



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Post-Mod Structural Analysis Report

Existing 79 ft Sabre Monopole

Customer Name: SBA Communications Corp

Customer Site Number: TX09257-A

Customer Site Name: Stephenville B

Carrier Name: T-Mobile (App#: 107892, v4)

Carrier Site ID / Name: DA01789B / DA01789B

Site Location: 580 W Vanderbilt

Stephenville, Texas

Erath County

Latitude: 32.222124

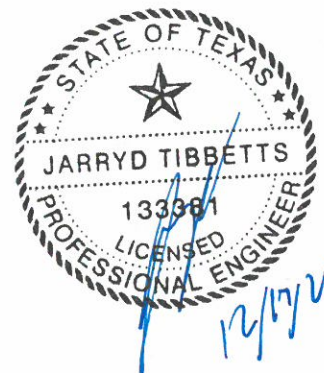
Longitude: -98.208694

Analysis Result:

Max Structural Usage: 75.6% [Pass]

Max Foundation Usage: 72.4% [Pass]

Report Prepared By: Walter Velez



Tower Engineering Solutions, LLC
Texas Registered Engineering Firm
F-15688



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Introduction

The purpose of this report is to summarize the analysis results on the 79 ft Sabre Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	Original structural design report prepared by Sabre Communications Corporation. Dated 02-08-2005. Job No 05-01062. Drawing No 05-01062-PE. Previous structural report prepared by Tower Engineering Solutions. Dated 11-19-2021. TES Project No 119454.
Foundation Drawing	Original foundation report prepared by Sabre Communications Corporation. Dated 02-08-2005. Job No 05-01062.
Geotechnical Report	Geotechnical report prepared by Terracon. Dated 02-08-2005. Project No 03055023.
Modification Drawings	N/A
Mount Analysis	Antenna mount analysis report prepared by Tower Engineering Solutions. Dated 11-15-2021. TES Project No 119317.
Proposed Modification	Tower Engineering Solutions Job # 119731

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis: (Based on IBC 2015 IBC)	Ultimate Design Wind Speed $V_{ult} = 115.0$ mph (3-Sec. Gust) Nominal Design Wind Speed $V_{asd} = 89.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	30 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 & IBC 2015
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_5 = 0.069$, $S_1 = 0.041$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	67.0	6	Commscope SBNHH-1D65B - Panel	Platform w/ Hand Rails w/ Reinforcement Kit (Site Pro1 PRK-1245) & Reinforcement Kit (SitePro1 PRK-SFS)	(6) 1 5/8" Coax; (1) 3/8" RET Line; (7) 7/8" DC Power; (3) 1/2" Fiber	AT&T
2		6	Commscope JAHH-65B-R3B - Panel			
3		6	Andrew ETD819G-12UB TMA's			
4		3	Ericsson RRUS-32 B66 RRU's			
5		3	Ericsson RRUS 32 RRU's			
6		3	Ericsson RRUS 11 RRU's			
7		3	Ericsson RRUS 4478 B14 RRU's			
8		3	Ericsson RRUS 4478 B5 RRU's			
9		3	Ericsson RRUS 4415 B25 RRU's			
10		3	Ericsson RRUS 32 B2 RRU's			
11		3	Raycap DC6-48-60-18-8F DC Surge			
12		1	Raycap DC6-48-60-18-8C DC Surge			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
13	80.0	3	Commscope FFVV-65C-R3 - Panel	Platform w/ Hand Rails (PVLPPGS 12M HR AP1)	(2) 1.55" Hybrid	T-Mobile
14		3	Nsn AEHC - Panel			
15		3	Nokia AHFIG RRU's			
16		3	Nokia AHLOA RRU's			
17		2	Nokia HCS 2.0 Tower			

All transmission lines are considered running inside of the pole shafts. Please see the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	75.6%	56.1%	29.7%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	333.0	6.0	6.3
Analysis Reactions	621.7	9.0	18.6
Factored Reactions*	449.6	8.1	8.5

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.6145 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222-G-2 Standard and tafter the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 119731

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed T-Mobile equipment loading can be installed prior to the completion of the required modifications.

Since the proposed equipment will be installed on the proposed extension, the Carrier cannot install their proposed loading prior to the mods completion.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 59.51% at 60.0ft

Structure: TX09257-A-SBA
Site Name: Stephenville B
Height: 79.00 (ft)
Base Elev: 1.000 (ft)

Code: EIA/TIA-222-G
Exposure: B
Gh: 1.1

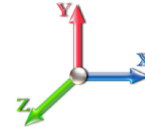
12/17/2021



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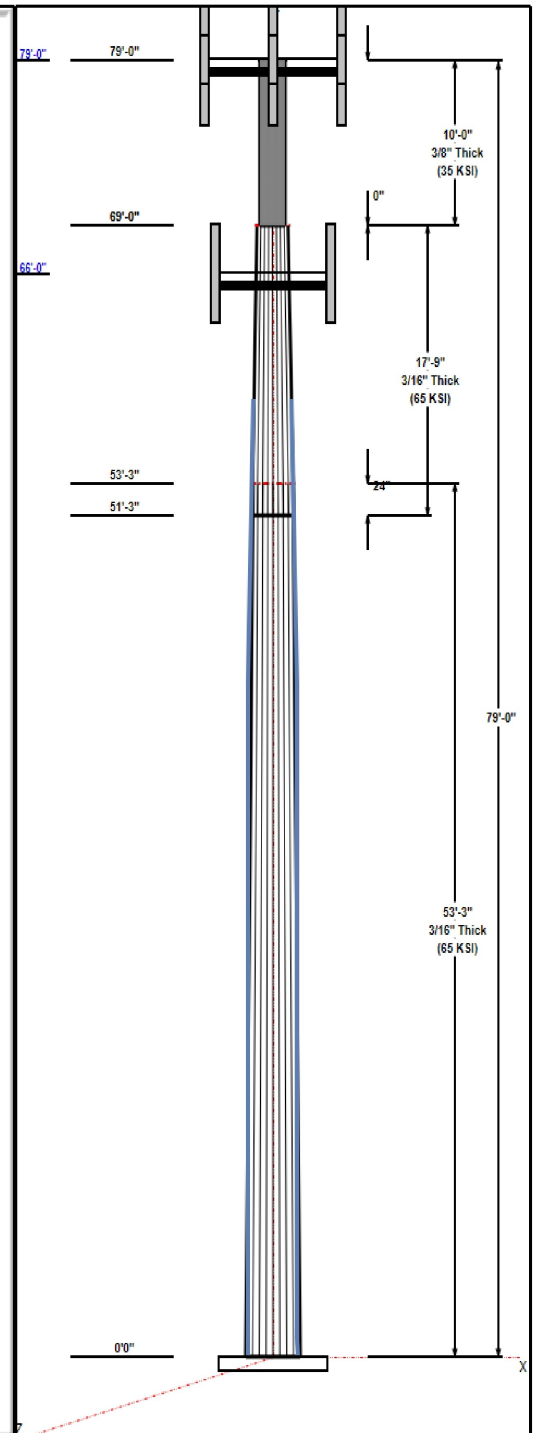
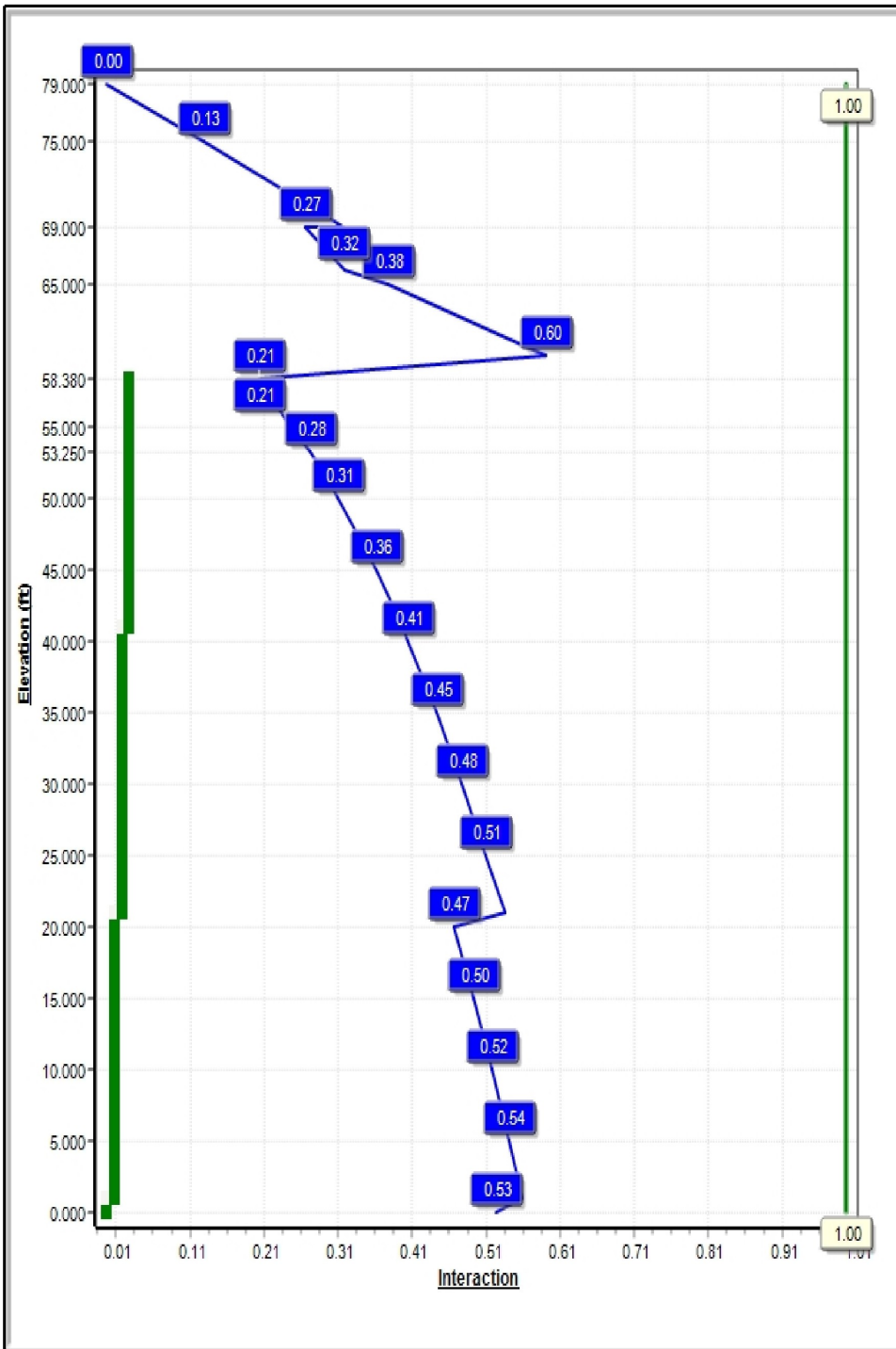
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 89 mph Wind



Iterations: 23

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Structure: TX09257-A-SBA

Type: Custom
Site Name: Stephenville B
Height: 79.00 (ft)
Base Elev: 1.00 (ft)

Base Shape: 18 Sided
Taper: 0.17036

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	14.31	23.38	0.188		0.17036	65
2	17.75	12.00	15.02	0.188	Slip	0.17036	65
3	10.00	10.75	10.75	0.375	Butt	0.00000	35

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
79.00	82.50	1	Lightning Rod @ 80'	---
79.00	79.00	3	Commscope	T-Mobile
79.00	79.00	3	Nsn AEHC	T-Mobile
79.00	79.00	3	Nokia AHFIG RRU's	T-Mobile
79.00	79.00	3	Nokia AHLOA RRU's	T-Mobile
79.00	79.00	2	Nokia HCS 2.0 Tower	T-Mobile
79.00	79.00	1	Platform w/ Hand Rails	T-Mobile
66.00	66.00	1	Reinforcement Kit (Site	AT&T
66.00	66.00	1	Reinforcement Kit	AT&T
66.00	66.00	1	Collar Mount	AT&T
66.00	66.00	6	Commscope	AT&T
66.00	66.00	6	Commscope	AT&T
66.00	66.00	6	Andrew ETD819G-12UB	AT&T
66.00	66.00	3	Ericsson RRUS-32 B66	AT&T
66.00	66.00	3	Ericsson RRUS 32 RRU's	AT&T
66.00	66.00	3	Ericsson RRUS 11 RRU's	AT&T
66.00	66.00	3	Ericsson RRUS 4478 B14	AT&T
66.00	66.00	3	Ericsson RRUS 4478 B5	AT&T
66.00	66.00	3	Ericsson RRUS 4415 B25	AT&T
66.00	66.00	3	Ericsson RRUS 32 B2	AT&T
66.00	66.00	3	Raycap DC6-48-60-18-8F	AT&T
66.00	66.00	1	Raycap DC6-48-60-18-8C	AT&T
66.00	66.00	1	Platform w/ Hand Rails	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	79.00	Inside	1.55" Hybrid	T-Mobile
3.00	66.00	Inside	1 5/8" Coax	AT&T
3.00	66.00	Inside	1/2" Fiber	AT&T
3.00	66.00	Inside	3/8" RET Line	AT&T
3.00	66.00	Inside	7/8" DC Power	AT&T
20.00	60.00	Outside	6"x1.0" Link Plate	TES
0.00	20.00	Outside	6"x1.25" Link Plate	TES

