AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

TOWER ENGINEERING PROFESSIONALS

Structural Analysis Report

Structure	:	**142 ft Monopole**
ATC Site Name	:	**WSPT - South, CT**
ATC Site Number	:	**302511**
Engineering Number	:	**OAA713869_C3_04**
Proposed Carrier	:	**Sprint Nextel**
Carrier Site Name	:	**Turkey Hill**
Carrier Site Number	:	**CT03XC336**
Site Location	:	**20 Post Office Lane** **Westport, CT 06880-6226** **41.123400,-73.313100**
County	:	**Fairfield**
Date	:	**June 4, 2018**
Max Usage	:	**90%**
Result	:	**Pass**

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06/05/2018

COA: PEC.0001553

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 142 ft monopole to reflect the change in loading by Sprint Nextel.

Supporting Documents

Tower Drawings	SpectraSite Site #CT-0047, dated August 12, 2005
Foundation Drawing	Mapping by TEP Project #65218-72422, dated December 28, 2015
Geotechnical Report	MB&A Project #011105, dated July 17, 2001
Modifications	ATC Job #42046633, dated October 16, 2008 ATC Job #46844332/46993332, dated April 15, 2011

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:	93 mph (3-Second Gust, V_{asd}) / 120 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.22, S_1 = 0.07
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

Elevation[1] (ft) Mount	Elevation[1] (ft) RAD	Qty	Antenna	Mount Type	Lines	Carrier
136.0	137.0	3	RCU (Remote Control Unit)	Flush	(6) 1 5/8" Coax (1) 3/8" Coax	Metro PCS
		3	Kathrein 742-218 / AP20-1940/045D/ADT/XP			
131.0	131.0	3	Kaelus DBC0061F1V51-2	Platform w/ Handrails	(12) 1 1/4" Coax (2) 0.39" Fiber Trunk (2) 0.78" 8 AWG 6 (2) 0.65" 8 AWG 2C (2) 2" Conduit	AT&T Mobility
	127.0	12	Powerwave 7020.00 Dual Band RET			
		6	Powerwave LGP21401			
		2	Raycap DC6-48-60-18-8F ("Squid")			
		3	Ericsson RRUS-11 (50 lbs.)			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS 32 w/ Solar Shield (52.9 lbs)			
		3	Powerwave 7770.00			
		3	Quintel QS66512-2			
		3	CCI HPA-65R-BUU-H6			
120.0	120.0	2	DragonWave Horizon Compact	Platform w/ Handrails	(6) 5/16" Coax (2) 1/2" Coax (1) 2" Conduit	Clearwire
		3	NextNet BTS-2500			
		3	Argus LLPX310R			
		2	DragonWave A-ANT-18G-2-C			
		3	Alcatel-Lucent 800MHz 2X50W RRh w/ Filter		(3) 1 1/4" Hybriflex	Sprint Nextel
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
111.0	111.0	9	Decibel DB844G90A-XY	Platform w/ Handrails	(12) 7/8" Coax (1) 1/2" Coax	
100.0	101.0	1	GPS	Platform w/ Handrails	(11) 1 5/8" Coax (2) 1 5/8" Hybriflex (1) 1/2" Coax	Verizon
	100.0	6	RFS FD9R6004/1C-3L			
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent B66A RRH 4x45			
		3	Rymsa MGD3-800TX			
		3	Antel BXA-70080/6CF__			
		6	Commscope NHH-65B-R2B			
90.0	90.0	4	RFS ATMAA1412D-1A20	Platform w/ Handrails	(14) 1 5/8" Coax (1) 1 1/4" Fiber (1) 0.41" LMR-400	T-Mobile
		3	Ericsson RRUS 11 B12			
		4	Ericsson AIR 21, 1.3 M, B2A B4P			
		3	Ericsson AIR 21, 1.3M, B4A B2P			
		3	Andrew LNX-6515DS-VTM			

Equipment to be Removed

Elevation[1] (ft) Mount	Elevation[1] (ft) RAD	Qty	Antenna	Mount Type	Lines	Carrier
120.0	120.0	3	RFS APXVSPP18-C-A20	-	(1) 1 1/4" Hybriflex	Sprint Nextel
		3	RFS RFS APXV9TM14-ALU-I20			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
70.0	70.0	1	PCTEL GPS-TMG-HR-26N	Stand-Off	(1) 1/2" Coax	Sprint Nextel

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
120.0	120.0	3	Alcatel-Lucent RRH2x50-08	Platform w/ Handrails	(2) 1.7" Hybrid	Sprint Nextel
		3	Nokia 2.5G MAA - AAHC(64T64R)			
		3	Commscope NNVV-65B-R4			
63.0	63.0	1	PCTEL GPS-TMG-HR-26N	Stand-Off	(1) 1/2" Coax	Sprint Nextel

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	83%	Pass
Shaft	90%	Pass
Base Plate	69%	Pass
Flanges	36%	Pass
Reinforcement	79%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,817.5	46%
Axial (Kips)	57.1	14%
Shear (Kips)	42.2	20%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
120.0	Alcatel-Lucent RRH2x50-08	Sprint Nextel	1.716	1.726
	Nokia 2.5G MAA - AAHC(64T64R)			
	DragonWave A-ANT-18G-2-C	Clearwire		
	Commscope NNVV-65B-R4	Sprint Nextel		

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

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC 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 A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC 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 A.T. Engineering Service, PLLC, 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. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

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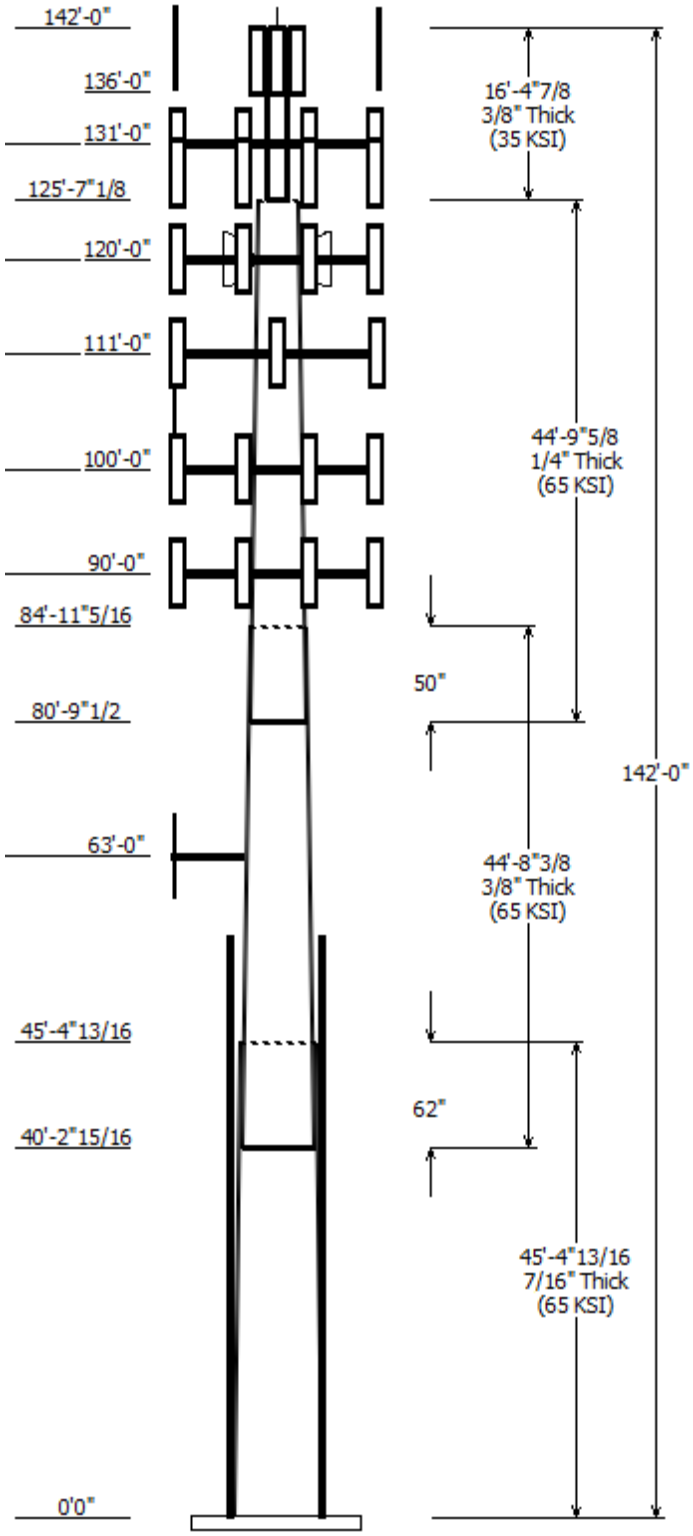
Job Information

Pole :	302511	Code:	ANSI/TIA-222-G
Location :	WSPT - South, CT		
Description :	142 ft EEI Monopole		
Client :	SPRINT NEXTEL	Struct Class :	II
Shape :	12 Sides	Exposure :	C
Height :	142.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.212638 (in/ft)		

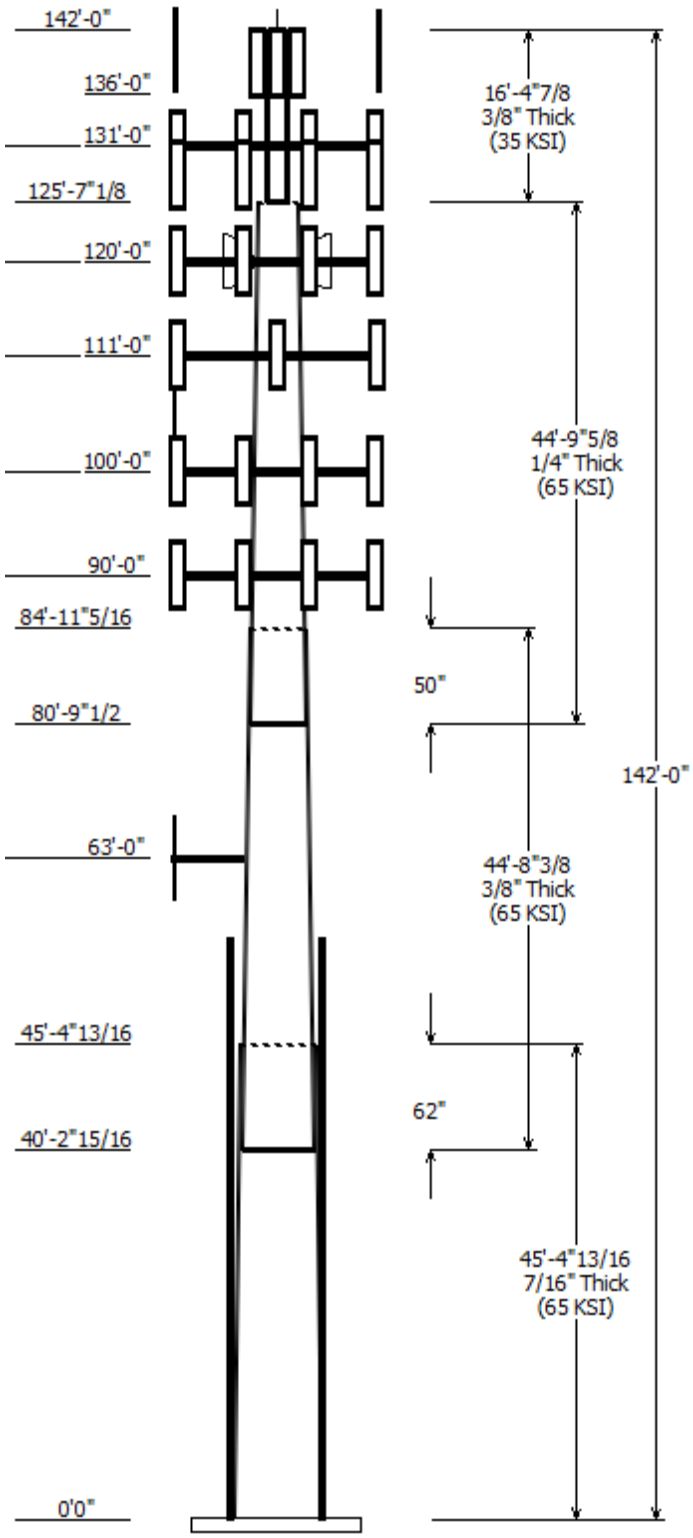


Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	45.400	35.34	45.00	0.438		0.000	12 Sides	65
2	44.700	27.68	37.19	0.375	Slip Joint	61.875	12 Sides	65
3	44.800	19.54	29.07	0.250	Slip Joint	49.813	12 Sides	65
4	16.407	10.75	10.75	0.375	Butt Joint	0.000	Round	35

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
136.000	137.000	3	RCU (Remote Control Unit)
136.000	137.000	3	Kathrein Scala 742-218 / AP20-
131.000	131.000	1	Flat Platform w/ Handrails
131.000	127.000	3	CCI HPA-65R-BUU-H6
131.000	127.000	3	Quintel QS66512-2
131.000	127.000	3	Powerwave Allgon 7770.00
131.000	127.000	3	Ericsson RRUS 32 w/ Solar Shie
131.000	127.000	3	Ericsson RRUS 32 B2
131.000	127.000	3	Ericsson RRUS-11 (50 lbs.)
131.000	127.000	2	Raycap DC6-48-60-18-8F
131.000	127.000	6	Powerwave Allgon LGP21401
131.000	131.000	3	Kaelus DBC0061F1V51-2
131.000	127.000	12	Powerwave Allgon 7020.00
120.000	120.000	3	Commscope NNVV-65B-R4
120.000	120.000	3	Nokia 2.5G MAA -
120.000	120.000	3	Alcatel-Lucent RRH2x50-08
120.000	120.000	3	Alcatel-Lucent 800 MHz 2X50W
120.000	120.000	3	Alcatel-Lucent 1900 MHz 4x45
120.000	120.000	3	Argus LLPX310R
120.000	120.000	2	DragonWave Horizon Compact
120.000	120.000	2	DragonWave A-ANT-18G-2-C
120.000	120.000	3	NextNet BTS-2500
120.000	120.000	1	Flat Platform w/ Handrails
111.000	111.000	1	Flat Platform w/ Handrails
111.000	111.000	9	Decibel DB844G90A-XY
100.000	101.000	1	GPS
100.000	100.000	6	Commscope NHH-65B-R2B
100.000	100.000	2	Commscope RC2DC-3315-PF-
100.000	100.000	3	Alcatel-Lucent B66A RRH 4x45
100.000	100.000	3	Alcatel-Lucent RRH2x60 700
100.000	100.000	3	Antel BXA-70080/6CF__
100.000	100.000	6	RFS FD9R6004/1C-3L
100.000	100.000	3	Rymsa MGD3-800TX
100.000	100.000	1	Flat Platform w/ Handrails
90.000	90.000	3	Andrew LNX-6515DS-VTM
90.000	90.000	3	Ericsson RRUS 11 B12
90.000	90.000	3	Ericsson AIR 21, 1.3M, B4A B2P
90.000	90.000	4	Ericsson AIR 21, 1.3 M, B2A B4
90.000	90.000	4	RFS ATMAA1412D-1A20
90.000	90.000	1	Flat Platform w/ Handrails
63.000	63.000	1	Stand-Off
63.000	63.000	1	PCTEL GPS-TMG-HR-26N



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	63.000	1/2" Coax	No
0.000	63.000	DYWIDAG	Yes
0.000	90.000	0.41" LMR-400	No
0.000	90.000	1 1/4" Fiber	No
0.000	90.000	1 5/8" Coax	Yes
0.000	100.0	1 5/8" Coax	No
0.000	100.0	1 5/8" Hybriflex	No
0.000	100.0	1/2" Coax	No
0.000	111.0	1/2" Coax	No
0.000	111.0	7/8" Coax	No
0.000	120.0	1 1/4" Hybriflex	No
0.000	120.0	1.7" Hybrid	No
0.000	120.0	1/2" Coax	Yes
0.000	120.0	2" Conduit	Yes
0.000	120.0	5/16" Coax	Yes
0.000	131.0	0.39" Fiber Trunk	No
0.000	131.0	0.65" 8 AWG 2C	No
0.000	131.0	0.78" 8 AWG 6	No
0.000	131.0	1 1/4" Coax	No
0.000	131.0	2" Conduit	No
0.000	136.0	1 5/8" Coax	Yes
0.000	136.0	3/8" Coax	Yes

