	14.505
	46.0491	96.9456	23730.868 ₉	15.6777	23.0406	1029.9571	48085.172 ₅	47.7137	10.0781	14.659
L33	46.0491	77.8000	19164.081 ₀	15.7269	23.0406	831.7513	38831.624 ₂	38.2908	10.4466	18.994
	46.0763	77.8466	19198.495 ₃	15.7363	23.0543	832.7529	38901.356 ₃	38.3137	10.4537	19.007
L34	46.0763	105.6714	25824.038 ₄	15.6647	23.0543	1120.1421	52326.502 ₇	52.0083	9.9177	13.224
	46.1035	105.7349	25870.596 ₀	15.6742	23.0679	1121.4994	52420.841 ₃	52.0395	9.9247	13.233
L35	46.1035	105.7349	25870.596 ₁	15.6742	23.0679	1121.4994	52420.841 ₅	52.0395	9.9247	13.233
	46.1307	105.7983	25917.210 ₁	15.6836	23.0815	1122.8575	52515.294 ₅	52.0707	9.9318	13.242
L36	46.1307	105.7983	25917.210 ₀	15.6836	23.0815	1122.8575	52515.294 ₀	52.0707	9.9318	13.242
	47.2190	108.3370	27828.013 ₀	16.0599	23.6260	1177.8553	56387.099 ₀	53.3202	10.2135	13.618
L37	47.2190	106.5611	27387.094 ₅	16.0644	23.6260	1159.1929	55493.678 ₉	52.4461	10.2470	13.894
	48.3073	109.0574	29357.291 ₃	16.4407	24.1705	1214.5903	59485.831 ₁	53.6748	10.5287	14.276
L38	48.3073	109.0574	29357.291 ₄	16.4407	24.1705	1214.5903	59485.831 ₄	53.6748	10.5287	14.276
	49.3956	111.5538	31419.781 ₄	16.8170	24.7151	1271.2811	63664.996 ₄	54.9034	10.8104	14.658
L39	49.3956	109.6922	30911.906 ₇	16.8215	24.7151	1250.7318	62635.903 ₁	53.9872	10.8439	14.957
	50.4839	112.1463	33033.361 ₈	17.1978	25.2596	1307.7557	66934.546 ₈	55.1950	11.1257	15.346
L40	50.4839	112.1463	33033.361 ₆	17.1978	25.2596	1307.7557	66934.546 ₄	55.1950	11.1257	15.346
	51.5722	114.6003	35249.723 ₆	17.5742	25.8041	1366.0509	71425.496 ₄	56.4028	11.4074	15.734
L41	51.5722	114.6003	35249.723 ₇	17.5742	25.8041	1366.0509	71425.496 ₉	56.4028	11.4074	15.734
	51.6810	114.8457	35476.659 ₇	17.6118	25.8586	1371.9503	71885.330 ₉	56.5236	11.4356	15.773

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
ft	ft ²	in						
L1 148.0000-143.0000				1	1	1		
L2 143.0000-138.0000				1	1	1		
L3 138.0000-133.0000				1	1	1		
L4 133.0000-128.0000				1	1	1		
L5 128.0000-123.0000				1	1	1		
L6 123.0000-118.0000				1	1	1		
L7 118.0000-113.0000				1	1	1		
L8 113.0000-108.0000				1	1	1		
L9 108.0000-100.5000				1	1	1		
L10 100.5000-99.5000				1	1	1		
L11 99.5000-94.5000				1	1	1		
L12 94.5000-89.5000				1	1	1		
L13 89.5000-84.5000				1	1	1		
L14 84.5000-79.5000				1	1	1		
L15 79.5000-74.5000				1	1	1		
L16 74.5000-70.6670				1	1	1		
L17 70.6670-70.4170				1	1	0.981044		
L18 70.4170-65.4170				1	1	0.974834		
L19 65.4170-63.6670				1	1	0.972739		
L20 63.6670-63.4170				1	1	1		
L21 63.4170-58.2500				1	1	1		
L22 58.2500-57.2500				1	1	1		
L23 57.2500-53.2290				1	1	1		
L24 53.2290-52.9790				1	1	0.969279		
L25 52.9790-47.9790				1	1	0.983688		
L26 47.9790-42.9790				1	1	0.978066		
L27 42.9790-37.9790				1	1	0.972703		
L28 37.9790-35.1250				1	1	0.990543		
L29 35.1250-34.8750				1	1	0.967111		
L30 34.8750-28.7500				1	1	0.966634		
L31 28.7500-27.7500				1	1	0.96719		
L32 27.7500-25.8750				1	1	0.982177		
L33 25.8750-25.7500				1	1	1.11917		
L34 25.7500-				1	1	0.978287		

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
ft	ft ²	in						
25.6250								
L35 25.6250-25.5000				1	1	0.9781		
L36 25.5000-20.5000				1	1	0.970802		
L37 20.5000-15.5000				1	1	0.979908		
L38 15.5000-10.5000				1	1	0.973151		
L39 10.5000-5.5000				1	1	0.983101		
L40 5.5000-0.5000				1	1	0.976817		
L41 0.5000-0.0000				1	1	0.976203		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		$C_A A_A$	Weight
				ft			ft ² /ft	plf
Safety Line 3/8	C	No	CaAa (Out Of Face)	148.0000 - 10.0000	1	No Ice	0.0375	0.22
						1/2" Ice	0.1375	0.75
						1" Ice	0.2375	1.28
						2" Ice	0.4375	2.34
						4" Ice	0.8375	4.46
7983A(1/2")	C	No	Inside Pole	148.0000 - 8.0000	2	No Ice	0.0000	0.08
						1/2" Ice	0.0000	0.08
						1" Ice	0.0000	0.08
						2" Ice	0.0000	0.08
						4" Ice	0.0000	0.08
9207(5/16")	C	No	Inside Pole	148.0000 - 8.0000	6	No Ice	0.0000	0.60
						1/2" Ice	0.0000	0.60
						1" Ice	0.0000	0.60
						2" Ice	0.0000	0.60
						4" Ice	0.0000	0.60
MLE Hybrid 3Power/6Fiber RL 2(1 1/4")	C	No	Inside Pole	148.0000 - 8.0000	3	No Ice	0.0000	0.68
						1/2" Ice	0.0000	0.68
						1" Ice	0.0000	0.68
						2" Ice	0.0000	0.68
						4" Ice	0.0000	0.68
2" innerduct conduit	C	No	Inside Pole	148.0000 - 8.0000	2	No Ice	0.0000	0.20
						1/2" Ice	0.0000	0.20
						1" Ice	0.0000	0.20
						2" Ice	0.0000	0.20
						4" Ice	0.0000	0.20
EW90(ELLIPTICAL)	B	No	Inside Pole	144.0000 - 8.0000	1	No Ice	0.0000	0.32
						1/2" Ice	0.0000	0.32
						1" Ice	0.0000	0.32
						2" Ice	0.0000	0.32
						4" Ice	0.0000	0.32
LDF7-50A(1-5/8")	B	No	Inside Pole	120.0000 - 8.0000	12	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
						2" Ice	0.0000	0.82
						4" Ice	0.0000	0.82
FB-L98-002-XXX(3/8)	B	No	CaAa (Out Of Face)	120.0000 - 8.0000	1	No Ice	0.0000	0.06
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
						2" Ice	0.0000	0.00
						4" Ice	0.0000	0.00
WR-VG82ST-BRDA(5/8")	B	No	CaAa (Out Of Face)	120.0000 - 8.0000	1	No Ice	0.0645	0.31
						1/2" Ice	0.1645	1.01

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A		Weight plf
						ft ² /ft		
WR-VG82ST-BRDA(5/8")	B	No	CaAa (Out Of Face)	120.0000 - 8.0000	1	1" Ice	0.2645	2.32
						2" Ice	0.4645	6.77
						4" Ice	0.8645	23.01
						No Ice	0.0000	0.31
						1/2" Ice	0.0000	1.01
						1" Ice	0.0000	2.32
						2" Ice	0.0000	6.77
LDF4-50A(1/2")	C	No	Inside Pole	96.0000 - 8.0000	5	4" Ice	0.0000	23.01
						No Ice	0.0000	0.15
						1/2" Ice	0.0000	0.15
						1" Ice	0.0000	0.15
						2" Ice	0.0000	0.15
LDF5-50A(7/8)	C	No	Inside Pole	96.0000 - 8.0000	8	4" Ice	0.0000	0.15
						No Ice	0.0000	0.33
						1/2" Ice	0.0000	0.33
						1" Ice	0.0000	0.33
						2" Ice	0.0000	0.33
LDF5-50A(7/8)	B	No	Inside Pole	82.0000 - 8.0000	18	4" Ice	0.0000	0.33
						No Ice	0.0000	0.33
						1/2" Ice	0.0000	0.33
						1" Ice	0.0000	0.33
						2" Ice	0.0000	0.33
LCF114-50J(1-1/4")	B	No	Inside Pole	82.0000 - 8.0000	6	4" Ice	0.0000	0.33
						No Ice	0.0000	0.70
						1/2" Ice	0.0000	0.70
						1" Ice	0.0000	0.70
						2" Ice	0.0000	0.70
HJ7-50A(1-5/8")	C	No	Inside Pole	72.0000 - 8.0000	6	4" Ice	0.0000	0.70
						No Ice	0.0000	1.04
						1/2" Ice	0.0000	1.04
						1" Ice	0.0000	1.04
						2" Ice	0.0000	1.04
LDF4-50A(1/2")	C	No	Inside Pole	53.0000 - 8.0000	2	4" Ice	0.0000	1.04
						No Ice	0.0000	0.15
						1/2" Ice	0.0000	0.15
						1" Ice	0.0000	0.15
						2" Ice	0.0000	0.15
LDF4-50A(1/2")	C	No	Inside Pole	50.0000 - 8.0000	1	4" Ice	0.0000	0.15
						No Ice	0.0000	0.15
						1/2" Ice	0.0000	0.15
						1" Ice	0.0000	0.15
						2" Ice	0.0000	0.15
CCI-SFP-065125	A	No	CaAa (Out Of Face)	35.1250 - 0.0000	1	4" Ice	0.0000	0.15
						No Ice	0.2083	0.00
						1/2" Ice	0.2917	0.00
						1" Ice	0.3750	0.00
						2" Ice	0.5417	0.00
CCI-SFP-065125	B	No	CaAa (Out Of Face)	35.1250 - 0.0000	1	4" Ice	0.0000	0.15
						No Ice	0.2083	0.00
						1/2" Ice	0.2917	0.00
						1" Ice	0.3750	0.00
						2" Ice	0.5417	0.00
CCI-SFP-065125	C	No	CaAa (Out Of Face)	28.5000 - 0.0000	2	4" Ice	0.0000	0.15
						No Ice	0.2083	0.00
						1/2" Ice	0.2917	0.00
						1" Ice	0.3750	0.00
						2" Ice	0.5417	0.00
CCI-SFP-065125	C	No	CaAa (Out Of Face)	35.1250 - 23.1250	1	4" Ice	0.0000	0.15
						No Ice	0.2083	0.00
						1/2" Ice	0.2917	0.00
						1" Ice	0.3750	0.00
						2" Ice	0.5417	0.00
CCI-SFP-060100	A	No	CaAa (Out Of Face)	55.2290 - 35.1250	1	4" Ice	0.0000	0.15
						No Ice	0.1667	0.00
						1/2" Ice	0.2500	0.00
						1" Ice	0.3333	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A		Weight
						ft ² /ft	plf	
CCI-SFP-060100	B	No	CaAa (Out Of Face)	55.2290 - 35.1250	1	2" Ice	0.5000	0.00
						4" Ice	0.8333	0.00
						No Ice	0.1667	0.00
						1/2" Ice	0.2500	0.00
						1" Ice	0.3333	0.00
						2" Ice	0.5000	0.00
CCI-SFP-060100	C	No	CaAa (Out Of Face)	55.2290 - 35.1250	1	4" Ice	0.8333	0.00
						No Ice	0.1667	0.00
						1/2" Ice	0.2500	0.00
						1" Ice	0.3333	0.00
						2" Ice	0.5000	0.00
						4" Ice	0.8333	0.00
CCI-SFP-045100	A	No	CaAa (Out Of Face)	72.1670 - 62.1670	1	No Ice	0.1667	0.00
						1/2" Ice	0.2500	0.00
						1" Ice	0.3333	0.00
						2" Ice	0.5000	0.00
						4" Ice	0.8333	0.00
						4" Ice	0.8333	0.00
CCI-SFP-045100	B	No	CaAa (Out Of Face)	72.1670 - 62.1670	1	No Ice	0.1667	0.00
						1/2" Ice	0.2500	0.00
						1" Ice	0.3333	0.00
						2" Ice	0.5000	0.00
						4" Ice	0.8333	0.00
						4" Ice	0.8333	0.00
CCI-SFP-045100	C	No	CaAa (Out Of Face)	72.1670 - 62.1670	1	No Ice	0.1667	0.00
						1/2" Ice	0.2500	0.00
						1" Ice	0.3333	0.00
						2" Ice	0.5000	0.00
						4" Ice	0.8333	0.00
						4" Ice	0.8333	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	148.0000- 143.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.188	0.03
L2	143.0000- 138.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.188	0.03
L3	138.0000- 133.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.188	0.03
L4	133.0000- 128.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.188	0.03
L5	128.0000- 123.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.188	0.03
L6	123.0000- 118.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.129	0.02
		C	0.000	0.000	0.000	0.188	0.03
L7	118.0000- 113.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.323	0.05
		C	0.000	0.000	0.000	0.188	0.03
L8	113.0000- 108.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.323	0.05
		C	0.000	0.000	0.000	0.188	0.03
L9	108.0000- 100.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.484	0.08
		C	0.000	0.000	0.000	0.281	0.05
L10	100.5000- 99.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.065	0.01
		C	0.000	0.000	0.000	0.037	0.01
L11	99.5000-94.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.323	0.05
		C	0.000	0.000	0.000	0.188	0.04
L12	94.5000-89.5000	A	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L13	89.5000-84.5000	B	0.000	0.000	0.000	0.323	0.05
		C	0.000	0.000	0.000	0.188	0.05
		A	0.000	0.000	0.000	0.000	0.00
L14	84.5000-79.5000	B	0.000	0.000	0.000	0.323	0.05
		C	0.000	0.000	0.000	0.188	0.05
		A	0.000	0.000	0.000	0.000	0.00
L15	79.5000-74.5000	B	0.000	0.000	0.000	0.323	0.08
		C	0.000	0.000	0.000	0.188	0.05
		A	0.000	0.000	0.000	0.000	0.00
L16	74.5000-70.6670	B	0.000	0.000	0.000	0.323	0.10
		C	0.000	0.000	0.000	0.188	0.05
		A	0.000	0.000	0.000	0.250	0.00
L17	70.6670-70.4170	B	0.000	0.000	0.000	0.497	0.08
		C	0.000	0.000	0.000	0.394	0.05
		A	0.000	0.000	0.000	0.042	0.00
L18	70.4170-65.4170	B	0.000	0.000	0.000	0.058	0.01
		C	0.000	0.000	0.000	0.051	0.00
		A	0.000	0.000	0.000	0.833	0.00
L19	65.4170-63.6670	B	0.000	0.000	0.000	1.156	0.10
		C	0.000	0.000	0.000	1.021	0.08
		A	0.000	0.000	0.000	0.292	0.00
L20	63.6670-63.4170	B	0.000	0.000	0.000	0.405	0.04
		C	0.000	0.000	0.000	0.357	0.03
		A	0.000	0.000	0.000	0.042	0.00
L21	63.4170-58.2500	B	0.000	0.000	0.000	0.058	0.01
		C	0.000	0.000	0.000	0.051	0.00
		A	0.000	0.000	0.000	0.208	0.00
L22	58.2500-57.2500	B	0.000	0.000	0.000	0.542	0.11
		C	0.000	0.000	0.000	0.402	0.08
		A	0.000	0.000	0.000	0.000	0.00
L23	57.2500-53.2290	B	0.000	0.000	0.000	0.065	0.02
		C	0.000	0.000	0.000	0.037	0.02
		A	0.000	0.000	0.000	0.333	0.00
L24	53.2290-52.9790	B	0.000	0.000	0.000	0.593	0.08
		C	0.000	0.000	0.000	0.484	0.06
		A	0.000	0.000	0.000	0.042	0.00
L25	52.9790-47.9790	B	0.000	0.000	0.000	0.058	0.01
		C	0.000	0.000	0.000	0.051	0.00
		A	0.000	0.000	0.000	0.833	0.00
L26	47.9790-42.9790	B	0.000	0.000	0.000	1.156	0.10
		C	0.000	0.000	0.000	1.021	0.08
		A	0.000	0.000	0.000	0.833	0.00
L27	42.9790-37.9790	B	0.000	0.000	0.000	1.156	0.10
		C	0.000	0.000	0.000	1.021	0.08
		A	0.000	0.000	0.000	0.833	0.00
L28	37.9790-35.1250	B	0.000	0.000	0.000	1.156	0.10
		C	0.000	0.000	0.000	1.021	0.08
		A	0.000	0.000	0.000	0.476	0.00
L29	35.1250-34.8750	B	0.000	0.000	0.000	0.660	0.06
		C	0.000	0.000	0.000	0.583	0.05
		A	0.000	0.000	0.000	0.052	0.00
L30	34.8750-28.7500	B	0.000	0.000	0.000	0.068	0.01
		C	0.000	0.000	0.000	0.061	0.00
		A	0.000	0.000	0.000	1.276	0.00
L31	28.7500-27.7500	B	0.000	0.000	0.000	1.671	0.13
		C	0.000	0.000	0.000	1.506	0.10
		A	0.000	0.000	0.000	0.208	0.00
L32	27.7500-25.8750	B	0.000	0.000	0.000	0.273	0.02
		C	0.000	0.000	0.000	0.558	0.02
		A	0.000	0.000	0.000	0.391	0.00
L33	25.8750-25.7500	B	0.000	0.000	0.000	0.512	0.04
		C	0.000	0.000	0.000	1.242	0.03
		A	0.000	0.000	0.000	0.026	0.00
L34	25.7500-25.6250	B	0.000	0.000	0.000	0.034	0.00
		C	0.000	0.000	0.000	0.083	0.00
		A	0.000	0.000	0.000	0.026	0.00
L35	25.6250-25.5000	B	0.000	0.000	0.000	0.034	0.00
		A	0.000	0.000	0.000	0.026	0.00

Tower Section	Tower Elevation	Face	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		ft ²	ft ²	ft ²	ft ²	K
L36	25.5000-20.5000	C	0.000	0.000	0.000	0.083	0.00
		A	0.000	0.000	0.000	1.042	0.00
		B	0.000	0.000	0.000	1.364	0.10
		C	0.000	0.000	0.000	2.766	0.08
L37	20.5000-15.5000	A	0.000	0.000	0.000	1.042	0.00
		B	0.000	0.000	0.000	1.364	0.10
		C	0.000	0.000	0.000	2.271	0.08
L38	15.5000-10.5000	A	0.000	0.000	0.000	1.042	0.00
		B	0.000	0.000	0.000	1.364	0.10
		C	0.000	0.000	0.000	2.271	0.08
L39	10.5000-5.5000	A	0.000	0.000	0.000	1.042	0.00
		B	0.000	0.000	0.000	1.203	0.05
		C	0.000	0.000	0.000	2.102	0.04
L40	5.5000-0.5000	A	0.000	0.000	0.000	1.042	0.00
		B	0.000	0.000	0.000	1.042	0.00
		C	0.000	0.000	0.000	2.083	0.00
L41	0.5000-0.0000	A	0.000	0.000	0.000	0.104	0.00
		B	0.000	0.000	0.000	0.104	0.00
		C	0.000	0.000	0.000	0.208	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		in	ft ²	ft ²	ft ²	ft ²	K
L1	148.0000-143.0000	A	0.896	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.084	0.04
L2	143.0000-138.0000	A	0.892	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.080	0.04
L3	138.0000-133.0000	A	0.889	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.076	0.04
L4	133.0000-128.0000	A	0.885	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.072	0.04
L5	128.0000-123.0000	A	0.880	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.068	0.04
L6	123.0000-118.0000	A	0.876	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.479	0.03
		C		0.000	0.000	0.000	1.064	0.04
L7	118.0000-113.0000	A	0.872	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	1.194	0.07
		C		0.000	0.000	0.000	1.059	0.04
L8	113.0000-108.0000	A	0.867	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	1.190	0.07
		C		0.000	0.000	0.000	1.055	0.04
L9	108.0000-100.5000	A	0.861	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	1.775	0.11
		C		0.000	0.000	0.000	1.573	0.06
L10	100.5000-99.5000	A	0.857	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.237	0.01
		C		0.000	0.000	0.000	0.210	0.01
L11	99.5000-94.5000	A	0.854	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	1.176	0.07
		C		0.000	0.000	0.000	1.041	0.04
L12	94.5000-89.5000	A	0.848	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	1.171	0.07
		C		0.000	0.000	0.000	1.036	0.05
L13	89.5000-84.5000	A	0.843	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	1.165	0.07
		C		0.000	0.000	0.000	1.030	0.05
L14	84.5000-79.5000	A	0.837	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	1.159	0.10
		C		0.000	0.000	0.000	1.024	0.05
L15	79.5000-74.5000	A	0.830	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
		B		0.000	0.000	0.000	1.153	0.12
		C		0.000	0.000	0.000	1.018	0.05
L16	74.5000-70.6670	A	0.824	0.000	0.000	0.000	0.456	0.00
		B		0.000	0.000	0.000	1.335	0.09
		C		0.000	0.000	0.000	1.232	0.05
L17	70.6670-70.4170	A	0.822	0.000	0.000	0.000	0.076	0.00
		B		0.000	0.000	0.000	0.133	0.01
		C		0.000	0.000	0.000	0.126	0.00
L18	70.4170-65.4170	A	0.818	0.000	0.000	0.000	1.515	0.00
		B		0.000	0.000	0.000	2.655	0.12
		C		0.000	0.000	0.000	2.520	0.08
L19	65.4170-63.6670	A	0.813	0.000	0.000	0.000	0.529	0.00
		B		0.000	0.000	0.000	0.926	0.04
		C		0.000	0.000	0.000	0.879	0.03
L20	63.6670-63.4170	A	0.811	0.000	0.000	0.000	0.075	0.00
		B		0.000	0.000	0.000	0.132	0.01
		C		0.000	0.000	0.000	0.125	0.00
L21	63.4170-58.2500	A	0.807	0.000	0.000	0.000	0.376	0.00
		B		0.000	0.000	0.000	1.544	0.12
		C		0.000	0.000	0.000	1.404	0.09
L22	58.2500-57.2500	A	0.802	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.226	0.02
		C		0.000	0.000	0.000	0.199	0.02
L23	57.2500-53.2290	A	0.798	0.000	0.000	0.000	0.599	0.00
		B		0.000	0.000	0.000	1.500	0.10
		C		0.000	0.000	0.000	1.392	0.07
L24	53.2290-52.9790	A	0.794	0.000	0.000	0.000	0.075	0.00
		B		0.000	0.000	0.000	0.131	0.01
		C		0.000	0.000	0.000	0.124	0.00
L25	52.9790-47.9790	A	0.789	0.000	0.000	0.000	1.491	0.00
		B		0.000	0.000	0.000	2.603	0.12
		C		0.000	0.000	0.000	2.468	0.09
L26	47.9790-42.9790	A	0.779	0.000	0.000	0.000	1.483	0.00
		B		0.000	0.000	0.000	2.585	0.12
		C		0.000	0.000	0.000	2.450	0.09
L27	42.9790-37.9790	A	0.769	0.000	0.000	0.000	1.474	0.00
		B		0.000	0.000	0.000	2.565	0.12
		C		0.000	0.000	0.000	2.430	0.09
L28	37.9790-35.1250	A	0.759	0.000	0.000	0.000	0.837	0.00
		B		0.000	0.000	0.000	1.454	0.07
		C		0.000	0.000	0.000	1.377	0.05
L29	35.1250-34.8750	A	0.755	0.000	0.000	0.000	0.084	0.00
		B		0.000	0.000	0.000	0.137	0.01
		C		0.000	0.000	0.000	0.131	0.00
L30	34.8750-28.7500	A	0.750	0.000	0.000	0.000	2.042	0.00
		B		0.000	0.000	0.000	3.355	0.14
		C		0.000	0.000	0.000	3.190	0.11
L31	28.7500-27.7500	A	0.750	0.000	0.000	0.000	0.333	0.00
		B		0.000	0.000	0.000	0.548	0.02
		C		0.000	0.000	0.000	1.021	0.02
L32	27.7500-25.8750	A	0.750	0.000	0.000	0.000	0.625	0.00
		B		0.000	0.000	0.000	1.027	0.04
		C		0.000	0.000	0.000	2.227	0.03
L33	25.8750-25.7500	A	0.750	0.000	0.000	0.000	0.042	0.00
		B		0.000	0.000	0.000	0.068	0.00
		C		0.000	0.000	0.000	0.148	0.00
L34	25.7500-25.6250	A	0.750	0.000	0.000	0.000	0.042	0.00
		B		0.000	0.000	0.000	0.068	0.00
		C		0.000	0.000	0.000	0.148	0.00
L35	25.6250-25.5000	A	0.750	0.000	0.000	0.000	0.042	0.00
		B		0.000	0.000	0.000	0.068	0.00
		C		0.000	0.000	0.000	0.148	0.00
L36	25.5000-20.5000	A	0.750	0.000	0.000	0.000	1.667	0.00
		B		0.000	0.000	0.000	2.739	0.12
		C		0.000	0.000	0.000	5.063	0.09
L37	20.5000-15.5000	A	0.750	0.000	0.000	0.000	1.667	0.00
		B		0.000	0.000	0.000	2.739	0.12
		C		0.000	0.000	0.000	4.271	0.09
L38	15.5000-10.5000	A	0.750	0.000	0.000	0.000	1.667	0.00
		B		0.000	0.000	0.000	2.739	0.12