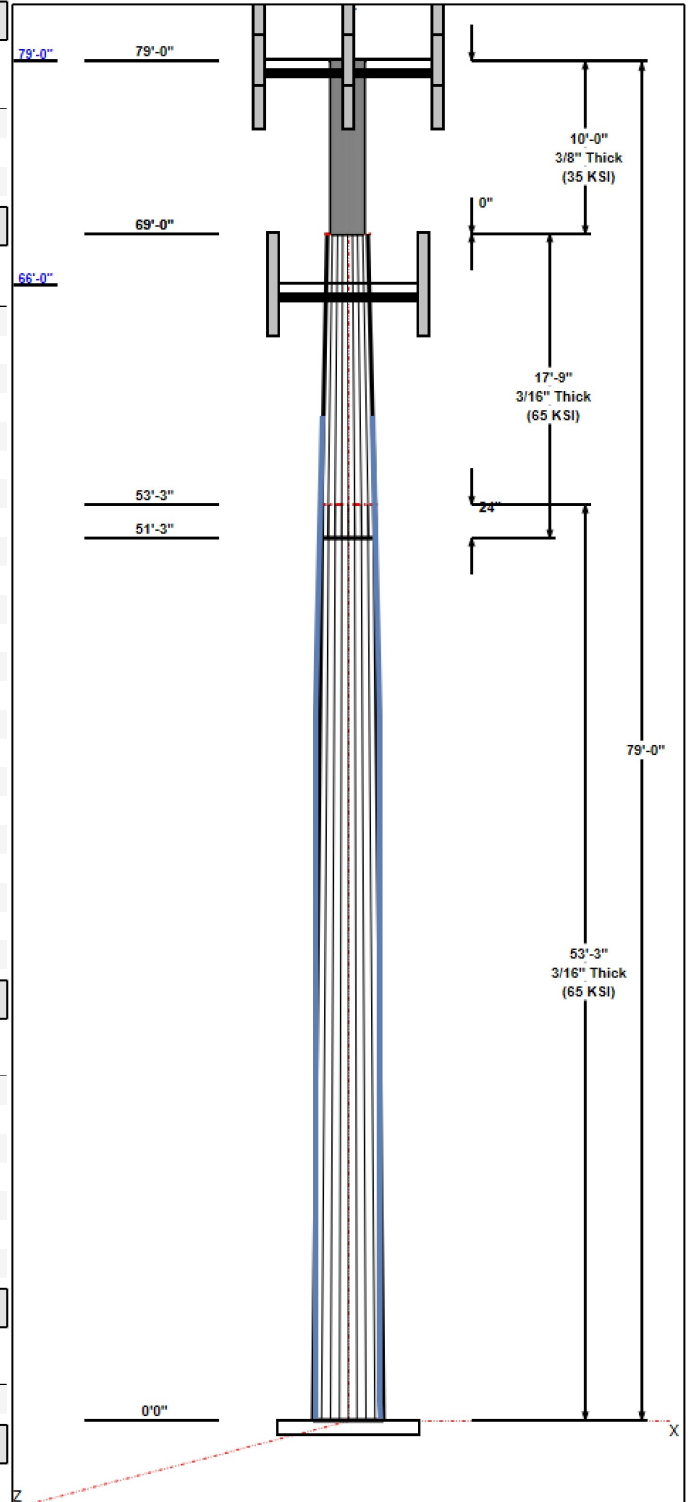
Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	1.25" A449	81.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.2500	31.0	60.0	Round

Reactions



Structure: TX09257-A-SBA

Type: Custom
Site Name: Stephenville B
Height: 79.00 (ft)
Base Elev: 1.00 (ft)

Base Shape: 18 Sided
Taper: 0.00000

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Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 89 mph Wind	621.7	9.0	18.6
0.9D + 1.6W 89 mph Wind	610.5	9.0	13.9
1.2D + 1.0Di + 1.0Wi 30 mph Wind	70.2	1.0	30.6
1.2D + 1.0E	33.7	0.4	18.6
0.9D + 1.0E	33.0	0.4	14.0
1.0D + 1.0W 60 mph Wind	175.9	2.6	15.5

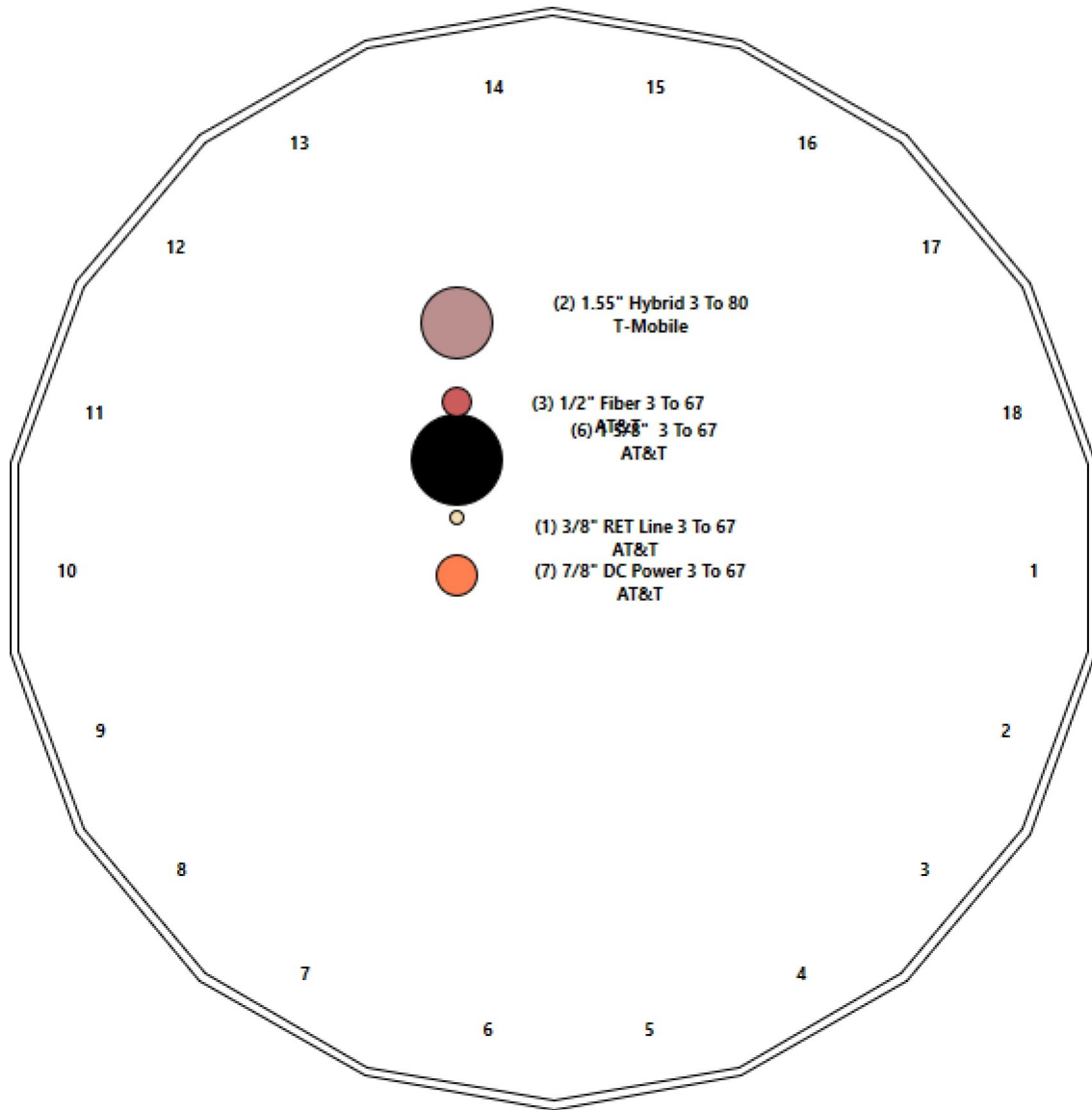
Structure: TX09257-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Stephenville B
Height: 79.00 (ft)

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Shaft Properties

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.1875	65		0.00	2,012
2	18	17.750	0.1875	65	Slip	24.00	479
3	R	10.000	0.3750	35	Flange	0.00	416
Total Shaft Weight:							2,907

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	23.38	0.00	13.80	937.97	20.58	124.69	14.31	53.25	8.40	211.70	12.04	76.31	0.170362
2	15.02	51.25	8.83	245.55	12.72	80.13	12.00	69.00	7.03	123.93	9.87	64.00	0.170362
3	10.75	69.00	12.22	164.58	0.00	28.67	10.75	79.00	12.22	164.58	0.00	28.67	0.000000

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors		Termination Connectors			
							Description	Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty
0.00	1.00	3	SOL 2 1/4" William R71	128	150	5.25	5/8" Hollo Bolt	12.00	M20 NexGen2			
1.00	21.00	3	LNP LP6X125-BW-20B	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
21.00	41.00	3	LNP LP6X100-G-20BC	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
41.00	58.38	3	LNP LP6X100-G-20CT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		8

Load Summary

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	79.00	Lightning Rod @ 80'	1	35.00	1.05	1.00	64.50	3.279	1.00	0.00	3.50
2	79.00	Commscope FFVV-65C-R3	3	124.56	21.12	0.72	546.87	22.921	0.72	0.00	0.00
3	79.00	Nsn AEHC	3	99.20	6.73	0.69	255.21	7.709	0.69	0.00	0.00
4	79.00	Nokia AHFIG RRU's	3	70.50	2.75	0.67	132.20	3.349	0.67	0.00	0.00
5	79.00	Nokia AHLOA RRU's	3	84.00	2.20	0.67	140.99	2.775	0.67	0.00	0.00
6	79.00	Nokia HCS 2.0 Tower	2	19.00	3.20	0.67	91.86	4.333	0.67	0.00	0.00
7	79.00	Platform w/ Hand Rails (PVLPPGS	1	1925.00	31.90	1.00	3817.91	52.812	1.00	0.00	0.00
8	66.00	Reinforcement Kit (Site Pro1	1	464.91	9.50	1.00	764.33	18.677	1.00	0.00	0.00
9	66.00	Reinforcement Kit (SitePro1	1	197.00	6.30	1.00	450.75	12.386	1.00	0.00	0.00
10	66.00	Collar Mount	1	150.60	2.50	0.80	344.58	4.915	0.80	0.00	0.00
11	66.00	Commscope SBNHH-1D65B	6	40.00	8.16	0.83	224.63	9.353	0.83	0.00	0.00
12	66.00	Commscope JAHH-65B-R3B	6	63.30	9.11	0.83	273.08	10.347	0.83	0.00	0.00
13	66.00	Andrew ETD819G-12UB TMA's	6	31.00	1.84	0.60	65.06	2.665	0.60	0.00	0.00
14	66.00	Ericsson RRUS-32 B66 RRU's	3	53.00	2.74	0.67	132.70	3.408	0.67	0.00	0.00
15	66.00	Ericsson RRUS 32 RRU's	3	60.00	2.74	0.67	139.70	3.408	0.67	0.00	0.00
16	66.00	Ericsson RRUS 11 RRU's	3	50.71	2.78	0.67	128.82	3.409	0.67	0.00	0.00
17	66.00	Ericsson RRUS 4478 B14 RRU's	3	59.40	2.02	0.67	97.66	2.605	0.67	0.00	0.00
18	66.00	Ericsson RRUS 4478 B5 RRU's	3	59.90	1.84	0.67	105.00	2.346	0.67	0.00	0.00
19	66.00	Ericsson RRUS 4415 B25 RRU's	3	46.00	1.84	0.67	83.92	2.373	0.67	0.00	0.00
20	66.00	Ericsson RRUS 32 B2 RRU's	3	53.00	2.74	0.67	132.70	3.408	0.67	0.00	0.00
21	66.00	Raycap DC6-48-60-18-8F DC Surge	3	32.80	3.70	0.67	91.63	5.325	0.67	0.00	0.00
22	66.00	Raycap DC6-48-60-18-8C DC Surge	1	20.00	1.90	0.67	68.68	2.818	0.67	0.00	0.00
23	66.00	Platform w/ Hand Rails	1	1600.00	32.00	1.00	3537.25	57.761	1.00	0.00	0.00
Totals:			63	7,615.52			18,570.52				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
3.00	79.00	(2) 1.55" Hybrid	0.00	Inside
3.00	66.00	(6) 1 5/8" Coax	0.00	Inside
3.00	66.00	(3) 1/2" Fiber	0.00	Inside
3.00	66.00	(1) 3/8" RET Line	0.00	Inside
3.00	66.00	(7) 7/8" DC Power	0.00	Inside
20.00	60.00	(3) 6"x1.0" Link Plate	0.00	Outside
0.00	20.00	(3) 6"x1.25" Link Plate	0.00	Outside