Load Cases

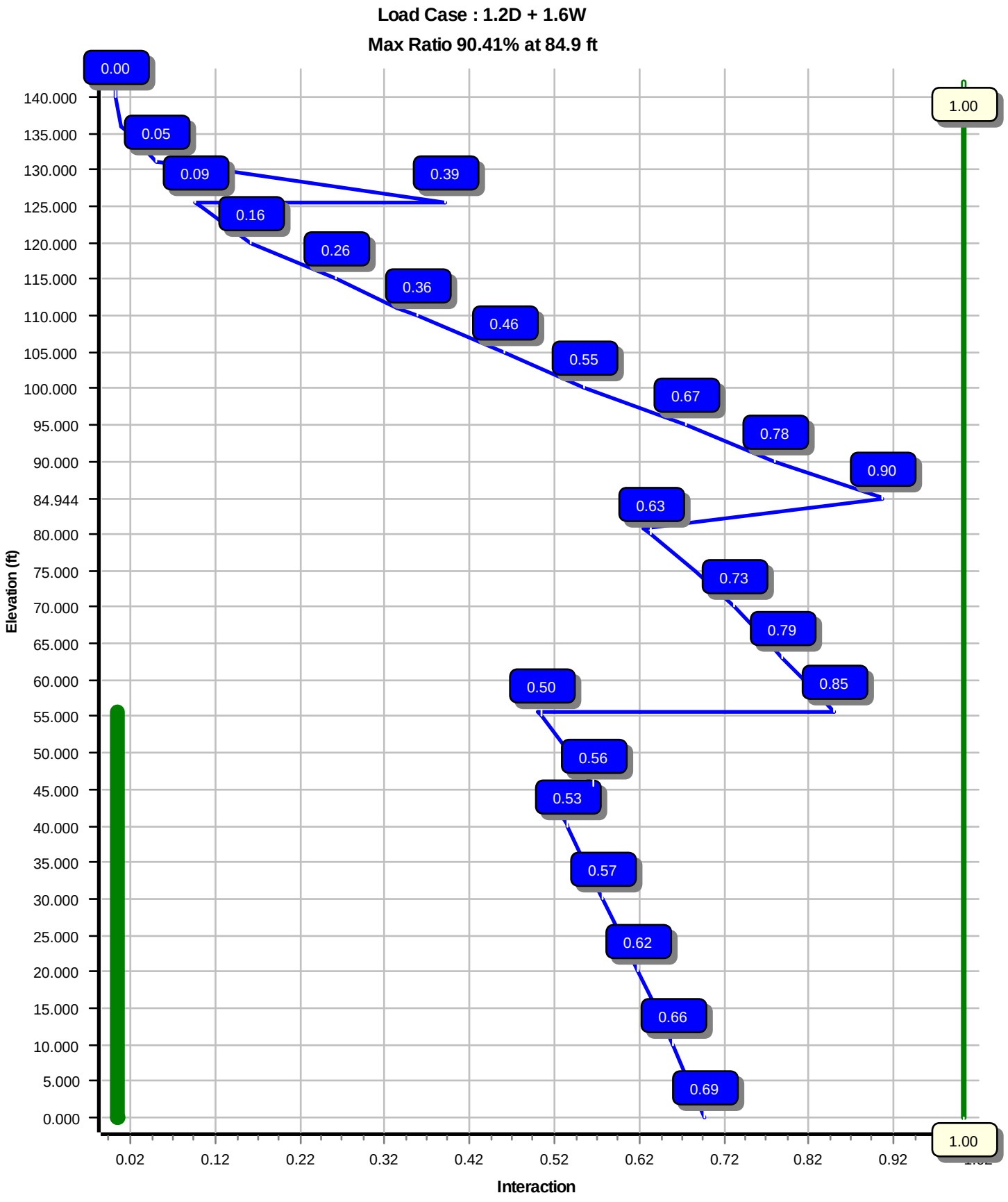
1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3817.48	42.15	57.14
0.9D + 1.6W	3717.84	41.57	42.83
1.2D + 1.0Di + 1.0Wi	984.04	10.38	92.33
(1.2 + 0.2Sds) * DL + E ELFM	210.13	1.96	56.94
(1.2 + 0.2Sds) * DL + E EMAM	165.84	1.97	56.94
(0.9 - 0.2Sds) * DL + E ELFM	206.94	1.96	38.94
(0.9 - 0.2Sds) * DL + E EMAM	163.14	1.97	38.94
1.0D + 1.0W	972.98	10.83	47.68

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	120.00	20.588	1.726


Load Case : 1.2D + 1.6W
Max Ratio 90.41% at 84.9 ft
0.00
0.05
0.09
0.39
0.16
0.26
0.36
0.46
0.55
0.67
0.78
0.90
0.63
0.73
0.79
0.85
0.50
0.56
0.53
0.57
0.62
0.66
0.69
1.00
1.00
Elevation (ft)
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
84.944
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	302511	Code: ANSI/TIA-222-G	© 2007 - 2018 by ATC IP LLC. All rights reserved.
Site Name:	WSPT - South, CT	Engineering Number:OAA713869_C3_04	6/5/2018 3:35:58 PM
Customer:	SPRINT NEXTEL		

Analysis Parameters

Location :	FAIRFIELD County, CT	Height (ft) :	142
Code :	ANSI/TIA-222-G	Base Diameter (in) :	45.00
Shape :	12 Sides. Sect 4: Round	Top Diameter (in) :	10.75
Pole Type :	Custom	Taper (in/ft) :	0.213
Pole Manfacturer :	EEI	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	93 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods
Site Class:	D - Stiff Soil
Period Based on Rayleigh Method (sec):	2.24

T_L (sec):	6	p:	1.3	C_s:	0.031
S_s:	0.221	S_1:	0.066	C_s Max:	0.031
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.236	S_{d1}:	0.106		

Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

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Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in 2)	Bottom Ix (in4)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in2)	Top Ix (in4)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	45.400	0.4375	65		0.00	8,648	45.00	0.00	62.78	15912.1	25.42	102.86	35.34	45.40	49.18	7649.3	19.50	80.79	0.212638
2-12	44.700	0.3750	65	Slip	61.88	5,889	37.19	40.24	44.46	7692.0	24.43	99.18	27.68	84.94	32.98	3140.3	17.64	73.83	0.212638
3-12	44.800	0.2500	65	Slip	49.81	2,952	29.07	80.79	23.20	2459.7	29.01	116.28	19.54	125.59	15.53	738.0	18.80	78.18	0.212638
4-R	16.407	0.3750	35	Butt	0.00	682	10.75	125.59	12.22	164.6	0.00	28.67	10.75	142.00	12.22	164.6	0.00	28.67	0.000000
				Shaft Weight		18,172													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
136.00	Kathrein Scala 742-218 / AP20-	3	0.000	1.000	22.50	3.850	0.63
136.00	RCU (Remote Control Unit)	3	0.000	1.000	1.00	0.160	0.50
131.00	CCI HPA-65R-BUU-H6	3	0.000	-4.000	51.00	9.660	0.69
131.00	Ericsson RRUS 32 B2	3	0.000	-4.000	53.00	2.740	0.67
131.00	Ericsson RRUS 32 w/ Solar Shie	3	0.000	-4.000	52.90	2.740	0.67
131.00	Ericsson RRUS-11 (50 lbs.)	3	0.000	-4.000	50.00	2.570	0.67
131.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
131.00	Kaelus DBC0061F1V51-2	3	0.000	0.000	25.50	0.510	0.50
131.00	Powerwave Allgon 7020.00 Dual	12	0.000	-4.000	2.20	0.400	0.50
131.00	Powerwave Allgon 7770.00	3	0.000	-4.000	35.00	5.510	0.65
131.00	Powerwave Allgon LGP21401	6	0.000	-4.000	14.10	1.100	0.50
131.00	Quintel QS66512-2	3	0.000	-4.000	111.00	8.130	0.74
131.00	Raycap DC6-48-60-18-8F ("Squid	2	0.000	-4.000	31.80	1.280	1.00
120.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	0.000	60.00	2.320	0.67
120.00	Alcatel-Lucent 800 MHz 2X50W R	3	0.000	0.000	64.00	2.060	0.67
120.00	Alcatel-Lucent RRH2x50-08	3	0.000	0.000	52.90	1.700	0.50
120.00	Argus LLPX310R	3	0.000	0.000	28.60	4.290	0.63
120.00	Commscope NNVV-65B-R4	3	0.000	0.000	77.40	12.270	0.64
120.00	DragonWave A-ANT-18G-2-C	2	0.000	0.000	27.10	4.690	1.00
120.00	DragonWave Horizon Compact	2	0.000	0.000	10.60	0.430	0.50
120.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
120.00	NextNet BTS-2500	3	0.000	0.000	35.00	1.820	0.50
120.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.000	0.000	103.60	4.200	0.64
111.00	Decibel DB844G90A-XY	9	0.000	0.000	14.00	3.610	0.74
111.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
100.00	Alcatel-Lucent B66A RRH 4x45	3	0.000	0.000	67.00	2.580	0.67
100.00	Alcatel-Lucent RRH2x60 700	3	0.000	0.000	56.70	2.150	0.67
100.00	Antel BXA-70080/6CF__	3	0.000	0.000	18.00	5.840	0.72
100.00	Commscope NHH-65B-R2B	6	0.000	0.000	43.70	8.080	0.69
100.00	Commscope RC2DC-3315-PF-48	2	0.000	0.000	32.00	3.780	0.67
100.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
100.00	GPS	1	0.000	1.000	10.00	1.000	1.00
100.00	RFS FD9R6004/1C-3L	6	0.000	0.000	3.10	0.370	0.50
100.00	Rymsa MGD3-800TX	3	0.000	0.000	15.40	3.340	0.69
90.00	Andrew LNX-6515DS-VTM	3	0.000	0.000	51.30	11.430	0.70
90.00	Ericsson AIR 21, 1.3 M, B2A B4	4	0.000	0.000	83.00	6.050	0.71
90.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.000	0.000	81.50	6.090	0.70
90.00	Ericsson RRUS 11 B12	3	0.000	0.000	50.70	2.790	0.67
90.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
90.00	RFS ATMAA1412D-1A20	4	0.000	0.000	13.00	1.000	0.50
63.00	PCTEL GPS-TMG-HR-26N	1	0.000	0.000	0.60	0.090	1.00
63.00	Stand-Off	1	0.000	0.000	30.00	1.000	1.00
Totals	Num Loadings:42	132			14637.40		

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Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	136.00	6	1 5/8" Coax	1.98	0.82	N	1.98	Y	Metro PCS
0.00	136.00	1	3/8" Coax	0.44	0.08	N	0.44	Y	Metro PCS
0.00	131.00	2	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	131.00	2	0.65" 8 AWG 2C	0.65	0.31	N	0.00	N	AT&T Mobility
0.00	131.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	131.00	12	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
0.00	131.00	2	2" Conduit	2.38	3.65	N	0.00	N	AT&T Mobility
0.00	120.00	3	1 1/4" Hybriflex	1.54	1.00	N	0.00	N	Sprint Nextel
0.00	120.00	2	1.7" Hybrid	1.70	1.78	N	0.00	N	Sprint Nextel
0.00	120.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire
0.00	120.00	1	2" Conduit	2.38	3.65	N	2.38	Y	Clearwire
0.00	120.00	6	5/16" Coax	0.31	0.05	N	0.00	Y	Clearwire
0.00	111.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel
0.00	111.00	12	7/8" Coax	1.09	0.33	N	0.00	N	Sprint Nextel
0.00	100.00	11	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon
0.00	100.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon
0.00	100.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Verizon
0.00	90.00	1	0.41" LMR-400	0.41	0.07	N	0.00	N	T-Mobile
0.00	90.00	1	1 1/4" Fiber	1.25	1.05	N	1.25	N	T-Mobile
0.00	90.00	14	1 5/8" Coax	1.98	0.82	N	3.96	Y	T-Mobile
0.00	63.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel
0.00	63.00	4	DYWIDAG	4.00	16.70	N	1.62	Y	--

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	55.68	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes

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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)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.4375	45.000	62.777	15,912.1	25.42	102.86	77.0	683.1	0.0	0.0	19.64	6,615	0.0
5.00		0.4375	43.937	61.280	14,800.2	24.77	100.43	77.7	650.7	0.0	1,055.3	19.64	6,347	334.0
10.00		0.4375	42.874	59.782	13,741.3	24.11	98.00	78.4	619.2	0.0	1,029.9	19.64	6,084	334.0
15.00		0.4375	41.810	58.284	12,734.1	23.46	95.57	79.1	588.4	0.0	1,004.4	19.64	5,827	334.0
20.00		0.4375	40.747	56.786	11,777.4	22.81	93.14	79.8	558.4	0.0	978.9	19.64	5,576	334.0
25.00		0.4375	39.684	55.289	10,869.9	22.16	90.71	80.5	529.2	0.0	953.4	19.64	5,330	334.0
30.00		0.4375	38.621	53.791	10,010.2	21.51	88.28	81.3	500.7	0.0	927.9	19.64	5,090	334.0
35.00		0.4375	37.558	52.293	9,197.1	20.86	85.85	81.9	473.1	0.0	902.4	19.64	4,855	334.0
40.00		0.4375	36.494	50.795	8,429.2	20.21	83.42	81.9	446.2	0.0	877.0	19.64	4,626	334.0
40.24	Bot - Section 2	0.4375	36.443	50.722	8,392.9	20.18	83.30	81.9	444.9	0.0	42.1	19.64	4,615	16.3
45.00		0.4375	35.431	49.297	7,705.4	19.56	80.99	81.9	420.1	0.0	1,519.0	19.64	4,559	317.7
45.40	Top - Section 1	0.3750	36.096	43.133	7,025.1	23.65	96.26	78.9	376.0	0.0	125.8	19.64	4,541	26.7
50.00		0.3750	35.118	41.952	6,463.7	22.95	93.65	79.7	355.6	0.0	665.9	19.64	4,337	307.3
55.00		0.3750	34.055	40.668	5,888.2	22.19	90.81	80.5	334.0	0.0	702.9	19.64	4,121	334.0
55.68	Reinf. Top	0.3750	33.911	40.495	5,813.1	22.09	90.43	80.6	331.2	0.0	93.5	19.64	4,092	45.2
60.00		0.3750	32.992	39.385	5,348.0	21.43	87.98	81.3	313.2	0.0	587.5			
63.00		0.3750	32.354	38.614	5,040.3	20.97	86.28	81.8	301.0	0.0	398.1			
65.00		0.3750	31.929	38.101	4,841.9	20.67	85.14	81.9	293.0	0.0	261.0			
70.00		0.3750	30.865	36.817	4,368.8	19.91	82.31	81.9	273.4	0.0	637.3			
75.00		0.3750	29.802	35.533	3,927.5	19.15	79.47	81.9	254.6	0.0	615.5			
80.00		0.3750	28.739	34.249	3,517.0	18.39	76.64	81.9	236.4	0.0	593.6			
80.79	Bot - Section 3	0.3750	28.570	34.046	3,454.7	18.27	76.19	81.9	233.6	0.0	92.1			
84.94	Top - Section 2	0.2500	28.188	22.490	2,240.5	28.07	112.75	74.1	153.6	0.0	796.1			
85.00		0.2500	28.176	22.480	2,237.7	28.06	112.70	74.1	153.4	0.0	4.3			
90.00		0.2500	27.113	21.624	1,991.7	26.92	108.45	75.4	141.9	0.0	375.2			
95.00		0.2500	26.049	20.768	1,764.4	25.78	104.20	76.6	130.9	0.0	360.6			
100.0		0.2500	24.986	19.913	1,555.2	24.64	99.94	77.8	120.2	0.0	346.1			
105.0		0.2500	23.923	19.057	1,363.1	23.50	95.69	79.1	110.1	0.0	331.5			
110.0		0.2500	22.860	18.201	1,187.6	22.36	91.44	80.3	100.4	0.0	316.9			
111.0		0.2500	22.647	18.030	1,154.4	22.13	90.59	80.6	98.5	0.0	61.6			
115.0		0.2500	21.797	17.345	1,027.8	21.22	87.19	81.6	91.1	0.0	240.7			
120.0		0.2500	20.733	16.489	883.1	20.08	82.93	81.9	82.3	0.0	287.8			
125.0		0.2500	19.670	15.633	752.6	18.94	78.68	81.9	73.9	0.0	273.3			
125.5	Top - Section 3	0.2500	19.544	15.532	738.0	18.80	78.18	81.9	72.9	0.0	31.4			
125.5	Bot - Section 4	0.3750	10.750	12.223	164.6	0.00	28.67	35.0	30.6	40.4				
130.0		0.3750	10.750	12.223	164.6	0.00	28.67	35.0	30.6	40.4	183.3			
131.0		0.3750	10.750	12.223	164.6	0.00	28.67	35.0	30.6	40.4	41.6			
135.0		0.3750	10.750	12.223	164.6	0.00	28.67	35.0	30.6	40.4	166.4			
136.0		0.3750	10.750	12.223	164.6	0.00	28.67	35.0	30.6	40.4	41.6			
140.0		0.3750	10.750	12.223	164.6	0.00	28.67	35.0	30.6	40.4	166.4			
142.0		0.3750	10.750	12.223	164.6	0.00	28.67	35.0	30.6	40.4	83.2			
											18,171.7			3,719.2

Site Number: 302511 Code: ANSI/TIA-222-G © 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: WSPT - South, CT Engineering Number:OAA713869_C3_04 6/5/2018 3:35:58 PM

