



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 118.5 ft Monopole
ATC Site Name : HUNTSVILLE - Clawson, UT
ATC Asset Number : 310318
Engineering Number : 13713453_C3_01
Proposed Carrier : VERIZON WIRELESS
Carrier Site Name : PINEVIEW
Carrier Site Number : 100187
Site Location : 676 N. 7100 East St.
Huntsville, UT 84317-9655
41.271100, -111.771300
County : Weber
Date : August 6, 2021
Max Usage : 35%
Result : Pass



Prepared By:
Kyle MacPetrie
Structural Engineer I

Reviewed By:



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 118.5 ft monopole to reflect the change in loading by VERIZON WIRELESS.

Supporting Documents

Tower Drawings	FWT Design #M98-1052-A.R1, dated May 27, 1998
Foundation Drawing	FWT Design #M98-1052-A.R1, dated May 28, 1998
Geotechnical Report	Simon-Bymaster Project #2-103-98, dated March 25, 1998

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	103 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 1/4" radial ice concurrent
Code:	ANSI/TIA-222-H / 2018 IBC
Exposure Category:	D
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Spectral Response:	$S_s = 0.82, S_1 = 0.28$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
125.0	3	TX RX Systems 101-90-08-X-03	T-Arm	(1) 1/2" Coax (3) 7/8" Coax	SPRINT NEXTEL
112.0	6	Antel LPA-80090/4CF ____	Sector Frame	(1) 1 5/8" Hybriflex (6) 7/8" Coax	VERIZON WIRELESS
	6	Andrew SBNHH-1D65C			
100.0	3	Ericsson KRY 112 144/1	T-Arm	(1) 1 1/4" (1.25"- 31.8mm) Fiber (12) 7/8" Coax	T-MOBILE
	3	Commscope TMat1921xB68-21A			
	3	RFS APXVAARR24_43-U-NA20			
	3	Ericsson Radio 4449 B12,B71			
	3	CellMax CMA-B/6521/E0-6			
35.0	2	Valmont ISMD4	Flush	-	VERIZON WIRELESS
30.0	1	RFS SCX3-W100xxx	Flush	(1) EW90	

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
112.0	3	Alcatel-Lucent B13 RRH4x30-4R	-	-	VERIZON WIRELESS
	3	Alcatel-Lucent B66A RRH 4x45			
	1	RFS DB-B1-6C-12AB-OZ			

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
112.0	3	Commscope IMF8-C-2STP	Sector Frame	-	VERIZON WIRELESS
	3	Ericsson 8843 Rev 2			
	3	Ericsson Radio 4449 - B13&B5			
	1	Raycap RVZDC-6627-PF-48			
	3	Ericsson AIR 6449 B77D/ C-Band			

¹ Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	34%	Pass
Shaft	35%	Pass
Base Plate	8%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,449.0	3,306.2	1,072.7	32%
Shear (Kips)	28.7	38.7	13.2	34%

* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
112.0	Commscope IMF8-C-2STP	VERIZON WIRELESS	0.851	0.939
	Ericsson 8843 Rev 2			
	Ericsson Radio 4449 - B13&B5			
	Raycap RVZDC-6627-PF-48			
Ericsson AIR 6449 B77D/ C-Band				
30.0	RFS SCX3-W100xxx		0.050	0.197

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H



Standard Conditions

All engineering services performed by ATC Tower Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of ATC Tower Services LLC

It is the responsibility of the client to ensure that the information provided to ATC Tower Services LLC and used in the performance of our engineering services is correct and complete.

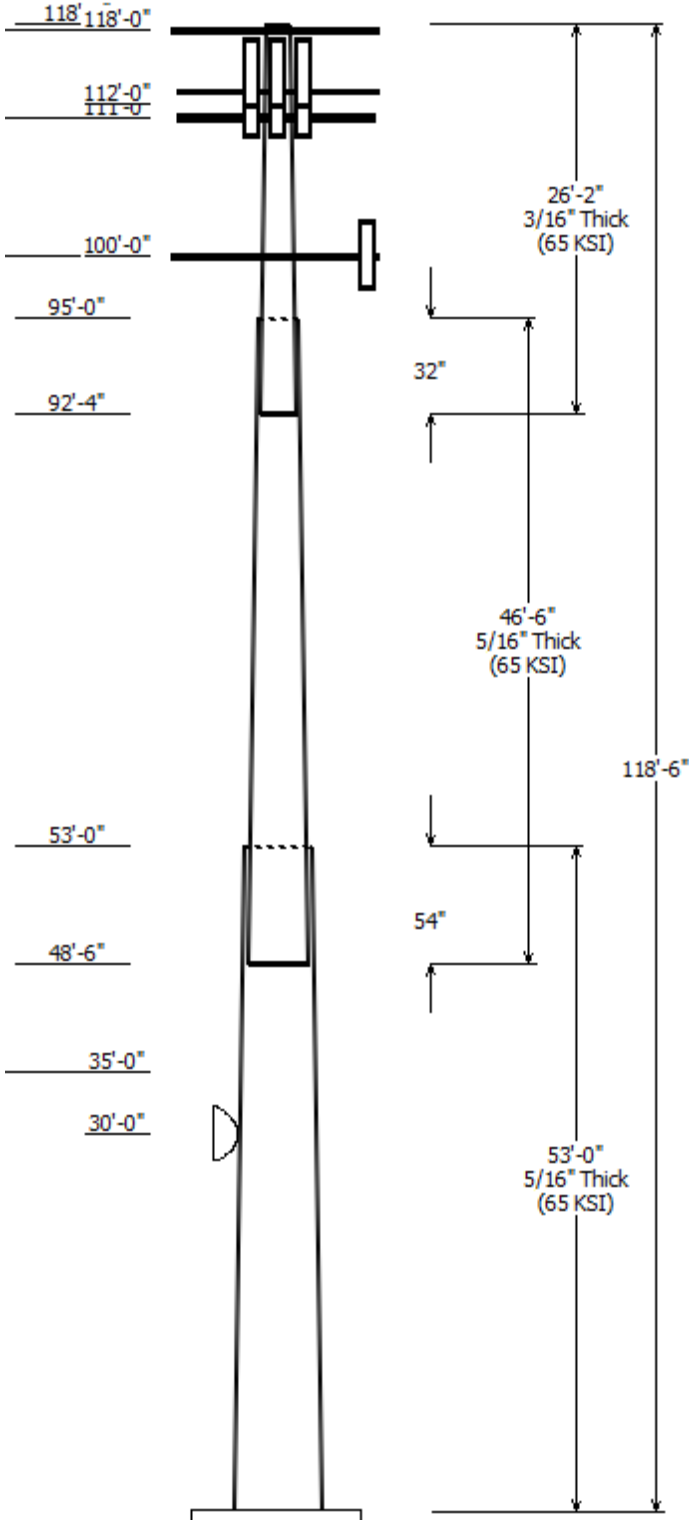
All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and ATC Tower Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Tower Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

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125'-0"



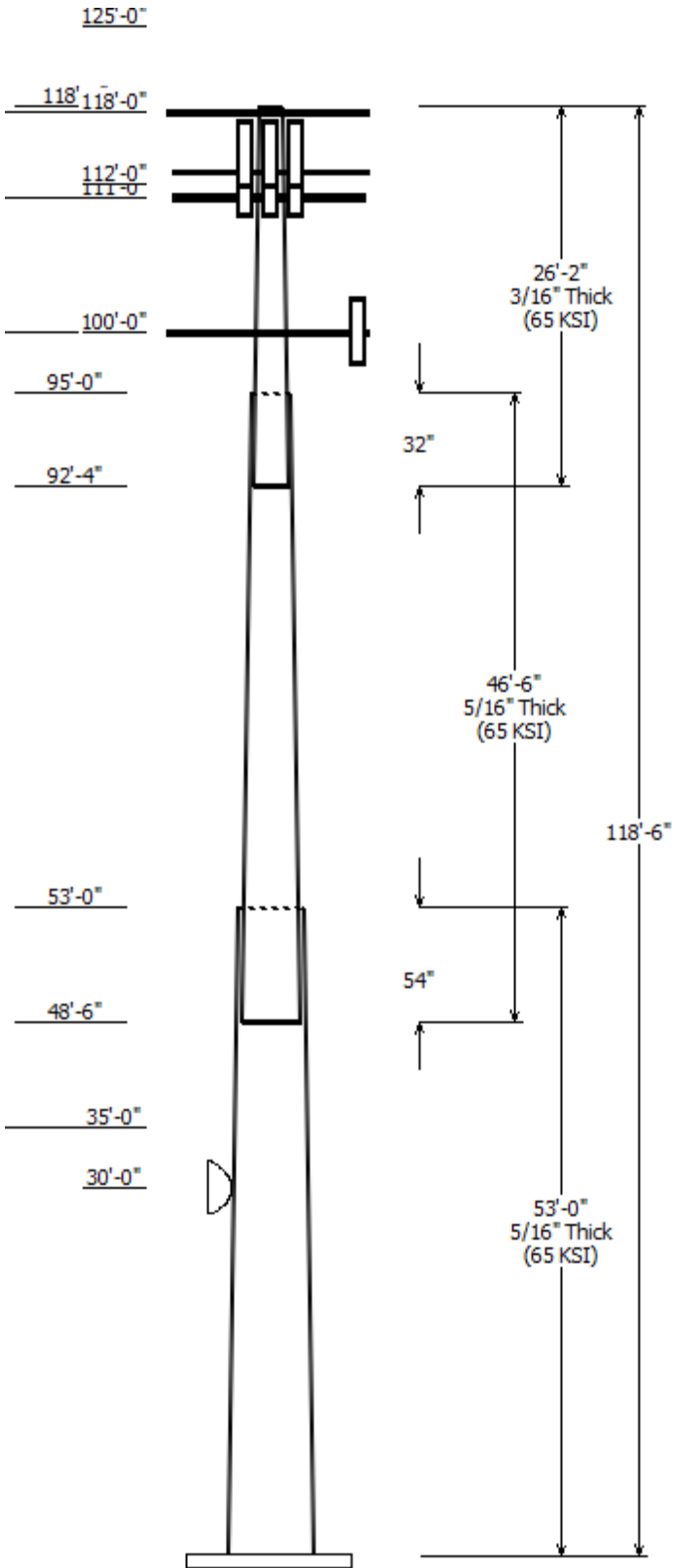
Job Information	
Client : VERIZON WIRELESS	Code: ANSI/TIA-222-H
Pole : 310318	Location : HUNTSVILLE - Clawson, UT
Description : 119 ft FWT Monopole	Risk Category : II
Shape : 18 Sides	Exposure : D
Height : 118.50 (ft)	Topo Method : Method 1
Base Elev (ft): 0.00	Topographic Category : 1
Taper: 0.323194in/ft)	

