



Structural Analysis Report

Structure : 250 Foot Self Support Tower
VB Site Name : Spradley
VB Site Number : US-FL-5317
Deal Number : P-083786
Proposed Carrier : Cellco Partnership
Carrier Site Name : Spradley
Carrier Site Number : 5000042014
Site Location : 529 NW Edgar Terrace
Lake City, FL 32055 (Columbia County)
30.292781, -82.693297
Date : November 6, 2025
Max Member Stress Level : 45.5% (Tower)
40.7% (Anchor Rods)
48.2% (Foundation)
Result : **PASS**



APPROVED BY: Joseph R. Johnston, P.E.
FL License #: 74432

Prepared by:



Prepared for:



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Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by Cellco Partnership. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	B&T/Eastpointe, Job No. 7661, dated 5/3/2019
Foundation Information	B&T, Job No. 135623.001, dated 5/3/2019
Geotechnical Information	EGSci, Job No. 19-US-FL-5317, dated 4/18/2019
Mount Analysis	Colliers, Job No. 10318882, dated 10/16/2025
Existing Equipment Information	Vertical Bridge Collocation Application Version 1
Tower Reinforcement Information	Tower has not been previously modified

Final Proposed Equipment Loading for Cellco Partnership

The following proposed loading was obtained from the Vertical Bridge Collocation Application:

Antenna/Equipment					Coax	
Mount (ft)	RAD (ft)	Qty	Antenna	Type	Qty	Size/Type
243.0	-	3	12.5' Sector Frames	Mount	2 1 18	1.55" Hybrid 1.55" Hybrid 1 5/8" Coax
	245.0	4	Commscope NHH-65C-R2B	Panel		
		2	Commscope NHH-45C-R2B	Panel		
		3	Ericsson AIR6419	Panel		
		3	Ericsson AIR3283	Panel		
		3	Ericsson 4490	RRU		
		2	OVP-6	OVP		
		3	<i>Ericsson 8843</i>	<i>RRU</i>		
		6	<i>Ericsson RRUS32</i>	<i>RRU</i>		
		1	<i>OVP-6</i>	<i>OVP</i>		
	180.0	1	<i>Andrew UHX6-59L w/Shroud</i>	<i>Dish</i>		

Notes:

1. Proposed equipment shown in bold.
2. Reserved equipment shown in italics
3. Other existing loading can be found on the tower profile attached.
4. All feedlines are assumed to be installed inside monopole shaft.

Design Criteria

The tower was analyzed using tnxTower (Version 8.3.1.2) tower analysis software using the following design criteria.

State	Florida
City/County Building Code	FBC 2023, 8th Edition
TIA/EIA Standard Code	TIA-222-Rev H
Basic Wind Speed	118 mph (V_{ult})
Basic Wind Speed w/Ice	N/A
Exposure Category	C
Topographic Category (height)	1 (0.0 ft.)
Risk Category	II
S_s	0.13
Seismic Design Category	B

Analysis Results

Based on the foregoing information, our structural analysis determined that the existing tower **is structurally capable of supporting the proposed equipment loads without modification**. The existing tower anchor rods and foundation have also been evaluated and **were found to be structurally capable of supporting the proposed equipment load**. A seismic analysis has been performed on this tower and does not control.

Assumptions

The below assumptions are true, complete, and accurate.

1. The existing structures were designed, manufactured, and constructed in accordance with the applicable codes and standards in effect at that time
2. The existing tower has been maintained to manufacturer's specifications and is in good condition to support their original design capacity
3. Foundations are considered to have been properly designed for the original design loads.
4. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
5. Antenna mount loads have been estimated based on generally accepted industry standards.
6. The mounts for the proposed antennas have been analyzed and designed by others.
7. Steel grades have been assumed as follows, unless otherwise noted

- Channel, Solid Round, Angle & Plate	ASTM A36 Gr. 36
- HSS (Rectangular)	ASTM A500 Gr. B
- HSS (Pipe)	ASTM A53 Gr. B
- Threaded Rods	ASTM A36 Gr. 36
8. See additional assumptions contained in the report attached.
9. Tower is within acceptable engineering tolerance at 105%.
10. Foundations are within acceptable engineering tolerance at 110%.
11. Anchor bolts were not indicated in the tower design package. Size scaled from field photos and grade based on manufacturer's standards.

Conclusions

The existing tower described above **has sufficient capacity** to support the proposed loading based on the governing Building Code. The existing tower anchor rods and foundation have also been evaluated and **are acceptable**. A seismic analysis has been performed on this tower and does not control.

We appreciate the opportunity to be of service on this project. If you have any questions, require additional information, or actual conditions differ from those as detailed in this report, please contact me via the information below:

Christina Hedges, PE
engineering@airosmithdevelopment.com

Standard Conditions

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

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and its components, or relevant information.
- Information from drawings in possession of Vertical Bridge Engineering, LLC/Airosmith Development, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Vertical Bridge Engineering, LLC/Airosmith Development and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222-Rev H requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Vertical Bridge Engineering, LLC/Airosmith Development and their affiliates are not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

The engineering services by Vertical Bridge Engineering, LLC/Airosmith Development in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Vertical Bridge Engineering, LLC/Airosmith Development does not analyze the fabrication, including welding, except as may be expressly included in this report.

The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from Vertical Bridge Engineering, LLC/Airosmith Development but are beyond the scope of this report.

Vertical Bridge Engineering, LLC/Airosmith Development makes no warranties, express or implied, in connection with this report and disclaims any liability arising from material, fabrication and erection of this tower, or installation and compliance with legal and permitting requirements of the proposed equipment. Vertical Bridge Engineering, LLC/Airosmith Development will not be responsible whatsoever for or on account of, punitive, special, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Vertical Bridge Engineering, LLC/Airosmith Development pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1: Calculations

<i>tnxTower</i> <i>Airosmith Engineering</i> 318 West Ave Saratoga Springs, NY Phone: FAX:	Job 250' SST - Columbia County, FL FL-5317	Page 1 of 27
	Project VB ENG NA 2025	Date 15:38:34 11/05/25
	Client Vertical Bridge	Designed by ChristinaHedges

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 250.000 ft above the ground line.

The base of the tower is set at an elevation of 0.000 ft above the ground line.

The face width of the tower is 4.500 ft at the top and 22.500 ft at the base.

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

The following design criteria apply:

Tower is located in Columbia County, Florida.

Tower base elevation above sea level: 133.600 ft.

Basic wind speed of 118 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.000 ft.

Deflections calculated using a wind speed of 60 mph.

Non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

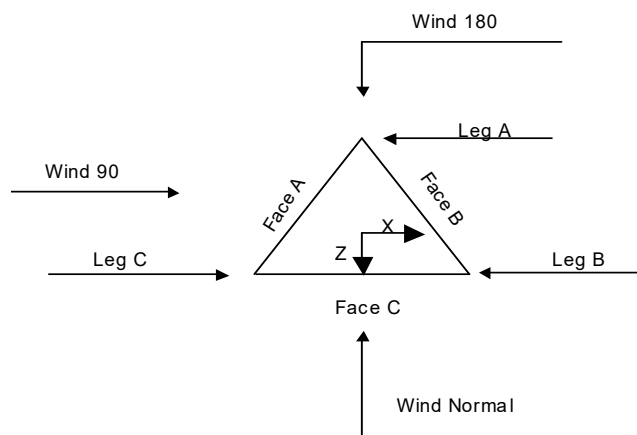
Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

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Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	250.000-240.000			4.500	1	10.000
T2	240.000-220.000			4.500	1	20.000
T3	220.000-200.000			6.000	1	20.000
T4	200.000-180.000			7.500	1	20.000
T5	180.000-160.000			9.000	1	20.000
T6	160.000-140.000			10.500	1	20.000
T7	140.000-120.000			12.000	1	20.000
T8	120.000-100.000			13.500	1	20.000
T9	100.000-80.000			15.000	1	20.000
T10	80.000-60.000			16.500	1	20.000
T11	60.000-40.000			18.000	1	20.000
T12	40.000-20.000			19.500	1	20.000
T13	20.000-0.000			21.000	1	20.000

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	250.000-240.000	4.500	X Brace	No	No	6.000	6.000
T2	240.000-220.000	4.750	X Brace	No	No	6.000	6.000

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<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Diagonal Spacing</i>	<i>Bracing Type</i>	<i>Has K Brace End Panels</i>	<i>Has Horizontals</i>	<i>Top Girt Offset</i>	<i>Bottom Girt Offset</i>
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T3	220.000-200.000	4.750	X Brace	No	No	6.000	6.000
T4	200.000-180.000	4.750	X Brace	No	No	6.000	6.000
T5	180.000-160.000	4.750	X Brace	No	No	6.000	6.000
T6	160.000-140.000	4.750	X Brace	No	No	6.000	6.000
T7	140.000-120.000	4.750	X Brace	No	No	6.000	6.000
T8	120.000-100.000	4.750	Double K	No	Yes	6.000	6.000
T9	100.000-80.000	4.750	Double K	No	Yes	6.000	6.000
T10	80.000-60.000	4.750	Double K	No	Yes	6.000	6.000
T11	60.000-40.000	4.750	Double K	No	Yes	6.000	6.000
T12	40.000-20.000	4.750	Double K	No	Yes	6.000	6.000
T13	20.000-0.000	4.750	Double K	No	Yes	6.000	6.000

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Leg Type</i>	<i>Leg Size</i>	<i>Leg Grade</i>	<i>Diagonal Type</i>	<i>Diagonal Size</i>	<i>Diagonal Grade</i>
<i>ft</i>						
T1	Solid Round	1 3/4	A529-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
250.000-240.000						
T2	Solid Round	2 1/4	A529-50 (50 ksi)	Equal Angle	L2x2x3/16	A36M-50 (50 ksi)
240.000-220.000						
T3	Solid Round	2 3/4	A529-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36M-50 (50 ksi)
220.000-200.000						
T4	Solid Round	3 1/4	A529-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36M-50 (50 ksi)
200.000-180.000						
T5	Solid Round	3 1/2	A529-50 (50 ksi)	Equal Angle	L3x3x3/16	A36M-50 (50 ksi)
180.000-160.000						
T6	Solid Round	4	A529-50 (50 ksi)	Equal Angle	L3x3x3/16	A36M-50 (50 ksi)
160.000-140.000						
T7	Solid Round	4 1/4	A529-50 (50 ksi)	Equal Angle	L3x3x1/4	A36M-50 (50 ksi)
140.000-120.000						
T8	Solid Round	4 1/4	A529-50 (50 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
120.000-100.000						
T9	Solid Round	4 1/2	A529-50 (50 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
100.000-80.000						
T10	Solid Round	4 3/4	A529-50 (50 ksi)	Double Angle	2L3x3x3/16x3/8	A36M-50 (50 ksi)
80.000-60.000						
T11	Solid Round	5	A529-50 (50 ksi)	Double Angle	2L3x3x3/16x3/8	A36M-50 (50 ksi)
60.000-40.000						
T12	Solid Round	5 1/4	A529-50 (50 ksi)	Double Angle	2L3x3x3/16x3/8	A36M-50 (50 ksi)
40.000-20.000						
T13	Solid Round	5 1/4	A529-50 (50 ksi)	Double Angle	2L3x3x1/4x3/8	A36M-50 (50 ksi)
20.000-0.000						