Shaft Section Properties

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00	RB1	0.1875	23.380	13.802	938.0	20.58	124.69	65	77	0.0	12.24	2437.5	1526.0	
1.00	RT1 RB2	0.1875	23.210	13.701	917.5	20.42	123.78	65	77	46.8	22.50	2077.3	1319.8	76.6
5.00		0.1875	22.528	13.295	838.4	19.78	120.15	65	78	183.7	22.50	1964.7	1249.4	306.2
10.00		0.1875	21.676	12.788	746.1	18.97	115.61	65	79	221.9	22.50	1828.5	1164.2	382.8
15.00		0.1875	20.825	12.281	660.8	18.17	111.06	65	80	213.3	22.50	1697.2	1082.1	382.8
20.00		0.1875	19.973	11.774	582.3	17.37	106.52	65	81	204.6	22.50	1570.9	1003.1	382.8
21.00	RT2 RB3	0.1875	19.802	11.673	567.4	17.21	105.61	65	81	39.9	18.00	1208.3	772.5	61.2
25.00		0.1875	19.121	11.267	510.3	16.57	101.98	65	82	156.1	18.00	1131.9	724.7	245.0
30.00		0.1875	18.269	10.760	444.5	15.77	97.44	65	83	187.4	18.00	1039.9	667.2	306.2
35.00		0.1875	17.417	10.254	384.6	14.97	92.89	65	83	178.8	18.00	952.0	612.2	306.2
40.00		0.1875	16.566	9.747	330.3	14.17	88.35	65	83	170.1	18.00	868.0	559.7	306.2
41.00	RT3 RB4	0.1875	16.395	9.645	320.1	14.01	87.44	65	83	33.0	18.00	851.7	549.5	61.2
45.00		0.1875	15.714	9.240	281.4	13.37	83.81	65	83	128.5	18.00	788.0	509.7	245.0
50.00		0.1875	14.862	8.733	237.6	12.57	79.26	65	83	152.9	18.00	712.0	462.1	306.2
51.25	Bot - Section 2	0.1875	14.649	8.606	227.4	12.37	78.13	65	83	36.9	18.00	693.6	450.7	76.6
53.25	Top - Section 1	0.1875	14.683	8.626	229.0	12.40	78.31	65	83	117.3	18.00	696.5	452.5	122.5
55.00		0.1875	14.385	8.449	215.2	12.12	76.72	65	83	50.8	18.00	671.2	436.6	107.2
58.38	RT4	0.1875	13.809	8.106	190.0	11.58	73.65	65	83	95.2	18.00	623.6	406.9	207.0
60.00		0.1875	13.533	7.942	178.7	11.32	72.18	65	83	44.2				
65.00		0.1875	12.681	7.435	146.6	10.52	67.63	65	83	130.8				
66.00		0.1875	12.511	7.334	140.7	10.35	66.73	65	83	25.1				
69.00	Top - Section 2	0.1875	12.000	7.030	123.9	9.87	64.00	65	83	73.3				
69.00	Bot - Section 3	0.3750	10.750	12.223	164.6	4.94	32.00	35	35					
70.00		0.3750	10.750	12.223	164.6	0.00	28.67	35	35	41.6				
75.00		0.3750	10.750	12.223	164.6	0.00	28.67	35	35	208.0				
79.00		0.3750	10.750	12.223	164.6	0.00	28.67	35	35	166.4				
Total Weight										2906.6	3882.0			

Wind Loading - Shaft

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

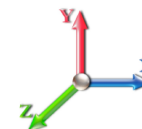


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Load Case: 1.2D + 1.6W 89 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.70	13.485	14.83	147.32	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.70	13.485	14.83	146.24	0.650	0.000	1.00	1.971	1.28	30.4	0.0	56.2
5.00		1.00	0.70	13.485	14.83	141.95	0.650	0.000	4.00	7.741	5.03	119.4	0.0	220.5
10.00		1.00	0.70	13.485	14.83	136.58	0.650	0.000	5.00	9.351	6.08	144.3	0.0	266.3
15.00		1.00	0.70	13.485	14.83	131.21	0.650	0.000	5.00	8.991	5.84	138.7	0.0	255.9
20.00		1.00	0.70	13.485	14.83	125.85	0.650	0.000	5.00	8.631	5.61	133.1	0.0	245.6
21.00	RT2 RB3	1.00	0.70	13.485	14.83	124.77	0.650	0.000	1.00	1.683	1.09	26.0	0.0	47.9
25.00		1.00	0.70	13.485	14.83	120.48	0.650	0.000	4.00	6.587	4.28	101.6	0.0	187.3
30.00		1.00	0.71	13.623	14.99	115.70	0.650	0.000	5.00	7.910	5.14	123.3	0.0	224.9
35.00		1.00	0.74	14.218	15.64	112.69	0.650	0.000	5.00	7.549	4.91	122.8	0.0	214.5
40.00		1.00	0.77	14.756	16.23	109.19	0.650	0.000	5.00	7.189	4.67	121.4	0.0	204.2
41.00	RT3 RB4	1.00	0.77	14.858	16.34	108.44	0.650	0.000	1.00	1.395	0.91	23.7	0.0	39.6
45.00		1.00	0.79	15.249	16.77	105.29	0.650	0.000	4.00	5.434	3.53	94.8	0.0	154.2
50.00		1.00	0.82	15.705	17.28	101.06	0.650	0.000	5.00	6.468	4.20	116.2	0.0	183.5
51.25	Bot - Section 2	1.00	0.82	15.814	17.40	99.96	0.650	0.000	1.25	1.561	1.01	28.2	0.0	44.3
53.25	Top - Section 1	1.00	0.83	15.985	17.58	98.16	0.650	0.000	2.00	2.514	1.63	46.0	0.0	140.7
55.00		1.00	0.84	16.131	17.74	99.13	0.650	0.000	1.75	2.152	1.40	39.7	0.0	61.0
58.38	RT4	1.00	0.85	16.403	18.04	95.97	0.650	0.000	3.38	4.032	2.62	75.7	0.0	114.2
60.00		1.00	0.86	16.530	18.18	94.41	0.650	0.000	1.62	1.874	1.22	35.4	0.0	53.1
65.00		1.00	0.88	16.906	18.60	89.47	0.650	0.000	5.00	5.546	3.60	107.3	0.0	157.0
66.00	Appurtenance(s)	1.00	0.88	16.979	18.68	88.46	0.650	0.000	1.00	1.066	0.69	20.7	0.0	30.2
69.00	Top - Section 2	1.00	0.89	17.193	18.91	85.38	0.650	0.000	3.00	3.111	2.02	61.2	0.0	88.0
70.00		1.00	0.90	17.263	18.99	75.47	0.600	0.000	1.00	0.896	0.54	16.3	0.0	49.9
75.00		1.00	0.91	17.601	19.36	76.21	0.600	0.000	5.00	4.479	2.69	83.3	0.0	249.5
79.00	Appurtenance(s)	1.00	0.93	17.861	19.65	76.77	0.600	0.000	4.00	3.583	2.15	67.6	0.0	199.6
Totals:									79.00			1,877.0		3,487.9

Discrete Appurtenance Forces

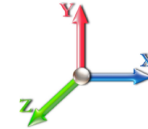
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 89 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	79.00	Nokia AHFIG RRU's	3	17.861	19.647	0.50	0.75	4.15	253.80	0.000	0.000	130.32	0.00	0.00	
2	79.00	Lightning Rod @ 80'	1	18.081	19.889	1.00	1.00	1.05	42.00	0.000	3.500	33.41	0.00	116.95	
3	79.00	Commscope	3	17.861	19.647	0.54	0.75	34.21	448.42	0.000	0.000	1075.56	0.00	0.00	
4	79.00	Nsn AEHC	3	17.861	19.647	0.52	0.75	10.45	357.12	0.000	0.000	328.45	0.00	0.00	
5	79.00	Platform w/ Hand Rails	1	17.861	19.647	1.00	1.00	31.90	2310.00	0.000	0.000	1002.81	0.00	0.00	
6	79.00	Nokia AHLOA RRU's	3	17.861	19.647	0.50	0.75	3.32	302.40	0.000	0.000	104.26	0.00	0.00	
7	79.00	Nokia HCS 2.0 Tower	2	17.861	19.647	0.50	0.75	3.22	45.60	0.000	0.000	101.10	0.00	0.00	
8	66.00	Reinforcement Kit (Site	1	16.979	18.677	0.75	0.75	7.13	557.89	0.000	0.000	212.92	0.00	0.00	
9	66.00	Platform w/ Hand Rails	1	16.979	18.677	1.00	1.00	32.00	1920.00	0.000	0.000	956.25	0.00	0.00	
10	66.00	Raycap DC6-48-60-18-8C	1	16.979	18.677	0.50	0.75	0.95	24.00	0.000	0.000	28.53	0.00	0.00	
11	66.00	Raycap DC6-48-60-18-8F	3	16.979	18.677	0.50	0.75	5.58	118.08	0.000	0.000	166.68	0.00	0.00	
12	66.00	Ericsson RRUS 32 B2	3	16.979	18.677	0.50	0.75	4.13	190.80	0.000	0.000	123.43	0.00	0.00	
13	66.00	Ericsson RRUS 4415 B25	3	16.979	18.677	0.50	0.75	2.77	165.60	0.000	0.000	82.89	0.00	0.00	
14	66.00	Ericsson RRUS 4478 B5	3	16.979	18.677	0.50	0.75	2.77	215.64	0.000	0.000	82.89	0.00	0.00	
15	66.00	Ericsson RRUS 4478 B14	3	16.979	18.677	0.50	0.75	3.05	213.84	0.000	0.000	91.00	0.00	0.00	
16	66.00	Ericsson RRUS 11 RRU's	3	16.979	18.677	0.50	0.75	4.19	182.56	0.000	0.000	125.23	0.00	0.00	
17	66.00	Ericsson RRUS 32 RRU's	3	16.979	18.677	0.50	0.75	4.13	216.00	0.000	0.000	123.43	0.00	0.00	
18	66.00	Ericsson RRUS-32 B66	3	16.979	18.677	0.50	0.75	4.13	190.80	0.000	0.000	123.43	0.00	0.00	
19	66.00	Andrew ETD819G-12UB	6	16.979	18.677	0.45	0.75	4.97	223.20	0.000	0.000	148.46	0.00	0.00	
20	66.00	Commscope	6	16.979	18.677	0.62	0.75	34.03	455.76	0.000	0.000	1016.79	0.00	0.00	
21	66.00	Commscope	6	16.979	18.677	0.62	0.75	30.48	288.00	0.000	0.000	910.76	0.00	0.00	
22	66.00	Collar Mount	1	16.979	18.677	0.64	0.80	1.60	180.72	0.000	0.000	47.81	0.00	0.00	
23	66.00	Reinforcement Kit	1	16.979	18.677	0.75	0.75	4.72	236.40	0.000	0.000	141.20	0.00	0.00	
Totals:									9,138.62						7,157.61

Total Applied Force Summary

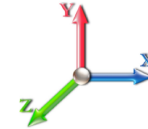
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 89 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		30.41	148.02	0.00	0.00
5.00		119.41	624.10	0.00	0.00
10.00		144.26	815.99	0.00	0.00
15.00		138.70	805.64	0.00	0.00
20.00		133.14	795.29	0.00	0.00
21.00		25.96	139.46	0.00	0.00
25.00		101.62	553.68	0.00	0.00
30.00		123.27	682.79	0.00	0.00
35.00		122.79	672.44	0.00	0.00
40.00		121.36	662.09	0.00	0.00
41.00		23.70	131.18	0.00	0.00
45.00		94.80	520.56	0.00	0.00
50.00		116.21	641.39	0.00	0.00
51.25		28.24	158.73	0.00	0.00
53.25		45.97	323.90	0.00	0.00
55.00		39.72	221.28	0.00	0.00
58.38		75.66	423.80	0.00	0.00
60.00		35.44	201.45	0.00	0.00
65.00		107.26	247.34	0.00	0.00
66.00	(47) attachments	4402.40	5427.51	0.00	0.00
69.00		61.19	101.51	0.00	0.00
70.00		16.33	54.42	0.00	0.00
75.00		83.25	272.11	0.00	0.00
79.00	(16) attachments	2843.50	3977.02	0.00	116.95
Totals:		9,034.58	18,601.67	0.00	116.95

Linear Appurtenance Segment Forces (Factored)

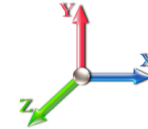
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 89 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	6"x1.25" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	91.87
5.00	6"x1.25" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	367.49
10.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	459.36
15.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	459.36
20.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	459.36
21.00	6"x1.0" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	73.51
25.00	6"x1.0" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	294.05
30.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	13.623	0.00	367.56
35.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	14.218	0.00	367.56
40.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	14.756	0.00	367.56
41.00	6"x1.0" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	14.858	0.00	73.51
45.00	6"x1.0" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	15.249	0.00	294.05
50.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	15.705	0.00	367.56
51.25	6"x1.0" Link Plate	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	15.814	0.00	91.89
53.25	6"x1.0" Link Plate	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	15.985	0.00	147.02
55.00	6"x1.0" Link Plate	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	16.131	0.00	128.65
58.38	6"x1.0" Link Plate	Yes	3.38	0.000	0.00	0.00	0.00	0.000	0.000	16.403	0.00	248.47
60.00	6"x1.0" Link Plate	Yes	1.62	0.000	0.00	0.00	0.00	0.000	0.000	16.530	0.00	119.09
Totals:											0.0	4,777.9

