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

VIA ELECTRONIC MAIL

December 19, 2018

Jeffrey Barbadora
Real Estate Specialist
Crown Castle
12 Gill Street, Suite 5800
Woburn, MA 01801

RE: **EM-VER-094-181119** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 123 Costello Road, Newington, Connecticut.

Dear Mr. Barbadora:

The Connecticut Siting Council (Council) is in receipt of your correspondence of December 18, 2018, submitted in response to the Council's November 20, 2018 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/FOC/emr

Robidoux, Evan

From: Barbadora, Jeff <Jeff.Barbadora@crowncastle.com>
Sent: Tuesday, December 18, 2018 11:38 AM
To: Robidoux, Evan
Cc: CSC-DL Siting Council
Subject: RE: Council Incomplete Letter for EM-VER-094-181119-CostelloRd-Newington
Attachments: SA-12-18-18.pdf

Good morning,

Please find update SA attached to this email. The SA was re-run as requested per the Council's incomplete letter.

Please let me know if hard copies are needed.

Thanks,

Jeffrey Barbadora
781-970-0053
12 Gill Street, Suite 5800, Woburn, MA 01801
CrownCastle.com

From: Robidoux, Evan
Sent: Tuesday, November 20, 2018 1:53 PM
To: Barbadora, Jeff
Cc: CSC-DL Siting Council
Subject: Council Incomplete Letter for EM-VER-094-181119-CostelloRd-Newington

Please see the attached correspondence.

Evan Robidoux
Clerk Typist
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

PAUL J. FORD & COMPANY

Date: **December 11, 2018**

Denice Nicholson
Crown Castle
3 Corporate Park Drive Suite 101
Clifton Park, NY 12065

Paul J Ford and Company
250 East Broad St., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	37437
	Carrier Site Name:	Newington 2 CT
Crown Castle Designation:	**Crown Castle BU Number:**	881364
	Crown Castle Site Name:	Newington
	Crown Castle JDE Job Number:	518918
	Crown Castle Work Order Number:	1669369
	Crown Castle Order Number:	450299 Rev. 0
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37518-2864.003.7805
Site Data:	**123 Costelo Road, Newington, Hartford County, CT**	
	Latitude *41° 39' 18.72"*, Longitude *-72° 43' 17.19"*	
	145 Foot - Monopole Tower	

Dear Denice Nicholson,

Paul J Ford and Company is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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: Proposed Equipment Configuration **Sufficient Capacity**

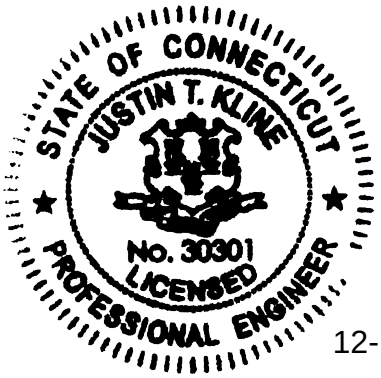
This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2016 Connecticut State Building Code per section 1609.3 and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Jared Forbes

Respectfully submitted by:

Chris Poelking, E.I.
Structural Designer
cpoelking@pauljford.com

C.J.P.



12-13-18

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 145 ft Monopole tower designed by SUMMIT.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
114.0	116.0	1	lucent	KS24019-L112A	8 1	1-5/8 1/2
	115.0	6	andrew	SBNHH-1D65B w/ Mount Pipe		
		6	antel	BXA-80063/4CFx5 w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
	114.0	1	tower mounts	Platform Mount [LP 712-1]		
		1	tower mounts	Handrail Kit HRK14		
		1	tower mounts	Vertical Stabilizer Kit PV-VSK		

Table 2 – Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
133.0	139.0	2	andrew	VHLP2.5-11	2 6	1/2 5/16
		1	dragonwave	HORIZON COMPACT		
		1	samsung telecommunications	WIMAX DAP HEAD		
	135.0	3	argus technologies	LLPX310R-V1 w/ Mount Pipe		
		1	dragonwave	HORIZON COMPACT		
		1	motorola	TIMING 2000		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		2	samsung telecommunications	WIMAX DAP HEAD		
	133.0	1	tower mounts	Platform Mount [LP 712-1]		
124.0	124.0	3	alcatel lucent	TD-RRH8x20-25	4	1-1/4
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
		3	rfs celwave	IBC1900BB-1		
		3	rfs celwave	IBC1900HG-2A		
		1	tower mounts	Platform Mount [LP 712-1]		
122.0	122.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	-	-
		1	tower mounts	Pipe Mount [PM 601-3]		
	118.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER		
105.0	105.0	3	cci antennas	HPA-45R-BUU-H6 w/ Mount Pipe	12 4 2	1-5/8 3/4 3/8
		3	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 4478 B14		
		6	ericsson	RRUS-11		
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP2140X		
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Platform Mount [LP 712-1]		
94.0	95.0	3	ericsson	AIR -32 B2A/B66AA w/ Mount Pipe	1 12	1-1/4 1-5/8
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	94.0	1	tower mounts	Platform Mount [LP 712-1]		
87.0	87.0	3	kathrein	742 213	6	1-5/8
		1	tower mounts	Pipe Mount [PM 601-3]		
80.0	80.0	2	tower mounts	Side Arm Mount [SO 701-1]	-	-
77.0	77.0	1	symmetricom	58532A	1	1-2
		1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, 08/10/1999	1425352	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Summit/PJF, 5153/29299-105, 08/11/1999	1425473	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Summit, 5153, 08/10/1999	1425417	CCISITES
4-POST-MODIFICATION INSPECTION	ETS, 160020, 02/29/2016	6120832	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37515-0757.007.7700, 11/11/2015	5976614	CCISITES
4-STRUCTURAL ANALYSIS	PJF, 37518-2864.002.7805, 09/15/2018	7830172	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.4.0), 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) For existing modifications: monopole was modified in conformance with the referenced modification drawings.
5) Mount modifications considered in referenced document #7830172 have been considered in this analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	145 - 140	Pole	TP24.923x24x0.1875	Pole	0.2%	Pass
L2	140 - 135	Pole	TP25.847x24.923x0.1875	Pole	1.4%	Pass
L3	135 - 130	Pole	TP26.77x25.847x0.1875	Pole	4.7%	Pass
L4	130 - 125	Pole	TP27.709x26.77x0.25	Pole	5.8%	Pass
L5	125 - 120	Pole	TP28.648x27.709x0.25	Pole	10.2%	Pass
L6	120 - 115	Pole	TP29.588x28.648x0.25	Pole	14.9%	Pass
L7	115 - 110	Pole	TP30.527x29.588x0.25	Pole	22.3%	Pass
L8	110 - 105	Pole	TP31.466x30.527x0.25	Pole	29.1%	Pass
L9	105 - 100	Pole	TP32.405x31.466x0.25	Pole	38.4%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L10	100 - 95	Pole	TP33.345x32.405x0.25	Pole	46.9%	Pass
L11	95 - 90	Pole	TP34.284x33.345x0.25	Pole	56.8%	Pass
L12	90 - 89.25	Pole	TP35.27x34.284x0.25	Pole	58.2%	Pass
L13	89.25 - 84.25	Pole	TP34.851x33.925x0.3125	Pole	51.6%	Pass
L14	84.25 - 79.25	Pole	TP35.777x34.851x0.3125	Pole	58.2%	Pass
L15	79.25 - 74.25	Pole	TP36.703x35.777x0.3125	Pole	64.4%	Pass
L16	74.25 - 69.25	Pole	TP37.629x36.703x0.3125	Pole	70.2%	Pass
L17	69.25 - 64.25	Pole	TP38.555x37.629x0.3125	Pole	75.7%	Pass
L18	64.25 - 59.25	Pole	TP39.482x38.555x0.3125	Pole	80.9%	Pass
L19	59.25 - 58.08	Pole	TP39.698x39.482x0.3125	Pole	82.0%	Pass
L20	58.08 - 57.83	Pole + Reinf.	TP39.745x39.698x0.4125	Reinf. 2 Tension Rupture	81.5%	Pass
L21	57.83 - 52.83	Pole + Reinf.	TP40.671x39.745x0.4188	Reinf. 2 Tension Rupture	86.2%	Pass
L22	52.83 - 49.5	Pole + Reinf.	TP42.26x40.671x0.4125	Reinf. 2 Tension Rupture	89.1%	Pass
L23	49.5 - 43.25	Pole + Reinf.	TP41.82x40.663x0.475	Reinf. 2 Tension Rupture	85.0%	Pass
L24	43.25 - 38.25	Pole + Reinf.	TP42.746x41.82x0.475	Reinf. 2 Tension Rupture	88.4%	Pass
L25	38.25 - 33.25	Pole + Reinf.	TP43.672x42.746x0.475	Reinf. 2 Tension Rupture	91.6%	Pass
L26	33.25 - 31.25	Pole + Reinf.	TP44.042x43.672x0.475	Reinf. 2 Tension Rupture	92.8%	Pass
L27	31.25 - 31	Pole + Reinf.	TP44.089x44.042x0.5375	Reinf. 1 Compression	73.1%	Pass
L28	31 - 26	Pole + Reinf.	TP45.015x44.089x0.5375	Reinf. 1 Compression	75.6%	Pass
L29	26 - 21	Pole + Reinf.	TP45.941x45.015x0.525	Reinf. 1 Compression	77.9%	Pass
L30	21 - 16	Pole + Reinf.	TP46.867x45.941x0.525	Reinf. 1 Compression	80.1%	Pass
L31	16 - 11	Pole + Reinf.	TP47.793x46.867x0.525	Reinf. 1 Compression	82.2%	Pass
L32	11 - 6	Pole + Reinf.	TP48.719x47.793x0.5188	Reinf. 1 Compression	84.1%	Pass
L33	6 - 4.75	Pole + Reinf.	TP48.95x48.719x0.5188	Reinf. 1 Compression	84.6%	Pass
L34	4.75 - 4.5	Pole + Reinf.	TP48.997x48.95x0.5875	Reinf. 3 Tension Yield	79.2%	Pass
L35	4.5 - 0	Pole + Reinf.	TP49.83x48.997x0.575	Reinf. 3 Tension Yield	80.7%	Pass
					Summary	
				Pole	82.0%	Pass
				Reinforcement	92.8%	Pass
				Overall	92.8%	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	97.5	Pass
1	Base Plate	0	88.6	Pass
1	Base Foundation Structural Steel	0	62.8	Pass
1	Base Foundation Soil Interaction	0	61.7	Pass
1	Flange Connection	130	7.0	Pass

Structure Rating (max from all components) =	97.5%

Notes:

- Structural rating per TIA-222-H Section 15.5.

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

4.1) Recommendations

The monopole 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

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

1) Tower is located in Hartford County, Connecticut.
2) Tower base elevation above sea level: 141.0000 ft.
3) Basic wind speed of 125.0 mph.
4) Risk Category II.
5) Exposure Category C.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height 0.0000 ft.
9) Nominal ice thickness of 1.7000 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56 pcf.
12) A wind speed of 50.0 mph is used in combination with ice.
13) Temperature drop of 50 °F.
14) Deflections calculated using a wind speed of 60.0 mph.
15) TIA-222-H Annex S..
16) A non-linear (P-delta) analysis was used.
17) Pressures are calculated at each section.
18) Stress ratio used in pole design is 1.05.
19) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

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	145.0000-140.0000	5.0000	0.00	18	24.0000	24.9233	0.1875	0.7500	A607-65 (65 ksi)
L2	140.0000-135.0000	5.0000	0.00	18	24.9233	25.8467	0.1875	0.7500	A607-65 (65 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
L3	135.0000-130.0000	5.0000	0.00	18	25.8467	26.7700	0.1875	0.7500	A607-65 (65 ksi)
L4	130.0000-125.0000	5.0000	0.00	18	26.7700	27.7092	0.2500	1.0000	A607-65 (65 ksi)
L5	125.0000-120.0000	5.0000	0.00	18	27.7092	28.6485	0.2500	1.0000	A607-65 (65 ksi)
L6	120.0000-115.0000	5.0000	0.00	18	28.6485	29.5877	0.2500	1.0000	A607-65 (65 ksi)
L7	115.0000-110.0000	5.0000	0.00	18	29.5877	30.5269	0.2500	1.0000	A607-65 (65 ksi)
L8	110.0000-105.0000	5.0000	0.00	18	30.5269	31.4661	0.2500	1.0000	A607-65 (65 ksi)
L9	105.0000-100.0000	5.0000	0.00	18	31.4661	32.4054	0.2500	1.0000	A607-65 (65 ksi)
L10	100.0000-95.0000	5.0000	0.00	18	32.4054	33.3446	0.2500	1.0000	A607-65 (65 ksi)
L11	95.0000-90.0000	5.0000	0.00	18	33.3446	34.2838	0.2500	1.0000	A607-65 (65 ksi)
L12	90.0000-84.7500	5.2500	4.50	18	34.2838	35.2700	0.2500	1.0000	A607-65 (65 ksi)
L13	84.7500-84.2500	5.0000	0.00	18	33.9247	34.8508	0.3125	1.2500	A607-65 (65 ksi)
L14	84.2500-79.2500	5.0000	0.00	18	34.8508	35.7770	0.3125	1.2500	A607-65 (65 ksi)
L15	79.2500-74.2500	5.0000	0.00	18	35.7770	36.7031	0.3125	1.2500	A607-65 (65 ksi)
L16	74.2500-69.2500	5.0000	0.00	18	36.7031	37.6293	0.3125	1.2500	A607-65 (65 ksi)
L17	69.2500-64.2500	5.0000	0.00	18	37.6293	38.5554	0.3125	1.2500	A607-65 (65 ksi)
L18	64.2500-59.2500	5.0000	0.00	18	38.5554	39.4816	0.3125	1.2500	A607-65 (65 ksi)
L19	59.2500-58.0800	1.1700	0.00	18	39.4816	39.6983	0.3125	1.2500	A607-65 (65 ksi)
L20	58.0800-57.8300	0.2500	0.00	18	39.6983	39.7446	0.4125	1.6500	A607-65 (65 ksi)
L21	57.8300-52.8300	5.0000	0.00	18	39.7446	40.6707	0.4188	1.6750	A607-65 (65 ksi)
L22	52.8300-44.2500	8.5800	5.25	18	40.6707	42.2600	0.4125	1.6500	A607-65 (65 ksi)
L23	44.2500-43.2500	6.2500	0.00	18	40.6625	41.8200	0.4750	1.9000	A607-65 (65 ksi)
L24	43.2500-38.2500	5.0000	0.00	18	41.8200	42.7460	0.4750	1.9000	A607-65 (65 ksi)
L25	38.2500-33.2500	5.0000	0.00	18	42.7460	43.6720	0.4750	1.9000	A607-65 (65 ksi)
L26	33.2500-31.2500	2.0000	0.00	18	43.6720	44.0424	0.4750	1.9000	A607-65 (65 ksi)
L27	31.2500-31.0000	0.2500	0.00	18	44.0424	44.0887	0.5375	2.1500	A607-65 (65 ksi)
L28	31.0000-26.0000	5.0000	0.00	18	44.0887	45.0147	0.5375	2.1500	A607-65 (65 ksi)
L29	26.0000-21.0000	5.0000	0.00	18	45.0147	45.9408	0.5250	2.1000	A607-65 (65 ksi)
L30	21.0000-16.0000	5.0000	0.00	18	45.9408	46.8668	0.5250	2.1000	A607-65 (65 ksi)
L31	16.0000-11.0000	5.0000	0.00	18	46.8668	47.7928	0.5250	2.1000	A607-65 (65 ksi)
L32	11.0000-6.0000	5.0000	0.00	18	47.7928	48.7188	0.5188	2.0750	A607-65 (65 ksi)
L33	6.0000-4.7500	1.2500	0.00	18	48.7188	48.9503	0.5188	2.0750	A607-65 (65 ksi)
L34	4.7500-4.5000	0.2500	0.00	18	48.9503	48.9966	0.5875	2.3500	A607-65 (65 ksi)
L35	4.5000-0.0000	4.5000		18	48.9966	49.8300	0.5750	2.3000	A607-65 (65 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	24.3413	14.1714	1015.2211	8.4534	12.1920	83.2694	2031.7780	7.0871	3.8940	20.768
	25.2789	14.7209	1137.9555	8.7812	12.6611	89.8784	2277.4083	7.3619	4.0565	21.635
L2	25.2789	14.7209	1137.9555	8.7812	12.6611	89.8784	2277.4083	7.3619	4.0565	21.635
	26.2165	15.2704	1270.2035	9.1090	13.1301	96.7398	2542.0784	7.6367	4.2190	22.501
L3	26.2165	15.2704	1270.2035	9.1090	13.1301	96.7398	2542.0784	7.6367	4.2190	22.501
	27.1540	15.8199	1412.3200	9.4368	13.5992	103.8535	2826.4984	7.9115	4.3815	23.368
L4	27.1444	21.0436	1869.8421	9.4146	13.5992	137.4969	3742.1446	10.5238	4.2715	17.086
	28.0981	21.7889	2075.6270	9.7480	14.0763	147.4556	4153.9851	10.8965	4.4368	17.747
L5	28.0981	21.7889	2075.6270	9.7480	14.0763	147.4556	4153.9851	10.8965	4.4368	17.747
	29.0518	22.5342	2295.9817	10.0815	14.5534	157.7624	4594.9846	11.2692	4.6021	18.409
L6	29.0518	22.5342	2295.9817	10.0815	14.5534	157.7624	4594.9846	11.2692	4.6021	18.409
	30.0056	23.2794	2531.4053	10.4149	15.0305	168.4174	5066.1415	11.6419	4.7674	19.07
L7	30.0056	23.2794	2531.4053	10.4149	15.0305	168.4174	5066.1415	11.6419	4.7674	19.07
	30.9593	24.0247	2782.3955	10.7483	15.5077	179.4206	5568.4521	12.0146	4.9327	19.731
L8	30.9593	24.0247	2782.3955	10.7483	15.5077	179.4206	5568.4521	12.0146	4.9327	19.731
	31.9130	24.7700	3049.4512	11.0817	15.9848	190.7720	6102.9150	12.3874	5.0980	20.392
L9	31.9130	24.7700	3049.4512	11.0817	15.9848	190.7720	6102.9150	12.3874	5.0980	20.392
	32.8667	25.5153	3333.0703	11.4152	16.4619	202.4715	6670.5263	12.7601	5.2633	21.053
L10	32.8667	25.5153	3333.0703	11.4152	16.4619	202.4715	6670.5263	12.7601	5.2633	21.053
	33.8204	26.2606	3633.7516	11.7486	16.9390	214.5192	7272.2846	13.1328	5.4286	21.715
L11	33.8204	26.2606	3633.7516	11.7486	16.9390	214.5192	7272.2846	13.1328	5.4286	21.715
	34.7741	27.0058	3951.9930	12.0820	17.4162	226.9151	7909.1862	13.5055	5.5940	22.376
L12	34.7741	27.0058	3951.9930	12.0820	17.4162	226.9151	7909.1862	13.5055	5.5940	22.376
	35.7755	27.7884	4305.5913	12.4321	17.9172	240.3055	8616.8481	13.8968	5.7675	23.07
L13	35.2462	33.3391	4758.6642	11.9323	17.2337	276.1248	9523.5899	16.6727	5.4207	17.346
	35.3403	34.2577	5162.9606	12.2611	17.7042	291.6230	10332.7148	17.1321	5.5837	17.868
L14	35.3403	34.2577	5162.9606	12.2611	17.7042	291.6230	10332.7148	17.1321	5.5837	17.868
	36.2807	35.1763	5589.5314	12.5899	18.1747	307.5445	11186.4177	17.5915	5.7467	18.39
L15	36.2807	35.1763	5589.5314	12.5899	18.1747	307.5445	11186.4177	17.5915	5.7467	18.39
	37.2211	36.0950	6038.9739	12.9187	18.6452	323.8891	12085.8940	18.0509	5.9098	18.911
L16	37.2211	36.0950	6038.9739	12.9187	18.6452	323.8891	12085.8940	18.0509	5.9098	18.911
	38.1616	37.0136	6511.8853	13.2475	19.1157	340.6569	13032.3391	18.5103	6.0728	19.433
L17	38.1616	37.0136	6511.8853	13.2475	19.1157	340.6569	13032.3391	18.5103	6.0728	19.433
	39.1020	37.9322	7008.8623	13.5762	19.5862	357.8478	14026.9471	18.9697	6.2358	19.954
L18	39.1020	37.9322	7008.8623	13.5762	19.5862	357.8478	14026.9471	18.9697	6.2358	19.954
	40.0424	38.8508	7530.5034	13.9050	20.0566	375.4620	15070.9156	19.4291	6.3988	20.476
L19	40.0424	38.8508	7530.5034	13.9050	20.0566	375.4620	15070.9156	19.4291	6.3988	20.476
	40.2625	39.0658	7656.1925	13.9820	20.1667	379.6448	15322.4593	19.5366	6.4369	20.598
L20	40.2471	51.4359	10029.3911	13.9465	20.1667	497.3237	20071.9791	25.7228	6.2609	15.178
	40.2941	51.4965	10064.8992	13.9629	20.1903	498.5029	20143.0421	25.7532	6.2690	15.198
L21	40.2931	52.2685	10212.5277	13.9607	20.1903	505.8148	20438.4934	26.1392	6.2580	14.945
	41.2335	53.4994	10951.1846	14.2895	20.6607	530.0482	21916.7790	26.7548	6.4210	15.334
L22	41.2345	52.7091	10792.7599	14.2917	20.6607	522.3803	21599.7213	26.3596	6.4320	15.593
	42.8483	54.7899	12122.0726	14.8559	21.4681	564.6556	24260.0957	27.4001	6.7118	16.271
L23	42.2038	60.5887	12362.6323	14.2666	20.6565	598.4849	24741.5317	30.3001	6.3206	13.307
	42.3919	62.3338	13461.9316	14.6775	21.2446	633.6647	26941.5768	31.1728	6.5243	13.735
L24	42.3919	62.3338	13461.9316	14.6775	21.2446	633.6647	26941.5768	31.1728	6.5243	13.735
	43.3322	63.7299	14386.8679	15.0062	21.7150	662.5320	28792.6665	31.8710	6.6873	14.079
L25	43.3322	63.7299	14386.8679	15.0062	21.7150	662.5320	28792.6665	31.8710	6.6873	14.079
	44.2725	65.1260	15353.2293	15.3349	22.1854	692.0423	30726.6608	32.5692	6.8503	14.422
L26	44.2725	65.1260	15353.2293	15.3349	22.1854	692.0423	30726.6608	32.5692	6.8503	14.422
	44.6486	65.6844	15751.5762	15.4664	22.3736	704.0264	31523.8787	32.8485	6.9155	14.559
L27	44.6389	74.2205	17747.5527	15.4443	22.3736	793.2378	35518.4580	37.1173	6.8055	12.661
	44.6860	74.2995	17804.2763	15.4607	22.3971	794.9374	35631.9800	37.1568	6.8136	12.676
L28	44.6860	74.2995	17804.2763	15.4607	22.3971	794.9374	35631.9800	37.1568	6.8136	12.676
	45.6263	75.8793	18964.2877	15.7894	22.8675	829.3121	37953.5291	37.9469	6.9766	12.98
L29	45.6282	74.1355	18538.8796	15.7939	22.8675	810.7089	37102.1532	37.0748	6.9986	13.331
	46.5685	75.6785	19720.7477	16.1226	23.3379	845.0093	39467.4445	37.8465	7.1616	13.641
L30	46.5685	75.6785	19720.7477	16.1226	23.3379	845.0093	39467.4445	37.8465	7.1616	13.641
	47.5088	77.2216	20951.8064	16.4513	23.8083	880.0204	41931.1817	38.6181	7.3246	13.952
L31	47.5088	77.2216	20951.8064	16.4513	23.8083	880.0204	41931.1817	38.6181	7.3246	13.952
	48.4491	78.7647	22233.0599	16.7801	24.2787	915.7422	44495.3746	39.3898	7.4875	14.262
L32	48.4500	77.8373	21977.0961	16.7823	24.2787	905.1995	43983.1102	38.9260	7.4985	14.455
	49.3903	79.3620	23294.0297	17.1110	24.7491	941.2055	46618.7102	39.6885	7.6615	14.769
L33	49.3903	79.3620	23294.0297	17.1110	24.7491	941.2055	46618.7102	39.6885	7.6615	14.769
	49.6254	79.7431	23631.2839	17.1932	24.8667	950.3166	47293.6625	39.8791	7.7023	14.848
L34	49.6148	90.1833	26649.3294	17.1688	24.8667	1071.6854	53333.7246	45.1002	7.5813	12.904