Customer: SPRINT NEXTEL

Load Case: 1.2D + 1.6W 93 mph with No Ice 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		362.2	0.0					0.0	0.0	362.2	0.0	0.0	0.0
5.00		715.7	1,266.4					163.3	1,168.9	879.0	2,435.3	0.0	0.0
10.00		698.4	1,235.8					163.3	1,168.9	861.7	2,404.7	0.0	0.0
15.00		691.7	1,205.3					163.3	1,168.9	855.0	2,374.1	0.0	0.0
20.00		703.1	1,174.7					168.5	1,168.9	871.6	2,343.6	0.0	0.0
25.00		718.0	1,144.1					177.6	1,168.9	895.7	2,313.0	0.0	0.0
30.00		726.4	1,113.5					185.3	1,168.9	911.7	2,282.4	0.0	0.0
35.00		729.8	1,082.9					191.9	1,168.9	921.7	2,251.8	0.0	0.0
40.00		383.0	1,052.4					197.8	1,168.9	580.8	2,221.3	0.0	0.0
40.24	Bot - Section 2	371.4	50.5					9.8	57.0	381.2	107.5	0.0	0.0
45.00		383.3	1,822.8					193.3	1,111.9	576.6	2,934.7	0.0	0.0
45.40	Top - Section 1	369.6	151.0					16.5	93.5	386.0	244.5	0.0	0.0
50.00		706.1	799.1					191.4	1,075.4	897.6	1,874.5	0.0	0.0
55.00		415.5	843.4					211.7	1,168.9	627.1	2,012.3	0.0	0.0
55.68	Reinf. Top	361.8	112.2					28.9	158.3	390.7	270.5	0.0	0.0
60.00		527.1	705.0					186.1	664.1	713.2	1,369.1	0.0	0.0
63.00	Appurtenance(s)	356.5	477.7	46.3	0.0	0.0	36.7	130.5	460.9	533.3	975.3	0.0	0.0
65.00		492.4	313.3					73.8	146.6	566.2	459.8	0.0	0.0
70.00		694.3	764.8					186.0	366.4	880.3	1,131.2	0.0	0.0
75.00		680.2	738.6					188.2	366.4	868.4	1,105.0	0.0	0.0
80.00		389.0	712.4					190.3	366.4	579.3	1,078.8	0.0	0.0
80.79	Bot - Section 3	329.7	110.5					30.3	58.1	360.0	168.6	0.0	0.0
84.94	Top - Section 2	280.8	955.3					159.7	304.2	440.5	1,259.5	0.0	0.0
85.00		329.7	5.2					2.2	4.1	331.8	9.3	0.0	0.0
90.00	Appurtenance(s)	649.2	450.2	4,059.6	0.0	0.0	3,521.4	194.1	366.4	4,902.9	4,338.0	0.0	0.0
95.00		642.6	432.8					0.0	290.8	642.6	723.6	0.0	0.0
100.00	Appurtenance(s)	634.5	415.3	4,446.4	0.0	47.0	3,391.3	0.0	290.8	5,080.9	4,097.4	0.0	0.0
105.00		625.9	397.8					0.0	220.2	625.9	618.0	0.0	0.0
110.00		367.1	380.3					0.0	220.2	367.1	600.5	0.0	0.0
111.00	Appurtenance(s)	277.6	74.0	2,894.4	0.0	0.0	2,551.2	23.0	44.0	3,194.9	2,669.2	0.0	0.0
115.00		488.0	288.9					92.3	156.4	580.3	445.3	0.0	0.0
120.00	Appurtenance(s)	489.9	345.4	4,387.6	0.0	0.0	4,007.9	116.3	195.5	4,993.8	4,548.8	0.0	0.0
125.00		249.2	327.9					0.0	130.7	249.2	458.6	0.0	0.0
125.59	Top - Section 3	142.9	37.7					0.0	15.5	142.9	53.2	0.0	0.0
130.00		143.5	220.0					52.6	115.2	196.1	335.1	0.0	0.0
131.00	Appurtenance(s)	133.6	49.9	4,837.4	0.0	-10,824.5	3,971.8	12.0	26.1	4,983.0	4,047.8	0.0	0.0
135.00		133.8	199.6					48.2	24.0	182.0	223.6	0.0	0.0
136.00	Appurtenance(s)	80.7	49.9	376.3	0.0	376.3	84.6	12.1	6.0	469.1	140.5	0.0	0.0
140.00		81.0	199.6					0.0	0.0	81.0	199.6	0.0	0.0
142.00		27.1	99.8					0.0	0.0	27.1	99.8	0.0	0.0
								Totals:		42,390.3	57,225.9	0.00	0.00

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Load Case: 1.2D + 1.6W 93 mph with No Ice 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

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	-57.14	-42.15	0.00	-3,817.48	0.00	3,817.48	4,350.13	2,175.06	7,987.32	3,944.64	0.00	0.00	0.694
5.00	-54.53	-41.49	0.00	-3,606.74	0.00	3,606.74	4,285.51	2,142.75	7,679.11	3,792.42	0.13	-0.23	0.676
10.00	-51.97	-40.83	0.00	-3,399.30	0.00	3,399.30	4,218.97	2,109.49	7,373.27	3,641.38	0.50	-0.47	0.657
15.00	-49.44	-40.15	0.00	-3,195.18	0.00	3,195.18	4,150.52	2,075.26	7,070.06	3,491.64	1.12	-0.71	0.637
20.00	-46.94	-39.44	0.00	-2,994.42	0.00	2,994.42	4,080.16	2,040.08	6,769.73	3,343.32	1.99	-0.94	0.617
25.00	-44.49	-38.69	0.00	-2,797.22	0.00	2,797.22	4,007.88	2,003.94	6,472.54	3,196.54	3.10	-1.18	0.596
30.00	-42.07	-37.90	0.00	-2,603.79	0.00	2,603.79	3,933.69	1,966.85	6,178.73	3,051.44	4.47	-1.42	0.574
35.00	-39.69	-37.08	0.00	-2,414.31	0.00	2,414.31	3,854.52	1,927.26	5,883.88	2,905.83	6.08	-1.65	0.552
40.00	-37.41	-36.51	0.00	-2,228.91	0.00	2,228.91	3,744.12	1,872.06	5,549.75	2,740.81	7.94	-1.89	0.533
40.24	-37.24	-36.20	0.00	-2,220.01	0.00	2,220.01	3,738.74	1,869.37	5,533.71	2,732.89	8.04	-1.90	0.532
45.00	-34.25	-35.59	0.00	-2,047.83	0.00	2,047.83	3,633.72	1,816.86	5,225.39	2,580.62	10.05	-2.12	0.506
45.40	-33.95	-35.27	0.00	-2,033.59	0.00	2,033.59	3,063.79	1,531.89	4,506.32	2,225.50	10.23	-2.14	0.563
50.00	-31.98	-34.42	0.00	-1,871.36	0.00	1,871.36	3,008.67	1,504.34	4,302.82	2,125.00	12.40	-2.35	0.535
55.00	-29.92	-33.78	0.00	-1,699.26	0.00	1,699.26	2,946.93	1,473.46	4,084.17	2,017.02	14.99	-2.59	0.503
55.68	-29.60	-33.44	0.00	-1,676.39	0.00	1,676.39	2,938.42	1,469.21	4,054.78	2,002.51	15.36	-2.62	0.499
55.68	-29.60	-33.44	0.00	-1,676.39	0.00	1,676.39	2,938.42	1,469.21	4,054.78	2,002.51	15.36	-2.62	0.848
60.00	-28.14	-32.77	0.00	-1,531.85	0.00	1,531.85	2,883.27	1,441.64	3,868.42	1,910.47	17.82	-2.82	0.812
63.00	-27.08	-32.28	0.00	-1,433.56	0.00	1,433.56	2,844.16	1,422.08	3,740.46	1,847.27	19.67	-3.06	0.786
65.00	-26.51	-31.81	0.00	-1,369.01	0.00	1,369.01	2,808.42	1,404.21	3,643.77	1,799.52	20.98	-3.21	0.771
70.00	-25.23	-31.03	0.00	-1,209.95	0.00	1,209.95	2,713.79	1,356.89	3,400.96	1,679.61	24.55	-3.59	0.730
75.00	-23.99	-30.24	0.00	-1,054.80	0.00	1,054.80	2,619.16	1,309.58	3,166.52	1,563.83	28.51	-3.96	0.684
80.00	-22.85	-29.67	0.00	-903.59	0.00	903.59	2,524.53	1,262.26	2,940.46	1,452.18	32.85	-4.32	0.632
80.79	-22.62	-29.36	0.00	-880.07	0.00	880.07	2,509.53	1,254.76	2,905.39	1,434.86	33.57	-4.37	0.623
84.94	-21.33	-28.88	0.00	-758.18	0.00	758.18	1,499.90	749.95	1,728.05	853.42	37.50	-4.65	0.904
85.00	-21.24	-28.63	0.00	-756.56	0.00	756.56	1,499.54	749.77	1,726.89	852.85	37.55	-4.66	0.903
90.00	-17.16	-23.50	0.00	-613.40	0.00	613.40	1,466.64	733.32	1,624.12	802.09	42.66	-5.09	0.777
95.00	-16.35	-22.90	0.00	-495.90	0.00	495.90	1,431.82	715.91	1,522.23	751.77	48.21	-5.49	0.672
100.00	-12.68	-17.51	0.00	-381.34	0.00	381.34	1,395.09	697.54	1,421.47	702.01	54.14	-5.84	0.553
105.00	-12.04	-16.89	0.00	-293.77	0.00	293.77	1,356.44	678.22	1,322.10	652.93	60.42	-6.15	0.459
110.00	-11.44	-16.49	0.00	-209.33	0.00	209.33	1,315.88	657.94	1,224.36	604.67	67.00	-6.41	0.356
111.00	-9.13	-13.03	0.00	-192.84	0.00	192.84	1,307.54	653.77	1,205.03	595.12	68.34	-6.46	0.331
115.00	-8.71	-12.43	0.00	-140.72	0.00	140.72	1,273.40	636.70	1,128.51	557.33	73.82	-6.63	0.260
120.00	-4.77	-6.95	0.00	-78.59	0.00	78.59	1,215.41	607.71	1,023.37	505.40	80.83	-6.78	0.160
125.00	-4.33	-6.65	0.00	-43.86	0.00	43.86	1,152.33	576.16	919.28	454.00	87.97	-6.88	0.100
125.59	-4.30	-6.50	0.00	-39.92	0.00	39.92	1,144.85	572.43	907.31	448.09	88.82	-6.89	0.093
125.59	-4.30	-6.50	0.00	-39.92	0.00	39.92	385.02	192.51	160.54	106.00	88.82	-6.89	0.389
130.00	-3.98	-6.27	0.00	-11.26	0.00	11.26	385.02	192.51	160.54	106.00	95.19	-6.93	0.118
131.00	-0.57	-0.83	0.00	-4.99	0.00	4.99	385.02	192.51	160.54	106.00	96.64	-6.94	0.049
135.00	-0.37	-0.63	0.00	-1.65	0.00	1.65	385.02	192.51	160.54	106.00	102.45	-6.97	0.017
136.00	-0.28	-0.14	0.00	-0.65	0.00	0.65	385.02	192.51	160.54	106.00	103.91	-6.97	0.007
140.00	-0.10	-0.04	0.00	-0.08	0.00	0.08	385.02	192.51	160.54	106.00	109.73	-6.97	0.001
142.00	0.00	-0.03	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	112.65	-6.97	0.000

Site Number: 302511 Code: ANSI/TIA-222-G © 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: WSPT - South, CT Engineering Number:OAA713869_C3_04 6/5/2018 3:36:05 PM

Customer: SPRINT NEXTEL

Load Case: 0.9D + 1.6W 93 mph with No Ice (Reduced DL) 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		362.2	0.0					0.0	0.0	362.2	0.0	0.0	0.0
5.00		715.7	949.8					163.3	876.7	879.0	1,826.5	0.0	0.0
10.00		698.4	926.9					163.3	876.7	861.7	1,803.5	0.0	0.0
15.00		691.7	903.9					163.3	876.7	855.0	1,780.6	0.0	0.0
20.00		703.1	881.0					168.5	876.7	871.6	1,757.7	0.0	0.0
25.00		718.0	858.1					177.6	876.7	895.7	1,734.7	0.0	0.0
30.00		726.4	835.1					185.3	876.7	911.7	1,711.8	0.0	0.0
35.00		729.8	812.2					191.9	876.7	921.7	1,688.9	0.0	0.0
40.00		383.0	789.3					197.8	876.7	580.8	1,665.9	0.0	0.0
40.24	Bot - Section 2	371.4	37.9					9.8	42.7	381.2	80.6	0.0	0.0
45.00		383.3	1,367.1					193.3	833.9	576.6	2,201.0	0.0	0.0
45.40	Top - Section 1	369.6	113.2					16.5	70.1	386.0	183.4	0.0	0.0
50.00		706.1	599.3					191.4	806.5	897.6	1,405.9	0.0	0.0
55.00		415.5	632.6					211.7	876.7	627.1	1,509.2	0.0	0.0
55.68	Reinf. Top	361.8	84.1					28.9	118.7	390.7	202.8	0.0	0.0
60.00		527.1	528.8					186.1	498.1	713.2	1,026.8	0.0	0.0
63.00	Appurtenance(s)	356.5	358.3	46.3	0.0	0.0	27.5	130.5	345.6	533.3	731.5	0.0	0.0
65.00		492.4	234.9					73.8	109.9	566.2	344.9	0.0	0.0
70.00		694.3	573.6					186.0	274.8	880.3	848.4	0.0	0.0
75.00		680.2	553.9					188.2	274.8	868.4	828.7	0.0	0.0
80.00		389.0	534.3					190.3	274.8	579.3	809.1	0.0	0.0
80.79	Bot - Section 3	329.7	82.9					30.3	43.6	360.0	126.5	0.0	0.0
84.94	Top - Section 2	280.8	716.5					159.7	228.1	440.5	944.6	0.0	0.0
85.00		329.7	3.9					2.2	3.1	331.8	7.0	0.0	0.0
90.00	Appurtenance(s)	590.2	337.7	4,059.6	0.0	0.0	2,641.0	194.1	274.8	4,843.9	3,253.5	0.0	0.0
95.00		520.7	324.6					0.0	218.1	520.7	542.7	0.0	0.0
100.00	Appurtenance(s)	504.9	311.5	4,446.4	0.0	47.0	2,543.5	0.0	218.1	4,951.3	3,073.1	0.0	0.0
105.00		488.4	298.4					0.0	165.1	488.4	463.5	0.0	0.0
110.00		296.4	285.3					0.0	165.1	296.4	450.4	0.0	0.0
111.00	Appurtenance(s)	277.6	55.5	2,894.4	0.0	0.0	1,913.4	23.0	33.0	3,194.9	2,001.9	0.0	0.0
115.00		488.0	216.7					92.3	117.3	580.3	334.0	0.0	0.0
120.00	Appurtenance(s)	479.8	259.0	4,387.6	0.0	0.0	3,005.9	116.3	146.6	4,983.8	3,411.6	0.0	0.0
125.00		237.7	245.9					0.0	98.0	237.7	343.9	0.0	0.0
125.59	Top - Section 3	141.5	28.3					0.0	11.6	141.5	39.9	0.0	0.0
130.00		143.5	165.0					52.6	86.4	196.1	251.4	0.0	0.0
131.00	Appurtenance(s)	133.6	37.4	4,837.4	0.0	-10,824.5	2,978.8	12.0	19.6	4,983.0	3,035.9	0.0	0.0
135.00		133.8	149.7					48.2	18.0	182.0	167.7	0.0	0.0
136.00	Appurtenance(s)	80.7	37.4	376.3	0.0	376.3	63.4	12.1	4.5	469.1	105.4	0.0	0.0
140.00		81.0	149.7					0.0	0.0	81.0	149.7	0.0	0.0
142.00		27.1	74.9					0.0	0.0	27.1	74.9	0.0	0.0
								Totals:		41,848.7	42,919.4	0.00	0.00

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Load Case: 0.9D + 1.6W 93 mph with No Ice (Reduced DL) 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