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L39	10.5000-5.5000	C	0.750	0.000	0.000	0.000	4.271	0.09
		A		0.000	0.000	0.000	1.667	0.00
		B		0.000	0.000	0.000	2.203	0.06
L40	5.5000-0.5000	C	0.750	0.000	0.000	0.000	3.427	0.04
		A		0.000	0.000	0.000	1.667	0.00
		B		0.000	0.000	0.000	1.667	0.00
L41	0.5000-0.0000	C	0.750	0.000	0.000	0.000	3.333	0.00
		A		0.000	0.000	0.000	0.167	0.00
		B		0.000	0.000	0.000	0.167	0.00
		C		0.000	0.000	0.000	0.333	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	148.0000-143.0000	-0.0478	0.0276	-0.2356	0.1360
L2	143.0000-138.0000	-0.0478	0.0276	-0.2366	0.1366
L3	138.0000-133.0000	-0.0478	0.0276	-0.2374	0.1371
L4	133.0000-128.0000	-0.0479	0.0276	-0.2381	0.1374
L5	128.0000-123.0000	-0.0479	0.0277	-0.2386	0.1378
L6	123.0000-118.0000	-0.0144	0.0464	-0.1256	0.1939
L7	118.0000-113.0000	0.0336	0.0734	0.0281	0.2704
L8	113.0000-108.0000	0.0337	0.0735	0.0283	0.2714
L9	108.0000-100.5000	0.0337	0.0736	0.0285	0.2724
L10	100.5000-99.5000	0.0338	0.0736	0.0286	0.2730
L11	99.5000-94.5000	0.0338	0.0737	0.0287	0.2725
L12	94.5000-89.5000	0.0338	0.0738	0.0289	0.2729
L13	89.5000-84.5000	0.0339	0.0738	0.0291	0.2732
L14	84.5000-79.5000	0.0339	0.0739	0.0293	0.2733
L15	79.5000-74.5000	0.0339	0.0740	0.0294	0.2733
L16	74.5000-70.6670	0.0320	0.0697	0.0269	0.2487
L17	70.6670-70.4170	0.0294	0.0641	0.0238	0.2187
L18	70.4170-65.4170	0.0294	0.0642	0.0239	0.2192
L19	65.4170-63.6670	0.0295	0.0644	0.0240	0.2196
L20	63.6670-63.4170	0.0296	0.0645	0.0241	0.2198
L21	63.4170-58.2500	0.0328	0.0716	0.0283	0.2573
L22	58.2500-57.2500	0.0340	0.0742	0.0299	0.2719
L23	57.2500-53.2290	0.0317	0.0691	0.0269	0.2422
L24	53.2290-52.9790	0.0297	0.0648	0.0244	0.2192
L25	52.9790-47.9790	0.0298	0.0649	0.0246	0.2193
L26	47.9790-42.9790	0.0299	0.0651	0.0248	0.2192
L27	42.9790-37.9790	0.0300	0.0654	0.0250	0.2189
L28	37.9790-35.1250	0.0300	0.0655	0.0252	0.2185
L29	35.1250-34.8750	0.0292	0.0637	0.0246	0.2129
L30	34.8750-28.7500	0.0293	0.0639	0.0248	0.2129
L31	28.7500-27.7500	-0.2891	0.2423	-0.3959	0.4357
L32	27.7500-25.8750	-0.3864	0.2970	-0.5212	0.5027
L33	25.8750-25.7500	-0.3869	0.2973	-0.5221	0.5036
L34	25.7500-25.6250	-0.3869	0.2973	-0.5222	0.5037
L35	25.6250-25.5000	-0.3870	0.2974	-0.5223	0.5038
L36	25.5000-20.5000	-0.2849	0.2403	-0.3918	0.4355
L37	20.5000-15.5000	-0.1895	0.1872	-0.2682	0.3717
L38	15.5000-10.5000	-0.1903	0.1880	-0.2701	0.3744
L39	10.5000-5.5000	-0.1922	0.1505	-0.2285	0.2467
L40	5.5000-0.5000	-0.2250	0.1299	-0.3196	0.1845
L41	0.5000-0.0000	-0.2254	0.1301	-0.3205	0.1851

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _A A _A Front	C _A A _A Side	Weight K
						ft ²	ft ²	
Platform Mount [LP 1201-1]	C	None		0.0000	148.0000	No Ice 23.1000 1/2" 26.8000 Ice 30.5000 1" Ice 37.9000 2" Ice 52.7000 4" Ice	23.1000 26.8000 30.5000 37.9000 52.7000	2.10 2.50 2.90 3.70 5.30
APXVSPP18-C-A20 w/ Mount Pipe	A	From Face	4.0000 -7.00 0.00	0.0000	148.0000	No Ice 8.4975 1/2" 9.1490 Ice 9.7672 1" Ice 11.0311 2" Ice 13.6786 4" Ice	6.9458 8.1266 9.0212 10.8440 14.8507	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	A	From Face	4.0000 7.00 0.00	60.0000	148.0000	No Ice 8.4975 1/2" 9.1490 Ice 9.7672 1" Ice 11.0311 2" Ice 13.6786 4" Ice	6.9458 8.1266 9.0212 10.8440 14.8507	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	C	From Face	4.0000 0.00 0.00	0.0000	148.0000	No Ice 8.4975 1/2" 9.1490 Ice 9.7672 1" Ice 11.0311 2" Ice 13.6786 4" Ice	6.9458 8.1266 9.0212 10.8440 14.8507	0.08 0.15 0.23 0.41 0.91
LLPX310R w/ Mount Pipe	A	From Face	4.0000 0.00 3.00	0.0000	148.0000	No Ice 5.0651 1/2" 5.4799 Ice 5.9053 1" Ice 6.7882 2" Ice 8.7047 4" Ice	2.9846 3.5275 4.0872 5.3142 8.1325	0.05 0.08 0.13 0.23 0.54
LLPX310R w/ Mount Pipe	B	From Face	4.0000 -3.50 3.00	0.0000	148.0000	No Ice 5.0651 1/2" 5.4799 Ice 5.9053 1" Ice 6.7882 2" Ice 8.7047 4" Ice	2.9846 3.5275 4.0872 5.3142 8.1325	0.05 0.08 0.13 0.23 0.54
LLPX310R w/ Mount Pipe	C	From Face	4.0000 -3.50 3.00	0.0000	148.0000	No Ice 5.0651 1/2" 5.4799 Ice 5.9053 1" Ice 6.7882 2" Ice 8.7047 4" Ice	2.9846 3.5275 4.0872 5.3142 8.1325	0.05 0.08 0.13 0.23 0.54
DB420	A	From Face	4.0000 0.00 12.00	0.0000	148.0000	No Ice 3.3300 1/2" 5.9940 Ice 8.6580 1" Ice 13.9860 2" Ice 24.6420 4" Ice	3.3300 5.9940 8.6580 13.9860 24.6420	0.03 0.04 0.05 0.07 0.12
(3) PCS 1900MHz 4x45W- 65MHz	A	From Face	4.0000 0.00 0.00	0.0000	148.0000	No Ice 2.7087 1/2" 2.9477 Ice 3.1953 1" Ice 3.7164 2" Ice 4.8623 4" Ice	2.6111 2.8475 3.0925 3.6084 4.7439	0.06 0.08 0.11 0.17 0.35
(3) PCS 1900MHz 4x45W- 65MHz	B	From Face	4.0000 0.00 0.00	0.0000	148.0000	No Ice 2.7087 1/2" 2.9477 Ice 3.1953 1" Ice 3.7164 2" Ice 4.8623 4" Ice	2.6111 2.8475 3.0925 3.6084 4.7439	0.06 0.08 0.11 0.17 0.35
(3) PCS 1900MHz 4x45W- 65MHz	C	From Face	4.0000 0.00 0.00	0.0000	148.0000	No Ice 2.7087 1/2" 2.9477 Ice 3.1953	2.6111 2.8475 3.0925	0.06 0.08 0.11

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral					
(3) ACU-A20-N	A	From Face	4.0000	0.0000	148.0000	1" Ice	3.7164	3.6084	0.17
						2" Ice	4.8623	4.7439	0.35
						4" Ice			
						No Ice	0.0778	0.1361	0.00
						1/2" Ice	0.1210	0.1890	0.00
						Ice	0.1728	0.2506	0.00
						1" Ice	0.3025	0.3997	0.01
(3) ACU-A20-N	B	From Face	4.0000	0.0000	148.0000	2" Ice	0.6654	0.8015	0.04
						4" Ice			
						No Ice	0.0778	0.1361	0.00
						1/2" Ice	0.1210	0.1890	0.00
						Ice	0.1728	0.2506	0.00
						1" Ice	0.3025	0.3997	0.01
						2" Ice	0.6654	0.8015	0.04
(3) ACU-A20-N	C	From Face	4.0000	0.0000	148.0000	4" Ice			
						No Ice	0.0778	0.1361	0.00
						1/2" Ice	0.1210	0.1890	0.00
						Ice	0.1728	0.2506	0.00
						1" Ice	0.3025	0.3997	0.01
						2" Ice	0.6654	0.8015	0.04
						4" Ice			
800MHZ RRH	A	From Face	4.0000	0.0000	148.0000	No Ice	2.4899	2.0685	0.05
						1/2" Ice	2.7061	2.2705	0.07
						Ice	2.9310	2.4812	0.10
						1" Ice	3.4068	2.9284	0.16
						2" Ice	4.4620	3.9265	0.32
						4" Ice			
						No Ice	2.4899	2.0685	0.05
800MHZ RRH	B	From Face	4.0000	0.0000	148.0000	1/2" Ice	2.7061	2.2705	0.07
						Ice	2.9310	2.4812	0.10
						1" Ice	3.4068	2.9284	0.16
						2" Ice	4.4620	3.9265	0.32
						4" Ice			
						No Ice	2.4899	2.0685	0.05
						1/2" Ice	2.7061	2.2705	0.07
800MHZ RRH	C	From Face	4.0000	0.0000	148.0000	Ice	2.9310	2.4812	0.10
						1" Ice	3.4068	2.9284	0.16
						2" Ice	4.4620	3.9265	0.32
						4" Ice			
						No Ice	2.4899	2.0685	0.05
						1/2" Ice	2.7061	2.2705	0.07
						Ice	2.9310	2.4812	0.10
800 EXTERNAL NOTCH FILTER	A	From Face	4.0000	0.0000	148.0000	1" Ice	1.3007	0.7868	0.04
						2" Ice	1.9696	1.3372	0.11
						4" Ice			
						No Ice	0.7701	0.3747	0.01
						1/2" Ice	0.8898	0.4647	0.02
						Ice	1.0181	0.5634	0.02
						1" Ice	1.3007	0.7868	0.04
800 EXTERNAL NOTCH FILTER	B	From Face	4.0000	0.0000	148.0000	2" Ice	1.9696	1.3372	0.11
						4" Ice			
						No Ice	0.7701	0.3747	0.01
						1/2" Ice	0.8898	0.4647	0.02
						Ice	1.0181	0.5634	0.02
						1" Ice	1.3007	0.7868	0.04
						2" Ice	1.9696	1.3372	0.11
800 EXTERNAL NOTCH FILTER	C	From Face	4.0000	0.0000	148.0000	4" Ice			
						No Ice	0.7701	0.3747	0.01
						1/2" Ice	0.8898	0.4647	0.02
						Ice	1.0181	0.5634	0.02
						1" Ice	1.3007	0.7868	0.04
						2" Ice	1.9696	1.3372	0.11
						4" Ice			
FDD_R6_RRH	A	From Face	4.0000	0.0000	148.0000	No Ice	1.7889	0.7778	0.03
						1/2" Ice	1.9715	0.9182	0.04
						Ice	2.1627	1.0673	0.06
						1" Ice	2.5710	1.3914	0.09
						2" Ice	3.4914	2.1432	0.20
						4" Ice			
						No Ice	1.7889	0.7778	0.03
FDD_R6_RRH	B	From Face	4.0000	0.0000	148.0000	1/2" Ice	1.9715	0.9182	0.04
						Ice	2.1627	1.0673	0.06
						3.00			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K	
FDD_R6_RRH	C	From Face	4.0000 0.00 3.00	0.0000	148.0000	1" Ice	2.5710	1.3914	0.09
						2" Ice	3.4914	2.1432	0.20
						4" Ice			
						No Ice	1.7889	0.7778	0.03
						1/2" Ice	1.9715	0.9182	0.04
6' x 2" Mount Pipe	A	From Face	4.0000 -3.50 0.00	0.0000	148.0000	1" Ice	2.1627	1.0673	0.06
						2" Ice	2.5710	1.3914	0.09
						4" Ice	3.4914	2.1432	0.20
						No Ice	1.4250	1.4250	0.02
						1/2" Ice	1.9250	1.9250	0.03
6' x 2" Mount Pipe	A	From Face	4.0000 3.50 0.00	0.0000	148.0000	Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
						2" Ice	4.7022	4.7022	0.23
						4" Ice			
						No Ice	1.4250	1.4250	0.02
6' x 2" Mount Pipe	B	From Face	4.0000 0.00 0.00	0.0000	148.0000	1/2" Ice	1.9250	1.9250	0.03
						Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
						2" Ice	4.7022	4.7022	0.23
						4" Ice			
6' x 2" Mount Pipe	B	From Face	4.0000 -7.00 0.00	0.0000	148.0000	No Ice	1.4250	1.4250	0.02
						1/2" Ice	1.9250	1.9250	0.03
						Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
						2" Ice	4.7022	4.7022	0.23
6' x 2" Mount Pipe	C	From Face	4.0000 -7.00 0.00	0.0000	148.0000	4" Ice			
						No Ice	1.4250	1.4250	0.02
						1/2" Ice	1.9250	1.9250	0.03
						Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
6' x 2" Mount Pipe	C	From Face	4.0000 -3.50 0.00	0.0000	148.0000	2" Ice	4.7022	4.7022	0.23
						4" Ice			
						No Ice	1.4250	1.4250	0.02
						1/2" Ice	1.9250	1.9250	0.03
						Ice	2.2939	2.2939	0.05
Pipe Mount [PM 601-1]	A	From Face	0.0000 0.00 0.00	0.0000	144.0000	1" Ice	5.9600	1.7800	0.12
						2" Ice	8.9200	2.6600	0.18
						4" Ice			
						Ice	4.4800	1.3400	0.09
						1/2" Ice	3.7400	1.1200	0.08
Platform Mount [LP 1201-1]	C	None		0.0000	120.0000	No Ice	23.1000	23.1000	2.10
						1/2" Ice	26.8000	26.8000	2.50
						Ice	30.5000	30.5000	2.90
						1" Ice	37.9000	37.9000	3.70
						2" Ice	52.7000	52.7000	5.30
(2) 7770.00 w/ Mount Pipe	A	From Face	4.0000 0.00 0.00	23.0000	120.0000	4" Ice			
						No Ice	6.1194	4.2543	0.06
						1/2" Ice	6.6258	5.0137	0.10
						Ice	7.1283	5.7109	0.16
						1" Ice	8.1643	7.1553	0.29
(2) 7770.00 w/ Mount Pipe	B	From Face	4.0000	23.0000	120.0000	2" Ice	10.3599	10.4117	0.66
						No Ice	6.1194	4.2543	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			0.00			1/2"	6.6258	5.0137	0.10
			0.00			Ice	7.1283	5.7109	0.16
						1" Ice	8.1643	7.1553	0.29
						2" Ice	10.3599	10.4117	0.66
						4" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Face	4.0000	23.0000	120.0000	No Ice	6.1194	4.2543	0.06
			0.00			1/2"	6.6258	5.0137	0.10
			0.00			Ice	7.1283	5.7109	0.16
						1" Ice	8.1643	7.1553	0.29
						2" Ice	10.3599	10.4117	0.66
						4" Ice			
P65-16-XLH-RR w/ Mount Pipe	A	From Face	4.0000	30.0000	120.0000	No Ice	8.6375	6.3625	0.08
			3.50			1/2"	9.2903	7.5378	0.14
			0.00			Ice	9.9098	8.4270	0.22
						1" Ice	11.1763	10.2390	0.39
						2" Ice	13.8289	14.0988	0.89
						4" Ice			
P65-16-XLH-RR w/ Mount Pipe	B	From Face	4.0000	30.0000	120.0000	No Ice	8.6375	6.3625	0.08
			3.50			1/2"	9.2903	7.5378	0.14
			0.00			Ice	9.9098	8.4270	0.22
						1" Ice	11.1763	10.2390	0.39
						2" Ice	13.8289	14.0988	0.89
						4" Ice			
P65-16-XLH-RR w/ Mount Pipe	C	From Face	4.0000	30.0000	120.0000	No Ice	8.6375	6.3625	0.08
			3.50			1/2"	9.2903	7.5378	0.14
			0.00			Ice	9.9098	8.4270	0.22
						1" Ice	11.1763	10.2390	0.39
						2" Ice	13.8289	14.0988	0.89
						4" Ice			
(4) LGP2140X	A	From Face	4.0000	23.0000	120.0000	No Ice	1.2600	0.3780	0.01
			0.00			1/2"	1.4160	0.4932	0.02
			0.00			Ice	1.5806	0.6170	0.03
						1" Ice	1.9358	0.8905	0.05
						2" Ice	2.7499	1.5412	0.13
						4" Ice			
(4) LGP2140X	B	From Face	4.0000	23.0000	120.0000	No Ice	1.2600	0.3780	0.01
			0.00			1/2"	1.4160	0.4932	0.02
			0.00			Ice	1.5806	0.6170	0.03
						1" Ice	1.9358	0.8905	0.05
						2" Ice	2.7499	1.5412	0.13
						4" Ice			
(4) LGP2140X	C	From Face	4.0000	23.0000	120.0000	No Ice	1.2600	0.3780	0.01
			0.00			1/2"	1.4160	0.4932	0.02
			0.00			Ice	1.5806	0.6170	0.03
						1" Ice	1.9358	0.8905	0.05
						2" Ice	2.7499	1.5412	0.13
						4" Ice			
RRUS-11	A	From Face	4.0000	30.0000	120.0000	No Ice	3.2486	1.3726	0.05
			3.50			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.09
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
RRUS-11	B	From Face	4.0000	30.0000	120.0000	No Ice	3.2486	1.3726	0.05
			3.50			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.09
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
RRUS-11	C	From Face	4.0000	30.0000	120.0000	No Ice	3.2486	1.3726	0.05
			3.50			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.09
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
RRUS 11	A	From Face	4.0000	30.0000	120.0000	No Ice	3.2486	1.3726	0.05