Calculated Forces

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 89 mph Wind

Iterations 23

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-18.60	-9.05	0.00	-621.74	0.00	621.74	958.95	479.48	913.66	457.51	0.00	0.000	0.000	0.527
1.00	-18.42	-9.08	0.00	-612.69	0.00	612.69	954.23	477.12	902.43	451.89	0.01	-0.071	0.000	0.562
5.00	-17.74	-9.06	0.00	-576.39	0.00	576.39	935.00	467.50	857.86	429.57	0.20	-0.373	0.000	0.545
10.00	-16.87	-9.02	0.00	-531.09	0.00	531.09	910.20	455.10	803.00	402.10	0.79	-0.749	0.000	0.522
15.00	-16.01	-8.97	0.00	-486.00	0.00	486.00	884.53	442.27	749.15	375.13	1.77	-1.127	0.000	0.497
20.00	-15.18	-8.88	0.00	-441.14	0.00	441.14	858.01	429.00	696.42	348.73	3.15	-1.504	0.000	0.470
21.00	-15.01	-8.91	0.00	-432.26	0.00	432.26	852.60	426.30	686.02	343.52	3.48	-1.582	0.000	0.539
25.00	-14.40	-8.89	0.00	-396.63	0.00	396.63	830.62	415.31	644.90	322.93	4.95	-1.934	0.000	0.513
30.00	-13.65	-8.84	0.00	-352.19	0.00	352.19	799.45	399.72	592.50	296.69	7.21	-2.364	0.000	0.480
35.00	-12.92	-8.78	0.00	-307.99	0.00	307.99	761.79	380.89	537.71	269.26	9.91	-2.785	0.000	0.447
40.00	-12.23	-8.68	0.00	-264.08	0.00	264.08	724.12	362.06	485.59	243.16	13.05	-3.192	0.000	0.409
41.00	-12.07	-8.69	0.00	-255.40	0.00	255.40	716.59	358.30	475.48	238.09	13.72	-3.275	0.000	0.400
45.00	-11.51	-8.63	0.00	-220.65	0.00	220.65	686.46	343.23	436.12	218.38	16.60	-3.586	0.000	0.365
50.00	-10.84	-8.51	0.00	-177.49	0.00	177.49	648.80	324.40	389.31	194.94	20.55	-3.943	0.000	0.315
51.25	-10.67	-8.49	0.00	-166.85	0.00	166.85	639.39	319.69	378.02	189.29	21.59	-4.030	0.000	0.301
53.25	-10.33	-8.45	0.00	-149.86	0.00	149.86	640.90	320.45	379.83	190.20	23.31	-4.163	0.000	0.277
55.00	-10.09	-8.42	0.00	-135.08	0.00	135.08	627.72	313.86	364.27	182.40	24.85	-4.269	0.000	0.250
58.38	-9.66	-8.33	0.00	-106.63	0.00	106.63	602.26	301.13	335.13	167.82	27.94	-4.447	0.000	0.208
58.38	-9.66	-8.33	0.00	-106.63	0.00	106.63	602.26	301.13	335.13	167.82	27.94	-4.447	0.000	0.208
60.00	-9.41	-8.34	0.00	-93.14	0.00	93.14	590.06	295.03	321.60	161.04	29.46	-4.524	0.000	0.595
65.00	-9.13	-8.26	0.00	-51.45	0.00	51.45	552.40	276.20	281.59	141.01	34.52	-5.100	0.000	0.382
66.00	-4.11	-3.40	0.00	-43.19	0.00	43.19	544.87	272.43	273.91	137.16	35.60	-5.191	0.000	0.323
69.00	-4.00	-3.34	0.00	-32.99	0.00	32.99	522.27	261.13	251.50	125.94	38.93	-5.422	0.000	0.270
69.00	-4.00	-3.34	0.00	-32.99	0.00	32.99	385.02	192.51	160.54	106.00	38.93	-5.422	0.000	0.322
70.00	-3.94	-3.33	0.00	-29.65	0.00	29.65	385.02	192.51	160.54	106.00	40.08	-5.494	0.000	0.290
75.00	-3.67	-3.23	0.00	-13.02	0.00	13.02	385.02	192.51	160.54	106.00	45.93	-5.679	0.000	0.133
79.00	0.00	-2.84	0.00	-0.12	0.00	0.12	385.02	192.51	160.54	106.00	50.71	-5.724	0.000	0.001

Wind Loading - Shaft

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 89 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.70	13.485	14.83	147.32	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.70	13.485	14.83	146.24	0.650	0.000	1.00	1.971	1.28	30.4	0.0	42.1
5.00		1.00	0.70	13.485	14.83	141.95	0.650	0.000	4.00	7.741	5.03	119.4	0.0	165.3
10.00		1.00	0.70	13.485	14.83	136.58	0.650	0.000	5.00	9.351	6.08	144.3	0.0	199.7
15.00		1.00	0.70	13.485	14.83	131.21	0.650	0.000	5.00	8.991	5.84	138.7	0.0	191.9
20.00		1.00	0.70	13.485	14.83	125.85	0.650	0.000	5.00	8.631	5.61	133.1	0.0	184.2
21.00	RT2 RB3	1.00	0.70	13.485	14.83	124.77	0.650	0.000	1.00	1.683	1.09	26.0	0.0	35.9
25.00		1.00	0.70	13.485	14.83	120.48	0.650	0.000	4.00	6.587	4.28	101.6	0.0	140.5
30.00		1.00	0.71	13.623	14.99	115.70	0.650	0.000	5.00	7.910	5.14	123.3	0.0	168.7
35.00		1.00	0.74	14.218	15.64	112.69	0.650	0.000	5.00	7.549	4.91	122.8	0.0	160.9
40.00		1.00	0.77	14.756	16.23	109.19	0.650	0.000	5.00	7.189	4.67	121.4	0.0	153.1
41.00	RT3 RB4	1.00	0.77	14.858	16.34	108.44	0.650	0.000	1.00	1.395	0.91	23.7	0.0	29.7
45.00		1.00	0.79	15.249	16.77	105.29	0.650	0.000	4.00	5.434	3.53	94.8	0.0	115.7
50.00		1.00	0.82	15.705	17.28	101.06	0.650	0.000	5.00	6.468	4.20	116.2	0.0	137.6
51.25	Bot - Section 2	1.00	0.82	15.814	17.40	99.96	0.650	0.000	1.25	1.561	1.01	28.2	0.0	33.2
53.25	Top - Section 1	1.00	0.83	15.985	17.58	98.16	0.650	0.000	2.00	2.514	1.63	46.0	0.0	105.5
55.00		1.00	0.84	16.131	17.74	99.13	0.650	0.000	1.75	2.152	1.40	39.7	0.0	45.8
58.38	RT4	1.00	0.85	16.403	18.04	95.97	0.650	0.000	3.38	4.032	2.62	75.7	0.0	85.7
60.00		1.00	0.86	16.530	18.18	94.41	0.650	0.000	1.62	1.874	1.22	35.4	0.0	39.8
65.00		1.00	0.88	16.906	18.60	89.47	0.650	0.000	5.00	5.546	3.60	107.3	0.0	117.7
66.00	Appurtenance(s)	1.00	0.88	16.979	18.68	88.46	0.650	0.000	1.00	1.066	0.69	20.7	0.0	22.6
69.00	Top - Section 2	1.00	0.89	17.193	18.91	85.38	0.650	0.000	3.00	3.111	2.02	61.2	0.0	66.0
70.00		1.00	0.90	17.263	18.99	75.47	0.600	0.000	1.00	0.896	0.54	16.3	0.0	37.4
75.00		1.00	0.91	17.601	19.36	76.21	0.600	0.000	5.00	4.479	2.69	83.3	0.0	187.2
79.00	Appurtenance(s)	1.00	0.93	17.861	19.65	76.77	0.600	0.000	4.00	3.583	2.15	67.6	0.0	149.7
Totals:									79.00			1,877.0		2,616.0

Discrete Appurtenance Forces

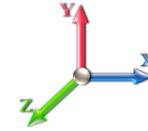
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 89 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	79.00	Nokia AHFIG RRU's	3	17.861	19.647	0.50	0.75	4.15	190.35	0.000	0.000	130.32	0.00	0.00
2	79.00	Lightning Rod @ 80'	1	18.081	19.889	1.00	1.00	1.05	31.50	0.000	3.500	33.41	0.00	116.95
3	79.00	Commscope	3	17.861	19.647	0.54	0.75	34.21	336.31	0.000	0.000	1075.56	0.00	0.00
4	79.00	Nsn AEHC	3	17.861	19.647	0.52	0.75	10.45	267.84	0.000	0.000	328.45	0.00	0.00
5	79.00	Platform w/ Hand Rails	1	17.861	19.647	1.00	1.00	31.90	1732.50	0.000	0.000	1002.81	0.00	0.00
6	79.00	Nokia AHLOA RRU's	3	17.861	19.647	0.50	0.75	3.32	226.80	0.000	0.000	104.26	0.00	0.00
7	79.00	Nokia HCS 2.0 Tower	2	17.861	19.647	0.50	0.75	3.22	34.20	0.000	0.000	101.10	0.00	0.00
8	66.00	Reinforcement Kit (Site	1	16.979	18.677	0.75	0.75	7.13	418.42	0.000	0.000	212.92	0.00	0.00
9	66.00	Platform w/ Hand Rails	1	16.979	18.677	1.00	1.00	32.00	1440.00	0.000	0.000	956.25	0.00	0.00
10	66.00	Raycap DC6-48-60-18-8C	1	16.979	18.677	0.50	0.75	0.95	18.00	0.000	0.000	28.53	0.00	0.00
11	66.00	Raycap DC6-48-60-18-8F	3	16.979	18.677	0.50	0.75	5.58	88.56	0.000	0.000	166.68	0.00	0.00
12	66.00	Ericsson RRUS 32 B2	3	16.979	18.677	0.50	0.75	4.13	143.10	0.000	0.000	123.43	0.00	0.00
13	66.00	Ericsson RRUS 4415 B25	3	16.979	18.677	0.50	0.75	2.77	124.20	0.000	0.000	82.89	0.00	0.00
14	66.00	Ericsson RRUS 4478 B5	3	16.979	18.677	0.50	0.75	2.77	161.73	0.000	0.000	82.89	0.00	0.00
15	66.00	Ericsson RRUS 4478 B14	3	16.979	18.677	0.50	0.75	3.05	160.38	0.000	0.000	91.00	0.00	0.00
16	66.00	Ericsson RRUS 11 RRU's	3	16.979	18.677	0.50	0.75	4.19	136.92	0.000	0.000	125.23	0.00	0.00
17	66.00	Ericsson RRUS 32 RRU's	3	16.979	18.677	0.50	0.75	4.13	162.00	0.000	0.000	123.43	0.00	0.00
18	66.00	Ericsson RRUS-32 B66	3	16.979	18.677	0.50	0.75	4.13	143.10	0.000	0.000	123.43	0.00	0.00
19	66.00	Andrew ETD819G-12UB	6	16.979	18.677	0.45	0.75	4.97	167.40	0.000	0.000	148.46	0.00	0.00
20	66.00	Commscope	6	16.979	18.677	0.62	0.75	34.03	341.82	0.000	0.000	1016.79	0.00	0.00
21	66.00	Commscope	6	16.979	18.677	0.62	0.75	30.48	216.00	0.000	0.000	910.76	0.00	0.00
22	66.00	Collar Mount	1	16.979	18.677	0.64	0.80	1.60	135.54	0.000	0.000	47.81	0.00	0.00
23	66.00	Reinforcement Kit	1	16.979	18.677	0.75	0.75	4.72	177.30	0.000	0.000	141.20	0.00	0.00
Totals:									6,853.97			7,157.61		

Total Applied Force Summary

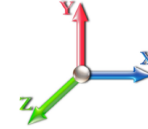
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 89 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		30.41	111.02	0.00	0.00
5.00		119.41	468.07	0.00	0.00
10.00		144.26	611.99	0.00	0.00
15.00		138.70	604.23	0.00	0.00
20.00		133.14	596.46	0.00	0.00
21.00		25.96	104.59	0.00	0.00
25.00		101.62	415.26	0.00	0.00
30.00		123.27	512.09	0.00	0.00
35.00		122.79	504.33	0.00	0.00
40.00		121.36	496.57	0.00	0.00
41.00		23.70	98.38	0.00	0.00
45.00		94.80	390.42	0.00	0.00
50.00		116.21	481.04	0.00	0.00
51.25		28.24	119.05	0.00	0.00
53.25		45.97	242.93	0.00	0.00
55.00		39.72	165.96	0.00	0.00
58.38		75.66	317.85	0.00	0.00
60.00		35.44	151.08	0.00	0.00
65.00		107.26	185.50	0.00	0.00
66.00	(47) attachments	4402.40	4070.64	0.00	0.00
69.00		61.19	76.13	0.00	0.00
70.00		16.33	40.82	0.00	0.00
75.00		83.25	204.08	0.00	0.00
79.00	(16) attachments	2843.50	2982.77	0.00	116.95
Totals:		9,034.58	13,951.26	0.00	116.95