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Top Girt Type</i>	<i>Top Girt Size</i>	<i>Top Girt Grade</i>	<i>Bottom Girt Type</i>	<i>Bottom Girt Size</i>	<i>Bottom Girt Grade</i>
<i>ft</i>						
T1	Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)	Solid Round		A529-50 (50 ksi)
250.000-240.000						

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Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>No. of Mid Girts</i>	<i>Mid Girt Type</i>	<i>Mid Girt Size</i>	<i>Mid Girt Grade</i>	<i>Horizontal Type</i>	<i>Horizontal Size</i>	<i>Horizontal Grade</i>
<i>ft</i>							
T8 120.000-100.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 3/4x1 3/4x3/16x3/8	A36M-50 (50 ksi)
T9 100.000-80.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2x2x3/16x3/8	A36M-50 (50 ksi)
T10 80.000-60.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2x2x3/16x3/8	A36M-50 (50 ksi)
T11 60.000-40.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
T12 40.000-20.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
T13 20.000-0.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x3x3/16x3/8	A36M-50 (50 ksi)

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Secondary Horizontal Type</i>	<i>Secondary Horizontal Size</i>	<i>Secondary Horizontal Grade</i>	<i>Inner Bracing Type</i>	<i>Inner Bracing Size</i>	<i>Inner Bracing Grade</i>
<i>ft</i>						
T8 120.000-100.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T9 100.000-80.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T10 80.000-60.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T11 60.000-40.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T12 40.000-20.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T13 20.000-0.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Gusset Area (per face)</i>	<i>Gusset Thickness</i>	<i>Gusset Grade</i>	<i>Adjust. Factor A_f</i>	<i>Adjust. Factor A_r</i>	<i>Weight Mult.</i>	<i>Double Angle Stitch Bolt Spacing Diagonals in</i>	<i>Double Angle Stitch Bolt Spacing Horizontals in</i>	<i>Double Angle Stitch Bolt Spacing Redundants in</i>
<i>ft</i>	<i>ft²</i>	<i>in</i>							
T1 250.000-240.000	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
T2	0.000	0.375	A36M-50	1	1	1	36.000	36.000	36.000

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<i>Tower Elevation</i>	<i>Gusset Area (per face)</i>	<i>Gusset Thickness</i>	<i>Gusset Grade</i>	<i>Adjust. Factor A_f</i>	<i>Adjust. Factor A_r</i>	<i>Weight Mult.</i>	<i>Double Angle Stitch Bolt Spacing Diagonals in</i>	<i>Double Angle Stitch Bolt Spacing Horizontals in</i>	<i>Double Angle Stitch Bolt Spacing Redundants in</i>
<i>ft</i>	<i>ft²</i>	<i>in</i>							
240.000-220.000			(50 ksi)						
T3	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
220.000-200.000									
T4	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
200.000-180.000									
T5	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
180.000-160.000									
T6	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
160.000-140.000									
T7	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
140.000-120.000									
T8	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
120.000-100.000									
T9	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
100.000-80.000									
T10	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
80.000-60.000									
T11	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
60.000-40.000									
T12	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
40.000-20.000									
T13	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
20.000-0.000									

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Calc K Single Angles</i>	<i>Calc K Solid Rounds</i>	<i>K Factors¹</i>							
			<i>Legs</i>	<i>X Brace Diags</i>	<i>K Brace Diags</i>	<i>Single Diags</i>	<i>Girts</i>	<i>Horiz.</i>	<i>Sec. Horiz.</i>	<i>Inner Brace</i>
				<i>X</i> <i>Y</i>	<i>X</i> <i>Y</i>	<i>X</i> <i>Y</i>	<i>X</i> <i>Y</i>	<i>X</i> <i>Y</i>	<i>X</i> <i>Y</i>	<i>X</i> <i>Y</i>
<i>ft</i>										
T1	No	No	1	1	1	1	1	1	1	1
250.000-240.000				1	1	1	1	1	1	1
T2	No	No	1	1	1	1	1	1	1	1
240.000-220.000				1	1	1	1	1	1	1
T3	No	No	1	1	1	1	1	1	1	1
220.000-200.000				1	1	1	1	1	1	1
T4	No	No	1	1	1	1	1	1	1	1
200.000-180.000				1	1	1	1	1	1	1
T5	No	No	1	1	1	1	1	1	1	1
180.000-160.000				1	1	1	1	1	1	1

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Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T8 120.000-100.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 100.000-80.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 80.000-60.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 60.000-40.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T12 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T13 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical	Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	Net Width Deduct in	U	Net Width Deduct in	U
T1 250.000-240.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.75 (2)		0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.75 (3)		0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.75 (4)		0.000	0.75 (4)
T2 240.000-220.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.75 (2)		0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.75 (3)		0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.75 (4)		0.000	0.75 (4)
T3 220.000-200.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.75 (2)		0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.75 (3)		0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.75 (4)		0.000	0.75 (4)
T4 200.000-180.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.75 (2)		0.000	0.75 (2)

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Tower Elevation ft	Redundant Horizontal			Redundant Diagonal			Redundant Sub-Diagonal			Redundant Sub-Horizontal			Redundant Vertical			Redundant Hip			Redundant Hip Diagonal		
	Net Width Deduct in	U		Net Width Deduct in	U		Net Width Deduct in	U		Net Width Deduct in	U		Net Width Deduct in	U		Net Width Deduct in	U		Net Width Deduct in	U	
T11 60.000-40.000	0.000	0.75	(1)	0.000	0.75	(1)	0.000	0.75		0.000	0.75		0.000	0.75		0.000	0.75	(1)	0.000	0.75	(1)
	0.000	0.75	(2)	0.000	0.75	(2)										0.000	0.75	(2)	0.000	0.75	(2)
	0.000	0.75	(3)	0.000	0.75	(3)										0.000	0.75	(3)	0.000	0.75	(3)
	0.000	0.75	(4)	0.000	0.75	(4)										0.000	0.75	(4)	0.000	0.75	(4)
T12 40.000-20.000	0.000	0.75	(1)	0.000	0.75	(1)	0.000	0.75		0.000	0.75		0.000	0.75		0.000	0.75	(1)	0.000	0.75	(1)
	0.000	0.75	(2)	0.000	0.75	(2)										0.000	0.75	(2)	0.000	0.75	(2)
	0.000	0.75	(3)	0.000	0.75	(3)										0.000	0.75	(3)	0.000	0.75	(3)
	0.000	0.75	(4)	0.000	0.75	(4)										0.000	0.75	(4)	0.000	0.75	(4)
T13 20.000-0.000	0.000	0.75	(1)	0.000	0.75	(1)	0.000	0.75		0.000	0.75		0.000	0.75		0.000	0.75	(1)	0.000	0.75	(1)
	0.000	0.75	(2)	0.000	0.75	(2)										0.000	0.75	(2)	0.000	0.75	(2)
	0.000	0.75	(3)	0.000	0.75	(3)										0.000	0.75	(3)	0.000	0.75	(3)
	0.000	0.75	(4)	0.000	0.75	(4)										0.000	0.75	(4)	0.000	0.75	(4)

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 250.000-240.000	Flange	0.000 A325N	0	0.625 A325X	1	0.625 A325X	1	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T2 240.000-220.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T3 220.000-200.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T4 200.000-180.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0

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Feed Line/Linear Appurtenances Section Areas

<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face</i>	<i>A_R</i> <i>ft²</i>	<i>A_F</i> <i>ft²</i>	<i>C_AA_A</i> <i>In Face ft²</i>	<i>C_AA_A</i> <i>Out Face ft²</i>	<i>Weight K</i>
T1	250.000-240.000	A	0.000	0.000	0.375	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	12.234	0.000	0.13
T2	240.000-220.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	79.613	0.000	0.47
T3	220.000-200.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	79.613	0.000	0.47
T4	200.000-180.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	79.613	0.000	0.47
T5	180.000-160.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.573	0.000	0.48
T6	160.000-140.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.573	0.000	0.48
T7	140.000-120.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.573	0.000	0.48
T8	120.000-100.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.573	0.000	0.48
T9	100.000-80.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.573	0.000	0.48
T10	80.000-60.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.573	0.000	0.48
T11	60.000-40.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.573	0.000	0.48
T12	40.000-20.000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	83.573	0.000	0.48
T13	20.000-0.000	A	0.000	0.000	0.375	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	41.787	0.000	0.24

Feed Line Center of Pressure

<i>Section</i>	<i>Elevation ft</i>	<i>CP_x</i> <i>in</i>	<i>CP_z</i> <i>in</i>	<i>CP_x</i> <i>Ice in</i>	<i>CP_z</i> <i>Ice in</i>
T1	250.000-240.000	-0.385	1.667	-0.385	1.667
T2	240.000-220.000	-0.640	4.936	-0.640	4.936
T3	220.000-200.000	-0.699	4.904	-0.699	4.904
T4	200.000-180.000	-0.779	5.195	-0.779	5.195
T5	180.000-160.000	-0.200	5.878	-0.200	5.863

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Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
T6	160.000-140.000	-0.214	6.109	-0.212	6.047
T7	140.000-120.000	-0.226	6.335	-0.224	6.251
T8	120.000-100.000	-0.295	8.467	-0.291	8.319
T9	100.000-80.000	-0.307	8.651	-0.302	8.472
T10	80.000-60.000	-0.301	8.293	-0.297	8.117
T11	60.000-40.000	-0.304	8.241	-0.300	8.062
T12	40.000-20.000	-0.314	8.395	-0.309	8.216
T13	20.000-0.000	-0.177	4.329	-0.175	4.265