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
	49.6618	90.2696	26725.9423	17.1852	24.8903	1073.7507	53487.0513	45.1434	7.5894	12.918
L35	49.6637	88.3718	26177.5732	17.1897	24.8903	1051.7192	52389.5915	44.1943	7.6114	13.237
	50.5100	89.8928	27552.6381	17.4855	25.3136	1088.4503	55141.5306	44.9550	7.7581	13.492

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 145.0000-140.0000				1	1	1			
L2 140.0000-135.0000				1	1	1			
L3 135.0000-130.0000				1	1	1			
L4 130.0000-125.0000				1	1	1			
L5 125.0000-120.0000				1	1	1			
L6 120.0000-115.0000				1	1	1			
L7 115.0000-110.0000				1	1	1			
L8 110.0000-105.0000				1	1	1			
L9 105.0000-100.0000				1	1	1			
L10 100.0000-95.0000				1	1	1			
L11 95.0000-90.0000				1	1	1			
L12 90.0000-84.7500				1	1	1			
L13 84.7500-84.2500				1	1	1			
L14 84.2500-79.2500				1	1	1			
L15 79.2500-74.2500				1	1	1			
L16 74.2500-69.2500				1	1	1			
L17 69.2500-64.2500				1	1	1			
L18 64.2500-59.2500				1	1	1			
L19 59.2500-58.0800				1	1	1			
L20 58.0800-57.8300				1	1	1.10905			
L21 57.8300-52.8300				1	1	1.0847			
L22 52.8300-44.2500				1	1	1.09579			
L23 44.2500-43.2500				1	1	1.08016			
L24 43.2500-38.2500				1	1	1.07379			
L25 38.2500-33.2500				1	1	1.0677			
L26 33.2500-31.2500				1	1	1.06533			
L27 31.2500-31.0000				1	1	1.1293			
L28 31.0000-26.0000				1	1	1.12031			
L29 26.0000-21.0000				1	1	1.13785			
L30 21.0000-16.0000				1	1	1.12939			
L31 16.0000-11.0000				1	1	1.12125			
L32 11.0000-6.0000				1	1	1.1267			
L33 6.0000-4.7500				1	1	1.12477			
L34 4.7500-4.5000				1	1	0.963063			
L35 4.5000-0.0000				1	1	0.978135			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
ATCB-B01-005(5/16")	C	No	No	Inside Pole	133.0000 - 0.0000	6	No Ice	0.0000	0.07
							1/2" Ice	0.0000	0.07
							1" Ice	0.0000	0.07
							2" Ice	0.0000	0.07
FSJ4-50B(1/2)	C	No	No	Inside Pole	133.0000 - 0.0000	2	No Ice	0.0000	0.14
							1/2" Ice	0.0000	0.14
							1" Ice	0.0000	0.14
							2" Ice	0.0000	0.14
2" (Nominal) Conduit	C	No	No	Inside Pole	133.0000 - 0.0000	2	No Ice	0.0000	0.72
							1/2" Ice	0.0000	0.72
							1" Ice	0.0000	0.72
							2" Ice	0.0000	0.72
***									
HB114-1-08U4-M5J(1 1/4")	C	No	No	Inside Pole	124.0000 - 0.0000	3	No Ice	0.0000	1.08
							1/2" Ice	0.0000	1.08
							1" Ice	0.0000	1.08
							2" Ice	0.0000	1.08

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
HB114-21U3M12-XXXF(1-1/4)	C	No	No	Inside Pole	124.0000 - 0.0000	1	No Ice	0.0000	1.22
							1/2" Ice	0.0000	1.22
							1" Ice	0.0000	1.22
							2" Ice	0.0000	1.22
***									
LDF4-50A(1/2)	C	No	No	Inside Pole	114.0000 - 0.0000	1	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
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	114.0000 - 0.0000	1	No Ice	0.0000	1.30
							1/2" Ice	0.0000	1.30
							1" Ice	0.0000	1.30
							2" Ice	0.0000	1.30
LDF7-50A(1-5/8)	C	No	No	Inside Pole	114.0000 - 0.0000	6	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
HB158-1-08U8-S8J18(1-5/8)	C	No	No	CaAa (Out Of Face)	114.0000 - 0.0000	1	No Ice	0.1980	1.30
							1/2" Ice	0.2980	2.81
							1" Ice	0.3980	4.94
							2" Ice	0.5980	11.02
***									
LCF158-50A(1-5/8")	C	No	No	Inside Pole	105.0000 - 0.0000	12	No Ice	0.0000	0.80
							1/2" Ice	0.0000	0.80
							1" Ice	0.0000	0.80
							2" Ice	0.0000	0.80
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	105.0000 - 0.0000	2	No Ice	0.0000	0.06
							1/2" Ice	0.0000	0.06
							1" Ice	0.0000	0.06
							2" Ice	0.0000	0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	105.0000 - 0.0000	4	No Ice	0.0000	0.59
							1/2" Ice	0.0000	0.59
							1" Ice	0.0000	0.59
							2" Ice	0.0000	0.59
2" (Nominal) Conduit	C	No	No	Inside Pole	105.0000 - 0.0000	1	No Ice	0.0000	0.72
							1/2" Ice	0.0000	0.72
							1" Ice	0.0000	0.72
							2" Ice	0.0000	0.72
2" (Nominal) Conduit	C	No	No	Inside Pole	105.0000 - 0.0000	1	No Ice	0.0000	0.72
							1/2" Ice	0.0000	0.72
							1" Ice	0.0000	0.72
							2" Ice	0.0000	0.72
***									
HJ7-50A(1-5/8")	C	No	No	Inside Pole	94.0000 - 0.0000	6	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
HJ7-50A(1-5/8")	C	No	No	CaAa (Out Of Face)	94.0000 - 0.0000	4	No Ice	0.0000	1.04
							1/2" Ice	0.0000	2.55
							1" Ice	0.0000	4.68
							2" Ice	0.0000	10.76
HJ7-50A(1-5/8")	C	No	No	CaAa (Out Of Face)	94.0000 - 0.0000	2	No Ice	0.1980	1.04
							1/2" Ice	0.2980	2.55
							1" Ice	0.3980	4.68
							2" Ice	0.5980	10.76
MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4")	C	No	No	CaAa (Out Of Face)	94.0000 - 0.0000	1	No Ice	0.0000	0.46
							1/2" Ice	0.0000	1.53
							1" Ice	0.0000	3.21
							2" Ice	0.0000	8.40
***									
AVA7-50(1-5/8)	C	No	No	Inside Pole	87.0000 - 0.0000	6	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
***									
LDF4-50A(1/2)	C	No	No	CaAa (Out Of Face)	77.0000 - 0.0000	1	No Ice	0.0000	0.15
							1/2" Ice	0.0000	0.84
							1" Ice	0.0000	2.14

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							2" Ice	0.0000	6.56
***									
1 1/4" Flat Reinforcement	C	No	No	CaAa (Out Of Face)	35.5000 - 0.0000	1	No Ice	0.2083	0.00
							1/2" Ice	0.3194	0.00
							1" Ice	0.4306	0.00
							2" Ice	0.6528	0.00
1" Flat Reinforcement	C	No	No	CaAa (Out Of Face)	60.5800 - 35.5000	1	No Ice	0.1667	0.00
							1/2" Ice	0.2778	0.00
							1" Ice	0.3889	0.00
							2" Ice	0.6111	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	145.0000-140.0000	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	0.000	0.00
L2	140.0000-135.0000	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	0.000	0.00
L3	135.0000-130.0000	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	0.000	0.01
L4	130.0000-125.0000	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	0.000	0.01
L5	125.0000-120.0000	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	0.000	0.03
L6	120.0000-115.0000	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	0.000	0.03
L7	115.0000-110.0000	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	0.792	0.06
L8	110.0000-105.0000	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	0.990	0.07
L9	105.0000-100.0000	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	0.990	0.14
L10	100.0000-95.0000	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	0.990	0.14
L11	95.0000-90.0000	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	2.574	0.19
L12	90.0000-84.7500	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	3.119	0.22
L13	84.7500-84.2500	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	0.297	0.02
L14	84.2500-79.2500	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	2.970	0.22
L15	79.2500-74.2500	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	2.970	0.23
L16	74.2500-69.2500	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	2.970	0.23
L17	69.2500-64.2500	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	2.970	0.23

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L18	64.2500-59.2500	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	3.192	0.23
L19	59.2500-58.0800	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	0.890	0.05
L20	58.0800-57.8300	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	0.190	0.01
L21	57.8300-52.8300	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	3.803	0.23
L22	52.8300-44.2500	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	6.527	0.39
L23	44.2500-43.2500	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	0.761	0.05
L24	43.2500-38.2500	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	3.803	0.23
L25	38.2500-33.2500	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	3.897	0.23
L26	33.2500-31.2500	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	1.605	0.09
L27	31.2500-31.0000	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	0.201	0.01
L28	31.0000-26.0000	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	4.012	0.23
L29	26.0000-21.0000	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	4.012	0.23
L30	21.0000-16.0000	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	4.012	0.23
L31	16.0000-11.0000	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	4.012	0.23
L32	11.0000-6.0000	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	4.012	0.23
L33	6.0000-4.7500	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	1.003	0.06
L34	4.7500-4.5000	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	0.201	0.01
L35	4.5000-0.0000	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	3.610	0.20

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	145.0000-140.0000	A	1.968	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	0.000	0.00
L2	140.0000-135.0000	A	1.961	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	0.000	0.00
L3	135.0000-130.0000	A	1.954	0.000	0.000	0.000	0.000	0.00
		B		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_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.000	0.000	0.01
L4	130.0000-125.0000	A	1.946	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	0.000	0.01
L5	125.0000-120.0000	A	1.938	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	0.000	0.03
L6	120.0000-115.0000	A	1.930	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	0.000	0.03
L7	115.0000-110.0000	A	1.922	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	2.329	0.10
L8	110.0000-105.0000	A	1.913	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	2.903	0.12
L9	105.0000-100.0000	A	1.904	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	2.894	0.18
L10	100.0000-95.0000	A	1.894	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	2.884	0.18
L11	95.0000-90.0000	A	1.885	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	7.474	0.48
L12	90.0000-84.7500	A	1.874	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	9.021	0.59
L13	84.7500-84.2500	A	1.868	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	0.859	0.06
L14	84.2500-79.2500	A	1.861	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	8.554	0.57
L15	79.2500-74.2500	A	1.850	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	8.519	0.59
L16	74.2500-69.2500	A	1.837	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	8.482	0.60
L17	69.2500-64.2500	A	1.824	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	8.442	0.59
L18	64.2500-59.2500	A	1.810	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	9.156	0.59
L19	59.2500-58.0800	A	1.801	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	2.622	0.14
L20	58.0800-57.8300	A	1.798	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	0.560	0.03
L21	57.8300-52.8300	A	1.790	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	11.163	0.58
L22	52.8300-44.2500	A	1.767	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	18.991	0.99
L23	44.2500-43.2500	A	1.749	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	2.213	0.12
L24	43.2500-38.2500	A	1.736	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	10.941	0.57
L25	38.2500-33.2500	A	1.714	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	10.942	0.56
L26	33.2500-31.2500	A	1.696	0.000	0.000	0.000	0.000	0.00
		B		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_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.000	4.394	0.22
L27	31.2500-31.0000	A	1.690	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	0.548	0.03
L28	31.0000-26.0000	A	1.675	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	10.899	0.55
L29	26.0000-21.0000	A	1.643	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	10.767	0.54
L30	21.0000-16.0000	A	1.604	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	10.607	0.53
L31	16.0000-11.0000	A	1.555	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	10.403	0.52
L32	11.0000-6.0000	A	1.484	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	10.113	0.50
L33	6.0000-4.7500	A	1.418	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	2.460	0.12
L34	4.7500-4.5000	A	1.397	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	0.488	0.02
L35	4.5000-0.0000	A	1.299	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	8.418	0.41

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	145.0000-140.0000	0.0000	0.0000	0.0000	0.0000
L2	140.0000-135.0000	0.0000	0.0000	0.0000	0.0000
L3	135.0000-130.0000	0.0000	0.0000	0.0000	0.0000
L4	130.0000-125.0000	0.0000	0.0000	0.0000	0.0000
L5	125.0000-120.0000	0.0000	0.0000	0.0000	0.0000
L6	120.0000-115.0000	0.0000	0.0000	0.0000	0.0000
L7	115.0000-110.0000	-1.0275	0.5932	-1.5602	0.9008
L8	110.0000-105.0000	-1.2593	0.7270	-1.8975	1.0955
L9	105.0000-100.0000	-1.2627	0.7290	-1.9063	1.1006
L10	100.0000-95.0000	-1.2660	0.7309	-1.9142	1.1052
L11	95.0000-90.0000	-2.9027	1.6759	-4.1354	2.3876
L12	90.0000-84.7500	-3.2647	1.8849	-4.6037	2.6580
L13	84.7500-84.2500	-3.2660	1.8856	-4.6059	2.6592
L14	84.2500-79.2500	-3.2762	1.8915	-4.6187	2.6666
L15	79.2500-74.2500	-3.2941	1.9019	-4.6508	2.6852
L16	74.2500-69.2500	-3.3113	1.9118	-4.6803	2.7022
L17	69.2500-64.2500	-3.3279	1.9214	-4.7072	2.7177
L18	64.2500-59.2500	-3.5433	2.0457	-5.0341	2.9065
L19	59.2500-58.0800	-4.0709	2.3503	-5.8068	3.3525
L20	58.0800-57.8300	-4.0752	2.3528	-5.8130	3.3561
L21	57.8300-52.8300	-4.0870	2.3596	-5.8302	3.3661
L22	52.8300-44.2500	-4.1160	2.3764	-5.8694	3.3887
L23	44.2500-43.2500	-4.1227	2.3802	-5.8842	3.3972
L24	43.2500-38.2500	-4.1350	2.3873	-5.8731	3.3908
L25	38.2500-33.2500	-4.2348	2.4450	-5.9246	3.4206
L26	33.2500-31.2500	-4.3447	2.5084	-5.9753	3.4498
L27	31.2500-31.0000	-4.3501	2.5115	-5.9782	3.4515
L28	31.0000-26.0000	-4.3609	2.5178	-5.9812	3.4532
L29	26.0000-21.0000	-4.3808	2.5292	-5.9795	3.4523
L30	21.0000-16.0000	-4.4002	2.5404	-5.9650	3.4439
L31	16.0000-11.0000	-4.4190	2.5513	-5.9309	3.4242
L32	11.0000-6.0000	-4.4372	2.5618	-5.8607	3.3837
L33	6.0000-4.7500	-4.4483	2.5682	-5.7783	3.3361
L34	4.7500-4.5000	-4.4517	2.5702	-5.7504	3.3200

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L35	4.5000-0.0000	-4.4598	2.5749	-5.6064	3.2368