Linear Appurtenance Segment Forces (Factored)

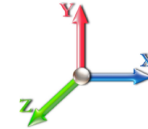
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 89 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	6"x1.25" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	68.90
5.00	6"x1.25" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	275.62
10.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	344.52
15.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	344.52
20.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	344.52
21.00	6"x1.0" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	55.13
25.00	6"x1.0" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	13.485	0.00	220.54
30.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	13.623	0.00	275.67
35.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	14.218	0.00	275.67
40.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	14.756	0.00	275.67
41.00	6"x1.0" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	14.858	0.00	55.13
45.00	6"x1.0" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	15.249	0.00	220.54
50.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	15.705	0.00	275.67
51.25	6"x1.0" Link Plate	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	15.814	0.00	68.92
53.25	6"x1.0" Link Plate	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	15.985	0.00	110.27
55.00	6"x1.0" Link Plate	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	16.131	0.00	96.48
58.38	6"x1.0" Link Plate	Yes	3.38	0.000	0.00	0.00	0.00	0.000	0.000	16.403	0.00	186.35
60.00	6"x1.0" Link Plate	Yes	1.62	0.000	0.00	0.00	0.00	0.000	0.000	16.530	0.00	89.32
Totals:											0.0	3,583.4

Calculated Forces

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 89 mph Wind

Iterations 23

Dead Load Factor 0.90
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-13.95	-9.04	0.00	-610.47	0.00	610.47	958.95	479.48	913.66	457.51	0.00	0.000	0.000	0.515
1.00	-13.81	-9.06	0.00	-601.43	0.00	601.43	954.23	477.12	902.43	451.89	0.01	-0.070	0.000	0.550
5.00	-13.29	-9.01	0.00	-565.20	0.00	565.20	935.00	467.50	857.86	429.57	0.19	-0.366	0.000	0.533
10.00	-12.62	-8.94	0.00	-520.14	0.00	520.14	910.20	455.10	803.00	402.10	0.77	-0.735	0.000	0.509
15.00	-11.96	-8.87	0.00	-475.41	0.00	475.41	884.53	442.27	749.15	375.13	1.74	-1.104	0.000	0.484
20.00	-11.33	-8.77	0.00	-431.05	0.00	431.05	858.01	429.00	696.42	348.73	3.09	-1.473	0.000	0.458
21.00	-11.20	-8.78	0.00	-422.28	0.00	422.28	852.60	426.30	686.02	343.52	3.41	-1.550	0.000	0.525
25.00	-10.73	-8.74	0.00	-387.14	0.00	387.14	830.62	415.31	644.90	322.93	4.85	-1.893	0.000	0.500
30.00	-10.16	-8.67	0.00	-343.44	0.00	343.44	799.45	399.72	592.50	296.69	7.06	-2.312	0.000	0.467
35.00	-9.60	-8.60	0.00	-300.07	0.00	300.07	761.79	380.89	537.71	269.26	9.70	-2.723	0.000	0.434
40.00	-9.07	-8.49	0.00	-257.09	0.00	257.09	724.12	362.06	485.59	243.16	12.77	-3.120	0.000	0.396
41.00	-8.95	-8.49	0.00	-248.61	0.00	248.61	716.59	358.30	475.48	238.09	13.43	-3.200	0.000	0.388
45.00	-8.51	-8.42	0.00	-214.66	0.00	214.66	686.46	343.23	436.12	218.38	16.24	-3.503	0.000	0.354
50.00	-8.01	-8.30	0.00	-172.56	0.00	172.56	648.80	324.40	389.31	194.94	20.09	-3.850	0.000	0.304
51.25	-7.88	-8.28	0.00	-162.18	0.00	162.18	639.39	319.69	378.02	189.29	21.11	-3.935	0.000	0.291
53.25	-7.62	-8.23	0.00	-145.62	0.00	145.62	640.90	320.45	379.83	190.20	22.79	-4.064	0.000	0.268
55.00	-7.44	-8.20	0.00	-131.21	0.00	131.21	627.72	313.86	364.27	182.40	24.30	-4.167	0.000	0.241
58.38	-7.11	-8.12	0.00	-103.50	0.00	103.50	602.26	301.13	335.13	167.82	27.31	-4.340	0.000	0.200
58.38	-7.11	-8.12	0.00	-103.50	0.00	103.50	602.26	301.13	335.13	167.82	27.31	-4.340	0.000	0.200
60.00	-6.92	-8.11	0.00	-90.35	0.00	90.35	590.06	295.03	321.60	161.04	28.79	-4.414	0.000	0.574
65.00	-6.70	-8.02	0.00	-49.80	0.00	49.80	552.40	276.20	281.59	141.01	33.73	-4.972	0.000	0.366
66.00	-3.02	-3.29	0.00	-41.78	0.00	41.78	544.87	272.43	273.91	137.16	34.78	-5.061	0.000	0.310
69.00	-2.94	-3.23	0.00	-31.91	0.00	31.91	522.27	261.13	251.50	125.94	38.03	-5.284	0.000	0.259
69.00	-2.94	-3.23	0.00	-31.91	0.00	31.91	385.02	192.51	160.54	106.00	38.03	-5.284	0.000	0.309
70.00	-2.89	-3.22	0.00	-28.68	0.00	28.68	385.02	192.51	160.54	106.00	39.15	-5.354	0.000	0.278
75.00	-2.69	-3.12	0.00	-12.59	0.00	12.59	385.02	192.51	160.54	106.00	44.85	-5.532	0.000	0.126
79.00	0.00	-2.84	0.00	-0.12	0.00	0.12	385.02	192.51	160.54	106.00	49.50	-5.576	0.000	0.001

Wind Loading - Shaft

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

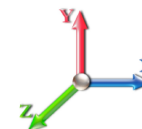


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Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.70	1.532	1.69	0.00	1.200	1.057	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.70	1.532	1.69	0.00	1.200	1.133	1.00	2.160	2.59	4.4	34.2	90.4
5.00		1.00	0.70	1.532	1.69	0.00	1.200	1.265	4.00	8.584	10.30	17.4	149.2	369.7
10.00		1.00	0.70	1.532	1.69	0.00	1.200	1.344	5.00	10.471	12.57	21.2	191.7	458.0
15.00		1.00	0.70	1.532	1.69	0.00	1.200	1.395	5.00	10.154	12.18	20.5	192.1	448.0
20.00		1.00	0.70	1.532	1.69	0.00	1.200	1.434	5.00	9.825	11.79	19.9	190.2	435.7
21.00	RT2 RB3	1.00	0.70	1.532	1.69	0.00	1.200	1.440	1.00	1.923	2.31	3.9	37.9	85.8
25.00		1.00	0.70	1.532	1.69	0.00	1.200	1.465	4.00	7.564	9.08	15.3	149.5	336.8
30.00		1.00	0.71	1.548	1.70	0.00	1.200	1.491	5.00	9.152	10.98	18.7	182.5	407.4
35.00		1.00	0.74	1.615	1.78	0.00	1.200	1.513	5.00	8.810	10.57	18.8	177.5	392.0
40.00		1.00	0.77	1.677	1.84	0.00	1.200	1.533	5.00	8.466	10.16	18.7	171.9	376.0
41.00	RT3 RB4	1.00	0.77	1.688	1.86	0.00	1.200	1.537	1.00	1.651	1.98	3.7	34.1	73.7
45.00		1.00	0.79	1.733	1.91	0.00	1.200	1.551	4.00	6.468	7.76	14.8	132.7	286.9
50.00		1.00	0.82	1.784	1.96	0.00	1.200	1.567	5.00	7.774	9.33	18.3	159.4	342.9
51.25	Bot - Section 2	1.00	0.82	1.797	1.98	0.00	1.200	1.571	1.25	1.888	2.27	4.5	39.4	83.7
53.25	Top - Section 1	1.00	0.83	1.816	2.00	0.00	1.200	1.576	2.00	3.039	3.65	7.3	63.5	204.2
55.00		1.00	0.84	1.833	2.02	0.00	1.200	1.581	1.75	2.614	3.14	6.3	54.7	115.7
58.38	RT4	1.00	0.85	1.864	2.05	0.00	1.200	1.591	3.38	4.928	5.91	12.1	102.6	216.8
60.00		1.00	0.86	1.878	2.07	31.82	1.200	1.595	1.62	2.305	2.77	5.7	48.4	101.5
65.00		1.00	0.88	1.921	2.11	30.16	1.200	1.608	5.00	6.885	8.26	17.5	142.2	299.2
66.00	Appurtenance(s)	1.00	0.88	1.929	2.12	29.82	1.200	1.610	1.00	1.334	1.60	3.4	28.2	58.3
69.00	Top - Section 2	1.00	0.89	1.953	2.15	28.78	1.200	1.617	3.00	3.920	4.70	10.1	81.8	169.8
70.00		1.00	0.90	1.961	2.16	25.44	1.200	1.619	1.00	1.166	1.40	3.0	24.5	74.4
75.00		1.00	0.91	2.000	2.20	25.69	1.200	1.631	5.00	5.838	7.01	15.4	123.3	372.9
79.00	Appurtenance(s)	1.00	0.93	2.029	2.23	25.88	1.200	1.639	4.00	4.676	5.61	12.5	99.2	298.9
Totals:									79.00			293.3	6,098.7	

Discrete Appurtenance Forces

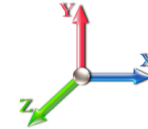
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	79.00	Nokia AHFIG RRU's	3	2.029	2.232	0.50	0.75	5.05	359.10	0.000	0.000	11.27	0.00	0.00
2	79.00	Lightning Rod @ 80'	1	2.054	2.260	1.00	1.00	3.28	62.50	0.000	3.500	7.41	0.00	25.93
3	79.00	Commscope	3	2.029	2.232	0.54	0.75	37.13	1715.35	0.000	0.000	82.89	0.00	0.00
4	79.00	Nsn AEHC	3	2.029	2.232	0.52	0.75	11.97	714.45	0.000	0.000	26.72	0.00	0.00
5	79.00	Platform w/ Hand Rails	1	2.029	2.232	1.00	1.00	52.81	3581.91	0.000	0.000	117.90	0.00	0.00
6	79.00	Nokia AHLOA RRU's	3	2.029	2.232	0.50	0.75	4.18	430.18	0.000	0.000	9.34	0.00	0.00
7	79.00	Nokia HCS 2.0 Tower	2	2.029	2.232	0.50	0.75	4.35	195.13	0.000	0.000	9.72	0.00	0.00
8	66.00	Reinforcement Kit (Site	1	1.929	2.122	0.75	0.75	14.01	762.22	0.000	0.000	29.73	0.00	0.00
9	66.00	Platform w/ Hand Rails	1	1.929	2.122	1.00	1.00	57.76	3257.25	0.000	0.000	122.57	0.00	0.00
10	66.00	Raycap DC6-48-60-18-8C	1	1.929	2.122	0.50	0.75	1.42	57.58	0.000	0.000	3.00	0.00	0.00
11	66.00	Raycap DC6-48-60-18-8F	3	1.929	2.122	0.50	0.75	8.03	244.47	0.000	0.000	17.04	0.00	0.00
12	66.00	Ericsson RRUS 32 B2	3	1.929	2.122	0.50	0.75	5.14	429.89	0.000	0.000	10.90	0.00	0.00
13	66.00	Ericsson RRUS 4415 B25	3	1.929	2.122	0.50	0.75	3.58	251.16	0.000	0.000	7.59	0.00	0.00
14	66.00	Ericsson RRUS 4478 B5	3	1.929	2.122	0.50	0.75	3.54	315.83	0.000	0.000	7.50	0.00	0.00
15	66.00	Ericsson RRUS 4478 B14	3	1.929	2.122	0.50	0.75	3.93	300.41	0.000	0.000	8.33	0.00	0.00
16	66.00	Ericsson RRUS 11 RRU's	3	1.929	2.122	0.50	0.75	5.14	416.89	0.000	0.000	10.90	0.00	0.00
17	66.00	Ericsson RRUS 32 RRU's	3	1.929	2.122	0.50	0.75	5.14	455.09	0.000	0.000	10.90	0.00	0.00
18	66.00	Ericsson RRUS-32 B66	3	1.929	2.122	0.50	0.75	5.14	429.89	0.000	0.000	10.90	0.00	0.00
19	66.00	Andrew ETD819G-12UB	6	1.929	2.122	0.45	0.75	7.19	348.36	0.000	0.000	15.27	0.00	0.00
20	66.00	Commscope	6	1.929	2.122	0.62	0.75	38.65	1714.45	0.000	0.000	82.01	0.00	0.00
21	66.00	Commscope	6	1.929	2.122	0.62	0.75	34.93	1395.79	0.000	0.000	74.13	0.00	0.00
22	66.00	Collar Mount	1	1.929	2.122	0.64	0.80	3.15	308.40	0.000	0.000	6.68	0.00	0.00
23	66.00	Reinforcement Kit	1	1.929	2.122	0.75	0.75	9.29	403.15	0.000	0.000	19.71	0.00	0.00
Totals:									18,149.43			702.44		