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Top	Bottom				
1	53.000	32.37	49.50	0.313		0.000	18 Sides 65
2	46.500	19.42	34.45	0.313	Slip Joint	54.000	18 Sides 65
3	26.167	12.20	20.65	0.188	Slip Joint	32.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
125.000	125.000	3	TX RX Systems 101-90-08-X-03
118.000	118.000	3	Generic Flat T-Arm
112.000	113.000	6	Andrew SBNHH-1D65C
112.000	113.000	6	Antel LPA-80090/4CF
112.000	112.000	3	Ericsson AIR 6449 B77D/ C-
112.000	112.000	1	Raycap RVZDC-6627-PF-48
112.000	112.000	3	Ericsson Radio 4449 - B13&B5
112.000	112.000	3	Ericsson 8843 Rev 2
112.000	112.000	3	Commscope IMF8-C-2STP
111.000	111.000	3	Generic Round Sector Frame
100.000	100.000	3	Generic Flat T-Arm
100.000	100.000	3	RFS APXVAARR24_43-U-NA20
100.000	100.000	3	CellMax CMA-B/6521/E0-6
100.000	100.000	3	Ericsson Radio 4449 B12,B71
100.000	100.000	3	Commscope TMAT1921xB68-
100.000	100.000	3	Ericsson KRY 112 144/1
35.000	35.000	2	Valmont ISMD4
30.000	30.000	1	RFS SCX3-W100xxx

Linear Appurtenance			
Elev (ft)	Description	Exposed To Wind	
From	To		
0.000	30.000	EW90	No
0.000	100.0	1 1/4" (1.25")	No
0.000	100.0	7/8" Coax	No
0.000	100.0	7/8" Coax	No
0.000	112.0	1 5/8" Hybriflex	No
0.000	112.0	7/8" Coax	No
0.000	125.0	1/2" Coax	No
0.000	125.0	7/8" Coax	No

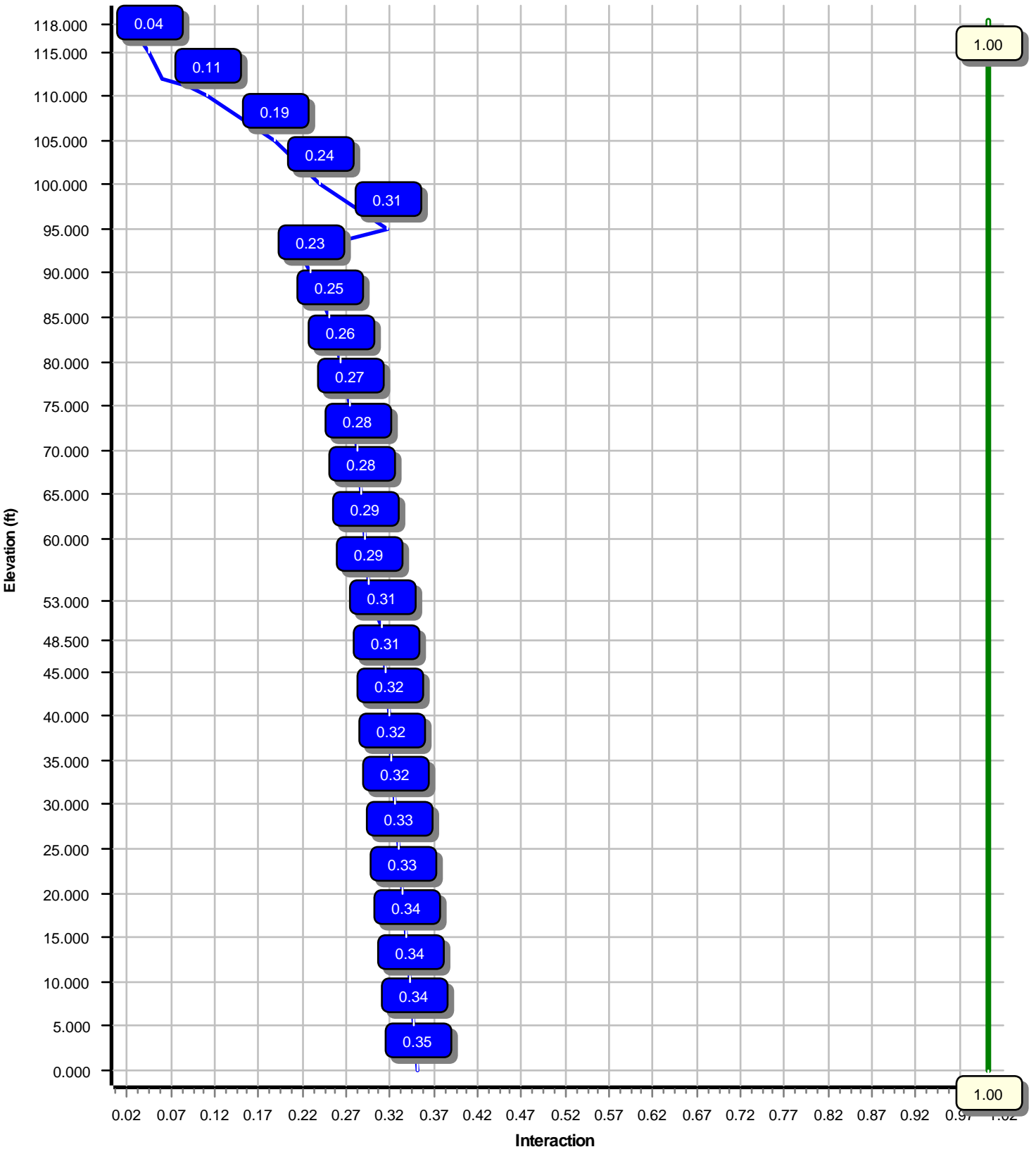
Load Cases	
1.2D + 1.0W	103 mph with No Ice
0.9D + 1.0W	103 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.25 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph



Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	1072.71	13.25	22.68
0.9D + 1.0W	1065.80	13.24	17.01
1.2D + 1.0Di + 1.0Wi	203.62	2.71	24.04
1.2D + 1.0Ev + 1.0Eh	368.07	3.95	24.01
0.9D - 1.0Ev + 1.0Eh	363.83	3.94	13.89
1.0D + 1.0W	324.61	4.02	18.91

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	30.00	0.601	0.197

Load Case : 1.2D + 1.0W
Max Ratio 34.89% at 0.0 ft



Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Analysis Parameters

Location :	Weber County, UT	Height (ft) :	118.5
Code :	ANSI/TIA-222-H	Base Diameter (in) :	49.50
Shape :	18 Sides	Top Diameter (in) :	12.20
Pole Type :	Taper	Taper (in/ft) :	0.323
Pole Manufacturer :	FWT Inc	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.84

Ice & Wind Parameters

Exposure Category:	D	Design Wind Speed Without Ice:	103 mph
Risk Category:	II	Design Wind Speed With Ice:	40 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	0.25 in
Crest Height:	0 ft	HMSL:	4974.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.60		
T _L (sec):	8	p:	1.3
S _s :	0.816	S ₁ :	0.284
F _a :	1.200	F _v :	2.032
S _{ds} :	0.653	S _{d1} :	0.385
		C _s :	0.160
		C _s Max:	0.160
		C _s Min:	0.030

Load Cases

1.2D + 1.0W	103 mph with No Ice
0.9D + 1.0W	103 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.25 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Site Number: 310318

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top							
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-18	53.000	0.3125	65		0.00	7,266	49.50	0.00	48.79	14912.8	26.17	158.40	32.37	53.00	31.80	4128.6	16.50	103.59	0.323198	
2-18	46.500	0.3125	65	Slip	54.00	4,178	34.45	48.50	33.86	4985.2	17.67	110.24	19.42	95.00	18.95	874.3	9.20	62.15	0.323198	
3-18	26.167	0.1875	65	Slip	32.00	861	20.65	92.33	12.18	645.0	17.66	110.18	12.20	118.50	7.15	130.4	9.71	65.07	0.323198	
Shaft Weight						12,305														

