

Date: **May 22, 2021**



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
7242392000

Subject: **Structural Analysis Report**

Carrier Designation: **DISH Network Co-Locate**
Site Number: BOBDL00037A
Site Name: CT-CCI-T-801487

Crown Castle Designation: **BU Number:** 801487
Site Name: CT SUFFIELD 3 CAC 801487
JDE Job Number: 650035
Work Order Number: 1962727
Order Number: 556645 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1962727

Site Data: **848 East Street, Suffield, Hartford County, CT**
Latitude 41° 57' 25.2", Longitude -72° 37' 32.6"
165.5 Foot - Monopole Tower

Crown Castle 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

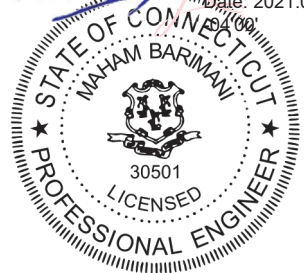
Sufficient Capacity

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Rohit Soni

Respectfully submitted by:


Digitally signed by Maham Barimani
Date: 2021.06.25 17:00:31



Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 - Tower Component Stresses vs. Capacity - LC7

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 165.5 ft Monopole tower designed by FWT INC..

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	2 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)
126.0	126.0	1	tower mounts	Commscope MC-PK8-DSH	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		

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)
162.0	163.0	3	commscope	SDX1926Q-43	10	1-5/8
		3	ericsson	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe		
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4415 B66A_CCIV2		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
	162.0	1	tower mounts	Sector Mount [SM 308-3]		
	161.0	3	ericsson	KRY 112 144/1		
160.0	3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe			
150.0	153.0	3	alcatel lucent	B13 RRH 4X30	14	1-5/8
		3	alcatel lucent	B4 RRH2X60-4R		
		6	antel	LPA-80080/6CF w/ Mount Pipe		
		6	commscope	SBNHH-1D65B w/ Mount Pipe		
		2	raycap	RHSDC-3315-PF-48		
150.0	1	tower mounts	Platform Mount [LP 304-1]			
145.0	145.0	3	kathrein	742 213 w/ Mount Pipe	6	1-5/8
		1	tower mounts	Pipe Mount [PM 601-3]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
136.0	139.0	1	dragonwave	A-ANT-18G-2-C	3	1/2
		1	dragonwave	A-ANT-23G-1-C		
	136.0	2	dragonwave	HORIZON COMPACT		
		1	tower mounts	Pipe Mount [PM 601-3]		
		1	tower mounts	Side Arm Mount [SO 104-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	2373668	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1118795	CCISITES
4-TOWER MANUFACTURER DRAWINGS	961597	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.9.0), 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. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle 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	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	165.5 - 136.83	Pole	TP24.279x17x0.1875	1	-6.86	851.26	36.8	Pass
L2	136.83 - 95.5	Pole	TP34.4x23.0992x0.3125	2	-16.30	2007.19	48.1	Pass
L3	95.5 - 47	Pole	TP46.06x32.6322x0.375	3	-27.46	3228.94	51.3	Pass
L4	47 - 0	Pole	TP57.275x43.7899x0.375	4	-43.96	4160.03	60.0	Pass
							Summary	
						Pole (L4)	60.0	Pass
						Rating =	60.0	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	56.1	Pass
1	Base Plate	0	26.3	Pass
1	Base Foundation (Structure)	0	59.3	Pass
1	Base Foundation (Soil Interaction)	0	37.0	Pass
Structure Rating (max from all components) =				60.0%

Notes:

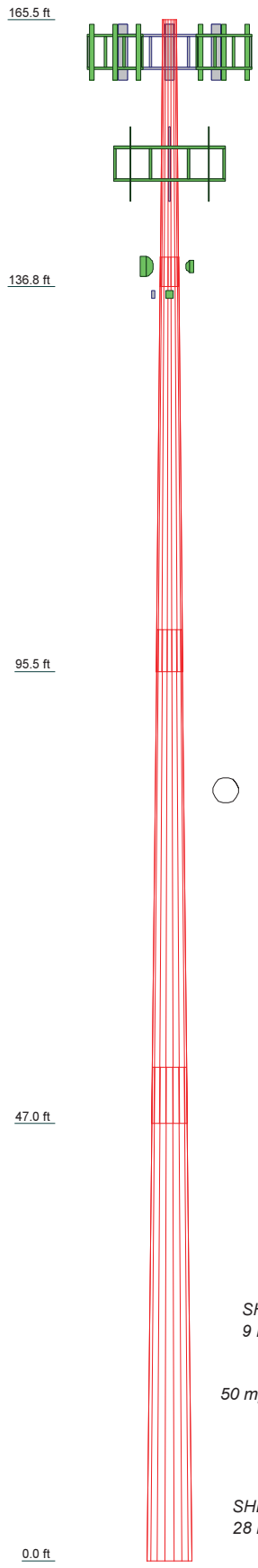
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4
Length (ft)	28.67	44.50	53.00	53.00
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.3125	0.3750	0.3750
Socket Length (ft)	3.17	4.50	6.00	43.7899
Top Dia (in)	17.0000	23.0992	32.6322	43.7899
Bot Dia (in)	24.2790	34.4000	46.0600	57.2750
Grade			A572-65	
Weight (K)	1.2	4.3	8.4	10.8



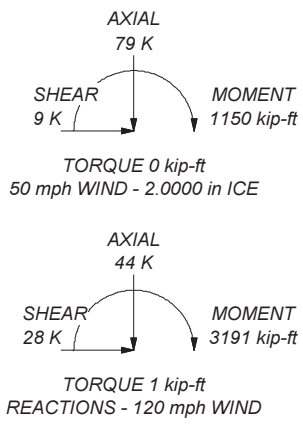
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	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 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 61.2%

ALL REACTIONS ARE FACTORED



Crown Castle
 2000 Corporate Drive
 Canonsburg, PA 15317
 Phone: 7242392000
 FAX:

Job: BU# 801487		
Project:	Client: Crown Castle	Drawn by: RSONI
Code: TIA-222-H	Date: 05/22/21	App'd:
Path: C:\Work Area\801487\WO 1962727 - SAIProd\801487_RPA.er	Scale: NTS	Dwg No. E-1