Total Applied Force Summary

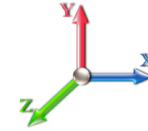
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		4.37	187.49	0.00	0.00
5.00		17.36	797.46	0.00	0.00
10.00		21.18	1040.31	0.00	0.00
15.00		20.54	1031.95	0.00	0.00
20.00		19.87	1020.88	0.00	0.00
21.00		3.89	183.52	0.00	0.00
25.00		15.30	728.29	0.00	0.00
30.00		18.70	897.50	0.00	0.00
35.00		18.79	882.79	0.00	0.00
40.00		18.74	867.45	0.00	0.00
41.00		3.68	172.03	0.00	0.00
45.00		14.79	680.45	0.00	0.00
50.00		18.31	835.34	0.00	0.00
51.25		4.48	206.83	0.00	0.00
53.25		7.29	401.33	0.00	0.00
55.00		6.32	288.26	0.00	0.00
58.38		12.12	550.20	0.00	0.00
60.00		5.71	261.33	0.00	0.00
65.00		17.46	389.59	0.00	0.00
66.00	(47) attachments	440.58	11167.19	0.00	0.00
69.00		10.11	183.32	0.00	0.00
70.00		3.02	78.89	0.00	0.00
75.00		15.41	395.42	0.00	0.00
79.00	(16) attachments	277.78	7375.53	0.00	25.93
Totals:		995.78	30,623.38	0.00	25.93

Linear Appurtenance Segment Forces (Factored)

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

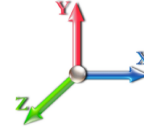


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Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind

Iterations 22

Dead Load Factor 1.20
Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	6"x1.25" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	1.532	0.00	97.14
5.00	6"x1.25" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	1.532	0.00	391.63
10.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	1.532	0.00	491.95
15.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	1.532	0.00	493.56
20.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	1.532	0.00	494.78
21.00	6"x1.0" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	1.532	0.00	79.66
25.00	6"x1.0" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	1.532	0.00	319.20
30.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	1.548	0.00	399.78
35.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	1.615	0.00	400.45
40.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	1.677	0.00	401.05
41.00	6"x1.0" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	1.688	0.00	80.23
45.00	6"x1.0" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	1.733	0.00	321.27
50.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	1.784	0.00	402.09
51.25	6"x1.0" Link Plate	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	1.797	0.00	100.55
53.25	6"x1.0" Link Plate	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	1.816	0.00	160.95
55.00	6"x1.0" Link Plate	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	1.833	0.00	140.89
58.38	6"x1.0" Link Plate	Yes	3.38	0.000	0.00	0.00	0.00	0.000	0.000	1.864	0.00	272.31
60.00	6"x1.0" Link Plate	Yes	1.62	0.000	0.00	0.00	0.00	0.000	0.000	1.878	0.00	130.56
Totals:											0.0	5,178.0

Calculated Forces

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind

Iterations 22

Dead Load Factor 1.20
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-30.62	-1.00	0.00	-70.17	0.00	70.17	958.95	479.48	913.66	457.51	0.00	0.000	0.000	0.075
1.00	-30.44	-1.00	0.00	-69.18	0.00	69.18	954.23	477.12	902.43	451.89	0.00	-0.008	0.000	0.075
5.00	-29.64	-1.01	0.00	-65.16	0.00	65.16	935.00	467.50	857.86	429.57	0.02	-0.042	0.000	0.073
10.00	-28.60	-1.01	0.00	-60.12	0.00	60.12	910.20	455.10	803.00	402.10	0.09	-0.085	0.000	0.070
15.00	-27.56	-1.00	0.00	-55.10	0.00	55.10	884.53	442.27	749.15	375.13	0.20	-0.127	0.000	0.067
20.00	-26.54	-0.99	0.00	-50.08	0.00	50.08	858.01	429.00	696.42	348.73	0.36	-0.170	0.000	0.063
21.00	-26.36	-1.00	0.00	-49.08	0.00	49.08	852.60	426.30	686.02	343.52	0.39	-0.179	0.000	0.073
25.00	-25.63	-1.00	0.00	-45.08	0.00	45.08	830.62	415.31	644.90	322.93	0.56	-0.219	0.000	0.069
30.00	-24.73	-1.00	0.00	-40.07	0.00	40.07	799.45	399.72	592.50	296.69	0.82	-0.268	0.000	0.065
35.00	-23.85	-1.00	0.00	-35.07	0.00	35.07	761.79	380.89	537.71	269.26	1.12	-0.316	0.000	0.061
40.00	-22.98	-0.98	0.00	-30.08	0.00	30.08	724.12	362.06	485.59	243.16	1.48	-0.362	0.000	0.057
41.00	-22.81	-0.99	0.00	-29.10	0.00	29.10	716.59	358.30	475.48	238.09	1.56	-0.372	0.000	0.056
45.00	-22.13	-0.98	0.00	-25.15	0.00	25.15	686.46	343.23	436.12	218.38	1.88	-0.407	0.000	0.052
50.00	-21.29	-0.97	0.00	-20.23	0.00	20.23	648.80	324.40	389.31	194.94	2.33	-0.448	0.000	0.046
51.25	-21.08	-0.97	0.00	-19.02	0.00	19.02	639.39	319.69	378.02	189.29	2.45	-0.458	0.000	0.044
53.25	-20.68	-0.96	0.00	-17.08	0.00	17.08	640.90	320.45	379.83	190.20	2.64	-0.473	0.000	0.041
55.00	-20.39	-0.96	0.00	-15.40	0.00	15.40	627.72	313.86	364.27	182.40	2.82	-0.485	0.000	0.038
58.38	-19.84	-0.95	0.00	-12.16	0.00	12.16	602.26	301.13	335.13	167.82	3.17	-0.505	0.000	0.033
58.38	-19.84	-0.95	0.00	-12.16	0.00	12.16	602.26	301.13	335.13	167.82	3.17	-0.505	0.000	0.033
60.00	-19.58	-0.95	0.00	-10.63	0.00	10.63	590.06	295.03	321.60	161.04	3.34	-0.514	0.000	0.099
65.00	-19.19	-0.94	0.00	-5.87	0.00	5.87	552.40	276.20	281.59	141.01	3.92	-0.580	0.000	0.076
66.00	-8.03	-0.39	0.00	-4.92	0.00	4.92	544.87	272.43	273.91	137.16	4.04	-0.590	0.000	0.051
69.00	-7.85	-0.38	0.00	-3.75	0.00	3.75	522.27	261.13	251.50	125.94	4.42	-0.616	0.000	0.045
69.00	-7.85	-0.38	0.00	-3.75	0.00	3.75	385.02	192.51	160.54	106.00	4.42	-0.616	0.000	0.056
70.00	-7.77	-0.38	0.00	-3.37	0.00	3.37	385.02	192.51	160.54	106.00	4.55	-0.625	0.000	0.052
75.00	-7.37	-0.36	0.00	-1.47	0.00	1.47	385.02	192.51	160.54	106.00	5.22	-0.646	0.000	0.033
79.00	0.00	-0.28	0.00	-0.03	0.00	0.03	385.02	192.51	160.54	106.00	5.76	-0.651	0.000	0.000

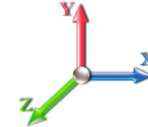
Seismic Segment Forces (Factored)

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E				Iterations 21
Gust Response Factor	1.10	Sds	0.07	Ss 0.07
Dead Load Factor	1.20	Seismic Load Factor	1.00	S1 0.04
Wind Load Factor	0.00	Structure Frequency (f1)	0.26	SA 0.02
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.01	0.01	0.00	
1.00	RT1 RB2	46.79	0.00	0.03	0.01	0.23	
5.00		183.72	0.01	0.06	0.03	1.74	
10.00		221.89	0.04	0.07	0.04	2.54	
15.00		213.26	0.08	0.07	0.04	2.60	
20.00		204.64	0.13	0.07	0.03	2.62	
21.00	RT2 RB3	39.89	0.14	0.07	0.03	0.51	
25.00		156.12	0.20	0.06	0.02	2.04	
30.00		187.39	0.28	0.05	0.01	2.28	
35.00		178.76	0.38	0.02	0.01	1.56	
40.00		170.14	0.50	-0.01	0.01	0.38	
41.00	RT3 RB4	32.99	0.52	-0.02	0.01	0.02	
45.00		128.52	0.62	-0.06	0.02	-0.69	
50.00		152.89	0.77	-0.11	0.05	-1.56	
51.25	Bot - Section 2	36.88	0.81	-0.11	0.06	-0.39	
53.25	Top - Section 1	117.28	0.87	-0.12	0.08	-1.21	
55.00		50.84	0.93	-0.12	0.10	-0.47	
58.38	RT4	95.20	1.04	-0.10	0.15	-0.44	
60.00		44.23	1.10	-0.07	0.19	-0.06	
65.00		130.81	1.29	0.10	0.32	1.77	
66.00	Appurtenance(s)	4507.8	1.33	0.16	0.36	78.29	
69.00	Top - Section 2	73.31	1.45	0.38	0.48	2.24	
70.00		41.59	1.49	0.47	0.53	1.48	
75.00		207.96	1.71	1.14	0.82	13.45	
79.00	Appurtenance(s)	3299.1	1.89	1.98	1.14	308.20	
Totals:		10,522.1				417.1	Total Wind: 9,034.6

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E							Iterations 21
Gust Response Factor	1.10			Sds	0.07		Ss 0.07
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.07		S1 0.04
Wind Load Factor	0.00	Structure Frequency (f1)	0.26	SA	0.02	Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-18.60	-0.42	0.00	-33.70	0.00	33.70	958.95	479.48	913.66	457.51	0.00	0.00	0.00	0.038
1.00	-18.45	-0.43	0.00	-33.28	0.00	33.28	954.23	477.12	902.43	451.89	0.00	0.00	0.00	0.037
5.00	-17.83	-0.43	0.00	-31.58	0.00	31.58	935.00	467.50	857.86	429.57	0.01	-0.02	0.037	0.037
10.00	-17.01	-0.43	0.00	-29.43	0.00	29.43	910.20	455.10	803.00	402.10	0.04	-0.04	0.035	0.035
15.00	-16.21	-0.44	0.00	-27.27	0.00	27.27	884.53	442.27	749.15	375.13	0.10	-0.06	0.034	0.034
20.00	-15.41	-0.43	0.00	-25.09	0.00	25.09	858.01	429.00	696.42	348.73	0.17	-0.08	0.033	0.033
21.00	-15.27	-0.44	0.00	-24.66	0.00	24.66	852.60	426.30	686.02	343.52	0.19	-0.09	0.037	0.037
25.00	-14.72	-0.44	0.00	-22.91	0.00	22.91	830.62	415.31	644.90	322.93	0.27	-0.11	0.036	0.036
30.00	-14.04	-0.44	0.00	-20.70	0.00	20.70	799.45	399.72	592.50	296.69	0.40	-0.13	0.034	0.034
35.00	-13.36	-0.45	0.00	-18.49	0.00	18.49	761.79	380.89	537.71	269.26	0.55	-0.16	0.033	0.033
40.00	-12.70	-0.45	0.00	-16.26	0.00	16.26	724.12	362.06	485.59	243.16	0.73	-0.18	0.031	0.031
41.00	-12.57	-0.45	0.00	-15.82	0.00	15.82	716.59	358.30	475.48	238.09	0.77	-0.19	0.031	0.031
45.00	-12.05	-0.45	0.00	-14.02	0.00	14.02	686.46	343.23	436.12	218.38	0.94	-0.21	0.029	0.029
50.00	-11.41	-0.45	0.00	-11.77	0.00	11.77	648.80	324.40	389.31	194.94	1.17	-0.23	0.026	0.026
51.25	-11.25	-0.45	0.00	-11.20	0.00	11.20	639.39	319.69	378.02	189.29	1.23	-0.24	0.025	0.025
53.25	-10.92	-0.45	0.00	-10.30	0.00	10.30	640.90	320.45	379.83	190.20	1.33	-0.25	0.024	0.024
55.00	-10.70	-0.45	0.00	-9.50	0.00	9.50	627.72	313.86	364.27	182.40	1.42	-0.25	0.023	0.023
58.38	-10.28	-0.45	0.00	-7.97	0.00	7.97	602.26	301.13	335.13	167.82	1.60	-0.27	0.020	0.020
58.38	-10.28	-0.45	0.00	-7.97	0.00	7.97	602.26	301.13	335.13	167.82	1.60	-0.27	0.020	0.020
60.00	-10.08	-0.46	0.00	-7.24	0.00	7.24	590.06	295.03	321.60	161.04	1.69	-0.27	0.062	0.062
65.00	-9.83	-0.46	0.00	-4.95	0.00	4.95	552.40	276.20	281.59	141.01	2.01	-0.32	0.053	0.053
66.00	-4.40	-0.35	0.00	-4.49	0.00	4.49	544.87	272.43	273.91	137.16	2.07	-0.33	0.041	0.041
69.00	-4.30	-0.35	0.00	-3.43	0.00	3.43	522.27	261.13	251.50	125.94	2.29	-0.35	0.036	0.036
69.00	-4.30	-0.35	0.00	-3.43	0.00	3.43	385.02	192.51	160.54	106.00	2.29	-0.35	0.044	0.044
70.00	-4.25	-0.35	0.00	-3.08	0.00	3.08	385.02	192.51	160.54	106.00	2.36	-0.36	0.040	0.040
75.00	-3.97	-0.33	0.00	-1.34	0.00	1.34	385.02	192.51	160.54	106.00	2.75	-0.38	0.023	0.023
79.00	0.00	-0.31	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	3.07	-0.38	0.000	0.000