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	-42.83	-41.57	0.00	-3,717.84	0.00	3,717.84	4,350.13	2,175.06	7,987.32	3,944.64	0.00	0.00	0.674
5.00	-40.85	-40.85	0.00	-3,509.98	0.00	3,509.98	4,285.51	2,142.75	7,679.11	3,792.42	0.12	-0.23	0.655
10.00	-38.89	-40.14	0.00	-3,305.71	0.00	3,305.71	4,218.97	2,109.49	7,373.27	3,641.38	0.49	-0.46	0.636
15.00	-36.96	-39.41	0.00	-3,105.02	0.00	3,105.02	4,150.52	2,075.26	7,070.06	3,491.64	1.09	-0.69	0.617
20.00	-35.06	-38.66	0.00	-2,907.95	0.00	2,907.95	4,080.16	2,040.08	6,769.73	3,343.32	1.93	-0.92	0.597
25.00	-33.19	-37.87	0.00	-2,714.65	0.00	2,714.65	4,007.88	2,003.94	6,472.54	3,196.54	3.02	-1.15	0.576
30.00	-31.35	-37.04	0.00	-2,525.32	0.00	2,525.32	3,933.69	1,966.85	6,178.73	3,051.44	4.35	-1.38	0.555
35.00	-29.54	-36.20	0.00	-2,340.11	0.00	2,340.11	3,854.52	1,927.26	5,883.88	2,905.83	5.91	-1.61	0.533
40.00	-27.82	-35.62	0.00	-2,159.13	0.00	2,159.13	3,744.12	1,872.06	5,549.75	2,740.81	7.72	-1.84	0.514
40.24	-27.68	-35.29	0.00	-2,150.45	0.00	2,150.45	3,738.74	1,869.37	5,533.71	2,732.89	7.82	-1.85	0.513
45.00	-25.43	-34.69	0.00	-1,982.59	0.00	1,982.59	3,633.72	1,816.86	5,225.39	2,580.62	9.77	-2.06	0.488
45.40	-25.19	-34.35	0.00	-1,968.71	0.00	1,968.71	3,063.79	1,531.89	4,506.32	2,225.50	9.94	-2.08	0.543
50.00	-23.70	-33.49	0.00	-1,810.70	0.00	1,810.70	3,008.67	1,504.34	4,302.82	2,125.00	12.04	-2.28	0.516
55.00	-22.14	-32.85	0.00	-1,643.25	0.00	1,643.25	2,946.93	1,473.46	4,084.17	2,017.02	14.56	-2.51	0.485
55.68	-21.89	-32.49	0.00	-1,621.01	0.00	1,621.01	2,938.42	1,469.21	4,054.78	2,002.51	14.92	-2.54	0.481
55.68	-21.89	-32.49	0.00	-1,621.01	0.00	1,621.01	2,938.42	1,469.21	4,054.78	2,002.51	14.92	-2.54	0.817
60.00	-20.78	-31.81	0.00	-1,480.54	0.00	1,480.54	2,883.27	1,441.64	3,868.42	1,910.47	17.31	-2.73	0.783
63.00	-19.97	-31.31	0.00	-1,385.12	0.00	1,385.12	2,844.16	1,422.08	3,740.46	1,847.27	19.10	-2.96	0.757
65.00	-19.52	-30.81	0.00	-1,322.50	0.00	1,322.50	2,808.42	1,404.21	3,643.77	1,799.52	20.38	-3.12	0.742
70.00	-18.53	-30.00	0.00	-1,168.44	0.00	1,168.44	2,713.79	1,356.89	3,400.96	1,679.61	23.83	-3.48	0.703
75.00	-17.59	-29.19	0.00	-1,018.42	0.00	1,018.42	2,619.16	1,309.58	3,166.52	1,563.83	27.67	-3.84	0.658
80.00	-16.72	-28.61	0.00	-872.47	0.00	872.47	2,524.53	1,262.26	2,940.46	1,452.18	31.87	-4.18	0.608
80.79	-16.54	-28.29	0.00	-849.78	0.00	849.78	2,509.53	1,254.76	2,905.39	1,434.86	32.57	-4.24	0.599
84.94	-15.57	-27.82	0.00	-732.34	0.00	732.34	1,499.90	749.95	1,728.05	853.42	36.37	-4.51	0.870
85.00	-15.48	-27.55	0.00	-730.77	0.00	730.77	1,499.54	749.77	1,726.89	852.85	36.43	-4.51	0.869
90.00	-12.48	-22.54	0.00	-593.04	0.00	593.04	1,466.64	733.32	1,624.12	802.09	41.38	-4.93	0.749
95.00	-11.85	-22.05	0.00	-480.34	0.00	480.34	1,431.82	715.91	1,522.23	751.77	46.75	-5.31	0.648
100.00	-9.17	-16.88	0.00	-370.06	0.00	370.06	1,395.09	697.54	1,421.47	702.01	52.49	-5.66	0.534
105.00	-8.68	-16.39	0.00	-285.67	0.00	285.67	1,356.44	678.22	1,322.10	652.93	58.57	-5.96	0.445
110.00	-8.22	-16.06	0.00	-203.75	0.00	203.75	1,315.88	657.94	1,224.36	604.67	64.94	-6.21	0.344
111.00	-6.55	-12.68	0.00	-187.68	0.00	187.68	1,307.54	653.77	1,205.03	595.12	66.25	-6.26	0.321
115.00	-6.25	-12.09	0.00	-136.95	0.00	136.95	1,273.40	636.70	1,128.51	557.33	71.55	-6.42	0.251
120.00	-3.41	-6.76	0.00	-76.52	0.00	76.52	1,215.41	607.71	1,023.37	505.40	78.35	-6.57	0.154
125.00	-3.09	-6.48	0.00	-42.74	0.00	42.74	1,152.33	576.16	919.28	454.00	85.26	-6.66	0.097
125.59	-3.07	-6.34	0.00	-38.90	0.00	38.90	1,144.85	572.43	907.31	448.09	86.09	-6.67	0.090
125.59	-3.07	-6.34	0.00	-38.90	0.00	38.90	385.02	192.51	160.54	106.00	86.09	-6.67	0.376
130.00	-2.84	-6.12	0.00	-10.96	0.00	10.96	385.02	192.51	160.54	106.00	92.26	-6.71	0.112
131.00	-0.41	-0.81	0.00	-4.84	0.00	4.84	385.02	192.51	160.54	106.00	93.66	-6.73	0.047
135.00	-0.26	-0.61	0.00	-1.59	0.00	1.59	385.02	192.51	160.54	106.00	99.30	-6.75	0.016
136.00	-0.21	-0.13	0.00	-0.61	0.00	0.61	385.02	192.51	160.54	106.00	100.71	-6.75	0.006
140.00	-0.07	-0.04	0.00	-0.07	0.00	0.07	385.02	192.51	160.54	106.00	106.35	-6.75	0.001
142.00	0.00	-0.03	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	109.17	-6.75	0.000

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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 24 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor 1.00 Wind Importance Factor 1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		68.7	0.0					0.0	0.0	68.7	0.0	0.0	0.0
5.00		136.3	1,604.9					62.4	1,566.2	198.7	3,171.1	0.0	0.0
10.00		133.7	1,605.8					66.3	1,612.6	200.0	3,218.3	0.0	0.0
15.00		133.0	1,585.8					68.2	1,636.5	201.1	3,222.3	0.0	0.0
20.00		135.6	1,558.9					71.7	1,653.2	207.3	3,212.1	0.0	0.0
25.00		138.9	1,528.5					76.7	1,666.1	215.7	3,194.6	0.0	0.0
30.00		141.0	1,495.8					81.0	1,676.8	222.0	3,172.6	0.0	0.0
35.00		142.1	1,461.6					84.7	1,685.9	226.8	3,147.5	0.0	0.0
40.00		74.7	1,426.2					88.0	1,693.8	162.7	3,120.0	0.0	0.0
40.24	Bot - Section 2	72.5	68.9					4.4	82.8	76.9	151.6	0.0	0.0
45.00		74.9	2,180.2					86.7	1,618.1	161.6	3,798.4	0.0	0.0
45.40	Top - Section 1	72.4	181.1					7.4	136.4	79.8	317.5	0.0	0.0
50.00		138.6	1,139.0					86.4	1,570.9	225.0	2,709.9	0.0	0.0
55.00		81.7	1,205.7					96.4	1,713.1	178.1	2,918.9	0.0	0.0
55.68	Reinf. Top	71.3	161.3					13.2	232.4	84.6	393.7	0.0	0.0
60.00		104.1	1,012.0					85.6	1,139.6	189.6	2,151.6	0.0	0.0
63.00	Appurtenance(s)	70.5	688.2	13.3	0.0	0.0	39.3	60.4	793.0	144.2	1,520.5	0.0	0.0
65.00		97.7	452.4					33.3	312.1	131.0	764.5	0.0	0.0
70.00		138.1	1,103.4					84.4	782.8	222.5	1,886.2	0.0	0.0
75.00		135.8	1,068.6					86.0	786.3	221.8	1,854.8	0.0	0.0
80.00		77.9	1,033.4					87.6	789.5	165.4	1,822.9	0.0	0.0
80.79	Bot - Section 3	66.2	161.3					14.0	125.4	80.2	286.8	0.0	0.0
84.94	Top - Section 2	56.4	1,218.8					74.0	658.1	130.4	1,877.0	0.0	0.0
85.00		66.4	8.7					1.0	8.9	67.4	17.7	0.0	0.0
90.00	Appurtenance(s)	129.9	758.0	963.7	0.0	0.0	6,645.5	90.5	795.4	1,184.1	8,198.8	0.0	0.0
95.00		126.9	730.8					0.0	503.5	126.9	1,234.4	0.0	0.0
100.00	Appurtenance(s)	123.6	703.5	1,102.0	0.0	7.8	6,419.3	0.0	505.0	1,225.7	7,627.8	0.0	0.0
105.00		120.3	676.0					0.0	435.9	120.3	1,111.9	0.0	0.0
110.00		70.9	648.3					0.0	437.2	70.9	1,085.5	0.0	0.0
111.00	Appurtenance(s)	57.5	127.3	736.8	0.0	0.0	4,441.2	12.9	87.6	807.2	4,656.1	0.0	0.0
115.00		101.5	495.1					52.0	331.2	153.5	826.3	0.0	0.0
120.00	Appurtenance(s)	109.4	592.4	1,050.7	0.0	0.0	7,540.3	65.8	415.2	1,225.9	8,547.9	0.0	0.0
125.00		60.0	564.3					0.0	258.2	60.0	822.5	0.0	0.0
125.59	Top - Section 3	34.1	65.6					0.0	30.7	34.1	96.3	0.0	0.0
130.00		34.2	335.2					36.5	228.2	70.7	563.4	0.0	0.0
131.00	Appurtenance(s)	31.9	76.1	1,179.6	0.0	-2,426.5	8,128.5	8.3	51.8	1,219.8	8,256.5	0.0	0.0
135.00		31.9	304.7					33.5	127.1	65.4	431.8	0.0	0.0
136.00	Appurtenance(s)	32.2	76.2	85.5	0.0	85.5	378.7	8.4	31.8	126.1	486.7	0.0	0.0
140.00		38.7	305.1					0.0	0.0	38.7	305.1	0.0	0.0
142.00		12.9	152.7					0.0	0.0	12.9	152.7	0.0	0.0
								Totals:		10,403.7	92,334.2	0.00	0.00

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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 24 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor 1.00 Wind Importance 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	-92.33	-10.38	0.00	-984.04	0.00	984.04	4,350.13	2,175.06	7,987.32	3,944.64	0.00	0.00	0.192
5.00	-89.15	-10.28	0.00	-932.12	0.00	932.12	4,285.51	2,142.75	7,679.11	3,792.42	0.03	-0.06	0.188
10.00	-85.92	-10.17	0.00	-880.73	0.00	880.73	4,218.97	2,109.49	7,373.27	3,641.38	0.13	-0.12	0.183
15.00	-82.69	-10.04	0.00	-829.91	0.00	829.91	4,150.52	2,075.26	7,070.06	3,491.64	0.29	-0.18	0.178
20.00	-79.46	-9.91	0.00	-779.69	0.00	779.69	4,080.16	2,040.08	6,769.73	3,343.32	0.51	-0.24	0.173
25.00	-76.26	-9.76	0.00	-730.13	0.00	730.13	4,007.88	2,003.94	6,472.54	3,196.54	0.80	-0.31	0.167
30.00	-73.08	-9.60	0.00	-681.33	0.00	681.33	3,933.69	1,966.85	6,178.73	3,051.44	1.16	-0.37	0.162
35.00	-69.92	-9.43	0.00	-633.32	0.00	633.32	3,854.52	1,927.26	5,883.88	2,905.83	1.58	-0.43	0.156
40.00	-66.80	-9.28	0.00	-586.19	0.00	586.19	3,744.12	1,872.06	5,549.75	2,740.81	2.06	-0.49	0.151
40.24	-66.64	-9.23	0.00	-583.93	0.00	583.93	3,738.74	1,869.37	5,533.71	2,732.89	2.09	-0.50	0.151
45.00	-62.84	-9.07	0.00	-540.01	0.00	540.01	3,633.72	1,816.86	5,225.39	2,580.62	2.61	-0.55	0.144
45.40	-62.52	-9.02	0.00	-536.38	0.00	536.38	3,063.79	1,531.89	4,506.32	2,225.50	2.66	-0.56	0.160
50.00	-59.80	-8.83	0.00	-494.87	0.00	494.87	3,008.67	1,504.34	4,302.82	2,125.00	3.22	-0.61	0.153
55.00	-56.88	-8.66	0.00	-450.71	0.00	450.71	2,946.93	1,473.46	4,084.17	2,017.02	3.90	-0.68	0.144
55.68	-56.48	-8.60	0.00	-444.85	0.00	444.85	2,938.42	1,469.21	4,054.78	2,002.51	4.00	-0.68	0.143
55.68	-56.48	-8.60	0.00	-444.85	0.00	444.85	2,938.42	1,469.21	4,054.78	2,002.51	4.00	-0.68	0.241
60.00	-54.33	-8.44	0.00	-407.69	0.00	407.69	2,883.27	1,441.64	3,868.42	1,910.47	4.64	-0.74	0.232
63.00	-52.80	-8.32	0.00	-382.38	0.00	382.38	2,844.16	1,422.08	3,740.46	1,847.27	5.12	-0.80	0.226
65.00	-52.03	-8.24	0.00	-365.75	0.00	365.75	2,808.42	1,404.21	3,643.77	1,799.52	5.47	-0.84	0.222
70.00	-50.13	-8.08	0.00	-324.53	0.00	324.53	2,713.79	1,356.89	3,400.96	1,679.61	6.41	-0.94	0.212
75.00	-48.27	-7.91	0.00	-284.14	0.00	284.14	2,619.16	1,309.58	3,166.52	1,563.83	7.45	-1.04	0.200
80.00	-46.44	-7.75	0.00	-244.60	0.00	244.60	2,524.53	1,262.26	2,940.46	1,452.18	8.60	-1.14	0.187
80.79	-46.15	-7.70	0.00	-238.46	0.00	238.46	2,509.53	1,254.76	2,905.39	1,434.86	8.79	-1.15	0.185
84.94	-44.27	-7.56	0.00	-206.48	0.00	206.48	1,499.90	749.95	1,728.05	853.42	9.82	-1.23	0.272
85.00	-44.24	-7.54	0.00	-206.05	0.00	206.05	1,499.54	749.77	1,726.89	852.85	9.84	-1.23	0.271
90.00	-36.06	-6.25	0.00	-168.34	0.00	168.34	1,466.64	733.32	1,624.12	802.09	11.19	-1.35	0.235
95.00	-34.82	-6.15	0.00	-137.11	0.00	137.11	1,431.82	715.91	1,522.23	751.77	12.67	-1.46	0.207
100.00	-27.22	-4.77	0.00	-106.35	0.00	106.35	1,395.09	697.54	1,421.47	702.01	14.25	-1.56	0.171
105.00	-26.11	-4.65	0.00	-82.51	0.00	82.51	1,356.44	678.22	1,322.10	652.93	15.93	-1.64	0.146
110.00	-25.02	-4.57	0.00	-59.24	0.00	59.24	1,315.88	657.94	1,224.36	604.67	17.70	-1.72	0.117
111.00	-20.39	-3.63	0.00	-54.67	0.00	54.67	1,307.54	653.77	1,205.03	595.12	18.06	-1.73	0.107
115.00	-19.56	-3.47	0.00	-40.13	0.00	40.13	1,273.40	636.70	1,128.51	557.33	19.53	-1.78	0.087
120.00	-11.06	-1.98	0.00	-22.78	0.00	22.78	1,215.41	607.71	1,023.37	505.40	21.42	-1.82	0.054
125.00	-10.24	-1.90	0.00	-12.86	0.00	12.86	1,152.33	576.16	919.28	454.00	23.34	-1.85	0.037
125.59	-10.14	-1.86	0.00	-11.74	0.00	11.74	1,144.85	572.43	907.31	448.09	23.57	-1.85	0.035
125.59	-10.14	-1.86	0.00	-11.74	0.00	11.74	385.02	192.51	160.54	106.00	23.57	-1.85	0.137
130.00	-9.58	-1.78	0.00	-3.52	0.00	3.52	385.02	192.51	160.54	106.00	25.29	-1.87	0.058
131.00	-1.37	-0.29	0.00	-1.75	0.00	1.75	385.02	192.51	160.54	106.00	25.68	-1.87	0.020
135.00	-0.94	-0.21	0.00	-0.60	0.00	0.60	385.02	192.51	160.54	106.00	27.25	-1.88	0.008
136.00	-0.46	-0.07	0.00	-0.30	0.00	0.30	385.02	192.51	160.54	106.00	27.65	-1.88	0.004
140.00	-0.15	-0.02	0.00	-0.04	0.00	0.04	385.02	192.51	160.54	106.00	29.22	-1.88	0.001
142.00	0.00	-0.01	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	30.01	-1.88	0.000