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	1	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.6000
T1	2	1-5/8"	240.00 - 243.00	0.6000	0.6000
T1	3	Hybrid cables	240.00 - 243.00	0.6000	0.6000
T1	6	Safety Line 3/8	240.00 - 250.00	0.6000	0.6000
T2	1	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T2	2	1-5/8"	220.00 - 240.00	0.6000	0.6000
T2	3	Hybrid cables	220.00 - 240.00	0.6000	0.6000
T2	6	Safety Line 3/8	220.00 - 240.00	0.6000	0.6000
T3	1	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T3	2	1-5/8"	200.00 - 220.00	0.6000	0.6000
T3	3	Hybrid cables	200.00 - 220.00	0.6000	0.6000
T3	6	Safety Line 3/8	200.00 - 220.00	0.6000	0.6000
T4	1	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T4	2	1-5/8"	180.00 - 200.00	0.6000	0.6000
T4	3	Hybrid cables	180.00 - 200.00	0.6000	0.6000
T4	6	Safety Line 3/8	180.00 - 200.00	0.6000	0.6000
T5	1	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	2	1-5/8"	160.00 - 180.00	0.6000	0.6000
T5	3	Hybrid cables	160.00 - 180.00	0.6000	0.6000
T5	4	1-5/8"	160.00 - 180.00	0.6000	0.6000
T5	6	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000

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<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
T6	1	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T6	2	1-5/8"	140.00 - 160.00	0.6000	0.6000
T6	3	Hybrid cables	140.00 - 160.00	0.6000	0.6000
T6	4	1-5/8"	140.00 - 160.00	0.6000	0.6000
T6	6	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T7	1	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	2	1-5/8"	120.00 - 140.00	0.6000	0.6000
T7	3	Hybrid cables	120.00 - 140.00	0.6000	0.6000
T7	4	1-5/8"	120.00 - 140.00	0.6000	0.6000
T7	6	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T8	1	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	2	1-5/8"	100.00 - 120.00	0.6000	0.6000
T8	3	Hybrid cables	100.00 - 120.00	0.6000	0.6000
T8	4	1-5/8"	100.00 - 120.00	0.6000	0.6000
T8	6	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T9	1	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	2	1-5/8"	80.00 - 100.00	0.6000	0.6000
T9	3	Hybrid cables	80.00 - 100.00	0.6000	0.6000
T9	4	1-5/8"	80.00 - 100.00	0.6000	0.6000
T9	6	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T10	1	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	2	1-5/8"	60.00 - 80.00	0.6000	0.6000
T10	3	Hybrid cables	60.00 - 80.00	0.6000	0.6000
T10	4	1-5/8"	60.00 - 80.00	0.6000	0.6000
T10	6	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T11	1	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T11	2	1-5/8"	40.00 - 60.00	0.6000	0.6000
T11	3	Hybrid cables	40.00 - 60.00	0.6000	0.6000
T11	4	1-5/8"	40.00 - 60.00	0.6000	0.6000
T11	6	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T12	1	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T12	2	1-5/8"	20.00 - 40.00	0.6000	0.6000
T12	3	Hybrid cables	20.00 - 40.00	0.6000	0.6000
T12	4	1-5/8"	20.00 - 40.00	0.6000	0.6000
T12	6	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T13	1	Feedline Ladder (Af)	10.00 - 20.00	0.6000	0.6000
T13	2	1-5/8"	10.00 - 20.00	0.6000	0.6000
T13	3	Hybrid cables	10.00 - 20.00	0.6000	0.6000
T13	4	1-5/8"	10.00 - 20.00	0.6000	0.6000
T13	6	Safety Line 3/8	10.00 - 20.00	0.6000	0.6000

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Discrete Tower Loads

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
Lightning Rod 1"x10'	A	From Leg	0.000 0.000 5.000	0.000	250.000	No Ice	1.000	1.000	0.04
**									
(3) 12.5' Sector Frame w/MPs	C	None		0.000	243.000	No Ice	50.600	31.200	2.16
(2) NHH-65C-R2B_TIA	A	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	3.983	3.337	0.05
(2) NHH-65C-R2B_TIA	B	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	3.983	3.337	0.05
(2) NHH-45C-R2B_TIA	C	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	15.069	3.229	0.09
AIR 6419 B77G	A	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	3.797	1.938	0.07
AIR 6419 B77G	B	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	3.797	1.938	0.07
AIR 6419 B77G	C	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	3.797	1.938	0.07
AIR 3283 (VB)	A	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	7.873	5.147	0.11
AIR 3283 (VB)	B	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	7.873	5.147	0.11
AIR 3283 (VB)	C	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	7.873	5.147	0.11
RADIO 4490 B5/B12	A	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	2.202	0.994	0.07
RADIO 4490 B5/B12	B	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	2.202	0.994	0.07
RADIO 4490 B5/B12	C	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	2.202	0.994	0.07
RADIO 8843 B2/B66A	A	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	1.644	1.360	0.07
RADIO 8843 B2/B66A	B	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	1.644	1.360	0.07
RADIO 8843 B2/B66A	C	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	1.644	1.360	0.07
(2) RRUS 32	A	From Leg	4.000 0.000 2.000	0.000	243.000	No Ice	2.857	1.777	0.06
(2) RRUS 32	B	From Leg	4.000	0.000	243.000	No Ice	2.857	1.777	0.06

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(2) RRUS 32	C	From Leg	0.000 2.000 4.000	0.000	243.000	No Ice	2.857	1.777	0.06
OVP 6	A	From Leg	0.000 2.000 4.000	0.000	243.000	No Ice	1.732	3.098	0.03
OVP 6	B	From Leg	0.000 2.000 4.000	0.000	243.000	No Ice	1.732	3.098	0.03
OVP 6	C	From Leg	0.000 2.000 4.000	0.000	243.000	No Ice	1.732	3.098	0.03
** 4 1/2" OD Dish Mount	C	From Leg	0.000 2.000 0.500	0.000	180.000	No Ice	1.491	1.491	0.06

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
Andrew UHX6-48 (Carrier 5)	C	Paraboloid w/Shroud (HP)	From Leg	1.000 0.000 0.000	0.000		180.000	6.000	No Ice 28.270	0.14
**										

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

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

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	349.03	24.88	-13.65
	Max. H _x	18	349.03	24.88	-13.65
	Max. H _z	5	-274.39	-19.50	13.20
	Min. Vert	7	-275.40	-20.61	11.17
	Min. H _x	7	-275.40	-20.61	11.17
	Min. H _z	16	319.83	21.50	-14.21
Leg B	Max. Vert	10	339.17	-24.54	-13.25
	Max. H _x	23	-264.46	20.11	10.67
	Max. H _z	25	-263.50	19.05	12.61
	Min. Vert	23	-264.46	20.11	10.67
	Min. H _x	10	339.17	-24.54	-13.25
	Min. H _z	12	308.49	-21.12	-13.67
Leg A	Max. Vert	2	395.02	-0.17	32.53
	Max. H _x	19	-142.32	3.01	-12.44
	Max. H _z	2	395.02	-0.17	32.53
	Min. Vert	15	-322.98	0.18	-27.59
	Min. H _x	9	22.30	-2.95	1.37
	Min. H _z	15	-322.98	0.18	-27.59

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	64.90	0.00	0.00	22.422	9.704	-0.000

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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
1.2 Dead+1.0 Wind 0 deg - No Ice	77.88	0.66	-54.19	-7191.394	-107.447	-5.054
0.9 Dead+1.0 Wind 0 deg - No Ice	58.41	0.66	-54.20	-7190.168	-110.250	-5.038
1.2 Dead+1.0 Wind 30 deg - No Ice	77.88	24.66	-41.88	-5647.609	-3351.815	19.194
0.9 Dead+1.0 Wind 30 deg - No Ice	58.41	24.66	-41.88	-5648.017	-3350.970	19.192
1.2 Dead+1.0 Wind 60 deg - No Ice	77.88	36.50	-21.07	-2857.894	-4985.240	24.492
0.9 Dead+1.0 Wind 60 deg - No Ice	58.41	36.50	-21.07	-2861.403	-4982.501	24.475
1.2 Dead+1.0 Wind 90 deg - No Ice	77.88	40.33	-0.42	-48.457	-5458.765	23.220
0.9 Dead+1.0 Wind 90 deg - No Ice	58.41	40.33	-0.42	-55.155	-5455.500	23.193
1.2 Dead+1.0 Wind 120 deg - No Ice	77.88	40.15	22.42	2973.733	-5330.382	29.717
0.9 Dead+1.0 Wind 120 deg - No Ice	58.41	40.15	22.42	2963.667	-5327.356	29.685
1.2 Dead+1.0 Wind 150 deg - No Ice	77.88	23.66	41.20	5549.544	-3152.969	30.065
0.9 Dead+1.0 Wind 150 deg - No Ice	58.41	23.66	41.20	5536.602	-3152.372	30.037
1.2 Dead+1.0 Wind 180 deg - No Ice	77.88	-0.41	49.29	6687.045	86.197	6.204
0.9 Dead+1.0 Wind 180 deg - No Ice	58.41	-0.41	49.29	6672.817	83.177	6.189
1.2 Dead+1.0 Wind 210 deg - No Ice	77.88	-24.46	41.69	5668.362	3339.400	-18.865
0.9 Dead+1.0 Wind 210 deg - No Ice	58.41	-24.46	41.69	5655.244	3332.721	-18.862
1.2 Dead+1.0 Wind 240 deg - No Ice	77.88	-40.48	23.37	3162.864	5443.079	-24.492
0.9 Dead+1.0 Wind 240 deg - No Ice	58.41	-40.48	23.37	3152.562	5434.035	-24.474
1.2 Dead+1.0 Wind 270 deg - No Ice	77.88	-40.07	0.34	88.277	5435.415	-23.548
0.9 Dead+1.0 Wind 270 deg - No Ice	58.41	-40.07	0.34	81.429	5426.328	-23.522
1.2 Dead+1.0 Wind 300 deg - No Ice	77.88	-35.78	-20.18	-2679.070	4847.881	-30.871
0.9 Dead+1.0 Wind 300 deg - No Ice	58.41	-35.78	-20.18	-2682.804	4839.497	-30.834
1.2 Dead+1.0 Wind 330 deg - No Ice	77.88	-23.85	-41.09	-5474.900	3212.032	-30.066
0.9 Dead+1.0 Wind 330 deg - No Ice	58.41	-23.85	-41.09	-5475.543	3205.519	-30.038
Dead+Wind 0 deg - Service	64.90	0.17	-14.12	-1851.078	-21.040	-1.304
Dead+Wind 30 deg - Service	64.90	6.43	-10.92	-1451.054	-863.551	4.961
Dead+Wind 60 deg - Service	64.90	9.53	-5.50	-727.145	-1288.709	6.330
Dead+Wind 90 deg - Service	64.90	10.54	-0.11	3.003	-1412.190	5.998
Dead+Wind 120 deg - Service	64.90	10.48	5.85	788.127	-1377.915	7.678
Dead+Wind 150 deg - Service	64.90	6.17	10.75	1456.728	-812.174	7.765
Dead+Wind 180 deg - Service	64.90	-0.11	12.86	1751.811	28.988	1.602
Dead+Wind 210 deg - Service	64.90	-6.38	10.88	1487.460	873.803	-4.876
Dead+Wind 240 deg - Service	64.90	-10.56	6.10	836.984	1420.462	-6.329
Dead+Wind 270 deg - Service	64.90	-10.47	0.09	38.336	1419.567	-6.083
Dead+Wind 300 deg - Service	64.90	-9.35	-5.27	-680.949	1266.675	-7.973
Dead+Wind 330 deg - Service	64.90	-6.22	-10.72	-1406.402	840.862	-7.765