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: 115.00 ft.
- 3) Basic wind speed of 120 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: 0.00 ft.
- 9) Nominal ice thickness of 2.0000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50 °F.
- 14) Deflections calculated using a wind speed of 60 mph.
- 15) A non-linear (P-delta) analysis was used.
- 16) Pressures are calculated at each section.
- 17) Stress ratio used in pole design is 1.05.
- 18) Tower analysis based on target reliabilities in accordance with Annex S.
- 19) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 20) Maximum demand-capacity ratio is: 1.
- 21) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets 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	165.50-136.83	28.67	3.17	18	17.0000	24.2790	0.1875	0.7500	A572-65 (65 ksi)
L2	136.83-95.50	44.50	4.50	18	23.0992	34.4000	0.3125	1.2500	A572-65 (65 ksi)
L3	95.50-47.00	53.00	6.00	18	32.6322	46.0600	0.3750	1.5000	A572-65 (65 ksi)
L4	47.00-0.00	53.00		18	43.7899	57.2750	0.3750	1.5000	A572-65 (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	17.2333	10.0055	357.3078	5.9684	8.6360	41.3742	715.0858	5.0037	2.6620	14.197
	24.6246	14.3375	1051.3254	8.5525	12.3337	85.2398	2104.0342	7.1701	3.9431	21.03
L2	24.2247	22.6015	1482.6447	8.0893	11.7344	126.3505	2967.2404	11.3029	3.5155	11.249
	34.8825	33.8105	4963.4065	12.1011	17.4752	284.0257	9933.3440	16.9085	5.5044	17.614
L3	34.2355	38.3942	5047.2690	11.4513	16.5772	304.4711	10101.179	19.2007	5.0833	13.555
	46.7127	54.3766	14338.262	16.2182	23.3985	612.7861	28695.391	27.1935	7.4466	19.857
L4	45.9577	51.6746	12305.273	15.4123	22.2453	553.1639	24626.738	25.8422	7.0470	18.792
	58.1007	67.7252	27702.083	20.1995	29.0957	952.1023	55440.618	33.8690	9.4204	25.121

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 165.50- 136.83				1	1	1			
L2 136.83- 95.50				1	1	1			
L3 95.50- 47.00				1	1	1			
L4 47.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	Number Per Row	Start/En d Position	Width or Diamete r in	Perimete r in	Weight plf
*** FSJ4-50B(1/2") ***	C	No	Surface Ar (CaAa)	136.00 - 0.00	3	3	-0.500 -0.450	0.5200		0.14

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	CaAa ft ² /ft	Weight plf
AL7-50(1-5/8")	C	No	No	Inside Pole	162.00 - 0.00	10	No Ice 0.00	0.52

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
							1/2" Ice	0.00	0.52
							1" Ice	0.00	0.52
							2" Ice	0.00	0.52

AVA7-50(1-5/8")	C	No	No	Inside Pole	150.00 - 0.00	12	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
HB158-1-08U8-S8J18(1-5/8")	C	No	No	Inside Pole	150.00 - 0.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
							2" Ice	0.00	1.30

LCF158-50J(1-5/8")	C	No	No	Inside Pole	145.00 - 0.00	6	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
							2" Ice	0.00	0.92

CU12PSM9P6XXX (1-1/2)	C	No	No	Inside Pole	126.00 - 0.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
							2" Ice	0.00	2.35

Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	165.50-136.83	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	0.32
L2	136.83-95.50	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	6.318	0.000	0.99
L3	95.50-47.00	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	7.566	0.000	1.19
L4	47.00-0.00	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	7.332	0.000	1.15

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	165.50-136.83	A	1.978	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	0.32
L2	136.83-95.50	A	1.926	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	27.928	0.000	1.30
L3	95.50-47.00	A	1.834	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	32.813	0.000	1.54
L4	47.00-0.00	A	1.644	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	30.714	0.000	1.47

Feed Line Center of Pressure

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L1	165.50-136.83	0.0000	0.0000	0.0000	0.0000
L2	136.83-95.50	0.9785	0.6355	1.8485	1.2004
L3	95.50-47.00	1.0103	0.6561	2.0350	1.3215
L4	47.00-0.00	1.0206	0.6628	2.1165	1.3745