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LLPX310R-V1 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.5378 4.8914 5.2539 6.0062	2.9834 3.5263 4.0859 5.2357	0.05 0.08 0.13 0.23
LLPX310R-V1 w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.5378 4.8914 5.2539 6.0062	2.9834 3.5263 4.0859 5.2357	0.05 0.08 0.13 0.23
LLPX310R-V1 w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.5378 4.8914 5.2539 6.0062	2.9834 3.5263 4.0859 5.2357	0.05 0.08 0.13 0.23
TIMING 2000	A	From Leg	4.0000 0.00 2.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1079 0.1518 0.2031 0.3280	0.1079 0.1518 0.2031 0.3280	0.00 0.00 0.01 0.01
WIMAX DAP HEAD	A	From Leg	4.0000 0.00 2.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.5467 1.7037 1.8681 2.2193	0.6840 0.7999 0.9228 1.1926	0.03 0.04 0.06 0.09
WIMAX DAP HEAD	B	From Leg	4.0000 0.00 6.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.5467 1.7037 1.8681 2.2193	0.6840 0.7999 0.9228 1.1926	0.03 0.04 0.06 0.09
WIMAX DAP HEAD	C	From Leg	4.0000 0.00 2.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.5467 1.7037 1.8681 2.2193	0.6840 0.7999 0.9228 1.1926	0.03 0.04 0.06 0.09
HORIZON COMPACT	A	From Leg	4.0000 0.00 6.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.7208 0.8278 0.9422 1.1933	0.3681 0.4499 0.5391 0.7396	0.01 0.02 0.03 0.05
HORIZON COMPACT	B	From Leg	4.0000 0.00 2.00	0.000	133.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.7208 0.8278 0.9422 1.1933	0.3681 0.4499 0.5391 0.7396	0.01 0.02 0.03 0.05
(3) 2.375" OD x 5' Mount Pipe	A	From Leg	4.0000 0.00	0.000	133.0000	No Ice	1.1875 1.4956	1.1875 1.4956	0.02 0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	1.8071	1.8071	0.04
						1" Ice	2.4580	2.4580	0.08
						2" Ice			
(3) 2.375" OD x 5' Mount Pipe	B	From Leg	4.0000	0.000	133.0000	No Ice	1.1875	1.1875	0.02
			0.00			1/2" Ice	1.4956	1.4956	0.03
			0.00			1" Ice	1.8071	1.8071	0.04
						2" Ice	2.4580	2.4580	0.08
(3) 2.375" OD x 5' Mount Pipe	C	From Leg	4.0000	0.000	133.0000	No Ice	1.1875	1.1875	0.02
			0.00			1/2" Ice	1.4956	1.4956	0.03
			0.00			1" Ice	1.8071	1.8071	0.04
						2" Ice	2.4580	2.4580	0.08
Platform Mount [LP 712-1]	C	None		0.000	133.0000	No Ice	24.5300	24.5300	1.34
						1/2" Ice	29.9400	29.9400	1.65
						1" Ice	35.3500	35.3500	1.96
						2" Ice	46.1700	46.1700	2.58
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000	0.000	124.0000	No Ice	8.2619	6.9458	0.08
			0.00			1/2" Ice	8.8215	8.1266	0.15
			0.00			1" Ice	9.3462	9.0212	0.23
						2" Ice	10.4181	10.8440	0.41
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000	0.000	124.0000	No Ice	8.2619	6.9458	0.08
			0.00			1/2" Ice	8.8215	8.1266	0.15
			0.00			1" Ice	9.3462	9.0212	0.23
						2" Ice	10.4181	10.8440	0.41
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.0000	0.000	124.0000	No Ice	8.2619	6.9458	0.08
			0.00			1/2" Ice	8.8215	8.1266	0.15
			0.00			1" Ice	9.3462	9.0212	0.23
						2" Ice	10.4181	10.8440	0.41
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000	0.000	124.0000	No Ice	6.5799	4.9591	0.08
			0.00			1/2" Ice	7.0306	5.7544	0.13
			0.00			1" Ice	7.4733	6.4723	0.19
						2" Ice	8.3846	7.9407	0.34
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000	0.000	124.0000	No Ice	6.5799	4.9591	0.08
			0.00			1/2" Ice	7.0306	5.7544	0.13
			0.00			1" Ice	7.4733	6.4723	0.19
						2" Ice	8.3846	7.9407	0.34
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000	0.000	124.0000	No Ice	6.5799	4.9591	0.08
			0.00			1/2" Ice	7.0306	5.7544	0.13
			0.00			1" Ice	7.4733	6.4723	0.19
						2" Ice	8.3846	7.9407	0.34
TD-RRH8x20-25	A	From Leg	4.0000	0.000	124.0000	No Ice	4.0455	1.5345	0.07
			0.00			1/2" Ice	4.2975	1.7142	0.10
			0.00			1" Ice	4.5570	1.9008	0.13
						2" Ice	5.0981	2.2951	0.20
TD-RRH8x20-25	B	From Leg	4.0000	0.000	124.0000	No Ice	4.0455	1.5345	0.07
			0.00			1/2" Ice	4.2975	1.7142	0.10
			0.00			1" Ice	4.5570	1.9008	0.13
						2" Ice	5.0981	2.2951	0.20
TD-RRH8x20-25	C	From Leg	4.0000	0.000	124.0000	No Ice	4.0455	1.5345	0.07
			0.00			1/2" Ice	4.2975	1.7142	0.10
			0.00			1" Ice	4.5570	1.9008	0.13
						2" Ice	5.0981	2.2951	0.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
IBC1900HG-2A	A	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.9660 1.0908 1.2230 1.5097	0.4635 0.5576 0.6599 0.8927	0.02 0.03 0.04 0.06
IBC1900HG-2A	B	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.9660 1.0908 1.2230 1.5097	0.4635 0.5576 0.6599 0.8927	0.02 0.03 0.04 0.06
IBC1900HG-2A	C	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.9660 1.0908 1.2230 1.5097	0.4635 0.5576 0.6599 0.8927	0.02 0.03 0.04 0.06
IBC1900BB-1	A	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.9660 1.0908 1.2230 1.5097	0.4635 0.5576 0.6599 0.8927	0.02 0.03 0.04 0.06
IBC1900BB-1	B	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.9660 1.0908 1.2230 1.5097	0.4635 0.5576 0.6599 0.8927	0.02 0.03 0.04 0.06
IBC1900BB-1	C	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.9660 1.0908 1.2230 1.5097	0.4635 0.5576 0.6599 0.8927	0.02 0.03 0.04 0.06
2.375" OD x 5' Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1875 1.4956 1.8071 2.4580	1.1875 1.4956 1.8071 2.4580	0.02 0.03 0.04 0.08
2.375" OD x 5' Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1875 1.4956 1.8071 2.4580	1.1875 1.4956 1.8071 2.4580	0.02 0.03 0.04 0.08
2.375" OD x 5' Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1875 1.4956 1.8071 2.4580	1.1875 1.4956 1.8071 2.4580	0.02 0.03 0.04 0.08
Platform Mount [LP 712-1]	C	None		0.000	124.0000	No Ice 1/2" Ice 1" Ice 2" Ice	24.5300 29.9400 35.3500 46.1700	24.5300 29.9400 35.3500 46.1700	1.34 1.65 1.96 2.58
***									
800MHz 2X50W RRH W/FILTER	A	From Leg	1.0000 0.00 -4.00	0.000	122.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.0583 2.2398 2.4287 2.8287	1.9317 2.1087 2.2931 2.6843	0.06 0.09 0.11 0.17
800MHz 2X50W RRH W/FILTER	B	From Leg	1.0000 0.00 -4.00	0.000	122.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.0583 2.2398 2.4287 2.8287	1.9317 2.1087 2.2931 2.6843	0.06 0.09 0.11 0.17
800MHz 2X50W RRH W/FILTER	C	From Leg	1.0000 0.00 -4.00	0.000	122.0000	No Ice 1/2" Ice 1" Ice	2.0583 2.2398 2.4287 2.8287	1.9317 2.1087 2.2931 2.6843	0.06 0.09 0.11 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
PCS 1900MHz 4x45W-65MHz	A	From Leg	1.0000 0.00 0.00	0.000	122.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.3218 2.5266 2.7388 3.1855	2.2381 2.4407 2.6507 3.0929	0.06 0.08 0.11 0.17
PCS 1900MHz 4x45W-65MHz	B	From Leg	1.0000 0.00 0.00	0.000	122.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.3218 2.5266 2.7388 3.1855	2.2381 2.4407 2.6507 3.0929	0.06 0.08 0.11 0.17
PCS 1900MHz 4x45W-65MHz	C	From Leg	1.0000 0.00 0.00	0.000	122.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.3218 2.5266 2.7388 3.1855	2.2381 2.4407 2.6507 3.0929	0.06 0.08 0.11 0.17
Pipe Mount [PM 601-3]	C	None		0.000	122.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.3900 5.4800 6.5700 8.7500	4.3900 5.4800 6.5700 8.7500	0.20 0.24 0.28 0.36
***									
BXA-80063/4CFx5 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.9453 5.3243 5.7120 6.5142	3.6158 4.2169 4.8343 6.1053	0.03 0.07 0.12 0.23
BXA-80063/4CFx5 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.9453 5.3243 5.7120 6.5142	3.6158 4.2169 4.8343 6.1053	0.03 0.07 0.12 0.23
BXA-80063/4CFx5 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.9453 5.3243 5.7120 6.5142	3.6158 4.2169 4.8343 6.1053	0.03 0.07 0.12 0.23
BXA-80063/4CFx5 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.9453 5.3243 5.7120 6.5142	3.6158 4.2169 4.8343 6.1053	0.03 0.07 0.12 0.23
BXA-80063/4CFx5 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.9453 5.3243 5.7120 6.5142	3.6158 4.2169 4.8343 6.1053	0.03 0.07 0.12 0.23
BXA-80063/4CFx5 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.9453 5.3243 5.7120 6.5142	3.6158 4.2169 4.8343 6.1053	0.03 0.07 0.12 0.23
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.4186 8.9558 9.4801 10.5534	7.4197 8.4535 9.3468 11.1834	0.08 0.15 0.23 0.42
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.4186 8.9558 9.4801 10.5534	7.4197 8.4535 9.3468 11.1834	0.08 0.15 0.23 0.42
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.000	114.0000	No Ice 1/2" Ice	8.4186 8.9558 9.4801	7.4197 8.4535 9.3468	0.08 0.15 0.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	10.5534	11.1834	0.42
						2" Ice			
KS24019-L112A	B	From Leg	4.0000	0.000	114.0000	No Ice	0.1407	0.1407	0.01
			0.00			1/2"	0.1979	0.1979	0.01
			2.00			Ice	0.2621	0.2621	0.01
						1" Ice	0.4148	0.4148	0.02
						2" Ice			
DB-T1-6Z-8AB-0Z	B	From Leg	4.0000	0.000	114.0000	No Ice	4.8000	2.0000	0.04
			0.00			1/2"	5.0704	2.1926	0.08
			1.00			Ice	5.3481	2.3926	0.12
						1" Ice	5.9259	2.8148	0.21
						2" Ice			
DB-T1-6Z-8AB-0Z	A	From Leg	4.0000	0.000	114.0000	No Ice	4.8000	2.0000	0.04
			0.00			1/2"	5.0704	2.1926	0.08
			1.00			Ice	5.3481	2.3926	0.12
						1" Ice	5.9259	2.8148	0.21
						2" Ice			
(2) RFV01U-D2A	A	From Leg	4.0000	0.000	114.0000	No Ice	1.8750	1.0125	0.07
			0.00			1/2"	2.0454	1.1445	0.09
			1.00			Ice	2.2231	1.2840	0.11
						1" Ice	2.6009	1.5851	0.15
						2" Ice			
RFV01U-D2A	B	From Leg	4.0000	0.000	114.0000	No Ice	1.8750	1.0125	0.07
			0.00			1/2"	2.0454	1.1445	0.09
			1.00			Ice	2.2231	1.2840	0.11
						1" Ice	2.6009	1.5851	0.15
						2" Ice			
RFV01U-D1A	B	From Leg	4.0000	0.000	114.0000	No Ice	1.8750	1.2500	0.08
			0.00			1/2"	2.0454	1.3926	0.10
			1.00			Ice	2.2231	1.5426	0.12
						1" Ice	2.6009	1.8648	0.18
						2" Ice			
(2) RFV01U-D1A	C	From Leg	4.0000	0.000	114.0000	No Ice	1.8750	1.2500	0.08
			0.00			1/2"	2.0454	1.3926	0.10
			1.00			Ice	2.2231	1.5426	0.12
						1" Ice	2.6009	1.8648	0.18
						2" Ice			
Platform Mount [LP 712-1]	C	None		0.000	114.0000	No Ice	24.5300	24.5300	1.34
						1/2"	29.9400	29.9400	1.65
						Ice	35.3500	35.3500	1.96
						1" Ice	46.1700	46.1700	2.58
						2" Ice			
Miscellaneous [NA 509-3]	C	None		0.000	114.0000	No Ice	11.8400	11.8400	0.28
						1/2"	16.9600	16.9600	0.30
						Ice	22.0800	22.0800	0.32
						1" Ice	32.3200	32.3200	0.36
						2" Ice			
Miscellaneous [NA 510-1]	C	None		0.000	114.0000	No Ice	6.0000	6.0000	0.26
						1/2"	8.5000	8.5000	0.34
						Ice	11.0000	11.0000	0.42
						1" Ice	16.0000	16.0000	0.59
						2" Ice			
***									
7770.00 w/ Mount Pipe	A	From Leg	4.0000	0.000	105.0000	No Ice	5.7460	4.2543	0.06
			0.00			1/2"	6.1791	5.0137	0.10
			0.00			Ice	6.6067	5.7109	0.16
						1" Ice	7.4880	7.1553	0.29
						2" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.0000	0.000	105.0000	No Ice	5.7460	4.2543	0.06
			0.00			1/2"	6.1791	5.0137	0.10
			0.00			Ice	6.6067	5.7109	0.16
						1" Ice	7.4880	7.1553	0.29
						2" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.0000	0.000	105.0000	No Ice	5.7460	4.2543	0.06
			0.00				6.1791	5.0137	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	6.6067	5.7109	0.16
						1" Ice	7.4880	7.1553	0.29
						2" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.2619 8.8215 9.3462 10.4181	6.3042 7.4790 8.3676 10.1785	0.07 0.14 0.21 0.38
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.2619 8.8215 9.3462 10.4181	6.3042 7.4790 8.3676 10.1785	0.07 0.14 0.21 0.38
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.2619 8.8215 9.3462 10.4181	6.3042 7.4790 8.3676 10.1785	0.07 0.14 0.21 0.38
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	9.8953 10.4700 11.0098 12.1119	7.1792 8.3621 9.2588 11.0860	0.10 0.18 0.26 0.46
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	9.8953 10.4700 11.0098 12.1119	7.1792 8.3621 9.2588 11.0860	0.10 0.18 0.26 0.46
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	9.8953 10.4700 11.0098 12.1119	7.1792 8.3621 9.2588 11.0860	0.10 0.18 0.26 0.46
HPA-45R-BUU-H6 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.1275 12.7229 13.2833 14.4268	7.7042 8.8919 9.7936 11.6183	0.11 0.20 0.30 0.52
HPA-45R-BUU-H6 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.1275 12.7229 13.2833 14.4268	7.7042 8.8919 9.7936 11.6183	0.11 0.20 0.30 0.52
HPA-45R-BUU-H6 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.1275 12.7229 13.2833 14.4268	7.7042 8.8919 9.7936 11.6183	0.11 0.20 0.30 0.52
RRUS 4478 B14	A	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.06 0.08 0.09 0.14
RRUS 4478 B14	B	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.06 0.08 0.09 0.14
RRUS 4478 B14	C	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.06 0.08 0.09 0.14
(2) DC6-48-60-18-8F	A	From Leg	4.0000	0.000	105.0000	No Ice	1.2117	1.2117	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00 0.00			1/2" Ice 1" Ice 2" Ice	1.8924 2.1051 2.5703	1.8924 2.1051 2.5703	0.05 0.08 0.14
(2) LGP2140X	A	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.0800 1.2137 1.3548 1.6593	0.3580 0.4536 0.5563 0.7825	0.01 0.02 0.03 0.05
(2) LGP2140X	B	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.0800 1.2137 1.3548 1.6593	0.3580 0.4536 0.5563 0.7825	0.01 0.02 0.03 0.05
(2) LGP2140X	C	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.0800 1.2137 1.3548 1.6593	0.3580 0.4536 0.5563 0.7825	0.01 0.02 0.03 0.05
(2) RRUS-11	A	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7908 2.9984 3.2134 3.6656	1.1923 1.3395 1.4957 1.8390	0.05 0.07 0.09 0.15
(2) RRUS-11	B	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7908 2.9984 3.2134 3.6656	1.1923 1.3395 1.4957 1.8390	0.05 0.07 0.09 0.15
(2) RRUS-11	C	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7908 2.9984 3.2134 3.6656	1.1923 1.3395 1.4957 1.8390	0.05 0.07 0.09 0.15
RRUS 32 B30	A	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B30	B	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B30	C	From Leg	4.0000 0.00 0.00	0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
Platform Mount [LP 712-1]	C	None		0.000	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice	24.5300 29.9400 35.3500 46.1700	24.5300 29.9400 35.3500 46.1700	1.34 1.65 1.96 2.58
***									
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.7474 7.2017 7.6475 8.5651	6.0700 6.8671 7.5828 9.0629	0.15 0.21 0.28 0.44
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.7474 7.2017 7.6475 8.5651	6.0700 6.8671 7.5828 9.0629	0.15 0.21 0.28 0.44
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.7474 7.2017 7.6475 8.5651	6.0700 6.8671 7.5828 9.0629	0.15 0.21 0.28 0.44
KRY 112 144/1	A	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3500 0.4259 0.5093 0.6981	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3500 0.4259 0.5093 0.6981	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3500 0.4259 0.5093 0.6981	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.4801 21.2306 21.9900 23.4441	11.0240 12.5496 14.0992 16.4509	0.16 0.30 0.44 0.78
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.4801 21.2306 21.9900 23.4441	11.0240 12.5496 14.0992 16.4509	0.16 0.30 0.44 0.78
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.4801 21.2306 21.9900 23.4441	11.0240 12.5496 14.0992 16.4509	0.16 0.30 0.44 0.78
RADIO 4449 B12/B71	A	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6500 1.8104 1.9781 2.3359	1.1625 1.3012 1.4473 1.7618	0.07 0.09 0.11 0.16
RADIO 4449 B12/B71	B	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6500 1.8104 1.9781 2.3359	1.1625 1.3012 1.4473 1.7618	0.07 0.09 0.11 0.16
RADIO 4449 B12/B71	C	From Leg	4.0000 0.00 1.00			0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6500 1.8104 1.9781 2.3359	1.1625 1.3012 1.4473 1.7618	0.07 0.09 0.11 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
2.375" OD x 5' Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1875 1.4956 1.8071 2.4580	1.1875 1.4956 1.8071 2.4580	0.02 0.03 0.04 0.08
2.375" OD x 5' Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1875 1.4956 1.8071 2.4580	1.1875 1.4956 1.8071 2.4580	0.02 0.03 0.04 0.08
2.375" OD x 5' Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1875 1.4956 1.8071 2.4580	1.1875 1.4956 1.8071 2.4580	0.02 0.03 0.04 0.08
Platform Mount [LP 712-1]	C	None		0.000	94.0000	No Ice 1/2" Ice 1" Ice 2" Ice	24.5300 29.9400 35.3500 46.1700	24.5300 29.9400 35.3500 46.1700	1.34 1.65 1.96 2.58
***									
742 213	A	From Leg	1.0000 0.00 0.00	0.000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.1354 5.6089 6.0897 7.0737	2.8687 3.4832 3.9457 4.8929	0.02 0.05 0.08 0.16
742 213	B	From Leg	1.0000 0.00 0.00	0.000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.1354 5.6089 6.0897 7.0737	2.8687 3.4832 3.9457 4.8929	0.02 0.05 0.08 0.16
742 213	C	From Leg	1.0000 0.00 0.00	0.000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.1354 5.6089 6.0897 7.0737	2.8687 3.4832 3.9457 4.8929	0.02 0.05 0.08 0.16
Pipe Mount [PM 601-3]	C	None		0.000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.3900 5.4800 6.5700 8.7500	4.3900 5.4800 6.5700 8.7500	0.20 0.24 0.28 0.36
***									
Side Arm Mount [SO 701-1]	A	None		0.000	80.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.8500 1.1400 1.4300 2.0100	1.6700 2.3400 3.0100 4.3500	0.07 0.08 0.09 0.12
Side Arm Mount [SO 701-1]	B	None		0.000	80.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.8500 1.1400 1.4300 2.0100	1.6700 2.3400 3.0100 4.3500	0.07 0.08 0.09 0.12
***									
Side Arm Mount [SO 701-1]	C	None		0.000	77.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.8500 1.1400 1.4300 2.0100	1.6700 2.3400 3.0100 4.3500	0.07 0.08 0.09 0.12
58532A	C	From Leg	3.0000 0.00 0.00	0.000	77.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1893 0.2483 0.3147 0.4698	0.1893 0.2483 0.3147 0.4698	0.00 0.00 0.01 0.02
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP2.5-11	A	Paraboloid w/Shroud (HP)	From Leg	4.0000 0.00 6.00	0.000		133.0000	2.9167	No Ice 1/2" Ice 1" Ice 2" Ice	6.6800 7.0700 7.4600 8.2300	0.05 0.08 0.12 0.19
VHLP2.5-11	B	Paraboloid w/Shroud (HP)	From Leg	4.0000 0.00 6.00	0.000		133.0000	2.9167	No Ice 1/2" Ice 1" Ice 2" Ice	6.6800 7.0700 7.4600 8.2300	0.05 0.08 0.12 0.19