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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	-64.90	0.00	-0.00	64.90	-0.00	0.000%
2	0.66	-77.88	-54.20	-0.66	77.88	54.19	0.003%
3	0.66	-58.41	-54.20	-0.66	58.41	54.20	0.002%
4	24.66	-77.88	-41.88	-24.66	77.88	41.88	0.002%
5	24.66	-58.41	-41.88	-24.66	58.41	41.88	0.002%
6	36.50	-77.88	-21.08	-36.50	77.88	21.07	0.002%
7	36.50	-58.41	-21.08	-36.50	58.41	21.07	0.002%
8	40.33	-77.88	-0.42	-40.33	77.88	0.42	0.002%
9	40.33	-58.41	-0.42	-40.33	58.41	0.42	0.002%
10	40.15	-77.88	22.42	-40.15	77.88	-22.42	0.002%
11	40.15	-58.41	22.42	-40.15	58.41	-22.42	0.002%
12	23.66	-77.88	41.20	-23.66	77.88	-41.20	0.002%
13	23.66	-58.41	41.20	-23.66	58.41	-41.20	0.002%
14	-0.41	-77.88	49.29	0.41	77.88	-49.29	0.002%
15	-0.41	-58.41	49.29	0.41	58.41	-49.29	0.002%
16	-24.46	-77.88	41.69	24.46	77.88	-41.69	0.002%
17	-24.46	-58.41	41.69	24.46	58.41	-41.69	0.002%
18	-40.48	-77.88	23.37	40.48	77.88	-23.37	0.002%
19	-40.48	-58.41	23.37	40.48	58.41	-23.37	0.002%
20	-40.07	-77.88	0.34	40.07	77.88	-0.34	0.002%
21	-40.07	-58.41	0.34	40.07	58.41	-0.34	0.002%
22	-35.78	-77.88	-20.18	35.78	77.88	20.18	0.002%
23	-35.78	-58.41	-20.18	35.78	58.41	20.18	0.002%
24	-23.85	-77.88	-41.09	23.85	77.88	41.09	0.002%
25	-23.85	-58.41	-41.09	23.85	58.41	41.09	0.002%
26	0.17	-64.90	-14.12	-0.17	64.90	14.12	0.001%
27	6.43	-64.90	-10.92	-6.43	64.90	10.92	0.001%
28	9.53	-64.90	-5.50	-9.53	64.90	5.50	0.001%
29	10.54	-64.90	-0.11	-10.54	64.90	0.11	0.001%
30	10.48	-64.90	5.85	-10.48	64.90	-5.85	0.001%
31	6.17	-64.90	10.75	-6.17	64.90	-10.75	0.001%
32	-0.11	-64.90	12.86	0.11	64.90	-12.86	0.001%
33	-6.38	-64.90	10.88	6.38	64.90	-10.88	0.001%
34	-10.56	-64.90	6.10	10.56	64.90	-6.10	0.001%
35	-10.47	-64.90	0.09	10.47	64.90	-0.09	0.001%
36	-9.35	-64.90	-5.27	9.35	64.90	5.27	0.001%
37	-6.22	-64.90	-10.72	6.22	64.90	10.72	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	11	0.00000001	0.00012188
3	Yes	11	0.00000001	0.00009157
4	Yes	11	0.00000001	0.00012045
5	Yes	11	0.00000001	0.00008996
6	Yes	11	0.00000001	0.00011938
7	Yes	11	0.00000001	0.00008873
8	Yes	11	0.00000001	0.00012135
9	Yes	11	0.00000001	0.00009070

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10	Yes	11	0.00000001	0.00012223
11	Yes	11	0.00000001	0.00009181
12	Yes	11	0.00000001	0.00012004
13	Yes	11	0.00000001	0.00008967
14	Yes	11	0.00000001	0.00011800
15	Yes	11	0.00000001	0.00008761
16	Yes	11	0.00000001	0.00012063
17	Yes	11	0.00000001	0.00009011
18	Yes	11	0.00000001	0.00012289
19	Yes	11	0.00000001	0.00009230
20	Yes	11	0.00000001	0.00012153
21	Yes	11	0.00000001	0.00009085
22	Yes	11	0.00000001	0.00011908
23	Yes	11	0.00000001	0.00008854
24	Yes	11	0.00000001	0.00012004
25	Yes	11	0.00000001	0.00008967
26	Yes	11	0.00000001	0.00009610
27	Yes	11	0.00000001	0.00009570
28	Yes	11	0.00000001	0.00009493
29	Yes	11	0.00000001	0.00009491
30	Yes	11	0.00000001	0.00009548
31	Yes	11	0.00000001	0.00009527
32	Yes	11	0.00000001	0.00009526
33	Yes	11	0.00000001	0.00009609
34	Yes	11	0.00000001	0.00009642
35	Yes	11	0.00000001	0.00009518
36	Yes	11	0.00000001	0.00009439
37	Yes	11	0.00000001	0.00009512

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250 - 240	5.101	26	0.178	0.071
T2	240 - 220	4.692	26	0.177	0.057
T3	220 - 200	3.922	26	0.165	0.041
T4	200 - 180	3.236	26	0.147	0.036
T5	180 - 160	2.623	26	0.130	0.031
T6	160 - 140	2.079	26	0.113	0.025
T7	140 - 120	1.597	26	0.098	0.018
T8	120 - 100	1.177	26	0.084	0.014
T9	100 - 80	0.831	26	0.068	0.011
T10	80 - 60	0.548	26	0.053	0.008
T11	60 - 40	0.329	26	0.038	0.006
T12	40 - 20	0.166	26	0.025	0.004
T13	20 - 0	0.054	26	0.013	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250.000	Lightning Rod 1"x10'	26	5.101	0.178	0.071	126753
243.000	(3) 12.5' Sector Frame w/MPs	26	4.814	0.178	0.061	91094

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Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
180.000	Andrew UHX6-48	26	2.623	0.130	0.031	66152

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
T1	250 - 240	19.921	2	0.700	0.275
T2	240 - 220	18.319	2	0.696	0.221
T3	220 - 200	15.299	2	0.647	0.160
T4	200 - 180	12.614	2	0.576	0.140
T5	180 - 160	10.216	2	0.510	0.120
T6	160 - 140	8.091	2	0.442	0.095
T7	140 - 120	6.210	2	0.384	0.071
T8	120 - 100	4.576	2	0.327	0.053
T9	100 - 80	3.225	2	0.264	0.042
T10	80 - 60	2.125	2	0.205	0.031
T11	60 - 40	1.275	2	0.150	0.022
T12	40 - 20	0.641	2	0.098	0.014
T13	20 - 0	0.208	2	0.050	0.006

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
250.000	Lightning Rod 1"x10'	2	19.921	0.700	0.275	33230
243.000	(3) 12.5' Sector Frame w/MPs	2	18.796	0.698	0.237	23882
180.000	Andrew UHX6-48	2	10.216	0.510	0.120	17046

Bolt Design Data

Section No.	Elevation	Component Type	Bolt Grade	Bolt Size	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
	ft			in						
T1	250	Diagonal	A325X	0.625	1	2.27	9.60	0.236 ✓	1	Member Block Shear
		Top Girt	A325X	0.625	1	0.68	9.60	0.071 ✓	1	Member Block Shear
T2	240	Leg	A325N	0.750	6	0.77	30.10	0.026 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	3.90	10.74	0.364 ✓	1	Member Block Shear
T3	220	Leg	A325N	0.750	6	4.98	30.10	0.165 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	3.55	13.03	0.272 ✓	1	Member Block Shear
T4	200	Leg	A325N	0.750	6	9.00	30.10	0.299 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	4.15	13.03	0.319 ✓	1	Member Block

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T5	180	Leg	A325N	1.000	6	13.07	54.52	0.240 ✓	1	Shear Bolt Tension
		Diagonal	A325X	0.625	1	5.36	14.17	0.378 ✓	1	Member Block Shear
T6	160	Leg	A325N	1.000	6	17.55	54.52	0.322 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	6.11	14.17	0.431 ✓	1	Member Block Shear
T7	140	Leg	A325N	1.250	6	22.14	87.22	0.254 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	7.19	17.26	0.417 ✓	1	Bolt Shear
T8	120	Leg	A325N	1.250	6	26.84	87.22	0.308 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	8.41	26.05	0.323 ✓	1	Member Block Shear
		Horizontal	A325X	0.625	1	3.85	19.20	0.200 ✓	1	Member Block Shear
T9	100	Leg	A325N	1.250	6	31.53	87.22	0.362 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	8.75	26.05	0.336 ✓	1	Member Block Shear
		Horizontal	A325X	0.625	1	4.44	21.48	0.207 ✓	1	Member Block Shear
T10	80	Leg	A325N	1.500	6	36.14	126.47	0.286 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	9.28	28.34	0.327 ✓	1	Member Block Shear
		Horizontal	A325X	0.625	1	5.04	21.48	0.235 ✓	1	Member Block Shear
T11	60	Leg	A325N	1.500	6	40.70	126.47	0.322 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	10.23	29.25	0.350 ✓	1	Gusset Bearing
		Horizontal	A325X	0.625	1	5.65	26.05	0.217 ✓	1	Member Block Shear
T12	40	Leg	A325N	1.500	6	45.22	126.47	0.358 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	10.95	29.25	0.374 ✓	1	Gusset Bearing
		Horizontal	A325X	0.625	1	6.26	26.05	0.240 ✓	1	Member Block Shear
T13	20	Leg	A325N	1.500	6	49.68	126.47	0.393 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	11.56	29.25	0.395 ✓	1	Gusset Bearing
		Horizontal	A325X	0.625	1	6.86	28.34	0.242 ✓	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1 3/4	10.000	4.500	123.4 K=1.00	2.405	-5.67	35.67	0.159 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	240 - 220	2 1/4	20.019	4.754	101.4 K=1.00	3.976	-32.63	84.33	0.387 ¹ ✓
T3	220 - 200	2 3/4	20.019	4.754	83.0 K=1.00	5.940	-57.94	161.54	0.359 ¹ ✓
T4	200 - 180	3 1/4	20.019	4.754	70.2 K=1.00	8.296	-85.43	260.31	0.328 ¹ ✓
T5	180 - 160	3 1/2	20.019	4.754	65.2 K=1.00	9.621	-116.12	317.27	0.366 ¹ ✓
T6	160 - 140	4	20.019	4.754	57.1 K=1.00	12.566	-148.60	445.72	0.333 ¹ ✓
T7	140 - 120	4 1/4	20.019	4.754	53.7 K=1.00	14.186	-182.69	517.03	0.353 ¹ ✓
T8	120 - 100	4 1/4	20.019	4.754	53.7 K=1.00	14.186	-212.82	517.03	0.412 ¹ ✓
T9	100 - 80	4 1/2	20.019	4.754	50.7 K=1.00	15.904	-247.06	593.00	0.417 ¹ ✓
T10	80 - 60	4 3/4	20.019	4.754	48.0 K=1.00	17.721	-281.51	673.58	0.418 ¹ ✓
T11	60 - 40	5	20.019	4.754	45.6 K=1.00	19.635	-316.31	758.73	0.417 ¹ ✓
T12	40 - 20	5 1/4	20.019	4.754	43.5 K=1.00	21.647	-351.32	848.43	0.414 ¹ ✓
T13	20 - 0	5 1/4	20.019	4.754	43.5 K=1.00	21.647	-386.25	848.43	0.455 ¹ ✓