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
125.00	TX RX Systems 101-90-08-X-03	3	1.00	0.000	38.00	3.460	1.00	52.04	4.043	1.00
118.00	Generic Flat T-Arm	3	0.75	0.000	312.50	12.900	0.67	355.04	14.232	0.67
112.00	Commscope IMF8-C-2STP	3	0.80	0.000	21.80	0.817	0.50	25.29	0.930	0.50
112.00	Ericsson 8843 Rev 2	3	0.80	0.000	75.00	1.650	0.50	85.06	1.788	0.50
112.00	Ericsson Radio 4449 - B13&B5	3	0.80	0.000	70.00	1.650	0.50	79.13	1.787	0.50
112.00	Raycap RVZDC-6627-PF-48	1	0.80	0.000	32.00	3.781	1.00	49.78	3.995	1.00
112.00	Ericsson AIR 6449 B77D/ C-Band	3	0.80	0.000	81.60	4.028	0.70	100.48	4.250	0.70
112.00	Antel LPA-80090/4CF	6	0.80	1.000	11.00	4.043	0.67	25.46	2.748	0.67
112.00	Andrew SBNHH-1D65C	6	0.80	1.000	66.10	11.350	0.70	103.03	11.873	0.70
111.00	Generic Round Sector Frame	3	0.75	0.000	300.00	14.400	0.75	359.58	17.081	0.75
100.00	Ericsson KRY 112 144/1	3	0.80	0.000	11.00	0.351	0.50	12.72	0.416	0.50
100.00	Commscope TMat1921xB68-	3	0.80	0.000	17.60	0.660	0.50	20.76	0.747	0.50
100.00	Ericsson Radio 4449 B12,B71	3	0.80	0.000	74.00	1.639	0.50	82.96	1.774	0.50
100.00	CellMax CMA-B/6521/E0-6	3	0.80	0.000	35.00	6.580	0.71	55.68	7.006	0.71
100.00	Generic Flat T-Arm	3	0.75	0.000	312.50	12.900	0.67	354.29	14.208	0.67
100.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	190.70	20.836	0.63
35.00	Valmont ISMD4	2	1.00	0.000	315.00	1.870	1.00	372.12	2.128	1.00
30.00	RFS SCX3-W100xxx	1	1.00	0.000	40.00	14.060	1.00	60.51	14.415	1.00
Totals	Num Loadings:18	55			5,595.30			6,946.74		

Linear Appurtenance Properties

Load Case Azimuth (deg) : 0

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Flat Row	Dist Between Rows (in)	Dist Between Cols (in)	Dist Azimuth (deg)	Dist From Face (in)	Dist Exposed To Wind Carrier
0.00	125.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	N SPRINT NEXTEL
0.00	125.00	3	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	N SPRINT NEXTEL
0.00	112.00	1	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	N VERIZON WIRELESS
0.00	112.00	6	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	N VERIZON WIRELESS
0.00	100.00	1	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0	0.00	0.00	0	N T-MOBILE
0.00	100.00	11	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	N T-MOBILE
0.00	100.00	1	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	N T-MOBILE
0.00	30.00	1	EW90	1.32	0.32	N	0	0.00	0.00	0	N VERIZON WIRELESS

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3125	49.500	48.786	14,912.8	26.17	158.40	70.6	593.4	0.0	0.0
5.00		0.3125	47.884	47.183	13,490.7	25.26	153.23	71.7	554.9	0.0	816.4
10.00		0.3125	46.268	45.580	12,162.1	24.34	148.06	72.8	517.7	0.0	789.1
15.00		0.3125	44.652	43.978	10,923.6	23.43	142.89	73.8	481.8	0.0	761.9
20.00		0.3125	43.036	42.375	9,772.3	22.52	137.72	74.9	447.2	0.0	734.6
25.00		0.3125	41.420	40.772	8,704.8	21.61	132.54	76.0	413.9	0.0	707.3
30.00		0.3125	39.804	39.169	7,718.0	20.70	127.37	77.1	381.9	0.0	680.1
35.00		0.3125	38.188	37.566	6,808.8	19.78	122.20	78.1	351.2	0.0	652.8
40.00		0.3125	36.572	35.964	5,974.0	18.87	117.03	79.2	321.7	0.0	625.5
45.00		0.3125	34.956	34.361	5,210.3	17.96	111.86	80.3	293.6	0.0	598.2
48.50	Bot - Section 2	0.3125	33.825	33.239	4,716.4	17.32	108.24	81.0	274.6	0.0	402.5
50.00		0.3125	33.340	32.758	4,514.7	17.05	106.69	81.3	266.7	0.0	340.0
53.00	Top - Section 1	0.3125	32.995	32.416	4,374.8	16.85	105.59	81.6	261.1	0.0	665.3
55.00		0.3125	32.349	31.775	4,120.3	16.49	103.52	82.0	250.9	0.0	218.4
60.00		0.3125	30.733	30.172	3,527.7	15.58	98.35	82.6	226.1	0.0	527.0
65.00		0.3125	29.117	28.570	2,994.9	14.67	93.17	82.6	202.6	0.0	499.7
70.00		0.3125	27.501	26.967	2,518.6	13.75	88.00	82.6	180.4	0.0	472.4
75.00		0.3125	25.885	25.364	2,095.7	12.84	82.83	82.6	159.5	0.0	445.2
80.00		0.3125	24.269	23.761	1,722.9	11.93	77.66	82.6	139.8	0.0	417.9
85.00		0.3125	22.653	22.158	1,397.3	11.02	72.49	82.6	121.5	0.0	390.6
90.00		0.3125	21.037	20.556	1,115.5	10.11	67.32	82.6	104.4	0.0	363.4
92.33	Bot - Section 3	0.3125	20.283	19.808	998.1	9.68	64.91	82.6	96.9	0.0	160.2
95.00	Top - Section 2	0.1875	19.796	11.669	566.9	16.85	105.58	81.6	56.4	0.0	284.1
100.0		0.1875	18.180	10.707	438.0	15.33	96.96	82.6	47.4	0.0	190.4
105.0		0.1875	16.564	9.746	330.2	13.81	88.34	82.6	39.3	0.0	174.0
110.0		0.1875	14.948	8.784	241.8	12.29	79.72	82.6	31.9	0.0	157.6
111.0		0.1875	14.625	8.592	226.3	11.99	78.00	82.6	30.5	0.0	29.6
112.0		0.1875	14.302	8.399	211.4	11.69	76.28	82.6	29.1	0.0	28.9
115.0		0.1875	13.332	7.822	170.8	10.77	71.10	82.6	25.2	0.0	82.8
118.0		0.1875	12.363	7.245	135.7	9.86	65.93	82.6	21.6	0.0	76.9
118.5		0.1875	12.201	7.149	130.4	9.71	65.07	82.6	21.0	0.0	12.2
12,305.2											

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0W	103 mph with No Ice	23 Iterations
Gust Response Factor :1.10		
Dead Load Factor :1.20		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		183.6	0.0					0.0	0.0	183.6	0.0	0.0	0.0
5.00		361.1	979.7					0.0	58.5	361.1	1,038.2	0.0	0.0
10.00		348.9	947.0					0.0	58.5	348.9	1,005.5	0.0	0.0
15.00		341.3	914.2					0.0	58.5	341.3	972.7	0.0	0.0
20.00		340.7	881.5					0.0	58.5	340.7	940.0	0.0	0.0
25.00		341.1	848.8					0.0	58.5	341.1	907.3	0.0	0.0
30.00	Appurtenance(s)	338.4	816.1	387.4	0.0	0.0	48.0	0.0	58.5	725.8	922.6	0.0	0.0
35.00	Appurtenance(s)	333.6	783.3	105.8	0.0	0.0	756.0	0.0	56.6	439.4	1,595.9	0.0	0.0
40.00		327.0	750.6					0.0	56.6	327.0	807.2	0.0	0.0
45.00		272.3	717.9					0.0	56.6	272.3	774.5	0.0	0.0
48.50	Bot - Section 2	158.2	483.1					0.0	39.6	158.2	522.7	0.0	0.0
50.00		141.5	408.0					0.0	17.0	141.5	425.0	0.0	0.0
53.00	Top - Section 1	155.5	798.4					0.0	33.9	155.5	832.3	0.0	0.0
55.00		211.9	262.1					0.0	22.6	211.9	284.7	0.0	0.0
60.00		294.9	632.4					0.0	56.6	294.9	689.0	0.0	0.0
65.00		283.3	599.7					0.0	56.6	283.3	656.2	0.0	0.0
70.00		271.1	566.9					0.0	56.6	271.1	623.5	0.0	0.0
75.00		258.2	534.2					0.0	56.6	258.2	590.8	0.0	0.0
80.00		244.9	501.5					0.0	56.6	244.9	558.1	0.0	0.0
85.00		231.0	468.8					0.0	56.6	231.0	525.3	0.0	0.0
90.00		161.7	436.0					0.0	56.6	161.7	492.6	0.0	0.0
92.33	Bot - Section 3	105.7	192.3					0.0	26.4	105.7	218.7	0.0	0.0
95.00	Top - Section 2	155.1	340.9					0.0	30.2	155.1	371.1	0.0	0.0
100.00	Appurtenance(s)	190.7	228.4	2,189.0	0.0	0.0	2,080.8	0.0	56.6	2,379.7	2,365.8	0.0	0.0
105.00		175.2	208.8					0.0	26.5	175.2	235.3	0.0	0.0
110.00		99.5	189.2					0.0	26.5	99.5	215.7	0.0	0.0
111.00	Appurtenance(s)	31.2	35.5	840.5	0.0	0.0	1,080.0	0.0	5.3	871.8	1,120.8	0.0	0.0
112.00	Appurtenance(s)	59.9	34.7	2,284.7	0.0	1,774.3	1,487.8	0.0	5.3	2,344.6	1,527.8	0.0	0.0
115.00		86.0	99.4					0.0	4.1	86.0	103.5	0.0	0.0
118.00	Appurtenance(s)	48.2	92.3	679.8	0.0	0.0	1,125.0	0.0	4.1	728.0	1,221.4	0.0	0.0
118.50		6.6	14.7					0.0	0.7	6.6	15.4	0.0	0.0
Totals:										13,045.4	22,559.4	0.00	0.00