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
L2	8	FSJ4-50B(1/2")	95.50 - 136.00	1.0000	1.0000
L3	8	FSJ4-50B(1/2")	47.00 - 95.50	1.0000	1.0000
L4	8	FSJ4-50B(1/2")	0.00 - 47.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	K
162								
KRY 112 144/1	A	From Leg	4.00 0.00 -1.00	0.0000	162.00	No Ice 0.35 1/2" 0.43 Ice 0.51 1" Ice 0.70 2" Ice 0.70	0.17 0.23 0.30 0.46 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.00 0.00 -1.00	0.0000	162.00	No Ice 0.35 1/2" 0.43 Ice 0.51 1" Ice 0.70 2" Ice 0.70	0.17 0.23 0.30 0.46 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Leg	4.00 0.00 -1.00	0.0000	162.00	No Ice 0.35 1/2" 0.43 Ice 0.51 1" Ice 0.70 2" Ice 0.70	0.17 0.23 0.30 0.46 0.46	0.01 0.01 0.02 0.03
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 3.76 1/2" 4.12 Ice 4.48 1" Ice 5.24 2" Ice 5.24	3.15 3.49 3.84 4.58 4.58	0.19 0.25 0.32 0.48
AIR 32 B2A B66AA_T-	B	From Leg	4.00	0.0000	162.00	No Ice 3.76	3.15	0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
MOBILE w/ Mount Pipe			0.00 1.00			1/2" Ice 1" Ice 2" Ice	4.12 3.49 4.48 3.84 5.24 4.58	0.25 0.32 0.48
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24 4.58	0.19 0.25 0.32 0.48
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 -2.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82 9.67	0.18 0.31 0.45 0.78
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 -2.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82 9.67	0.18 0.31 0.45 0.78
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00 0.00 -2.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82 9.67	0.18 0.31 0.45 0.78
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90 4.12	0.13 0.17 0.23 0.35
SDX1926Q-43	A	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.24 0.31 0.38 0.55 0.32	0.01 0.01 0.01 0.02
SDX1926Q-43	B	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.24 0.31 0.38 0.55 0.32	0.01 0.01 0.01 0.02
SDX1926Q-43	C	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.24 0.31 0.38 0.55 0.32	0.01 0.01 0.01 0.02
RADIO 4415 B66A_CCIV2	A	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.04 2.22 2.40 2.80 1.83	0.06 0.07 0.09 0.14
RADIO 4415 B66A_CCIV2	B	From Leg	4.00 0.00 1.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.04 2.22 2.40 2.80 1.83	0.06 0.07 0.09 0.14
RADIO 4415 B66A_CCIV2	C	From Leg	4.00	0.0000	162.00	No Ice	2.04	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft²	CAAA Side ft²	Weight K	
			0.00			1/2"	2.22	1.34	0.07
			1.00			Ice	2.40	1.50	0.09
						1" Ice	2.80	1.83	0.14
						2" Ice			
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00	0.0000	162.00	No Ice	1.97	1.59	0.07
			0.00			1/2"	2.15	1.75	0.09
			1.00			Ice	2.33	1.92	0.12
						1" Ice	2.72	2.28	0.17
						2" Ice			
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00	0.0000	162.00	No Ice	1.97	1.59	0.07
			0.00			1/2"	2.15	1.75	0.09
			1.00			Ice	2.33	1.92	0.12
						1" Ice	2.72	2.28	0.17
						2" Ice			
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00	0.0000	162.00	No Ice	1.97	1.59	0.07
			0.00			1/2"	2.15	1.75	0.09
			1.00			Ice	2.33	1.92	0.12
						1" Ice	2.72	2.28	0.17
						2" Ice			
Sector Mount [SM 308-3]	C	None		0.0000	162.00	No Ice	20.73	20.73	0.38
						1/2"	29.32	29.32	0.81
						Ice	37.85	37.85	1.37
						1" Ice	54.81	54.81	2.94
						2" Ice			
10' x 2.375" Horizontal Mount Pipe	A	From Leg	4.00	0.0000	162.00	No Ice	2.38	0.01	0.04
			0.00			1/2"	3.41	0.05	0.05
			0.00			Ice	4.45	0.10	0.08
						1" Ice	5.91	0.24	0.15
						2" Ice			
10' x 2.375" Horizontal Mount Pipe	B	From Leg	4.00	0.0000	162.00	No Ice	2.38	0.01	0.04
			0.00			1/2"	3.41	0.05	0.05
			0.00			Ice	4.45	0.10	0.08
						1" Ice	5.91	0.24	0.15
						2" Ice			
10' x 2.375" Horizontal Mount Pipe	C	From Leg	4.00	0.0000	162.00	No Ice	2.38	0.01	0.04
			0.00			1/2"	3.41	0.05	0.05
			0.00			Ice	4.45	0.10	0.08
						1" Ice	5.91	0.24	0.15
						2" Ice			
150									
(2) LPA-80080/6CF w/ Mount Pipe	A	From Leg	4.00	0.0000	150.00	No Ice	4.56	10.26	0.05
			0.00			1/2"	5.11	11.43	0.11
			3.00			Ice	5.61	12.31	0.19
						1" Ice	6.65	14.13	0.36
						2" Ice			
(2) LPA-80080/6CF w/ Mount Pipe	C	From Leg	4.00	0.0000	150.00	No Ice	4.56	10.26	0.05
			0.00			1/2"	5.11	11.43	0.11
			3.00			Ice	5.61	12.31	0.19
						1" Ice	6.65	14.13	0.36
						2" Ice			
(2) LPA-80080/6CF w/ Mount Pipe	B	From Leg	4.00	0.0000	150.00	No Ice	4.56	10.26	0.05
			0.00			1/2"	5.11	11.43	0.11
			3.00			Ice	5.61	12.31	0.19
						1" Ice	6.65	14.13	0.36
						2" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00	0.0000	150.00	No Ice	4.09	3.30	0.07
			0.00			1/2"	4.49	3.68	0.13
			3.00			Ice	4.89	4.07	0.20
						1" Ice	5.72	4.87	0.39
						2" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00	0.0000	150.00	No Ice	4.09	3.30	0.07
			0.00			1/2"	4.49	3.68	0.13
			3.00			Ice	4.89	4.07	0.20
						1" Ice	5.72	4.87	0.39
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00	0.0000	150.00	No Ice	4.09	3.30	0.07
			0.00			1/2"	4.49	3.68	0.13
			3.00			Ice	4.89	4.07	0.20
						1" Ice	5.72	4.87	0.39
						2" Ice			
B4 RRH2X60-4R	A	From Leg	4.00	0.0000	150.00	No Ice	3.36	2.00	0.06
			0.00			1/2"	3.61	2.24	0.08
			3.00			Ice	3.88	2.48	0.10
						1" Ice	4.42	2.97	0.17
						2" Ice			
B4 RRH2X60-4R	B	From Leg	4.00	0.0000	150.00	No Ice	3.36	2.00	0.06
			0.00			1/2"	3.61	2.24	0.08
			3.00			Ice	3.88	2.48	0.10
						1" Ice	4.42	2.97	0.17
						2" Ice			
B4 RRH2X60-4R	C	From Leg	4.00	0.0000	150.00	No Ice	3.36	2.00	0.06
			0.00			1/2"	3.61	2.24	0.08
			3.00			Ice	3.88	2.48	0.10
						1" Ice	4.42	2.97	0.17
						2" Ice			
B13 RRH 4X30	A	From Leg	4.00	0.0000	150.00	No Ice	2.06	1.32	0.06
			0.00			1/2"	2.24	1.48	0.07
			3.00			Ice	2.43	1.64	0.09
						1" Ice	2.84	2.00	0.14
						2" Ice			
B13 RRH 4X30	B	From Leg	4.00	0.0000	150.00	No Ice	2.06	1.32	0.06
			0.00			1/2"	2.24	1.48	0.07
			3.00			Ice	2.43	1.64	0.09
						1" Ice	2.84	2.00	0.14
						2" Ice			
B13 RRH 4X30	C	From Leg	4.00	0.0000	150.00	No Ice	2.06	1.32	0.06
			0.00			1/2"	2.24	1.48	0.07
			3.00			Ice	2.43	1.64	0.09
						1" Ice	2.84	2.00	0.14
						2" Ice			
(2) RHSDC-3315-PF-48	C	From Leg	4.00	0.0000	150.00	No Ice	3.36	2.19	0.03
			0.00			1/2"	3.60	2.39	0.06
			3.00			Ice	3.84	2.61	0.09
						1" Ice	4.34	3.05	0.17
						2" Ice			
Platform Mount [LP 304-1]	C	None		0.0000	150.00	No Ice	17.49	17.49	1.35
						1/2"	21.37	21.37	1.71
						Ice	25.28	25.28	2.13
						1" Ice	33.17	33.17	3.16
						2" Ice			
145 742 213 w/ Mount Pipe	A	From Face	1.00	0.0000	145.00	No Ice	3.54	2.98	0.05
			0.00			1/2"	4.13	3.57	0.09
			0.00			Ice	4.74	4.17	0.14
						1" Ice	6.01	5.42	0.27
						2" Ice			
742 213 w/ Mount Pipe	B	From Face	1.00	0.0000	145.00	No Ice	3.54	2.98	0.05
			0.00			1/2"	4.13	3.57	0.09
			0.00			Ice	4.74	4.17	0.14
						1" Ice	6.01	5.42	0.27
						2" Ice			
742 213 w/ Mount Pipe	C	From Face	1.00	0.0000	145.00	No Ice	3.54	2.98	0.05
			0.00			1/2"	4.13	3.57	0.09
			0.00			Ice	4.74	4.17	0.14
						1" Ice	6.01	5.42	0.27
						2" Ice			
Pipe Mount [PM 601-3]	C	None		0.0000	145.00	No Ice	3.17	3.17	0.20
						1/2"	3.79	3.79	0.23
						Ice	4.42	4.42	0.28
						1" Ice	5.76	5.76	0.40
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						2" Ice			
136 HORIZON COMPACT	A	From Face	1.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice 1" 2"	0.72 0.83 0.94 1.19	0.37 0.45 0.54 0.74	0.01 0.02 0.03 0.05
HORIZON COMPACT	C	From Face	1.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice 1" 2"	0.72 0.83 0.94 1.19	0.37 0.45 0.54 0.74	0.01 0.02 0.03 0.05
Side Arm Mount [SO 104-3]	C	None		0.0000	136.00	No Ice 1/2" Ice 1" 2"	2.62 3.30 3.98 5.35	2.62 3.30 3.98 5.35	0.29 0.41 0.53 0.77
Pipe Mount [PM 601-3]	C	None		0.0000	136.00	No Ice 1/2" Ice 1" 2"	3.17 3.79 4.42 5.76	3.17 3.79 4.42 5.76	0.20 0.23 0.28 0.40
						2" Ice			
126 MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" 2"	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" 2"	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" 2"	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" 2"	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" 2"	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" 2"	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" 2"	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" 2"	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0.00	0.0000	126.00	No Ice 1/2"	1.96 2.14	1.13 1.27	0.08 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			Ice 2.32	1.41	0.11
						1" Ice 2.71	1.72	0.16
						2" Ice		
RDIDC-9181-PF-48	A	From Leg	4.00	0.0000	126.00	No Ice 2.31	1.29	0.02
			0.00			1/2" 2.50	1.45	0.04
			0.00			Ice 2.70	1.61	0.06
						1" Ice 3.12	1.96	0.12
						2" Ice		
8' x 2" Mount Pipe	A	From Leg	4.00	0.0000	126.00	No Ice 1.90	1.90	0.03
			0.00			1/2" 2.73	2.73	0.04
			0.00			Ice 3.40	3.40	0.06
						1" Ice 4.40	4.40	0.12
						2" Ice		
8' x 2" Mount Pipe	B	From Leg	4.00	0.0000	126.00	No Ice 1.90	1.90	0.03
			0.00			1/2" 2.73	2.73	0.04
			0.00			Ice 3.40	3.40	0.06
						1" Ice 4.40	4.40	0.12
						2" Ice		
8' x 2" Mount Pipe	C	From Leg	4.00	0.0000	126.00	No Ice 1.90	1.90	0.03
			0.00			1/2" 2.73	2.73	0.04
			0.00			Ice 3.40	3.40	0.06
						1" Ice 4.40	4.40	0.12
						2" Ice		
Commscope MC-PK8-DSH	C	None		0.0000	126.00	No Ice 34.24	34.24	1.75
						1/2" 62.95	62.95	2.10
						Ice 91.66	91.66	2.45
						1" Ice 149.08	149.08	3.15
						2" Ice		