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 145.0000-140.0000	142.4843	1.364	49	10.338	A	0.000	10.338	10.338	100.00	0.000	0.000
					B	0.000	10.338		100.00	0.000	0.000
					C	0.000	10.338		100.00	0.000	0.000
L2 140.0000-135.0000	137.4848	1.353	49	10.728	A	0.000	10.728	10.728	100.00	0.000	0.000
					B	0.000	10.728		100.00	0.000	0.000
					C	0.000	10.728		100.00	0.000	0.000
L3 135.0000-130.0000	132.4854	1.343	48	11.119	A	0.000	11.119	11.119	100.00	0.000	0.000
					B	0.000	11.119		100.00	0.000	0.000
					C	0.000	11.119		100.00	0.000	0.000
L4 130.0000-125.0000	127.4856	1.332	48	11.509	A	0.000	11.509	11.509	100.00	0.000	0.000
					B	0.000	11.509		100.00	0.000	0.000
					C	0.000	11.509		100.00	0.000	0.000
L5 125.0000-120.0000	122.4861	1.321	47	11.906	A	0.000	11.906	11.906	100.00	0.000	0.000
					B	0.000	11.906		100.00	0.000	0.000
					C	0.000	11.906		100.00	0.000	0.000
L6 120.0000-115.0000	117.4866	1.309	47	12.304	A	0.000	12.304	12.304	100.00	0.000	0.000
					B	0.000	12.304		100.00	0.000	0.000
					C	0.000	12.304		100.00	0.000	0.000
L7 115.0000-110.0000	112.4870	1.297	47	12.701	A	0.000	12.701	12.701	100.00	0.000	0.000
					B	0.000	12.701		100.00	0.000	0.000
					C	0.000	12.701		100.00	0.000	0.792
L8 110.0000-105.0000	107.4874	1.285	46	13.098	A	0.000	13.098	13.098	100.00	0.000	0.000
					B	0.000	13.098		100.00	0.000	0.000
					C	0.000	13.098		100.00	0.000	0.990
L9 105.0000-100.0000	102.4877	1.272	46	13.496	A	0.000	13.496	13.496	100.00	0.000	0.000
					B	0.000	13.496		100.00	0.000	0.000
					C	0.000	13.496		100.00	0.000	0.990
L10 100.0000-95.0000	97.4881	1.259	45	13.893	A	0.000	13.893	13.893	100.00	0.000	0.000
					B	0.000	13.893		100.00	0.000	0.000
					C	0.000	13.893		100.00	0.000	0.990
L11 95.0000-90.0000	92.4884	1.245	45	14.291	A	0.000	14.291	14.291	100.00	0.000	0.000
					B	0.000	14.291		100.00	0.000	0.000
					C	0.000	14.291		100.00	0.000	2.574
L12 90.0000-84.7500	87.3626	1.23	44	15.433	A	0.000	15.433	15.433	100.00	0.000	0.000
					B	0.000	15.433		100.00	0.000	0.000
					C	0.000	15.433		100.00	0.000	3.119
L13 84.7500-84.2500	84.4999	1.222	44	1.471	A	0.000	1.471	1.471	100.00	0.000	0.000
					B	0.000	1.471		100.00	0.000	0.000
					C	0.000	1.471		100.00	0.000	0.297
L14 84.2500-79.2500	81.7391	1.213	44	14.921	A	0.000	14.921	14.921	100.00	0.000	0.000
					B	0.000	14.921		100.00	0.000	0.000
					C	0.000	14.921		100.00	0.000	2.970
L15 79.2500-74.2500	76.7394	1.197	43	15.313	A	0.000	15.313	15.313	100.00	0.000	0.000
					B	0.000	15.313		100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	0.000	15.313		100.00	0.000	2.970
L16 74.2500-69.2500	71.7396	1.18	42	15.705	A	0.000	15.705	15.705	100.00	0.000	0.000
					B	0.000	15.705		100.00	0.000	0.000
					C	0.000	15.705		100.00	0.000	2.970
L17 69.2500-64.2500	66.7399	1.162	42	16.097	A	0.000	16.097	16.097	100.00	0.000	0.000
					B	0.000	16.097		100.00	0.000	0.000
					C	0.000	16.097		100.00	0.000	2.970
L18 64.2500-59.2500	61.7401	1.143	41	16.488	A	0.000	16.488	16.488	100.00	0.000	0.000
					B	0.000	16.488		100.00	0.000	0.000
					C	0.000	16.488		100.00	0.000	3.192
L19 59.2500-58.0800	58.6645	1.131	41	3.915	A	0.000	3.915	3.915	100.00	0.000	0.000
					B	0.000	3.915		100.00	0.000	0.000
					C	0.000	3.915		100.00	0.000	0.890
L20 58.0800-57.8300	57.9550	1.128	41	0.839	A	0.000	0.839	0.839	100.00	0.000	0.000
					B	0.000	0.839		100.00	0.000	0.000
					C	0.000	0.839		100.00	0.000	0.190
L21 57.8300-52.8300	55.3204	1.117	40	16.985	A	0.000	16.985	16.985	100.00	0.000	0.000
					B	0.000	16.985		100.00	0.000	0.000
					C	0.000	16.985		100.00	0.000	3.803
L22 52.8300-44.2500	48.5126	1.087	39	30.060	A	0.000	30.060	30.060	100.00	0.000	0.000
					B	0.000	30.060		100.00	0.000	0.000
					C	0.000	30.060		100.00	0.000	6.527
L23 44.2500-43.2500	43.7496	1.063	38	3.525	A	0.000	3.525	3.525	100.00	0.000	0.000
					B	0.000	3.525		100.00	0.000	0.000
					C	0.000	3.525		100.00	0.000	0.761
L24 43.2500-38.2500	40.7409	1.048	38	17.859	A	0.000	17.859	17.859	100.00	0.000	0.000
					B	0.000	17.859		100.00	0.000	0.000
					C	0.000	17.859		100.00	0.000	3.803
L25 38.2500-33.2500	35.7411	1.019	37	18.251	A	0.000	18.251	18.251	100.00	0.000	0.000
					B	0.000	18.251		100.00	0.000	0.000
					C	0.000	18.251		100.00	0.000	3.897
L26 33.2500-31.2500	32.2486	0.997	36	7.410	A	0.000	7.410	7.410	100.00	0.000	0.000
					B	0.000	7.410		100.00	0.000	0.000
					C	0.000	7.410		100.00	0.000	1.605
L27 31.2500-31.0000	31.1250	0.99	36	0.930	A	0.000	0.930	0.930	100.00	0.000	0.000
					B	0.000	0.930		100.00	0.000	0.000
					C	0.000	0.930		100.00	0.000	0.201
L28 31.0000-26.0000	28.4913	0.972	35	18.815	A	0.000	18.815	18.815	100.00	0.000	0.000
					B	0.000	18.815		100.00	0.000	0.000
					C	0.000	18.815		100.00	0.000	4.012
L29 26.0000-21.0000	23.4915	0.933	34	19.208	A	0.000	19.208	19.208	100.00	0.000	0.000
					B	0.000	19.208		100.00	0.000	0.000
					C	0.000	19.208		100.00	0.000	4.012
L30 21.0000-16.0000	18.4917	0.887	32	19.599	A	0.000	19.599	19.599	100.00	0.000	0.000
					B	0.000	19.599		100.00	0.000	0.000
					C	0.000	19.599		100.00	0.000	4.012
L31 16.0000-11.0000	13.4918	0.85	31	19.991	A	0.000	19.991	19.991	100.00	0.000	0.000
					B	0.000	19.991		100.00	0.000	0.000
					C	0.000	19.991		100.00	0.000	4.012
L32 11.0000-6.0000	8.4920	0.85	31	20.383	A	0.000	20.383	20.383	100.00	0.000	0.000
					B	0.000	20.383		100.00	0.000	0.000
					C	0.000	20.383		100.00	0.000	4.012
L33 6.0000-4.7500	5.3745	0.85	31	5.157	A	0.000	5.157	5.157	100.00	0.000	0.000
					B	0.000	5.157		100.00	0.000	0.000
					C	0.000	5.157		100.00	0.000	1.003
L34 4.7500-4.5000	4.6250	0.85	31	1.034	A	0.000	1.034	1.034	100.00	0.000	0.000
					B	0.000	1.034		100.00	0.000	0.000
					C	0.000	1.034		100.00	0.000	0.201
L35 4.5000-0.0000	2.2437	0.85	31	18.783	A	0.000	18.783	18.783	100.00	0.000	0.000
					B	0.000	18.783		100.00	0.000	0.000
					C	0.000	18.783		100.00	0.000	3.610

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 145.0000-140.0000	142.4843	1.364	8	1.9678	11.977	A	0.000	11.977	11.977	100.00	0.000	0.000
						B	0.000	11.977		100.00	0.000	0.000
						C	0.000	11.977		100.00	0.000	0.000
L2 140.0000-135.0000	137.4848	1.353	8	1.9608	12.362	A	0.000	12.362	12.362	100.00	0.000	0.000
						B	0.000	12.362		100.00	0.000	0.000
						C	0.000	12.362		100.00	0.000	0.000
L3 135.0000-130.0000	132.4854	1.343	8	1.9535	12.747	A	0.000	12.747	12.747	100.00	0.000	0.000
						B	0.000	12.747		100.00	0.000	0.000
						C	0.000	12.747		100.00	0.000	0.000
L4 130.0000-125.0000	127.4856	1.332	8	1.9460	13.131	A	0.000	13.131	13.131	100.00	0.000	0.000
						B	0.000	13.131		100.00	0.000	0.000
						C	0.000	13.131		100.00	0.000	0.000
L5 125.0000-120.0000	122.4861	1.321	8	1.9382	13.521	A	0.000	13.521	13.521	100.00	0.000	0.000
						B	0.000	13.521		100.00	0.000	0.000
						C	0.000	13.521		100.00	0.000	0.000
L6 120.0000-115.0000	117.4866	1.309	8	1.9302	13.912	A	0.000	13.912	13.912	100.00	0.000	0.000
						B	0.000	13.912		100.00	0.000	0.000
						C	0.000	13.912		100.00	0.000	0.000
L7 115.0000-110.0000	112.4870	1.297	7	1.9218	14.303	A	0.000	14.303	14.303	100.00	0.000	0.000
						B	0.000	14.303		100.00	0.000	0.000
						C	0.000	14.303		100.00	0.000	2.329
L8 110.0000-105.0000	107.4874	1.285	7	1.9131	14.693	A	0.000	14.693	14.693	100.00	0.000	0.000
						B	0.000	14.693		100.00	0.000	0.000
						C	0.000	14.693		100.00	0.000	2.903
L9 105.0000-100.0000	102.4877	1.272	7	1.9040	15.082	A	0.000	15.082	15.082	100.00	0.000	0.000
						B	0.000	15.082		100.00	0.000	0.000
						C	0.000	15.082		100.00	0.000	2.894
L10 100.0000-95.0000	97.4881	1.259	7	1.8945	15.472	A	0.000	15.472	15.472	100.00	0.000	0.000
						B	0.000	15.472		100.00	0.000	0.000
						C	0.000	15.472		100.00	0.000	2.884
L11 95.0000-90.0000	92.4884	1.245	7	1.8845	15.861	A	0.000	15.861	15.861	100.00	0.000	0.000
						B	0.000	15.861		100.00	0.000	0.000
						C	0.000	15.861		100.00	0.000	7.474
L12 90.0000-84.7500	87.3626	1.23	7	1.8738	17.072	A	0.000	17.072	17.072	100.00	0.000	0.000
						B	0.000	17.072		100.00	0.000	0.000
						C	0.000	17.072		100.00	0.000	9.021
L13 84.7500-84.2500	84.4999	1.222	7	1.8676	1.627	A	0.000	1.627	1.627	100.00	0.000	0.000
						B	0.000	1.627		100.00	0.000	0.000
						C	0.000	1.627		100.00	0.000	0.859
L14 84.2500-79.2500	81.7391	1.213	7	1.8614	16.472	A	0.000	16.472	16.472	100.00	0.000	0.000
						B	0.000	16.472		100.00	0.000	0.000
						C	0.000	16.472		100.00	0.000	8.554
L15 79.2500-74.2500	76.7394	1.197	7	1.8497	16.854	A	0.000	16.854	16.854	100.00	0.000	0.000
						B	0.000	16.854		100.00	0.000	0.000
						C	0.000	16.854		100.00	0.000	8.519
L16 74.2500-69.2500	71.7396	1.18	7	1.8373	17.236	A	0.000	17.236	17.236	100.00	0.000	0.000
						B	0.000	17.236		100.00	0.000	0.000
						C	0.000	17.236		100.00	0.000	8.482
L17 69.2500-64.2500	66.7399	1.162	7	1.8240	17.617	A	0.000	17.617	17.617	100.00	0.000	0.000
						B	0.000	17.617		100.00	0.000	0.000
						C	0.000	17.617		100.00	0.000	8.442
L18 64.2500-59.2500	61.7401	1.143	7	1.8099	17.997	A	0.000	17.997	17.997	100.00	0.000	0.000
						B	0.000	17.997		100.00	0.000	0.000
						C	0.000	17.997		100.00	0.000	9.156
L19 59.2500-58.0800	58.6645	1.131	7	1.8007	4.266	A	0.000	4.266	4.266	100.00	0.000	0.000
						B	0.000	4.266		100.00	0.000	0.000
						C	0.000	4.266		100.00	0.000	2.622
L20 58.0800-57.8300	57.9550	1.128	6	1.7985	0.914	A	0.000	0.914	0.914	100.00	0.000	0.000
						B	0.000	0.914		100.00	0.000	0.000
						C	0.000	0.914		100.00	0.000	0.560
L21 57.8300-52.8300	55.3204	1.117	6	1.7901	18.477	A	0.000	18.477	18.477	100.00	0.000	0.000
						B	0.000	18.477		100.00	0.000	0.000
						C	0.000	18.477		100.00	0.000	11.163

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L22 52.8300-44.2500	48.5126	1.087	6	1.7668	32.586	A	0.000	32.586	32.586	100.00	0.000	0.000
						B	0.000	32.586		100.00	0.000	0.000
						C	0.000	32.586		100.00	0.000	18.991
L23 44.2500-43.2500	43.7496	1.063	6	1.7486	3.819	A	0.000	3.819	3.819	100.00	0.000	0.000
						B	0.000	3.819		100.00	0.000	0.000
						C	0.000	3.819		100.00	0.000	2.213
L24 43.2500-38.2500	40.7409	1.048	6	1.7362	19.306	A	0.000	19.306	19.306	100.00	0.000	0.000
						B	0.000	19.306		100.00	0.000	0.000
						C	0.000	19.306		100.00	0.000	10.941
L25 38.2500-33.2500	35.7411	1.019	6	1.7136	19.679	A	0.000	19.679	19.679	100.00	0.000	0.000
						B	0.000	19.679		100.00	0.000	0.000
						C	0.000	19.679		100.00	0.000	10.942
L26 33.2500-31.2500	32.2486	0.997	6	1.6961	7.975	A	0.000	7.975	7.975	100.00	0.000	0.000
						B	0.000	7.975		100.00	0.000	0.000
						C	0.000	7.975		100.00	0.000	4.394
L27 31.2500-31.0000	31.1250	0.99	6	1.6901	1.001	A	0.000	1.001	1.001	100.00	0.000	0.000
						B	0.000	1.001		100.00	0.000	0.000
						C	0.000	1.001		100.00	0.000	0.548
L28 31.0000-26.0000	28.4913	0.972	6	1.6752	20.211	A	0.000	20.211	20.211	100.00	0.000	0.000
						B	0.000	20.211		100.00	0.000	0.000
						C	0.000	20.211		100.00	0.000	10.899
L29 26.0000-21.0000	23.4915	0.933	5	1.6432	20.577	A	0.000	20.577	20.577	100.00	0.000	0.000
						B	0.000	20.577		100.00	0.000	0.000
						C	0.000	20.577		100.00	0.000	10.767
L30 21.0000-16.0000	18.4917	0.887	5	1.6043	20.936	A	0.000	20.936	20.936	100.00	0.000	0.000
						B	0.000	20.936		100.00	0.000	0.000
						C	0.000	20.936		100.00	0.000	10.607
L31 16.0000-11.0000	13.4918	0.85	5	1.5545	21.287	A	0.000	21.287	21.287	100.00	0.000	0.000
						B	0.000	21.287		100.00	0.000	0.000
						C	0.000	21.287		100.00	0.000	10.403
L32 11.0000-6.0000	8.4920	0.85	5	1.4842	21.620	A	0.000	21.620	21.620	100.00	0.000	0.000
						B	0.000	21.620		100.00	0.000	0.000
						C	0.000	21.620		100.00	0.000	10.113
L33 6.0000-4.7500	5.3745	0.85	5	1.4179	5.452	A	0.000	5.452	5.452	100.00	0.000	0.000
						B	0.000	5.452		100.00	0.000	0.000
						C	0.000	5.452		100.00	0.000	2.460
L34 4.7500-4.5000	4.6250	0.85	5	1.3967	1.092	A	0.000	1.092	1.092	100.00	0.000	0.000
						B	0.000	1.092		100.00	0.000	0.000
						C	0.000	1.092		100.00	0.000	0.488
L35 4.5000-0.0000	2.2437	0.85	5	1.2993	19.757	A	0.000	19.757	19.757	100.00	0.000	0.000
						B	0.000	19.757		100.00	0.000	0.000
						C	0.000	19.757		100.00	0.000	8.418