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral					
			3.50			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.10
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
RRUS 11	B	From Face	4.0000	30.0000	120.0000	No Ice	3.2486	1.3726	0.05
			3.50			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.10
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
RRUS 11	C	From Face	4.0000	30.0000	120.0000	No Ice	3.2486	1.3726	0.05
			3.50			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.10
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
(4) 7020.00	A	From Face	4.0000	23.0000	120.0000	No Ice	0.1191	0.2042	0.00
			0.00			1/2"	0.1714	0.2791	0.01
			0.00			Ice	0.2323	0.3627	0.01
						1" Ice	0.3801	0.5559	0.02
						2" Ice	0.7793	1.0459	0.07
						4" Ice			
(4) 7020.00	B	From Face	4.0000	23.0000	120.0000	No Ice	0.1191	0.2042	0.00
			0.00			1/2"	0.1714	0.2791	0.01
			0.00			Ice	0.2323	0.3627	0.01
						1" Ice	0.3801	0.5559	0.02
						2" Ice	0.7793	1.0459	0.07
						4" Ice			
(4) 7020.00	C	From Face	4.0000	23.0000	120.0000	No Ice	0.1191	0.2042	0.00
			0.00			1/2"	0.1714	0.2791	0.01
			0.00			Ice	0.2323	0.3627	0.01
						1" Ice	0.3801	0.5559	0.02
						2" Ice	0.7793	1.0459	0.07
						4" Ice			
DC6-48-60-18-8F	A	From Face	4.0000	0.0000	120.0000	No Ice	2.5667	2.5667	0.02
			0.00			1/2"	2.7978	2.7978	0.04
			0.00			Ice	3.0377	3.0377	0.07
						1" Ice	3.5432	3.5432	0.13
						2" Ice	4.6580	4.6580	0.30
						4" Ice			
4' x 2" Pipe Mount	A	From Face	4.0000	0.0000	120.0000	No Ice	0.7852	0.7852	0.03
			-3.50			1/2"	1.0284	1.0284	0.04
			0.00			Ice	1.2809	1.2809	0.04
						1" Ice	1.8136	1.8136	0.07
						2" Ice	3.1111	3.1111	0.17
						4" Ice			
4' x 2" Pipe Mount	B	From Face	4.0000	0.0000	120.0000	No Ice	0.7852	0.7852	0.03
			-3.50			1/2"	1.0284	1.0284	0.04
			0.00			Ice	1.2809	1.2809	0.04
						1" Ice	1.8136	1.8136	0.07
						2" Ice	3.1111	3.1111	0.17
						4" Ice			
4' x 2" Pipe Mount	C	From Face	4.0000	0.0000	120.0000	No Ice	0.7852	0.7852	0.03
			-3.50			1/2"	1.0284	1.0284	0.04
			0.00			Ice	1.2809	1.2809	0.04
						1" Ice	1.8136	1.8136	0.07
						2" Ice	3.1111	3.1111	0.17
						4" Ice			
6' x 2" Horizontal Mount Pipe	A	From Face	4.0000	0.0000	120.0000	No Ice	0.8000	0.8000	0.03
			0.00			1/2"	1.2167	1.2167	0.17
			3.00			Ice	1.6444	1.6444	0.32
						1" Ice	2.5333	2.5333	0.65
						2" Ice	4.4444	4.4444	1.39
						4" Ice			
6' x 2" Horizontal Mount	B	From Face	4.0000	0.0000	120.0000	No Ice	0.8000	0.8000	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
Pipe			0.00 3.00			1/2" Ice 1.2167 1" Ice 2.5333 2" Ice 4.4444	1.2167 1.6444 2.5333 4.4444	0.17 0.32 0.65 1.39
6' x 2" Horizontal Mount Pipe	C	From Face	4.0000 0.00 3.00	0.0000	120.0000	No Ice 1/2" Ice 1.2167 1" Ice 2.5333 2" Ice 4.4444 4" Ice	0.8000 0.8000 1.2167 1.6444 2.5333 4.4444	0.03 0.17 0.32 0.65 1.39
Platform Mount [LP 1201-1]	C	None		0.0000	96.0000	No Ice 1/2" Ice 30.5000 1" Ice 37.9000 2" Ice 52.7000 4" Ice	23.1000 26.8000 30.5000 37.9000 52.7000	2.10 2.50 2.90 3.70 5.30
DB420-B	A	From Face	4.0000 -7.00 11.00	0.0000	96.0000	No Ice 1/2" Ice 8.6580 1" Ice 13.9860 2" Ice 24.6420 4" Ice	3.3300 5.9940 8.6580 13.9860 24.6420	0.03 0.04 0.05 0.07 0.12
PD83-1	A	From Face	4.0000 -7.00 -6.00	0.0000	96.0000	No Ice 1/2" Ice 7.4667 1" Ice 11.3000 2" Ice 18.4568 4" Ice	3.7000 5.5750 7.4667 11.3000 18.4568	0.02 0.05 0.09 0.20 0.58
PD1110	A	From Face	4.0000 -3.50 9.00	0.0000	96.0000	No Ice 1/2" Ice 5.2013 1" Ice 7.9670 2" Ice 11.6110 4" Ice	2.5023 3.8435 5.2013 7.9670 11.6110	0.02 0.04 0.07 0.15 0.42
PD1110	A	From Face	4.0000 3.50 9.00	0.0000	96.0000	No Ice 1/2" Ice 5.2013 1" Ice 7.9670 2" Ice 11.6110 4" Ice	2.5023 3.8435 5.2013 7.9670 11.6110	0.02 0.04 0.07 0.15 0.42
PD201-1	A	From Face	4.0000 7.00 9.00	0.0000	96.0000	No Ice 1/2" Ice 2.4669 1" Ice 4.2716 2" Ice 6.5661 4" Ice	0.6279 1.5391 2.4669 4.2716 6.5661	0.00 0.01 0.02 0.07 0.23
PD83-1	A	From Face	4.0000 7.00 -6.00	0.0000	96.0000	No Ice 1/2" Ice 7.4667 1" Ice 11.3000 2" Ice 18.4568 4" Ice	3.7000 5.5750 7.4667 11.3000 18.4568	0.02 0.05 0.09 0.20 0.58
DB205-A	B	From Face	4.0000 -3.50 12.00	0.0000	96.0000	No Ice 1/2" Ice 3.1200 1" Ice 5.0400 2" Ice 8.8800 4" Ice	1.2000 2.1600 3.1200 5.0400 8.8800	0.04 0.05 0.06 0.08 0.13
PD201-1	B	From Face	4.0000 7.00 9.00	0.0000	96.0000	No Ice 1/2" Ice 2.4669 1" Ice 4.2716 2" Ice 6.5661 4" Ice	0.6279 1.5391 2.4669 4.2716 6.5661	0.00 0.01 0.02 0.07 0.23

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement		C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral				ft ²	ft ²	
			ft	ft	°	ft			K	
PD83-1	B	From Face	4.0000		0.0000	96.0000	No Ice	3.7000	3.7000	0.02
			7.00				1/2"	5.5750	5.5750	0.05
			-6.00				Ice	7.4667	7.4667	0.09
							1" Ice	11.3000	11.3000	0.20
							2" Ice	18.4568	18.4568	0.58
DB806E-XT	C	From Face	4.0000		0.0000	96.0000	No Ice	2.0000	2.0000	0.02
			-7.00				1/2"	2.8292	2.8292	0.03
			9.00				Ice	3.4557	3.4557	0.05
							1" Ice	4.4522	4.4522	0.11
							2" Ice	6.5562	6.5562	0.29
PD220	C	From Face	4.0000		0.0000	96.0000	No Ice	3.0800	3.0800	0.02
			-3.50				1/2"	5.3000	5.3000	0.05
			14.00				Ice	7.5367	7.5367	0.09
							1" Ice	12.0600	12.0600	0.21
							2" Ice	21.3067	21.3067	0.62
DB224	C	From Face	4.0000		0.0000	96.0000	No Ice	3.1500	3.1500	0.03
			3.50				1/2"	5.6700	5.6700	0.04
			11.00				Ice	8.1900	8.1900	0.05
							1" Ice	13.2300	13.2300	0.07
							2" Ice	23.3100	23.3100	0.11
(4) 6' x 2" Mount Pipe	A	From Face	4.0000		0.0000	96.0000	No Ice	1.4250	1.4250	0.02
			-7.00				1/2"	1.9250	1.9250	0.03
			0.00				Ice	2.2939	2.2939	0.05
							1" Ice	3.0596	3.0596	0.09
							2" Ice	4.7022	4.7022	0.23
(2) 6' x 2" Mount Pipe	B	From Face	4.0000		0.0000	96.0000	No Ice	1.4250	1.4250	0.02
			-3.50				1/2"	1.9250	1.9250	0.03
			0.00				Ice	2.2939	2.2939	0.05
							1" Ice	3.0596	3.0596	0.09
							2" Ice	4.7022	4.7022	0.23
(3) 6' x 2" Mount Pipe	C	From Face	4.0000		0.0000	96.0000	No Ice	1.4250	1.4250	0.02
			3.50				1/2"	1.9250	1.9250	0.03
			0.00				Ice	2.2939	2.2939	0.05
							1" Ice	3.0596	3.0596	0.09
							2" Ice	4.7022	4.7022	0.23
Platform Mount [LP 1201-1]	C	None			0.0000	82.0000	No Ice	23.1000	23.1000	2.10
							1/2"	26.8000	26.8000	2.50
							Ice	30.5000	30.5000	2.90
							1" Ice	37.9000	37.9000	3.70
							2" Ice	52.7000	52.7000	5.30
APXV18-206516S-C-A20 w/ Mount Pipe	A	From Face	4.0000		0.0000	82.0000	No Ice	3.8586	3.2963	0.04
			3.50				1/2"	4.2736	4.0044	0.07
			0.00				Ice	4.7274	4.6717	0.11
							1" Ice	5.6860	6.0562	0.21
							2" Ice	7.7274	9.0382	0.53
APXV18-206516S-C-A20 w/ Mount Pipe	B	From Face	4.0000		0.0000	82.0000	No Ice	3.8586	3.2963	0.04
			3.50				1/2"	4.2736	4.0044	0.07
			0.00				Ice	4.7274	4.6717	0.11
							1" Ice	5.6860	6.0562	0.21
							2" Ice	7.7274	9.0382	0.53
APXV18-206516S-C-A20 w/ Mount Pipe	C	From Face	4.0000		0.0000	82.0000	No Ice	3.8586	3.2963	0.04
			3.50				1/2"	4.2736	4.0044	0.07
			0.00				Ice	4.7274	4.6717	0.11
							1" Ice	5.6860	6.0562	0.21
							2" Ice	7.7274	9.0382	0.53

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _{Front}	C _A A _{Side}	Weight	
			Horz	Vert						ft
							ft ²	ft ²	K	
APXV18-206516S-C-A20 w/ Mount Pipe	A	From Face	4.0000	-7.00	0.0000	82.0000	4" Ice			
							No Ice	3.8586	3.2963	0.04
							1/2" Ice	4.2736	4.0044	0.07
							1" Ice	4.7274	4.6717	0.11
							2" Ice	5.6860	6.0562	0.21
APXV18-206516S-C-A20 w/ Mount Pipe	B	From Face	4.0000	-7.00	0.0000	82.0000	4" Ice			
							No Ice	3.8586	3.2963	0.04
							1/2" Ice	4.2736	4.0044	0.07
							1" Ice	4.7274	4.6717	0.11
							2" Ice	5.6860	6.0562	0.21
APXV18-206516S-C-A20 w/ Mount Pipe	C	From Face	4.0000	-7.00	0.0000	82.0000	4" Ice			
							No Ice	3.8586	3.2963	0.04
							1/2" Ice	4.2736	4.0044	0.07
							1" Ice	4.7274	4.6717	0.11
							2" Ice	5.6860	6.0562	0.21
LNX-6515DS-VTM w/ Mount Pipe	A	From Face	4.0000	-3.50	0.0000	82.0000	4" Ice			
							No Ice	11.6465	9.8442	0.08
							1/2" Ice	12.3679	11.3685	0.17
							1" Ice	13.0985	12.9168	0.27
							2" Ice	14.5554	15.2710	0.51
LNX-6515DS-VTM w/ Mount Pipe	B	From Face	4.0000	-3.50	0.0000	82.0000	4" Ice			
							No Ice	11.6465	9.8442	0.08
							1/2" Ice	12.3679	11.3685	0.17
							1" Ice	13.0985	12.9168	0.27
							2" Ice	14.5554	15.2710	0.51
LNX-6515DS-VTM w/ Mount Pipe	C	From Face	4.0000	-3.50	0.0000	82.0000	4" Ice			
							No Ice	11.6465	9.8442	0.08
							1/2" Ice	12.3679	11.3685	0.17
							1" Ice	13.0985	12.9168	0.27
							2" Ice	14.5554	15.2710	0.51
ETW190VS12UB	A	From Face	4.0000	0.00	0.0000	82.0000	4" Ice			
							No Ice	0.6644	0.3669	0.01
							1/2" Ice	0.7783	0.4613	0.02
							1" Ice	0.9008	0.5644	0.03
							2" Ice	1.1717	0.7964	0.04
ETW190VS12UB	B	From Face	4.0000	0.00	0.0000	82.0000	4" Ice			
							No Ice	0.6644	0.3669	0.01
							1/2" Ice	0.7783	0.4613	0.02
							1" Ice	0.9008	0.5644	0.03
							2" Ice	1.1717	0.7964	0.04
ETW190VS12UB	C	From Face	4.0000	0.00	0.0000	82.0000	4" Ice			
							No Ice	0.6644	0.3669	0.01
							1/2" Ice	0.7783	0.4613	0.02
							1" Ice	0.9008	0.5644	0.03
							2" Ice	1.1717	0.7964	0.04
ATMAA1412D-1A20	A	From Face	4.0000	0.00	0.0000	82.0000	4" Ice			
							No Ice	1.1667	0.4667	0.01
							1/2" Ice	1.3136	0.5747	0.02
							1" Ice	1.4691	0.6914	0.03
							2" Ice	1.8062	0.9506	0.06
ATMAA1412D-1A20	B	From Face	4.0000	0.00	0.0000	82.0000	4" Ice			
							No Ice	1.1667	0.4667	0.01
							1/2" Ice	1.3136	0.5747	0.02
							1" Ice	1.4691	0.6914	0.03
							2" Ice	1.8062	0.9506	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
ATMAA1412D-1A20	C	From Face	4.0000 0.00 0.00	0.0000	82.0000	4" Ice	0.4667	0.01
						No Ice	1.1667	0.00
						1/2" Ice	1.3136	0.02
						1" Ice	1.4691	0.03
						2" Ice	1.8062	0.06
ATSBT-BOTTOM-FM-4G	A	From Face	4.0000 0.00 0.00	0.0000	82.0000	4" Ice	0.1095	0.00
						No Ice	0.2025	0.00
						1/2" Ice	0.2673	0.00
						1" Ice	0.3408	0.01
						2" Ice	0.5135	0.01
ATSBT-BOTTOM-FM-4G	B	From Face	4.0000 0.00 0.00	0.0000	82.0000	4" Ice	0.1095	0.00
						No Ice	0.2025	0.00
						1/2" Ice	0.2673	0.00
						1" Ice	0.3408	0.01
						2" Ice	0.5135	0.01
ATSBT-BOTTOM-FM-4G	C	From Face	4.0000 0.00 0.00	0.0000	82.0000	4" Ice	0.1095	0.00
						No Ice	0.2025	0.00
						1/2" Ice	0.2673	0.00
						1" Ice	0.3408	0.01
						2" Ice	0.5135	0.01
Side Arm Mount [SO 102-3]	C	None		0.0000	72.0000	4" Ice	3.0000	0.08
						No Ice	3.0000	0.08
						1/2" Ice	3.4800	0.11
						1" Ice	3.9600	0.14
						2" Ice	4.9200	0.20
800 10504 w/ Mount Pipe	A	From Leg	2.0000 0.00 0.00	0.0000	72.0000	4" Ice	3.1779	0.04
						No Ice	3.5887	0.04
						1/2" Ice	4.0069	0.07
						1" Ice	4.4217	0.11
						2" Ice	5.3391	0.21
800 10504 w/ Mount Pipe	B	From Leg	2.0000 0.00 0.00	0.0000	72.0000	4" Ice	3.1779	0.04
						No Ice	3.5887	0.04
						1/2" Ice	4.0069	0.07
						1" Ice	4.4217	0.11
						2" Ice	5.3391	0.21
800 10504 w/ Mount Pipe	C	From Leg	2.0000 0.00 0.00	0.0000	72.0000	4" Ice	3.1779	0.04
						No Ice	3.5887	0.04
						1/2" Ice	4.0069	0.07
						1" Ice	4.4217	0.11
						2" Ice	5.3391	0.21
Side Arm Mount [SO 702-1]	A	None		0.0000	53.0000	4" Ice	1.4300	0.03
						No Ice	1.0000	0.00
						1/2" Ice	1.2500	0.04
						1" Ice	1.5000	0.05
						2" Ice	2.0000	0.07
8'x2" Antenna Mount Pipe	A	None		0.0000	53.0000	4" Ice	1.9000	0.03
						No Ice	1.9000	0.03
						1/2" Ice	2.7281	0.04
						1" Ice	3.4009	0.06
						2" Ice	4.3962	0.12
BSA150B	A	From Leg	3.0000 0.00 3.00	0.0000	53.0000	4" Ice	11.7778	0.00
						No Ice	11.7778	0.00
						1/2" Ice	12.3000	0.15
						Ice	12.8333	0.31

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
BSA150B	A	From Leg	3.0000 0.00 -3.00	0.0000	53.0000	1" Ice	13.9333	13.9333	0.65
						2" Ice	16.2667	16.2667	1.42
						4" Ice			
						No Ice	11.7778	11.7778	0.00
						1/2" Ice	12.3000	12.3000	0.15
						Ice	12.8333	12.8333	0.31
						1" Ice	13.9333	13.9333	0.65
BULLET III	C	From Face	1.0000 0.00 0.00	0.0000	50.0000	2" Ice	16.2667	16.2667	1.42
						4" Ice			
						No Ice	0.0774	0.0774	0.00
						1/2"	0.1184	0.1184	0.00
						Ice	0.1680	0.1680	0.00
						1" Ice	0.2933	0.2933	0.01
						2" Ice	0.6474	0.6474	0.04

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	
VHLP800-11	B	Paraboloid w/Shroud (HP)	From Face	3.0000 0.00 4.00	-40.0000		148.0000	2.6000	No Ice	5.3100	0.06
									1/2" Ice	5.6600	0.09
									1" Ice	6.0000	0.12
									2" Ice	6.6900	0.18
									4" Ice	8.0800	0.29
VHLP800-11	C	Paraboloid w/Shroud (HP)	From Face	3.0000 -7.00 4.00	90.0000		148.0000	2.6000	No Ice	5.3100	0.06
									1/2" Ice	5.6600	0.09
									1" Ice	6.0000	0.12
									2" Ice	6.6900	0.18
									4" Ice	8.0800	0.29
VHLP2.5-10W	A	Paraboloid w/Shroud (HP)	From Face	1.0000 0.00 0.00	0.0000		144.0000	2.9167	No Ice	6.6800	0.05
									1/2" Ice	7.0700	0.08
									1" Ice	7.4600	0.12
									2" Ice	8.2300	0.19
									4" Ice	9.7800	0.34

Tower Pressures - No Ice

$G_H = 1.690$

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
L1 148.0000-143.0000	145.4812	1.528	32.53	9.378	A	0.000	9.378	9.378	100.00	0.000	0.000
					B	0.000	9.378	100.00	0.000	0.000	
					C	0.000	9.378	100.00	0.000	0.188	
L2 143.0000-138.0000	140.4820	1.513	32.21	9.801	A	0.000	9.801	9.801	100.00	0.000	0.000
					B	0.000	9.801	100.00	0.000	0.000	
					C	0.000	9.801	100.00	0.000	0.188	
L3 138.0000-133.0000	135.4828	1.497	31.88	10.224	A	0.000	10.224	10.224	100.00	0.000	0.000
					B	0.000	10.224	100.00	0.000	0.000	
					C	0.000	10.224	100.00	0.000	0.188	
L4 133.0000-128.0000	130.4834	1.481	31.54	10.647	A	0.000	10.647	10.647	100.00	0.000	0.000
					B	0.000	10.647	100.00	0.000	0.000	
					C	0.000	10.647	100.00	0.000	0.188	

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L5 128.0000-123.0000	125.4841	1.465	31.19	11.070	A	0.000	11.070	11.070	100.00	0.000	0.000
					B	0.000	11.070		100.00	0.000	0.000
					C	0.000	11.070		100.00	0.000	0.188
L6 123.0000-118.0000	120.4847	1.448	30.83	11.493	A	0.000	11.493	11.493	100.00	0.000	0.000
					B	0.000	11.493		100.00	0.000	0.129
					C	0.000	11.493		100.00	0.000	0.188
L7 118.0000-113.0000	115.4852	1.43	30.46	11.916	A	0.000	11.916	11.916	100.00	0.000	0.000
					B	0.000	11.916		100.00	0.000	0.323
					C	0.000	11.916		100.00	0.000	0.188
L8 113.0000-108.0000	110.4857	1.412	30.07	12.339	A	0.000	12.339	12.339	100.00	0.000	0.000
					B	0.000	12.339		100.00	0.000	0.323
					C	0.000	12.339		100.00	0.000	0.188
L9 108.0000-100.5000	104.2192	1.389	29.58	19.301	A	0.000	19.301	19.301	100.00	0.000	0.000
					B	0.000	19.301		100.00	0.000	0.484
					C	0.000	19.301		100.00	0.000	0.281
L10 100.5000-99.5000	99.9995	1.373	29.23	2.604	A	0.000	2.604	2.604	100.00	0.000	0.000
					B	0.000	2.604		100.00	0.000	0.065
					C	0.000	2.604		100.00	0.000	0.037
L11 99.5000-94.5000	96.9867	1.361	28.97	13.272	A	0.000	13.272	13.272	100.00	0.000	0.000
					B	0.000	13.272		100.00	0.000	0.323
					C	0.000	13.272		100.00	0.000	0.188
L12 94.5000-89.5000	91.9871	1.34	28.54	13.695	A	0.000	13.695	13.695	100.00	0.000	0.000
					B	0.000	13.695		100.00	0.000	0.323
					C	0.000	13.695		100.00	0.000	0.188
L13 89.5000-84.5000	86.9875	1.319	28.09	14.118	A	0.000	14.118	14.118	100.00	0.000	0.000
					B	0.000	14.118		100.00	0.000	0.323
					C	0.000	14.118		100.00	0.000	0.188
L14 84.5000-79.5000	81.9879	1.297	27.62	14.541	A	0.000	14.541	14.541	100.00	0.000	0.000
					B	0.000	14.541		100.00	0.000	0.323
					C	0.000	14.541		100.00	0.000	0.188
L15 79.5000-74.5000	76.9882	1.274	27.12	14.964	A	0.000	14.964	14.964	100.00	0.000	0.000
					B	0.000	14.964		100.00	0.000	0.323
					C	0.000	14.964		100.00	0.000	0.188
L16 74.5000-70.6670	72.5767	1.253	26.67	11.758	A	0.000	11.758	11.758	100.00	0.000	0.250
					B	0.000	11.758		100.00	0.000	0.497
					C	0.000	11.758		100.00	0.000	0.394
L17 70.6670-70.4170	70.5420	1.242	26.45	0.776	A	0.000	0.776	0.776	100.00	0.000	0.042
					B	0.000	0.776		100.00	0.000	0.058
					C	0.000	0.776		100.00	0.000	0.051
L18 70.4170-65.4170	67.9058	1.229	26.17	15.732	A	0.000	15.732	15.732	100.00	0.000	0.833
					B	0.000	15.732		100.00	0.000	1.156
					C	0.000	15.732		100.00	0.000	1.021
L19 65.4170-63.6670	64.5407	1.211	25.79	5.606	A	0.000	5.606	5.606	100.00	0.000	0.292
					B	0.000	5.606		100.00	0.000	0.405
					C	0.000	5.606		100.00	0.000	0.357
L20 63.6670-63.4170	63.5420	1.206	25.68	0.805	A	0.000	0.805	0.805	100.00	0.000	0.042
					B	0.000	0.805		100.00	0.000	0.058
					C	0.000	0.805		100.00	0.000	0.051
L21 63.4170-58.2500	60.8220	1.191	25.36	16.877	A	0.000	16.877	16.877	100.00	0.000	0.208
					B	0.000	16.877		100.00	0.000	0.542
					C	0.000	16.877		100.00	0.000	0.402
L22 58.2500-57.2500	57.7496	1.173	24.98	3.252	A	0.000	3.252	3.252	100.00	0.000	0.000
					B	0.000	3.252		100.00	0.000	0.065
					C	0.000	3.252		100.00	0.000	0.037
L23 57.2500-53.2290	55.2329	1.159	24.67	13.240	A	0.000	13.240	13.240	100.00	0.000	0.333
					B	0.000	13.240		100.00	0.000	0.593
					C	0.000	13.240		100.00	0.000	0.484
L24 53.2290-52.9790	53.1040	1.146	24.39	0.832	A	0.000	0.832	0.832	100.00	0.000	0.042
					B	0.000	0.832		100.00	0.000	0.058
					C	0.000	0.832		100.00	0.000	0.051
L25 52.9790-47.9790	50.4690	1.129	24.04	16.849	A	0.000	16.849	16.849	100.00	0.000	0.833
					B	0.000	16.849		100.00	0.000	1.156
					C	0.000	16.849		100.00	0.000	1.021
L26 47.9790-42.9790	45.4692	1.096	23.33	17.253	A	0.000	17.253	17.253	100.00	0.000	0.833
					B	0.000	17.253		100.00	0.000	1.156
					C	0.000	17.253		100.00	0.000	1.021
L27 42.9790-37.9790	40.4694	1.06	22.57	17.658	A	0.000	17.658	17.658	100.00	0.000	0.833
					B	0.000	17.658		100.00	0.000	1.156
					C	0.000	17.658		100.00	0.000	1.021