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

8/6/2021 3:46:58 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0W

103 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.20

Wind Load Factor :1.00

Calculated Forces

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 (deg)	Ratio
0.00	-22.68	-13.25	0.00	-1,072.71	0.00	1,072.71	3,100.92	856.20	3,803.68	3,143.02	0.00	0.00	0.349
5.00	-21.62	-12.92	0.00	-1,006.47	0.00	1,006.47	3,044.58	828.07	3,557.88	2,983.90	0.05	-0.10	0.345
10.00	-20.60	-12.61	0.00	-941.85	0.00	941.85	2,985.15	799.94	3,320.29	2,825.62	0.21	-0.20	0.340
15.00	-19.60	-12.30	0.00	-878.80	0.00	878.80	2,922.63	771.81	3,090.91	2,668.50	0.48	-0.31	0.336
20.00	-18.64	-11.99	0.00	-817.29	0.00	817.29	2,857.01	743.68	2,869.74	2,512.85	0.86	-0.42	0.332
25.00	-17.71	-11.68	0.00	-757.33	0.00	757.33	2,788.30	715.55	2,656.77	2,358.98	1.36	-0.53	0.328
30.00	-16.77	-10.98	0.00	-698.93	0.00	698.93	2,716.49	687.42	2,452.02	2,207.20	1.99	-0.65	0.323
35.00	-15.16	-10.55	0.00	-644.03	0.00	644.03	2,641.59	659.29	2,255.47	2,057.83	2.74	-0.78	0.319
40.00	-14.33	-10.25	0.00	-591.26	0.00	591.26	2,563.60	631.16	2,067.14	1,911.17	3.62	-0.91	0.315
45.00	-13.54	-9.99	0.00	-540.02	0.00	540.02	2,482.51	603.03	1,887.01	1,767.53	4.64	-1.04	0.311
48.50	-13.01	-9.84	0.00	-505.06	0.00	505.06	2,423.91	583.34	1,765.81	1,668.95	5.44	-1.14	0.308
50.00	-12.58	-9.70	0.00	-490.30	0.00	490.30	2,398.33	574.90	1,715.10	1,627.23	5.81	-1.18	0.307
53.00	-11.74	-9.55	0.00	-461.19	0.00	461.19	2,379.98	568.91	1,679.50	1,597.77	6.58	-1.27	0.294
55.00	-11.44	-9.35	0.00	-442.10	0.00	442.10	2,345.17	557.65	1,613.73	1,542.97	7.13	-1.34	0.292
60.00	-10.74	-9.06	0.00	-395.36	0.00	395.36	2,241.65	529.52	1,455.06	1,399.75	8.61	-1.48	0.288
65.00	-10.06	-8.79	0.00	-350.04	0.00	350.04	2,122.57	501.40	1,304.60	1,254.27	10.24	-1.63	0.284
70.00	-9.43	-8.53	0.00	-306.09	0.00	306.09	2,003.49	473.27	1,162.35	1,116.77	12.03	-1.79	0.279
75.00	-8.82	-8.27	0.00	-263.46	0.00	263.46	1,884.41	445.14	1,028.31	987.26	13.99	-1.95	0.272
80.00	-8.25	-8.03	0.00	-222.09	0.00	222.09	1,765.33	417.01	902.47	865.72	16.12	-2.11	0.262
85.00	-7.71	-7.81	0.00	-181.92	0.00	181.92	1,646.25	388.88	784.85	752.16	18.43	-2.28	0.247
90.00	-7.21	-7.64	0.00	-142.89	0.00	142.89	1,527.17	360.75	675.44	646.59	20.90	-2.45	0.226
92.33	-6.98	-7.53	0.00	-125.07	0.00	125.07	1,471.60	347.62	627.19	600.05	22.12	-2.53	0.214
95.00	-6.60	-7.38	0.00	-104.98	0.00	104.98	856.75	204.79	362.73	345.08	23.55	-2.61	0.313
100.00	-4.34	-4.90	0.00	-68.10	0.00	68.10	795.51	187.92	305.41	293.76	26.37	-2.75	0.238
105.00	-4.10	-4.72	0.00	-43.60	0.00	43.60	724.06	171.04	253.03	243.11	29.36	-2.93	0.186
110.00	-3.88	-4.62	0.00	-19.98	0.00	19.98	652.62	154.16	205.56	197.26	32.51	-3.07	0.108
111.00	-2.81	-3.69	0.00	-15.36	0.00	15.36	638.33	150.79	196.66	188.66	33.16	-3.09	0.086
112.00	-1.41	-1.27	0.00	-9.90	0.00	9.90	624.04	147.41	187.96	180.26	33.81	-3.11	0.057
115.00	-1.31	-1.18	0.00	-6.10	0.00	6.10	581.17	137.28	163.02	156.19	35.77	-3.14	0.041
118.00	-0.13	-0.38	0.00	-2.57	0.00	2.57	538.30	127.16	139.86	133.85	37.75	-3.16	0.019
118.50	0.00	-0.37	0.00	-2.38	0.00	2.38	531.15	125.47	136.18	130.29	38.08	-3.17	0.018

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.0W **103 mph with No Ice (Reduced DL)** **22 Iterations**

Gust Response Factor :1.10
 Dead Load Factor :0.90
 Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		183.6	0.0					0.0	0.0	183.6	0.0	0.0	0.0
5.00		361.1	734.8					0.0	43.9	361.1	778.6	0.0	0.0
10.00		348.9	710.2					0.0	43.9	348.9	754.1	0.0	0.0
15.00		341.3	685.7					0.0	43.9	341.3	729.6	0.0	0.0
20.00		340.7	661.1					0.0	43.9	340.7	705.0	0.0	0.0
25.00		341.1	636.6					0.0	43.9	341.1	680.5	0.0	0.0
30.00	Appurtenance(s)	338.4	612.1	387.4	0.0	0.0	36.0	0.0	43.9	725.8	691.9	0.0	0.0
35.00	Appurtenance(s)	333.6	587.5	105.8	0.0	0.0	567.0	0.0	42.4	439.4	1,196.9	0.0	0.0
40.00		327.0	563.0					0.0	42.4	327.0	605.4	0.0	0.0
45.00		272.3	538.4					0.0	42.4	272.3	580.9	0.0	0.0
48.50	Bot - Section 2	158.2	362.3					0.0	29.7	158.2	392.0	0.0	0.0
50.00		141.5	306.0					0.0	12.7	141.5	318.8	0.0	0.0
53.00	Top - Section 1	155.5	598.8					0.0	25.5	155.5	624.3	0.0	0.0
55.00		211.9	196.6					0.0	17.0	211.9	213.6	0.0	0.0
60.00		294.9	474.3					0.0	42.4	294.9	516.7	0.0	0.0
65.00		283.3	449.7					0.0	42.4	283.3	492.2	0.0	0.0
70.00		271.1	425.2					0.0	42.4	271.1	467.6	0.0	0.0
75.00		258.2	400.7					0.0	42.4	258.2	443.1	0.0	0.0
80.00		244.9	376.1					0.0	42.4	244.9	418.5	0.0	0.0
85.00		231.0	351.6					0.0	42.4	231.0	394.0	0.0	0.0
90.00		161.7	327.0					0.0	42.4	161.7	369.5	0.0	0.0
92.33	Bot - Section 3	105.7	144.2					0.0	19.8	105.7	164.0	0.0	0.0
95.00	Top - Section 2	155.1	255.7					0.0	22.6	155.1	278.3	0.0	0.0
100.00	Appurtenance(s)	190.7	171.3	2,189.0	0.0	0.0	1,560.6	0.0	42.4	2,379.7	1,774.4	0.0	0.0
105.00		175.2	156.6					0.0	19.9	175.2	176.5	0.0	0.0
110.00		99.5	141.9					0.0	19.9	99.5	161.8	0.0	0.0
111.00	Appurtenance(s)	31.2	26.6	840.5	0.0	0.0	810.0	0.0	4.0	871.8	840.6	0.0	0.0
112.00	Appurtenance(s)	59.9	26.0	2,284.7	0.0	1,774.3	1,115.8	0.0	4.0	2,344.6	1,145.8	0.0	0.0
115.00		86.0	74.5					0.0	3.1	86.0	77.6	0.0	0.0
118.00	Appurtenance(s)	48.2	69.2	679.8	0.0	0.0	843.8	0.0	3.1	728.0	916.0	0.0	0.0
118.50		6.6	11.0					0.0	0.5	6.6	11.5	0.0	0.0
Totals:										13,045.4	16,919.5	0.00	0.00

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.0W

103 mph with No Ice (Reduced DL)