						**		
						*		

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
A-ANT-23G-1-C	B	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000		136.00	1.27	No Ice 1.28	0.02
				0.00					1/2" Ice 1.45	0.03
				3.00					1" Ice 1.62	0.04
									2" Ice 1.96	0.08
A-ANT-18G-2-C	C	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000		136.00	2.17	No Ice 3.72	0.03
				0.00					1/2" Ice 4.01	0.04
				3.00					1" Ice 4.30	0.05
									2" Ice 4.88	0.07

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

Comb. No.	Description
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
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	165.5 - 136.83	Pole	Max Tension	8	0.00	0.00	0.00
			Max. Compression	26	-23.41	1.55	-0.90
			Max. Mx	20	-6.87	171.42	-0.72
			Max. My	14	-6.87	0.84	-170.64
			Max. Vy	8	11.10	-170.82	0.44
			Max. Vx	2	-11.05	-0.34	170.29
L2	136.83 - 95.5	Pole	Max. Torque	25			0.85
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.66	1.78	-0.98
			Max. Mx	8	-16.31	-790.40	4.08
			Max. My	2	-16.32	-4.86	786.21
		Max. Vy	8	18.42	-790.40	4.08	

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	95.5 - 47	Pole	Max. Vx	2	-18.34	-4.86	786.21
			Max. Torque	25			1.12
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.50	1.78	-1.59
			Max. Mx	8	-27.46	-1764.02	8.35
			Max. My	2	-27.47	-10.29	1756.01
			Max. Vy	8	23.06	-1764.02	8.35
			Max. Vx	2	-22.98	-10.29	1756.01
L4	47 - 0	Pole	Max. Torque	25			0.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.91	1.78	-2.41
			Max. Mx	8	-43.96	-3120.17	13.01
			Max. My	2	-43.96	-16.28	3107.95
			Max. Vy	8	27.91	-3120.17	13.01
			Max. Vx	2	-27.83	-16.28	3107.95
			Max. Torque	25			0.99

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	78.91	9.10	-0.01
	Max. H _x	20	43.98	27.85	-0.07
	Max. H _z	2	43.98	-0.11	27.80
	Max. M _x	2	3107.95	-0.11	27.80
	Max. M _z	8	3120.17	-27.88	0.09
	Max. Torsion	25	0.99	13.91	24.03
	Min. Vert	13	32.98	-13.86	-24.04
	Min. H _x	8	43.98	-27.88	0.09
	Min. H _z	15	32.98	0.08	-27.79
	Min. M _x	14	-3106.47	0.08	-27.79
	Min. M _z	20	-3116.55	27.85	-0.07
	Min. Torsion	13	-0.99	-13.86	-24.04

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	36.65	0.00	0.00	0.20	0.29	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	43.98	0.11	-27.80	-3107.95	-16.28	-0.84
0.9 Dead+1.0 Wind 0 deg - No Ice	32.98	0.11	-27.80	-3073.70	-16.17	-0.85
1.2 Dead+1.0 Wind 30 deg - No Ice	43.98	14.03	-24.10	-2695.75	-1573.53	-0.54
0.9 Dead+1.0 Wind 30 deg - No Ice	32.98	14.03	-24.10	-2666.03	-1556.22	-0.55
1.2 Dead+1.0 Wind 60 deg - No Ice	43.98	24.18	-13.95	-1561.47	-2707.44	-0.16
0.9 Dead+1.0 Wind 60 deg - No Ice	32.98	24.18	-13.95	-1544.28	-2677.61	-0.16
1.2 Dead+1.0 Wind 90 deg - No Ice	43.98	27.88	-0.09	-13.01	-3120.17	0.28
0.9 Dead+1.0 Wind 90 deg - No Ice	32.98	27.88	-0.09	-12.92	-3085.80	0.28
1.2 Dead+1.0 Wind 120 deg - No Ice	43.98	24.13	13.78	1535.93	-2699.99	0.67
0.9 Dead+1.0 Wind 120 deg - No Ice	32.98	24.13	13.78	1518.92	-2670.25	0.67