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L28 37.9790-35.1250	36.5489	1.03	21.92	10.261	A	0.000	10.261	10.261	100.00	0.000	0.476
					B	0.000	10.261		100.00	0.000	0.660
					C	0.000	10.261		100.00	0.000	0.583
L29 35.1250-34.8750	35.0000	1.017	21.65	0.905	A	0.000	0.905	0.905	100.00	0.000	0.052
					B	0.000	0.905		100.00	0.000	0.068
					C	0.000	0.905		100.00	0.000	0.061
L30 34.8750-28.7500	31.7987	1	21.29	22.491	A	0.000	22.491	22.491	100.00	0.000	1.276
					B	0.000	22.491		100.00	0.000	1.671
					C	0.000	22.491		100.00	0.000	1.506
L31 28.7500-27.7500	28.2496	1	21.29	3.665	A	0.000	3.665	3.665	100.00	0.000	0.208
					B	0.000	3.665		100.00	0.000	0.273
					C	0.000	3.665		100.00	0.000	0.558
L32 27.7500-25.8750	26.8111	1	21.29	6.919	A	0.000	6.919	6.919	100.00	0.000	0.391
					B	0.000	6.919		100.00	0.000	0.512
					C	0.000	6.919		100.00	0.000	1.242
L33 25.8750-25.7500	25.8125	1	21.29	0.463	A	0.000	0.463	0.463	100.00	0.000	0.026
					B	0.000	0.463		100.00	0.000	0.034
					C	0.000	0.463		100.00	0.000	0.083
L34 25.7500-25.6250	25.6875	1	21.29	0.464	A	0.000	0.464	0.464	100.00	0.000	0.026
					B	0.000	0.464		100.00	0.000	0.034
					C	0.000	0.464		100.00	0.000	0.083
L35 25.6250-25.5000	25.5625	1	21.29	0.464	A	0.000	0.464	0.464	100.00	0.000	0.026
					B	0.000	0.464		100.00	0.000	0.034
					C	0.000	0.464		100.00	0.000	0.083
L36 25.5000-20.5000	22.9903	1	21.29	18.785	A	0.000	18.785	18.785	100.00	0.000	1.042
					B	0.000	18.785		100.00	0.000	1.364
					C	0.000	18.785		100.00	0.000	2.766
L37 20.5000-15.5000	17.9905	1	21.29	19.223	A	0.000	19.223	19.223	100.00	0.000	1.042
					B	0.000	19.223		100.00	0.000	1.364
					C	0.000	19.223		100.00	0.000	2.271
L38 15.5000-10.5000	12.9907	1	21.29	19.661	A	0.000	19.661	19.661	100.00	0.000	1.042
					B	0.000	19.661		100.00	0.000	1.364
					C	0.000	19.661		100.00	0.000	2.271
L39 10.5000-5.5000	7.9909	1	21.29	20.099	A	0.000	20.099	20.099	100.00	0.000	1.042
					B	0.000	20.099		100.00	0.000	1.203
					C	0.000	20.099		100.00	0.000	2.102
L40 5.5000-0.5000	2.9911	1	21.29	20.537	A	0.000	20.537	20.537	100.00	0.000	1.042
					B	0.000	20.537		100.00	0.000	1.042
					C	0.000	20.537		100.00	0.000	2.083
L41 0.5000-0.0000	0.2499	1	21.29	2.078	A	0.000	2.078	2.078	100.00	0.000	0.104
					B	0.000	2.078		100.00	0.000	0.104
					C	0.000	2.078		100.00	0.000	0.208

Tower Pressure - With Ice

$G_H = 1.690$

Section Elevation ft	z ft	K _z	q _z psf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 148.0000-143.0000	145.4812	1.528	5.53	0.8961	10.125	A	0.000	10.125	10.125	100.00	0.000	0.000
						B	0.000	10.125		100.00	0.000	0.000
						C	0.000	10.125		100.00	0.000	1.084
L2 143.0000-138.0000	140.4820	1.513	5.47	0.8924	10.545	A	0.000	10.545	10.545	100.00	0.000	0.000
						B	0.000	10.545		100.00	0.000	0.000
						C	0.000	10.545		100.00	0.000	1.080
L3 138.0000-133.0000	135.4828	1.497	5.42	0.8885	10.964	A	0.000	10.964	10.964	100.00	0.000	0.000
						B	0.000	10.964		100.00	0.000	0.000
						C	0.000	10.964		100.00	0.000	1.076
L4 133.0000-128.0000	130.4834	1.481	5.36	0.8845	11.384	A	0.000	11.384	11.384	100.00	0.000	0.000
						B	0.000	11.384		100.00	0.000	0.000
						C	0.000	11.384		100.00	0.000	1.072
L5 128.0000-123.0000	125.4841	1.465	5.30	0.8804	11.804	A	0.000	11.804	11.804	100.00	0.000	0.000
						B	0.000	11.804		100.00	0.000	0.000
						C	0.000	11.804		100.00	0.000	1.068
L6 123.0000-	120.4847	1.448	5.24	0.8761	12.223	A	0.000	12.223	12.223	100.00	0.000	0.000

Section Elevation	z	K _z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²			
118.0000						B	0.000	12.223		100.00	0.000	0.479
						C	0.000	12.223		100.00	0.000	1.064
L7 118.0000-	115.4852	1.43	5.18	0.8717	12.642	A	0.000	12.642	12.642	100.00	0.000	0.000
113.0000						B	0.000	12.642		100.00	0.000	1.194
						C	0.000	12.642		100.00	0.000	1.059
L8 113.0000-	110.4857	1.412	5.11	0.8670	13.061	A	0.000	13.061	13.061	100.00	0.000	0.000
108.0000						B	0.000	13.061		100.00	0.000	1.190
						C	0.000	13.061		100.00	0.000	1.055
L9 108.0000-	104.2192	1.389	5.03	0.8610	20.377	A	0.000	20.377	20.377	100.00	0.000	0.000
100.5000						B	0.000	20.377		100.00	0.000	1.775
						C	0.000	20.377		100.00	0.000	1.573
L10 100.5000-	99.9995	1.373	4.97	0.8567	2.747	A	0.000	2.747	2.747	100.00	0.000	0.000
99.5000						B	0.000	2.747		100.00	0.000	0.237
						C	0.000	2.747		100.00	0.000	0.210
L11 99.5000-	96.9867	1.361	4.92	0.8536	13.984	A	0.000	13.984	13.984	100.00	0.000	0.000
94.5000						B	0.000	13.984		100.00	0.000	1.176
						C	0.000	13.984		100.00	0.000	1.041
L12 94.5000-	91.9871	1.34	4.85	0.8482	14.402	A	0.000	14.402	14.402	100.00	0.000	0.000
89.5000						B	0.000	14.402		100.00	0.000	1.171
						C	0.000	14.402		100.00	0.000	1.036
L13 89.5000-	86.9875	1.319	4.77	0.8425	14.820	A	0.000	14.820	14.820	100.00	0.000	0.000
84.5000						B	0.000	14.820		100.00	0.000	1.165
						C	0.000	14.820		100.00	0.000	1.030
L14 84.5000-	81.9879	1.297	4.69	0.8365	15.238	A	0.000	15.238	15.238	100.00	0.000	0.000
79.5000						B	0.000	15.238		100.00	0.000	1.159
						C	0.000	15.238		100.00	0.000	1.024
L15 79.5000-	76.9882	1.274	4.61	0.8303	15.656	A	0.000	15.656	15.656	100.00	0.000	0.000
74.5000						B	0.000	15.656		100.00	0.000	1.153
						C	0.000	15.656		100.00	0.000	1.018
L16 74.5000-	72.5767	1.253	4.53	0.8244	12.284	A	0.000	12.284	12.284	100.00	0.000	0.456
70.6670						B	0.000	12.284		100.00	0.000	1.335
						C	0.000	12.284		100.00	0.000	1.232
L17 70.6670-	70.5420	1.242	4.50	0.8216	0.810	A	0.000	0.810	0.810	100.00	0.000	0.076
70.4170						B	0.000	0.810		100.00	0.000	0.133
						C	0.000	0.810		100.00	0.000	0.126
L18 70.4170-	67.9058	1.229	4.45	0.8178	16.414	A	0.000	16.414	16.414	100.00	0.000	1.515
65.4170						B	0.000	16.414		100.00	0.000	2.655
						C	0.000	16.414		100.00	0.000	2.520
L19 65.4170-	64.5407	1.211	4.38	0.8129	5.843	A	0.000	5.843	5.843	100.00	0.000	0.529
63.6670						B	0.000	5.843		100.00	0.000	0.926
						C	0.000	5.843		100.00	0.000	0.879
L20 63.6670-	63.5420	1.206	4.36	0.8113	0.839	A	0.000	0.839	0.839	100.00	0.000	0.075
63.4170						B	0.000	0.839		100.00	0.000	0.132
						C	0.000	0.839		100.00	0.000	0.125
L21 63.4170-	60.8220	1.191	4.31	0.8071	17.572	A	0.000	17.572	17.572	100.00	0.000	0.376
58.2500						B	0.000	17.572		100.00	0.000	1.544
						C	0.000	17.572		100.00	0.000	1.404
L22 58.2500-	57.7496	1.173	4.25	0.8021	3.386	A	0.000	3.386	3.386	100.00	0.000	0.000
57.2500						B	0.000	3.386		100.00	0.000	0.226
						C	0.000	3.386		100.00	0.000	0.199
L23 57.2500-	55.2329	1.159	4.19	0.7978	13.774	A	0.000	13.774	13.774	100.00	0.000	0.599
53.2290						B	0.000	13.774		100.00	0.000	1.500
						C	0.000	13.774		100.00	0.000	1.392
L24 53.2290-	53.1040	1.146	4.15	0.7941	0.865	A	0.000	0.865	0.865	100.00	0.000	0.075
52.9790						B	0.000	0.865		100.00	0.000	0.131
						C	0.000	0.865		100.00	0.000	0.124
L25 52.9790-	50.4690	1.129	4.09	0.7892	17.506	A	0.000	17.506	17.506	100.00	0.000	1.491
47.9790						B	0.000	17.506		100.00	0.000	2.603
						C	0.000	17.506		100.00	0.000	2.468
L26 47.9790-	45.4692	1.096	3.97	0.7794	17.903	A	0.000	17.903	17.903	100.00	0.000	1.483
42.9790						B	0.000	17.903		100.00	0.000	2.585
						C	0.000	17.903		100.00	0.000	2.450
L27 42.9790-	40.4694	1.06	3.84	0.7686	18.299	A	0.000	18.299	18.299	100.00	0.000	1.474
37.9790						B	0.000	18.299		100.00	0.000	2.565
						C	0.000	18.299		100.00	0.000	2.430
L28 37.9790-	36.5489	1.03	3.73	0.7592	10.622	A	0.000	10.622	10.622	100.00	0.000	0.837
35.1250						B	0.000	10.622		100.00	0.000	1.454
						C	0.000	10.622		100.00	0.000	1.377
L29 35.1250-	35.0000	1.017	3.68	0.7553	0.937	A	0.000	0.937	0.937	100.00	0.000	0.084

Section Elevation	z	K_z	q_z	t_z	A_G	F a c e	A_F	A_R	A_{leg}	Leg %	$C_A A_A$ In Face	$C_A A_A$ Out Face
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
34.8750						B	0.000	0.937		100.00	0.000	0.137
						C	0.000	0.937		100.00	0.000	0.131
L30 34.8750-28.7500	31.7987	1	3.62	0.7500	23.257	A	0.000	23.257	23.257	100.00	0.000	2.042
						B	0.000	23.257		100.00	0.000	3.355
						C	0.000	23.257		100.00	0.000	3.190
L31 28.7500-27.7500	28.2496	1	3.62	0.7500	3.790	A	0.000	3.790	3.790	100.00	0.000	0.333
						B	0.000	3.790		100.00	0.000	0.548
						C	0.000	3.790		100.00	0.000	1.021
L32 27.7500-25.8750	26.8111	1	3.62	0.7500	7.154	A	0.000	7.154	7.154	100.00	0.000	0.625
						B	0.000	7.154		100.00	0.000	1.027
						C	0.000	7.154		100.00	0.000	2.227
L33 25.8750-25.7500	25.8125	1	3.62	0.7500	0.479	A	0.000	0.479	0.479	100.00	0.000	0.042
						B	0.000	0.479		100.00	0.000	0.068
						C	0.000	0.479		100.00	0.000	0.148
L34 25.7500-25.6250	25.6875	1	3.62	0.7500	0.479	A	0.000	0.479	0.479	100.00	0.000	0.042
						B	0.000	0.479		100.00	0.000	0.068
						C	0.000	0.479		100.00	0.000	0.148
L35 25.6250-25.5000	25.5625	1	3.62	0.7500	0.480	A	0.000	0.480	0.480	100.00	0.000	0.042
						B	0.000	0.480		100.00	0.000	0.068
						C	0.000	0.480		100.00	0.000	0.148
L36 25.5000-20.5000	22.9903	1	3.62	0.7500	19.410	A	0.000	19.410	19.410	100.00	0.000	1.667
						B	0.000	19.410		100.00	0.000	2.739
						C	0.000	19.410		100.00	0.000	5.063
L37 20.5000-15.5000	17.9905	1	3.62	0.7500	19.848	A	0.000	19.848	19.848	100.00	0.000	1.667
						B	0.000	19.848		100.00	0.000	2.739
						C	0.000	19.848		100.00	0.000	4.271
L38 15.5000-10.5000	12.9907	1	3.62	0.7500	20.286	A	0.000	20.286	20.286	100.00	0.000	1.667
						B	0.000	20.286		100.00	0.000	2.739
						C	0.000	20.286		100.00	0.000	4.271
L39 10.5000-5.5000	7.9909	1	3.62	0.7500	20.724	A	0.000	20.724	20.724	100.00	0.000	1.667
						B	0.000	20.724		100.00	0.000	2.203
						C	0.000	20.724		100.00	0.000	3.427
L40 5.5000-0.5000	2.9911	1	3.62	0.7500	21.162	A	0.000	21.162	21.162	100.00	0.000	1.667
						B	0.000	21.162		100.00	0.000	1.667
						C	0.000	21.162		100.00	0.000	3.333
L41 0.5000-0.0000	0.2499	1	3.62	0.7500	2.140	A	0.000	2.140	2.140	100.00	0.000	0.167
						B	0.000	2.140		100.00	0.000	0.167
						C	0.000	2.140		100.00	0.000	0.333

Tower Pressure - Service

$G_H = 1.690$

Section Elevation	z	K_z	q_z	A_G	F a c e	A_F	A_R	A_{leg}	Leg %	$C_A A_A$ In Face	$C_A A_A$ Out Face
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L1 148.0000-143.0000	145.4812	1.528	9.78	9.378	A	0.000	9.378	9.378	100.00	0.000	0.000
					B	0.000	9.378		100.00	0.000	0.000
					C	0.000	9.378		100.00	0.000	0.188
L2 143.0000-138.0000	140.4820	1.513	9.68	9.801	A	0.000	9.801	9.801	100.00	0.000	0.000
					B	0.000	9.801		100.00	0.000	0.000
					C	0.000	9.801		100.00	0.000	0.188
L3 138.0000-133.0000	135.4828	1.497	9.58	10.224	A	0.000	10.224	10.224	100.00	0.000	0.000
					B	0.000	10.224		100.00	0.000	0.000
					C	0.000	10.224		100.00	0.000	0.188
L4 133.0000-128.0000	130.4834	1.481	9.48	10.647	A	0.000	10.647	10.647	100.00	0.000	0.000
					B	0.000	10.647		100.00	0.000	0.000
					C	0.000	10.647		100.00	0.000	0.188
L5 128.0000-123.0000	125.4841	1.465	9.37	11.070	A	0.000	11.070	11.070	100.00	0.000	0.000
					B	0.000	11.070		100.00	0.000	0.000
					C	0.000	11.070		100.00	0.000	0.188
L6 123.0000-118.0000	120.4847	1.448	9.27	11.493	A	0.000	11.493	11.493	100.00	0.000	0.000
					B	0.000	11.493		100.00	0.000	0.129

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L7 118.0000- 113.0000	115.4852	1.43	9.15	11.916	C	0.000	11.493	11.916	100.00	0.000	0.188
					A	0.000	11.916		100.00	0.000	0.000
					B	0.000	11.916		100.00	0.000	0.323
L8 113.0000- 108.0000	110.4857	1.412	9.04	12.339	C	0.000	11.916	12.339	100.00	0.000	0.188
					A	0.000	12.339		100.00	0.000	0.000
					B	0.000	12.339		100.00	0.000	0.323
L9 108.0000- 100.5000	104.2192	1.389	8.89	19.301	C	0.000	12.339	19.301	100.00	0.000	0.188
					A	0.000	19.301		100.00	0.000	0.000
					B	0.000	19.301		100.00	0.000	0.484
L10 100.5000- 99.5000	99.9995	1.373	8.79	2.604	C	0.000	19.301	2.604	100.00	0.000	0.281
					A	0.000	2.604		100.00	0.000	0.000
					B	0.000	2.604		100.00	0.000	0.065
L11 99.5000- 94.5000	96.9867	1.361	8.71	13.272	C	0.000	2.604	13.272	100.00	0.000	0.037
					A	0.000	13.272		100.00	0.000	0.000
					B	0.000	13.272		100.00	0.000	0.323
L12 94.5000- 89.5000	91.9871	1.34	8.58	13.695	C	0.000	13.272	13.695	100.00	0.000	0.188
					A	0.000	13.695		100.00	0.000	0.000
					B	0.000	13.695		100.00	0.000	0.323
L13 89.5000- 84.5000	86.9875	1.319	8.44	14.118	C	0.000	13.695	14.118	100.00	0.000	0.188
					A	0.000	14.118		100.00	0.000	0.000
					B	0.000	14.118		100.00	0.000	0.323
L14 84.5000- 79.5000	81.9879	1.297	8.30	14.541	C	0.000	14.118	14.541	100.00	0.000	0.188
					A	0.000	14.541		100.00	0.000	0.000
					B	0.000	14.541		100.00	0.000	0.323
L15 79.5000- 74.5000	76.9882	1.274	8.15	14.964	C	0.000	14.541	14.964	100.00	0.000	0.188
					A	0.000	14.964		100.00	0.000	0.000
					B	0.000	14.964		100.00	0.000	0.323
L16 74.5000- 70.6670	72.5767	1.253	8.02	11.758	C	0.000	14.964	11.758	100.00	0.000	0.188
					A	0.000	11.758		100.00	0.000	0.250
					B	0.000	11.758		100.00	0.000	0.497
L17 70.6670- 70.4170	70.5420	1.242	7.95	0.776	C	0.000	11.758	0.776	100.00	0.000	0.394
					A	0.000	0.776		100.00	0.000	0.042
					B	0.000	0.776		100.00	0.000	0.058
L18 70.4170- 65.4170	67.9058	1.229	7.87	15.732	C	0.000	0.776	15.732	100.00	0.000	0.051
					A	0.000	15.732		100.00	0.000	0.833
					B	0.000	15.732		100.00	0.000	1.156
L19 65.4170- 63.6670	64.5407	1.211	7.75	5.606	C	0.000	15.732	5.606	100.00	0.000	1.021
					A	0.000	5.606		100.00	0.000	0.292
					B	0.000	5.606		100.00	0.000	0.405
L20 63.6670- 63.4170	63.5420	1.206	7.72	0.805	C	0.000	5.606	0.805	100.00	0.000	0.357
					A	0.000	0.805		100.00	0.000	0.042
					B	0.000	0.805		100.00	0.000	0.058
L21 63.4170- 58.2500	60.8220	1.191	7.62	16.877	C	0.000	0.805	16.877	100.00	0.000	0.051
					A	0.000	16.877		100.00	0.000	0.208
					B	0.000	16.877		100.00	0.000	0.542
L22 58.2500- 57.2500	57.7496	1.173	7.51	3.252	C	0.000	16.877	3.252	100.00	0.000	0.402
					A	0.000	3.252		100.00	0.000	0.000
					B	0.000	3.252		100.00	0.000	0.065
L23 57.2500- 53.2290	55.2329	1.159	7.41	13.240	C	0.000	3.252	13.240	100.00	0.000	0.037
					A	0.000	13.240		100.00	0.000	0.333
					B	0.000	13.240		100.00	0.000	0.593
L24 53.2290- 52.9790	53.1040	1.146	7.33	0.832	C	0.000	0.832	0.832	100.00	0.000	0.484
					A	0.000	0.832		100.00	0.000	0.042
					B	0.000	0.832		100.00	0.000	0.058
L25 52.9790- 47.9790	50.4690	1.129	7.23	16.849	C	0.000	0.832	16.849	100.00	0.000	0.051
					A	0.000	16.849		100.00	0.000	0.833
					B	0.000	16.849		100.00	0.000	1.156
L26 47.9790- 42.9790	45.4692	1.096	7.01	17.253	C	0.000	16.849	17.253	100.00	0.000	1.021
					A	0.000	17.253		100.00	0.000	0.833
					B	0.000	17.253		100.00	0.000	1.156
L27 42.9790- 37.9790	40.4694	1.06	6.78	17.658	C	0.000	17.253	17.658	100.00	0.000	1.021
					A	0.000	17.658		100.00	0.000	0.833
					B	0.000	17.658		100.00	0.000	1.156
L28 37.9790- 35.1250	36.5489	1.03	6.59	10.261	C	0.000	17.658	10.261	100.00	0.000	1.021
					A	0.000	10.261		100.00	0.000	0.476
					B	0.000	10.261		100.00	0.000	0.660
L29 35.1250- 34.8750	35.0000	1.017	6.51	0.905	C	0.000	10.261	0.905	100.00	0.000	0.583
					A	0.000	0.905		100.00	0.000	0.052
					B	0.000	0.905		100.00	0.000	0.068

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L30 34.8750- 28.7500	31.7987	1	6.40	22.491	C	0.000	0.905	22.491	100.00	0.000	0.061
					A	0.000	22.491		100.00	0.000	1.276
					B	0.000	22.491		100.00	0.000	1.671
L31 28.7500- 27.7500	28.2496	1	6.40	3.665	C	0.000	22.491	3.665	100.00	0.000	1.506
					A	0.000	3.665		100.00	0.000	0.208
					B	0.000	3.665		100.00	0.000	0.273
L32 27.7500- 25.8750	26.8111	1	6.40	6.919	C	0.000	3.665	6.919	100.00	0.000	0.558
					A	0.000	6.919		100.00	0.000	0.391
					B	0.000	6.919		100.00	0.000	0.512
L33 25.8750- 25.7500	25.8125	1	6.40	0.463	C	0.000	6.919	0.463	100.00	0.000	1.242
					A	0.000	0.463		100.00	0.000	0.026
					B	0.000	0.463		100.00	0.000	0.034
L34 25.7500- 25.6250	25.6875	1	6.40	0.464	C	0.000	0.463	0.464	100.00	0.000	0.083
					A	0.000	0.464		100.00	0.000	0.026
					B	0.000	0.464		100.00	0.000	0.034
L35 25.6250- 25.5000	25.5625	1	6.40	0.464	C	0.000	0.464	0.464	100.00	0.000	0.083
					A	0.000	0.464		100.00	0.000	0.026
					B	0.000	0.464		100.00	0.000	0.034
L36 25.5000- 20.5000	22.9903	1	6.40	18.785	C	0.000	0.464	18.785	100.00	0.000	0.083
					A	0.000	18.785		100.00	0.000	1.042
					B	0.000	18.785		100.00	0.000	1.364
L37 20.5000- 15.5000	17.9905	1	6.40	19.223	C	0.000	18.785	19.223	100.00	0.000	2.766
					A	0.000	19.223		100.00	0.000	1.042
					B	0.000	19.223		100.00	0.000	1.364
L38 15.5000- 10.5000	12.9907	1	6.40	19.661	C	0.000	19.223	19.661	100.00	0.000	2.271
					A	0.000	19.661		100.00	0.000	1.042
					B	0.000	19.661		100.00	0.000	1.364
L39 10.5000- 5.5000	7.9909	1	6.40	20.099	C	0.000	19.661	20.099	100.00	0.000	2.271
					A	0.000	20.099		100.00	0.000	1.042
					B	0.000	20.099		100.00	0.000	1.203
L40 5.5000- 0.5000	2.9911	1	6.40	20.537	C	0.000	20.099	20.537	100.00	0.000	2.102
					A	0.000	20.537		100.00	0.000	1.042
					B	0.000	20.537		100.00	0.000	1.042
L41 0.5000- 0.0000	0.2499	1	6.40	2.078	C	0.000	20.537	2.078	100.00	0.000	2.083
					A	0.000	2.078		100.00	0.000	0.104
					B	0.000	2.078		100.00	0.000	0.104
					C	0.000	2.078		100.00	0.000	0.208