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L1 3/4x1 3/4x3/16	6.364	3.079	107.6 K=1.00	0.621	-2.16	15.36	0.141 ¹ ✓
T2	240 - 220	L2x2x3/16	6.694	3.352	102.1 K=1.00	0.715	-4.11	19.48	0.211 ¹ ✓
T3	220 - 200	L2 1/2x2 1/2x3/16	8.697	4.318	104.7 K=1.00	0.902	-3.46	23.52	0.147 ¹ ✓
T4	200 - 180	L2 1/2x2 1/2x3/16	9.987	4.941	119.8 K=1.00	0.902	-3.96	18.00	0.220 ¹ ✓
T5	180 - 160	L3x3x3/16	11.329	5.602	112.8 K=1.00	1.090	-5.09	24.41	0.209 ¹ ✓
T6	160 - 140	L3x3x3/16	12.706	6.269	126.2 K=1.00	1.090	-5.90	19.58	0.301 ¹ ✓
T7	140 - 120	L3x3x1/4	14.108	6.961	141.1 K=1.00	1.440	-6.61	20.70	0.319 ¹ ✓
T8	120 - 100	2L2 1/2x2 1/2x3/16x3/8	8.862	8.653	133.2 K=1.00	1.800	-8.24	27.45	0.300 ¹ ✓
T9	100 - 80	ai/ri > 0.75(KL/r) 2L2 1/2x2 1/2x3/16x3/8	9.504	9.288	143.0 K=1.00	1.800	-8.82	24.04	0.367 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T10	80 - 60	ai/ri > 0.75(KL/r)o - 230 2L3x3x3/16x3/8	10.161	9.937	126.9 K=1.00	2.180	-9.51	34.94	0.272 ¹ ✓
T11	60 - 40	ai/ri > 0.75(KL/r)o - 269 2L3x3x3/16x3/8	10.829	10.597	135.4 K=1.00	2.180	-10.23	31.23	0.328 ¹ ✓
T12	40 - 20	ai/ri > 0.75(KL/r)o - 308 2L3x3x3/16x3/8	11.508	11.268	144.0 K=1.00	2.180	-10.95	27.98	0.391 ¹ ✓
T13	20 - 0	ai/ri > 0.75(KL/r)o - 347 2L3x3x1/4x3/8 ai/ri > 0.75(KL/r)o - 386	12.195	11.957	154.4 K=1.00	2.880	-11.56	33.55	0.345 ¹ ✓

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T8	120 - 100	2L1 3/4x1 3/4x3/16x3/8	14.606	7.126	159.3 K=1.00	1.242	-3.85	13.99	0.275 ¹ ✓
T9	100 - 80	ai/ri > 0.75(KL/r)o - 187 2L2x2x3/16x3/8	16.106	7.866	152.9 K=1.00	1.430	-4.44	17.09	0.260 ¹ ✓
T10	80 - 60	ai/ri > 0.75(KL/r)o - 226 2L2x2x3/16x3/8	17.606	8.605	167.3 K=1.00	1.430	-5.04	14.34	0.352 ¹ ✓
T11	60 - 40	ai/ri > 0.75(KL/r)o - 265 2L2 1/2x2 1/2x3/16x3/8	19.106	9.345	143.9 K=1.00	1.800	-5.65	23.76	0.238 ¹ ✓
T12	40 - 20	ai/ri > 0.75(KL/r)o - 304 2L2 1/2x2 1/2x3/16x3/8	20.606	10.084	155.3 K=1.00	1.800	-6.26	20.56	0.304 ¹ ✓
T13	20 - 0	ai/ri > 0.75(KL/r)o - 343 2L3x3x3/16x3/8 ai/ri > 0.75(KL/r)o - 382	22.106	10.834	138.4 K=1.00	2.180	-6.86	30.02	0.229 ¹ ✓

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L1 3/4x1 3/4x3/16	4.500	4.354	152.1 K=1.00	0.621	-0.78	7.68	0.101 ¹ ✓

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¹ $P_u / \phi P_n$ controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T8	120 - 100	L1 3/4x1 3/4x3/16	7.303	7.303	255.2 K=1.00	0.621	-0.00	2.73	0.002 ¹ ✓
T9	100 - 80	KL/R > 250 (C) - 195 L1 3/4x1 3/4x3/16	8.053	8.053	281.4 K=1.00	0.621	-0.00	2.25	0.002 ¹ ✓
T10	80 - 60	KL/R > 250 (C) - 233 L1 3/4x1 3/4x3/16	8.803	8.803	307.6 K=1.00	0.621	-0.01	1.88	0.003 ¹ ✓
T11	60 - 40	KL/R > 250 (C) - 272 L1 3/4x1 3/4x3/16	9.553	9.553	333.8 K=1.00	0.621	-0.01	1.60	0.003 ¹ ✓
T12	40 - 20	KL/R > 250 (C) - 312 L1 3/4x1 3/4x3/16	10.303	10.303	360.0 K=1.00	0.621	-0.01	1.37	0.004 ¹ ✓
T13	20 - 0	KL/R > 250 (C) - 351 L1 3/4x1 3/4x3/16	10.697	10.697	373.7 K=1.00	0.621	-0.01	1.27	0.006 ¹ ✓
		KL/R > 250 (C) - 407							

¹ $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1 3/4	10.000	0.500	13.7	2.405	4.53	108.24	0.042 ¹ ✓
T2	240 - 220	2 1/4	20.019	0.500	10.7	3.976	29.89	178.92	0.167 ¹ ✓
T3	220 - 200	2 3/4	20.019	0.500	8.7	5.940	54.01	267.28	0.202 ¹ ✓
T4	200 - 180	3 1/4	20.019	0.500	7.4	8.296	78.43	373.31	0.210 ¹ ✓
T5	180 - 160	3 1/2	20.019	0.500	6.9	9.621	105.30	432.95	0.243 ¹ ✓
T6	160 - 140	4	20.019	0.500	6.0	12.566	132.88	565.49	0.235 ¹ ✓
T7	140 - 120	4 1/4	20.019	0.500	5.7	14.186	161.04	638.38	0.252 ¹ ✓
T8	120 - 100	4 1/4	20.019	0.500	5.7	14.186	189.22	638.38	0.296 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T9	100 - 80	4 1/2	20.019	0.500	5.3	15.904	216.89	715.69	0.303 ¹
T10	80 - 60	4 3/4	20.019	0.500	5.1	17.721	244.22	797.42	0.306 ¹
T11	60 - 40	5	20.019	0.500	4.8	19.635	271.32	883.57	0.307 ¹
T12	40 - 20	5 1/4	20.019	0.500	4.6	21.647	298.10	974.14	0.306 ¹
T13	20 - 0	5 1/4	20.019	0.500	4.6	21.647	323.93	974.14	0.333 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L1 3/4x1 3/4x3/16	6.364	3.079	68.8	0.360	2.27	17.57	0.129 ¹
T2	240 - 220	L2x2x3/16	6.694	3.352	65.2	0.431	3.90	21.00	0.186 ¹
T3	220 - 200	L2 1/2x2 1/2x3/16	8.697	4.318	66.6	0.571	3.55	27.84	0.127 ¹
T4	200 - 180	L2 1/2x2 1/2x3/16	9.987	4.941	76.2	0.571	4.15	27.84	0.149 ¹
T5	180 - 160	L3x3x3/16	11.329	5.602	71.6	0.712	5.36	34.71	0.154 ¹
T6	160 - 140	L3x3x3/16	12.706	6.269	80.1	0.712	6.11	34.71	0.176 ¹
T7	140 - 120	L3x3x1/4	14.108	6.961	89.8	0.939	7.19	45.79	0.157 ¹
T8	120 - 100	2L2 1/2x2 1/2x3/16x3/8	8.862	8.653	133.5	1.139	8.41	55.53	0.151 ¹
T9	100 - 80	ai/ri > 0.75(KL/r) _o - 192 2L2 1/2x2 1/2x3/16x3/8	9.504	9.288	143.3	1.139	8.75	55.53	0.158 ¹
T10	80 - 60	ai/ri > 0.75(KL/r) _o - 231 2L3x3x3/16x3/8	10.161	9.937	127.0	1.424	9.28	69.42	0.134 ¹
T11	60 - 40	ai/ri > 0.75(KL/r) _o - 270 2L3x3x3/16x3/8	10.829	10.597	135.4	1.424	9.80	69.42	0.141 ¹
T12	40 - 20	ai/ri > 0.75(KL/r) _o - 309 2L3x3x3/16x3/8	11.508	11.268	144.0	1.424	10.27	69.42	0.148 ¹
T13	20 - 0	ai/ri > 0.75(KL/r) _o - 348 2L3x3x1/4x3/8	12.195	11.957	154.3	1.879	10.50	91.59	0.115 ¹
		ai/ri > 0.75(KL/r) _o - 387							