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 150 deg - No Ice	43.98	13.86	24.04	2686.45	-1548.01	0.98
0.9 Dead+1.0 Wind 150 deg - No Ice	32.98	13.86	24.04	2656.73	-1531.01	0.99
1.2 Dead+1.0 Wind 180 deg - No Ice	43.98	-0.08	27.79	3106.47	12.84	0.88
0.9 Dead+1.0 Wind 180 deg - No Ice	32.98	-0.08	27.79	3072.09	12.58	0.89
1.2 Dead+1.0 Wind 210 deg - No Ice	43.98	-13.98	24.08	2692.54	1567.44	0.56
0.9 Dead+1.0 Wind 210 deg - No Ice	32.98	-13.98	24.08	2662.73	1550.01	0.56
1.2 Dead+1.0 Wind 240 deg - No Ice	43.98	-24.15	13.92	1557.07	2704.05	0.17
0.9 Dead+1.0 Wind 240 deg - No Ice	32.98	-24.15	13.92	1539.80	2674.07	0.17
1.2 Dead+1.0 Wind 270 deg - No Ice	43.98	-27.85	0.07	10.78	3116.55	-0.29
0.9 Dead+1.0 Wind 270 deg - No Ice	32.98	-27.85	0.07	10.59	3082.04	-0.29
1.2 Dead+1.0 Wind 300 deg - No Ice	43.98	-24.11	-13.82	-1541.32	2698.20	-0.73
0.9 Dead+1.0 Wind 300 deg - No Ice	32.98	-24.11	-13.82	-1524.37	2668.29	-0.73
1.2 Dead+1.0 Wind 330 deg - No Ice	43.98	-13.91	-24.03	-2684.65	1555.56	-0.98
0.9 Dead+1.0 Wind 330 deg - No Ice	32.98	-13.91	-24.03	-2655.07	1538.28	-0.99
1.2 Dead+1.0 Ice+1.0 Temp	78.91	-0.00	0.00	2.41	1.78	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	78.91	0.02	-9.09	-1086.43	-1.64	-0.18
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	78.91	4.57	-7.88	-941.41	-547.14	-0.12
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	78.91	7.89	-4.55	-543.47	-944.95	-0.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	78.91	9.11	-0.02	-0.30	-1090.01	0.05
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	78.91	7.88	4.52	542.86	-943.38	0.14
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	78.91	4.54	7.86	944.44	-541.47	0.21
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	78.91	-0.02	9.09	1091.06	4.58	0.19
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	78.91	-4.56	7.87	945.68	549.29	0.12
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	78.91	-7.89	4.55	547.34	947.88	0.04
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	78.91	-9.10	0.01	4.74	1092.92	-0.06
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	78.91	-7.88	-4.53	-539.20	946.72	-0.15
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	78.91	-4.55	-7.86	-939.05	547.07	-0.21
Dead+Wind 0 deg - Service	36.65	0.03	-6.55	-727.15	-3.58	-0.20
Dead+Wind 30 deg - Service	36.65	3.30	-5.68	-630.69	-368.00	-0.13
Dead+Wind 60 deg - Service	36.65	5.69	-3.28	-365.25	-633.36	-0.04
Dead+Wind 90 deg - Service	36.65	6.56	-0.02	-2.89	-729.94	0.07
Dead+Wind 120 deg - Service	36.65	5.68	3.24	359.58	-631.60	0.16
Dead+Wind 150 deg - Service	36.65	3.26	5.66	628.81	-362.03	0.23
Dead+Wind 180 deg - Service	36.65	-0.02	6.54	727.10	3.23	0.21
Dead+Wind 210 deg - Service	36.65	-3.29	5.67	630.24	367.02	0.13
Dead+Wind 240 deg - Service	36.65	-5.69	3.28	364.53	633.01	0.04
Dead+Wind 270 deg - Service	36.65	-6.56	0.02	2.68	729.54	-0.07

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 300 deg - Service	36.65	-5.68	-3.25	-360.53	631.63	-0.18
Dead+Wind 330 deg - Service	36.65	-3.27	-5.66	-628.08	364.24	-0.23

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-36.65	0.00	0.00	36.65	0.00	0.000%
2	0.11	-43.98	-27.80	-0.11	43.98	27.80	0.000%
3	0.11	-32.98	-27.80	-0.11	32.98	27.80	0.000%
4	14.03	-43.98	-24.10	-14.03	43.98	24.10	0.000%
5	14.03	-32.98	-24.10	-14.03	32.98	24.10	0.000%
6	24.18	-43.98	-13.95	-24.18	43.98	13.95	0.000%
7	24.18	-32.98	-13.95	-24.18	32.98	13.95	0.000%
8	27.88	-43.98	-0.09	-27.88	43.98	0.09	0.000%
9	27.88	-32.98	-0.09	-27.88	32.98	0.09	0.000%
10	24.13	-43.98	13.78	-24.13	43.98	-13.78	0.000%
11	24.13	-32.98	13.78	-24.13	32.98	-13.78	0.000%
12	13.86	-43.98	24.04	-13.86	43.98	-24.04	0.000%
13	13.86	-32.98	24.04	-13.86	32.98	-24.04	0.000%
14	-0.08	-43.98	27.79	0.08	43.98	-27.79	0.000%
15	-0.08	-32.98	27.79	0.08	32.98	-27.79	0.000%
16	-13.98	-43.98	24.08	13.98	43.98	-24.08	0.000%
17	-13.98	-32.98	24.08	13.98	32.98	-24.08	0.000%
18	-24.15	-43.98	13.92	24.15	43.98	-13.92	0.000%
19	-24.15	-32.98	13.92	24.15	32.98	-13.92	0.000%
20	-27.85	-43.98	0.07	27.85	43.98	-0.07	0.000%
21	-27.85	-32.98	0.07	27.85	32.98	-0.07	0.000%
22	-24.11	-43.98	-13.82	24.11	43.98	13.82	0.000%
23	-24.11	-32.98	-13.82	24.11	32.98	13.82	0.000%
24	-13.91	-43.98	-24.03	13.91	43.98	24.03	0.000%
25	-13.91	-32.98	-24.03	13.91	32.98	24.03	0.000%
26	0.00	-78.91	0.00	0.00	78.91	-0.00	0.000%
27	0.02	-78.91	-9.09	-0.02	78.91	9.09	0.000%
28	4.57	-78.91	-7.88	-4.57	78.91	7.88	0.000%
29	7.89	-78.91	-4.55	-7.89	78.91	4.55	0.000%
30	9.11	-78.91	-0.02	-9.11	78.91	0.02	0.000%
31	7.88	-78.91	4.52	-7.88	78.91	-4.52	0.000%
32	4.54	-78.91	7.86	-4.54	78.91	-7.86	0.000%
33	-0.02	-78.91	9.09	0.02	78.91	-9.09	0.000%
34	-4.56	-78.91	7.87	4.56	78.91	-7.87	0.000%
35	-7.89	-78.91	4.55	7.89	78.91	-4.55	0.000%
36	-9.10	-78.91	0.01	9.10	78.91	-0.01	0.000%
37	-7.88	-78.91	-4.53	7.88	78.91	4.53	0.000%
38	-4.55	-78.91	-7.86	4.55	78.91	7.86	0.000%
39	0.03	-36.65	-6.55	-0.03	36.65	6.55	0.000%
40	3.30	-36.65	-5.68	-3.30	36.65	5.68	0.000%
41	5.69	-36.65	-3.28	-5.69	36.65	3.28	0.000%
42	6.56	-36.65	-0.02	-6.56	36.65	0.02	0.000%
43	5.68	-36.65	3.24	-5.68	36.65	-3.24	0.000%
44	3.26	-36.65	5.66	-3.26	36.65	-5.66	0.000%
45	-0.02	-36.65	6.54	0.02	36.65	-6.54	0.000%
46	-3.29	-36.65	5.67	3.29	36.65	-5.67	0.000%
47	-5.69	-36.65	3.28	5.69	36.65	-3.28	0.000%
48	-6.56	-36.65	0.02	6.56	36.65	-0.02	0.000%
49	-5.68	-36.65	-3.25	5.68	36.65	3.25	0.000%
50	-3.27	-36.65	-5.66	3.27	36.65	5.66	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00071118
3	Yes	4	0.00000001	0.00038087
4	Yes	6	0.00000001	0.00006424
5	Yes	5	0.00000001	0.00055142
6	Yes	6	0.00000001	0.00006513
7	Yes	5	0.00000001	0.00055932
8	Yes	4	0.00000001	0.00049342
9	Yes	4	0.00000001	0.00017380
10	Yes	6	0.00000001	0.00006505
11	Yes	5	0.00000001	0.00055929
12	Yes	6	0.00000001	0.00006229
13	Yes	5	0.00000001	0.00053473
14	Yes	5	0.00000001	0.00006272
15	Yes	4	0.00000001	0.00076885
16	Yes	6	0.00000001	0.00006568
17	Yes	5	0.00000001	0.00056433
18	Yes	6	0.00000001	0.00006458
19	Yes	5	0.00000001	0.00055442
20	Yes	4	0.00000001	0.00076933
21	Yes	4	0.00000001	0.00041517
22	Yes	6	0.00000001	0.00006272
23	Yes	5	0.00000001	0.00053836
24	Yes	6	0.00000001	0.00006579
25	Yes	5	0.00000001	0.00056579
26	Yes	4	0.00000001	0.00001922
27	Yes	5	0.00000001	0.00068969
28	Yes	6	0.00000001	0.00017614
29	Yes	6	0.00000001	0.00017692
30	Yes	5	0.00000001	0.00069029
31	Yes	6	0.00000001	0.00017778
32	Yes	6	0.00000001	0.00017487
33	Yes	5	0.00000001	0.00069468
34	Yes	6	0.00000001	0.00018155
35	Yes	6	0.00000001	0.00018037
36	Yes	5	0.00000001	0.00069612
37	Yes	6	0.00000001	0.00017610
38	Yes	6	0.00000001	0.00017951
39	Yes	4	0.00000001	0.00006100
40	Yes	4	0.00000001	0.00038422
41	Yes	4	0.00000001	0.00040121
42	Yes	4	0.00000001	0.00003966
43	Yes	4	0.00000001	0.00041305
44	Yes	4	0.00000001	0.00036200
45	Yes	4	0.00000001	0.00007096
46	Yes	4	0.00000001	0.00041646
47	Yes	4	0.00000001	0.00039539
48	Yes	4	0.00000001	0.00004438
49	Yes	4	0.00000001	0.00036850
50	Yes	4	0.00000001	0.00042576