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 145.0000-140.0000	142.4843	1.364	10	10.338	A	0.000	10.338	10.338	100.00	0.000	0.000
					B	0.000	10.338		100.00	0.000	0.000
					C	0.000	10.338		100.00	0.000	0.000
L2 140.0000-135.0000	137.4848	1.353	10	10.728	A	0.000	10.728	10.728	100.00	0.000	0.000
					B	0.000	10.728		100.00	0.000	0.000
					C	0.000	10.728		100.00	0.000	0.000
L3 135.0000-130.0000	132.4854	1.343	10	11.119	A	0.000	11.119	11.119	100.00	0.000	0.000
					B	0.000	11.119		100.00	0.000	0.000
					C	0.000	11.119		100.00	0.000	0.000
L4 130.0000-125.0000	127.4856	1.332	10	11.509	A	0.000	11.509	11.509	100.00	0.000	0.000
					B	0.000	11.509		100.00	0.000	0.000
					C	0.000	11.509		100.00	0.000	0.000
L5 125.0000-120.0000	122.4861	1.321	10	11.906	A	0.000	11.906	11.906	100.00	0.000	0.000
					B	0.000	11.906		100.00	0.000	0.000
					C	0.000	11.906		100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L6 120.0000-115.0000	117.4866	1.309	10	12.304	A	0.000	12.304	12.304	100.00	0.000	0.000
					B	0.000	12.304		100.00	0.000	0.000
					C	0.000	12.304		100.00	0.000	0.000
L7 115.0000-110.0000	112.4870	1.297	10	12.701	A	0.000	12.701	12.701	100.00	0.000	0.000
					B	0.000	12.701		100.00	0.000	0.000
					C	0.000	12.701		100.00	0.000	0.792
L8 110.0000-105.0000	107.4874	1.285	10	13.098	A	0.000	13.098	13.098	100.00	0.000	0.000
					B	0.000	13.098		100.00	0.000	0.000
					C	0.000	13.098		100.00	0.000	0.990
L9 105.0000-100.0000	102.4877	1.272	9	13.496	A	0.000	13.496	13.496	100.00	0.000	0.000
					B	0.000	13.496		100.00	0.000	0.000
					C	0.000	13.496		100.00	0.000	0.990
L10 100.0000-95.0000	97.4881	1.259	9	13.893	A	0.000	13.893	13.893	100.00	0.000	0.000
					B	0.000	13.893		100.00	0.000	0.000
					C	0.000	13.893		100.00	0.000	0.990
L11 95.0000-90.0000	92.4884	1.245	9	14.291	A	0.000	14.291	14.291	100.00	0.000	0.000
					B	0.000	14.291		100.00	0.000	0.000
					C	0.000	14.291		100.00	0.000	2.574
L12 90.0000-84.7500	87.3626	1.23	9	15.433	A	0.000	15.433	15.433	100.00	0.000	0.000
					B	0.000	15.433		100.00	0.000	0.000
					C	0.000	15.433		100.00	0.000	3.119
L13 84.7500-84.2500	84.4999	1.222	9	1.471	A	0.000	1.471	1.471	100.00	0.000	0.000
					B	0.000	1.471		100.00	0.000	0.000
					C	0.000	1.471		100.00	0.000	0.297
L14 84.2500-79.2500	81.7391	1.213	9	14.921	A	0.000	14.921	14.921	100.00	0.000	0.000
					B	0.000	14.921		100.00	0.000	0.000
					C	0.000	14.921		100.00	0.000	2.970
L15 79.2500-74.2500	76.7394	1.197	9	15.313	A	0.000	15.313	15.313	100.00	0.000	0.000
					B	0.000	15.313		100.00	0.000	0.000
					C	0.000	15.313		100.00	0.000	2.970
L16 74.2500-69.2500	71.7396	1.18	9	15.705	A	0.000	15.705	15.705	100.00	0.000	0.000
					B	0.000	15.705		100.00	0.000	0.000
					C	0.000	15.705		100.00	0.000	2.970
L17 69.2500-64.2500	66.7399	1.162	9	16.097	A	0.000	16.097	16.097	100.00	0.000	0.000
					B	0.000	16.097		100.00	0.000	0.000
					C	0.000	16.097		100.00	0.000	2.970
L18 64.2500-59.2500	61.7401	1.143	8	16.488	A	0.000	16.488	16.488	100.00	0.000	0.000
					B	0.000	16.488		100.00	0.000	0.000
					C	0.000	16.488		100.00	0.000	3.192
L19 59.2500-58.0800	58.6645	1.131	8	3.915	A	0.000	3.915	3.915	100.00	0.000	0.000
					B	0.000	3.915		100.00	0.000	0.000
					C	0.000	3.915		100.00	0.000	0.890
L20 58.0800-57.8300	57.9550	1.128	8	0.839	A	0.000	0.839	0.839	100.00	0.000	0.000
					B	0.000	0.839		100.00	0.000	0.000
					C	0.000	0.839		100.00	0.000	0.190
L21 57.8300-52.8300	55.3204	1.117	8	16.985	A	0.000	16.985	16.985	100.00	0.000	0.000
					B	0.000	16.985		100.00	0.000	0.000
					C	0.000	16.985		100.00	0.000	3.803
L22 52.8300-44.2500	48.5126	1.087	8	30.060	A	0.000	30.060	30.060	100.00	0.000	0.000
					B	0.000	30.060		100.00	0.000	0.000
					C	0.000	30.060		100.00	0.000	6.527
L23 44.2500-43.2500	43.7496	1.063	8	3.525	A	0.000	3.525	3.525	100.00	0.000	0.000
					B	0.000	3.525		100.00	0.000	0.000
					C	0.000	3.525		100.00	0.000	0.761
L24 43.2500-38.2500	40.7409	1.048	8	17.859	A	0.000	17.859	17.859	100.00	0.000	0.000
					B	0.000	17.859		100.00	0.000	0.000
					C	0.000	17.859		100.00	0.000	3.803
L25 38.2500-33.2500	35.7411	1.019	8	18.251	A	0.000	18.251	18.251	100.00	0.000	0.000
					B	0.000	18.251		100.00	0.000	0.000
					C	0.000	18.251		100.00	0.000	3.897
L26 33.2500-31.2500	32.2486	0.997	7	7.410	A	0.000	7.410	7.410	100.00	0.000	0.000
					B	0.000	7.410		100.00	0.000	0.000
					C	0.000	7.410		100.00	0.000	1.605
L27 31.2500-31.0000	31.1250	0.99	7	0.930	A	0.000	0.930	0.930	100.00	0.000	0.000
					B	0.000	0.930		100.00	0.000	0.000
					C	0.000	0.930		100.00	0.000	0.201
L28 31.0000-26.0000	28.4913	0.972	7	18.815	A	0.000	18.815	18.815	100.00	0.000	0.000
					B	0.000	18.815		100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	0.000	18.815		100.00	0.000	4.012
L29 26.0000-21.0000	23.4915	0.933	7	19.208	A	0.000	19.208	19.208	100.00	0.000	0.000
					B	0.000	19.208		100.00	0.000	0.000
					C	0.000	19.208		100.00	0.000	4.012
L30 21.0000-16.0000	18.4917	0.887	7	19.599	A	0.000	19.599	19.599	100.00	0.000	0.000
					B	0.000	19.599		100.00	0.000	0.000
					C	0.000	19.599		100.00	0.000	4.012
L31 16.0000-11.0000	13.4918	0.85	6	19.991	A	0.000	19.991	19.991	100.00	0.000	0.000
					B	0.000	19.991		100.00	0.000	0.000
					C	0.000	19.991		100.00	0.000	4.012
L32 11.0000-6.0000	8.4920	0.85	6	20.383	A	0.000	20.383	20.383	100.00	0.000	0.000
					B	0.000	20.383		100.00	0.000	0.000
					C	0.000	20.383		100.00	0.000	4.012
L33 6.0000-4.7500	5.3745	0.85	6	5.157	A	0.000	5.157	5.157	100.00	0.000	0.000
					B	0.000	5.157		100.00	0.000	0.000
					C	0.000	5.157		100.00	0.000	1.003
L34 4.7500-4.5000	4.6250	0.85	6	1.034	A	0.000	1.034	1.034	100.00	0.000	0.000
					B	0.000	1.034		100.00	0.000	0.000
					C	0.000	1.034		100.00	0.000	0.201
L35 4.5000-0.0000	2.2437	0.85	6	18.783	A	0.000	18.783	18.783	100.00	0.000	0.000
					B	0.000	18.783		100.00	0.000	0.000
					C	0.000	18.783		100.00	0.000	3.610

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service

Comb. No.	Description
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	145 - 140	Pole	Max Tension	8	0.00	0.00	-0.00
			Max. Compression	26	-0.62	-0.00	0.00
			Max. Mx	20	-0.25	1.07	0.00
			Max. My	2	-0.25	0.00	1.08
			Max. Vy	20	-0.43	1.07	0.00
			Max. Vx	2	-0.43	0.00	1.08
			Max. Torque	3			-0.00
L2	140 - 135	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-1.65	-0.86	0.50
			Max. Mx	8	-0.59	-6.85	-0.24
			Max. My	2	-0.58	0.72	7.12
			Max. Vy	20	-1.53	6.68	0.81
			Max. Vx	14	1.60	-0.75	-7.09
			Max. Torque	22			-0.92
L3	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6.95	-1.08	0.70
			Max. Mx	20	-2.74	25.24	1.86
			Max. My	14	-2.73	-1.61	-26.06
			Max. Vy	20	-4.72	25.24	1.86
			Max. Vx	14	4.80	-1.61	-26.06
			Max. Torque	22			-1.02
L4	130 - 125	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-7.75	-1.08	0.70
			Max. Mx	20	-3.15	50.04	2.84
			Max. My	14	-3.14	-2.37	-51.27
			Max. Vy	20	-5.20	50.04	2.84
			Max. Vx	14	5.28	-2.37	-51.27
			Max. Torque	22			-1.02
L5	125 - 120	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.43	-1.09	0.70
			Max. Mx	20	-6.47	93.57	3.82
			Max. My	14	-6.46	-3.15	-95.22
			Max. Vy	20	-10.43	93.57	3.82
			Max. Vx	14	10.51	-3.15	-95.22
			Max. Torque	22			-1.02
L6	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.30	-1.09	0.70
			Max. Mx	20	-6.95	146.96	4.82
			Max. My	14	-6.94	-3.93	-149.03
			Max. Vy	20	-10.93	146.96	4.82
			Max. Vx	14	11.02	-3.93	-149.03
			Max. Torque	22			-1.02
L7	115 - 110	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.54	-1.99	0.99
			Max. Mx	20	-10.61	230.94	6.11
			Max. My	14	-10.58	-5.14	-233.98
			Max. Vy	20	-17.61	230.94	6.11
			Max. Vx	14	17.77	-5.14	-233.98
			Max. Torque	14			1.36
L8	110 - 105	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.56	-1.93	0.96
			Max. Mx	20	-11.18	320.38	7.39
			Max. My	14	-11.16	-6.20	-324.21

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-18.17	320.38	7.39
			Max. Vx	14	18.33	-6.20	-324.21
			Max. Torque	14			1.33
L9	105 - 100	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.91	-1.87	2.40
			Max. Mx	20	-15.05	444.96	9.03
			Max. My	14	-15.02	-7.28	-449.21
			Max. Vy	20	-25.20	444.96	9.03
			Max. Vx	14	25.36	-7.28	-449.21
			Max. Torque	22			-1.68
L10	100 - 95	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.06	-1.81	2.36
			Max. Mx	20	-15.78	572.33	10.32
			Max. My	14	-15.76	-8.35	-577.37
			Max. Vy	20	-25.76	572.33	10.32
			Max. Vx	14	25.92	-8.35	-577.37
			Max. Torque	22			-1.63
L11	95 - 90	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.97	-1.41	2.13
			Max. Mx	20	-19.69	726.97	11.61
			Max. My	14	-19.66	-9.39	-732.80
			Max. Vy	20	-31.57	726.97	11.61
			Max. Vx	14	31.73	-9.39	-732.80
			Max. Torque	22			-1.58
L12	90 - 84.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.21	-1.33	2.09
			Max. Mx	20	-19.83	750.69	11.80
			Max. My	14	-19.80	-9.54	-756.64
			Max. Vy	20	-31.66	750.69	11.80
			Max. Vx	14	31.82	-9.54	-756.64
			Max. Torque	22			-1.42
L13	84.75 - 84.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.66	-0.83	1.80
			Max. Mx	20	-21.56	912.77	13.09
			Max. My	14	-21.54	-10.58	-919.50
			Max. Vy	20	-33.09	912.77	13.09
			Max. Vx	14	33.25	-10.58	-919.50
			Max. Torque	20			-1.30
L14	84.25 - 79.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.67	-0.32	1.51
			Max. Mx	20	-22.78	1079.93	14.37
			Max. My	14	-22.75	-11.61	-1087.44
			Max. Vy	20	-33.89	1079.93	14.37
			Max. Vx	14	34.05	-11.61	-1087.44
			Max. Torque	20			-1.29
L15	79.25 - 74.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.61	0.30	1.16
			Max. Mx	20	-23.97	1251.19	15.64
			Max. My	14	-23.95	-12.63	-1259.49
			Max. Vy	20	-34.60	1251.19	15.64
			Max. Vx	14	34.77	-12.63	-1259.49
			Max. Torque	20			-1.18
L16	74.25 - 69.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.44	0.89	0.83
			Max. Mx	20	-25.13	1425.73	16.91
			Max. My	14	-25.11	-13.65	-1434.80
			Max. Vy	20	-35.21	1425.73	16.91
			Max. Vx	14	35.37	-13.65	-1434.80
			Max. Torque	20			-1.05
L17	69.25 - 64.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.29	1.47	0.50
			Max. Mx	20	-26.32	1603.25	18.17
			Max. My	14	-26.30	-14.66	-1613.10
			Max. Vy	20	-35.80	1603.25	18.17

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	35.96	-14.66	-1613.10
			Max. Torque	20			-0.95
L18	64.25 - 59.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.16	2.05	0.16
			Max. Mx	20	-27.54	1783.72	19.42
			Max. My	14	-27.53	-15.67	-1794.34
			Max. Vy	20	-36.39	1783.72	19.42
			Max. Vx	14	36.55	-15.67	-1794.34
			Max. Torque	20			-0.84
L19	59.25 - 58.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.60	2.18	0.09
			Max. Mx	20	-27.83	1826.37	19.71
			Max. My	14	-27.81	-15.90	-1837.18
			Max. Vy	20	-36.53	1826.37	19.71
			Max. Vx	14	36.69	-15.90	-1837.18
			Max. Torque	20			-0.72
L20	58.08 - 57.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.72	2.21	0.07
			Max. Mx	20	-27.93	1835.51	19.78
			Max. My	14	-27.91	-15.95	-1846.35
			Max. Vy	20	-36.57	1835.51	19.78
			Max. Vx	14	36.73	-15.95	-1846.35
			Max. Torque	20			-0.69
L21	57.83 - 52.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.98	2.80	-0.27
			Max. Mx	20	-29.49	2019.93	21.02
			Max. My	14	-29.48	-16.95	-2031.54
			Max. Vy	20	-37.21	2019.93	21.02
			Max. Vx	14	37.37	-16.95	-2031.54
			Max. Torque	3			0.75
L22	52.83 - 44.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.50	3.19	-0.50
			Max. Mx	20	-30.56	2144.53	21.85
			Max. My	14	-30.54	-17.61	-2156.65
			Max. Vy	20	-37.63	2144.53	21.85
			Max. Vx	14	37.79	-17.61	-2156.65
			Max. Torque	3			0.91
L23	44.25 - 43.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.32	3.94	-0.93
			Max. Mx	20	-33.95	2382.61	23.39
			Max. My	14	-33.94	-18.85	-2395.69
			Max. Vy	20	-38.54	2382.61	23.39
			Max. Vx	14	38.70	-18.85	-2395.69
			Max. Torque	3			1.22
L24	43.25 - 38.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.79	4.53	-1.28
			Max. Mx	20	-35.75	2576.78	24.63
			Max. My	14	-35.74	-19.84	-2590.63
			Max. Vy	20	-39.14	2576.78	24.63
			Max. Vx	14	39.30	-19.84	-2590.63
			Max. Torque	3			1.46
L25	38.25 - 33.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.28	5.13	-1.63
			Max. Mx	20	-37.58	2773.91	25.86
			Max. My	14	-37.57	-20.82	-2788.51
			Max. Vy	20	-39.72	2773.91	25.86
			Max. Vx	14	39.87	-20.82	-2788.51
			Max. Torque	25			1.73
L26	33.25 - 31.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.28	5.37	-1.76

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-38.32	2853.56	26.34
			Max. My	14	-38.31	-21.21	-2868.47
			Max. Vy	20	-39.94	2853.56	26.34
			Max. Vx	14	40.10	-21.21	-2868.47
			Max. Torque	25			1.85
L27	31.25 - 31	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.42	5.41	-1.78
			Max. Mx	20	-38.44	2863.55	26.41
			Max. My	14	-38.44	-21.26	-2878.50
			Max. Vy	20	-39.97	2863.55	26.41
			Max. Vx	14	40.13	-21.26	-2878.50
			Max. Torque	25			1.86
L28	31 - 26	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.21	6.00	-2.13
			Max. Mx	20	-40.56	3064.81	27.62
			Max. My	14	-40.56	-22.23	-3080.52
			Max. Vy	20	-40.54	3064.81	27.62
			Max. Vx	14	40.70	-22.23	-3080.52
			Max. Torque	25			2.15
L29	26 - 21	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.02	6.60	-2.48
			Max. Mx	20	-42.73	3268.83	28.83
			Max. My	14	-42.72	-23.19	-3285.29
			Max. Vy	20	-41.07	3268.83	28.83
			Max. Vx	14	41.23	-23.19	-3285.29
			Max. Torque	25			2.43
L30	21 - 16	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.84	7.20	-2.82
			Max. Mx	20	-44.92	3475.41	30.04
			Max. My	14	-44.92	-24.15	-3492.62
			Max. Vy	20	-41.56	3475.41	30.04
			Max. Vx	14	41.72	-24.15	-3492.62
			Max. Torque	25			2.70
L31	16 - 11	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.66	7.79	-3.16
			Max. Mx	20	-47.14	3684.37	31.23
			Max. My	14	-47.14	-25.10	-3702.31
			Max. Vy	20	-42.02	3684.37	31.23
			Max. Vx	14	42.18	-25.10	-3702.31
			Max. Torque	25			2.96
L32	11 - 6	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.47	8.35	-3.49
			Max. Mx	20	-49.39	3895.59	32.42
			Max. My	14	-49.39	-26.05	-3914.27
			Max. Vy	20	-42.47	3895.59	32.42
			Max. Vx	14	42.63	-26.05	-3914.27
			Max. Torque	25			3.23
L33	6 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.17	8.49	-3.57
			Max. Mx	20	-49.96	3948.74	32.71
			Max. My	14	-49.96	-26.28	-3967.61
			Max. Vy	20	-42.59	3948.74	32.71
			Max. Vx	14	42.74	-26.28	-3967.61
			Max. Torque	25			3.30
L34	4.75 - 4.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.31	8.51	-3.59
			Max. Mx	20	-50.08	3959.39	32.77
			Max. My	14	-50.08	-26.33	-3978.29
			Max. Vy	20	-42.59	3959.39	32.77
			Max. Vx	14	42.75	-26.33	-3978.29
			Max. Torque	25			3.32
L35	4.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.73	8.96	-3.84
			Max. Mx	20	-52.06	4152.03	33.83
			Max. My	14	-52.06	-27.17	-4171.59
			Max. Vy	20	-43.02	4152.03	33.83
			Max. Vx	14	43.17	-27.17	-4171.59
			Max. Torque	25			3.57

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	96.73	-0.00	0.00
	Max. H_x	21	39.06	43.00	0.24
	Max. H_z	2	52.08	0.29	43.08
	Max. M_x	2	4161.44	0.29	43.08
	Max. M_z	8	4137.12	-42.91	-0.14
	Max. Torsion	25	3.57	21.63	37.41
	Min. Vert	15	39.06	-0.20	-43.15
	Min. H_x	9	39.06	-42.91	-0.14
	Min. H_z	14	52.08	-0.20	-43.15
	Min. M_x	14	-4171.59	-0.20	-43.15
	Min. M_z	20	-4152.03	43.00	0.24
	Min. Torsion	13	-3.56	-21.58	-37.44