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp

Comb. No.	Description
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	148 - 143	Pole	Max Tension	14	0.00	-0.00	-0.00
			Max. Compression	14	-6.52	0.59	0.68
			Max. Mx	5	-3.34	-42.86	0.78
			Max. My	8	-3.35	0.52	-42.87
			Max. Vy	5	7.90	-42.86	0.78
			Max. Vx	8	7.80	0.52	-42.87
			Max. Torque	2			1.86
L2	143 - 138	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-7.01	0.60	0.68
			Max. Mx	5	-3.65	-83.79	0.07
			Max. My	8	-3.67	-0.52	-83.33
			Max. Vy	5	8.48	-83.79	0.07
			Max. Vx	8	8.39	-0.52	-83.33
			Max. Torque	2			1.86
L3	138 - 133	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-7.52	0.61	0.68
			Max. Mx	5	-3.98	-127.68	-0.63
			Max. My	8	-3.99	-1.57	-126.76
			Max. Vy	5	9.08	-127.68	-0.63
			Max. Vx	8	8.99	-1.57	-126.76
			Max. Torque	2			1.87
L4	133 - 128	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-8.05	0.62	0.68
			Max. Mx	5	-4.33	-174.61	-1.34
			Max. My	8	-4.34	-2.62	-173.23
			Max. Vy	5	9.70	-174.61	-1.34
			Max. Vx	8	9.60	-2.62	-173.23
			Max. Torque	2			1.87
L5	128 - 123	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-8.60	0.63	0.68
			Max. Mx	5	-4.70	-224.65	-2.05
			Max. My	8	-4.71	-3.67	-222.80
			Max. Vy	5	10.33	-224.65	-2.05
			Max. Vx	8	10.23	-3.67	-222.80
			Max. Torque	2			1.87
L6	123 - 118	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-15.46	0.91	0.83
			Max. Mx	5	-7.99	-290.09	-2.73
			Max. My	8	-8.01	-4.68	-287.82
			Max. Vy	5	16.93	-290.09	-2.73
			Max. Vx	8	16.84	-4.68	-287.82
			Max. Torque	2			2.47
L7	118 - 113	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-16.12	0.91	0.82
			Max. Mx	5	-8.48	-376.38	-3.45
			Max. My	8	-8.49	-5.74	-373.64
			Max. Vy	5	17.60	-376.38	-3.45
			Max. Vx	8	17.50	-5.74	-373.64
			Max. Torque	2			2.47
L8	113 - 108	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L9	108 - 100.5	Pole	Max. Compression	14	-16.79	0.90	0.81
			Max. Mx	5	-8.99	-466.02	-4.17
			Max. My	8	-9.00	-6.80	-462.81
			Max. Vy	5	18.27	-466.02	-4.17
			Max. Vx	8	18.17	-6.80	-462.81
			Max. Torque	2			2.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-17.28	0.90	0.80
			Max. Mx	5	-9.36	-530.76	-4.68
			Max. My	8	-9.37	-7.54	-527.22
L10	100.5 - 99.5	Pole	Max. Vy	5	18.74	-530.76	-4.68
			Max. Vx	8	18.64	-7.54	-527.22
			Max. Torque	2			2.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-18.66	0.89	0.78
			Max. Mx	5	-10.40	-626.30	-5.40
			Max. My	8	-10.42	-8.59	-622.29
			Max. Vy	5	19.48	-626.30	-5.40
			Max. Vx	8	19.38	-8.59	-622.29
			Max. Torque	2			2.46
L11	99.5 - 94.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-23.42	2.83	-0.21
			Max. Mx	5	-13.49	-736.54	-6.44
			Max. My	8	-13.50	-8.92	-733.53
			Max. Vy	5	23.58	-736.54	-6.44
			Max. Vx	8	23.48	-8.92	-733.53
			Max. Torque	7			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-24.39	2.82	-0.23
			Max. Mx	5	-14.31	-856.14	-7.17
L12	94.5 - 89.5	Pole	Max. My	8	-14.32	-9.99	-852.65
			Max. Vy	5	24.27	-856.14	-7.17
			Max. Vx	8	24.18	-9.99	-852.65
			Max. Torque	7			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-25.39	2.80	-0.25
			Max. Mx	5	-15.15	-979.23	-7.89
			Max. My	8	-15.16	-11.06	-975.28
			Max. Vy	5	24.98	-979.23	-7.89
			Max. Vx	8	24.88	-11.06	-975.28
L13	89.5 - 84.5	Pole	Max. Torque	7			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-30.69	2.79	-0.26
			Max. Mx	5	-18.50	-1115.64	-8.61
			Max. My	8	-18.51	-12.13	-1111.21
			Max. Vy	5	29.60	-1115.64	-8.61
			Max. Vx	8	29.51	-12.13	-1111.21
			Max. Torque	7			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-31.78	2.77	-0.28
L14	84.5 - 79.5	Pole	Max. Mx	5	-19.48	-1265.33	-9.33
			Max. My	8	-19.49	-13.20	-1260.43
			Max. Vy	5	30.29	-1265.33	-9.33
			Max. Vx	8	30.20	-13.20	-1260.43
			Max. Torque	7			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.07	2.76	-0.30
			Max. Mx	5	-20.42	-1383.28	-9.88
			Max. My	8	-20.43	-14.03	-1378.02
			Max. Vy	5	31.46	-1383.28	-9.88
L15	79.5 - 74.5	Pole	Max. Vx	8	31.36	-14.03	-1378.02
			Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.13	2.76	-0.30
			Max. Mx	5	-20.50	-1391.15	-9.92
			Max. My	8	-20.51	-14.08	-1385.86
			Max. Vy	5	31.49	-1391.15	-9.92
			Max. Vx	8	31.39	-14.08	-1385.86
			Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
L16	74.5 - 70.667	Pole	Max. Compression	14	-33.07	2.76	-0.30
			Max. Mx	5	-20.42	-1383.28	-9.88
			Max. My	8	-20.43	-14.03	-1378.02
			Max. Vy	5	31.46	-1383.28	-9.88
			Max. Vx	8	31.36	-14.03	-1378.02
			Max. Torque	7			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.07	2.76	-0.30
			Max. Mx	5	-20.42	-1383.28	-9.88
			Max. My	8	-20.43	-14.03	-1378.02
L17	70.667 - 70.417	Pole	Max. Vy	5	31.46	-1383.28	-9.88
			Max. Vx	8	31.36	-14.03	-1378.02
			Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.13	2.76	-0.30
			Max. Mx	5	-20.50	-1391.15	-9.92
			Max. My	8	-20.51	-14.08	-1385.86
			Max. Vy	5	31.49	-1391.15	-9.92
			Max. Vx	8	31.39	-14.08	-1385.86
			Max. Torque	7			-6.92

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L18	70.417 - 65.417	Pole	Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-34.53	2.74	-0.32
			Max. Mx	5	-21.75	-1550.64	-10.63
			Max. My	8	-21.75	-15.16	-1544.88
			Max. Vy	5	32.32	-1550.64	-10.63
			Max. Vx	8	32.22	-15.16	-1544.88
L19	65.417 - 63.667	Pole	Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-35.03	2.73	-0.32
			Max. Mx	5	-22.18	-1607.43	-10.89
			Max. My	8	-22.19	-15.53	-1601.51
			Max. Vy	5	32.61	-1607.43	-10.89
			Max. Vx	8	32.52	-15.53	-1601.51
L20	63.667 - 63.417	Pole	Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-35.09	2.73	-0.32
			Max. Mx	5	-22.25	-1615.59	-10.92
			Max. My	8	-22.26	-15.59	-1609.64
			Max. Vy	5	32.64	-1615.59	-10.92
			Max. Vx	8	32.54	-15.59	-1609.64
L21	63.417 - 58.25	Pole	Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-35.13	2.73	-0.32
			Max. Mx	5	-22.29	-1621.04	-10.94
			Max. My	8	-22.30	-15.62	-1615.08
			Max. Vy	5	32.66	-1621.04	-10.94
			Max. Vx	8	32.57	-15.62	-1615.08
L22	58.25 - 57.25	Pole	Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-37.71	2.71	-0.35
			Max. Mx	5	-24.46	-1819.82	-11.80
			Max. My	8	-24.47	-16.91	-1813.29
			Max. Vy	5	33.59	-1819.82	-11.80
			Max. Vx	8	33.49	-16.91	-1813.29
L23	57.25 - 53.229	Pole	Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-38.79	2.69	-0.36
			Max. Mx	5	-25.46	-1955.98	-12.37
			Max. My	8	-25.47	-17.78	-1949.07
			Max. Vy	5	34.16	-1955.98	-12.37
			Max. Vx	8	34.06	-17.78	-1949.07
L24	53.229 - 52.979	Pole	Max. Torque	7			-6.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-39.46	2.69	1.95
			Max. Mx	5	-25.58	-1964.59	-12.53
			Max. My	8	-25.58	-17.83	-1957.64
			Max. Vy	5	35.30	-1964.59	-12.53
			Max. Vx	8	35.20	-17.83	-1957.64
L25	52.979 - 47.979	Pole	Max. Torque	9			-6.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-41.14	2.67	1.92
			Max. Mx	5	-27.11	-2143.02	-13.24
			Max. My	8	-27.12	-18.91	-2135.60
			Max. Vy	5	36.09	-2143.02	-13.24
			Max. Vx	8	35.99	-18.91	-2135.60
L26	47.979 - 42.979	Pole	Max. Torque	9			-6.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-42.83	2.66	1.90
			Max. Mx	5	-28.69	-2325.33	-13.96
			Max. My	8	-28.69	-19.98	-2317.44

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L27	42.979 - 37.979	Pole	Max. Vy	5	36.85	-2325.33	-13.96
			Max. Vx	8	36.76	-19.98	-2317.44
			Max. Torque	9			-6.94
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.56	2.64	1.88
L28	37.979 - 35.125	Pole	Max. Mx	5	-30.29	-2511.39	-14.67
			Max. My	8	-30.29	-21.06	-2503.04
			Max. Vy	5	37.59	-2511.39	-14.67
			Max. Vx	8	37.50	-21.06	-2503.04
			Max. Torque	9			-6.94
L29	35.125 - 34.875	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-45.55	2.63	1.87
			Max. Mx	5	-31.21	-2619.25	-15.08
			Max. My	8	-31.22	-21.67	-2610.63
			Max. Vy	5	38.01	-2619.25	-15.08
L30	34.875 - 28.75	Pole	Max. Vx	8	37.92	-21.67	-2610.63
			Max. Torque	9			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-45.64	2.63	1.87
			Max. Mx	5	-31.32	-2628.75	-15.11
L31	28.75 - 27.75	Pole	Max. My	8	-31.32	-21.72	-2620.11
			Max. Vy	5	38.04	-2628.75	-15.11
			Max. Vx	8	37.94	-21.72	-2620.11
			Max. Torque	9			-6.93
			Max Tension	1	0.00	0.00	0.00
L32	27.75 - 25.875	Pole	Max. Compression	14	-50.41	2.60	1.84
			Max. Mx	5	-35.59	-2903.83	-16.12
			Max. My	8	-35.59	-23.25	-2894.53
			Max. Vy	5	39.19	-2903.83	-16.12
			Max. Vx	8	39.10	-23.25	-2894.53
L33	25.875 - 25.75	Pole	Max. Torque	9			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-51.22	2.59	1.83
			Max. Mx	5	-36.36	-2982.53	-16.41
			Max. My	8	-36.36	-23.67	-2973.03
L34	25.75 - 25.625	Pole	Max. Vy	5	39.51	-2982.53	-16.41
			Max. Vx	8	39.41	-23.67	-2973.03
			Max. Torque	9			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-51.27	2.59	1.83
L35	25.625 - 25.5	Pole	Max. Mx	5	-36.41	-2987.47	-16.42
			Max. My	8	-36.41	-23.70	-2977.96
			Max. Vy	5	39.53	-2987.47	-16.42
			Max. Vx	8	39.43	-23.70	-2977.96
			Max. Torque	9			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-51.33	2.59	1.83

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L36	25.5 - 20.5	Pole	Max. Mx	5	-36.46	-2992.41	-16.44
			Max. My	8	-36.47	-23.73	-2982.89
			Max. Vy	5	39.55	-2992.41	-16.44
			Max. Vx	8	39.45	-23.73	-2982.89
			Max. Torque	9			-6.93
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-53.51	2.57	1.81
			Max. Mx	5	-38.51	-3192.14	-17.15
			Max. My	8	-38.51	-24.80	-3182.16
			Max. Vy	5	40.36	-3192.14	-17.15
L37	20.5 - 15.5	Pole	Max. Vx	8	40.27	-24.80	-3182.16
			Max. Torque	9			-6.94
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-55.74	2.55	1.79
			Max. Mx	5	-40.60	-3395.85	-17.86
			Max. My	8	-40.61	-25.87	-3385.40
			Max. Vy	5	41.15	-3395.85	-17.86
			Max. Vx	8	41.05	-25.87	-3385.40
			Max. Torque	9			-6.95
			Max Tension	1	0.00	0.00	0.00
L38	15.5 - 10.5	Pole	Max. Compression	14	-57.99	2.54	1.77
			Max. Mx	5	-42.73	-3603.50	-18.56
			Max. My	8	-42.73	-26.93	-3592.59
			Max. Vy	5	41.94	-3603.50	-18.56
			Max. Vx	8	41.85	-26.93	-3592.59
			Max. Torque	9			-6.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-60.18	2.52	1.76
			Max. Mx	5	-44.80	-3815.10	-19.26
			Max. My	8	-44.80	-27.99	-3803.72
L39	10.5 - 5.5	Pole	Max. Vy	5	42.72	-3815.10	-19.26
			Max. Vx	8	42.63	-27.99	-3803.72
			Max. Torque	9			-6.96
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-62.30	2.52	1.76
			Max. Mx	5	-46.80	-4030.61	-19.96
			Max. My	8	-46.80	-29.05	-4018.78
			Max. Vy	5	43.51	-4030.61	-19.96
			Max. Vx	8	43.42	-29.05	-4018.78
			Max. Torque	9			-6.97
L40	5.5 - 0.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-62.51	2.52	1.76
			Max. Mx	5	-47.01	-4052.38	-20.02
			Max. My	8	-47.01	-29.15	-4040.50
			Max. Vy	5	43.58	-4052.38	-20.02
			Max. Vx	8	43.49	-29.15	-4040.50
			Max. Torque	9			-6.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-62.51	2.52	1.76
			Max. Mx	5	-47.01	-4052.38	-20.02
L41	0.5 - 0	Pole	Max. My	8	-47.01	-29.15	-4040.50
			Max. Vy	5	43.58	-4052.38	-20.02
			Max. Vx	8	43.49	-29.15	-4040.50
			Max. Torque	9			-6.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-62.51	2.52	1.76
			Max. Mx	5	-47.01	-4052.38	-20.02
			Max. My	8	-47.01	-29.15	-4040.50
			Max. Vy	5	43.58	-4052.38	-20.02
			Max. Vx	8	43.49	-29.15	-4040.50

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	62.51	0.00	0.00
	Max. H _x	11	47.02	43.41	0.07
	Max. H _z	2	47.02	0.21	43.38
	Max. M _x	2	4024.63	0.21	43.38
	Max. M _z	5	4052.38	-43.57	-0.14
	Max. Torsion	3	6.91	-21.70	37.48
	Min. Vert	30	47.02	-13.10	-0.04
	Min. H _x	5	47.02	-43.57	-0.14
	Min. H _z	8	47.02	-0.21	-43.48
	Min. M _x	8	-4040.50	-0.21	-43.48
	Min. M _z	11	-4029.59	43.41	0.07
	Min. Torsion	9	-6.97	21.72	-37.53

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	47.02	0.00	0.00	0.17	1.13	0.00
Dead+Wind 0 deg - No Ice	47.02	-0.21	-43.38	-4024.63	31.86	-6.69
Dead+Wind 30 deg - No Ice	47.02	21.70	-37.48	-3471.77	-2013.31	-6.91
Dead+Wind 60 deg - No Ice	47.02	37.71	-21.49	-1983.61	-3505.31	-5.08
Dead+Wind 90 deg - No Ice	47.02	43.57	0.14	20.02	-4052.38	-2.36
Dead+Wind 120 deg - No Ice	47.02	37.80	21.83	2033.29	-3519.37	1.17
Dead+Wind 150 deg - No Ice	47.02	21.96	37.71	3506.88	-2050.62	4.79
Dead+Wind 180 deg - No Ice	47.02	0.21	43.48	4040.50	-29.15	6.17
Dead+Wind 210 deg - No Ice	47.02	-21.72	37.53	3481.00	2019.24	6.97
Dead+Wind 240 deg - No Ice	47.02	-37.61	21.60	1999.82	3492.53	5.50
Dead+Wind 270 deg - No Ice	47.02	-43.41	-0.07	-8.89	4029.59	2.42
Dead+Wind 300 deg - No Ice	47.02	-37.65	-21.79	-2026.97	3498.17	-1.02
Dead+Wind 330 deg - No Ice	47.02	-21.84	-37.60	-3490.48	2035.69	-4.59
Dead+Ice+Temp	62.51	-0.00	-0.00	-1.76	2.52	0.00
Dead+Wind 0 deg+Ice+Temp	62.51	-0.04	-9.18	-876.09	8.34	-1.98
Dead+Wind 30 deg+Ice+Temp	62.51	4.60	-7.93	-756.40	-436.35	-1.83
Dead+Wind 60 deg+Ice+Temp	62.51	7.99	-4.55	-433.62	-760.80	-1.15
Dead+Wind 90 deg+Ice+Temp	62.51	9.23	0.02	1.81	-879.70	-0.25
Dead+Wind 120 deg+Ice+Temp	62.51	8.01	4.61	439.17	-763.35	0.75
Dead+Wind 150 deg+Ice+Temp	62.51	4.65	7.97	759.34	-443.19	1.62
Dead+Wind 180 deg+Ice+Temp	62.51	0.04	9.20	875.48	-2.99	1.87
Dead+Wind 210 deg+Ice+Temp	62.51	-4.60	7.94	754.53	442.27	1.83
Dead+Wind 240 deg+Ice+Temp	62.51	-7.97	4.57	433.06	763.13	1.23
Dead+Wind 270 deg+Ice+Temp	62.51	-9.20	-0.01	-3.34	880.10	0.27
Dead+Wind 300 deg+Ice+Temp	62.51	-7.98	-4.61	-441.63	764.05	-0.71
Dead+Wind 330 deg+Ice+Temp	62.51	-4.62	-7.95	-759.86	445.11	-1.58
Dead+Wind 0 deg - Service	47.02	-0.06	-13.04	-1210.58	10.42	-2.03
Dead+Wind 30 deg - Service	47.02	6.52	-11.27	-1044.26	-604.82	-2.10
Dead+Wind 60 deg - Service	47.02	11.33	-6.46	-596.59	-1053.65	-1.53
Dead+Wind 90 deg - Service	47.02	13.10	0.04	6.15	-1218.24	-0.70
Dead+Wind 120 deg - Service	47.02	11.36	6.56	611.80	-1057.91	0.36
Dead+Wind 150 deg - Service	47.02	6.60	11.33	1055.10	-616.06	1.45
Dead+Wind 180 deg - Service	47.02	0.06	13.07	1215.61	-7.94	1.86
Dead+Wind 210 deg - Service	47.02	-6.53	11.28	1047.28	608.27	2.10
Dead+Wind 240 deg - Service	47.02	-11.30	6.49	601.71	1051.46	1.67
Dead+Wind 270 deg - Service	47.02	-13.05	-0.02	-2.55	1213.02	0.74
Dead+Wind 300 deg - Service	47.02	-11.32	-6.55	-609.64	1053.17	-0.31
Dead+Wind 330 deg - Service	47.02	-6.57	-11.30	-1049.90	613.22	-1.39

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-47.02	0.00	0.00	47.02	0.00	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
2	-0.21	-47.02	-43.38	0.21	47.02	43.38	0.000%
3	21.70	-47.02	-37.48	-21.70	47.02	37.48	0.000%
4	37.71	-47.02	-21.49	-37.71	47.02	21.49	0.000%
5	43.57	-47.02	0.14	-43.57	47.02	-0.14	0.000%
6	37.80	-47.02	21.83	-37.80	47.02	-21.83	0.000%
7	21.96	-47.02	37.71	-21.96	47.02	-37.71	0.000%
8	0.21	-47.02	43.48	-0.21	47.02	-43.48	0.000%
9	-21.72	-47.02	37.53	21.72	47.02	-37.53	0.000%
10	-37.61	-47.02	21.60	37.61	47.02	-21.60	0.000%
11	-43.41	-47.02	-0.07	43.41	47.02	0.07	0.000%
12	-37.65	-47.02	-21.79	37.65	47.02	21.79	0.000%
13	-21.84	-47.02	-37.60	21.84	47.02	37.60	0.000%
14	0.00	-62.51	0.00	0.00	62.51	0.00	0.000%
15	-0.04	-62.51	-9.18	0.04	62.51	9.18	0.000%
16	4.60	-62.51	-7.93	-4.60	62.51	7.93	0.000%
17	7.99	-62.51	-4.55	-7.99	62.51	4.55	0.000%
18	9.23	-62.51	0.02	-9.23	62.51	-0.02	0.000%
19	8.01	-62.51	4.61	-8.01	62.51	-4.61	0.000%
20	4.65	-62.51	7.97	-4.65	62.51	-7.97	0.000%
21	0.04	-62.51	9.20	-0.04	62.51	-9.20	0.000%
22	-4.60	-62.51	7.94	4.60	62.51	-7.94	0.000%
23	-7.97	-62.51	4.57	7.97	62.51	-4.57	0.000%
24	-9.20	-62.51	-0.01	9.20	62.51	0.01	0.000%
25	-7.98	-62.51	-4.61	7.98	62.51	4.61	0.000%
26	-4.62	-62.51	-7.95	4.62	62.51	7.95	0.000%
27	-0.06	-47.02	-13.04	0.06	47.02	13.04	0.000%
28	6.52	-47.02	-11.27	-6.52	47.02	11.27	0.000%
29	11.33	-47.02	-6.46	-11.33	47.02	6.46	0.000%
30	13.10	-47.02	0.04	-13.10	47.02	-0.04	0.000%
31	11.36	-47.02	6.56	-11.36	47.02	-6.56	0.000%
32	6.60	-47.02	11.33	-6.60	47.02	-11.33	0.000%
33	0.06	-47.02	13.07	-0.06	47.02	-13.07	0.000%
34	-6.53	-47.02	11.28	6.53	47.02	-11.28	0.000%
35	-11.30	-47.02	6.49	11.30	47.02	-6.49	0.000%
36	-13.05	-47.02	-0.02	13.05	47.02	0.02	0.000%
37	-11.32	-47.02	-6.55	11.32	47.02	6.55	0.000%
38	-6.57	-47.02	-11.30	6.57	47.02	11.30	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	5	0.00000001	0.00037631
3	Yes	6	0.00000001	0.00003806
4	Yes	6	0.00000001	0.00004586
5	Yes	5	0.00000001	0.00009622
6	Yes	6	0.00000001	0.00004492
7	Yes	6	0.00000001	0.00003960
8	Yes	5	0.00000001	0.00029223
9	Yes	6	0.00000001	0.00004847
10	Yes	6	0.00000001	0.00003890
11	Yes	5	0.00000001	0.00011267
12	Yes	6	0.00000001	0.00004113
13	Yes	6	0.00000001	0.00004754
14	Yes	4	0.00000001	0.00013695
15	Yes	6	0.00000001	0.00009137
16	Yes	6	0.00000001	0.00009273
17	Yes	6	0.00000001	0.00009305
18	Yes	6	0.00000001	0.00009148
19	Yes	6	0.00000001	0.00009382
20	Yes	6	0.00000001	0.00009370
21	Yes	6	0.00000001	0.00009135
22	Yes	6	0.00000001	0.00009353
23	Yes	6	0.00000001	0.00009372
24	Yes	6	0.00000001	0.00009207
25	Yes	6	0.00000001	0.00009443
26	Yes	6	0.00000001	0.00009430