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	165.5 - 136.83	25.097	47	1.4042	0.0029
L2	140 - 95.5	17.803	41	1.2699	0.0020
L3	100 - 47	8.731	41	0.8616	0.0007
L4	53 - 0	2.378	41	0.4205	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
162.00	KRY 112 144/1	47	24.066	1.3894	0.0028	29567
150.00	(2) LPA-80080/6CF w/ Mount Pipe	47	20.577	1.3330	0.0024	9537
145.00	742 213 w/ Mount Pipe	47	19.169	1.3040	0.0022	7211
139.00	A-ANT-23G-1-C	41	17.536	1.2624	0.0020	5893
136.00	HORIZON COMPACT	41	16.748	1.2384	0.0019	5793
126.00	MX08FRO665-21 w/ Mount Pipe	41	14.252	1.1456	0.0015	5778

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	165.5 - 136.83	107.267	6	6.0038	0.0125
L2	140 - 95.5	76.161	6	5.4352	0.0087
L3	100 - 47	37.360	6	3.6909	0.0029
L4	53 - 0	10.171	6	1.7997	0.0010

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
162.00	KRY 112 144/1	6	102.871	5.9415	0.0120	7099
150.00	(2) LPA-80080/6CF w/ Mount Pipe	6	87.997	5.7030	0.0102	2288
145.00	742 213 w/ Mount Pipe	6	81.991	5.5799	0.0094	1728
139.00	A-ANT-23G-1-C	6	75.019	5.4032	0.0085	1411
136.00	HORIZON COMPACT	6	71.647	5.3011	0.0080	1385
126.00	MX08FRO665-21 w/ Mount Pipe	6	60.976	4.9052	0.0064	1376

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	165.5 - 136.83 (1)	TP24.279x17x0.1875	28.67	0.00	0.0	13.858 5	-6.86	810.72	0.008
L2	136.83 - 95.5 (2)	TP34.4x23.0992x0.3125	44.50	0.00	0.0	32.677 0	-16.30	1911.61	0.009
L3	95.5 - 47 (3)	TP46.06x32.6322x0.375	53.00	0.00	0.0	52.567 2	-27.46	3075.18	0.009
L4	47 - 0 (4)	TP57.275x43.7899x0.375	53.00	0.00	0.0	67.725 2	-43.96	3961.93	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy}	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L1	165.5 - 136.83 (1)	TP24.279x17x0.1875	171.79	456.93	0.376	0.00	456.93	0.000
L2	136.83 - 95.5 (2)	TP34.4x23.0992x0.3125	792.06	1599.37	0.495	0.00	1599.37	0.000
L3	95.5 - 47 (3)	TP46.06x32.6322x0.375	1767.41	3342.78	0.529	0.00	3342.78	0.000
L4	47 - 0 (4)	TP57.275x43.7899x0.375	3125.45	5057.02	0.618	0.00	5057.02	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u	ϕV_n	Ratio	Actual T_u	ϕT_n	Ratio
			K	K	$\frac{V_u}{\phi V_n}$	kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	165.5 - 136.83 (1)	TP24.279x17x0.1875	11.12	243.22	0.046	0.00	496.00	0.000
L2	136.83 - 95.5 (2)	TP34.4x23.0992x0.3125	18.45	573.48	0.032	0.16	1654.58	0.000
L3	95.5 - 47 (3)	TP46.06x32.6322x0.375	23.10	922.55	0.025	0.16	3568.20	0.000
L4	47 - 0 (4)	TP57.275x43.7899x0.375	27.94	1188.58	0.024	0.16	5922.70	0.000