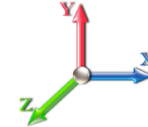
Seismic Segment Forces (Factored)

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E				Iterations 20
Gust Response Factor	1.10	Sds	0.07	Ss 0.07
Dead Load Factor	0.90	Seismic Load Factor	1.00	S1 0.04
Wind Load Factor	0.00	Structure Frequency (f1)	0.26	SA 0.02
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.01	0.01	0.00	
1.00	RT1 RB2	46.79	0.00	0.03	0.01	0.23	
5.00		183.72	0.01	0.06	0.03	1.74	
10.00		221.89	0.04	0.07	0.04	2.54	
15.00		213.26	0.08	0.07	0.04	2.60	
20.00		204.64	0.13	0.07	0.03	2.62	
21.00	RT2 RB3	39.89	0.14	0.07	0.03	0.51	
25.00		156.12	0.20	0.06	0.02	2.04	
30.00		187.39	0.28	0.05	0.01	2.28	
35.00		178.76	0.38	0.02	0.01	1.56	
40.00		170.14	0.50	-0.01	0.01	0.38	
41.00	RT3 RB4	32.99	0.52	-0.02	0.01	0.02	
45.00		128.52	0.62	-0.06	0.02	-0.69	
50.00		152.89	0.77	-0.11	0.05	-1.56	
51.25	Bot - Section 2	36.88	0.81	-0.11	0.06	-0.39	
53.25	Top - Section 1	117.28	0.87	-0.12	0.08	-1.21	
55.00		50.84	0.93	-0.12	0.10	-0.47	
58.38	RT4	95.20	1.04	-0.10	0.15	-0.44	
60.00		44.23	1.10	-0.07	0.19	-0.06	
65.00		130.81	1.29	0.10	0.32	1.77	
66.00	Appurtenance(s)	4507.8	1.33	0.16	0.36	78.29	
69.00	Top - Section 2	73.31	1.45	0.38	0.48	2.24	
70.00		41.59	1.49	0.47	0.53	1.48	
75.00		207.96	1.71	1.14	0.82	13.45	
79.00	Appurtenance(s)	3299.1	1.89	1.98	1.14	308.20	
Totals:		10,522.1				417.1	Total Wind: 9,034.6

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E						Iterations 20
Gust Response Factor	1.10		Sds	0.07		Ss 0.07
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.07	S1 0.04
Wind Load Factor	0.00	Structure Frequency (f1)	0.26	SA	0.02	Seismic Importance Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-13.95	-0.42	0.00	-33.00	0.00	33.00	958.95	479.48	913.66	457.51	0.00	0.00	0.00	0.035
1.00	-13.84	-0.42	0.00	-32.58	0.00	32.58	954.23	477.12	902.43	451.89	0.00	0.00	0.00	0.035
5.00	-13.37	-0.43	0.00	-30.88	0.00	30.88	935.00	467.50	857.86	429.57	0.01	-0.02	0.034	0.034
10.00	-12.76	-0.43	0.00	-28.75	0.00	28.75	910.20	455.10	803.00	402.10	0.04	-0.04	0.033	0.033
15.00	-12.16	-0.43	0.00	-26.61	0.00	26.61	884.53	442.27	749.15	375.13	0.10	-0.06	0.032	0.032
20.00	-11.56	-0.43	0.00	-24.47	0.00	24.47	858.01	429.00	696.42	348.73	0.17	-0.08	0.030	0.030
21.00	-11.45	-0.43	0.00	-24.04	0.00	24.04	852.60	426.30	686.02	343.52	0.19	-0.09	0.035	0.035
25.00	-11.04	-0.43	0.00	-22.32	0.00	22.32	830.62	415.31	644.90	322.93	0.27	-0.11	0.034	0.034
30.00	-10.53	-0.43	0.00	-20.16	0.00	20.16	799.45	399.72	592.50	296.69	0.39	-0.13	0.032	0.032
35.00	-10.02	-0.43	0.00	-18.00	0.00	18.00	761.79	380.89	537.71	269.26	0.54	-0.15	0.030	0.030
40.00	-9.53	-0.43	0.00	-15.82	0.00	15.82	724.12	362.06	485.59	243.16	0.71	-0.18	0.029	0.029
41.00	-9.43	-0.44	0.00	-15.39	0.00	15.39	716.59	358.30	475.48	238.09	0.75	-0.18	0.028	0.028
45.00	-9.04	-0.44	0.00	-13.64	0.00	13.64	686.46	343.23	436.12	218.38	0.91	-0.20	0.027	0.027
50.00	-8.56	-0.44	0.00	-11.45	0.00	11.45	648.80	324.40	389.31	194.94	1.14	-0.22	0.024	0.024
51.25	-8.44	-0.44	0.00	-10.90	0.00	10.90	639.39	319.69	378.02	189.29	1.20	-0.23	0.024	0.024
53.25	-8.19	-0.44	0.00	-10.02	0.00	10.02	640.90	320.45	379.83	190.20	1.30	-0.24	0.022	0.022
55.00	-8.03	-0.44	0.00	-9.26	0.00	9.26	627.72	313.86	364.27	182.40	1.39	-0.25	0.021	0.021
58.38	-7.71	-0.44	0.00	-7.77	0.00	7.77	602.26	301.13	335.13	167.82	1.56	-0.26	0.019	0.019
58.38	-7.71	-0.44	0.00	-7.77	0.00	7.77	602.26	301.13	335.13	167.82	1.56	-0.26	0.019	0.019
60.00	-7.56	-0.44	0.00	-7.05	0.00	7.05	590.06	295.03	321.60	161.04	1.65	-0.26	0.057	0.057
65.00	-7.37	-0.44	0.00	-4.84	0.00	4.84	552.40	276.20	281.59	141.01	1.96	-0.31	0.048	0.048
66.00	-3.30	-0.34	0.00	-4.39	0.00	4.39	544.87	272.43	273.91	137.16	2.02	-0.32	0.038	0.038
69.00	-3.23	-0.34	0.00	-3.36	0.00	3.36	522.27	261.13	251.50	125.94	2.23	-0.34	0.033	0.033
69.00	-3.23	-0.34	0.00	-3.36	0.00	3.36	385.02	192.51	160.54	106.00	2.23	-0.34	0.040	0.040
70.00	-3.18	-0.34	0.00	-3.02	0.00	3.02	385.02	192.51	160.54	106.00	2.31	-0.35	0.037	0.037
75.00	-2.98	-0.33	0.00	-1.31	0.00	1.31	385.02	192.51	160.54	106.00	2.68	-0.37	0.020	0.020
79.00	0.00	-0.31	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	3.00	-0.37	0.000	0.000

Wind Loading - Shaft

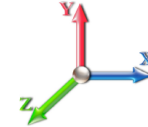
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.70	6.129	6.74	99.31	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.70	6.129	6.74	98.59	0.650	0.000	1.00	1.971	1.28	8.6	0.0	46.8
5.00		1.00	0.70	6.129	6.74	95.70	0.650	0.000	4.00	7.741	5.03	33.9	0.0	183.7
10.00		1.00	0.70	6.129	6.74	92.08	0.650	0.000	5.00	9.351	6.08	41.0	0.0	221.9
15.00		1.00	0.70	6.129	6.74	88.46	0.650	0.000	5.00	8.991	5.84	39.4	0.0	213.3
20.00		1.00	0.70	6.129	6.74	84.84	0.650	0.000	5.00	8.631	5.61	37.8	0.0	204.6
21.00	RT2 RB3	1.00	0.70	6.129	6.74	84.12	0.650	0.000	1.00	1.683	1.09	7.4	0.0	39.9
25.00		1.00	0.70	6.129	6.74	81.22	0.650	0.000	4.00	6.587	4.28	28.9	0.0	156.1
30.00		1.00	0.71	6.192	6.81	78.00	0.650	0.000	5.00	7.910	5.14	35.0	0.0	187.4
35.00		1.00	0.74	6.462	7.11	75.97	0.650	0.000	5.00	7.549	4.91	34.9	0.0	178.8
40.00		1.00	0.77	6.706	7.38	73.61	0.650	0.000	5.00	7.189	4.67	34.5	0.0	170.1
41.00	RT3 RB4	1.00	0.77	6.753	7.43	73.10	0.650	0.000	1.00	1.395	0.91	6.7	0.0	33.0
45.00		1.00	0.79	6.931	7.62	70.98	0.650	0.000	4.00	5.434	3.53	26.9	0.0	128.5
50.00		1.00	0.82	7.138	7.85	68.13	0.650	0.000	5.00	6.468	4.20	33.0	0.0	152.9
51.25	Bot - Section 2	1.00	0.82	7.187	7.91	67.39	0.650	0.000	1.25	1.561	1.01	8.0	0.0	36.9
53.25	Top - Section 1	1.00	0.83	7.265	7.99	66.17	0.650	0.000	2.00	2.514	1.63	13.1	0.0	117.3
55.00		1.00	0.84	7.331	8.06	66.83	0.650	0.000	1.75	2.152	1.40	11.3	0.0	50.8
58.38	RT4	1.00	0.85	7.455	8.20	64.70	0.650	0.000	3.38	4.032	2.62	21.5	0.0	95.2
60.00		1.00	0.86	7.513	8.26	63.65	0.654	0.000	1.62	1.874	1.22	10.1	0.0	44.2
65.00		1.00	0.88	7.684	8.45	60.32	0.685	0.000	5.00	5.546	3.80	32.1	0.0	130.8
66.00	Appurtenance(s)	1.00	0.88	7.717	8.49	59.63	0.692	0.000	1.00	1.066	0.74	6.3	0.0	25.1
69.00	Top - Section 2	1.00	0.89	7.814	8.60	57.56	0.714	0.000	3.00	3.111	2.22	19.1	0.0	73.3
70.00		1.00	0.90	7.846	8.63	50.88	0.755	0.000	1.00	0.896	0.68	5.8	0.0	41.6
75.00		1.00	0.91	8.000	8.80	51.38	0.747	0.000	5.00	4.479	3.35	29.5	0.0	208.0
79.00	Appurtenance(s)	1.00	0.93	8.118	8.93	51.76	0.742	0.000	4.00	3.583	2.66	23.7	0.0	166.4
Totals:									79.00			548.5		2,906.6