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¹ $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T8	120 - 100	2L1 3/4x1 3/4x3/16x3/8	14.606	7.126	159.3	0.721	3.85	35.13	0.109 ¹ ✓
T9	100 - 80	ai/ri > 0.75(KL/r) _o - 190 2L2x2x3/16x3/8	16.106	7.866	153.0	0.862	4.44	42.00	0.106 ¹ ✓
T10	80 - 60	ai/ri > 0.75(KL/r) _o - 229 2L2x2x3/16x3/8	17.606	8.605	167.4	0.862	5.04	42.00	0.120 ¹ ✓
T11	60 - 40	ai/ri > 0.75(KL/r) _o - 268 2L2 1/2x2 1/2x3/16x3/8	19.106	9.345	144.1	1.139	5.65	55.53	0.102 ¹ ✓
T12	40 - 20	ai/ri > 0.75(KL/r) _o - 304 2L2 1/2x2 1/2x3/16x3/8	20.606	10.084	155.5	1.139	6.26	55.53	0.113 ¹ ✓
T13	20 - 0	ai/ri > 0.75(KL/r) _o - 346 2L3x3x3/16x3/8 ai/ri > 0.75(KL/r) _o - 385	22.106	10.834	138.5	1.424	6.86	69.42	0.099 ¹ ✓

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L1 3/4x1 3/4x3/16	4.500	4.354	97.3	0.360	0.68	17.57	0.039 ¹ ✓

¹ $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	250 - 240	Leg	1 3/4	1	-5.67	35.67	15.9	Pass
T2	240 - 220	Leg	2 1/4	19	-32.63	84.33	38.7	Pass
T3	220 - 200	Leg	2 3/4	48	-57.94	161.54	35.9	Pass
T4	200 - 180	Leg	3 1/4	75	-85.43	260.31	32.8	Pass
T5	180 - 160	Leg	3 1/2	102	-116.12	317.27	36.6	Pass
T6	160 - 140	Leg	4	129	-148.60	445.72	33.3	Pass
T7	140 - 120	Leg	4 1/4	156	-182.69	517.03	35.3	Pass
T8	120 - 100	Leg	4 1/4	183	-212.82	517.03	41.2	Pass
T9	100 - 80	Leg	4 1/2	222	-247.06	593.00	41.7	Pass
T10	80 - 60	Leg	4 3/4	261	-281.51	673.58	41.8	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T11	60 - 40	Leg	5	300	-316.31	758.73	41.7	Pass
T12	40 - 20	Leg	5 1/4	339	-351.32	848.43	41.4	Pass
T13	20 - 0	Leg	5 1/4	378	-386.25	848.43	45.5	Pass
T1	250 - 240	Diagonal	L1 3/4x1 3/4x3/16	11	-2.16	15.36	14.1	Pass
							23.6 (b)	
T2	240 - 220	Diagonal	L2x2x3/16	44	-4.11	19.48	21.1	Pass
							36.4 (b)	
T3	220 - 200	Diagonal	L2 1/2x2 1/2x3/16	53	-3.46	23.52	14.7	Pass
							27.2 (b)	
T4	200 - 180	Diagonal	L2 1/2x2 1/2x3/16	81	-3.96	18.00	22.0	Pass
							31.9 (b)	
T5	180 - 160	Diagonal	L3x3x3/16	107	-5.09	24.41	20.9	Pass
							37.8 (b)	
T6	160 - 140	Diagonal	L3x3x3/16	134	-5.90	19.58	30.1	Pass
							43.1 (b)	
T7	140 - 120	Diagonal	L3x3x1/4	161	-6.61	20.70	31.9	Pass
							41.7 (b)	
T8	120 - 100	Diagonal	2L2 1/2x2 1/2x3/16x3/8	191	-8.24	27.45	30.0	Pass
							32.3 (b)	
T9	100 - 80	Diagonal	2L2 1/2x2 1/2x3/16x3/8	230	-8.82	24.04	36.7	Pass
T10	80 - 60	Diagonal	2L3x3x3/16x3/8	269	-9.51	34.94	27.2	Pass
							32.7 (b)	
T11	60 - 40	Diagonal	2L3x3x3/16x3/8	308	-10.23	31.23	32.8	Pass
							35.0 (b)	
T12	40 - 20	Diagonal	2L3x3x3/16x3/8	347	-10.95	27.98	39.1	Pass
T13	20 - 0	Diagonal	2L3x3x1/4x3/8	386	-11.56	33.55	34.5	Pass
							39.5 (b)	
T8	120 - 100	Horizontal	2L1 3/4x1 3/4x3/16x3/8	187	-3.85	13.99	27.5	Pass
T9	100 - 80	Horizontal	2L2x2x3/16x3/8	226	-4.44	17.09	26.0	Pass
T10	80 - 60	Horizontal	2L2x2x3/16x3/8	265	-5.04	14.34	35.2	Pass
T11	60 - 40	Horizontal	2L2 1/2x2 1/2x3/16x3/8	304	-5.65	23.76	23.8	Pass
T12	40 - 20	Horizontal	2L2 1/2x2 1/2x3/16x3/8	343	-6.26	20.56	30.4	Pass
T13	20 - 0	Horizontal	2L3x3x3/16x3/8	382	-6.86	30.02	22.9	Pass
							24.2 (b)	
T1	250 - 240	Top Girt	L1 3/4x1 3/4x3/16	5	-0.78	7.68	10.1	Pass
T8	120 - 100	Inner Bracing	L1 3/4x1 3/4x3/16	195	-0.00	2.73	0.2	Pass
T9	100 - 80	Inner Bracing	L1 3/4x1 3/4x3/16	233	-0.00	2.25	0.2	Pass
T10	80 - 60	Inner Bracing	L1 3/4x1 3/4x3/16	272	-0.01	1.88	0.3	Pass
T11	60 - 40	Inner Bracing	L1 3/4x1 3/4x3/16	312	-0.01	1.60	0.3	Pass
T12	40 - 20	Inner Bracing	L1 3/4x1 3/4x3/16	351	-0.01	1.37	0.4	Pass
T13	20 - 0	Inner Bracing	L1 3/4x1 3/4x3/16	407	-0.01	1.27	0.6	Pass
							Summary	
							Leg (T13)	Pass
							Diagonal (T6)	Pass
							Horizontal (T10)	Pass
							Top Girt (T1)	Pass
							Inner Bracing (T13)	Pass
							Bolt Checks	Pass
							RATING =	Pass

Self Support Anchor Rod Capacity

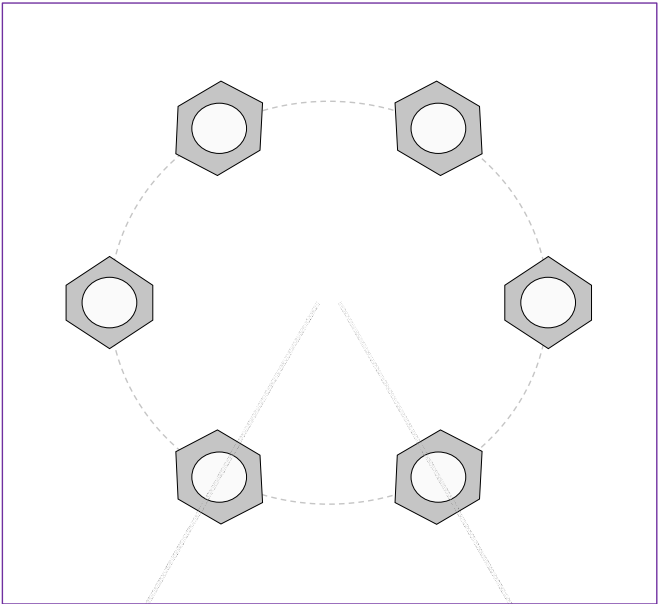
Site Info	
BU #	
Site Name	FL5317
Order #	

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

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	395.02	322.98
Shear Force (kips)	32.53	27.59

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

*Anchor Rod Eccentricity Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary	
(6) 1-1/2" $\varnothing$ bolts (F1554-105 N; Fy=105 ksi, Fu=125 ksi)		(units of kips, kip-in)	
l_{ar} (in): 1.5		Pu_t = 53.83	ϕPn_t = 132.19
		Vu = 4.6	ϕVn = 82.83
		Mu = n/a	ϕMn = n/a
		Stress Rating	
		40.7%	
		Pass	

Drilled Pier Foundation

BU # :	
Site Name:	
Order Number:	
TIA-222 Revision:	H
Tower Type:	Self Support

Report File: R:\Vertical Bridge\Vertical Bridge Engineering\Vertical Bridge Controls\US-FL-5317 - Spradley_L

Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	395.02	322.98
Shear Force (kips)	32.53	27.59

Material Properties	
Concrete Strength, f _c :	4 ksi
Rebar Strength, f _y :	60 ksi
Tie Yield Strength, f _y :	40 ksi

Pier Design Data	
Depth	50 ft
Ext. Above Grade	1 ft
Pier Section 1	
From 1' above grade to 50' below grade	
Pier Diameter	6 ft
Rebar Quantity	20
Rebar Size	10
Clear Cover to Ties	3 in
Tie Size	4
Tie Spacing	12 in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check		
	Compression	Uplift
D _{sub} (ft from TOC)	22.92	22.92
Soil Safety Factor	48.70	57.42
Max Moment (kip-ft)	517.28	438.72
Rating	2.7%	2.3%
Soil Vertical Check		
	Compression	Uplift
Skin Friction (kips)	704.24	704.24
End Bearing (kips)	441.99	-
Weight of Concrete (kips)	157.90	118.42
Total Capacity (kips)	1146.23	822.67
Axial (kips)	552.92	322.98
Rating	48.2%	39.3%
Reinforced Concrete Flexure		
	Compression	Uplift
Critical Depth (ft from TOC)	23.46	21.70
Critical Moment (kip-ft)	516.98	437.17
Critical Moment Capacity	4093.05	3062.90
Rating	12.6%	14.3%
Reinforced Concrete Shear		
	Compression	Uplift
Critical Depth (ft from TOC)	39.81	0.00
Critical Shear (kip)	35.63	27.59
Critical Shear Capacity	672.17	336.31
Rating	5.3%	8.2%
Structural Foundation Rating	14.3%	
Soil Interaction Rating	48.2%	

Check Limitation	
Apply TIA-222-H Section 15.5:	☐
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☒
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

[Go to Soil Calculations](#)