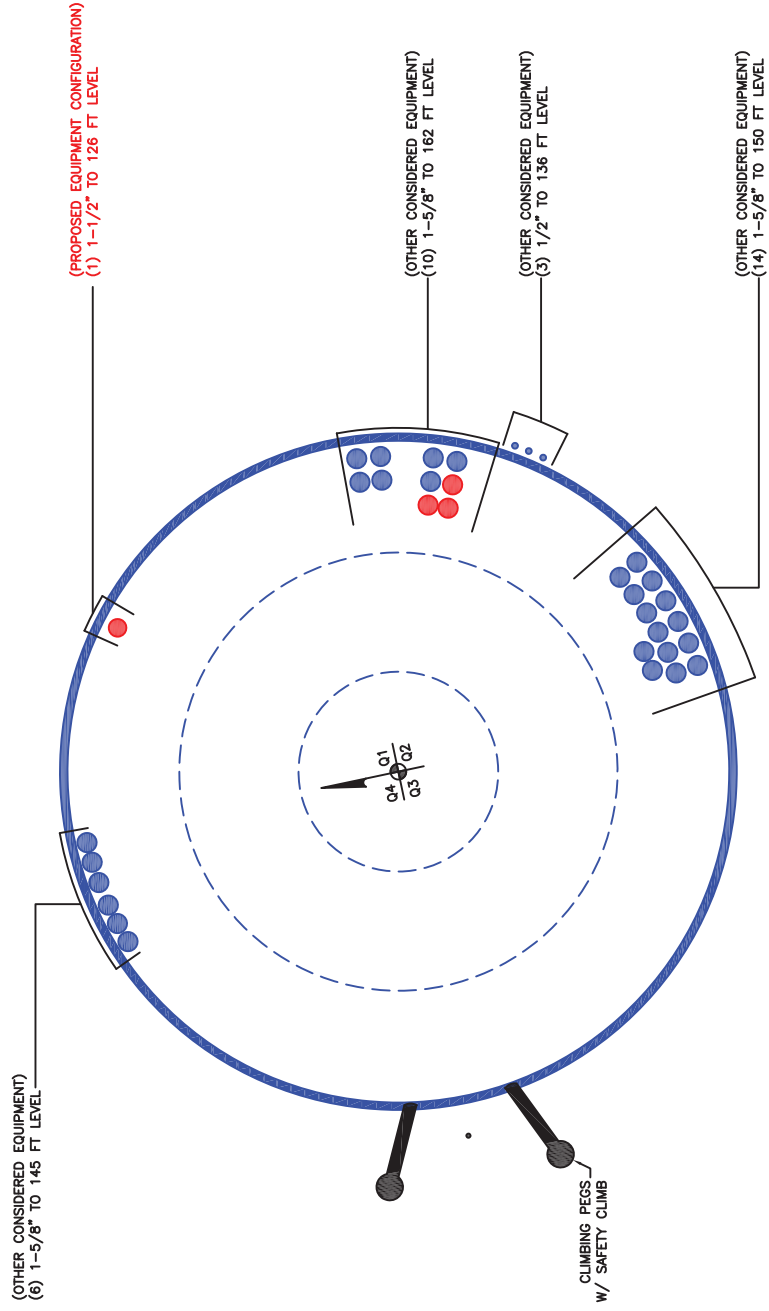
Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L1	165.5 - 136.83 (1)	0.008	0.376	0.000	0.046	0.000	0.387	1.050	4.8.2
L2	136.83 - 95.5 (2)	0.009	0.495	0.000	0.032	0.000	0.505	1.050	4.8.2
L3	95.5 - 47 (3)	0.009	0.529	0.000	0.025	0.000	0.538	1.050	4.8.2
L4	47 - 0 (4)	0.011	0.618	0.000	0.024	0.000	0.630	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	165.5 - 136.83	Pole	TP24.279x17x0.1875	1	-6.86	851.26	36.8	Pass
L2	136.83 - 95.5	Pole	TP34.4x23.0992x0.3125	2	-16.30	2007.19	48.1	Pass
L3	95.5 - 47	Pole	TP46.06x32.6322x0.375	3	-27.46	3228.94	51.3	Pass
L4	47 - 0	Pole	TP57.275x43.7899x0.375	4	-43.96	4160.03	60.0	Pass
Summary								
Pole (L4)							60.0	Pass
RATING =							60.0	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

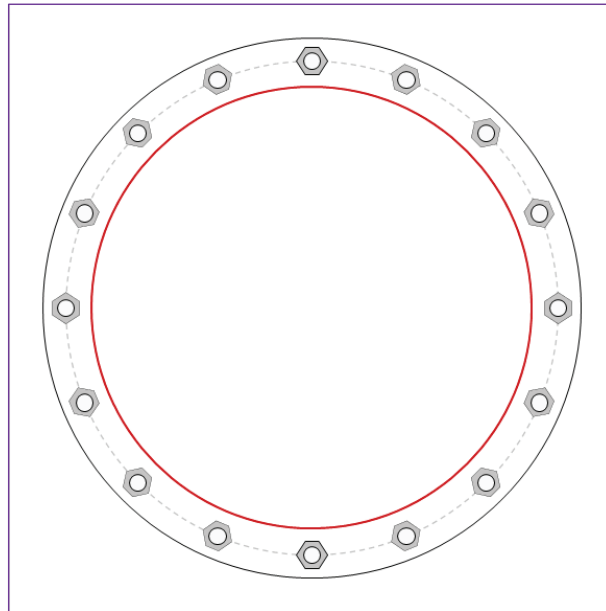


Site Info	
BU #	801487
Site Name	SUFFIELD 3 CAC 8014
Order #	556645 Rev 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.5

Applied Loads	
Moment (kip-ft)	3125.45
Axial Force (kips)	43.96
Shear Force (kips)	27.94

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
(16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 64" BC
Base Plate Data
70" OD x 2.75" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi)
Stiffener Data
N/A
Pole Data
57.275" x 0.375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary		<i>(units of kips, kip-in)</i>
$Pu_t = 143.68$	$\phi Pn_t = 243.75$	Stress Rating
$Vu = 1.75$	$\phi Vn = 149.1$	56.1%
$Mu = n/a$	$\phi Mn = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	14.9	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	26.3%	Pass

Drilled Pier Foundation

BU #: 801487
 Site Name: CT SUFFIELD 3 CAC
 Order Number: 556645 Rev 0

TIA-222 Revision: H
 Tower Type: Monopole

Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	3125.45	-
Axial Force (kips)	43.98	-
Shear Force (kips)	27.92	-

Material Properties	
Concrete Strength, f _c :	3 ksi
Rebar Strength, F _y :	60 ksi
Tie Yield Strength, F _{yt} :	40 ksi

Pier Design Data	
Depth	24 ft
Ext. Above Grade	0.5 ft
Pier Section 1	
<i>From 0.5 above grade to 24' below grade</i>	
Pier Diameter	7.5 ft
Rebar Quantity	21
Rebar Size	11
Clear Cover to Ties	4 in
Tie Size	5
Tie Spacing	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs



Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" type="checkbox"/>
	N/A
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

[Go to Soil Calculations](#)