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	43.40	-0.00	-0.00	0.19	0.75	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	52.08	-0.29	-43.08	-4161.44	41.35	-3.28
0.9 Dead+1.0 Wind 0 deg - No Ice	39.06	-0.29	-43.08	-4123.62	40.67	-3.29
1.2 Dead+1.0 Wind 30 deg - No Ice	52.08	21.33	-37.24	-3594.02	-2052.07	-1.67
0.9 Dead+1.0 Wind 30 deg - No Ice	39.06	21.33	-37.24	-3561.41	-2033.68	-1.68
1.2 Dead+1.0 Wind 60 deg - No Ice	52.08	37.11	-21.43	-2065.47	-3576.06	-0.41
0.9 Dead+1.0 Wind 60 deg - No Ice	39.06	37.11	-21.43	-2046.77	-3543.81	-0.41
1.2 Dead+1.0 Wind 90 deg - No Ice	52.08	42.91	0.14	18.95	-4137.12	0.95
0.9 Dead+1.0 Wind 90 deg - No Ice	39.06	42.91	0.14	18.69	-4099.89	0.97
1.2 Dead+1.0 Wind 120 deg - No Ice	52.08	37.16	21.79	2116.10	-3582.12	2.86
0.9 Dead+1.0 Wind 120 deg - No Ice	39.06	37.16	21.79	2096.75	-3549.82	2.88
1.2 Dead+1.0 Wind 150 deg - No Ice	52.08	21.58	37.44	3622.45	-2085.30	3.54
0.9 Dead+1.0 Wind 150 deg - No Ice	39.06	21.58	37.44	3589.44	-2066.55	3.56
1.2 Dead+1.0 Wind 180 deg - No Ice	52.08	0.20	43.15	4171.59	-27.17	3.03
0.9 Dead+1.0 Wind 180 deg - No Ice	39.06	0.20	43.15	4133.52	-27.09	3.04
1.2 Dead+1.0 Wind 210 deg - No Ice	52.08	-21.29	37.37	3613.27	2047.07	1.65
0.9 Dead+1.0 Wind 210 deg - No Ice	39.06	-21.29	37.37	3580.35	2028.30	1.65
1.2 Dead+1.0 Wind 240 deg - No Ice	52.08	-37.14	21.45	2068.82	3582.92	0.42
0.9 Dead+1.0 Wind 240 deg - No Ice	39.06	-37.14	21.45	2049.98	3550.16	0.41
1.2 Dead+1.0 Wind 270 deg - No Ice	52.08	-43.00	-0.24	-33.83	4152.03	-0.92
0.9 Dead+1.0 Wind 270 deg - No Ice	39.06	-43.00	-0.24	-33.50	4114.13	-0.94
1.2 Dead+1.0 Wind 300 deg - No Ice	52.08	-37.26	-21.75	-2109.88	3598.63	-2.61
0.9 Dead+1.0 Wind 300 deg - No Ice	39.06	-37.26	-21.75	-2090.69	3565.70	-2.63
1.2 Dead+1.0 Wind 330 deg - No Ice	52.08	-21.63	-37.41	-3618.07	2093.97	-3.55
0.9 Dead+1.0 Wind 330 deg - No Ice	39.06	-21.63	-37.41	-3585.21	2074.69	-3.57
1.2 Dead+1.0 Ice+1.0 Temp	96.73	0.00	-0.00	3.84	8.96	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	96.73	-0.06	-12.89	-1285.27	18.08	-1.63
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	96.73	6.40	-11.15	-1110.36	-628.99	-0.97
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	96.73	11.12	-6.42	-637.32	-1100.97	-0.21
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	96.73	12.86	0.03	8.03	-1274.56	0.61
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	96.73	11.13	6.50	655.98	-1102.48	1.43
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	96.73	6.45	11.19	1124.25	-636.32	1.77
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	96.73	0.04	12.91	1295.12	3.35	1.58
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	96.73	-6.39	11.18	1122.09	646.43	0.97
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	96.73	-11.13	6.43	645.72	1120.88	0.21
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	96.73	-12.87	-0.05	-3.42	1296.11	-0.61
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	96.73	-11.15	-6.49	-646.98	1124.40	-1.38
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	96.73	-6.46	-11.19	-1115.63	656.61	-1.77
Dead+Wind 0 deg - Service	43.40	-0.06	-8.88	-853.55	9.05	-0.68
Dead+Wind 30 deg - Service	43.40	4.40	-7.68	-737.13	-420.38	-0.34
Dead+Wind 60 deg - Service	43.40	7.65	-4.42	-423.60	-733.06	-0.09
Dead+Wind 90 deg - Service	43.40	8.84	0.03	4.02	-848.18	0.20
Dead+Wind 120 deg - Service	43.40	7.66	4.49	434.26	-734.33	0.59
Dead+Wind 150 deg - Service	43.40	4.45	7.72	743.31	-427.25	0.73

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+Wind 180 deg - Service	43.40	0.04	8.89	855.94	-5.00	0.63
Dead+Wind 210 deg - Service	43.40	-4.39	7.70	741.41	420.54	0.34
Dead+Wind 240 deg - Service	43.40	-7.66	4.42	424.53	735.56	0.09
Dead+Wind 270 deg - Service	43.40	-8.86	-0.05	-6.80	852.35	-0.19
Dead+Wind 300 deg - Service	43.40	-7.68	-4.48	-432.72	738.86	-0.54
Dead+Wind 330 deg - Service	43.40	-4.46	-7.71	-742.14	430.17	-0.73

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-43.40	0.00	0.00	43.40	0.00	0.000%
2	-0.29	-52.08	-43.08	0.29	52.08	43.08	0.001%
3	-0.29	-39.06	-43.08	0.29	39.06	43.08	0.002%
4	21.33	-52.08	-37.24	-21.33	52.08	37.24	0.000%
5	21.33	-39.06	-37.24	-21.33	39.06	37.24	0.000%
6	37.11	-52.08	-21.43	-37.11	52.08	21.43	0.000%
7	37.11	-39.06	-21.43	-37.11	39.06	21.43	0.000%
8	42.91	-52.08	0.14	-42.91	52.08	-0.14	0.005%
9	42.91	-39.06	0.14	-42.91	39.06	-0.14	0.004%
10	37.16	-52.08	21.79	-37.16	52.08	-21.79	0.000%
11	37.16	-39.06	21.79	-37.16	39.06	-21.79	0.000%
12	21.58	-52.08	37.44	-21.58	52.08	-37.44	0.000%
13	21.58	-39.06	37.44	-21.58	39.06	-37.44	0.000%
14	0.20	-52.08	43.15	-0.20	52.08	-43.15	0.002%
15	0.20	-39.06	43.15	-0.20	39.06	-43.15	0.004%
16	-21.29	-52.08	37.37	21.29	52.08	-37.37	0.000%
17	-21.29	-39.06	37.37	21.29	39.06	-37.37	0.000%
18	-37.14	-52.08	21.45	37.14	52.08	-21.45	0.000%
19	-37.14	-39.06	21.45	37.14	39.06	-21.45	0.000%
20	-43.00	-52.08	-0.24	43.00	52.08	0.24	0.002%
21	-43.00	-39.06	-0.24	43.00	39.06	0.24	0.002%
22	-37.26	-52.08	-21.75	37.26	52.08	21.75	0.000%
23	-37.26	-39.06	-21.75	37.26	39.06	21.75	0.000%
24	-21.63	-52.08	-37.41	21.63	52.08	37.41	0.000%
25	-21.63	-39.06	-37.41	21.63	39.06	37.41	0.000%
26	0.00	-96.73	0.00	-0.00	96.73	0.00	0.001%
27	-0.06	-96.73	-12.89	0.06	96.73	12.89	0.000%
28	6.40	-96.73	-11.15	-6.40	96.73	11.15	0.000%
29	11.12	-96.73	-6.42	-11.12	96.73	6.42	0.000%
30	12.86	-96.73	0.03	-12.86	96.73	-0.03	0.000%
31	11.13	-96.73	6.50	-11.13	96.73	-6.50	0.000%
32	6.45	-96.73	11.19	-6.45	96.73	-11.19	0.000%
33	0.04	-96.73	12.91	-0.04	96.73	-12.91	0.000%
34	-6.39	-96.73	11.18	6.39	96.73	-11.18	0.000%
35	-11.13	-96.73	6.43	11.13	96.73	-6.43	0.000%
36	-12.87	-96.73	-0.05	12.87	96.73	0.05	0.000%
37	-11.15	-96.73	-6.49	11.15	96.73	6.49	0.000%
38	-6.46	-96.73	-11.19	6.46	96.73	11.19	0.000%
39	-0.06	-43.40	-8.88	0.06	43.40	8.88	0.003%
40	4.40	-43.40	-7.68	-4.40	43.40	7.68	0.002%
41	7.65	-43.40	-4.42	-7.65	43.40	4.42	0.001%
42	8.85	-43.40	0.03	-8.84	43.40	-0.03	0.002%
43	7.66	-43.40	4.49	-7.66	43.40	-4.49	0.001%
44	4.45	-43.40	7.72	-4.45	43.40	-7.72	0.001%
45	0.04	-43.40	8.90	-0.04	43.40	-8.89	0.003%
46	-4.39	-43.40	7.70	4.39	43.40	-7.70	0.001%
47	-7.66	-43.40	4.42	7.66	43.40	-4.42	0.002%
48	-8.86	-43.40	-0.05	8.86	43.40	0.05	0.002%
49	-7.68	-43.40	-4.48	7.68	43.40	4.48	0.001%
50	-4.46	-43.40	-7.71	4.46	43.40	7.71	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	18	0.00000001	0.00007821
3	Yes	17	0.00000001	0.00012021
4	Yes	21	0.00000001	0.00014904
5	Yes	21	0.00000001	0.00010624
6	Yes	22	0.00000001	0.00007001
7	Yes	21	0.00000001	0.00010720
8	Yes	16	0.00005272	0.00011852
9	Yes	16	0.00003591	0.00008201
10	Yes	22	0.00000001	0.00007240
11	Yes	21	0.00000001	0.00011080
12	Yes	22	0.00000001	0.00007122
13	Yes	21	0.00000001	0.00010884
14	Yes	17	0.00002520	0.00008242
15	Yes	16	0.00003585	0.00011977
16	Yes	22	0.00000001	0.00007025
17	Yes	21	0.00000001	0.00010753
18	Yes	21	0.00000001	0.00014940
19	Yes	21	0.00000001	0.00010652
20	Yes	17	0.00002522	0.00010984
21	Yes	17	0.00000001	0.00008052
22	Yes	22	0.00000001	0.00007198
23	Yes	21	0.00000001	0.00011003
24	Yes	22	0.00000001	0.00007296
25	Yes	21	0.00000001	0.00011161
26	Yes	6	0.00000001	0.00001947
27	Yes	20	0.00000001	0.00009977
28	Yes	20	0.00000001	0.00011783
29	Yes	20	0.00000001	0.00011810
30	Yes	20	0.00000001	0.00009872
31	Yes	20	0.00000001	0.00011975
32	Yes	20	0.00000001	0.00011920
33	Yes	20	0.00000001	0.00009988
34	Yes	20	0.00000001	0.00011978
35	Yes	20	0.00000001	0.00011909
36	Yes	20	0.00000001	0.00009978
37	Yes	20	0.00000001	0.00012029
38	Yes	20	0.00000001	0.00012126
39	Yes	15	0.00009013	0.00005191
40	Yes	15	0.00009002	0.00014961
41	Yes	16	0.00000001	0.00008052
42	Yes	15	0.00009012	0.00004718
43	Yes	16	0.00000001	0.00008401
44	Yes	16	0.00000001	0.00007955
45	Yes	15	0.00009012	0.00004962
46	Yes	16	0.00000001	0.00008069
47	Yes	15	0.00009001	0.00014909
48	Yes	15	0.00009012	0.00004808
49	Yes	16	0.00000001	0.00008162
50	Yes	16	0.00000001	0.00008598

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	145 - 140	20.92	50	1.134	0.002
L2	140 - 135	19.73	50	1.134	0.002
L3	135 - 130	18.54	50	1.133	0.002
L4	130 - 125	17.36	50	1.130	0.002
L5	125 - 120	16.18	50	1.124	0.001
L6	120 - 115	15.01	50	1.115	0.001
L7	115 - 110	13.85	50	1.100	0.001
L8	110 - 105	12.70	50	1.079	0.001
L9	105 - 100	11.59	50	1.051	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L10	100 - 95	10.51	50	1.016	0.001
L11	95 - 90	9.46	50	0.973	0.001
L12	90 - 84.75	8.47	50	0.922	0.000
L13	89.25 - 84.25	8.33	50	0.914	0.000
L14	84.25 - 79.25	7.38	50	0.885	0.000
L15	79.25 - 74.25	6.49	50	0.830	0.000
L16	74.25 - 69.25	5.65	50	0.771	0.000
L17	69.25 - 64.25	4.87	50	0.708	0.000
L18	64.25 - 59.25	4.17	50	0.642	0.000
L19	59.25 - 58.08	3.53	50	0.574	0.000
L20	58.08 - 57.83	3.39	50	0.558	0.000
L21	57.83 - 52.83	3.36	50	0.555	0.000
L22	52.83 - 44.25	2.81	50	0.501	0.000
L23	49.5 - 43.25	2.47	50	0.464	0.000
L24	43.25 - 38.25	1.88	50	0.426	0.000
L25	38.25 - 33.25	1.47	50	0.373	0.000
L26	33.25 - 31.25	1.10	50	0.321	0.000
L27	31.25 - 31	0.97	50	0.299	0.000
L28	31 - 26	0.96	50	0.297	0.000
L29	26 - 21	0.67	50	0.250	0.000
L30	21 - 16	0.44	50	0.201	0.000
L31	16 - 11	0.25	50	0.152	0.000
L32	11 - 6	0.12	50	0.104	0.000
L33	6 - 4.75	0.03	50	0.054	0.000
L34	4.75 - 4.5	0.02	50	0.042	0.000
L35	4.5 - 0	0.02	50	0.040	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
139.0000	VHLP2.5-11	50	19.49	1.134	0.002	434526
133.0000	LLPX310R-V1 w/ Mount Pipe	50	18.07	1.132	0.002	97554
124.0000	APXVSPP18-C-A20 w/ Mount Pipe	50	15.94	1.123	0.001	34560
122.0000	800MHz 2X50W RRH W/FILTER	50	15.47	1.119	0.001	28247
114.0000	BXA-80063/4CFx5 w/ Mount Pipe	50	13.62	1.096	0.001	15131
105.0000	7770.00 w/ Mount Pipe	50	11.59	1.051	0.001	9078
94.0000	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	50	9.26	0.963	0.000	5944
87.0000	742 213	50	7.90	0.898	0.000	7879
80.0000	Side Arm Mount [SO 701-1]	50	6.62	0.839	0.000	5166
77.0000	Side Arm Mount [SO 701-1]	50	6.10	0.803	0.000	4824

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	145 - 140	101.87	24	5.535	0.009
L2	140 - 135	96.09	24	5.534	0.009
L3	135 - 130	90.31	24	5.530	0.008
L4	130 - 125	84.55	24	5.514	0.007
L5	125 - 120	78.80	24	5.486	0.006
L6	120 - 115	73.09	24	5.439	0.005
L7	115 - 110	67.45	24	5.367	0.005
L8	110 - 105	61.89	24	5.265	0.004
L9	105 - 100	56.46	24	5.128	0.004
L10	100 - 95	51.19	24	4.955	0.003
L11	95 - 90	46.12	24	4.745	0.002
L12	90 - 84.75	41.28	24	4.498	0.002
L13	89.25 - 84.25	40.58	24	4.458	0.001
L14	84.25 - 79.25	35.99	24	4.316	0.002

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L15	79.25 - 74.25	31.61	24	4.049	0.002
L16	74.25 - 69.25	27.53	24	3.761	0.002
L17	69.25 - 64.25	23.75	24	3.455	0.002
L18	64.25 - 59.25	20.30	24	3.133	0.002
L19	59.25 - 58.08	17.20	24	2.799	0.002
L20	58.08 - 57.83	16.52	24	2.720	0.002
L21	57.83 - 52.83	16.38	24	2.707	0.002
L22	52.83 - 44.25	13.68	24	2.445	0.002
L23	49.5 - 43.25	12.04	24	2.265	0.002
L24	43.25 - 38.25	9.19	24	2.077	0.002
L25	38.25 - 33.25	7.15	24	1.821	0.002
L26	33.25 - 31.25	5.38	24	1.563	0.002
L27	31.25 - 31	4.74	24	1.460	0.001
L28	31 - 26	4.67	24	1.448	0.001
L29	26 - 21	3.27	24	1.217	0.001
L30	21 - 16	2.12	24	0.980	0.001
L31	16 - 11	1.22	24	0.742	0.001
L32	11 - 6	0.57	24	0.505	0.001
L33	6 - 4.75	0.16	24	0.265	0.000
L34	4.75 - 4.5	0.10	24	0.205	0.000
L35	4.5 - 0	0.09	24	0.195	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
139.0000	VHLP2.5-11	24	94.94	5.534	0.011	104705
133.0000	LLPX310R-V1 w/ Mount Pipe	24	88.00	5.525	0.009	20634
124.0000	APXVSPP18-C-A20 w/ Mount Pipe	24	77.65	5.478	0.007	7230
122.0000	800MHz 2X50W RRH W/FILTER	24	75.37	5.461	0.007	5907
114.0000	BXA-80063/4CFx5 w/ Mount Pipe	24	66.33	5.349	0.006	3161
105.0000	7770.00 w/ Mount Pipe	24	56.46	5.128	0.004	1894
94.0000	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	24	45.13	4.699	0.003	1237
87.0000	742 213	24	38.49	4.383	0.002	1637
80.0000	Side Arm Mount [SO 701-1]	24	32.25	4.095	0.002	1071
77.0000	Side Arm Mount [SO 701-1]	24	29.74	3.918	0.002	999

Compression Checks
Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L1	145 - 140 (1)	TP24.9233x24x0.1875	5.0000	0.0000	0.0	14.7209	-0.25
L2	140 - 135 (2)	TP25.8467x24.9233x0.1875	5.0000	0.0000	0.0	15.2704	-0.57
L3	135 - 130 (3)	TP26.77x25.8467x0.1875	5.0000	0.0000	0.0	15.8199	-2.72
L4	130 - 125 (4)	TP27.7092x26.77x0.25	5.0000	0.0000	0.0	21.7889	-3.13
L5	125 - 120 (5)	TP28.6485x27.7092x0.25	5.0000	0.0000	0.0	22.5342	-6.45
L6	120 - 115 (6)	TP29.5877x28.6485x0.25	5.0000	0.0000	0.0	23.2794	-6.93
L7	115 - 110 (7)	TP30.5269x29.5877x0.25	5.0000	0.0000	0.0	24.0247	-10.57
L8	110 - 105 (8)	TP31.4661x30.5269x0.25	5.0000	0.0000	0.0	24.7700	-11.15
L9	105 - 100 (9)	TP32.4054x31.4661x0.25	5.0000	0.0000	0.0	25.5153	-15.01
L10	100 - 95 (10)	TP33.3446x32.4054x0.25	5.0000	0.0000	0.0	26.2606	-15.75
L11	95 - 90 (11)	TP34.2838x33.3446x0.25	5.0000	0.0000	0.0	27.0058	-19.65
L12	90 - 84.75 (12)	TP35.27x34.2838x0.25	5.2500	0.0000	0.0	27.1176	-19.79
L13	84.75 - 84.25 (13)	TP34.8508x33.9247x0.3125	5.0000	0.0000	0.0	34.2577	-21.52
L14	84.25 - 79.25 (14)	TP35.777x34.8508x0.3125	5.0000	0.0000	0.0	35.1763	-22.74
L15	79.25 - 74.25 (15)	TP36.7031x35.777x0.3125	5.0000	0.0000	0.0	36.0950	-23.94
L16	74.25 - 69.25 (16)	TP37.6293x36.7031x0.3125	5.0000	0.0000	0.0	37.0136	-25.10
L17	69.25 - 64.25 (17)	TP38.5554x37.6293x0.3125	5.0000	0.0000	0.0	37.9322	-26.29
L18	64.25 - 59.25 (18)	TP39.4816x38.5554x0.3125	5.0000	0.0000	0.0	38.8508	-27.52