22 Iterations

Gust Response Factor :1.10

Dead Load Factor :0.90

Wind Load Factor :1.00

Calculated Forces

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 (deg)	Ratio
0.00	-17.01	-13.24	0.00	-1,065.80	0.00	1,065.80	3,100.92	856.20	3,803.68	3,143.02	0.00	0.00	0.345
5.00	-16.21	-12.91	0.00	-999.59	0.00	999.59	3,044.58	828.07	3,557.88	2,983.90	0.05	-0.10	0.341
10.00	-15.43	-12.59	0.00	-935.04	0.00	935.04	2,985.15	799.94	3,320.29	2,825.62	0.21	-0.20	0.336
15.00	-14.68	-12.27	0.00	-872.11	0.00	872.11	2,922.63	771.81	3,090.91	2,668.50	0.48	-0.31	0.332
20.00	-13.96	-11.95	0.00	-810.77	0.00	810.77	2,857.01	743.68	2,869.74	2,512.85	0.86	-0.42	0.328
25.00	-13.26	-11.63	0.00	-751.01	0.00	751.01	2,788.30	715.55	2,656.77	2,358.98	1.36	-0.53	0.323
30.00	-12.55	-10.92	0.00	-692.85	0.00	692.85	2,716.49	687.42	2,452.02	2,207.20	1.97	-0.65	0.319
35.00	-11.33	-10.50	0.00	-638.23	0.00	638.23	2,641.59	659.29	2,255.47	2,057.83	2.72	-0.77	0.315
40.00	-10.71	-10.18	0.00	-585.75	0.00	585.75	2,563.60	631.16	2,067.14	1,911.17	3.59	-0.90	0.311
45.00	-10.11	-9.92	0.00	-534.83	0.00	534.83	2,482.51	603.03	1,887.01	1,767.53	4.61	-1.03	0.307
48.50	-9.71	-9.77	0.00	-500.10	0.00	500.10	2,423.91	583.34	1,765.81	1,668.95	5.40	-1.13	0.304
50.00	-9.39	-9.63	0.00	-485.45	0.00	485.45	2,398.33	574.90	1,715.10	1,627.23	5.76	-1.17	0.303
53.00	-8.75	-9.48	0.00	-456.55	0.00	456.55	2,379.98	568.91	1,679.50	1,597.77	6.53	-1.26	0.290
55.00	-8.53	-9.27	0.00	-437.60	0.00	437.60	2,345.17	557.65	1,613.73	1,542.97	7.07	-1.33	0.288
60.00	-7.99	-8.99	0.00	-391.24	0.00	391.24	2,241.65	529.52	1,455.06	1,399.75	8.54	-1.47	0.283
65.00	-7.49	-8.71	0.00	-346.30	0.00	346.30	2,122.57	501.40	1,304.60	1,254.27	10.16	-1.62	0.280
70.00	-7.00	-8.44	0.00	-302.75	0.00	302.75	2,003.49	473.27	1,162.35	1,116.77	11.93	-1.77	0.275
75.00	-6.55	-8.19	0.00	-260.53	0.00	260.53	1,884.41	445.14	1,028.31	987.26	13.87	-1.93	0.268
80.00	-6.11	-7.95	0.00	-219.58	0.00	219.58	1,765.33	417.01	902.47	865.72	15.98	-2.09	0.257
85.00	-5.71	-7.72	0.00	-179.83	0.00	179.83	1,646.25	388.88	784.85	752.16	18.27	-2.26	0.243
90.00	-5.33	-7.55	0.00	-141.24	0.00	141.24	1,527.17	360.75	675.44	646.59	20.72	-2.42	0.222
92.33	-5.16	-7.45	0.00	-123.61	0.00	123.61	1,471.60	347.62	627.19	600.05	21.92	-2.50	0.210
95.00	-4.87	-7.29	0.00	-103.75	0.00	103.75	856.75	204.79	362.73	345.08	23.35	-2.59	0.308
100.00	-3.20	-4.84	0.00	-67.29	0.00	67.29	795.51	187.92	305.41	293.76	26.13	-2.73	0.234
105.00	-3.02	-4.67	0.00	-43.08	0.00	43.08	724.06	171.04	253.03	243.11	29.09	-2.91	0.182
110.00	-2.86	-4.56	0.00	-19.76	0.00	19.76	652.62	154.16	205.56	197.26	32.21	-3.04	0.105
111.00	-2.06	-3.65	0.00	-15.19	0.00	15.19	638.33	150.79	196.66	188.66	32.85	-3.06	0.084
112.00	-1.04	-1.24	0.00	-9.77	0.00	9.77	624.04	147.41	187.96	180.26	33.49	-3.08	0.056
115.00	-0.97	-1.16	0.00	-6.04	0.00	6.04	581.17	137.28	163.02	156.19	35.44	-3.11	0.040
118.00	-0.09	-0.38	0.00	-2.57	0.00	2.57	538.30	127.16	139.86	133.85	37.40	-3.13	0.019
118.50	0.00	-0.37	0.00	-2.38	0.00	2.38	531.15	125.47	136.18	130.29	37.73	-3.13	0.018

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi	40 mph with 0.25 in Radial Ice	21 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		45.9	0.0					0.0	0.0	45.9	0.0	0.0	0.0
5.00		90.3	1,037.9					0.0	58.5	90.3	1,096.4	0.0	0.0
10.00		87.3	1,009.8					0.0	58.5	87.3	1,068.3	0.0	0.0
15.00		85.5	978.0					0.0	58.5	85.5	1,036.5	0.0	0.0
20.00		85.4	945.1					0.0	58.5	85.4	1,003.6	0.0	0.0
25.00		85.5	911.6					0.0	58.5	85.5	970.1	0.0	0.0
30.00	Appurtenance(s)	84.9	877.7	59.9	0.0	0.0	47.6	0.0	58.5	144.8	983.8	0.0	0.0
35.00	Appurtenance(s)	83.8	843.5	18.2	0.0	0.0	755.8	0.0	56.6	101.9	1,655.9	0.0	0.0
40.00		82.2	809.0					0.0	56.6	82.2	865.6	0.0	0.0
45.00		68.5	774.5					0.0	56.6	68.5	831.0	0.0	0.0
48.50	Bot - Section 2	39.8	521.8					0.0	39.6	39.8	561.4	0.0	0.0
50.00		35.6	424.8					0.0	17.0	35.6	441.7	0.0	0.0
53.00	Top - Section 1	39.1	831.1					0.0	33.9	39.1	865.0	0.0	0.0
55.00		53.4	283.6					0.0	22.6	53.4	306.2	0.0	0.0
60.00		74.4	683.7					0.0	56.6	74.4	740.3	0.0	0.0
65.00		71.5	648.7					0.0	56.6	71.5	705.3	0.0	0.0
70.00		68.5	613.7					0.0	56.6	68.5	670.2	0.0	0.0
75.00		65.3	578.5					0.0	56.6	65.3	635.1	0.0	0.0
80.00		62.0	543.4					0.0	56.6	62.0	599.9	0.0	0.0
85.00		58.6	508.1					0.0	56.6	58.6	564.7	0.0	0.0
90.00		41.1	472.8					0.0	56.6	41.1	529.4	0.0	0.0
92.33	Bot - Section 3	26.9	208.9					0.0	26.4	26.9	235.3	0.0	0.0
95.00	Top - Section 2	39.5	359.5					0.0	30.2	39.5	389.7	0.0	0.0
100.00	Appurtenance(s)	48.7	260.6	350.3	0.0	0.0	2,123.6	0.0	56.6	399.0	2,440.9	0.0	0.0
105.00		44.9	238.3					0.0	26.5	44.9	264.9	0.0	0.0
110.00		25.5	216.0					0.0	26.5	25.5	242.5	0.0	0.0
111.00	Appurtenance(s)	8.0	40.7	150.4	0.0	0.0	1,100.3	0.0	5.3	158.4	1,146.4	0.0	0.0
112.00	Appurtenance(s)	15.4	39.9	337.2	0.0	255.0	1,616.3	0.0	5.3	352.7	1,661.4	0.0	0.0
115.00		22.2	113.8					0.0	4.1	22.2	117.9	0.0	0.0
118.00	Appurtenance(s)	12.5	105.8	113.1	0.0	0.0	1,140.1	0.0	4.1	125.6	1,250.0	0.0	0.0
118.50		1.7	16.9					0.0	0.7	1.7	17.6	0.0	0.0
Totals:										2,683.21	23,897.2	0.00	0.00

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi

40 mph with 0.25 in Radial Ice

21 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

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 (deg)	Ratio
0.00	-24.04	-2.71	0.00	-203.62	0.00	203.62	3,100.92	856.20	3,803.68	3,143.02	0.00	0.00	0.073
5.00	-22.94	-2.62	0.00	-190.09	0.00	190.09	3,044.58	828.07	3,557.88	2,983.90	0.01	-0.02	0.071
10.00	-21.87	-2.54	0.00	-176.98	0.00	176.98	2,985.15	799.94	3,320.29	2,825.62	0.04	-0.04	0.070
15.00	-20.83	-2.46	0.00	-164.27	0.00	164.27	2,922.63	771.81	3,090.91	2,668.50	0.09	-0.06	0.069
20.00	-19.83	-2.38	0.00	-151.95	0.00	151.95	2,857.01	743.68	2,869.74	2,512.85	0.16	-0.08	0.067
25.00	-18.86	-2.30	0.00	-140.04	0.00	140.04	2,788.30	715.55	2,656.77	2,358.98	0.26	-0.10	0.066
30.00	-17.88	-2.16	0.00	-128.52	0.00	128.52	2,716.49	687.42	2,452.02	2,207.20	0.37	-0.12	0.065
35.00	-16.22	-2.06	0.00	-117.70	0.00	117.70	2,641.59	659.29	2,255.47	2,057.83	0.51	-0.14	0.063
40.00	-15.35	-1.99	0.00	-107.37	0.00	107.37	2,563.60	631.16	2,067.14	1,911.17	0.68	-0.17	0.062
45.00	-14.52	-1.92	0.00	-97.44	0.00	97.44	2,482.51	603.03	1,887.01	1,767.53	0.87	-0.19	0.061
48.50	-13.96	-1.88	0.00	-90.72	0.00	90.72	2,423.91	583.34	1,765.81	1,668.95	1.01	-0.21	0.060
50.00	-13.52	-1.85	0.00	-87.89	0.00	87.89	2,398.33	574.90	1,715.10	1,627.23	1.08	-0.22	0.060
53.00	-12.65	-1.81	0.00	-82.35	0.00	82.35	2,379.98	568.91	1,679.50	1,597.77	1.22	-0.23	0.057
55.00	-12.35	-1.76	0.00	-78.73	0.00	78.73	2,345.17	557.65	1,613.73	1,542.97	1.33	-0.25	0.056
60.00	-11.60	-1.69	0.00	-69.94	0.00	69.94	2,241.65	529.52	1,455.06	1,399.75	1.60	-0.27	0.055
65.00	-10.90	-1.62	0.00	-61.52	0.00	61.52	2,122.57	501.40	1,304.60	1,254.27	1.90	-0.30	0.054
70.00	-10.23	-1.55	0.00	-53.44	0.00	53.44	2,003.49	473.27	1,162.35	1,116.77	2.22	-0.33	0.053
75.00	-9.59	-1.48	0.00	-45.70	0.00	45.70	1,884.41	445.14	1,028.31	987.26	2.58	-0.35	0.051
80.00	-8.99	-1.42	0.00	-38.28	0.00	38.28	1,765.33	417.01	902.47	865.72	2.96	-0.38	0.049
85.00	-8.43	-1.36	0.00	-31.17	0.00	31.17	1,646.25	388.88	784.85	752.16	3.38	-0.41	0.047
90.00	-7.90	-1.32	0.00	-24.34	0.00	24.34	1,527.17	360.75	675.44	646.59	3.82	-0.44	0.043
92.33	-7.66	-1.30	0.00	-21.26	0.00	21.26	1,471.60	347.62	627.19	600.05	4.04	-0.45	0.041
95.00	-7.27	-1.26	0.00	-17.81	0.00	17.81	856.75	204.79	362.73	345.08	4.30	-0.47	0.060
100.00	-4.84	-0.84	0.00	-11.53	0.00	11.53	795.51	187.92	305.41	293.76	4.80	-0.49	0.045
105.00	-4.57	-0.79	0.00	-7.34	0.00	7.34	724.06	171.04	253.03	243.11	5.33	-0.52	0.037
110.00	-4.33	-0.77	0.00	-3.37	0.00	3.37	652.62	154.16	205.56	197.26	5.89	-0.54	0.024
111.00	-3.18	-0.60	0.00	-2.61	0.00	2.61	638.33	150.79	196.66	188.66	6.01	-0.55	0.019
112.00	-1.53	-0.23	0.00	-1.76	0.00	1.76	624.04	147.41	187.96	180.26	6.12	-0.55	0.012
115.00	-1.41	-0.21	0.00	-1.07	0.00	1.07	581.17	137.28	163.02	156.19	6.47	-0.56	0.009
118.00	-0.16	-0.07	0.00	-0.45	0.00	0.45	538.30	127.16	139.86	133.85	6.82	-0.56	0.004
118.50	0.00	-0.07	0.00	-0.42	0.00	0.42	531.15	125.47	136.18	130.29	6.88	-0.56	0.003