Analysis Results

Soil Lateral Check	Compression	Uplift
D _{v=0} (ft from TOC)	5.66	-
Soil Safety Factor	2.28	-
Max Moment (kip-ft)	3263.89	-
Rating*	55.6%	-

Soil Vertical Check	Compression	Uplift
Skin Friction (kips)	398.70	-
End Bearing (kips)	198.80	-
Weight of Concrete (kips)	165.04	-
Total Capacity (kips)	597.51	-
Axial (kips)	209.02	-
Rating*	33.3%	-

Reinforced Concrete Flexure	Compression	Uplift
Critical Depth (ft from TOC)	5.41	-
Critical Moment (kip-ft)	3263.32	-
Critical Moment Capacity	5672.92	-
Rating*	54.8%	-

Reinforced Concrete Shear	Compression	Uplift
Critical Depth (ft from TOC)	17.13	-
Critical Shear (kip)	365.48	-
Critical Shear Capacity	593.97	-
Rating*	58.6%	-

Soil Interaction Rating*	55.6%
Structural Foundation Rating*	58.6%

*Rating per TIA-222-H Section 15.5

Soil Profile

# of Layers	3
-------------	---

Groundwater Depth	15
-------------------	----

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{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	3.75	3.75	115	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.75	6.3	2.55	120	150	0.75	0	0.413	0.413					Cohesive
3	6.3	24	17.7	57.6	87.6	0	32	1.215	1.215			6	95	Cohesionless

Pier and Pad Foundation



BU #: 801487
 Site Name: CT SUFFIELD 3 CA
 App. Number: 556645 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

Top & Bot. Pad Rein. Different?:
 Block Foundation?:
 Rectangular Pad?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	43.98	kips
Base Shear, V_{u_comp} :	27.92	kips
Moment, M_u :	3125.45	ft-kips
Tower Height, H :	165.5	ft
BP Dist. Above Fdn, bp_{dist} :	3.75	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	628.83	27.92	4.2%	Pass
<i>Bearing Pressure (ksf)</i>	4.50	1.60	34.0%	Pass
<i>Overturning (kip*ft)</i>	8995.84	3329.62	37.0%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	6482.78	3251.09	47.8%	Pass
<i>Pier Compression (kip)</i>	21089.12	79.76	0.4%	Pass
<i>Pad Flexure (kip*ft)</i>	3179.02	1168.09	35.0%	Pass
<i>Pad Shear - 1-way (kips)</i>	748.54	157.63	20.1%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.042	24.2%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	3133.22	1950.65	59.3%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, $dpier$:	7.5	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	9	
Pier Rebar Quantity, mc :	38	
Pier Tie/Spiral Size, St :	5	
Pier Tie/Spiral Quantity, mt :	9	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Soil Rating*:	37.0%
Structural Rating*:	59.3%

Pad Properties		
Depth, D :	6.5	ft
Pad Width, W_1 :	30	ft
Pad Thickness, T :	2.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	29	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	120	pcf
Ultimate Gross Bearing, Q_{ult} :	6.000	ksf
Cohesion, C_u :	0.750	ksf
Friction Angle, ϕ :	0	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :		
Neglected Depth, N :	3.75	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	15	ft

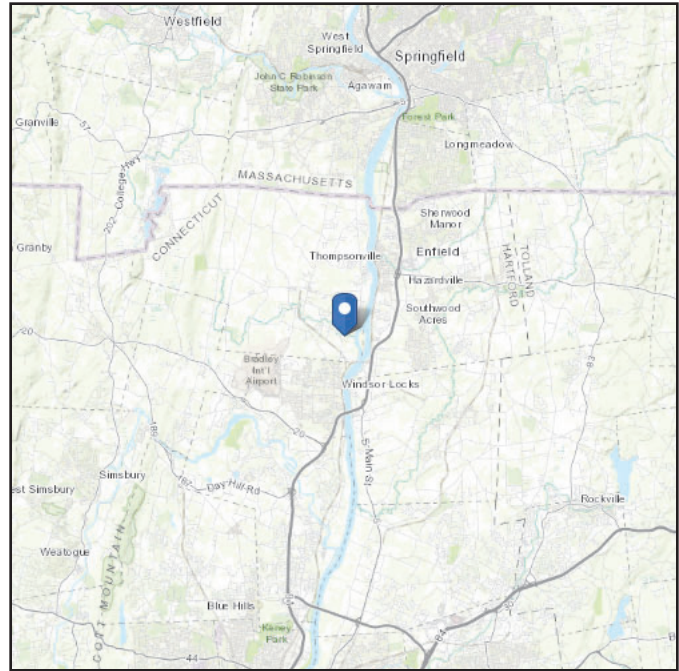
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 115.47 ft (NAVD 88)
Latitude: 41.957
Longitude: -72.625722



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 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: Thu Oct 15 2020

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.

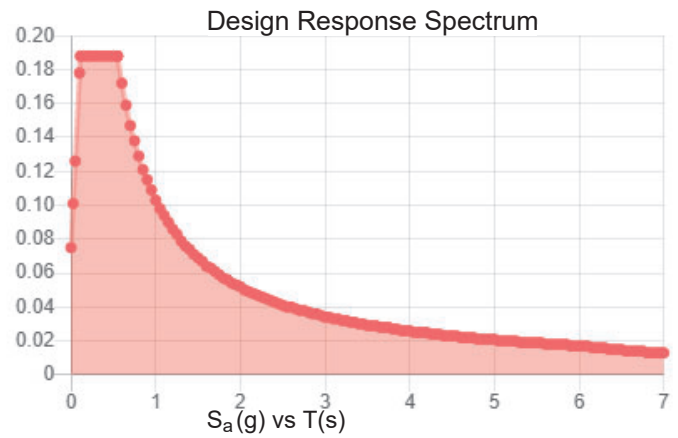
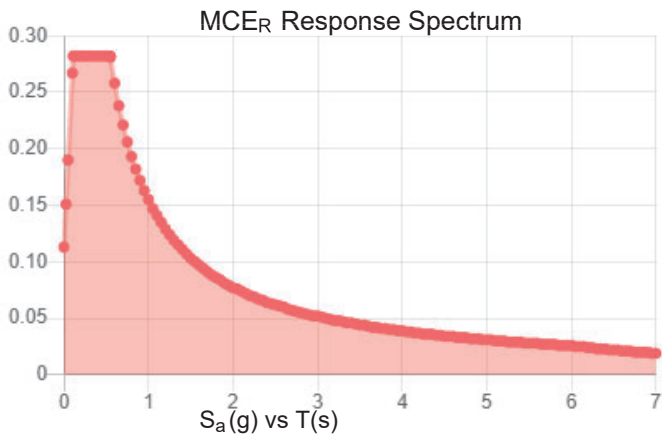
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.176	S_{DS} :	0.188
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.087
S_{MS} :	0.282	PGA _M :	0.139
S_{M1} :	0.155	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Thu Oct 15 2020

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: Thu Oct 15 2020

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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.