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Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		94.2	0.0					0.0	0.0	94.2	0.0	0.0	0.0
5.00		186.2	1,055.3					42.5	974.1	228.7	2,029.4	0.0	0.0
10.00		181.7	1,029.9					42.5	974.1	224.2	2,003.9	0.0	0.0
15.00		179.9	1,004.4					42.5	974.1	222.4	1,978.5	0.0	0.0
20.00		182.9	978.9					43.8	974.1	226.7	1,953.0	0.0	0.0
25.00		186.8	953.4					46.2	974.1	233.0	1,927.5	0.0	0.0
30.00		189.0	927.9					48.2	974.1	237.2	1,902.0	0.0	0.0
35.00		189.9	902.4					49.9	974.1	239.8	1,876.5	0.0	0.0
40.00		99.6	877.0					51.5	974.1	151.1	1,851.0	0.0	0.0
40.24	Bot - Section 2	96.6	42.1					2.5	47.5	99.2	89.6	0.0	0.0
45.00		99.7	1,519.0					50.3	926.6	150.0	2,445.6	0.0	0.0
45.40	Top - Section 1	96.1	125.8					4.3	77.9	100.4	203.7	0.0	0.0
50.00		183.7	665.9					49.8	896.2	233.5	1,562.1	0.0	0.0
55.00		108.1	702.9					55.2	974.1	163.3	1,676.9	0.0	0.0
55.68	Reinf. Top	94.1	93.5					7.6	131.9	101.7	225.4	0.0	0.0
60.00		137.1	587.5					48.7	553.4	185.9	1,140.9	0.0	0.0
63.00	Appurtenance(s)	92.7	398.1	12.1	0.0	0.0	30.6	34.3	384.0	139.1	812.8	0.0	0.0
65.00		128.1	261.0					19.4	122.1	147.5	383.2	0.0	0.0
70.00		180.6	637.3					49.1	305.3	229.8	942.7	0.0	0.0
75.00		176.9	615.5					49.9	305.3	226.8	920.8	0.0	0.0
80.00		101.2	593.6					50.6	305.3	151.8	899.0	0.0	0.0
80.79	Bot - Section 3	85.8	92.1					8.1	48.4	93.8	140.5	0.0	0.0
84.94	Top - Section 2	73.0	796.1					42.6	253.5	115.6	1,049.6	0.0	0.0
85.00		85.8	4.3					0.6	3.4	86.3	7.7	0.0	0.0
90.00	Appurtenance(s)	153.5	375.2	1,056.1	0.0	0.0	2,934.5	51.9	305.3	1,261.5	3,615.0	0.0	0.0
95.00		135.5	360.6					0.0	242.3	135.5	603.0	0.0	0.0
100.00	Appurtenance(s)	131.4	346.1	1,156.7	0.0	12.2	2,826.1	0.0	242.3	1,288.1	3,414.5	0.0	0.0
105.00		127.1	331.5					0.0	183.5	127.1	515.0	0.0	0.0
110.00		77.1	316.9					0.0	183.5	77.1	500.4	0.0	0.0
111.00	Appurtenance(s)	72.2	61.6	753.0	0.0	0.0	2,126.0	6.0	36.7	831.1	2,224.3	0.0	0.0
115.00		126.9	240.7					24.0	130.4	151.0	371.1	0.0	0.0
120.00	Appurtenance(s)	124.8	287.8	1,141.4	0.0	0.0	3,339.9	30.3	162.9	1,296.5	3,790.7	0.0	0.0
125.00		61.8	273.3					0.0	108.9	61.8	382.2	0.0	0.0
125.59	Top - Section 3	36.8	31.4					0.0	12.9	36.8	44.3	0.0	0.0
130.00		37.3	183.3					13.7	96.0	51.0	279.3	0.0	0.0
131.00	Appurtenance(s)	34.8	41.6	1,258.4	0.0	-2,815.9	3,309.8	3.1	21.8	1,296.3	3,373.2	0.0	0.0
135.00		34.8	166.4					12.5	20.0	47.3	186.4	0.0	0.0
136.00	Appurtenance(s)	21.3	41.6	97.9	0.0	97.9	70.5	3.1	5.0	122.4	117.1	0.0	0.0
140.00		21.5	166.4					0.0	0.0	21.5	166.4	0.0	0.0
142.00		7.2	83.2					0.0	0.0	7.2	83.2	0.0	0.0
								Totals:		10,894.2	47,688.2	0.00	0.00

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Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
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	-47.68	-10.83	0.00	-972.98	0.00	972.98	4,350.13	2,175.06	7,987.32	3,944.64	0.00	0.00	0.183
5.00	-45.64	-10.64	0.00	-918.85	0.00	918.85	4,285.51	2,142.75	7,679.11	3,792.42	0.03	-0.06	0.178
10.00	-43.63	-10.46	0.00	-865.64	0.00	865.64	4,218.97	2,109.49	7,373.27	3,641.38	0.13	-0.12	0.173
15.00	-41.64	-10.28	0.00	-813.33	0.00	813.33	4,150.52	2,075.26	7,070.06	3,491.64	0.29	-0.18	0.167
20.00	-39.68	-10.09	0.00	-761.94	0.00	761.94	4,080.16	2,040.08	6,769.73	3,343.32	0.51	-0.24	0.162
25.00	-37.74	-9.88	0.00	-711.51	0.00	711.51	4,007.88	2,003.94	6,472.54	3,196.54	0.79	-0.30	0.156
30.00	-35.83	-9.67	0.00	-662.10	0.00	662.10	3,933.69	1,966.85	6,178.73	3,051.44	1.14	-0.36	0.151
35.00	-33.94	-9.46	0.00	-613.73	0.00	613.73	3,854.52	1,927.26	5,883.88	2,905.83	1.55	-0.42	0.145
40.00	-32.09	-9.31	0.00	-566.45	0.00	566.45	3,744.12	1,872.06	5,549.75	2,740.81	2.02	-0.48	0.140
40.24	-32.00	-9.22	0.00	-564.18	0.00	564.18	3,738.74	1,869.37	5,533.71	2,732.89	2.05	-0.48	0.139
45.00	-29.55	-9.07	0.00	-520.31	0.00	520.31	3,633.72	1,816.86	5,225.39	2,580.62	2.56	-0.54	0.133
45.40	-29.34	-8.98	0.00	-516.68	0.00	516.68	3,063.79	1,531.89	4,506.32	2,225.50	2.60	-0.55	0.148
50.00	-27.77	-8.76	0.00	-475.37	0.00	475.37	3,008.67	1,504.34	4,302.82	2,125.00	3.16	-0.60	0.140
55.00	-26.09	-8.59	0.00	-431.58	0.00	431.58	2,946.93	1,473.46	4,084.17	2,017.02	3.81	-0.66	0.132
55.68	-25.86	-8.50	0.00	-425.76	0.00	425.76	2,938.42	1,469.21	4,054.78	2,002.51	3.91	-0.67	0.131
55.68	-25.86	-8.50	0.00	-425.76	0.00	425.76	2,938.42	1,469.21	4,054.78	2,002.51	3.91	-0.67	0.221
60.00	-24.72	-8.33	0.00	-389.01	0.00	389.01	2,883.27	1,441.64	3,868.42	1,910.47	4.54	-0.72	0.212
63.00	-23.90	-8.20	0.00	-364.03	0.00	364.03	2,844.16	1,422.08	3,740.46	1,847.27	5.01	-0.78	0.205
65.00	-23.51	-8.07	0.00	-347.64	0.00	347.64	2,808.42	1,404.21	3,643.77	1,799.52	5.34	-0.82	0.202
70.00	-22.55	-7.87	0.00	-307.27	0.00	307.27	2,713.79	1,356.89	3,400.96	1,679.61	6.25	-0.91	0.191
75.00	-21.63	-7.66	0.00	-267.95	0.00	267.95	2,619.16	1,309.58	3,166.52	1,563.83	7.26	-1.01	0.180
80.00	-20.72	-7.51	0.00	-229.65	0.00	229.65	2,524.53	1,262.26	2,940.46	1,452.18	8.36	-1.10	0.166
80.79	-20.58	-7.43	0.00	-223.70	0.00	223.70	2,509.53	1,254.76	2,905.39	1,434.86	8.54	-1.11	0.164
84.94	-19.53	-7.30	0.00	-192.87	0.00	192.87	1,499.90	749.95	1,728.05	853.42	9.54	-1.18	0.239
85.00	-19.51	-7.24	0.00	-192.46	0.00	192.46	1,499.54	749.77	1,726.89	852.85	9.56	-1.18	0.239
90.00	-15.92	-5.93	0.00	-156.28	0.00	156.28	1,466.64	733.32	1,624.12	802.09	10.86	-1.29	0.206
95.00	-15.31	-5.80	0.00	-126.64	0.00	126.64	1,431.82	715.91	1,522.23	751.77	12.27	-1.40	0.179
100.00	-11.92	-4.45	0.00	-97.62	0.00	97.62	1,395.09	697.54	1,421.47	702.01	13.78	-1.49	0.148
105.00	-11.40	-4.32	0.00	-75.39	0.00	75.39	1,356.44	678.22	1,322.10	652.93	15.38	-1.57	0.124
110.00	-10.90	-4.24	0.00	-53.79	0.00	53.79	1,315.88	657.94	1,224.36	604.67	17.06	-1.63	0.097
111.00	-8.70	-3.35	0.00	-49.55	0.00	49.55	1,307.54	653.77	1,205.03	595.12	17.40	-1.65	0.090
115.00	-8.33	-3.19	0.00	-36.17	0.00	36.17	1,273.40	636.70	1,128.51	557.33	18.80	-1.69	0.071
120.00	-4.58	-1.78	0.00	-20.21	0.00	20.21	1,215.41	607.71	1,023.37	505.40	20.59	-1.73	0.044
125.00	-4.20	-1.71	0.00	-11.29	0.00	11.29	1,152.33	576.16	919.28	454.00	22.41	-1.75	0.029
125.59	-4.16	-1.67	0.00	-10.28	0.00	10.28	1,144.85	572.43	907.31	448.09	22.63	-1.75	0.027
125.59	-4.16	-1.67	0.00	-10.28	0.00	10.28	385.02	192.51	160.54	106.00	22.63	-1.75	0.108
130.00	-3.88	-1.62	0.00	-2.90	0.00	2.90	385.02	192.51	160.54	106.00	24.25	-1.77	0.038
131.00	-0.55	-0.22	0.00	-1.29	0.00	1.29	385.02	192.51	160.54	106.00	24.62	-1.77	0.014
135.00	-0.36	-0.16	0.00	-0.43	0.00	0.43	385.02	192.51	160.54	106.00	26.11	-1.77	0.005
136.00	-0.25	-0.04	0.00	-0.16	0.00	0.16	385.02	192.51	160.54	106.00	26.48	-1.78	0.002
140.00	-0.08	-0.01	0.00	-0.02	0.00	0.02	385.02	192.51	160.54	106.00	27.97	-1.78	0.000
142.00	0.00	-0.01	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	28.71	-1.78	0.000

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Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.22	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.24	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.24	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.87	
Total Unfactored Dead Load:	47.69	k
Seismic Base Shear (E):	1.95	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	141.00	83	860	0.005	10	104
38	138.00	166	1,651	0.010	20	207
37	135.50	47	447	0.003	5	58
36	133.00	186	1,727	0.011	21	232
35	130.50	63	567	0.003	7	79
34	127.80	279	2,402	0.015	29	348
33	125.30	44	367	0.002	4	55
32	122.50	382	3,037	0.019	37	477
31	117.50	451	3,314	0.020	40	562
30	113.00	371	2,536	0.016	31	463
29	110.50	98	645	0.004	8	123
28	107.50	500	3,116	0.019	38	624
27	102.50	515	2,933	0.018	35	642
26	97.50	588	3,053	0.019	37	734
25	92.50	603	2,835	0.017	34	752
24	87.50	681	2,884	0.018	35	849
23	84.97	8	31	0.000	0	10
22	82.87	1,050	4,019	0.025	48	1,309
21	80.40	141	508	0.003	6	175
20	77.50	899	3,037	0.019	37	1,121
19	72.50	921	2,747	0.017	33	1,148
18	67.50	943	2,461	0.015	30	1,176
17	64.00	383	906	0.006	11	478

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16	61.50	782	1,716	0.011	21	975
15	57.84	1,141	2,232	0.014	27	1,423
14	55.34	225	406	0.003	5	281
13	52.50	1,677	2,738	0.017	33	2,091
12	47.70	1,562	2,132	0.013	26	1,948
11	45.20	204	251	0.002	3	254
10	42.62	2,446	2,705	0.017	33	3,050
9	40.12	90	89	0.001	1	112
8	37.50	1,851	1,612	0.010	19	2,309
7	32.50	1,877	1,251	0.008	15	2,340
6	27.50	1,902	928	0.006	11	2,372
5	22.50	1,927	646	0.004	8	2,404
4	17.50	1,953	410	0.003	5	2,436
3	12.50	1,978	221	0.001	3	2,467
2	7.50	2,004	86	0.001	1	2,499
1	2.50	2,029	11	0.000	0	2,531
RCU (Remote Control	136.00	3	29	0.000	0	4
Kathrein Scala 742-2	136.00	68	652	0.004	8	84
Powerwave Allgon 702	131.00	26	238	0.001	3	33
Kaelus DBC0061F1V51-	131.00	76	689	0.004	8	95
Powerwave Allgon LGP	131.00	85	762	0.005	9	106
Raycap DC6-48-60-18-	131.00	64	573	0.004	7	79
Ericsson RRUS-11 (50	131.00	150	1,351	0.008	16	187
Ericsson RRUS 32 B2	131.00	159	1,432	0.009	17	198
Ericsson RRUS 32 w/	131.00	159	1,429	0.009	17	198
Powerwave Allgon 777	131.00	105	946	0.006	11	131
Quintel QS66512-2	131.00	333	2,999	0.018	36	415
CCI HPA-65R-BUU-H6	131.00	153	1,378	0.008	17	191
Flat Platform w/ Han	131.00	2,000	18,013	0.111	217	2,494
DragonWave Horizon C	120.00	21	162	0.001	2	26
Alcatel-Lucent RRH2x	120.00	159	1,213	0.007	15	198
NextNet BTS-2500	120.00	105	803	0.005	10	131
Alcatel-Lucent 800 M	120.00	192	1,468	0.009	18	239
Alcatel-Lucent 1900	120.00	180	1,376	0.008	17	224
Nokia 2.5G MAA - AAH	120.00	311	2,376	0.015	29	388
Argus LLPX310R	120.00	86	656	0.004	8	107
DragonWave A-ANT-18G	120.00	54	414	0.003	5	68
Commscope NNVV-65B-R	120.00	232	1,775	0.011	21	290
Flat Platform w/ Han	120.00	2,000	15,292	0.094	184	2,494
Decibel DB844G90A-XY	111.00	126	833	0.005	10	157
Flat Platform w/ Han	111.00	2,000	13,219	0.082	159	2,494
RFS FD9R6004/1C-3L	100.00	19	101	0.001	1	23
GPS	100.00	10	54	0.000	1	12
Alcatel-Lucent RRH2x	100.00	170	925	0.006	11	212
Alcatel-Lucent B66A	100.00	201	1,093	0.007	13	251
Rymsa MGD3-800TX	100.00	46	251	0.002	3	58
Commscope RC2DC-3315	100.00	64	348	0.002	4	80
Antel BXA-70080/6CF_	100.00	54	294	0.002	4	67
Commscope NHH-65B-R2	100.00	262	1,426	0.009	17	327
Flat Platform w/ Han	100.00	2,000	10,878	0.067	131	2,494
RFS ATMAA1412D-1A20	90.00	52	232	0.001	3	65
Ericsson RRUS 11 B12	90.00	152	680	0.004	8	190
Ericsson AIR 21, 1.3	90.00	332	1,483	0.009	18	414
Ericsson AIR 21, 1.3	90.00	244	1,092	0.007	13	305
Andrew LNX-6515DS-VT	90.00	154	688	0.004	8	192
Flat Platform w/ Han	90.00	2,000	8,935	0.055	108	2,494
PCTEL GPS-TMG-HR-26N	63.00	1	1	0.000	0	1
Stand-Off	63.00	30	69	0.000	1	37
		47,688	162,147	1.000	1,952	59,474

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Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	141.00	83	860	0.005	10	71
38	138.00	166	1,651	0.010	20	142
37	135.50	47	447	0.003	5	40
36	133.00	186	1,727	0.011	21	159
35	130.50	63	567	0.003	7	54
34	127.80	279	2,402	0.015	29	238
33	125.30	44	367	0.002	4	38
32	122.50	382	3,037	0.019	37	326
31	117.50	451	3,314	0.020	40	384
30	113.00	371	2,536	0.016	31	316
29	110.50	98	645	0.004	8	84
28	107.50	500	3,116	0.019	38	427
27	102.50	515	2,933	0.018	35	439
26	97.50	588	3,053	0.019	37	502
25	92.50	603	2,835	0.017	34	514
24	87.50	681	2,884	0.018	35	580
23	84.97	8	31	0.000	0	7
22	82.87	1,050	4,019	0.025	48	895
21	80.40	141	508	0.003	6	120
20	77.50	899	3,037	0.019	37	767
19	72.50	921	2,747	0.017	33	785
18	67.50	943	2,461	0.015	30	804
17	64.00	383	906	0.006	11	327
16	61.50	782	1,716	0.011	21	667
15	57.84	1,141	2,232	0.014	27	973
14	55.34	225	406	0.003	5	192
13	52.50	1,677	2,738	0.017	33	1,430
12	47.70	1,562	2,132	0.013	26	1,332
11	45.20	204	251	0.002	3	174
10	42.62	2,446	2,705	0.017	33	2,086
9	40.12	90	89	0.001	1	76
8	37.50	1,851	1,612	0.010	19	1,579
7	32.50	1,877	1,251	0.008	15	1,600
6	27.50	1,902	928	0.006	11	1,622
5	22.50	1,927	646	0.004	8	1,644
4	17.50	1,953	410	0.003	5	1,666
3	12.50	1,978	221	0.001	3	1,687
2	7.50	2,004	86	0.001	1	1,709
1	2.50	2,029	11	0.000	0	1,731
RCU (Remote Control	136.00	3	29	0.000	0	3
Kathrein Scala 742-2	136.00	68	652	0.004	8	58
Powerwave Allgon 702	131.00	26	238	0.001	3	23
Kaelus DBC0061F1V51-	131.00	76	689	0.004	8	65
Powerwave Allgon LGP	131.00	85	762	0.005	9	72
Raycap DC6-48-60-18-	131.00	64	573	0.004	7	54
Ericsson RRUS-11 (50	131.00	150	1,351	0.008	16	128
Ericsson RRUS 32 B2	131.00	159	1,432	0.009	17	136
Ericsson RRUS 32 w/	131.00	159	1,429	0.009	17	135
Powerwave Allgon 777	131.00	105	946	0.006	11	90
Quintel QS66512-2	131.00	333	2,999	0.018	36	284
CCI HPA-65R-BUU-H6	131.00	153	1,378	0.008	17	130
Flat Platform w/ Han	131.00	2,000	18,013	0.111	217	1,706
DragonWave Horizon C	120.00	21	162	0.001	2	18
Alcatel-Lucent RRH2x	120.00	159	1,213	0.007	15	135
NextNet BTS-2500	120.00	105	803	0.005	10	90
Alcatel-Lucent 800 M	120.00	192	1,468	0.009	18	164
Alcatel-Lucent 1900	120.00	180	1,376	0.008	17	154