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W	Serviceability 60 mph	22 Iterations
Gust Response Factor :1.10		
Dead Load Factor :1.00		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		55.7	0.0					0.0	0.0	55.7	0.0	0.0	0.0
5.00		109.6	816.4					0.0	48.8	109.6	865.2	0.0	0.0
10.00		105.9	789.1					0.0	48.8	105.9	837.9	0.0	0.0
15.00		103.6	761.9					0.0	48.8	103.6	810.6	0.0	0.0
20.00		103.5	734.6					0.0	48.8	103.5	783.3	0.0	0.0
25.00		103.6	707.3					0.0	48.8	103.6	756.1	0.0	0.0
30.00	Appurtenance(s)	102.8	680.1	117.6	0.0	0.0	40.0	0.0	48.8	220.4	768.8	0.0	0.0
35.00	Appurtenance(s)	101.3	652.8	32.1	0.0	0.0	630.0	0.0	47.2	133.4	1,329.9	0.0	0.0
40.00		99.3	625.5					0.0	47.2	99.3	672.7	0.0	0.0
45.00		82.7	598.2					0.0	47.2	82.7	645.4	0.0	0.0
48.50	Bot - Section 2	48.0	402.5					0.0	33.0	48.0	435.6	0.0	0.0
50.00		43.0	340.0					0.0	14.1	43.0	354.2	0.0	0.0
53.00	Top - Section 1	47.2	665.3					0.0	28.3	47.2	693.6	0.0	0.0
55.00		64.3	218.4					0.0	18.9	64.3	237.3	0.0	0.0
60.00		89.5	527.0					0.0	47.2	89.5	574.1	0.0	0.0
65.00		86.0	499.7					0.0	47.2	86.0	546.9	0.0	0.0
70.00		82.3	472.4					0.0	47.2	82.3	519.6	0.0	0.0
75.00		78.4	445.2					0.0	47.2	78.4	492.3	0.0	0.0
80.00		74.3	417.9					0.0	47.2	74.3	465.1	0.0	0.0
85.00		70.1	390.6					0.0	47.2	70.1	437.8	0.0	0.0
90.00		49.1	363.4					0.0	47.2	49.1	410.5	0.0	0.0
92.33	Bot - Section 3	32.1	160.2					0.0	22.0	32.1	182.2	0.0	0.0
95.00	Top - Section 2	47.1	284.1					0.0	25.1	47.1	309.2	0.0	0.0
100.00	Appurtenance(s)	57.9	190.4	664.6	0.0	0.0	1,734.0	0.0	47.2	722.5	1,971.5	0.0	0.0
105.00		53.2	174.0					0.0	22.1	53.2	196.1	0.0	0.0
110.00		30.2	157.6					0.0	22.1	30.2	179.7	0.0	0.0
111.00	Appurtenance(s)	9.5	29.6	255.2	0.0	0.0	900.0	0.0	4.4	264.7	934.0	0.0	0.0
112.00	Appurtenance(s)	18.2	28.9	693.7	0.0	538.7	1,239.8	0.0	4.4	711.9	1,273.1	0.0	0.0
115.00		26.9	82.8					0.0	3.4	26.9	86.2	0.0	0.0
118.00	Appurtenance(s)	15.5	76.9	206.4	0.0	0.0	937.5	0.0	3.4	221.9	1,017.8	0.0	0.0
118.50		2.2	12.2					0.0	0.6	2.2	12.8	0.0	0.0
Totals:										3,962.69	18,799.5	0.00	0.00

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

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 (deg)	Ratio
0.00	-18.91	-4.02	0.00	-324.61	0.00	324.61	3,100.92	856.20	3,803.68	3,143.02	0.00	0.00	0.109
5.00	-18.05	-3.92	0.00	-304.49	0.00	304.49	3,044.58	828.07	3,557.88	2,983.90	0.02	-0.03	0.108
10.00	-17.21	-3.83	0.00	-284.88	0.00	284.88	2,985.15	799.94	3,320.29	2,825.62	0.06	-0.06	0.107
15.00	-16.39	-3.73	0.00	-265.75	0.00	265.75	2,922.63	771.81	3,090.91	2,668.50	0.15	-0.09	0.105
20.00	-15.61	-3.63	0.00	-247.10	0.00	247.10	2,857.01	743.68	2,869.74	2,512.85	0.26	-0.13	0.104
25.00	-14.85	-3.54	0.00	-228.93	0.00	228.93	2,788.30	715.55	2,656.77	2,358.98	0.41	-0.16	0.102
30.00	-14.08	-3.32	0.00	-211.24	0.00	211.24	2,716.49	687.42	2,452.02	2,207.20	0.60	-0.20	0.101
35.00	-12.75	-3.19	0.00	-194.61	0.00	194.61	2,641.59	659.29	2,255.47	2,057.83	0.83	-0.23	0.099
40.00	-12.07	-3.10	0.00	-178.64	0.00	178.64	2,563.60	631.16	2,067.14	1,911.17	1.09	-0.27	0.098
45.00	-11.43	-3.02	0.00	-163.14	0.00	163.14	2,482.51	603.03	1,887.01	1,767.53	1.40	-0.31	0.097
48.50	-10.99	-2.98	0.00	-152.56	0.00	152.56	2,423.91	583.34	1,765.81	1,668.95	1.65	-0.34	0.096
50.00	-10.64	-2.93	0.00	-148.10	0.00	148.10	2,398.33	574.90	1,715.10	1,627.23	1.76	-0.36	0.095
53.00	-9.94	-2.89	0.00	-139.29	0.00	139.29	2,379.98	568.91	1,679.50	1,597.77	1.99	-0.39	0.091
55.00	-9.70	-2.83	0.00	-133.52	0.00	133.52	2,345.17	557.65	1,613.73	1,542.97	2.16	-0.40	0.091
60.00	-9.13	-2.74	0.00	-119.39	0.00	119.39	2,241.65	529.52	1,455.06	1,399.75	2.60	-0.45	0.089
65.00	-8.58	-2.66	0.00	-105.70	0.00	105.70	2,122.57	501.40	1,304.60	1,254.27	3.10	-0.49	0.088
70.00	-8.06	-2.58	0.00	-92.42	0.00	92.42	2,003.49	473.27	1,162.35	1,116.77	3.64	-0.54	0.087
75.00	-7.56	-2.50	0.00	-79.54	0.00	79.54	1,884.41	445.14	1,028.31	987.26	4.23	-0.59	0.085
80.00	-7.10	-2.43	0.00	-67.05	0.00	67.05	1,765.33	417.01	902.47	865.72	4.87	-0.64	0.082
85.00	-6.66	-2.36	0.00	-54.92	0.00	54.92	1,646.25	388.88	784.85	752.16	5.57	-0.69	0.077
90.00	-6.25	-2.31	0.00	-43.14	0.00	43.14	1,527.17	360.75	675.44	646.59	6.32	-0.74	0.071
92.33	-6.06	-2.27	0.00	-37.76	0.00	37.76	1,471.60	347.62	627.19	600.05	6.69	-0.76	0.067
95.00	-5.75	-2.23	0.00	-31.70	0.00	31.70	856.75	204.79	362.73	345.08	7.12	-0.79	0.099
100.00	-3.79	-1.48	0.00	-20.57	0.00	20.57	795.51	187.92	305.41	293.76	7.97	-0.83	0.075
105.00	-3.60	-1.43	0.00	-13.17	0.00	13.17	724.06	171.04	253.03	243.11	8.87	-0.89	0.059
110.00	-3.42	-1.39	0.00	-6.04	0.00	6.04	652.62	154.16	205.56	197.26	9.83	-0.93	0.036
111.00	-2.49	-1.11	0.00	-4.64	0.00	4.64	638.33	150.79	196.66	188.66	10.02	-0.93	0.029
112.00	-1.22	-0.38	0.00	-2.99	0.00	2.99	624.04	147.41	187.96	180.26	10.22	-0.94	0.019
115.00	-1.14	-0.35	0.00	-1.84	0.00	1.84	581.17	137.28	163.02	156.19	10.81	-0.95	0.014
118.00	-0.12	-0.12	0.00	-0.78	0.00	0.78	538.30	127.16	139.86	133.85	11.41	-0.96	0.006
118.50	0.00	-0.11	0.00	-0.72	0.00	0.72	531.15	125.47	136.18	130.29	11.51	-0.96	0.006