Soil Profile														
Groundwater Depth		2	# of Layers		27									
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	Y _{soil} (pcf)	Y _{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. Net Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	100	150		28	0.000	0.000	0.00	0.00			Cohesionless
2	2	3	1	37.6	87.6		28	0.000	0.000	0.00	0.00			Cohesionless
3	3	4.3	1.3	37.6	87.6		28	0.000	0.000	0.10	0.10			Cohesionless
4	4.3	6.5	2.2	42.6	87.6		30	0.000	0.000	0.30	0.30			Cohesionless
5	6.5	7.8	1.3	62.6	87.6		36	0.000	0.000	0.70	0.70			Cohesionless
6	7.8	8.8	1	47.6	87.6	1	0	0.550	0.550	0.55	0.55			Cohesive
7	8.8	10	1.2	47.6	87.6		32	0.00	0.00	0.70	0.70			Cohesionless
8	10	12	2	52.6	87.6	2	0	1.10	1.10	1.00	1.00			Cohesive
9	12	22	10	57.6	87.6	2.5	0	1.38	1.38	1.15	1.15			Cohesive
10	22	23.8	1.8	52.6	87.6	2	0	1.10	1.10	1.00	1.00			Cohesive
11	23.8	26	2.2	62.6	87.6		36	0.00	0.00	1.20	1.20			Cohesionless
12	26	28.8	2.8	52.6	87.6	2	0	1.10	1.10	1.00	1.00			Cohesive
13	28.8	29.3	0.5	57.6	87.6		34	0.00	0.00	1.10	1.10			Cohesionless
14	29.3	29.8	0.5	57.6	87.6	2.5	0	1.38	1.38	1.15	1.15			Cohesive
15	29.8	31.1	1.3	57.6	87.6		34	0.00	0.00	1.15	1.15			Cohesionless
16	31.1	31.5	0.4	57.6	87.6	2.5	0	1.38	1.38	1.15	1.15			Cohesive
17	31.5	32.7	1.2	57.6	87.6		34	0.00	0.00	1.15	1.15			Cohesionless
18	32.7	36.5	3.8	52.6	87.6	2	0	1.10	1.10	1.00	1.00			Cohesive
19	36.5	37.2	0.7	62.6	87.6		36	0.00	0.00	1.40	1.40			Cohesionless
20	37.2	38.4	1.2	52.6	87.6	2	0	1.10	1.10	1.00	1.00			Cohesive
21	38.4	38.7	0.3	52.6	87.6		33	0.00	0.00	1.00	1.00			Cohesionless
22	38.7	40.2	1.5	52.6	87.6	1.75	0	0.96	0.96	0.90	0.90			Cohesive
23	40.2	41.6	1.4	57.6	87.6		34	0.00	0.00	1.15	1.15			Cohesionless
24	41.6	42.4	0.8	57.6	87.6	2.5	0	1.38	1.38	1.15	1.15			Cohesive
25	42.4	43.4	1.0	57.6	87.6		34	0.00	0.00	1.15	1.15			Cohesionless
26	43.5	45	1.5	57.6	87.6	3	0	1.65	1.65	1.40	1.40			Cohesive
27	45	50	5	62.6	87.6		36	0.00	0.00	1.60	1.60	18		Cohesionless

Location				
	Decimal Degrees	Deg	Min	Sec
Lat:		+		
Long:		-		
Code and Site Parameters				
Seismic Design Code:	TIA-222-H			
Site Soil:	D (Default)		Default	
Risk Category:	II			
<u>USGS Seismic Reference</u>	S _s :	0.1300	g	
	S ₁ :	0.0600	g	
	T _L :	8	s	
Seismic Design Category Determination				
Importance Factor, I _e :	1			
Acceleration-based site coefficient, F _a :	1.6000			
Velocity-based site coefficient, F _v :	2.4000			
Design spectral response acceleration short period, S _{DS} :	0.1387		g	
Design spectral response acceleration 1 s period, S _{D1} :	0.0960		g	
Seismic Design Category Based on S _{DS} :	A			
Seismic Design Category Based on S _{D1} :	B			
Seismic Design Category Based on S ₁ :	N/A			
Controlling Seismic Design Category:	B			

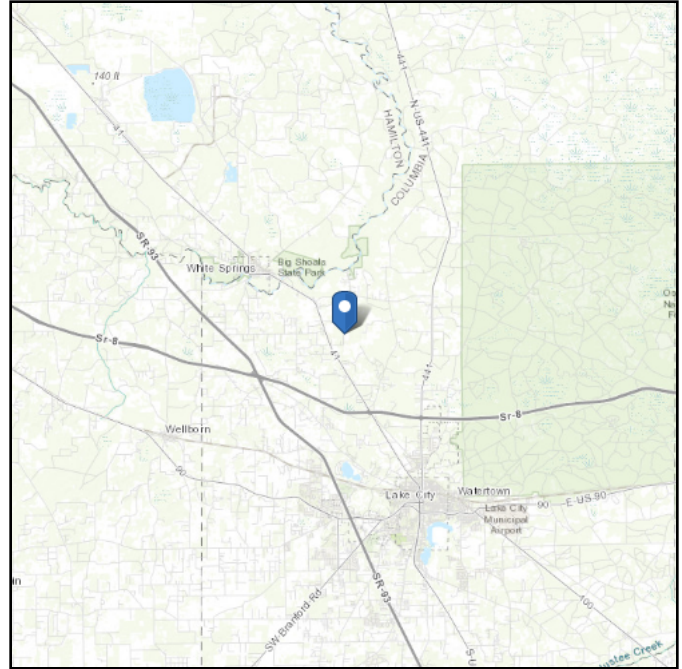
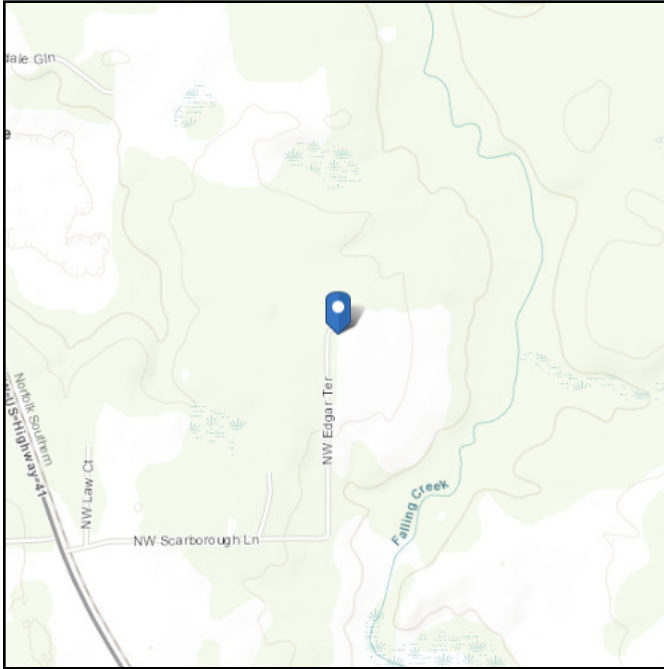
Tower Details			
Tower Type:	Self-Support		
Height, h:	250	ft	
Effective Seismic Weight, W:	64.90	kips	
Amplification Factor, A_s :	1.0		2.7.8.1
Seismic Base Shear			
Response Modification Factor, R:	3		
	w_a :	13.1400	ft
	w_0 :	22.5000	ft
	W_1 :	31.8678	kips
Weight of Structure and Appurtenances within top 5%, W_2 :	4.7349	kips	
	K_f :	4540	ft
	F_a :	0.8906	hz
Approximate Fundamental Period Self-Support, T_a :	1.1228	s	2.7.7.1.3.2
Seismic Response Coefficient, C_s	0.0462		2.7.7.1.1
Seismic Response Coefficient Max 1, C_{smax}	0.0285		2.7.7.1.1
Seismic Response Coefficient Max 2, C_{smax}	N/A		2.7.7.1.1
Seismic Response Coefficient Min 1, C_{smin}	0.0300		2.7.7.1.1
Seismic Response Coefficient Min 2, C_{smin}	N/A		2.7.7.1.1
Controlling Seismic Response Coefficient, C_{sc}	0.0300		
Seismic Base Shear, V	1.947	kips	2.7.7.1.1
Vertical Distribution Factors			
Period Related Exponent, k:	1.311		2.7.7.1.2
Sum of $w_i h_i^k$	30791.62		2.7.7.1.2

ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-22
Risk Category: II
Soil Class: Default

Latitude: 30.292781
Longitude: -82.693297
Elevation: 133.55172952627987 ft
(NAVD 88)



Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph
300-year MRI	108 Vmph
700-year MRI	118 Vmph
1,700-year MRI	127 Vmph
3,000-year MRI	132 Vmph
10,000-year MRI	142 Vmph
100,000-year MRI	152 Vmph
1,000,000-year MRI	166 Vmph

Data Source: ASCE/SEI 7-22, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Nov 04 2025



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 7-22 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years). Values for 10-year MRI, 25-year MRI, 50-year MRI and 100-year MRI are Service Level wind speeds, all other wind speeds are Ultimate wind speeds.