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L19	59.25 - 58.08 (19)	TP39.6983x39.4816x0.3125	1.1700	0.0000	0.0	39.0658	-27.81
L20	58.08 - 57.83 (20)	TP39.7446x39.6983x0.4125	0.2500	0.0000	0.0	51.4965	-27.91
L21	57.83 - 52.83 (21)	TP40.6707x39.7446x0.4188	5.0000	0.0000	0.0	53.4994	-29.47
L22	52.83 - 44.25 (22)	TP42.26x40.6707x0.4125	8.5800	0.0000	0.0	53.5167	-30.54
L23	44.25 - 43.25 (23)	TP41.82x40.6625x0.475	6.2500	0.0000	0.0	62.3338	-33.94
L24	43.25 - 38.25 (24)	TP42.746x41.82x0.475	5.0000	0.0000	0.0	63.7299	-35.74
L25	38.25 - 33.25 (25)	TP43.672x42.746x0.475	5.0000	0.0000	0.0	65.1260	-37.57
L26	33.25 - 31.25 (26)	TP44.0424x43.672x0.475	2.0000	0.0000	0.0	65.6844	-38.31
L27	31.25 - 31 (27)	TP44.0887x44.0424x0.5375	0.2500	0.0000	0.0	74.2995	-38.43
L28	31 - 26 (28)	TP45.0147x44.0887x0.5375	5.0000	0.0000	0.0	75.8793	-40.55
L29	26 - 21 (29)	TP45.9408x45.0147x0.525	5.0000	0.0000	0.0	75.6786	-42.72
L30	21 - 16 (30)	TP46.8668x45.9408x0.525	5.0000	0.0000	0.0	77.2216	-44.92
L31	16 - 11 (31)	TP47.7928x46.8668x0.525	5.0000	0.0000	0.0	78.7647	-47.14
L32	11 - 6 (32)	TP48.7188x47.7928x0.5188	5.0000	0.0000	0.0	79.3620	-49.39
L33	6 - 4.75 (33)	TP48.9503x48.7188x0.5188	1.2500	0.0000	0.0	79.7431	-49.95
L34	4.75 - 4.5 (34)	TP48.9966x48.9503x0.5875	0.2500	0.0000	0.0	90.2696	-50.08
L35	4.5 - 0 (35)	TP49.83x48.9966x0.575	4.5000	0.0000	0.0	89.8928	-52.06

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L1	145 - 140 (1)	TP24.9233x24x0.1875	1.08	0.00
L2	140 - 135 (2)	TP25.8467x24.9233x0.1875	7.37	0.00
L3	135 - 130 (3)	TP26.77x25.8467x0.1875	26.61	0.00
L4	130 - 125 (4)	TP27.7092x26.77x0.25	52.00	0.00
L5	125 - 120 (5)	TP28.6485x27.7092x0.25	96.14	0.00
L6	120 - 115 (6)	TP29.5877x28.6485x0.25	150.14	0.00
L7	115 - 110 (7)	TP30.5269x29.5877x0.25	235.51	0.00
L8	110 - 105 (8)	TP31.4661x30.5269x0.25	326.06	0.00
L9	105 - 100 (9)	TP32.4054x31.4661x0.25	451.96	0.00
L10	100 - 95 (10)	TP33.3446x32.4054x0.25	580.47	0.00
L11	95 - 90 (11)	TP34.2838x33.3446x0.25	736.22	0.00
L12	90 - 84.75 (12)	TP35.27x34.2838x0.25	760.09	0.00
L13	84.75 - 84.25 (13)	TP34.8508x33.9247x0.3125	923.27	0.00
L14	84.25 - 79.25 (14)	TP35.777x34.8508x0.3125	1091.53	0.00
L15	79.25 - 74.25 (15)	TP36.7031x35.777x0.3125	1263.88	0.00
L16	74.25 - 69.25 (16)	TP37.6293x36.7031x0.3125	1439.50	0.00
L17	69.25 - 64.25 (17)	TP38.5554x37.6293x0.3125	1618.10	0.00
L18	64.25 - 59.25 (18)	TP39.4816x38.5554x0.3125	1799.64	0.00
L19	59.25 - 58.08 (19)	TP39.6983x39.4816x0.3125	1842.55	0.00
L20	58.08 - 57.83 (20)	TP39.7446x39.6983x0.4125	1851.74	0.00
L21	57.83 - 52.83 (21)	TP40.6707x39.7446x0.4188	2037.23	0.00
L22	52.83 - 44.25 (22)	TP42.26x40.6707x0.4125	2162.54	0.00
L23	44.25 - 43.25 (23)	TP41.82x40.6625x0.475	2401.95	0.00
L24	43.25 - 38.25 (24)	TP42.746x41.82x0.475	2597.18	0.00
L25	38.25 - 33.25 (25)	TP43.672x42.746x0.475	2795.36	0.00
L26	33.25 - 31.25 (26)	TP44.0424x43.672x0.475	2875.43	0.00
L27	31.25 - 31 (27)	TP44.0887x44.0424x0.5375	2885.47	0.00
L28	31 - 26 (28)	TP45.0147x44.0887x0.5375	3087.78	0.00
L29	26 - 21 (29)	TP45.9408x45.0147x0.525	3292.85	0.00
L30	21 - 16 (30)	TP46.8668x45.9408x0.525	3500.46	0.00
L31	16 - 11 (31)	TP47.7928x46.8668x0.525	3710.44	0.00
L32	11 - 6 (32)	TP48.7188x47.7928x0.5188	3922.68	0.00
L33	6 - 4.75 (33)	TP48.9503x48.7188x0.5188	3976.08	0.00
L34	4.75 - 4.5 (34)	TP48.9966x48.9503x0.5875	3986.78	0.00
L35	4.5 - 0 (35)	TP49.83x48.9966x0.575	4180.32	0.00

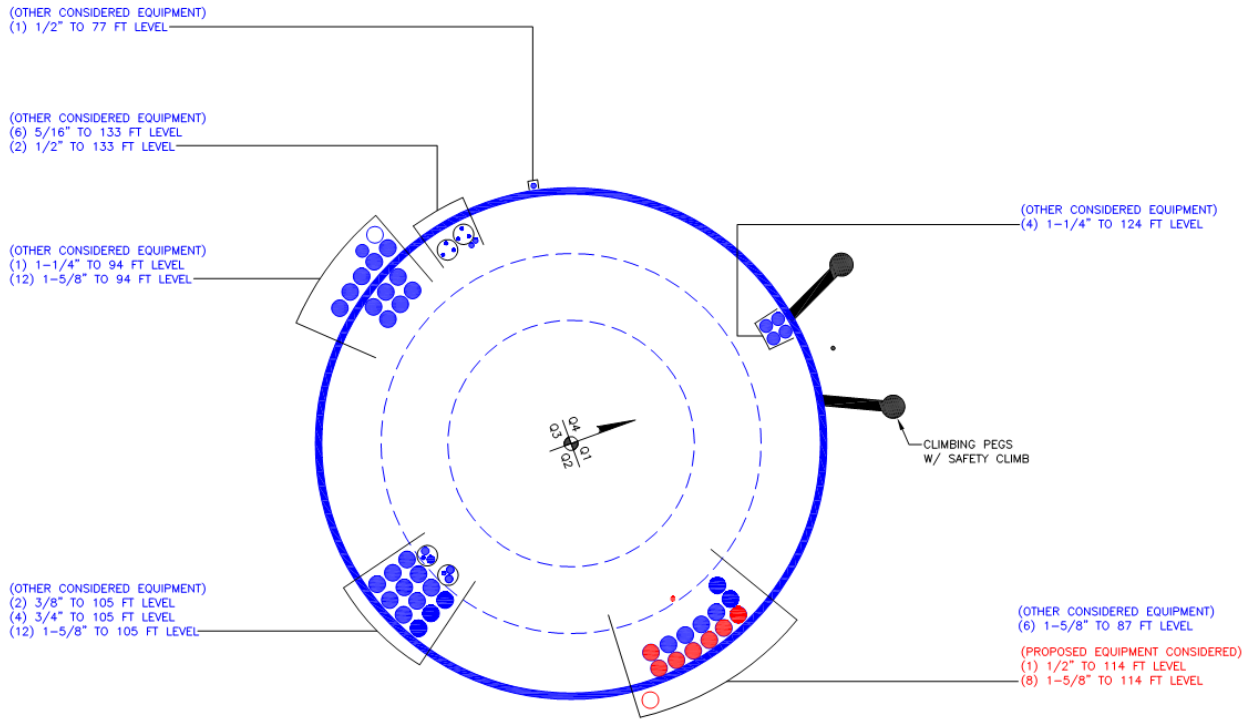
Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L1	145 - 140 (1)	TP24.9233x24x0.1875	0.44	0.00
L2	140 - 135 (2)	TP25.8467x24.9233x0.1875	1.63	0.78

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L3	135 - 130 (3)	TP26.77x25.8467x0.1875	4.84	0.87
L4	130 - 125 (4)	TP27.7092x26.77x0.25	5.32	0.87
L5	125 - 120 (5)	TP28.6485x27.7092x0.25	10.55	0.87
L6	120 - 115 (6)	TP29.5877x28.6485x0.25	11.05	0.87
L7	115 - 110 (7)	TP30.5269x29.5877x0.25	17.84	1.22
L8	110 - 105 (8)	TP31.4661x30.5269x0.25	18.40	1.16
L9	105 - 100 (9)	TP32.4054x31.4661x0.25	25.43	1.36
L10	100 - 95 (10)	TP33.3446x32.4054x0.25	25.99	1.30
L11	95 - 90 (11)	TP34.2838x33.3446x0.25	31.80	1.14
L12	90 - 84.75 (12)	TP35.27x34.2838x0.25	31.89	1.11
L13	84.75 - 84.25 (13)	TP34.8508x33.9247x0.3125	33.32	0.89
L14	84.25 - 79.25 (14)	TP35.777x34.8508x0.3125	34.12	0.70
L15	79.25 - 74.25 (15)	TP36.7031x35.777x0.3125	34.84	0.45
L16	74.25 - 69.25 (16)	TP37.6293x36.7031x0.3125	35.44	0.23
L17	69.25 - 64.25 (17)	TP38.5554x37.6293x0.3125	36.03	0.02
L18	64.25 - 59.25 (18)	TP39.4816x38.5554x0.3125	36.62	0.26
L19	59.25 - 58.08 (19)	TP39.6983x39.4816x0.3125	36.76	0.32
L20	58.08 - 57.83 (20)	TP39.7446x39.6983x0.4125	36.79	0.34
L21	57.83 - 52.83 (21)	TP40.6707x39.7446x0.4188	37.44	0.62
L22	52.83 - 44.25 (22)	TP42.26x40.6707x0.4125	37.85	0.80
L23	44.25 - 43.25 (23)	TP41.82x40.6625x0.475	38.76	1.16
L24	43.25 - 38.25 (24)	TP42.746x41.82x0.475	39.36	1.43
L25	38.25 - 33.25 (25)	TP43.672x42.746x0.475	39.94	1.71
L26	33.25 - 31.25 (26)	TP44.0424x43.672x0.475	40.17	1.83
L27	31.25 - 31 (27)	TP44.0887x44.0424x0.5375	40.19	1.84
L28	31 - 26 (28)	TP45.0147x44.0887x0.5375	40.76	2.13
L29	26 - 21 (29)	TP45.9408x45.0147x0.525	41.29	2.41
L30	21 - 16 (30)	TP46.8668x45.9408x0.525	41.79	2.68
L31	16 - 11 (31)	TP47.7928x46.8668x0.525	42.24	2.95
L32	11 - 6 (32)	TP48.7188x47.7928x0.5188	42.69	3.22
L33	6 - 4.75 (33)	TP48.9503x48.7188x0.5188	42.81	3.28
L34	4.75 - 4.5 (34)	TP48.9966x48.9503x0.5875	42.81	3.30
L35	4.5 - 0 (35)	TP49.83x48.9966x0.575	43.24	3.55

APPENDIX B

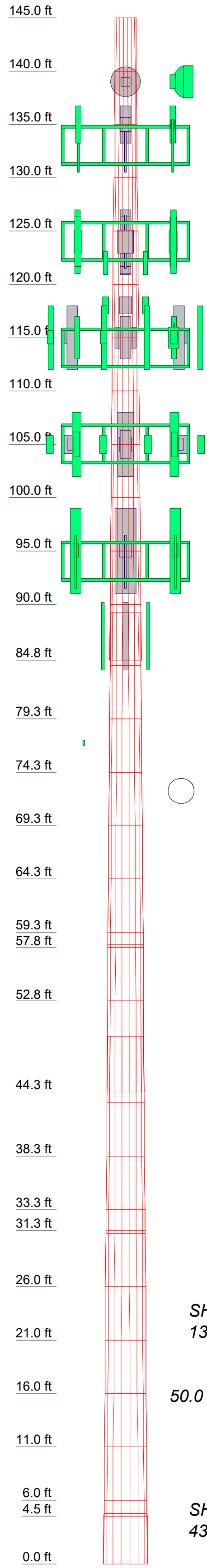
BASE LEVEL DRAWING



APPENDIX C

ADDITIONAL CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.0000	18	0.1875		24.0000	24.9233	A607-65	0.2
2	5.0000	18	0.1875		24.9233	25.8467		0.3
3	5.0000	18	0.1875		25.8467	26.7700		0.3
4	5.0000	18	0.2500		26.7700	27.7092		0.4
5	5.0000	18	0.2500		27.7092	28.6485		0.4
6	5.0000	18	0.2500		28.6485	29.5877		0.4
7	5.0000	18	0.2500		29.5877	30.5269		0.4
8	5.0000	18	0.2500		30.5269	31.4661		0.4
9	5.0000	18	0.2500		31.4661	32.4054		0.4
10	5.0000	18	0.2500		32.4054	33.3446		0.4
11	5.0000	18	0.2500		33.3446	34.2838		0.5
12	[illegible]	18	0.2500	4.5000	34.2838	[illegible]		0.5
13	[illegible]	18	[illegible]		[illegible]	[illegible]		0.6
14	5.0000	18	[illegible]		[illegible]	35.7770		0.6
15	5.0000	18	0.3125		35.7770	36.7031		0.6
16	5.0000	18	0.3125		36.7031	37.6293		0.6
17	5.0000	18	0.3125		37.6293	38.5554		0.6
18	[illegible]	18	[illegible]		38.5554	[illegible]		0.7
19	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
20	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
21	[illegible]	18	[illegible]		[illegible]	[illegible]		1.0
22	[illegible]	18	0.4125	5.2500	40.6707	42.2600		1.7
23	[illegible]	18	[illegible]		[illegible]	[illegible]		1.4
24	5.0000	18	[illegible]		[illegible]	[illegible]		1.2
25	[illegible]	18	0.4750		[illegible]	[illegible]		1.2
26	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
27	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
28	[illegible]	18	[illegible]		[illegible]	[illegible]		1.4
29	5.0000	18	0.5250		45.0147	45.9408		1.5
30	5.0000	18	0.5250		45.9408	46.8668		1.5
31	5.0000	18	0.5250		46.8668	47.7928		1.5
32	[illegible]	18	[illegible]		[illegible]	[illegible]		1.5
33	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
34	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
35	[illegible]	18	[illegible]		[illegible]	[illegible]		1.3
								24.5



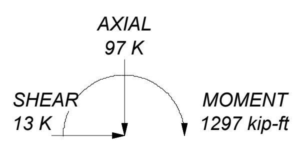
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

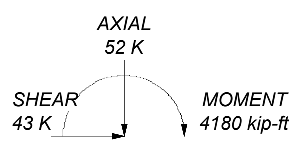
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125.0 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50.0 mph basic wind with 1.70 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.0000 ft
8. TIA-222-H Annex S.

ALL REACTIONS ARE FACTORED



TORQUE 2 kip-ft
50.0 mph WIND - 1.7000 in ICE



TORQUE 4 kip-ft
REACTIONS - 125.0 mph WIND

Paul J Ford and Company
250 East Broad st., Suite 600
Columbus, OH 43215
Phone: (614) 221-6679
FAX:

Job: **145 ft Monopole / Newington**		
Project: **PJF 37518-2864.003 / BU 881364**		
Client: Crown Castle	Drawn by: jforbes	App'd:
Code: TIA-222-H	Date: 12/13/18	Scale: NTS
Path: G:\TOWER\375_Crown_Castle\2018\37518-2864_881364_Newington\37518-2864.003.7805_SA_1669369\37518-2864.003.7805_CCIpole.eri		Dwg No. E-1

CCIpole

per TIA-222- H

Site BU: 881364

Work Order:

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	145	15	0	18	24	26.77	0.1875	Auto	A607-65
2	130	45.25	4.5	18	26.77	35.27	0.25	Auto	A607-65
3	89.25	45	5.25	18	33.92	42.26	0.3125	Auto	A607-65
4	49.5	49.5	0	18	40.66	49.83	0.375	Auto	A607-65

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	13	14	15	16	17	18
1	4.75	31.25	plate	CI-085125; (1) (1.1875)	3			o						o				o					
2	31.25	58.08	plate	CI-060100; (1) (1.1875)	3			o						o				o					
3	0	4.75	plate	FP 1.25 x 7.75_1	3		c							c					o				
4																							
5																							
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_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
2	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
3	1.25	7.75	9.6875	3.875	n/a	n/a	0.000	9.688	0.0000	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	145 - 140	5		18	24.000	24.923	0.1875	A607-65	1.000
2	140 - 135	5		18	24.923	25.847	0.1875	A607-65	1.000
3	135 - 130	5	0	18	25.847	26.770	0.1875	A607-65	1.000
4	130 - 125	5		18	26.770	27.709	0.25	A607-65	1.000
5	125 - 120	5		18	27.709	28.648	0.25	A607-65	1.000
6	120 - 115	5		18	28.648	29.588	0.25	A607-65	1.000
7	115 - 110	5		18	29.588	30.527	0.25	A607-65	1.000
8	110 - 105	5		18	30.527	31.466	0.25	A607-65	1.000
9	105 - 100	5		18	31.466	32.405	0.25	A607-65	1.000
10	100 - 95	5		18	32.405	33.345	0.25	A607-65	1.000
11	95 - 90	5		18	33.345	34.284	0.25	A607-65	1.000
12	90 - 89.25	5.25	4.5	18	34.284	35.270	0.25	A607-65	1.000
13	89.25 - 84.25	5		18	33.925	34.851	0.3125	A607-65	1.000
14	84.25 - 79.25	5		18	34.851	35.777	0.3125	A607-65	1.000
15	79.25 - 74.25	5		18	35.777	36.703	0.3125	A607-65	1.000
16	74.25 - 69.25	5		18	36.703	37.629	0.3125	A607-65	1.000
17	69.25 - 64.25	5		18	37.629	38.555	0.3125	A607-65	1.000
18	64.25 - 59.25	5		18	38.555	39.482	0.3125	A607-65	1.000
19	59.25 - 58.08	1.17		18	39.482	39.698	0.3125	A607-65	1.000
20	58.08 - 57.83	0.25		18	39.698	39.745	0.4125	A607-65	1.109
21	57.83 - 52.83	5		18	39.745	40.671	0.41875	A607-65	1.085
22	52.83 - 49.5	8.58	5.25	18	40.671	42.260	0.4125	A607-65	1.096
23	49.5 - 43.25	6.25		18	40.663	41.820	0.475	A607-65	1.080
24	43.25 - 38.25	5		18	41.820	42.746	0.475	A607-65	1.074
25	38.25 - 33.25	5		18	42.746	43.672	0.475	A607-65	1.068
26	33.25 - 31.25	2		18	43.672	44.042	0.475	A607-65	1.065
27	31.25 - 31	0.25		18	44.042	44.089	0.5375	A607-65	1.129
28	31 - 26	5		18	44.089	45.015	0.5375	A607-65	1.120
29	26 - 21	5		18	45.015	45.941	0.525	A607-65	1.138
30	21 - 16	5		18	45.941	46.867	0.525	A607-65	1.129
31	16 - 11	5		18	46.867	47.793	0.525	A607-65	1.121
32	11 - 6	5		18	47.793	48.719	0.51875	A607-65	1.127
33	6 - 4.75	1.25		18	48.719	48.950	0.51875	A607-65	1.125
34	4.75 - 4.5	0.25		18	48.950	48.997	0.5875	A607-65	0.963
35	4.5 - 0	4.5		18	48.997	49.830	0.575	A607-65	0.978