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Nokia 2.5G MAA - AAH	120.00	311	2,376	0.015	29	265
Argus LLPX310R	120.00	86	656	0.004	8	73
DragonWave A-ANT-18G	120.00	54	414	0.003	5	46
Commscope NNVV-65B-R	120.00	232	1,775	0.011	21	198
Flat Platform w/ Han	120.00	2,000	15,292	0.094	184	1,706
Decibel DB844G90A-XY	111.00	126	833	0.005	10	107
Flat Platform w/ Han	111.00	2,000	13,219	0.082	159	1,706
RFS FD9R6004/1C-3L	100.00	19	101	0.001	1	16
GPS	100.00	10	54	0.000	1	9
Alcatel-Lucent RRH2x	100.00	170	925	0.006	11	145
Alcatel-Lucent B66A	100.00	201	1,093	0.007	13	171
Rymsa MGD3-800TX	100.00	46	251	0.002	3	39
Commscope RC2DC-3315	100.00	64	348	0.002	4	55
Antel BXA-70080/6CF_	100.00	54	294	0.002	4	46
Commscope NHH-65B-R2	100.00	262	1,426	0.009	17	224
Flat Platform w/ Han	100.00	2,000	10,878	0.067	131	1,706
RFS ATMAA1412D-1A20	90.00	52	232	0.001	3	44
Ericsson RRUS 11 B12	90.00	152	680	0.004	8	130
Ericsson AIR 21, 1.3	90.00	332	1,483	0.009	18	283
Ericsson AIR 21, 1.3	90.00	244	1,092	0.007	13	209
Andrew LNX-6515DS-VT	90.00	154	688	0.004	8	131
Flat Platform w/ Han	90.00	2,000	8,935	0.055	108	1,706
PCTEL GPS-TMG-HR-26N	63.00	1	1	0.000	0	1
Stand-Off	63.00	30	69	0.000	1	26
		47,688	162,147	1.000	1,952	40,671

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Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

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	-56.94	-1.96	0.00	-210.13	0.00	210.13	4,350.13	2,175.06	7,987.32	3,944.64	0.00	0.00	0.048
5.00	-54.44	-1.97	0.00	-200.34	0.00	200.34	4,285.51	2,142.75	7,679.11	3,792.42	0.01	-0.01	0.047
10.00	-51.98	-1.98	0.00	-190.50	0.00	190.50	4,218.97	2,109.49	7,373.27	3,641.38	0.03	-0.03	0.046
15.00	-49.54	-1.98	0.00	-180.62	0.00	180.62	4,150.52	2,075.26	7,070.06	3,491.64	0.06	-0.04	0.044
20.00	-47.14	-1.98	0.00	-170.70	0.00	170.70	4,080.16	2,040.08	6,769.73	3,343.32	0.11	-0.05	0.043
25.00	-44.76	-1.98	0.00	-160.78	0.00	160.78	4,007.88	2,003.94	6,472.54	3,196.54	0.17	-0.07	0.042
30.00	-42.42	-1.97	0.00	-150.88	0.00	150.88	3,933.69	1,966.85	6,178.73	3,051.44	0.25	-0.08	0.041
35.00	-40.11	-1.96	0.00	-141.02	0.00	141.02	3,854.52	1,927.26	5,883.88	2,905.83	0.34	-0.09	0.039
40.00	-40.00	-1.96	0.00	-131.22	0.00	131.22	3,744.12	1,872.06	5,549.75	2,740.81	0.45	-0.11	0.039
40.24	-36.95	-1.93	0.00	-130.74	0.00	130.74	3,738.74	1,869.37	5,533.71	2,732.89	0.45	-0.11	0.038
45.00	-36.70	-1.93	0.00	-121.56	0.00	121.56	3,633.72	1,816.86	5,225.39	2,580.62	0.57	-0.12	0.037
45.40	-34.75	-1.90	0.00	-120.79	0.00	120.79	3,063.79	1,531.89	4,506.32	2,225.50	0.58	-0.12	0.041
50.00	-32.66	-1.87	0.00	-112.03	0.00	112.03	3,008.67	1,504.34	4,302.82	2,125.00	0.70	-0.14	0.039
55.00	-32.37	-1.87	0.00	-102.65	0.00	102.65	2,946.93	1,473.46	4,084.17	2,017.02	0.85	-0.15	0.037
55.68	-30.95	-1.85	0.00	-101.38	0.00	101.38	2,938.42	1,469.21	4,054.78	2,002.51	0.87	-0.15	0.037
55.68	-30.95	-1.85	0.00	-101.38	0.00	101.38	2,938.42	1,469.21	4,054.78	2,002.51	0.87	-0.15	0.061
60.00	-29.98	-1.83	0.00	-93.40	0.00	93.40	2,883.27	1,441.64	3,868.42	1,910.47	1.02	-0.16	0.059
63.00	-29.46	-1.82	0.00	-87.91	0.00	87.91	2,844.16	1,422.08	3,740.46	1,847.27	1.12	-0.18	0.058
65.00	-28.28	-1.80	0.00	-84.26	0.00	84.26	2,808.42	1,404.21	3,643.77	1,799.52	1.20	-0.19	0.057
70.00	-27.13	-1.77	0.00	-75.27	0.00	75.27	2,713.79	1,356.89	3,400.96	1,679.61	1.41	-0.21	0.055
75.00	-26.01	-1.74	0.00	-66.41	0.00	66.41	2,619.16	1,309.58	3,166.52	1,563.83	1.64	-0.23	0.052
80.00	-25.84	-1.74	0.00	-57.70	0.00	57.70	2,524.53	1,262.26	2,940.46	1,452.18	1.90	-0.26	0.050
80.79	-24.53	-1.69	0.00	-56.32	0.00	56.32	2,509.53	1,254.76	2,905.39	1,434.86	1.94	-0.26	0.049
84.94	-24.52	-1.69	0.00	-49.30	0.00	49.30	1,499.90	749.95	1,728.05	853.42	2.18	-0.28	0.074
85.00	-23.67	-1.66	0.00	-49.20	0.00	49.20	1,499.54	749.77	1,726.89	852.85	2.18	-0.28	0.073
90.00	-19.26	-1.46	0.00	-40.89	0.00	40.89	1,466.64	733.32	1,624.12	802.09	2.49	-0.31	0.064
95.00	-18.52	-1.42	0.00	-33.61	0.00	33.61	1,431.82	715.91	1,522.23	751.77	2.82	-0.33	0.058
100.00	-14.36	-1.18	0.00	-26.49	0.00	26.49	1,395.09	697.54	1,421.47	702.01	3.19	-0.36	0.048
105.00	-13.73	-1.15	0.00	-20.56	0.00	20.56	1,356.44	678.22	1,322.10	652.93	3.57	-0.38	0.042
110.00	-13.61	-1.14	0.00	-14.83	0.00	14.83	1,315.88	657.94	1,224.36	604.67	3.98	-0.40	0.035
111.00	-10.50	-0.92	0.00	-13.68	0.00	13.68	1,307.54	653.77	1,205.03	595.12	4.06	-0.40	0.031
115.00	-9.94	-0.88	0.00	-10.00	0.00	10.00	1,273.40	636.70	1,128.51	557.33	4.41	-0.41	0.026
120.00	-5.30	-0.50	0.00	-5.60	0.00	5.60	1,215.41	607.71	1,023.37	505.40	4.84	-0.42	0.015
125.00	-5.24	-0.50	0.00	-3.09	0.00	3.09	1,152.33	576.16	919.28	454.00	5.29	-0.43	0.011
125.59	-4.89	-0.47	0.00	-2.79	0.00	2.79	1,144.85	572.43	907.31	448.09	5.35	-0.43	0.011
125.59	-4.89	-0.47	0.00	-2.79	0.00	2.79	385.02	192.51	160.54	106.00	5.35	-0.43	0.039
130.00	-4.81	-0.46	0.00	-0.73	0.00	0.73	385.02	192.51	160.54	106.00	5.75	-0.43	0.019
131.00	-0.46	-0.05	0.00	-0.27	0.00	0.27	385.02	192.51	160.54	106.00	5.84	-0.44	0.004
135.00	-0.40	-0.04	0.00	-0.08	0.00	0.08	385.02	192.51	160.54	106.00	6.20	-0.44	0.002
136.00	-0.10	-0.01	0.00	-0.04	0.00	0.04	385.02	192.51	160.54	106.00	6.29	-0.44	0.001
140.00	0.00	0.00	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	6.66	-0.44	0.000
142.00	0.00	0.00	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	6.84	-0.44	0.000

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Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

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	-38.94	-1.96	0.00	-206.94	0.00	206.94	4,350.13	2,175.06	7,987.32	3,944.64	0.00	0.00	0.044
5.00	-37.23	-1.96	0.00	-197.16	0.00	197.16	4,285.51	2,142.75	7,679.11	3,792.42	0.01	-0.01	0.043
10.00	-35.54	-1.97	0.00	-187.35	0.00	187.35	4,218.97	2,109.49	7,373.27	3,641.38	0.03	-0.03	0.042
15.00	-33.88	-1.97	0.00	-177.51	0.00	177.51	4,150.52	2,075.26	7,070.06	3,491.64	0.06	-0.04	0.041
20.00	-32.23	-1.97	0.00	-167.66	0.00	167.66	4,080.16	2,040.08	6,769.73	3,343.32	0.11	-0.05	0.040
25.00	-30.61	-1.96	0.00	-157.82	0.00	157.82	4,007.88	2,003.94	6,472.54	3,196.54	0.17	-0.07	0.039
30.00	-29.01	-1.95	0.00	-148.01	0.00	148.01	3,933.69	1,966.85	6,178.73	3,051.44	0.25	-0.08	0.038
35.00	-27.43	-1.94	0.00	-138.25	0.00	138.25	3,854.52	1,927.26	5,883.88	2,905.83	0.34	-0.09	0.036
40.00	-27.35	-1.94	0.00	-128.57	0.00	128.57	3,744.12	1,872.06	5,549.75	2,740.81	0.44	-0.11	0.036
40.24	-25.27	-1.91	0.00	-128.10	0.00	128.10	3,738.74	1,869.37	5,533.71	2,732.89	0.45	-0.11	0.035
45.00	-25.09	-1.91	0.00	-119.03	0.00	119.03	3,633.72	1,816.86	5,225.39	2,580.62	0.56	-0.12	0.034
45.40	-23.76	-1.88	0.00	-118.27	0.00	118.27	3,063.79	1,531.89	4,506.32	2,225.50	0.57	-0.12	0.038
50.00	-22.33	-1.85	0.00	-109.63	0.00	109.63	3,008.67	1,504.34	4,302.82	2,125.00	0.69	-0.13	0.036
55.00	-22.14	-1.85	0.00	-100.39	0.00	100.39	2,946.93	1,473.46	4,084.17	2,017.02	0.84	-0.15	0.034
55.68	-21.16	-1.82	0.00	-99.14	0.00	99.14	2,938.42	1,469.21	4,054.78	2,002.51	0.86	-0.15	0.034
55.68	-21.16	-1.82	0.00	-99.14	0.00	99.14	2,938.42	1,469.21	4,054.78	2,002.51	0.86	-0.15	0.057
60.00	-20.50	-1.80	0.00	-91.27	0.00	91.27	2,883.27	1,441.64	3,868.42	1,910.47	1.00	-0.16	0.055
63.00	-20.14	-1.79	0.00	-85.87	0.00	85.87	2,844.16	1,422.08	3,740.46	1,847.27	1.10	-0.17	0.054
65.00	-19.34	-1.77	0.00	-82.28	0.00	82.28	2,808.42	1,404.21	3,643.77	1,799.52	1.18	-0.18	0.053
70.00	-18.55	-1.74	0.00	-73.45	0.00	73.45	2,713.79	1,356.89	3,400.96	1,679.61	1.38	-0.21	0.051
75.00	-17.79	-1.71	0.00	-64.76	0.00	64.76	2,619.16	1,309.58	3,166.52	1,563.83	1.61	-0.23	0.048
80.00	-17.67	-1.70	0.00	-56.24	0.00	56.24	2,524.53	1,262.26	2,940.46	1,452.18	1.86	-0.25	0.046
80.79	-16.77	-1.65	0.00	-54.89	0.00	54.89	2,509.53	1,254.76	2,905.39	1,434.86	1.91	-0.25	0.045
84.94	-16.76	-1.66	0.00	-48.03	0.00	48.03	1,499.90	749.95	1,728.05	853.42	2.13	-0.27	0.067
85.00	-16.18	-1.62	0.00	-47.93	0.00	47.93	1,499.54	749.77	1,726.89	852.85	2.14	-0.27	0.067
90.00	-13.17	-1.42	0.00	-39.82	0.00	39.82	1,466.64	733.32	1,624.12	802.09	2.44	-0.30	0.059
95.00	-12.67	-1.39	0.00	-32.72	0.00	32.72	1,431.82	715.91	1,522.23	751.77	2.77	-0.33	0.052
100.00	-9.82	-1.15	0.00	-25.78	0.00	25.78	1,395.09	697.54	1,421.47	702.01	3.12	-0.35	0.044
105.00	-9.39	-1.12	0.00	-20.01	0.00	20.01	1,356.44	678.22	1,322.10	652.93	3.50	-0.37	0.038
110.00	-9.31	-1.11	0.00	-14.43	0.00	14.43	1,315.88	657.94	1,224.36	604.67	3.90	-0.39	0.031
111.00	-7.18	-0.90	0.00	-13.32	0.00	13.32	1,307.54	653.77	1,205.03	595.12	3.98	-0.39	0.028
115.00	-6.79	-0.86	0.00	-9.73	0.00	9.73	1,273.40	636.70	1,128.51	557.33	4.31	-0.40	0.023
120.00	-3.62	-0.49	0.00	-5.45	0.00	5.45	1,215.41	607.71	1,023.37	505.40	4.74	-0.41	0.014
125.00	-3.58	-0.49	0.00	-3.01	0.00	3.01	1,152.33	576.16	919.28	454.00	5.18	-0.42	0.010
125.59	-3.35	-0.45	0.00	-2.72	0.00	2.72	1,144.85	572.43	907.31	448.09	5.23	-0.42	0.009
125.59	-3.35	-0.45	0.00	-2.72	0.00	2.72	385.02	192.51	160.54	106.00	5.23	-0.42	0.034
130.00	-3.29	-0.45	0.00	-0.71	0.00	0.71	385.02	192.51	160.54	106.00	5.62	-0.42	0.015
131.00	-0.31	-0.05	0.00	-0.27	0.00	0.27	385.02	192.51	160.54	106.00	5.71	-0.43	0.003
135.00	-0.27	-0.04	0.00	-0.08	0.00	0.08	385.02	192.51	160.54	106.00	6.07	-0.43	0.001
136.00	-0.07	-0.01	0.00	-0.04	0.00	0.04	385.02	192.51	160.54	106.00	6.16	-0.43	0.001
140.00	0.00	0.00	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	6.52	-0.43	0.000
142.00	0.00	0.00	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	6.70	-0.43	0.000