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.82
Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.28
Long-Period Transition Period (T_L):	8
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.20
Site Coefficient F_v :	2.03
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.65
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.38
Seismic Response Coefficient (C_s):	0.16
Upper Limit C_s	0.16
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.60
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.55
Total Unfactored Dead Load:	18.91 k
Seismic Base Shear (E):	3.94 k

Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
30	118.25	13	21	0.002	6	17
29	116.50	80	128	0.010	38	107
28	113.50	86	132	0.010	39	115
27	111.50	33	50	0.004	15	44
26	110.50	34	50	0.004	15	45
25	107.50	180	253	0.019	75	239
24	102.50	196	257	0.019	76	261
23	97.50	238	288	0.022	86	316
22	93.67	309	352	0.027	105	411
21	91.17	182	199	0.015	59	242
20	87.50	411	421	0.032	125	546
19	82.50	438	410	0.031	122	582
18	77.50	465	395	0.030	118	619
17	72.50	492	377	0.028	112	655
16	67.50	520	356	0.027	106	691
15	62.50	547	333	0.025	99	728
14	57.50	574	307	0.023	91	764
13	54.00	237	115	0.009	34	316
12	51.50	694	313	0.024	93	923
11	49.25	354	149	0.011	44	471
10	46.75	436	169	0.013	50	580
9	42.50	645	216	0.016	64	859
8	37.50	673	185	0.014	55	895
7	32.50	700	154	0.012	46	931
6	27.50	729	124	0.009	37	970

Site Number: 310318

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

5	22.50	756	94	0.007	28	1,006
4	17.50	783	66	0.005	20	1,042
3	12.50	811	41	0.003	12	1,079
2	7.50	838	19	0.001	6	1,115
1	2.50	865	4	0.000	1	1,151
TX RX Systems 101-90	118.50	114	187	0.014	56	152
Generic Flat T-Arm	118.00	938	1,527	0.115	455	1,247
Commscope IMF8-C-2ST	112.00	65	98	0.007	29	87
Ericsson 8843 Rev 2	112.00	225	338	0.026	101	299
Ericsson Radio 4449	112.00	210	316	0.024	94	279
Raycap RVZDC-6627-PF	112.00	32	48	0.004	14	43
Ericsson AIR 6449 B7	112.00	245	368	0.028	109	326
Antel LPA-80090/4CF	112.00	66	99	0.007	30	88
Andrew SBNHH-1D65C	112.00	397	596	0.045	177	528
Generic Round Sector	111.00	900	1,334	0.101	397	1,198
Ericsson KRY 112 144	100.00	33	42	0.003	12	44
Commscope TMat1921xB	100.00	53	67	0.005	20	70
Ericsson Radio 4449	100.00	222	280	0.021	83	295
CellMax CMA-B/6521/E	100.00	105	132	0.010	39	140
Generic Flat T-Arm	100.00	938	1,182	0.089	352	1,247
RFS APXVAARR24_43-U-	100.00	384	484	0.037	144	511
Valmont ISMD4	35.00	630	156	0.012	46	838
RFS SCX3-W100xxx	30.00	40	8	0.001	2	53
		18,914	13,237	1.000	3,940	25,166

Load Case 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
30	118.25	13	21	0.002	6	10
29	116.50	80	128	0.010	38	62
28	113.50	86	132	0.010	39	66
27	111.50	33	50	0.004	15	26
26	110.50	34	50	0.004	15	26
25	107.50	180	253	0.019	75	138
24	102.50	196	257	0.019	76	151
23	97.50	238	288	0.022	86	183
22	93.67	309	352	0.027	105	238
21	91.17	182	199	0.015	59	140
20	87.50	411	421	0.032	125	316
19	82.50	438	410	0.031	122	337
18	77.50	465	395	0.030	118	358
17	72.50	492	377	0.028	112	379
16	67.50	520	356	0.027	106	400
15	62.50	547	333	0.025	99	421
14	57.50	574	307	0.023	91	442
13	54.00	237	115	0.009	34	183
12	51.50	694	313	0.024	93	534
11	49.25	354	149	0.011	44	273
10	46.75	436	169	0.013	50	335
9	42.50	645	216	0.016	64	497
8	37.50	673	185	0.014	55	518
7	32.50	700	154	0.012	46	539
6	27.50	729	124	0.009	37	561
5	22.50	756	94	0.007	28	582
4	17.50	783	66	0.005	20	603
3	12.50	811	41	0.003	12	624
2	7.50	838	19	0.001	6	645
1	2.50	865	4	0.000	1	666
TX RX Systems 101-90	118.50	114	187	0.014	56	88
Generic Flat T-Arm	118.00	938	1,527	0.115	455	721

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Commscope IMF8-C-2ST	112.00	65	98	0.007	29	50
Ericsson 8843 Rev 2	112.00	225	338	0.026	101	173
Ericsson Radio 4449	112.00	210	316	0.024	94	162
Raycap RVZDC-6627-PF	112.00	32	48	0.004	14	25
Ericsson AIR 6449 B7	112.00	245	368	0.028	109	188
Antel LPA-80090/4CF	112.00	66	99	0.007	30	51
Andrew SBNHH-1D65C	112.00	397	596	0.045	177	305
Generic Round Sector	111.00	900	1,334	0.101	397	692
Ericsson KRY 112 144	100.00	33	42	0.003	12	25
Commscope TMAT1921xB	100.00	53	67	0.005	20	41
Ericsson Radio 4449	100.00	222	280	0.021	83	171
CellMax CMA-B/6521/E	100.00	105	132	0.010	39	81
Generic Flat T-Arm	100.00	938	1,182	0.089	352	721
RFS APXVAARR24_43-U-	100.00	384	484	0.037	144	295
Valmont ISMD4	35.00	630	156	0.012	46	485
RFS SCX3-W100xxx	30.00	40	8	0.001	2	31
		18,914	13,237	1.000	3,940	14,553

Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Calculated Forces

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 (deg)	Ratio
0.00	-24.01	-3.95	0.00	-368.07	0.00	368.07	3,100.92	856.20	3,803.68	3,143.02	0.00	0.00	0.125
5.00	-22.90	-3.95	0.00	-348.34	0.00	348.34	3,044.58	828.07	3,557.88	2,983.90	0.02	-0.03	0.124
10.00	-21.81	-3.95	0.00	-328.57	0.00	328.57	2,985.15	799.94	3,320.29	2,825.62	0.07	-0.07	0.124
15.00	-20.77	-3.95	0.00	-308.80	0.00	308.80	2,922.63	771.81	3,090.91	2,668.50	0.17	-0.11	0.123
20.00	-19.76	-3.93	0.00	-289.06	0.00	289.06	2,857.01	743.68	2,869.74	2,512.85	0.30	-0.15	0.122
25.00	-18.79	-3.90	0.00	-269.41	0.00	269.41	2,788.30	715.55	2,656.77	2,358.98	0.47	-0.19	0.121
30.00	-17.80	-3.87	0.00	-249.89	0.00	249.89	2,716.49	687.42	2,452.02	2,207.20	0.69	-0.23	0.120
35.00	-16.07	-3.77	0.00	-230.56	0.00	230.56	2,641.59	659.29	2,255.47	2,057.83	0.96	-0.27	0.118
40.00	-15.20	-3.71	0.00	-211.71	0.00	211.71	2,563.60	631.16	2,067.14	1,911.17	1.27	-0.32	0.117
45.00	-14.62	-3.67	0.00	-193.14	0.00	193.14	2,482.51	603.03	1,887.01	1,767.53	1.63	-0.37	0.115
48.50	-14.15	-3.63	0.00	-180.29	0.00	180.29	2,423.91	583.34	1,765.81	1,668.95	1.91	-0.40	0.114
50.00	-13.23	-3.54	0.00	-174.85	0.00	174.85	2,398.33	574.90	1,715.10	1,627.23	2.04	-0.42	0.113
53.00	-12.91	-3.50	0.00	-164.25	0.00	164.25	2,379.98	568.91	1,679.50	1,597.77	2.32	-0.45	0.108
55.00	-12.14	-3.41	0.00	-157.24	0.00	157.24	2,345.17	557.65	1,613.73	1,542.97	2.51	-0.47	0.107
60.00	-11.41	-3.32	0.00	-140.16	0.00	140.16	2,241.65	529.52	1,455.06	1,399.75	3.03	-0.53	0.105
65.00	-10.72	-3.22	0.00	-123.56	0.00	123.56	2,122.57	501.40	1,304.60	1,254.27	3.61	-0.58	0.104
70.00	-10.06	-3.11	0.00	-107.47	0.00	107.47	2,003.49	473.27	1,162.35	1,116.77	4.25	-0.63	0.101
75.00	-9.44	-2.99	0.00	-91.93	0.00	91.93	1,884.41	445.14	1,028.31	987.26	4.94	-0.69	0.098
80.00	-8.86	-2.87	0.00	-76.97	0.00	76.97	1,765.33	417.01	902.47	865.72	5.69	-0.75	0.094
85.00	-8.31	-2.75	0.00	-62.61	0.00	62.61	1,646.25	388.88	784.85	752.16	6.51	-0.80	0.088
90.00	-8.07	-2.69	0.00	-48.86	0.00	48.86	1,527.17	360.75	675.44	646.59	7.38	-0.86	0.081
92.33	-7.66	-2.58	0.00	-42.58	0.00	42.58	1,471.60	347.62	627.19	600.05	7.81	-0.89	0.076
95.00	-7.34	-2.50	0.00	-35.69	0.00	35.69	856.75	204.79	362.73	345.08	8.32	-0.92	0.112
100.00	-4.78	-1.73	0.00	-23.20	0.00	23.20	795.51	187.92	305.41	293.76	9.30	-0.97	0.085
105.00	-4.54	-1.66	0.00	-14.53	0.00	14.53	724.06	171.04	253.03	243.11	10.35	-1.03	0.066
110.00	-4.50	-1.64	0.00	-6.24	0.00	6.24	652.62	154.16	205.56	197.26	11.45	-1.07	0.039