27	Yes	5	0.00000001	0.00006583
28	Yes	5	0.00000001	0.00009258
29	Yes	5	0.00000001	0.00011368
30	Yes	5	0.00000001	0.00003775
31	Yes	5	0.00000001	0.00010827
32	Yes	5	0.00000001	0.00009462
33	Yes	5	0.00000001	0.00005993
34	Yes	5	0.00000001	0.00012643
35	Yes	5	0.00000001	0.00009150
36	Yes	5	0.00000001	0.00003820
37	Yes	5	0.00000001	0.00009497
38	Yes	5	0.00000001	0.00012099

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 143	25.122	31	1.5568	0.0107
L2	143 - 138	23.496	31	1.5479	0.0099
L3	138 - 133	21.885	31	1.5273	0.0092
L4	133 - 128	20.301	31	1.4967	0.0085
L5	128 - 123	18.754	31	1.4578	0.0080
L6	123 - 118	17.251	31	1.4121	0.0075
L7	118 - 113	15.799	31	1.3602	0.0070
L8	113 - 108	14.406	31	1.2990	0.0065
L9	108 - 100.5	13.082	31	1.2294	0.0060
L10	104.5 - 99.5	12.200	31	1.1766	0.0057
L11	99.5 - 94.5	10.986	31	1.1384	0.0056
L12	94.5 - 89.5	9.825	31	1.0778	0.0052
L13	89.5 - 84.5	8.730	31	1.0130	0.0044
L14	84.5 - 79.5	7.705	31	0.9450	0.0038
L15	79.5 - 74.5	6.752	31	0.8742	0.0033
L16	74.5 - 70.667	5.875	31	0.8003	0.0028
L17	70.667 - 70.417	5.256	31	0.7418	0.0024
L18	70.417 - 65.417	5.217	31	0.7389	0.0024
L19	65.417 - 63.667	4.475	31	0.6795	0.0022
L20	63.667 - 63.417	4.229	31	0.6586	0.0021
L21	63.417 - 58.25	4.195	31	0.6546	0.0021
L22	63.25 - 57.25	4.172	31	0.6520	0.0021
L23	57.25 - 53.229	3.382	31	0.5983	0.0019
L24	53.229 - 52.979	2.904	31	0.5375	0.0017
L25	52.979 - 47.979	2.876	31	0.5347	0.0017
L26	47.979 - 42.979	2.346	31	0.4770	0.0014
L27	42.979 - 37.979	1.877	31	0.4186	0.0012
L28	37.979 - 35.125	1.470	31	0.3597	0.0010
L29	35.125 - 34.875	1.265	31	0.3252	0.0009
L30	34.875 - 28.75	1.248	31	0.3225	0.0009
L31	34.5 - 27.75	1.223	31	0.3184	0.0008
L32	27.75 - 25.875	0.799	31	0.2767	0.0007
L33	25.875 - 25.75	0.694	31	0.2568	0.0007
L34	25.75 - 25.625	0.687	31	0.2551	0.0007
L35	25.625 - 25.5	0.681	31	0.2539	0.0006
L36	25.5 - 20.5	0.674	31	0.2526	0.0006
L37	20.5 - 15.5	0.435	31	0.2032	0.0005
L38	15.5 - 10.5	0.249	31	0.1534	0.0004
L39	10.5 - 5.5	0.114	31	0.1040	0.0002
L40	5.5 - 0.5	0.031	31	0.0542	0.0001
L41	0.5 - 0	0.000	31	0.0000	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.0000	VHLP800-11	31	25.122	1.5568	0.0114	18839
148.0000	Platform Mount [LP 1201-1]	31	25.122	1.5568	0.0114	18839
144.0000	VHLP2.5-10W	31	23.820	1.5504	0.0108	18839
120.0000	Platform Mount [LP 1201-1]	31	16.373	1.3820	0.0077	5390

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
96.0000	Platform Mount [LP 1201-1]	31	10.167	1.0980	0.0056	4808
82.0000	Platform Mount [LP 1201-1]	31	7.219	0.9097	0.0038	4043
72.0000	Side Arm Mount [SO 102-3]	31	5.466	0.7600	0.0028	4010
53.0000	Side Arm Mount [SO 702-1]	31	2.878	0.5349	0.0017	4386
50.0000	BULLET III	31	2.553	0.5007	0.0015	4851

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 143	83.445	6	5.1784	0.0358
L2	143 - 138	78.047	6	5.1483	0.0332
L3	138 - 133	72.701	6	5.0794	0.0308
L4	133 - 128	67.445	6	4.9774	0.0287
L5	128 - 123	62.309	6	4.8480	0.0268
L6	123 - 118	57.320	6	4.6959	0.0250
L7	118 - 113	52.500	6	4.5231	0.0233
L8	113 - 108	47.875	6	4.3198	0.0217
L9	108 - 100.5	43.477	6	4.0886	0.0201
L10	104.5 - 99.5	40.548	6	3.9128	0.0192
L11	99.5 - 94.5	36.514	6	3.7856	0.0186
L12	94.5 - 89.5	32.659	6	3.5840	0.0172
L13	89.5 - 84.5	29.021	6	3.3688	0.0148
L14	84.5 - 79.5	25.614	6	3.1427	0.0127
L15	79.5 - 74.5	22.448	6	2.9073	0.0109
L16	74.5 - 70.667	19.534	6	2.6615	0.0093
L17	70.667 - 70.417	17.476	6	2.4670	0.0082
L18	70.417 - 65.417	17.347	6	2.4573	0.0081
L19	65.417 - 63.667	14.878	6	2.2597	0.0072
L20	63.667 - 63.417	14.063	6	2.1904	0.0069
L21	63.417 - 58.25	13.948	6	2.1771	0.0069
L22	63.25 - 57.25	13.872	6	2.1681	0.0069
L23	57.25 - 53.229	11.247	6	1.9896	0.0062
L24	53.229 - 52.979	9.657	6	1.7875	0.0056
L25	52.979 - 47.979	9.564	6	1.7782	0.0056
L26	47.979 - 42.979	7.802	6	1.5863	0.0048
L27	42.979 - 37.979	6.243	6	1.3922	0.0040
L28	37.979 - 35.125	4.888	6	1.1963	0.0033
L29	35.125 - 34.875	4.207	6	1.0817	0.0029
L30	34.875 - 28.75	4.150	6	1.0726	0.0029
L31	34.5 - 27.75	4.067	6	1.0589	0.0028
L32	27.75 - 25.875	2.657	6	0.9203	0.0024
L33	25.875 - 25.75	2.308	6	0.8539	0.0022
L34	25.75 - 25.625	2.286	6	0.8484	0.0022
L35	25.625 - 25.5	2.264	6	0.8443	0.0021
L36	25.5 - 20.5	2.242	6	0.8402	0.0021
L37	20.5 - 15.5	1.448	6	0.6759	0.0017
L38	15.5 - 10.5	0.827	6	0.5102	0.0012
L39	10.5 - 5.5	0.379	6	0.3458	0.0008
L40	5.5 - 0.5	0.104	6	0.1802	0.0004
L41	0.5 - 0	0.001	6	0.0163	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.0000	VHLP800-11	6	83.445	5.1784	0.0369	5821
148.0000	Platform Mount [LP 1201-1]	6	83.445	5.1784	0.0369	5821
144.0000	VHLP2.5-10W	6	79.124	5.1567	0.0350	5821
120.0000	Platform Mount [LP 1201-1]	6	54.406	4.5956	0.0249	1643
96.0000	Platform Mount [LP 1201-1]	6	33.794	3.6513	0.0183	1458
82.0000	Platform Mount [LP 1201-1]	6	24.001	3.0254	0.0126	1223
72.0000	Side Arm Mount [SO 102-3]	6	18.174	2.5275	0.0091	1211
53.0000	Side Arm Mount [SO 702-1]	6	9.572	1.7790	0.0056	1322

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
50.0000	BULLET III	6	8.490	1.6653	0.0051	1461

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P
	ft		ft	ft		ksi	in ²	K	K	P
L1	148 - 143 (1)	TP23.0151x22x0.25	5.0000	0.0000	0.0	36.000	18.3259	-3.36	659.73	0.005
L2	143 - 138 (2)	TP24.0301x23.0151x0.25	5.0000	0.0000	0.0	36.000	19.1430	-3.64	689.15	0.005
L3	138 - 133 (3)	TP25.0452x24.0301x0.25	5.0000	0.0000	0.0	36.000	19.9601	-3.97	718.56	0.006
L4	133 - 128 (4)	TP26.0602x25.0452x0.25	5.0000	0.0000	0.0	36.000	20.7772	-4.32	747.98	0.006
L5	128 - 123 (5)	TP27.0753x26.0602x0.25	5.0000	0.0000	0.0	36.000	21.5943	-4.69	777.40	0.006
L6	123 - 118 (6)	TP28.0903x27.0753x0.25	5.0000	0.0000	0.0	36.000	22.4115	-7.98	806.81	0.010
L7	118 - 113 (7)	TP29.1054x28.0903x0.25	5.0000	0.0000	0.0	36.000	23.2286	-8.47	836.23	0.010
L8	113 - 108 (8)	TP30.1204x29.1054x0.25	5.0000	0.0000	0.0	36.000	24.0457	-8.97	865.64	0.010
L9	108 - 100.5 (9)	TP31.643x30.1204x0.25	7.5000	0.0000	0.0	36.000	24.6177	-9.35	886.24	0.011
L10	100.5 - 99.5 (10)	TP31.346x30.331x0.375	5.0000	0.0000	0.0	36.000	37.3975	-10.39	1346.31	0.008
L11	99.5 - 94.5 (11)	TP32.361x31.346x0.375	5.0000	0.0000	0.0	36.000	38.6231	-13.48	1390.43	0.010
L12	94.5 - 89.5 (12)	TP33.3761x32.361x0.375	5.0000	0.0000	0.0	36.000	39.8488	-14.29	1434.56	0.010
L13	89.5 - 84.5 (13)	TP34.3911x33.3761x0.375	5.0000	0.0000	0.0	36.000	41.0744	-15.14	1478.68	0.010
L14	84.5 - 79.5 (14)	TP35.4061x34.3911x0.375	5.0000	0.0000	0.0	36.000	42.3001	-18.49	1522.80	0.012
L15	79.5 - 74.5 (15)	TP36.4211x35.4061x0.375	5.0000	0.0000	0.0	36.000	43.5257	-19.47	1566.93	0.012
L16	74.5 - 70.667 (16)	TP37.1993x36.4211x0.375	3.8330	0.0000	0.0	36.000	44.4653	-20.41	1600.75	0.013
L17	70.667 - 70.417 (17)	TP37.25x37.1993x0.5	0.2500	0.0000	0.0	36.000	59.1675	-20.49	2130.03	0.010
L18	70.417 - 65.417 (18)	TP38.2651x37.25x0.5	5.0000	0.0000	0.0	36.000	60.8017	-21.74	2188.86	0.010
L19	65.417 - 63.667 (19)	TP38.6203x38.2651x0.5	1.7500	0.0000	0.0	36.000	61.3737	-22.18	2209.45	0.010
L20	63.667 - 63.417 (20)	TP38.6711x38.6203x0.375	0.2500	0.0000	0.0	36.000	46.2425	-22.25	1664.73	0.013
L21	63.417 - 58.25 (21)	TP39.72x38.6711x0.375	5.1670	0.0000	0.0	36.000	46.2834	-22.28	1666.20	0.013
L22	58.25 - 57.25 (22)	TP39.1209x37.955x0.4375	6.0000	0.0000	0.0	36.000	54.4952	-24.46	1961.83	0.012
L23	57.25 - 53.229 (23)	TP39.9022x39.1209x0.4375	4.0210	0.0000	0.0	36.000	55.5960	-25.46	2001.45	0.013
L24	53.229 - 52.979 (24)	TP39.9508x39.9022x0.6	0.2500	0.0000	0.0	36.000	76.0258	-25.57	2736.93	0.009
L25	52.979 - 47.979 (25)	TP40.9224x39.9508x0.5875	5.0000	0.0000	0.0	36.000	76.3036	-27.11	2746.93	0.010
L26	47.979 - 42.979 (26)	TP41.894x40.9224x0.5875	5.0000	0.0000	0.0	36.000	78.1416	-28.68	2813.10	0.010
L27	42.979 - 37.979 (27)	TP42.8656x41.894x0.5875	5.0000	0.0000	0.0	36.000	79.9796	-30.28	2879.27	0.011
L28	37.979 - 35.125 (28)	TP43.4202x42.8656x0.575	2.8540	0.0000	0.0	36.000	79.3279	-31.21	2855.80	0.011
L29	35.125 - 34.875 (29)	TP43.4688x43.4202x0.6375	0.2500	0.0000	0.0	36.000	87.9219	-31.31	3165.19	0.010
L30	34.875 - 28.75 (30)	TP44.659x43.4688x0.6375	6.1250	0.0000	0.0	36.000	88.0715	-31.44	3170.57	0.010
L31	28.75 - 27.75 (31)	TP44.0858x42.6667x0.7	6.7500	0.0000	0.0	36.000	97.7916	-35.59	3520.50	0.010
L32	27.75 - 25.875 (32)	TP44.48x44.0858x0.6875	1.8750	0.0000	0.0	36.000	96.9456	-36.29	3490.04	0.010
L33	25.875 - 25.75 (33)	TP44.5063x44.48x0.55	0.1250	0.0000	0.0	36.000	77.8466	-36.36	2802.48	0.013
L34	25.75 - 25.625	TP44.5326x44.5063x0.75	0.1250	0.0000	0.0	36.000	105.735	-36.41	3806.46	0.010

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P/P _a
L35	25.625 - 25.5 (34)	TP44.5588x44.5326x0.75	0.1250	0.0000	0.0	36.000	105.798	-36.46	3808.74	0.010
L36	25.5 - 20.5 (35)	TP45.61x44.5588x0.75	5.0000	0.0000	0.0	36.000	108.337	-38.51	3900.13	0.010
L37	20.5 - 15.5 (36)	TP46.6613x45.61x0.7375	5.0000	0.0000	0.0	36.000	109.057	-40.60	3926.07	0.010
L38	15.5 - 10.5 (37)	TP47.7125x46.6613x0.7375	5.0000	0.0000	0.0	36.000	111.554	-42.73	4015.94	0.011
L39	10.5 - 5.5 (38)	TP48.7637x47.7125x0.725	5.0000	0.0000	0.0	36.000	112.146	-44.79	4037.27	0.011
L40	5.5 - 0.5 (39)	TP49.8149x48.7637x0.725	5.0000	0.0000	0.0	36.000	114.600	-46.80	4125.61	0.011
L41	0.5 - 0 (40)	TP49.92x49.8149x0.725	0.5000	0.0000	0.0	36.000	114.846	-47.01	4134.45	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio f _{bx} /F _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} /F _{by}
L1	148 - 143 (1)	TP23.0151x22x0.25	43.05	5.081	36.000	0.141	0.00	0.000	36.000	0.000
L2	143 - 138 (2)	TP24.0301x23.0151x0.25	84.03	9.084	36.000	0.252	0.00	0.000	36.000	0.000
L3	138 - 133 (3)	TP25.0452x24.0301x0.25	128.33	12.755	36.000	0.354	0.00	0.000	36.000	0.000
L4	133 - 128 (4)	TP26.0602x25.0452x0.25	175.67	16.108	36.000	0.447	0.00	0.000	36.000	0.000
L5	128 - 123 (5)	TP27.0753x26.0602x0.25	226.12	19.187	36.000	0.533	0.00	0.000	36.000	0.000
L6	123 - 118 (6)	TP28.0903x27.0753x0.25	291.97	22.993	36.000	0.639	0.00	0.000	36.000	0.000
L7	118 - 113 (7)	TP29.1054x28.0903x0.25	378.68	27.752	36.000	0.771	0.00	0.000	36.000	0.000
L8	113 - 108 (8)	TP30.1204x29.1054x0.25	468.74	32.047	36.000	0.890	0.00	0.000	36.000	0.000
L9	108 - 100.5 (9)	TP31.643x30.1204x0.25	533.77	34.811	36.000	0.967	0.00	0.000	36.000	0.000
L10	100.5 - 99.5 (10)	TP31.346x30.331x0.375	629.73	26.799	36.000	0.744	0.00	0.000	36.000	0.000
L11	99.5 - 94.5 (11)	TP32.361x31.346x0.375	740.77	29.543	36.000	0.821	0.00	0.000	36.000	0.000
L12	94.5 - 89.5 (12)	TP33.3761x32.361x0.375	860.78	32.239	36.000	0.896	0.00	0.000	36.000	0.000
L13	89.5 - 84.5 (13)	TP34.3911x33.3761x0.375	984.30	34.687	36.000	0.964	0.00	0.000	36.000	0.000
L14	84.5 - 79.5 (14)	TP35.4061x34.3911x0.375	1121.1	37.240	36.000	1.034	0.00	0.000	36.000	0.000
L15	79.5 - 74.5 (15)	TP36.4211x35.4061x0.375	1271.2	39.870	36.000	1.107	0.00	0.000	36.000	0.000
L16	74.5 - 70.667 (16)	TP37.1993x36.4211x0.375	1389.5	41.748	36.000	1.160	0.00	0.000	36.000	0.000
L17	70.667 - 70.417 (17)	TP37.25x37.1993x0.5	1397.4	31.723	36.000	0.881	0.00	0.000	36.000	0.000
L18	70.417 - 65.417 (18)	TP38.2651x37.25x0.5	1557.3	33.467	36.000	0.930	0.00	0.000	36.000	0.000
L19	65.417 - 63.667 (19)	TP38.6203x38.2651x0.5	1614.2	34.042	36.000	0.946	0.00	0.000	36.000	0.000
L20	63.667 - 63.417 (20)	TP38.6711x38.6203x0.375	1622.4	45.054	36.000	1.252	0.00	0.000	36.000	0.000
L21	63.417 - 58.25 (21)	TP39.72x38.6711x0.375	1627.9	45.125	36.000	1.253	0.00	0.000	36.000	0.000
L22	58.25 - 57.25 (22)	TP39.1209x37.955x0.4375	1827.1	42.688	36.000	1.186	0.00	0.000	36.000	0.000
L23	57.25 - 53.229 (23)	TP39.9022x39.1209x0.4375	1963.6	44.069	36.000	1.224	0.00	0.000	36.000	0.000
L24	53.229 - 52.979 (24)	TP39.9508x39.9022x0.6	1972.3	32.596	36.000	0.905	0.00	0.000	36.000	0.000
L25	52.979 - 47.979 (25)	TP40.9224x39.9508x0.5875	2151.1	34.535	36.000	0.959	0.00	0.000	36.000	0.000
L26	47.979 - 42.979 (26)	TP41.894x40.9224x0.5875	2333.9	35.714	36.000	0.992	0.00	0.000	36.000	0.000
L27	42.979 - 37.979 (27)	TP42.8656x41.894x0.5875	2520.3	36.804	36.000	1.022	0.00	0.000	36.000	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{Bx} ksi	Ratio $\frac{f_{bx}}{F_{Bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{By} ksi	Ratio $\frac{f_{by}}{F_{By}}$
L28	37.979 - 35.125 (28)	TP43.4202x42.8656x0.575	2628.47	38.167	36.000	1.060	0.00	0.000	36.000	0.000
L29	35.125 - 34.875 (29)	TP43.4688x43.4202x0.6375	2638.00	34.623	36.000	0.962	0.00	0.000	36.000	0.000
L30	34.875 - 28.75 (30)	TP44.659x43.4688x0.6375	2652.31	34.691	36.000	0.964	0.00	0.000	36.000	0.000
L31	28.75 - 27.75 (31)	TP44.0858x42.6667x0.78	2913.68	33.984	36.000	0.944	0.00	0.000	36.000	0.000
L32	27.75 - 25.875 (32)	TP44.48x44.0858x0.6875	2987.59	34.808	36.000	0.967	0.00	0.000	36.000	0.000
L33	25.875 - 25.75 (33)	TP44.5063x44.48x0.553	2992.53	43.123	36.000	1.198	0.00	0.000	36.000	0.000
L34	25.75 - 25.625 (34)	TP44.5326x44.5063x0.758	2997.48	32.073	36.000	0.891	0.00	0.000	36.000	0.000
L35	25.625 - 25.5 (35)	TP44.5588x44.5326x0.754	3002.44	32.087	36.000	0.891	0.00	0.000	36.000	0.000
L36	25.5 - 20.5 (36)	TP45.61x44.5588x0.759	3202.59	32.628	36.000	0.906	0.00	0.000	36.000	0.000
L37	20.5 - 15.5 (37)	TP46.6613x45.61x0.73751	3406.71	33.658	36.000	0.935	0.00	0.000	36.000	0.000
L38	15.5 - 10.5 (38)	TP47.7125x46.6613x0.738	3614.78	34.121	36.000	0.948	0.00	0.000	36.000	0.000
L39	10.5 - 5.5 (39)	TP48.7637x47.7125x0.725	3826.78	35.115	36.000	0.975	0.00	0.000	36.000	0.000
L40	5.5 - 0.5 (40)	TP49.8149x48.7637x0.725	4042.70	35.513	36.000	0.986	0.00	0.000	36.000	0.000
L41	0.5 - 0 (41)	TP49.92x49.8149x0.7251	4064.51	35.551	36.000	0.988	0.00	0.000	36.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	148 - 143 (1)	TP23.0151x22x0.25	7.73	0.422	24.000	0.036	0.77	0.043	24.000	0.002
L2	143 - 138 (2)	TP24.0301x23.0151x0.25	8.56	0.447	24.000	0.038	0.65	0.033	24.000	0.001
L3	138 - 133 (3)	TP25.0452x24.0301x0.25	9.16	0.459	24.000	0.039	0.66	0.031	24.000	0.001
L4	133 - 128 (4)	TP26.0602x25.0452x0.25	9.78	0.471	24.000	0.040	0.66	0.028	24.000	0.001
L5	128 - 123 (5)	TP27.0753x26.0602x0.25	10.41	0.482	24.000	0.041	0.66	0.026	24.000	0.001
L6	123 - 118 (6)	TP28.0903x27.0753x0.25	17.02	0.759	24.000	0.064	0.66	0.025	24.000	0.001
L7	118 - 113 (7)	TP29.1054x28.0903x0.25	17.68	0.761	24.000	0.064	0.66	0.023	24.000	0.001
L8	113 - 108 (8)	TP30.1204x29.1054x0.25	18.35	0.763	24.000	0.065	0.67	0.022	24.000	0.001
L9	108 - 100.5 (9)	TP31.643x30.1204x0.25	18.82	0.765	24.000	0.065	0.67	0.021	24.000	0.001
L10	100.5 - 99.5 (10)	TP31.346x30.331x0.375	19.56	0.523	24.000	0.044	0.67	0.013	24.000	0.001
L11	99.5 - 94.5 (11)	TP32.361x31.346x0.375	23.66	0.613	24.000	0.052	4.93	0.093	24.000	0.004
L12	94.5 - 89.5 (12)	TP33.3761x32.361x0.375	24.36	0.611	24.000	0.052	4.93	0.087	24.000	0.004
L13	89.5 - 84.5 (13)	TP34.3911x33.3761x0.375	25.06	0.610	24.000	0.052	4.93	0.082	24.000	0.003
L14	84.5 - 79.5 (14)	TP35.4061x34.3911x0.375	29.69	0.702	24.000	0.059	4.93	0.077	24.000	0.003
L15	79.5 - 74.5 (15)	TP36.4211x35.4061x0.375	30.38	0.698	24.000	0.059	4.94	0.073	24.000	0.003
L16	74.5 - 70.667 (16)	TP37.1993x36.4211x0.375	31.54	0.709	24.000	0.060	4.94	0.070	24.000	0.003
L17	70.667 - 70.417 (17)	TP37.25x37.1993x0.5	31.57	0.534	24.000	0.045	4.94	0.053	24.000	0.002
L18	70.417 - 65.417 (18)	TP38.2651x37.25x0.5	32.40	0.533	24.000	0.045	4.94	0.050	24.000	0.002
L19	65.417 - 63.667 (19)	TP38.6203x38.2651x0.5	32.70	0.533	24.000	0.045	4.94	0.049	24.000	0.002
L20	63.667 - 63.417 (20)	TP38.6711x38.6203x0.375	32.72	0.708	24.000	0.060	4.94	0.065	24.000	0.003
L21	63.417 -	TP39.72x38.6711x0.375	32.75	0.708	24.000	0.060	4.94	0.065	24.000	0.003