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Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.22
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.24
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Period Based on Rayleigh Method (sec):	2.24
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	141.00	83	1.863	1.843	1.090	0.425	31	104
38	138.00	166	1.785	1.471	0.952	0.365	53	207
37	135.50	47	1.721	1.203	0.847	0.318	13	58
36	133.00	186	1.658	0.969	0.752	0.274	44	232
35	130.50	63	1.596	0.767	0.665	0.233	13	79
34	127.80	279	1.531	0.580	0.580	0.192	46	348
33	125.30	44	1.472	0.433	0.510	0.157	6	55
32	122.50	382	1.407	0.296	0.439	0.120	40	477
31	117.50	451	1.294	0.112	0.331	0.064	25	562
30	113.00	371	1.197	0.002	0.252	0.022	7	463
29	110.50	98	1.144	-0.041	0.215	0.002	0	123
28	107.50	500	1.083	-0.079	0.177	-0.018	-8	624
27	102.50	515	0.985	-0.113	0.124	-0.043	-19	642
26	97.50	588	0.891	-0.122	0.084	-0.057	-29	734
25	92.50	603	0.802	-0.112	0.054	-0.061	-32	752
24	87.50	681	0.718	-0.092	0.033	-0.055	-32	849
23	84.97	8	0.677	-0.080	0.026	-0.048	0	10
22	82.87	1,050	0.644	-0.068	0.020	-0.041	-37	1,309
21	80.40	141	0.606	-0.055	0.015	-0.031	-4	175
20	77.50	899	0.563	-0.039	0.011	-0.017	-14	1,121
19	72.50	921	0.493	-0.013	0.007	0.007	5	1,148
18	67.50	943	0.427	0.009	0.006	0.029	24	1,176
17	64.00	383	0.384	0.023	0.007	0.042	14	478
16	61.50	782	0.355	0.032	0.008	0.049	33	975
15	57.84	1,141	0.314	0.042	0.011	0.057	56	1,423
14	55.34	225	0.287	0.048	0.013	0.061	12	281
13	52.50	1,677	0.258	0.054	0.016	0.064	93	2,091
12	47.70	1,562	0.213	0.061	0.021	0.066	89	1,948
11	45.20	204	0.191	0.064	0.024	0.066	12	254
10	42.62	2,446	0.170	0.066	0.027	0.066	140	3,050
9	40.12	90	0.151	0.068	0.030	0.066	5	112
8	37.50	1,851	0.132	0.069	0.033	0.065	104	2,309
7	32.50	1,877	0.099	0.071	0.037	0.064	103	2,340
6	27.50	1,902	0.071	0.072	0.041	0.062	102	2,372

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5	22.50	1,927	0.047	0.071	0.042	0.060	100	2,404
4	17.50	1,953	0.029	0.068	0.040	0.057	97	2,436
3	12.50	1,978	0.015	0.060	0.035	0.052	89	2,467
2	7.50	2,004	0.005	0.045	0.026	0.042	73	2,499
1	2.50	2,029	0.001	0.019	0.010	0.020	35	2,531
RCU (Remote Control	136.00	3	1.734	1.254	0.867	0.328	1	4
Kathrein Scala 742-2	136.00	68	1.734	1.254	0.867	0.328	19	84
Powerwave Allgon 702	131.00	26	1.609	0.805	0.682	0.241	6	33
Kaelus DBC0061F1V51-	131.00	76	1.609	0.805	0.682	0.241	16	95
Powerwave Allgon LGP	131.00	85	1.609	0.805	0.682	0.241	18	106
Raycap DC6-48-60-18-	131.00	64	1.609	0.805	0.682	0.241	13	79
Ericsson RRUS-11 (50	131.00	150	1.609	0.805	0.682	0.241	31	187
Ericsson RRUS 32 B2	131.00	159	1.609	0.805	0.682	0.241	33	198
Ericsson RRUS 32 w/	131.00	159	1.609	0.805	0.682	0.241	33	198
Powerwave Allgon 777	131.00	105	1.609	0.805	0.682	0.241	22	131
Quintel QS66512-2	131.00	333	1.609	0.805	0.682	0.241	70	415
CCI HPA-65R-BUU-H6	131.00	153	1.609	0.805	0.682	0.241	32	191
Flat Platform w/ Han	131.00	2,000	1.609	0.805	0.682	0.241	418	2,494
DragonWave Horizon C	120.00	21	1.350	0.195	0.382	0.091	2	26
Alcatel-Lucent RRH2x	120.00	159	1.350	0.195	0.382	0.091	12	198
NextNet BTS-2500	120.00	105	1.350	0.195	0.382	0.091	8	131
Alcatel-Lucent 800 M	120.00	192	1.350	0.195	0.382	0.091	15	239
Alcatel-Lucent 1900	120.00	180	1.350	0.195	0.382	0.091	14	224
Nokia 2.5G MAA - AAH	120.00	311	1.350	0.195	0.382	0.091	24	388
Argus LLPX310R	120.00	86	1.350	0.195	0.382	0.091	7	107
DragonWave A-ANT-18G	120.00	54	1.350	0.195	0.382	0.091	4	68
Commscope NNVV-	120.00	232	1.350	0.195	0.382	0.091	18	290
Flat Platform w/ Han	120.00	2,000	1.350	0.195	0.382	0.091	157	2,494
Decibel DB844G90A-XY	111.00	126	1.155	-0.034	0.223	0.006	1	157
Flat Platform w/ Han	111.00	2,000	1.155	-0.034	0.223	0.006	10	2,494
RFS FD9R6004/1C-3L	100.00	19	0.937	-0.120	0.102	-0.052	-1	23
GPS	100.00	10	0.937	-0.120	0.102	-0.052	0	12
Alcatel-Lucent RRH2x	100.00	170	0.937	-0.120	0.102	-0.052	-8	212
Alcatel-Lucent B66A	100.00	201	0.937	-0.120	0.102	-0.052	-9	251
Rymsa MGD3-800TX	100.00	46	0.937	-0.120	0.102	-0.052	-2	58
Commscope RC2DC-	100.00	64	0.937	-0.120	0.102	-0.052	-3	80
Antel BXA-70080/6CF_	100.00	54	0.937	-0.120	0.102	-0.052	-2	67
Commscope NHH-65B-	100.00	262	0.937	-0.120	0.102	-0.052	-12	327
Flat Platform w/ Han	100.00	2,000	0.937	-0.120	0.102	-0.052	-89	2,494
RFS ATMAA1412D-1A20	90.00	52	0.759	-0.103	0.043	-0.059	-3	65
Ericsson RRUS 11 B12	90.00	152	0.759	-0.103	0.043	-0.059	-8	190
Ericsson AIR 21, 1.3	90.00	332	0.759	-0.103	0.043	-0.059	-17	414
Ericsson AIR 21, 1.3	90.00	244	0.759	-0.103	0.043	-0.059	-13	305
Andrew LNX-6515DS-VT	90.00	154	0.759	-0.103	0.043	-0.059	-8	192
Flat Platform w/ Han	90.00	2,000	0.759	-0.103	0.043	-0.059	-103	2,494
PCTEL GPS-TMG-HR-	63.00	1	0.372	0.027	0.008	0.045	0	1
Stand-Off	63.00	30	0.372	0.027	0.008	0.045	1	37
		47,688	77.981	19.407	22.304	6.291	1,999	59,474

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	141.00	83	1.863	1.843	1.090	0.425	31	71
38	138.00	166	1.785	1.471	0.952	0.365	53	142
37	135.50	47	1.721	1.203	0.847	0.318	13	40
36	133.00	186	1.658	0.969	0.752	0.274	44	159
35	130.50	63	1.596	0.767	0.665	0.233	13	54
34	127.80	279	1.531	0.580	0.580	0.192	46	238

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33	125.30	44	1.472	0.433	0.510	0.157	6	38
32	122.50	382	1.407	0.296	0.439	0.120	40	326
31	117.50	451	1.294	0.112	0.331	0.064	25	384
30	113.00	371	1.197	0.002	0.252	0.022	7	316
29	110.50	98	1.144	-0.041	0.215	0.002	0	84
28	107.50	500	1.083	-0.079	0.177	-0.018	-8	427
27	102.50	515	0.985	-0.113	0.124	-0.043	-19	439
26	97.50	588	0.891	-0.122	0.084	-0.057	-29	502
25	92.50	603	0.802	-0.112	0.054	-0.061	-32	514
24	87.50	681	0.718	-0.092	0.033	-0.055	-32	580
23	84.97	8	0.677	-0.080	0.026	-0.048	0	7
22	82.87	1,050	0.644	-0.068	0.020	-0.041	-37	895
21	80.40	141	0.606	-0.055	0.015	-0.031	-4	120
20	77.50	899	0.563	-0.039	0.011	-0.017	-14	767
19	72.50	921	0.493	-0.013	0.007	0.007	5	785
18	67.50	943	0.427	0.009	0.006	0.029	24	804
17	64.00	383	0.384	0.023	0.007	0.042	14	327
16	61.50	782	0.355	0.032	0.008	0.049	33	667
15	57.84	1,141	0.314	0.042	0.011	0.057	56	973
14	55.34	225	0.287	0.048	0.013	0.061	12	192
13	52.50	1,677	0.258	0.054	0.016	0.064	93	1,430
12	47.70	1,562	0.213	0.061	0.021	0.066	89	1,332
11	45.20	204	0.191	0.064	0.024	0.066	12	174
10	42.62	2,446	0.170	0.066	0.027	0.066	140	2,086
9	40.12	90	0.151	0.068	0.030	0.066	5	76
8	37.50	1,851	0.132	0.069	0.033	0.065	104	1,579
7	32.50	1,877	0.099	0.071	0.037	0.064	103	1,600
6	27.50	1,902	0.071	0.072	0.041	0.062	102	1,622
5	22.50	1,927	0.047	0.071	0.042	0.060	100	1,644
4	17.50	1,953	0.029	0.068	0.040	0.057	97	1,666
3	12.50	1,978	0.015	0.060	0.035	0.052	89	1,687
2	7.50	2,004	0.005	0.045	0.026	0.042	73	1,709
1	2.50	2,029	0.001	0.019	0.010	0.020	35	1,731
RCU (Remote Control	136.00	3	1.734	1.254	0.867	0.328	1	3
Kathrein Scala 742-2	136.00	68	1.734	1.254	0.867	0.328	19	58
Powerwave Allgon 702	131.00	26	1.609	0.805	0.682	0.241	6	23
Kaelus DBC0061F1V51-	131.00	76	1.609	0.805	0.682	0.241	16	65
Powerwave Allgon LGP	131.00	85	1.609	0.805	0.682	0.241	18	72
Raycap DC6-48-60-18-	131.00	64	1.609	0.805	0.682	0.241	13	54
Ericsson RRUS-11 (50	131.00	150	1.609	0.805	0.682	0.241	31	128
Ericsson RRUS 32 B2	131.00	159	1.609	0.805	0.682	0.241	33	136
Ericsson RRUS 32 w/	131.00	159	1.609	0.805	0.682	0.241	33	135
Powerwave Allgon 777	131.00	105	1.609	0.805	0.682	0.241	22	90
Quintel QS66512-2	131.00	333	1.609	0.805	0.682	0.241	70	284
CCI HPA-65R-BUU-H6	131.00	153	1.609	0.805	0.682	0.241	32	130
Flat Platform w/ Han	131.00	2,000	1.609	0.805	0.682	0.241	418	1,706
DragonWave Horizon C	120.00	21	1.350	0.195	0.382	0.091	2	18
Alcatel-Lucent RRH2x	120.00	159	1.350	0.195	0.382	0.091	12	135
NextNet BTS-2500	120.00	105	1.350	0.195	0.382	0.091	8	90
Alcatel-Lucent 800 M	120.00	192	1.350	0.195	0.382	0.091	15	164
Alcatel-Lucent 1900	120.00	180	1.350	0.195	0.382	0.091	14	154
Nokia 2.5G MAA - AAH	120.00	311	1.350	0.195	0.382	0.091	24	265
Argus LLPX310R	120.00	86	1.350	0.195	0.382	0.091	7	73
DragonWave A-ANT-18G	120.00	54	1.350	0.195	0.382	0.091	4	46
Commscope NNVV-	120.00	232	1.350	0.195	0.382	0.091	18	198
Flat Platform w/ Han	120.00	2,000	1.350	0.195	0.382	0.091	157	1,706
Decibel DB844G90A-XY	111.00	126	1.155	-0.034	0.223	0.006	1	107
Flat Platform w/ Han	111.00	2,000	1.155	-0.034	0.223	0.006	10	1,706
RFS FD9R6004/1C-3L	100.00	19	0.937	-0.120	0.102	-0.052	-1	16
GPS	100.00	10	0.937	-0.120	0.102	-0.052	0	9
Alcatel-Lucent RRH2x	100.00	170	0.937	-0.120	0.102	-0.052	-8	145
Alcatel-Lucent B66A	100.00	201	0.937	-0.120	0.102	-0.052	-9	171
Rymsa MGD3-800TX	100.00	46	0.937	-0.120	0.102	-0.052	-2	39
Commscope RC2DC-	100.00	64	0.937	-0.120	0.102	-0.052	-3	55

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Antel BXA-70080/6CF_	100.00	54	0.937	-0.120	0.102	-0.052	-2	46
Commscope NHH-65B-	100.00	262	0.937	-0.120	0.102	-0.052	-12	224
Flat Platform w/ Han	100.00	2,000	0.937	-0.120	0.102	-0.052	-89	1,706
RFS ATMAA1412D-1A20	90.00	52	0.759	-0.103	0.043	-0.059	-3	44
Ericsson RRUS 11 B12	90.00	152	0.759	-0.103	0.043	-0.059	-8	130
Ericsson AIR 21, 1.3	90.00	332	0.759	-0.103	0.043	-0.059	-17	283
Ericsson AIR 21, 1.3	90.00	244	0.759	-0.103	0.043	-0.059	-13	209
Andrew LNX-6515DS-VT	90.00	154	0.759	-0.103	0.043	-0.059	-8	131
Flat Platform w/ Han	90.00	2,000	0.759	-0.103	0.043	-0.059	-103	1,706
PCTEL GPS-TMG-HR-	63.00	1	0.372	0.027	0.008	0.045	0	1
Stand-Off	63.00	30	0.372	0.027	0.008	0.045	1	26
		47,688	77.981	19.407	22.304	6.291	1,999	40,671

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Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

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	-56.94	-1.97	0.00	-165.84	0.00	165.84	4,350.13	2,175.06	7,987.32	3,944.64	0.00	0.00	0.040
5.00	-54.44	-1.90	0.00	-156.00	0.00	156.00	4,285.51	2,142.75	7,679.11	3,792.42	0.01	-0.01	0.038
10.00	-51.98	-1.82	0.00	-146.48	0.00	146.48	4,218.97	2,109.49	7,373.27	3,641.38	0.02	-0.02	0.037
15.00	-49.54	-1.73	0.00	-137.36	0.00	137.36	4,150.52	2,075.26	7,070.06	3,491.64	0.05	-0.03	0.036
20.00	-47.14	-1.64	0.00	-128.69	0.00	128.69	4,080.16	2,040.08	6,769.73	3,343.32	0.09	-0.04	0.035
25.00	-44.76	-1.55	0.00	-120.48	0.00	120.48	4,007.88	2,003.94	6,472.54	3,196.54	0.13	-0.05	0.034
30.00	-42.42	-1.45	0.00	-112.76	0.00	112.76	3,933.69	1,966.85	6,178.73	3,051.44	0.19	-0.06	0.032
35.00	-40.11	-1.35	0.00	-105.52	0.00	105.52	3,854.52	1,927.26	5,883.88	2,905.83	0.26	-0.07	0.031
40.00	-40.00	-1.35	0.00	-98.78	0.00	98.78	3,744.12	1,872.06	5,549.75	2,740.81	0.34	-0.08	0.031
40.24	-36.95	-1.20	0.00	-98.46	0.00	98.46	3,738.74	1,869.37	5,533.71	2,732.89	0.35	-0.08	0.030
45.00	-36.70	-1.20	0.00	-92.73	0.00	92.73	3,633.72	1,816.86	5,225.39	2,580.62	0.43	-0.09	0.030
45.40	-34.75	-1.11	0.00	-92.25	0.00	92.25	3,063.79	1,531.89	4,506.32	2,225.50	0.44	-0.09	0.033
50.00	-32.66	-1.02	0.00	-87.16	0.00	87.16	3,008.67	1,504.34	4,302.82	2,125.00	0.54	-0.10	0.032
55.00	-32.38	-1.01	0.00	-82.08	0.00	82.08	2,946.93	1,473.46	4,084.17	2,017.02	0.65	-0.11	0.031
55.68	-30.95	-0.95	0.00	-81.40	0.00	81.40	2,938.42	1,469.21	4,054.78	2,002.51	0.67	-0.12	0.031
55.68	-30.95	-0.95	0.00	-81.40	0.00	81.40	2,938.42	1,469.21	4,054.78	2,002.51	0.67	-0.12	0.051
60.00	-29.98	-0.92	0.00	-77.28	0.00	77.28	2,883.27	1,441.64	3,868.42	1,910.47	0.78	-0.13	0.051
63.00	-29.46	-0.91	0.00	-74.52	0.00	74.52	2,844.16	1,422.08	3,740.46	1,847.27	0.86	-0.14	0.051
65.00	-28.29	-0.89	0.00	-72.70	0.00	72.70	2,808.42	1,404.21	3,643.77	1,799.52	0.92	-0.15	0.050
70.00	-27.14	-0.89	0.00	-68.24	0.00	68.24	2,713.79	1,356.89	3,400.96	1,679.61	1.08	-0.17	0.051
75.00	-26.02	-0.91	0.00	-63.78	0.00	63.78	2,619.16	1,309.58	3,166.52	1,563.83	1.27	-0.19	0.051
80.00	-25.84	-0.92	0.00	-59.21	0.00	59.21	2,524.53	1,262.26	2,940.46	1,452.18	1.48	-0.21	0.051
80.79	-24.53	-0.96	0.00	-58.48	0.00	58.48	2,509.53	1,254.76	2,905.39	1,434.86	1.51	-0.21	0.051
84.94	-24.52	-0.96	0.00	-54.50	0.00	54.50	1,499.90	749.95	1,728.05	853.42	1.71	-0.23	0.080
85.00	-23.67	-1.00	0.00	-54.45	0.00	54.45	1,499.54	749.77	1,726.89	852.85	1.71	-0.23	0.080
90.00	-19.26	-1.17	0.00	-49.45	0.00	49.45	1,466.64	733.32	1,624.12	802.09	1.97	-0.27	0.075
95.00	-18.53	-1.21	0.00	-43.57	0.00	43.57	1,431.82	715.91	1,522.23	751.77	2.27	-0.30	0.071
100.00	-14.36	-1.34	0.00	-37.52	0.00	37.52	1,395.09	697.54	1,421.47	702.01	2.60	-0.33	0.064
105.00	-13.73	-1.35	0.00	-30.81	0.00	30.81	1,356.44	678.22	1,322.10	652.93	2.96	-0.36	0.057
110.00	-13.61	-1.36	0.00	-24.04	0.00	24.04	1,315.88	657.94	1,224.36	604.67	3.36	-0.39	0.050
111.00	-10.50	-1.32	0.00	-22.69	0.00	22.69	1,307.54	653.77	1,205.03	595.12	3.44	-0.40	0.046
115.00	-9.93	-1.29	0.00	-17.41	0.00	17.41	1,273.40	636.70	1,128.51	557.33	3.79	-0.42	0.039
120.00	-5.29	-0.96	0.00	-10.94	0.00	10.94	1,215.41	607.71	1,023.37	505.40	4.24	-0.44	0.026
125.00	-5.24	-0.95	0.00	-6.15	0.00	6.15	1,152.33	576.16	919.28	454.00	4.70	-0.45	0.018
125.59	-4.89	-0.90	0.00	-5.59	0.00	5.59	1,144.85	572.43	907.31	448.09	4.76	-0.45	0.017
125.59	-4.89	-0.90	0.00	-5.59	0.00	5.59	385.02	192.51	160.54	106.00	4.76	-0.45	0.065
130.00	-4.81	-0.89	0.00	-1.60	0.00	1.60	385.02	192.51	160.54	106.00	5.18	-0.46	0.028
131.00	-0.46	-0.12	0.00	-0.71	0.00	0.71	385.02	192.51	160.54	106.00	5.28	-0.46	0.008
135.00	-0.40	-0.11	0.00	-0.23	0.00	0.23	385.02	192.51	160.54	106.00	5.66	-0.46	0.003
136.00	-0.10	-0.03	0.00	-0.13	0.00	0.13	385.02	192.51	160.54	106.00	5.76	-0.46	0.001
140.00	0.00	0.00	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	6.15	-0.46	0.000
142.00	0.00	0.00	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	6.34	-0.46	0.000