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	145 - 140	0.25	1.08	0.43
2	140 - 135	0.57	7.37	1.63
3	135 - 130	2.72	26.61	4.84
4	130 - 125	3.13	52.00	5.32
5	125 - 120	6.45	96.14	10.55
6	120 - 115	6.93	150.14	11.05
7	115 - 110	10.57	235.51	17.84
8	110 - 105	11.15	326.06	18.40
9	105 - 100	15.01	451.96	25.43
10	100 - 95	15.75	580.46	25.99
11	95 - 90	19.65	736.22	31.80
12	90 - 89.25	19.79	760.09	31.89
13	89.25 - 84.25	21.52	923.27	33.32
14	84.25 - 79.25	22.74	1091.52	34.12
15	79.25 - 74.25	23.94	1263.88	34.84
16	74.25 - 69.25	25.10	1439.50	35.44
17	69.25 - 64.25	26.29	1618.10	36.03
18	64.25 - 59.25	27.52	1799.64	36.62
19	59.25 - 58.08	27.81	1842.55	36.76
20	58.08 - 57.83	27.91	1851.74	36.79
21	57.83 - 52.83	29.47	2037.23	37.44
22	52.83 - 49.5	30.54	2162.54	37.85
23	49.5 - 43.25	33.94	2401.95	38.76
24	43.25 - 38.25	35.74	2597.18	39.36
25	38.25 - 33.25	37.57	2795.36	39.94
26	33.25 - 31.25	38.31	2875.43	40.17
27	31.25 - 31	38.43	2885.47	40.19
28	31 - 26	40.55	3087.79	40.76
29	26 - 21	42.72	3292.85	41.29
30	21 - 16	44.92	3500.46	41.79
31	16 - 11	47.14	3710.44	42.24
32	11 - 6	49.39	3922.68	42.69
33	6 - 4.75	49.95	3976.09	42.81
34	4.75 - 4.5	50.08	3986.78	42.81
35	4.5 - 0	52.06	4180.33	43.24

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
145 - 140	Pole	TP24.923x24x0.1875	Pole	0.2%	Pass
140 - 135	Pole	TP25.847x24.923x0.1875	Pole	1.4%	Pass
135 - 130	Pole	TP26.77x25.847x0.1875	Pole	4.7%	Pass
130 - 125	Pole	TP27.709x26.77x0.25	Pole	5.8%	Pass
125 - 120	Pole	TP28.648x27.709x0.25	Pole	10.2%	Pass
120 - 115	Pole	TP29.588x28.648x0.25	Pole	14.9%	Pass
115 - 110	Pole	TP30.527x29.588x0.25	Pole	22.3%	Pass
110 - 105	Pole	TP31.466x30.527x0.25	Pole	29.1%	Pass
105 - 100	Pole	TP32.405x31.466x0.25	Pole	38.4%	Pass
100 - 95	Pole	TP33.345x32.405x0.25	Pole	46.9%	Pass
95 - 90	Pole	TP34.284x33.345x0.25	Pole	56.8%	Pass
90 - 89.25	Pole	TP35.27x34.284x0.25	Pole	58.2%	Pass
89.25 - 84.25	Pole	TP34.851x33.925x0.3125	Pole	51.6%	Pass
84.25 - 79.25	Pole	TP35.777x34.851x0.3125	Pole	58.2%	Pass
79.25 - 74.25	Pole	TP36.703x35.777x0.3125	Pole	64.4%	Pass
74.25 - 69.25	Pole	TP37.629x36.703x0.3125	Pole	70.2%	Pass
69.25 - 64.25	Pole	TP38.555x37.629x0.3125	Pole	75.7%	Pass
64.25 - 59.25	Pole	TP39.482x38.555x0.3125	Pole	80.9%	Pass
59.25 - 58.08	Pole	TP39.698x39.482x0.3125	Pole	82.0%	Pass
58.08 - 57.83	Pole + Reinf.	TP39.745x39.698x0.4125	Reinf. 2 Tension Rupture	81.5%	Pass
57.83 - 52.83	Pole + Reinf.	TP40.671x39.745x0.4188	Reinf. 2 Tension Rupture	86.2%	Pass
52.83 - 49.5	Pole + Reinf.	TP42.26x40.671x0.4125	Reinf. 2 Tension Rupture	89.1%	Pass
49.5 - 43.25	Pole + Reinf.	TP41.82x40.663x0.475	Reinf. 2 Tension Rupture	85.0%	Pass
43.25 - 38.25	Pole + Reinf.	TP42.746x41.82x0.475	Reinf. 2 Tension Rupture	88.4%	Pass
38.25 - 33.25	Pole + Reinf.	TP43.672x42.746x0.475	Reinf. 2 Tension Rupture	91.6%	Pass
33.25 - 31.25	Pole + Reinf.	TP44.042x43.672x0.475	Reinf. 2 Tension Rupture	92.8%	Pass
31.25 - 31	Pole + Reinf.	TP44.089x44.042x0.5375	Reinf. 1 Compression	73.1%	Pass
31 - 26	Pole + Reinf.	TP45.015x44.089x0.5375	Reinf. 1 Compression	75.6%	Pass
26 - 21	Pole + Reinf.	TP45.941x45.015x0.525	Reinf. 1 Compression	77.9%	Pass
21 - 16	Pole + Reinf.	TP46.867x45.941x0.525	Reinf. 1 Compression	80.1%	Pass
16 - 11	Pole + Reinf.	TP47.793x46.867x0.525	Reinf. 1 Compression	82.2%	Pass
11 - 6	Pole + Reinf.	TP48.719x47.793x0.5188	Reinf. 1 Compression	84.1%	Pass
6 - 4.75	Pole + Reinf.	TP48.95x48.719x0.5188	Reinf. 1 Compression	84.6%	Pass
4.75 - 4.5	Pole + Reinf.	TP48.997x48.95x0.5875	Reinf. 3 Tension Yield	79.2%	Pass
4.5 - 0	Pole + Reinf.	TP49.83x48.997x0.575	Reinf. 3 Tension Yield	80.7%	Pass
				Summary	
			Pole	82.0%	Pass
			Reinforcement	92.8%	Pass
			Overall	92.8%	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
145 - 140	1138	n/a	1138	14.72	n/a	14.72	0.2%			
140 - 135	1270	n/a	1270	15.27	n/a	15.27	1.4%			
135 - 130	1412	n/a	1412	15.82	n/a	15.82	4.7%			
130 - 125	2075	n/a	2075	21.79	n/a	21.79	5.8%			
125 - 120	2295	n/a	2295	22.53	n/a	22.53	10.2%			
120 - 115	2531	n/a	2531	23.28	n/a	23.28	14.9%			
115 - 110	2781	n/a	2781	24.02	n/a	24.02	22.3%			
110 - 105	3048	n/a	3048	24.77	n/a	24.77	29.1%			
105 - 100	3332	n/a	3332	25.51	n/a	25.51	38.4%			
100 - 95	3632	n/a	3632	26.26	n/a	26.26	46.9%			
95 - 90	3951	n/a	3951	27.00	n/a	27.00	56.8%			
90 - 89.25	4000	n/a	4000	27.12	n/a	27.12	58.2%			
89.25 - 84.25	5161	n/a	5161	34.26	n/a	34.26	51.6%			
84.25 - 79.25	5588	n/a	5588	35.18	n/a	35.18	58.2%			
79.25 - 74.25	6037	n/a	6037	36.09	n/a	36.09	64.4%			
74.25 - 69.25	6510	n/a	6510	37.01	n/a	37.01	70.2%			
69.25 - 64.25	7006	n/a	7006	37.93	n/a	37.93	75.7%			
64.25 - 59.25	7528	n/a	7528	38.85	n/a	38.85	80.9%			
59.25 - 58.08	7653	n/a	7653	39.06	n/a	39.06	82.0%			
58.08 - 57.83	7749	2376	10125	39.11	18.00	57.11	66.2%		81.5%	
57.83 - 52.83	8311	2678	10989	40.03	18.00	58.03	69.6%		86.2%	
52.83 - 49.5	8696	2758	11455	40.64	18.00	58.64	72.2%		89.1%	
49.5 - 43.25	10776	2849	13624	49.33	18.00	67.33	64.1%		85.0%	
43.25 - 38.25	11511	2974	14486	50.43	18.00	68.43	67.0%		88.4%	
38.25 - 33.25	12280	3102	15383	51.53	18.00	69.53	69.8%		91.6%	
33.25 - 31.25	12597	3155	15751	51.97	18.00	69.97	70.9%		92.8%	
31.25 - 31	12721	5200	17921	52.03	31.88	83.90	63.8%	73.1%		
31 - 26	13542	5414	18956	53.13	31.88	85.01	66.3%	75.6%		
26 - 21	14398	5632	20030	54.23	31.88	86.11	68.6%	77.9%		
21 - 16	15289	5855	21143	55.33	31.88	87.21	70.9%	80.1%		
16 - 11	16215	6082	22297	56.44	31.88	88.31	73.1%	82.2%		
11 - 6	17179	6314	23493	57.54	31.88	89.41	75.2%	84.1%		
6 - 4.75	17426	6372	23798	57.81	31.88	89.69	75.8%	84.6%		
4.75 - 4.5	17322	9193	26515	57.87	29.06	86.93	66.2%			79.2%
4.5 - 0	18227	9464	27691	58.86	29.06	87.92	68.0%			80.7%

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

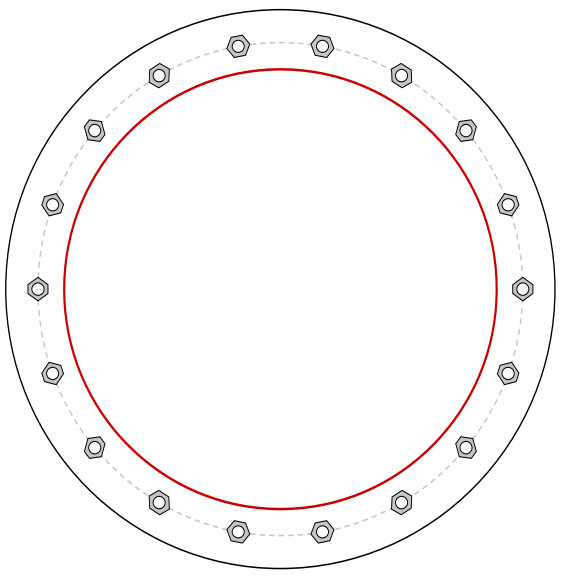
Elevation = 130 ft.

BU #	881364
Site Name	
Order #	
TIA-222 Revision	H

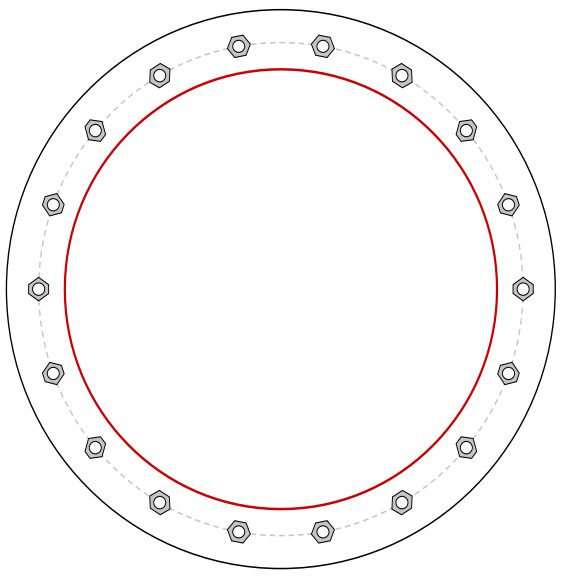
Applied Loads	
Moment (kip-ft)	26.61
Axial Force (kips)	2.72
Shear Force (kips)	4.84

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(18) 3/4" ø bolts (A325 X; Fy=92 ksi, Fu=120 ksi) on 30" BC

Top Plate Data

34" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Top Pole Data

26.77" x 0.1875" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Bottom Plate Data

34" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

26.77" x 0.25" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	2.21	
Allowable (kips)	30.06	
Stress Rating:	**7.0%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**
Tension Side Stress Rating:	**N/A**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**
Tension Side Stress Rating:	**N/A**

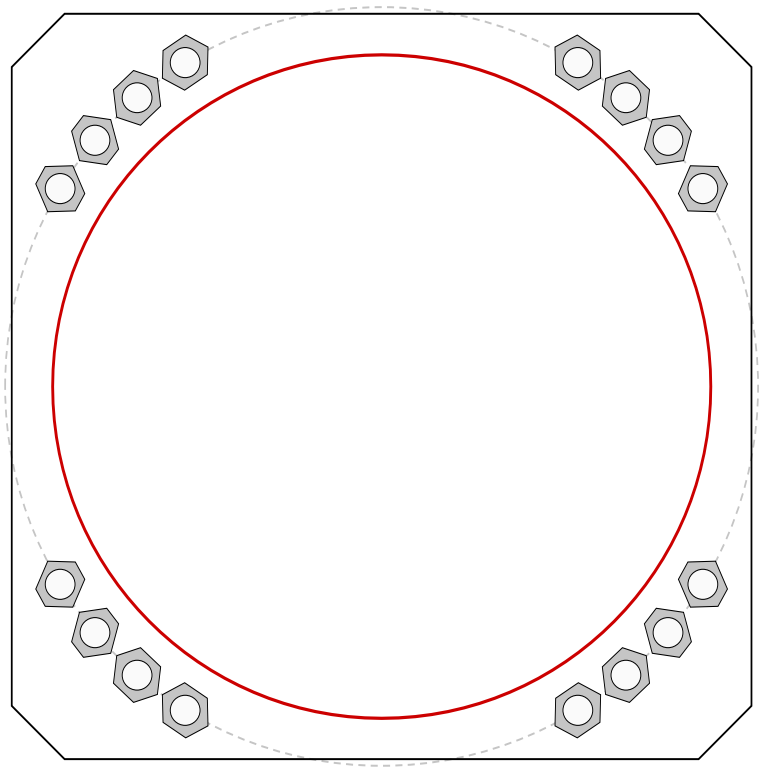
Monopole Base Plate Connection

Site Info	
BU #	881364
Site Name	
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	5.75

Applied Loads	
Moment (kip-ft)	4180.33
Axial Force (kips)	52.06
Shear Force (kips)	43.24

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 57" BC

Base Plate Data

56" OD x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

49.83" x 0.375" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 223.13	ϕPn_c = 243.75	**Stress Rating**
Vu = 2.7	ϕVn = 73.13	**97.5%**
Mu = 10.1	ϕMn = 94.7	**Pass**

Base Plate Summary

Max Stress (ksi):	41.85	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**88.6%**	**Pass**

Drilled Pier Foundation

BU # :	881364
Site Name:	
Order Number:	

TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	4180	
Axial Force (kips)	52	
Shear Force (kips)	43	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	25	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 25' below grade		
Pier Diameter	7	ft
Rebar Quantity	28	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	6.43	-
Soil Safety Factor	2.05	-
Max Moment (kip-ft)	4419.49	-
Rating*	*61.7%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	184.54	-
End Bearing (kips)	173.18	-
Weight of Concrete (kips)	133.42	-
Total Capacity (kips)	357.72	-
Axial (kips)	185.42	-
Rating*	*49.4%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	6.36	-
Critical Moment (kip-ft)	4419.44	-
Critical Moment Capacity	6697.33	-
Rating*	*62.8%*	-

Soil Interaction Rating*	**61.7%**
Structural Foundation Rating*	**62.8%**

Check Limitation	
Apply TIA-222-H Section 15.5:	☑

*Rating per TIA-222-H Section 15.5

Soil Profile

Groundwater Depth	10	ft	# of Layers	4	

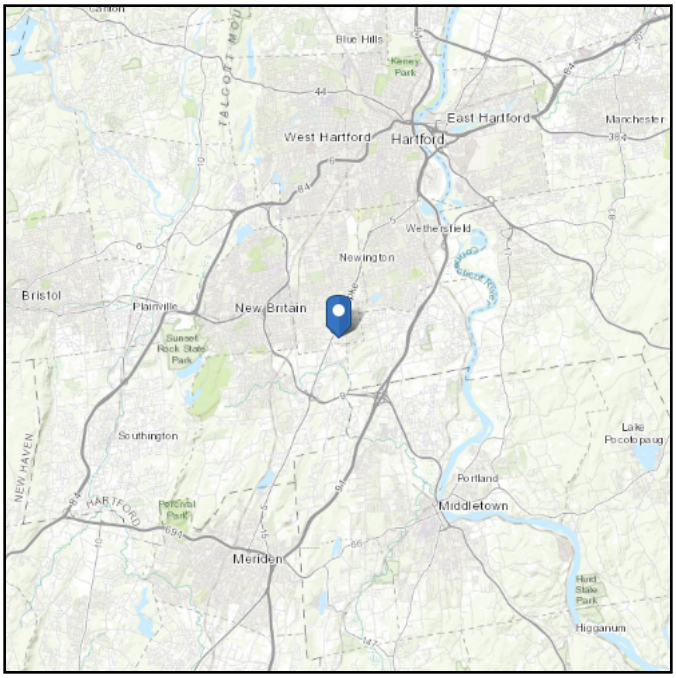
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	4	4	125	150	0	0	0.000	0.000					Cohesionless
2	4	10	6	125	150	0	34	0.467	0.467				7	Cohesionless
3	10	12	2	62.6	87.6	0	34	0.645	0.645				7	Cohesionless
4	12	25	13	62.6	87.6	0	30	0.546	0.546			6	5	Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 141.56 ft (NAVD 88)
Latitude: 41.6552
Longitude: -72.721442



Wind

Results:	**77 Vmph**
Wind Speed:	123 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed Dec 12 2018

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

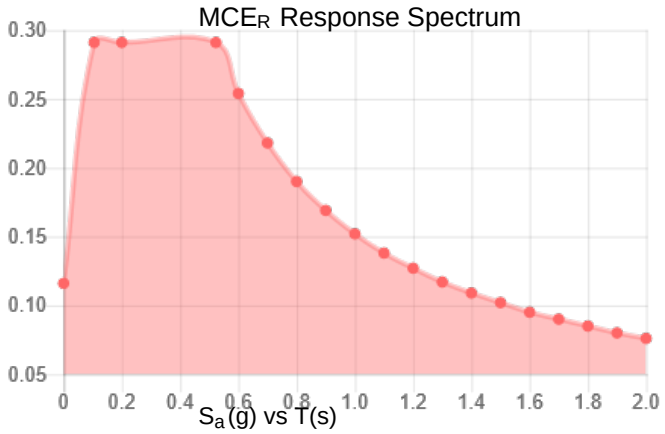
Seismic

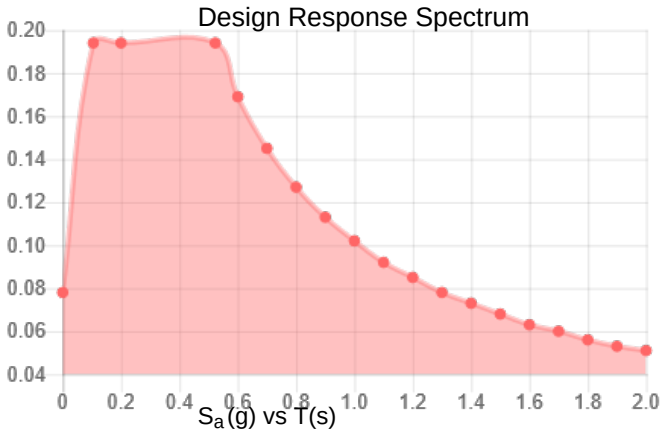
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.194
S_1 :	0.063	S_{D1} :	0.102
F_a :	1.600	T_L :	6.000
F_v :	2.400	PGA :	0.092
S_{MS} :	0.291	PGA_M :	0.148
S_{M1} :	0.152	F_{PGA} :	1.600
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Dec 12 2018

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Dec 12 2018

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.