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L22	58.25 (21) 58.25 - 57.25 (22)	TP39.1209x37.955x0.4375	33.67	0.618	24.000	0.052	4.94	0.054	24.000	0.002
L23	57.25 - 53.229 (23)	TP39.9022x39.1209x0.4375	34.24	0.616	24.000	0.052	4.95	0.052	24.000	0.002
L24	53.229 - 52.979 (24)	TP39.9508x39.9022x0.6	35.38	0.465	24.000	0.039	4.94	0.038	24.000	0.002
L25	52.979 - 47.979 (25)	TP40.9224x39.9508x0.5875	36.17	0.474	24.000	0.040	1.04	0.008	24.000	0.000
L26	47.979 - 42.979 (26)	TP41.894x40.9224x0.5875	36.94	0.473	24.000	0.040	1.04	0.007	24.000	0.000
L27	42.979 - 37.979 (27)	TP42.8656x41.894x0.5875	37.68	0.471	24.000	0.040	1.04	0.007	24.000	0.000
L28	37.979 - 35.125 (28)	TP43.4202x42.8656x0.575	38.09	0.480	24.000	0.041	1.04	0.007	24.000	0.000
L29	35.125 - 34.875 (29)	TP43.4688x43.4202x0.6375	38.12	0.434	24.000	0.037	1.04	0.006	24.000	0.000
L30	34.875 - 28.75 (30)	TP44.659x43.4688x0.6375	38.17	0.433	24.000	0.037	1.04	0.006	24.000	0.000
L31	28.75 - 27.75 (31)	TP44.0858x42.6667x0.7	39.28	0.402	24.000	0.034	1.05	0.006	24.000	0.000
L32	27.75 - 25.875 (32)	TP44.48x44.0858x0.6875	39.59	0.408	24.000	0.035	1.07	0.006	24.000	0.000
L33	25.875 - 25.75 (33)	TP44.5063x44.48x0.55	39.59	0.509	24.000	0.043	1.07	0.007	24.000	0.000
L34	25.75 - 25.625 (34)	TP44.5326x44.5063x0.75	39.61	0.375	24.000	0.032	1.07	0.005	24.000	0.000
L35	25.625 - 25.5 (35)	TP44.5588x44.5326x0.75	39.63	0.375	24.000	0.032	1.07	0.005	24.000	0.000
L36	25.5 - 20.5 (36)	TP45.61x44.5588x0.75	40.44	0.373	24.000	0.032	1.09	0.005	24.000	0.000
L37	20.5 - 15.5 (37)	TP46.6613x45.61x0.7375	41.23	0.378	24.000	0.032	1.11	0.005	24.000	0.000
L38	15.5 - 10.5 (38)	TP47.7125x46.6613x0.7375	42.02	0.377	24.000	0.032	1.13	0.005	24.000	0.000
L39	10.5 - 5.5 (39)	TP48.7637x47.7125x0.725	42.81	0.382	24.000	0.032	1.15	0.005	24.000	0.000
L40	5.5 - 0.5 (40)	TP49.8149x48.7637x0.725	43.59	0.380	24.000	0.032	1.17	0.005	24.000	0.000
L41	0.5 - 0 (41)	TP49.92x49.8149x0.725	43.66	0.380	24.000	0.032	1.17	0.005	24.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P	Ratio f_{bx}	Ratio f_{by}	Ratio f_v	Ratio f_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_a	F_{bx}	F_{by}	F_v	F_{vt}			
L1	148 - 143 (1)	0.005	0.141	0.000	0.036	0.002	0.147	1.333	H1-3+VT ✓
L2	143 - 138 (2)	0.005	0.252	0.000	0.038	0.001	0.258	1.333	H1-3+VT ✓
L3	138 - 133 (3)	0.006	0.354	0.000	0.039	0.001	0.360	1.333	H1-3+VT ✓
L4	133 - 128 (4)	0.006	0.447	0.000	0.040	0.001	0.454	1.333	H1-3+VT ✓
L5	128 - 123 (5)	0.006	0.533	0.000	0.041	0.001	0.539	1.333	H1-3+VT ✓
L6	123 - 118 (6)	0.010	0.639	0.000	0.064	0.001	0.650	1.333	H1-3+VT ✓
L7	118 - 113 (7)	0.010	0.771	0.000	0.064	0.001	0.782	1.333	H1-3+VT ✓
L8	113 - 108 (8)	0.010	0.890	0.000	0.065	0.001	0.902	1.333	H1-3+VT ✓
L9	108 - 100.5 (9)	0.011	0.967	0.000	0.065	0.001	0.979	1.333	H1-3+VT ✓

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_a	f_{bx}	f_{by}	f_v	f_{vt}			
L10	100.5 - 99.5 (10)	0.008	0.744	0.000	0.044	0.001	0.753	1.333	H1-3+VT ✓
L11	99.5 - 94.5 (11)	0.010	0.821	0.000	0.052	0.004	0.831	1.333	H1-3+VT ✓
L12	94.5 - 89.5 (12)	0.010	0.896	0.000	0.052	0.004	0.906	1.333	H1-3+VT ✓
L13	89.5 - 84.5 (13)	0.010	0.964	0.000	0.052	0.003	0.975	1.333	H1-3+VT ✓
L14	84.5 - 79.5 (14)	0.012	1.034	0.000	0.059	0.003	1.048	1.333	H1-3+VT ✓
L15	79.5 - 74.5 (15)	0.012	1.107	0.000	0.059	0.003	1.121	1.333	H1-3+VT ✓
L16	74.5 - 70.667 (16)	0.013	1.160	0.000	0.060	0.003	1.173	1.333	H1-3+VT ✓
L17	70.667 - 70.417 (17)	0.010	0.881	0.000	0.045	0.002	0.891	1.333	H1-3+VT ✓
L18	70.417 - 65.417 (18)	0.010	0.930	0.000	0.045	0.002	0.940	1.333	H1-3+VT ✓
L19	65.417 - 63.667 (19)	0.010	0.946	0.000	0.045	0.002	0.956	1.333	H1-3+VT ✓
L20	63.667 - 63.417 (20)	0.013	1.252	0.000	0.060	0.003	1.266	1.333	H1-3+VT ✓
L21	63.417 - 58.25 (21)	0.013	1.253	0.000	0.060	0.003	1.268	1.333	H1-3+VT ✓
L22	58.25 - 57.25 (22)	0.012	1.186	0.000	0.052	0.002	1.199	1.333	H1-3+VT ✓
L23	57.25 - 53.229 (23)	0.013	1.224	0.000	0.052	0.002	1.238	1.333	H1-3+VT ✓
L24	53.229 - 52.979 (24)	0.009	0.905	0.000	0.039	0.002	0.915	1.333	H1-3+VT ✓
L25	52.979 - 47.979 (25)	0.010	0.959	0.000	0.040	0.000	0.970	1.333	H1-3+VT ✓
L26	47.979 - 42.979 (26)	0.010	0.992	0.000	0.040	0.000	1.003	1.333	H1-3+VT ✓
L27	42.979 - 37.979 (27)	0.011	1.022	0.000	0.040	0.000	1.033	1.333	H1-3+VT ✓
L28	37.979 - 35.125 (28)	0.011	1.060	0.000	0.041	0.000	1.072	1.333	H1-3+VT ✓
L29	35.125 - 34.875 (29)	0.010	0.962	0.000	0.037	0.000	0.972	1.333	H1-3+VT ✓
L30	34.875 - 28.75 (30)	0.010	0.964	0.000	0.037	0.000	0.974	1.333	H1-3+VT ✓
L31	28.75 - 27.75 (31)	0.010	0.944	0.000	0.034	0.000	0.954	1.333	H1-3+VT ✓
L32	27.75 - 25.875 (32)	0.010	0.967	0.000	0.035	0.000	0.978	1.333	H1-3+VT ✓
L33	25.875 - 25.75 (33)	0.013	1.198	0.000	0.043	0.000	1.211	1.333	H1-3+VT ✓
L34	25.75 - 25.625 (34)	0.010	0.891	0.000	0.032	0.000	0.901	1.333	H1-3+VT ✓
L35	25.625 - 25.5 (35)	0.010	0.891	0.000	0.032	0.000	0.901	1.333	H1-3+VT ✓
L36	25.5 - 20.5 (36)	0.010	0.906	0.000	0.032	0.000	0.916	1.333	H1-3+VT ✓
L37	20.5 - 15.5 (37)	0.010	0.935	0.000	0.032	0.000	0.946	1.333	H1-3+VT ✓
L38	15.5 - 10.5 (38)	0.011	0.948	0.000	0.032	0.000	0.959	1.333	H1-3+VT ✓
L39	10.5 - 5.5 (39)	0.011	0.975	0.000	0.032	0.000	0.987	1.333	H1-3+VT ✓

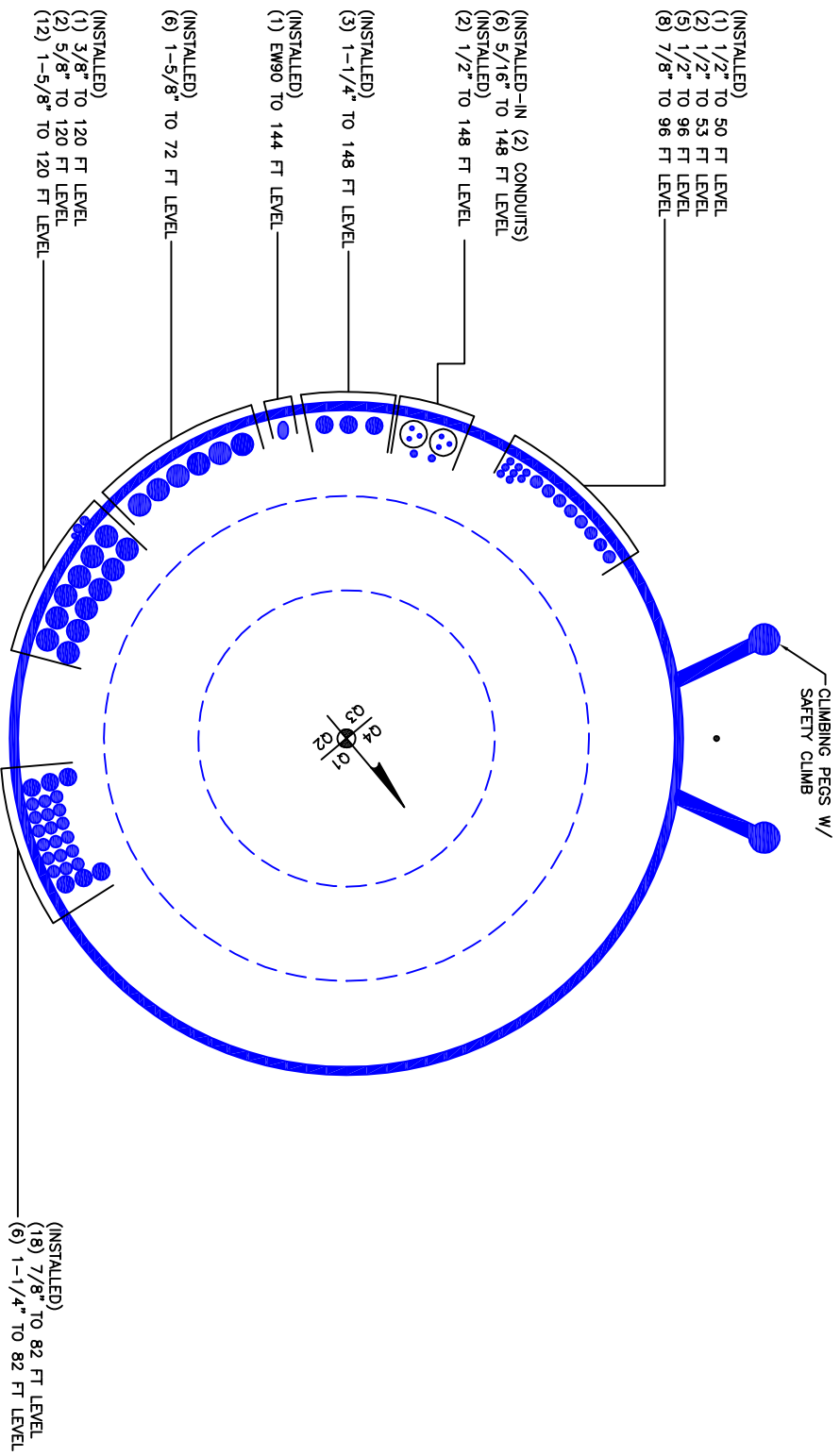
Section No.	Elevation ft	Ratio P	Ratio f_{bx}	Ratio f_{by}	Ratio f_v	Ratio f_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_a	F_{bx}	F_{by}	F_v	F_{vt}			
L40	5.5 - 0.5 (40)	0.011	0.986	0.000	0.032	0.000	0.998	1.333	H1-3+VT ✓
L41	0.5 - 0 (41)	0.011	0.988	0.000	0.032	0.000	0.999	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF* P_{allow} K	% Capacity	Pass Fail	
L1	148 - 143	Pole	TP23.0151x22x0.25	1	-3.36	879.42	11.0	Pass	
L2	143 - 138	Pole	TP24.0301x23.0151x0.25	2	-3.64	918.63	19.4	Pass	
L3	138 - 133	Pole	TP25.0452x24.0301x0.25	3	-3.97	957.85	27.0	Pass	
L4	133 - 128	Pole	TP26.0602x25.0452x0.25	4	-4.32	997.06	34.0	Pass	
L5	128 - 123	Pole	TP27.0753x26.0602x0.25	5	-4.69	1036.27	40.5	Pass	
L6	123 - 118	Pole	TP28.0903x27.0753x0.25	6	-7.98	1075.48	48.7	Pass	
L7	118 - 113	Pole	TP29.1054x28.0903x0.25	7	-8.47	1114.69	58.7	Pass	
L8	113 - 108	Pole	TP30.1204x29.1054x0.25	8	-8.97	1153.90	67.6	Pass	
L9	108 - 100.5	Pole	TP31.643x30.1204x0.25	9	-9.35	1181.35	73.4	Pass	
L10	100.5 - 99.5	Pole	TP31.346x30.331x0.375	10	-10.39	1794.63	56.5	Pass	
L11	99.5 - 94.5	Pole	TP32.361x31.346x0.375	11	-13.48	1853.44	62.4	Pass	
L12	94.5 - 89.5	Pole	TP33.3761x32.361x0.375	12	-14.29	1912.27	68.0	Pass	
L13	89.5 - 84.5	Pole	TP34.3911x33.3761x0.375	13	-15.14	1971.08	73.1	Pass	
L14	84.5 - 79.5	Pole	TP35.4061x34.3911x0.375	14	-18.49	2029.89	78.6	Pass	
L15	79.5 - 74.5	Pole	TP36.4211x35.4061x0.375	15	-19.47	2088.72	84.1	Pass	
L16	74.5 - 70.667	Pole	TP37.1993x36.4211x0.375	16	-20.41	2133.80	88.0	Pass	
L17	70.667 - 70.417	Pole	TP37.25x37.1993x0.5	17	-20.49	2839.33	66.9	Pass	
L18	70.417 - 65.417	Pole	TP38.2651x37.25x0.5	18	-21.74	2917.75	70.5	Pass	
L19	65.417 - 63.667	Pole	TP38.6203x38.2651x0.5	19	-22.18	2945.20	71.7	Pass	
L20	63.667 - 63.417	Pole	TP38.6711x38.6203x0.375	20	-22.25	2219.08	95.0	Pass	
L21	63.417 - 58.25	Pole	TP39.72x38.6711x0.375	21	-22.28	2221.04	95.1	Pass	
L22	58.25 - 57.25	Pole	TP39.1209x37.955x0.4375	22	-24.46	2615.12	90.0	Pass	
L23	57.25 - 53.229	Pole	TP39.9022x39.1209x0.4375	23	-25.46	2667.93	92.8	Pass	
L24	53.229 - 52.979	Pole	TP39.9508x39.9022x0.6	24	-25.57	3648.33	68.7	Pass	
L25	52.979 - 47.979	Pole	TP40.9224x39.9508x0.5875	25	-27.11	3661.66	72.7	Pass	
L26	47.979 - 42.979	Pole	TP41.894x40.9224x0.5875	26	-28.68	3749.86	75.2	Pass	
L27	42.979 - 37.979	Pole	TP42.8656x41.894x0.5875	27	-30.28	3838.07	77.5	Pass	
L28	37.979 - 35.125	Pole	TP43.4202x42.8656x0.575	28	-31.21	3806.78	80.4	Pass	
L29	35.125 - 34.875	Pole	TP43.4688x43.4202x0.6375	29	-31.31	4219.20	72.9	Pass	
L30	34.875 - 28.75	Pole	TP44.659x43.4688x0.6375	30	-31.44	4226.37	73.1	Pass	
L31	28.75 - 27.75	Pole	TP44.0858x42.6667x0.7	31	-35.59	4692.83	71.6	Pass	
L32	27.75 - 25.875	Pole	TP44.48x44.0858x0.6875	32	-36.29	4652.22	73.3	Pass	
L33	25.875 - 25.75	Pole	TP44.5063x44.48x0.55	33	-36.36	3735.71	90.9	Pass	
L34	25.75 - 25.625	Pole	TP44.5326x44.5063x0.75	34	-36.41	5074.01	67.6	Pass	
L35	25.625 - 25.5	Pole	TP44.5588x44.5326x0.75	35	-36.46	5077.05	67.6	Pass	
L36	25.5 - 20.5	Pole	TP45.61x44.5588x0.75	36	-38.51	5198.87	68.8	Pass	
L37	20.5 - 15.5	Pole	TP46.6613x45.61x0.7375	37	-40.60	5233.45	70.9	Pass	
L38	15.5 - 10.5	Pole	TP47.7125x46.6613x0.7375	38	-42.73	5353.25	71.9	Pass	
L39	10.5 - 5.5	Pole	TP48.7637x47.7125x0.725	39	-44.79	5381.68	74.0	Pass	
L40	5.5 - 0.5	Pole	TP49.8149x48.7637x0.725	40	-46.80	5499.44	74.9	Pass	
L41	0.5 - 0	Pole	TP49.92x49.8149x0.725	41	-47.01	5511.22	75.0	Pass	
							Summary		
							Pole (L21)	95.1	Pass
							RATING =	95.1	Pass

Note: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Additional Calculations



Site BU: 876354
Work Order: 1122522



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Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	148	47.5	4	12	22	31.643	0.25	1	A607-60
2	104.5	46.25	5	12	30.33	39.72	0.375	1.5	A607-60
3	63.25	34.5	5.75	12	37.95	44.659	0.4375	1.75	A607-60
4	34.5	34.5	0	12	42.67	49.92	0.5	2	A607-60

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number													
						1	2	3	4	5	6	7	8	9	10	11	12	
1	0	35.125	plate	CCI-WSFP-065125	2			E									E	
2	0	25.75	plate	CCI-WSFP-065125	2						E		E					
3	25.875	35.125	plate	CCI-SFP-065125	1							E						
4	35.125	53.229	plate	CCI-SFP-060100	3			E				E					E	
5	63.667	70.667	plate	CCI-SFP-045100	3	E				E					E			
6																		
7																		
8																		
9																		
10																		