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Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

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	-38.94	-1.97	0.00	-163.14	0.00	163.14	4,350.13	2,175.06	7,987.32	3,944.64	0.00	0.00	0.036
5.00	-37.23	-1.90	0.00	-153.30	0.00	153.30	4,285.51	2,142.75	7,679.11	3,792.42	0.01	-0.01	0.035
10.00	-35.54	-1.82	0.00	-143.80	0.00	143.80	4,218.97	2,109.49	7,373.27	3,641.38	0.02	-0.02	0.034
15.00	-33.88	-1.72	0.00	-134.72	0.00	134.72	4,150.52	2,075.26	7,070.06	3,491.64	0.05	-0.03	0.033
20.00	-32.23	-1.63	0.00	-126.10	0.00	126.10	4,080.16	2,040.08	6,769.73	3,343.32	0.08	-0.04	0.031
25.00	-30.61	-1.53	0.00	-117.96	0.00	117.96	4,007.88	2,003.94	6,472.54	3,196.54	0.13	-0.05	0.030
30.00	-29.01	-1.43	0.00	-110.30	0.00	110.30	3,933.69	1,966.85	6,178.73	3,051.44	0.19	-0.06	0.029
35.00	-27.43	-1.33	0.00	-103.15	0.00	103.15	3,854.52	1,927.26	5,883.88	2,905.83	0.26	-0.07	0.028
40.00	-27.35	-1.33	0.00	-96.50	0.00	96.50	3,744.12	1,872.06	5,549.75	2,740.81	0.34	-0.08	0.028
40.24	-25.27	-1.19	0.00	-96.18	0.00	96.18	3,738.74	1,869.37	5,533.71	2,732.89	0.34	-0.08	0.028
45.00	-25.10	-1.18	0.00	-90.54	0.00	90.54	3,633.72	1,816.86	5,225.39	2,580.62	0.43	-0.09	0.027
45.40	-23.76	-1.09	0.00	-90.07	0.00	90.07	3,063.79	1,531.89	4,506.32	2,225.50	0.43	-0.09	0.030
50.00	-22.33	-1.00	0.00	-85.07	0.00	85.07	3,008.67	1,504.34	4,302.82	2,125.00	0.53	-0.10	0.029
55.00	-22.14	-0.99	0.00	-80.09	0.00	80.09	2,946.93	1,473.46	4,084.17	2,017.02	0.64	-0.11	0.028
55.68	-21.17	-0.93	0.00	-79.42	0.00	79.42	2,938.42	1,469.21	4,054.78	2,002.51	0.65	-0.11	0.028
55.68	-21.17	-0.93	0.00	-79.42	0.00	79.42	2,938.42	1,469.21	4,054.78	2,002.51	0.65	-0.11	0.047
60.00	-20.50	-0.90	0.00	-75.40	0.00	75.40	2,883.27	1,441.64	3,868.42	1,910.47	0.76	-0.12	0.047
63.00	-20.15	-0.89	0.00	-72.70	0.00	72.70	2,844.16	1,422.08	3,740.46	1,847.27	0.84	-0.13	0.046
65.00	-19.34	-0.87	0.00	-70.93	0.00	70.93	2,808.42	1,404.21	3,643.77	1,799.52	0.90	-0.14	0.046
70.00	-18.56	-0.87	0.00	-66.60	0.00	66.60	2,713.79	1,356.89	3,400.96	1,679.61	1.06	-0.16	0.046
75.00	-17.79	-0.88	0.00	-62.27	0.00	62.27	2,619.16	1,309.58	3,166.52	1,563.83	1.24	-0.18	0.047
80.00	-17.67	-0.89	0.00	-57.86	0.00	57.86	2,524.53	1,262.26	2,940.46	1,452.18	1.44	-0.21	0.047
80.79	-16.78	-0.93	0.00	-57.15	0.00	57.15	2,509.53	1,254.76	2,905.39	1,434.86	1.48	-0.21	0.047
84.94	-16.77	-0.93	0.00	-53.30	0.00	53.30	1,499.90	749.95	1,728.05	853.42	1.67	-0.23	0.074
85.00	-16.19	-0.97	0.00	-53.25	0.00	53.25	1,499.54	749.77	1,726.89	852.85	1.67	-0.23	0.073
90.00	-13.17	-1.14	0.00	-48.42	0.00	48.42	1,466.64	733.32	1,624.12	802.09	1.93	-0.26	0.069
95.00	-12.67	-1.18	0.00	-42.71	0.00	42.71	1,431.82	715.91	1,522.23	751.77	2.22	-0.29	0.066
100.00	-9.82	-1.31	0.00	-36.82	0.00	36.82	1,395.09	697.54	1,421.47	702.01	2.54	-0.33	0.059
105.00	-9.39	-1.32	0.00	-30.25	0.00	30.25	1,356.44	678.22	1,322.10	652.93	2.90	-0.36	0.053
110.00	-9.30	-1.32	0.00	-23.64	0.00	23.64	1,315.88	657.94	1,224.36	604.67	3.29	-0.38	0.046
111.00	-7.17	-1.29	0.00	-22.32	0.00	22.32	1,307.54	653.77	1,205.03	595.12	3.37	-0.39	0.043
115.00	-6.79	-1.27	0.00	-17.14	0.00	17.14	1,273.40	636.70	1,128.51	557.33	3.71	-0.41	0.036
120.00	-3.62	-0.95	0.00	-10.79	0.00	10.79	1,215.41	607.71	1,023.37	505.40	4.15	-0.43	0.024
125.00	-3.58	-0.94	0.00	-6.07	0.00	6.07	1,152.33	576.16	919.28	454.00	4.60	-0.44	0.016
125.59	-3.34	-0.89	0.00	-5.51	0.00	5.51	1,144.85	572.43	907.31	448.09	4.66	-0.44	0.015
125.59	-3.34	-0.89	0.00	-5.51	0.00	5.51	385.02	192.51	160.54	106.00	4.66	-0.44	0.061
130.00	-3.29	-0.88	0.00	-1.58	0.00	1.58	385.02	192.51	160.54	106.00	5.07	-0.45	0.023
131.00	-0.31	-0.12	0.00	-0.70	0.00	0.70	385.02	192.51	160.54	106.00	5.16	-0.45	0.007
135.00	-0.27	-0.11	0.00	-0.23	0.00	0.23	385.02	192.51	160.54	106.00	5.54	-0.45	0.003
136.00	-0.07	-0.03	0.00	-0.12	0.00	0.12	385.02	192.51	160.54	106.00	5.64	-0.45	0.001
140.00	0.00	0.00	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	6.02	-0.46	0.000
142.00	0.00	0.00	0.00	0.00	0.00	0.00	385.02	192.51	160.54	106.00	6.21	-0.46	0.000

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Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	42.15	0.00	57.14	0.00	0.00	3817.48	84.94	0.90
0.9D + 1.6W	41.57	0.00	42.83	0.00	0.00	3717.84	84.94	0.87
1.2D + 1.0Di + 1.0Wi	10.38	0.00	92.33	0.00	0.00	984.04	84.94	0.27
(1.2 + 0.2Sds) * DL + E ELFM	1.96	0.00	56.94	0.00	0.00	210.13	84.94	0.07
(1.2 + 0.2Sds) * DL + E EMAM	1.97	0.00	56.94	0.00	0.00	165.84	84.94	0.08
(0.9 - 0.2Sds) * DL + E ELFM	1.96	0.00	38.94	0.00	0.00	206.94	84.94	0.07
(0.9 - 0.2Sds) * DL + E EMAM	1.97	0.00	38.94	0.00	0.00	163.14	84.94	0.07
1.0D + 1.0W	10.83	0.00	47.68	0.00	0.00	972.98	84.94	0.24

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	55.6	(4) SOL-#20 All Thre	339.1	10.2	16.8	203.4	12.0	17	22	0.0	12.0	0	0	262.4	330.5	0.794

Base/Flange Plate	Plate Type	***Baseplate***	
	Pole Diameter	45	in
	Pole Thickness	0.4375	in
	Plate Diameter	60	in
	Plate Thickness	2	in
	Plate Fy	60	ksi
	Weld Length	0.3125	in
	ϕ_s Resistance	942.65	k-in
	Applied	646.51	k-in
Stiffeners	#	***16***	***Show***
	Thickness	0.5	in
	Length	4	in
	Height	10	in
	Chamfer	0	in
	Offset Angle	0	°
	Fy	36	ksi

Bolts ●	#	***16***	
	Bolt Circle	54	in
	(R)adial / (S)quare	R	
	Diameter	2.25	in
	Hole Diameter	2.375	in
	Type	18J	
	Fy	75	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	215.50	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev.	***G***
Moment	3817.5 k-ft
Axial	57.1 k

Date	6/5/2018
Engineer	Pedro.Lopez
Site #	302511
Carrier	SPRINT NEXTEL

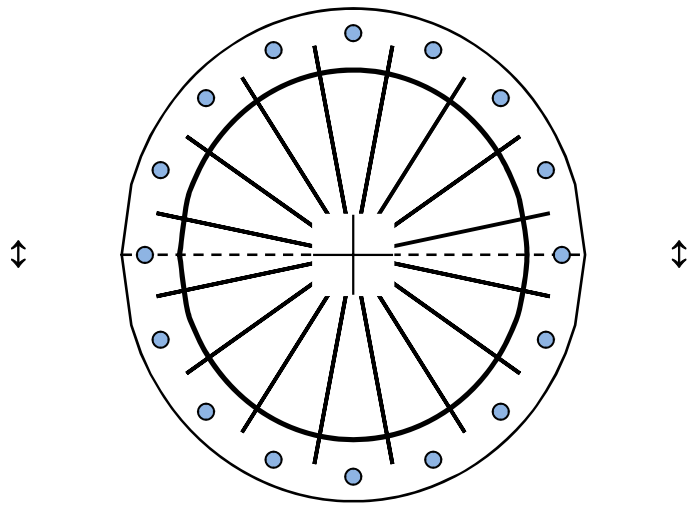


Plate Stress Ratio:

0.69 (Pass)

Bolt Stress Ratio:

0.83 (Pass)

Base/Flange Plate	Plate Type	***Flange***	***@ 125.6 ft***
	Pole Diameter	10.75	in
	Pole Thickness	0.375	in
	Plate Diameter	28.5	in
	Plate Thickness	1	in
	Plate Fy	36	ksi
	Weld Length	0.3125	in
	ϕ_s Resistance	85.53	k-in
	Applied	30.95	k-in
Stiffeners	#	***9***	***Show***
	Thickness	0.25	in
	Length	4	in
	Height	6	in
	Chamfer	0	in
	Offset Angle	0	°
	Fy	36	ksi

Bolts ●	#	***15***	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
	Diameter	1	in
	Hole Diameter	1.125	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	ϕ_s Resistance	54.52	k
	Applied	4.67	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev.	***G***
Moment	39.9 k-ft
Axial	4.3 k

Date	6/5/2018
Engineer	Pedro.Lopez
Site #	302511
Carrier	SPRINT NEXTEL

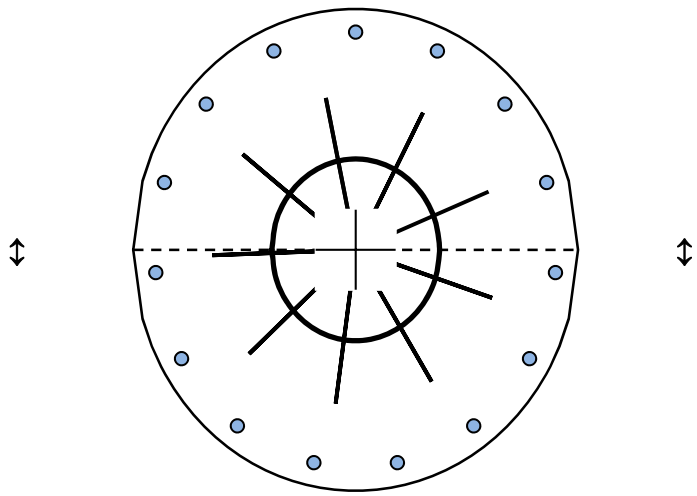


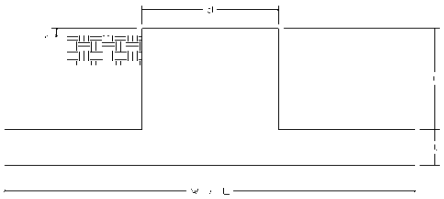
Plate Stress Ratio:

0.36 (Pass)

Bolt Stress Ratio:

0.09 (Pass)

Site Name:	WSPT - South, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302511		
Engineering Number:	OAA713869		
Engineer:	Pedro.Lopez		
Date:	06/05/18		
Tower Type:	MP		



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:	Mapping	
Compression/Leg:	57.1	k
Uplift/Leg:	0.0	k
Total Shear:	42.2	k
Moment:	3817.5	k-ft
Tower + Appurtenance Weight:	57.1	k
Depth to Base of Foundation (l + t - h):	7.00	ft
Diameter of Pier (d):	6.50	ft
Height of Pier above Ground (h):	0.50	
Width of Pad (W):	26.50	ft
Length of Pad (L):	26.50	ft
Thickness of Pad (t):	3.00	ft
Tower Leg Center to Center:	0.00	ft
Number of Tower Legs:	1.0	(1 if MP or GT)
Tower Center from Mat Center:	0.00	ft
Depth Below Ground Surface to Water Table:	9.50	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil Above Water Table:	120.0	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	65.0	pcf
Friction Angle of Uplift:	15.0	Degrees
Ultimate Coefficient of Shear Friction:	0.35	
Ultimate Compressive Bearing Pressure:	20000.0	psf
Ultimate Passive Pressure on Pad Face:	500.0	psf
$\phi_{\text{Soil and Concrete Weight}}$:	0.9	
ϕ_{Soil}:	0.75	

Overturning Moment Usage

Design OTM:	4133.6	k-ft
OTM Resistance:	8991.1	k-ft
Design OTM / OTM Resistance:	0.46	Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	2117	psf
Factored Nominal Bearing Pressure:	15000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.14	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety

Total Factored Sliding Resistance:	212.5	k
Sliding Design / Sliding Resistance:	0.20	Result: OK