Discrete Appurtenance Forces

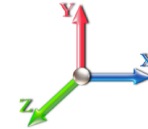
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	79.00	Nokia AHFIG RRU's	3	8.118	8.930	0.50	0.75	4.15	211.50	0.000	0.000	37.02	0.00	0.00	
2	79.00	Lightning Rod @ 80'	1	8.218	9.039	1.00	1.00	1.05	35.00	0.000	3.500	9.49	0.00	33.22	
3	79.00	Commscope	3	8.118	8.930	0.54	0.75	34.21	373.68	0.000	0.000	305.52	0.00	0.00	
4	79.00	Nsn AEHC	3	8.118	8.930	0.52	0.75	10.45	297.60	0.000	0.000	93.30	0.00	0.00	
5	79.00	Platform w/ Hand Rails	1	8.118	8.930	1.00	1.00	31.90	1925.00	0.000	0.000	284.85	0.00	0.00	
6	79.00	Nokia AHLOA RRU's	3	8.118	8.930	0.50	0.75	3.32	252.00	0.000	0.000	29.61	0.00	0.00	
7	79.00	Nokia HCS 2.0 Tower	2	8.118	8.930	0.50	0.75	3.22	38.00	0.000	0.000	28.72	0.00	0.00	
8	66.00	Reinforcement Kit (Site	1	7.717	8.488	0.75	0.75	7.13	464.91	0.000	0.000	60.48	0.00	0.00	
9	66.00	Platform w/ Hand Rails	1	7.717	8.488	1.00	1.00	32.00	1600.00	0.000	0.000	271.63	0.00	0.00	
10	66.00	Raycap DC6-48-60-18-8C	1	7.717	8.488	0.50	0.75	0.95	20.00	0.000	0.000	8.10	0.00	0.00	
11	66.00	Raycap DC6-48-60-18-8F	3	7.717	8.488	0.50	0.75	5.58	98.40	0.000	0.000	47.35	0.00	0.00	
12	66.00	Ericsson RRUS 32 B2	3	7.717	8.488	0.50	0.75	4.13	159.00	0.000	0.000	35.06	0.00	0.00	
13	66.00	Ericsson RRUS 4415 B25	3	7.717	8.488	0.50	0.75	2.77	138.00	0.000	0.000	23.55	0.00	0.00	
14	66.00	Ericsson RRUS 4478 B5	3	7.717	8.488	0.50	0.75	2.77	179.70	0.000	0.000	23.55	0.00	0.00	
15	66.00	Ericsson RRUS 4478 B14	3	7.717	8.488	0.50	0.75	3.05	178.20	0.000	0.000	25.85	0.00	0.00	
16	66.00	Ericsson RRUS 11 RRU's	3	7.717	8.488	0.50	0.75	4.19	152.13	0.000	0.000	35.57	0.00	0.00	
17	66.00	Ericsson RRUS 32 RRU's	3	7.717	8.488	0.50	0.75	4.13	180.00	0.000	0.000	35.06	0.00	0.00	
18	66.00	Ericsson RRUS-32 B66	3	7.717	8.488	0.50	0.75	4.13	159.00	0.000	0.000	35.06	0.00	0.00	
19	66.00	Andrew ETD819G-12UB	6	7.717	8.488	0.45	0.75	4.97	186.00	0.000	0.000	42.17	0.00	0.00	
20	66.00	Commscope	6	7.717	8.488	0.62	0.75	34.03	379.80	0.000	0.000	288.82	0.00	0.00	
21	66.00	Commscope	6	7.717	8.488	0.62	0.75	30.48	240.00	0.000	0.000	258.71	0.00	0.00	
22	66.00	Collar Mount	1	7.717	8.488	0.64	0.80	1.60	150.60	0.000	0.000	13.58	0.00	0.00	
23	66.00	Reinforcement Kit	1	7.717	8.488	0.75	0.75	4.72	197.00	0.000	0.000	40.11	0.00	0.00	
Totals:									7,615.52						2,033.15

Total Applied Force Summary

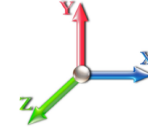
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		8.64	123.35	0.00	0.00
5.00		33.92	520.08	0.00	0.00
10.00		40.98	679.99	0.00	0.00
15.00		39.40	671.36	0.00	0.00
20.00		37.82	662.74	0.00	0.00
21.00		7.37	116.21	0.00	0.00
25.00		28.87	461.40	0.00	0.00
30.00		35.02	568.99	0.00	0.00
35.00		34.88	560.36	0.00	0.00
40.00		34.47	551.74	0.00	0.00
41.00		6.73	109.31	0.00	0.00
45.00		26.93	433.80	0.00	0.00
50.00		33.01	534.49	0.00	0.00
51.25		8.02	132.28	0.00	0.00
53.25		13.06	269.92	0.00	0.00
55.00		11.28	184.40	0.00	0.00
58.38		21.49	353.17	0.00	0.00
60.00		10.12	167.87	0.00	0.00
65.00		32.13	206.11	0.00	0.00
66.00	(47) attachments	1250.91	4522.93	0.00	0.00
69.00		19.10	84.59	0.00	0.00
70.00		5.83	45.35	0.00	0.00
75.00		29.46	226.76	0.00	0.00
79.00	(16) attachments	812.25	3314.19	0.00	33.22
	Totals:	2,581.68	15,501.40	0.00	33.22

Linear Appurtenance Segment Forces (Factored)

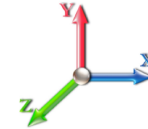
Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	6"x1.25" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	6.129	0.00	76.56
5.00	6"x1.25" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	6.129	0.00	306.24
10.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.129	0.00	382.80
15.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.129	0.00	382.80
20.00	6"x1.25" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.129	0.00	382.80
21.00	6"x1.0" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	6.129	0.00	61.26
25.00	6"x1.0" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	6.129	0.00	245.04
30.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.192	0.00	306.30
35.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.462	0.00	306.30
40.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.706	0.00	306.30
41.00	6"x1.0" Link Plate	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	6.753	0.00	61.26
45.00	6"x1.0" Link Plate	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	6.931	0.00	245.04
50.00	6"x1.0" Link Plate	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	306.30
51.25	6"x1.0" Link Plate	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	7.187	0.00	76.58
53.25	6"x1.0" Link Plate	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.265	0.00	122.52
55.00	6"x1.0" Link Plate	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	7.331	0.00	107.21
58.38	6"x1.0" Link Plate	Yes	3.38	0.000	0.00	0.00	0.00	0.000	0.000	7.455	0.00	207.06
60.00	6"x1.0" Link Plate	Yes	1.62	0.000	0.00	0.00	0.00	0.000	0.000	7.513	0.00	99.24
Totals:											0.0	3,981.6

Calculated Forces

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

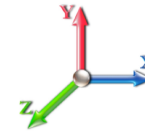


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

Dead Load Factor 1.00
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-15.50	-2.58	0.00	-175.89	0.00	175.89	958.95	479.48	913.66	457.51	0.00	0.000	0.000	0.155
1.00	-15.38	-2.59	0.00	-173.31	0.00	173.31	954.23	477.12	902.43	451.89	0.00	-0.020	0.000	0.163
5.00	-14.85	-2.58	0.00	-162.95	0.00	162.95	935.00	467.50	857.86	429.57	0.06	-0.105	0.000	0.158
10.00	-14.17	-2.56	0.00	-150.05	0.00	150.05	910.20	455.10	803.00	402.10	0.22	-0.212	0.000	0.151
15.00	-13.49	-2.55	0.00	-137.23	0.00	137.23	884.53	442.27	749.15	375.13	0.50	-0.318	0.000	0.144
20.00	-12.83	-2.52	0.00	-124.50	0.00	124.50	858.01	429.00	696.42	348.73	0.89	-0.425	0.000	0.136
21.00	-12.71	-2.52	0.00	-121.98	0.00	121.98	852.60	426.30	686.02	343.52	0.98	-0.447	0.000	0.156
25.00	-12.24	-2.51	0.00	-111.89	0.00	111.89	830.62	415.31	644.90	322.93	1.40	-0.546	0.000	0.149
30.00	-11.67	-2.50	0.00	-99.32	0.00	99.32	799.45	399.72	592.50	296.69	2.04	-0.668	0.000	0.139
35.00	-11.10	-2.48	0.00	-86.83	0.00	86.83	761.79	380.89	537.71	269.26	2.80	-0.786	0.000	0.129
40.00	-10.55	-2.45	0.00	-74.44	0.00	74.44	724.12	362.06	485.59	243.16	3.69	-0.901	0.000	0.118
41.00	-10.44	-2.45	0.00	-71.99	0.00	71.99	716.59	358.30	475.48	238.09	3.88	-0.924	0.000	0.116
45.00	-10.00	-2.43	0.00	-62.19	0.00	62.19	686.46	343.23	436.12	218.38	4.69	-1.012	0.000	0.106
50.00	-9.46	-2.40	0.00	-50.02	0.00	50.02	648.80	324.40	389.31	194.94	5.80	-1.113	0.000	0.092
51.25	-9.33	-2.39	0.00	-47.02	0.00	47.02	639.39	319.69	378.02	189.29	6.10	-1.137	0.000	0.088
53.25	-9.06	-2.38	0.00	-42.24	0.00	42.24	640.90	320.45	379.83	190.20	6.58	-1.175	0.000	0.081
55.00	-8.87	-2.37	0.00	-38.07	0.00	38.07	627.72	313.86	364.27	182.40	7.02	-1.205	0.000	0.073
58.38	-8.52	-2.35	0.00	-30.05	0.00	30.05	602.26	301.13	335.13	167.82	7.89	-1.255	0.000	0.061
58.38	-8.52	-2.35	0.00	-30.05	0.00	30.05	602.26	301.13	335.13	167.82	7.89	-1.255	0.000	0.061
60.00	-8.35	-2.35	0.00	-26.25	0.00	26.25	590.06	295.03	321.60	161.04	8.32	-1.276	0.000	0.177
65.00	-8.14	-2.32	0.00	-14.50	0.00	14.50	552.40	276.20	281.59	141.01	9.75	-1.439	0.000	0.118
66.00	-3.65	-0.96	0.00	-12.18	0.00	12.18	544.87	272.43	273.91	137.16	10.06	-1.464	0.000	0.095
69.00	-3.56	-0.94	0.00	-9.29	0.00	9.29	522.27	261.13	251.50	125.94	11.00	-1.530	0.000	0.081
69.00	-3.56	-0.94	0.00	-9.29	0.00	9.29	385.02	192.51	160.54	106.00	11.00	-1.530	0.000	0.097
70.00	-3.52	-0.94	0.00	-8.35	0.00	8.35	385.02	192.51	160.54	106.00	11.32	-1.550	0.000	0.088
75.00	-3.29	-0.91	0.00	-3.65	0.00	3.65	385.02	192.51	160.54	106.00	12.97	-1.602	0.000	0.043
79.00	0.00	-0.81	0.00	-0.03	0.00	0.03	385.02	192.51	160.54	106.00	14.32	-1.614	0.000	0.000

Final Analysis Summary

Structure: TX09257-A-SBA	Code: EIA/TIA-222-G	12/17/2021
Site Name: Stephenville B	Exposure: B	
Height: 79.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 89 mph Wind	9.0	0.00	18.60	0.00	0.00	621.74
0.9D + 1.6W 89 mph Wind	9.0	0.00	13.95	0.00	0.00	610.47
1.2D + 1.0Di + 1.0Wi 30 mph Wind	1.0	0.00	30.62	0.00	0.00	70.17
1.2D + 1.0E	0.4	0.00	18.60	0.00	0.00	33.70
0.9D + 1.0E	0.4	0.00	13.95	0.00	0.00	33.00
1.0D + 1.0W 60 mph Wind	2.6	0.00	15.50	0.00	0.00	175.89

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 89 mph Wind	-9.41	-8.34	0.00	-93.14	0.00	-93.14	590.06	295.03	321.60	161.04	60.00	0.595
0.9D + 1.6W 89 mph Wind	-6.92	-8.11	0.00	-90.35	0.00	-90.35	590.06	295.03	321.60	161.04	60.00	0.574
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-19.58	-0.95	0.00	-10.63	0.00	-10.63	590.06	295.03	321.60	161.04	60.00	0.099
1.2D + 1.0E	-10.08	-0.46	0.00	-7.24	0.00	-7.24	590.06	295.03	321.60	161.04	60.00	0.062
0.9D + 1.0E	-7.56	-0.44	0.00	-7.05	0.00	-7.05	590.06	295.03	321.60	161.04	60.00	0.057
1.0D + 1.0W 60 mph Wind	-8.35	-2.35	0.00	-26.25	0.00	-26.25	590.06	295.03	321.60	161.04	60.00	0.177

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
0.0	1.0	(3) SOL-2 1/4" William R71	-335.1	-4.02	25.3	203.5	50.5			271.5	25.3			203.51	459.1	468.91	0.443
1.0	21.0	(3) LNP-LP6X125-BW-20B	-405.3	-9.73	25.3	271.5	25.3			236.0	25.3			271.49	395.0	360.94	0.752
21.0	41.0	(3) LNP-LP6X100-G-20BC	-468.3	-11.24	25.3	218.2	25.3			165.2	25.3			218.19	297.8	288.75	0.756
41.0	58.4	(3) LNP-LP6X100-G-20CT	-554.5	-13.31	25.3	165.2	25.3			85.2	25.3	4	8	165.18	297.8	288.75	0.572

Check Soil Capacities:

Allowable Foundation Overturning Resistance (kips-ft.):	3805.5	>	Design Factored Moment (kips-ft):	748	Usage	0.20	OK!
Factor of Safety of Passive Soil Resistance against Moment:	5.09						OK!

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75			
Strength reduction factor (Axial compression):	0.65		Wind Load Factor on Concrete Design:	1.00			
Reinforcing Concrete Pier:							
Vertical Steel Rebar Area (sq. in./each):	0.60		Tie / Stirrup Area (sq. in./each):	0.20			
Calculated Moment Capacity (Mn,Kips-Ft):	909.0	>	Design Factored Moment (Mu, K-Ft):	658.2	Usage	0.72	OK!
Calculated Shear Capacity (Kips):	298.8	>	Design Factored Shear (Kips):	78.2		0.26	OK!
Calculated Tension Capacity (Tn, Kips):	518.4	>	Design Factored Tension (Tu Kips):	0.0		0.00	OK!
Calculated Compression Capacity (Pn, Kips):	3182	>	Design Factored Axial Load (Pu Kips):	18.6		0.01	OK!
Moment & Axial Strength Combination:	0.72	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00		in.	
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is satisfied per ACI				