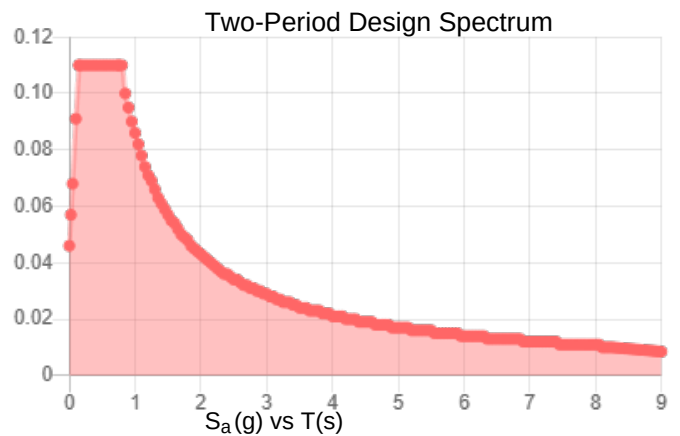
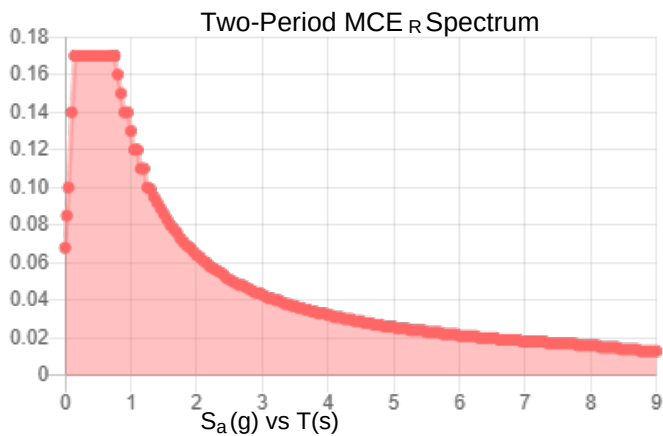
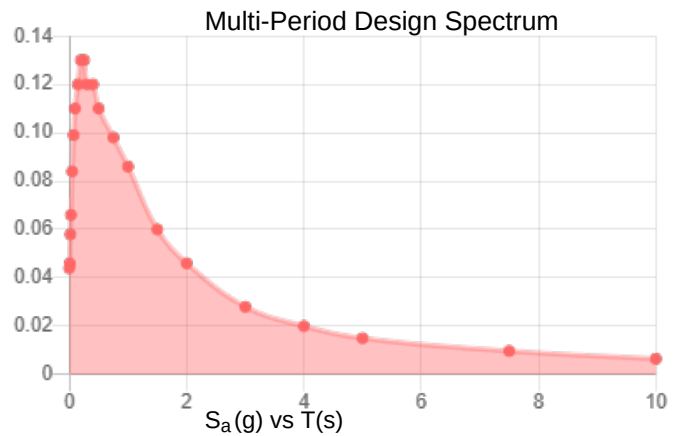
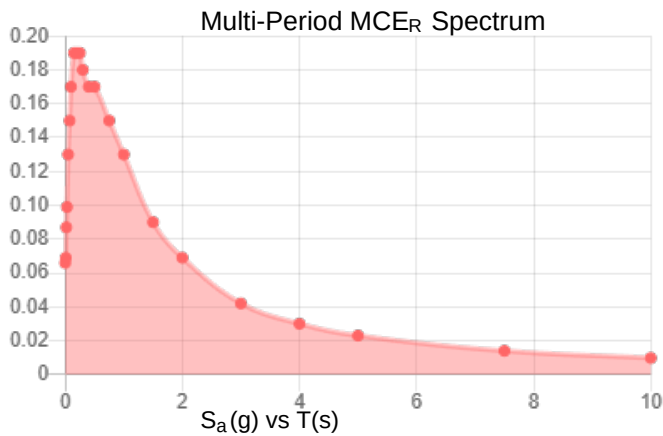
Site is in a hurricane-prone region as defined in ASCE/SEI 7-22 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: Default

Results:

PGA _M :	0.061	T _L :	8
S _{MS} :	0.17	S _S :	0.13
S _{M1} :	0.13	S ₁ :	0.06
S _{DS} :	0.11	V _{S30} :	260
S _{D1} :	0.086		

Seismic Design Category: B



MCE_R Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Design Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Data Accessed: Tue Nov 04 2025

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-22 and ASCE/SEI 7-22 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-22 Ch. 21 are available from USGS.

Results:

Ice Thickness: N/A
Concurrent Temperature: N/A
3-s Gust Speed N/A

Data Source: Standard ASCE/SEI 7-22, Figs. 10-2 through 10-8

Date Accessed: Tue Nov 04 2025

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 for 250, 500, 1,000, and 1,400-year mean recurrence intervals along with concurrent 3-s gust speeds and concurrent air temperatures. The shading indicates special icing regions, with elevations above 2,100 ft (640 m) in the east, 6,000 ft (1829 m) in the west, and 1,600 ft (488 m) in Alaska, with sparse weather station data for determining design ice loads. In these regions, as well as in regions with complex terrain causing unusual icing conditions and regions where snow or in-cloud icing results in larger loads, the mapped values should be adjusted based on a combination of local historical records and experience, reanalysis data, and numerical weather prediction systems.

The ASCE 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 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.

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Attachment 2: Collocation Application

**COLOCATION APPLICATION - P-083786****SITE NUMBER: US-FL-5317****Version: 1****Tenant Legal Name:** Cellco Partnership d/b/a
Verizon Wireless**Vertical Bridge REIT, LLC.**22 West Atlantic Avenue, Suite 310
Delray Beach, FL 33444

SUMMARY

PRIMARY INFO

Application #: P-083786

Application Version: 1 (Submitted: 10/21/2025 15:30:09)

Application Type: Broadband

Application Name: Spradley

Lease Type: Amendment

ASR Number: Not required for Broadband Applications

Description: Verizon proposes to remove (6) RRUS, add (6) antennas and (3) RRUS. Replace the existing LP generator with a 50kw LP generator on existing concrete slab. Reserve (9) RRUS, (1) OVP, (1) hybrid, (18) coax and (1) microwave.

VERTICAL BRIDGE SITE INFO

VB Site #: US-FL-5317

VB Site Name: Spradley

Latitude: 30.292781

Longitude: -82.693297

Structure Type: SST

Structure Height: 249.8

Site Address: 529 NW Edgar Terrace -
Lake City, FL 32055

VERTICAL BRIDGE DEAL TEAM

RLM: Jamie Harris Jamie.Harris@verticalbridge.com 941.374.5513	LPM: Darlene Martin Darlene.Martin@verticalbridge.com 561.923.0685	ROM: Chris Warren Chris.Warren@verticalbridge.com
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TENANT LEGAL INFO

Tenant Legal Name: Cellco Partnership d/b/a Verizon Wireless

State of Registration: DE

Carrier NOC #: (800) 264-6620

Tenant Site #: 5000042014

Tenant Site Name: Spradley

APPLICANT

Name: Beth Barrington

Address: 1324 Seven Springs Blvd #314
New Port Richey, FL 34655

Phone Number: (941) 716-2123

Email Address: beth.barrington@caawireless.com

FINAL LEASED RIGHTS CONFIGURATION TOTALS

This is a summary of your remaining existing equipment plus the new equipment.

FINAL EQUIPMENT

QTY	Equipment Location	Equipment Type
1	GROUND	Generator
1	TOWER	Microwave Dish
3	TOWER	Surge Arrestor/Raycap/Squid
12	TOWER	Panel
12	TOWER	RRU

FINAL FEED LINES

QTY	Line Type
18	Coax
3	Hybrid



COLOCATION APPLICATION - P-083786

SITE NUMBER: **US-FL-5317**

Version: 1

Tenant Legal Name: Cellco Partnership d/b/a
Verizon Wireless

Vertical Bridge REIT, LLC.

22 West Atlantic Avenue, Suite 310
Delray Beach, FL 33444

FREQUENCY & TECHNOLOGY INFO

Type of Technology:	Broadband Wireless		
Is TX Frequency Licensed:	Yes	TX Frequency:	698-798, 880-894, 1950-1970, 2110-2130, 2155-2170, 3700-3980
Is RX Frequency Licensed:	Yes	RX Frequency:	698-798, 835-849, 1870-1890, 1710-1730, 1755-1770, 3700-3980
CBand frequency being used?:	New		

MOUNT & STRUCTURAL ANALYSIS

MOUNT ANALYSIS

Provided by Tenant: Yes

To Be Run by VB:

Include Mount Mapping:

STRUCTURAL HARD COPIES

Required: No

Number of Hard Copies:

CONTACTS

INVOICE CONTACT

Attention To	Name	Address	Phone Number 1	Phone Number 2	Email 1	Email 2
	Beth Barrington	1324 Seven Springs Boulevard, #314 New Port Richey, FL 34655	(941) 716-2123		beth.barrington@caawireless.com	

PO CONTACT

Name	Phone	Email
Kathy Cicero	(561) 995-5555	kathy.cicero@verizonwireless.com

TENANT CONTACT

Name	Phone	Email
Kathy Cicero	(561) 995-5555	kathy.cicero@verizonwireless.com

GROUND EQUIPMENT

Any Changes Required: Yes

Primary Lease Space Area (sq ft): 490ft²

EQUIPMENT

Equipment Type	Equipment Base	Generator Type	Dimensions (W in x L in)	Make	Owner	Size	Within PLSA	Comments
Generator	Concrete Pad	Propane	4.00 x 19.00	50 kw TBD			Yes	Replacing the existing LP generator with a new 50kw LP generator in the same location on the existing concrete pad.

**COLOCATION APPLICATION - P-083786****SITE NUMBER: US-FL-5317****Version: 1****Tenant Legal Name:** Cellco Partnership d/b/a
Verizon Wireless**Vertical Bridge REIT, LLC.**22 West Atlantic Avenue, Suite 310
Delray Beach, FL 33444

TOWER EQUIPMENT

Any Changes Required: Yes**RAD CENTER 1** Height: 245.00 ft.**Mount 1:** Sector Frames

EQUIPMENT

Status	QTY	Equipment Type	Equipment RAD H (ft)	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Azimuth (°)
Existing	4	Panel	245.00	Commscope	NHH- 65C- R2B	96.00	11.90	7.10	51.60	340/235
Existing	2	Panel	245.00	Commscope	NHH- 45C- R2B	95.90	17.90	7.00	84.60	160
Existing	2	Surge Arrestor/ Raycap/ Squid	245.00	Raycap	OVP- 6	28.93	15.73	10.30	32.00	340/160
Proposed	3	Panel	245.00	Ericsson	AIR6419	28.30	16.10	8.00	71.00	340/160/235
Proposed	3	Panel	245.00	Ericsson	AIR3283	47.20	20.00	10.90	110.00	340/160/235
Proposed	3	RRU	245.00	Ericsson	4490	17.50	15.20	6.80	68.40	340/160/235
Remove	3	RRU	245.00	Ericsson	4449	17.90	13.20	9.20	67.00	340/160/235
Reserved	3	RRU	245.00	Ericsson	8843	15.00	13.20	11.10	75.00	340/160/235
Reserved	6	RRU	245.00	Ericsson	RRUS32 or similar	27.20	12.10	7.01	53.00	340/160/235
Reserved	1	Surge Arrestor/ Raycap/ Squid	245.00	Raycap	OVP- 6	28.93	15.73	10.30	32.00	235

FEED LINES

Status	QTY	Line Type	Line Size (in)	Line Location	Comments					
Existing	2	Hybrid	1.55 in	Exterior						
Reserved	18	Coax	1.63 in	Exterior						
Reserved	1	Hybrid	1.55 in	Exterior						

RAD CENTER 2 Height: 180.00 ft.**Mount 1:** Pipe Mount

EQUIPMENT

Status	QTY	Equipment Type	Equipment RAD H (ft)	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Azimuth (°)
Reserved	1	Microwave Dish	180.00	Commscope	UHX6- 59L or similar	72.00	1.00	1.00	320.00	0

UTILITIES

Any Changes Required: No