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

111.00	-3.27	-1.21	0.00	-4.59	0.00	4.59	638.33	150.79	196.66	188.66	11.68	-1.08	0.030
112.00	-1.51	-0.58	0.00	-3.38	0.00	3.38	624.04	147.41	187.96	180.26	11.91	-1.08	0.021
115.00	-1.41	-0.54	0.00	-1.63	0.00	1.63	581.17	137.28	163.02	156.19	12.59	-1.09	0.013
118.00	0.00	0.00	0.00	0.00	0.00	0.00	538.30	127.16	139.86	133.85	13.28	-1.10	0.000
118.50	0.00	0.00	0.00	0.00	0.00	0.00	531.15	125.47	136.18	130.29	13.39	-1.10	0.000

Load Case 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Calculated Forces

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 (deg)	Ratio
0.00	-13.89	-3.94	0.00	-363.83	0.00	363.83	3,100.92	856.20	3,803.68	3,143.02	0.00	0.00	0.120
5.00	-13.24	-3.95	0.00	-344.11	0.00	344.11	3,044.58	828.07	3,557.88	2,983.90	0.02	-0.03	0.120
10.00	-12.61	-3.94	0.00	-324.39	0.00	324.39	2,985.15	799.94	3,320.29	2,825.62	0.07	-0.07	0.119
15.00	-12.01	-3.93	0.00	-304.69	0.00	304.69	2,922.63	771.81	3,090.91	2,668.50	0.16	-0.11	0.118
20.00	-11.42	-3.91	0.00	-285.05	0.00	285.05	2,857.01	743.68	2,869.74	2,512.85	0.30	-0.14	0.117
25.00	-10.86	-3.88	0.00	-265.52	0.00	265.52	2,788.30	715.55	2,656.77	2,358.98	0.47	-0.18	0.116
30.00	-10.29	-3.83	0.00	-246.14	0.00	246.14	2,716.49	687.42	2,452.02	2,207.20	0.68	-0.23	0.115
35.00	-9.28	-3.73	0.00	-226.98	0.00	226.98	2,641.59	659.29	2,255.47	2,057.83	0.94	-0.27	0.114
40.00	-8.78	-3.67	0.00	-208.31	0.00	208.31	2,563.60	631.16	2,067.14	1,911.17	1.25	-0.32	0.112
45.00	-8.45	-3.63	0.00	-189.94	0.00	189.94	2,482.51	603.03	1,887.01	1,767.53	1.61	-0.36	0.111
48.50	-8.17	-3.59	0.00	-177.24	0.00	177.24	2,423.91	583.34	1,765.81	1,668.95	1.89	-0.40	0.110
50.00	-7.64	-3.49	0.00	-171.87	0.00	171.87	2,398.33	574.90	1,715.10	1,627.23	2.01	-0.41	0.109
53.00	-7.45	-3.46	0.00	-161.39	0.00	161.39	2,379.98	568.91	1,679.50	1,597.77	2.28	-0.44	0.104
55.00	-7.01	-3.37	0.00	-154.47	0.00	154.47	2,345.17	557.65	1,613.73	1,542.97	2.47	-0.47	0.103
60.00	-6.59	-3.27	0.00	-137.62	0.00	137.62	2,241.65	529.52	1,455.06	1,399.75	2.99	-0.52	0.101
65.00	-6.19	-3.17	0.00	-121.26	0.00	121.26	2,122.57	501.40	1,304.60	1,254.27	3.56	-0.57	0.100
70.00	-5.81	-3.06	0.00	-105.42	0.00	105.42	2,003.49	473.27	1,162.35	1,116.77	4.19	-0.62	0.097
75.00	-5.45	-2.94	0.00	-90.13	0.00	90.13	1,884.41	445.14	1,028.31	987.26	4.87	-0.68	0.094
80.00	-5.11	-2.82	0.00	-75.42	0.00	75.42	1,765.33	417.01	902.47	865.72	5.61	-0.73	0.090
85.00	-4.79	-2.70	0.00	-61.32	0.00	61.32	1,646.25	388.88	784.85	752.16	6.41	-0.79	0.084
90.00	-4.65	-2.64	0.00	-47.84	0.00	47.84	1,527.17	360.75	675.44	646.59	7.27	-0.85	0.077
92.33	-4.41	-2.53	0.00	-41.68	0.00	41.68	1,471.60	347.62	627.19	600.05	7.69	-0.87	0.073
95.00	-4.23	-2.45	0.00	-34.93	0.00	34.93	856.75	204.79	362.73	345.08	8.19	-0.90	0.106
100.00	-2.75	-1.70	0.00	-22.70	0.00	22.70	795.51	187.92	305.41	293.76	9.16	-0.95	0.081
105.00	-2.62	-1.62	0.00	-14.21	0.00	14.21	724.06	171.04	253.03	243.11	10.19	-1.01	0.062
110.00	-2.59	-1.61	0.00	-6.10	0.00	6.10	652.62	154.16	205.56	197.26	11.27	-1.05	0.035
111.00	-1.88	-1.18	0.00	-4.49	0.00	4.49	638.33	150.79	196.66	188.66	11.49	-1.06	0.027
112.00	-0.87	-0.57	0.00	-3.31	0.00	3.31	624.04	147.41	187.96	180.26	11.71	-1.06	0.020
115.00	-0.81	-0.53	0.00	-1.60	0.00	1.60	581.17	137.28	163.02	156.19	12.39	-1.07	0.012
118.00	0.00	0.00	0.00	0.00	0.00	0.00	538.30	127.16	139.86	133.85	13.06	-1.08	0.000
118.50	0.00	0.00	0.00	0.00	0.00	0.00	531.15	125.47	136.18	130.29	13.18	-1.08	0.000

Site Number: 310318

Code: ANSI/TIA-222-H

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Site Name: HUNTSVILLE - Clawson, UT

Engineering Number:13713453_C3_01

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Customer: VERIZON WIRELESS

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	13.25	0.00	22.68	0.00	0.00	1072.71	0.00	0.35
0.9D + 1.0W	13.24	0.00	17.01	0.00	0.00	1065.80	0.00	0.34
1.2D + 1.0Di + 1.0Wi	2.71	0.00	24.04	0.00	0.00	203.62	0.00	0.07
1.2D + 1.0Ev + 1.0Eh	3.95	0.00	24.01	0.00	0.00	368.07	0.00	0.12
0.9D - 1.0Ev + 1.0Eh	3.94	0.00	13.89	0.00	0.00	363.83	0.00	0.12
1.0D + 1.0W	4.02	0.00	18.91	0.00	0.00	324.61	0.00	0.11

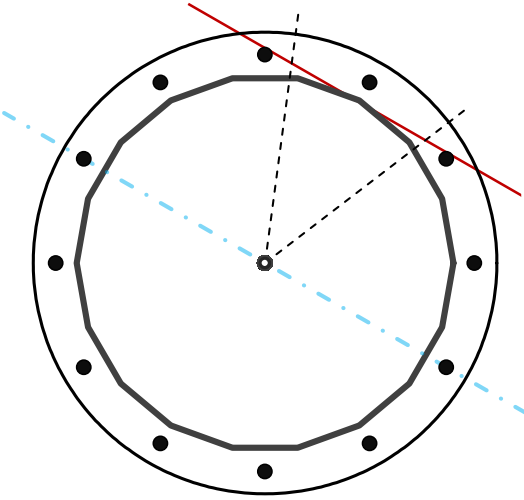
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	49.5	in
Thickness	5/16	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	1,072.7	k-ft
Axial, Pu	22.7	k
Shear, Vu	13.3	k
Neutral Axis	330	°

Report Capacities		
Component	Capacity	Result
Base Plate	8%	Pass
Anchor Rods	34%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ϕ	62	in
Thickness	2 1/2	in
Grade	A633 Gr. E	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	163.7	k
Bending Stress, ϕMn	2044.1	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	12	-
Diameter, ϕ	2 1/4	in
Bolt Circle	56	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	14.7	in
Orientation Offset		°
Applied Force, Pu	81.8	k
Anchor Rods, ϕPn	243.6	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	13.3	1072.7	1.00
Anchor Rod Forces	13.3	1072.7	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	48.0449	2.6692	0.0872		14531.62
Bolt	3.9761	3.2477	0.8393	4.5	14018.85
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	62	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	37.333	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	12	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	56	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	81.8	k
Applied Shear, Vu	0.9	k
Compressive Capacity, ϕP_n	243.6	k
Tensile Capacity, ϕR_n	0.336	OK
Interaction Capacity	0.343	OK

External Base Plate		
Chord Length AA	30.978	in
Additional AA	5.000	in
Section Modulus, Z	56.215	in ³
Applied Moment, Mu	163.7	k-ft
Bending Capacity, ϕM_n	3035.6	k-ft
Capacity, Mu/ ϕM_n	0.054	OK
Chord Length AB	29.716	in
Additional AB	5.000	in
Section Modulus, Z	54.244	in ³
Applied Moment, Mu	132.4	k-ft
Bending Capacity, ϕM_n	2929.2	k-ft
Capacity, Mu/ ϕM_n	0.045	OK
Bend Line Length	24.226	in
Additional Bend Line	0.000	in
Section Modulus, Z	37.853	in ³
Applied Moment, Mu	163.7	k-ft
Bending Capacity, ϕM_n	2044.1	k-ft
Capacity, Mu/ ϕM_n	0.080	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in ³
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕM_n	0.0	k-ft
Capacity, Mu/ ϕM_n		