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _v (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	6.5	1.25	8.125	0.625	n/a	33.000	19.000	6.563	1.1875	A572-65
2	6.5	1.25	8.125	0.625	n/a	33.000	19.000	6.563	1.1875	A572-65
3	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
4	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
5	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	148 - 143	5		12	22.000	23.015	0.25	A607-60	1.000
2	143 - 138	5		12	23.015	24.030	0.25	A607-60	1.000
3	138 - 133	5		12	24.030	25.045	0.25	A607-60	1.000
4	133 - 128	5		12	25.045	26.060	0.25	A607-60	1.000
5	128 - 123	5		12	26.060	27.075	0.25	A607-60	1.000
6	123 - 118	5		12	27.075	28.090	0.25	A607-60	1.000
7	118 - 113	5		12	28.090	29.105	0.25	A607-60	1.000
8	113 - 108	5		12	29.105	30.120	0.25	A607-60	1.000
9	108 - 104.5	7.5	4	12	30.120	31.643	0.25	A607-60	1.000
10	104.5 - 99.5	5		12	30.331	31.346	0.375	A607-60	1.000
11	99.5 - 94.5	5		12	31.346	32.361	0.375	A607-60	1.000
12	94.5 - 89.5	5		12	32.361	33.376	0.375	A607-60	1.000
13	89.5 - 84.5	5		12	33.376	34.391	0.375	A607-60	1.000
14	84.5 - 79.5	5		12	34.391	35.406	0.375	A607-60	1.000
15	79.5 - 74.5	5		12	35.406	36.421	0.375	A607-60	1.000
16	74.5 - 70.667	3.833		12	36.421	37.199	0.375	A607-60	1.000
17	70.667 - 70.417	0.25		12	37.199	37.250	0.5	A607-60	0.981
18	70.417 - 65.417	5		12	37.250	38.265	0.5	A607-60	0.975
19	65.417 - 63.667	1.75		12	38.265	38.620	0.5	A607-60	0.973
20	63.667 - 63.417	0.25		12	38.620	38.671	0.375	A607-60	1.000
21	63.417 - 63.25	5.167	5	12	38.671	39.720	0.375	A607-60	1.000
22	63.25 - 57.25	6		12	37.955	39.121	0.4375	A607-60	1.000
23	57.25 - 53.229	4.021		12	39.121	39.902	0.4375	A607-60	1.000
24	53.229 - 52.979	0.25		12	39.902	39.951	0.6	A607-60	0.969
25	52.979 - 47.979	5		12	39.951	40.922	0.5875	A607-60	0.984
26	47.979 - 42.979	5		12	40.922	41.894	0.5875	A607-60	0.978
27	42.979 - 37.979	5		12	41.894	42.866	0.5875	A607-60	0.973
28	37.979 - 35.125	2.854		12	42.866	43.420	0.575	A607-60	0.991
29	35.125 - 34.875	0.25		12	43.420	43.469	0.6375	A607-60	0.967
30	34.875 - 34.5	6.125	5.75	12	43.469	44.659	0.6375	A607-60	0.967
31	34.5 - 27.75	6.75		12	42.667	44.086	0.7	A607-60	0.967
32	27.75 - 25.875	1.875		12	44.086	44.480	0.6875	A607-60	0.982
33	25.875 - 25.75	0.125		12	44.480	44.506	0.55	A607-60	1.119
34	25.75 - 25.625	0.125		12	44.506	44.533	0.75	A607-60	0.978
35	25.625 - 25.5	0.125		12	44.533	44.559	0.75	A607-60	0.978
36	25.5 - 20.5	5		12	44.559	45.610	0.75	A607-60	0.971
37	20.5 - 15.5	5		12	45.610	46.661	0.7375	A607-60	0.980
38	15.5 - 10.5	5		12	46.661	47.712	0.7375	A607-60	0.973
39	10.5 - 5.5	5		12	47.712	48.764	0.725	A607-60	0.983
40	5.5 - 0.5	5		12	48.764	49.815	0.725	A607-60	0.977
41	0.5 - 0	0.5		12	49.815	49.920	0.725	A607-60	0.976

TNX Section Forces

Increment (ft):		5	TNX Output		
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)	
1	148 - 143	3.3646	43.051	7.7268	
2	143 - 138	3.6432	84.027	8.5625	
3	138 - 133	3.9727	128.33	9.1633	
4	133 - 128	4.3215	175.67	9.7791	
5	128 - 123	4.6898	226.12	10.409	
6	123 - 118	7.9823	291.97	17.015	
7	118 - 113	8.4651	378.68	17.679	
8	113 - 108	8.9747	468.74	18.35	
9	108 - 104.5	9.3458	533.77	18.822	
10	104.5 - 99.5	10.394	629.73	19.562	
11	99.5 - 94.5	13.479	740.77	23.66	
12	94.5 - 89.5	14.295	860.79	24.359	
13	89.5 - 84.5	15.141	984.3	25.06	
14	84.5 - 79.5	18.492	1121.1	29.686	
15	79.5 - 74.5	19.467	1271.3	30.377	
16	74.5 - 70.667	20.415	1389.5	31.54	
17	70.667 - 70.417	20.492	1397.4	31.572	
18	70.417 - 65.417	21.738	1557.3	32.402	
19	65.417 - 63.667	22.175	1614.3	32.695	
20	63.667 - 63.417	22.246	1622.4	32.723	
21	63.417 - 63.25	22.284	1627.9	32.746	
22	63.25 - 57.25	24.457	1827.2	33.672	
23	57.25 - 53.229	25.457	1963.7	34.242	
24	53.229 - 52.979	25.572	1972.3	35.381	
25	52.979 - 47.979	27.106	2151.2	36.172	
26	47.979 - 42.979	28.68	2333.9	36.936	
27	42.979 - 37.979	30.285	2520.4	37.678	
28	37.979 - 35.125	31.21	2628.5	38.094	
29	35.125 - 34.875	31.313	2638	38.118	
30	34.875 - 34.5	31.442	2652.3	38.174	
31	34.5 - 27.75	35.586	2913.7	39.278	
32	27.75 - 25.875	36.291	2987.6	39.59	
33	25.875 - 25.75	36.357	2992.5	39.59	
34	25.75 - 25.625	36.409	2997.5	39.61	
35	25.625 - 25.5	36.46	3002.4	39.631	
36	25.5 - 20.5	38.509	3202.6	40.441	
37	20.5 - 15.5	40.602	3406.7	41.229	
38	15.5 - 10.5	42.728	3614.8	42.022	
39	10.5 - 5.5	44.8	3826.8	42.8	
40	5.5 - 0.5	46.8	4042.7	43.6	
41	0.5 - 0	47.0	4064.5	43.7	

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
148 - 143	Pole	TP23.015x22x0.25	Pole	10.9%	Pass
143 - 138	Pole	TP24.03x23.015x0.25	Pole	19.3%	Pass
138 - 133	Pole	TP25.045x24.03x0.25	Pole	26.9%	Pass
133 - 128	Pole	TP26.06x25.045x0.25	Pole	33.9%	Pass
128 - 123	Pole	TP27.075x26.06x0.25	Pole	40.3%	Pass
123 - 118	Pole	TP28.09x27.075x0.25	Pole	48.5%	Pass
118 - 113	Pole	TP29.105x28.09x0.25	Pole	58.4%	Pass
113 - 108	Pole	TP30.12x29.105x0.25	Pole	67.4%	Pass
108 - 104.5	Pole	TP31.643x30.12x0.25	Pole	73.1%	Pass
104.5 - 99.5	Pole	TP31.346x30.331x0.375	Pole	56.3%	Pass
99.5 - 94.5	Pole	TP32.361x31.346x0.375	Pole	62.1%	Pass
94.5 - 89.5	Pole	TP33.376x32.361x0.375	Pole	67.7%	Pass
89.5 - 84.5	Pole	TP34.391x33.376x0.375	Pole	72.8%	Pass
84.5 - 79.5	Pole	TP35.406x34.391x0.375	Pole	78.3%	Pass
79.5 - 74.5	Pole	TP36.421x35.406x0.375	Pole	83.8%	Pass
74.5 - 70.67	Pole	TP37.199x36.421x0.375	Pole	87.7%	Pass
70.67 - 70.42	Pole + Reinf.	TP37.25x37.199x0.5	Reinf. 5 Compression	82.5%	Pass
70.42 - 65.42	Pole + Reinf.	TP38.265x37.25x0.5	Reinf. 5 Compression	87.5%	Pass
65.42 - 63.67	Pole + Reinf.	TP38.62x38.265x0.5	Reinf. 5 Compression	89.3%	Pass
63.67 - 63.42	Pole	TP38.671x38.62x0.375	Pole	94.6%	Pass
63.42 - 63.25	Pole	TP39.72x38.671x0.375	Pole	94.8%	Pass
63.25 - 57.25	Pole	TP39.121x37.955x0.4375	Pole	89.6%	Pass
57.25 - 53.23	Pole	TP39.902x39.121x0.4375	Pole	92.5%	Pass
53.23 - 52.98	Pole + Reinf.	TP39.951x39.902x0.6	Reinf. 4 Bolt Shear	79.3%	Pass
52.98 - 47.98	Pole + Reinf.	TP40.922x39.951x0.5875	Reinf. 4 Compression	81.5%	Pass
47.98 - 42.98	Pole + Reinf.	TP41.894x40.922x0.5875	Reinf. 4 Compression	84.8%	Pass
42.98 - 37.98	Pole + Reinf.	TP42.866x41.894x0.5875	Reinf. 4 Compression	87.9%	Pass
37.98 - 35.13	Pole + Reinf.	TP43.42x42.866x0.575	Reinf. 4 Bolt Shear	91.0%	Pass
35.13 - 34.88	Pole + Reinf.	TP43.469x43.42x0.6375	Reinf. 1 Bolt Shear	83.0%	Pass
34.88 - 34.5	Pole + Reinf.	TP44.659x43.469x0.6375	Reinf. 1 Compression	81.8%	Pass
34.5 - 27.75	Pole + Reinf.	TP44.086x42.667x0.7	Reinf. 1 Compression	80.2%	Pass
27.75 - 25.88	Pole + Reinf.	TP44.48x44.086x0.6875	Reinf. 3 Bolt Shear	82.3%	Pass
25.88 - 25.75	Pole + Reinf.	TP44.506x44.48x0.55	Pole	97.2%	Pass
25.75 - 25.63	Pole + Reinf.	TP44.533x44.506x0.75	Reinf. 1 Compression	76.8%	Pass
25.63 - 25.5	Pole + Reinf.	TP44.559x44.533x0.75	Reinf. 1 Compression	76.8%	Pass
25.5 - 20.5	Pole + Reinf.	TP45.61x44.559x0.75	Reinf. 1 Compression	78.7%	Pass
20.5 - 15.5	Pole + Reinf.	TP46.661x45.61x0.7375	Reinf. 1 Compression	80.5%	Pass
15.5 - 10.5	Pole + Reinf.	TP47.712x46.661x0.7375	Reinf. 1 Compression	82.2%	Pass
10.5 - 5.5	Pole + Reinf.	TP48.764x47.712x0.725	Reinf. 1 Compression	83.8%	Pass
5.5 - 0.5	Pole + Reinf.	TP49.815x48.764x0.725	Reinf. 1 Compression	85.3%	Pass
0.5 - 0	Pole + Reinf.	TP49.92x49.815x0.725	Reinf. 1 Compression	85.4%	Pass
				Summary	
			Pole	97.2%	Pass
			Reinforcement	91.0%	Pass
			Overall	97.2%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity					
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5
148 - 143	1214	n/a	1214	18.30	n/a	18.30	10.9%					
143 - 138	1384	n/a	1384	19.12	n/a	19.12	19.3%					
138 - 133	1568	n/a	1568	19.93	n/a	19.93	26.9%					
133 - 128	1769	n/a	1769	20.75	n/a	20.75	33.9%					
128 - 123	1986	n/a	1986	21.56	n/a	21.56	40.3%					
123 - 118	2220	n/a	2220	22.38	n/a	22.38	48.5%					
118 - 113	2472	n/a	2472	23.20	n/a	23.20	58.4%					
113 - 108	2742	n/a	2742	24.01	n/a	24.01	67.4%					
108 - 104.5	2943	n/a	2943	24.58	n/a	24.58	73.1%					
104.5 - 99.5	4585	n/a	4585	37.34	n/a	37.34	56.3%					
99.5 - 94.5	5051	n/a	5051	38.57	n/a	38.57	62.1%					
94.5 - 89.5	5547	n/a	5547	39.79	n/a	39.79	67.7%					
89.5 - 84.5	6075	n/a	6075	41.02	n/a	41.02	72.8%					
84.5 - 79.5	6635	n/a	6635	42.24	n/a	42.24	78.3%					
79.5 - 74.5	7228	n/a	7228	43.46	n/a	43.46	83.8%					
74.5 - 70.67	7707	n/a	7707	44.40	n/a	44.40	87.7%					
70.67 - 70.42	7739	2481	10219	44.46	13.50	57.96	64.4%					82.5%
70.42 - 65.42	8395	2614	11009	45.69	13.50	59.19	68.5%					87.5%
65.42 - 63.67	8634	2661	11295	46.12	13.50	59.62	69.8%					89.2%
63.67 - 63.42	8668	n/a	8668	46.18	n/a	46.18	94.6%					
63.42 - 63.25	8691	n/a	8691	46.22	n/a	46.22	94.8%					
63.25 - 57.25	10423	n/a	10423	54.42	n/a	54.42	89.6%					
57.25 - 53.23	11067	n/a	11067	55.52	n/a	55.52	92.5%					
53.23 - 52.98	11108	3801	14909	55.58	18.00	73.58	66.8%					79.3%
52.98 - 47.98	11948	3982	15930	56.95	18.00	74.95	69.9%					81.5%
47.98 - 42.98	12829	4168	16996	58.32	18.00	76.32	72.7%					84.8%
42.98 - 37.98	13752	4357	18109	59.69	18.00	77.69	75.4%					87.9%
37.98 - 35.13	14298	4467	18766	60.47	18.00	78.47	76.9%					91.0%
35.13 - 34.88	14347	6138	20485	60.53	24.38	84.91	70.8%	83.0%		83.0%		
34.88 - 34.5	14420	6157	20577	60.64	24.38	85.01	70.9%	81.9%		81.9%		
34.5 - 27.75	17039	6307	23346	70.07	24.38	94.45	69.6%	80.2%		80.2%		
27.75 - 25.88	17505	6416	23921	70.71	24.38	95.08	70.3%	81.0%		82.3%		
25.88 - 25.75	17850	1599	19449	70.75	16.25	87.00	97.2%	81.7%				
25.75 - 25.63	17609	8475	26084	70.79	32.50	103.29	68.1%	76.8%	72.3%			
25.63 - 25.5	17640	8485	26125	70.83	32.50	103.33	68.2%	76.8%	71.2%			
25.5 - 20.5	18932	8877	27809	72.52	32.50	105.02	69.9%	78.7%	73.0%			
20.5 - 15.5	20285	9279	29563	74.21	32.50	106.71	71.5%	80.5%	74.8%			
15.5 - 10.5	21701	9689	31390	75.90	32.50	108.40	73.1%	82.2%	76.4%			
10.5 - 5.5	23181	10108	33290	77.59	32.50	110.09	74.5%	83.8%	78.0%			
5.5 - 0.5	24727	10537	35264	79.28	32.50	111.78	75.9%	85.3%	79.5%			
0.5 - 0	24886	10580	35466	79.45	32.50	111.95	76.0%	85.4%	79.6%			

Note: Section capacity checked in 5 degree increments.

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: 876354		
Site Name: WESTPORT FIRE DEPARTM		
App #: 310061 Rev. 1		
Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	58	in
Anchor Spacing:	6	in

Plate Data

W=Side:	60	in
Thick:	2.75	in
Grade:	50	ksi
Clip Distance:	0	in

Stiffener Data (Welding at both sides)

Configuration:	Stiffened	
Weld Type:	Both	**
Groove Depth:	0.5	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.5	in
Fillet V. Weld:	0.375	in
Width:	6	in
Height:	18	in
Thick:	1	in
Notch:	0.75	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data

Diam:	49.92	in
Thick:	0.5	in
Grade:	60	ksi
# of Sides:	12	"0" IF Round

Stress Increase Factor

ASD ASIF:	1.333
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** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Base Reactions

TIA Revision:	F	
Unfactored Moment, M:	4065	ft-kips
Unfactored Axial, P:	47	kips
Unfactored Shear, V:	44	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension	165.8 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	85.1% Pass

Base Plate Results

Base Plate Stress:	5.2 ksi
Allowable PL Bending Stress:	26.7 ksi
Base Plate Stress Ratio:	19.4% Pass

Shear Check Only

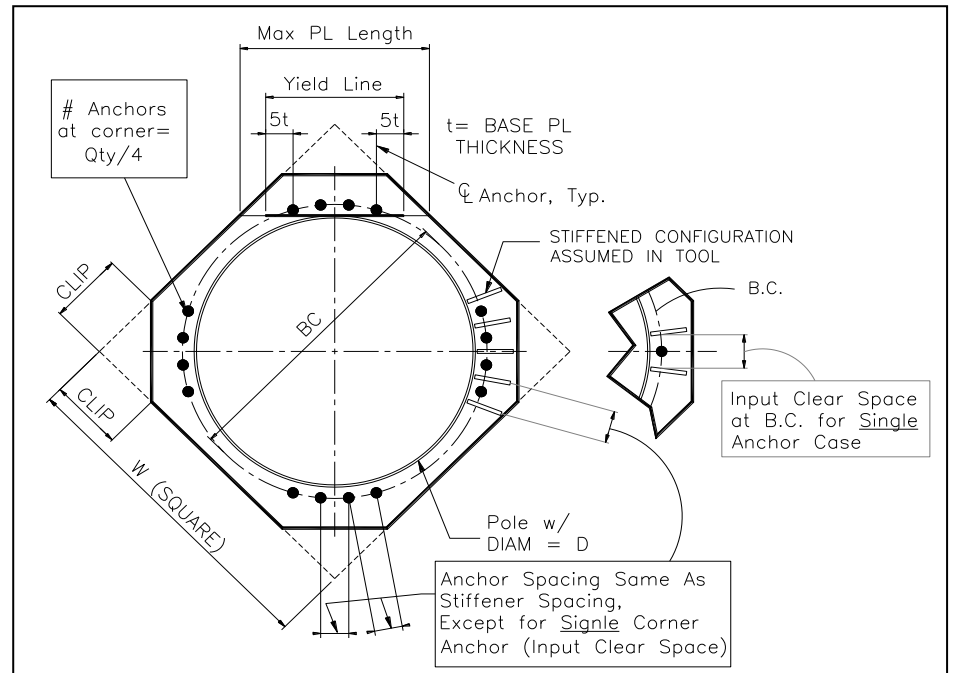
PL Ref. Data
Yield Line (in):
N/A, Roark
Max PL Length:
34.93

Stiffener Results

Horizontal Weld :	49.8% Pass
Vertical Weld:	43.1% Pass
Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$:	12.1% Pass
Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$:	50.1% Pass
Plate Comp. (AISC Bracket):	51.4% Pass

Pole Results

Pole Punching Shear Check:	9.5% Pass
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BU:	876354
Site Name:	WESTPORT FIRE DEPARTMENT
App Number:	310061 Rev. 1
Work Order:	1122522

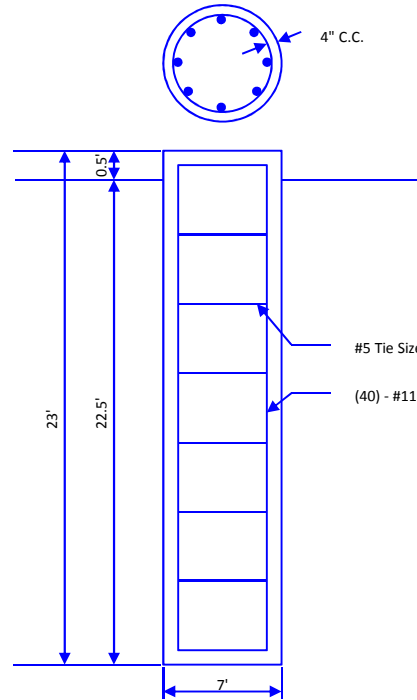


Monopole Drilled Pier

Input

Criteria	
TIA Revision:	F
ACI 318 Revision:	2005
Seismic Category:	B
Forces	
Compression	47 kips
Shear	44 kips
Moment	4065 k-ft
Swelling Force	0 kips
Foundation Dimensions	
Pier Diameter:	7 ft
Ext. above grade:	0.5 ft
Depth below grade:	22.5 ft
Material Properties	
Number of Rebar:	40
Rebar Size:	11
Tie Size	5
Rebar tensile strength:	60 ksi
Concrete Strength:	3000 psi
Ultimate Concrete Strain	0.003 in/in
Clear Cover to Ties:	4 in

Soil Profile: 876354 Soil Profile



Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Friction (ksf)	Ultimate Comp. Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	3.5	0	3.5	100		28				
2	4.5	3.5	8	100		28				
3	5	8	13	135		45	1.0108	1.0108		
4	5	13	18	135		45	1.6093	1.6093		
5	5	18	23	135		45	2.2078	2.2078	99	

Analysis Results

Soil Lateral Capacity	
Depth to Zero Shear:	6.32 ft
Max Moment, Mu:	4277.72 k-ft
Soil Safety Factor:	2.64
Safety Factor Req'd:	2
RATING:	75.7%

Soil Axial Capacity	
Skin Friction (k):	266.39 kips
End Bearing (k):	1904.98 kips
Comp. Capacity (k), φCn:	2171.37 kips
Comp. (k), Cu:	61.10 kips
RATING:	2.8%

Concrete/Steel Check

Mu (from soil analysis)	5561.04 k-ft
φMn	9103.56 k-ft
RATING:	61.1%

rho provided	1.13
rho required	0.33 OK

Rebar Spacing	4.35
Spacing required	22.56 OK

Dev. Length required	15.84
Dev. Length provided	61.78 OK

Overall Foundation Rating: 75.7%

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

T-Mobile Existing Facility

Site ID: CT11295A

**Westport FD Sprint Tower
515 Post Road East
Westport, CT 06880**

October 7, 2015

EBI Project Number: 6215005036

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	13.57 %

October 7, 2015

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

Emissions Analysis for Site: **CT11295A – Westport FD Sprint Tower**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **515 Post Road East, Westport, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

General population/uncontrolled exposure limits apply to situations in which the general public 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 public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **515 Post Road East, Westport, 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, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

- 1) 2 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.
- 5) Since the 1900 MHz and 2100 MHz radios are ground mounted there are additional cabling losses accounted for. For each RF path the following losses were calculated. 2.35 dB of additional cable loss for all 1900 MHz channels and 2.42 dB of additional cable loss for all 2100 MHz channels. This is based on manufacturers Specifications for 140 feet of 7/8” coax cable on each 1900 MHz and 2100 MHz path. For 700 MHz, the RRU’s are mounted at the antennas.

- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **RFS APXV18-206516S-C-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APXV18-206516S-C-A20** has a maximum gain of **16.3 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerline of the proposed antennas is **82 feet** above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	82	Height (AGL):	82	Height (AGL):	82
Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	2,932.12	ERP (W):	2,932.12	ERP (W):	2,932.12
Antenna A1 MPE%	1.82	Antenna B1 MPE%	1.82	Antenna C1 MPE%	1.82
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	82	Height (AGL):	82	Height (AGL):	82
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	2,955.94	ERP (W):	2,955.94	ERP (W):	2,955.94
Antenna A2 MPE%	1.84	Antenna B2 MPE%	1.84	Antenna C2 MPE%	1.84
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	82	Height (AGL):	82	Height (AGL):	82
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	1.15	Antenna B3 MPE%	1.15	Antenna C3 MPE%	1.15

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	4.82 %
Nextel	0.31 %
Westport	1.09 %
Sprint	0.68 %
Westport Fire Dept	0.01 %
Clearwire	0.07 %
MetroPCS	4.29 %
AT&T	2.30 %
Site Total MPE %:	13.57 %

T-Mobile Sector 1 Total:	4.82 %
T-Mobile Sector 2 Total:	4.82 %
T-Mobile Sector 3 Total:	4.82 %
Site Total:	13.57 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	1466.06	82	18.25	2100	1000	1.68 %
T-Mobile 700 MHz LTE	1	865.21	82	5.39	700	467	0.94 %
T-Mobile 1900 MHz (PCS) GSM/UMTS	2	744.91	82	9.27	1900	1000	0.84 %
T-Mobile 2100 MHz (AWS) UMTS	2	733.03	82	9.12	2100	1000	0.84 %
						Total:	4.82%

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public 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 public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	4.82 %
Sector 2:	4.82 %
Sector 3 :	4.82 %
T-Mobile Per Sector Maximum:	4.82 %
Site Total:	13.57 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **13.57%** of the allowable FCC established general public 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.



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