AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**180 ft Monopole**
ATC Site Name	:	**Winchester CT 3, CT**
ATC Site Number	:	**302506**
Engineering Number	:	**OAA714359_C3_02**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Winsted CT**
Carrier Site Number	:	**CT1071**
Site Location	:	**15 Oakdale Avenue** **Winsted, CT 06098-1862** **41.921700,-73.049500**
County	:	**Litchfield**
Date	:	**July 30, 2018**
Max Usage	:	**88%**
Result	:	**Pass**

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Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT
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LICENSED
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Calculations ..... Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	EEI Job #7676, dated August 21, 2000
Foundation Drawing	SNET Project #F301804.10/F04, dated August 23, 2000
Geotechnical Report	Welti Project: Whalen's Hill, dated February 8, 2000
Modifications	ATC Job #42523432, dated October 24, 2008 ATC Job #50492933, dated October 15, 2012

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:	90 mph (3-Second Gust, Vasd) / 115 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	III
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
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)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
180.0	184.0	1	Andrew ABT-DMDF-ADBH	Low Profile Platform	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 3" Conduit (1) 0.40" Fiber	AT&T Mobility
		3	Powerwave LGP21401			
		3	Ericsson RRUS 11 (Band 12)			
		3	Ericsson RRUS-12 B2			
		3	Powerwave 7770.00			
		3	KMW AM-X-CD-16-65-00T-RET			
	182.0	1	4' Omni		-	Other
166.0	166.0	3	Ericsson KRY 112 144/1	T-Arms	(12) 1 5/8" Coax (2) 0.25" Cat 6 UTP (1) 1.4" Hybrid (1) 1 1/4" Hybriflex	T-Mobile
		1	Fastback Networks Intelligent Backhaul Radio 1300 Series			
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
		3	Ericsson AIR 21, 1.3M, B4A B2P			
150.0	150.0	1	Sinclair SD210-SF2P4SNM	Side Arm	(1) 1 5/8" Coax	Litchfield County Dispatch
140.0	149.0	3	Decibel DB809K-XT	Side Arms	(6) 1 5/8" Coax (2) 3/8" Coax (1) 7/8" Coax (1) 1/2" Coax	Ct Police Dept.
		1	Sinclair SC432D-HF6LDF (I40-G06)			
	141.0	1	Telewave ANT150D (5 lbs)			
		2	Bird 432-83H-01-T			
135.0	135.0	3	Alcatel-Lucent 800MHz RRH w/ Notch Filter	Platform w/ Handrails	(3) 1 1/4" Hybriflex (1) 7/8" Fiber	Sprint Nextel
		3	Alcatel-Lucent 1900MHz RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		3	RFS APXVTM14-C-I20			
		3	RFS APXVSPP18-C-A20			
125.0	125.0	3	Nokia B5 RRH4x40-850	Low Profile Platform	(6) 1 5/8" Coax (1) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent B25 RRH4x30			
		3	Alcatel-Lucent RRH2x60 700			
		1	RFS DB-B1-6C-12AB-0Z			
		3	Alcatel-Lucent B66a RRH4x45 (AWS-3)			
		2	Antel LPA-80080/6CF ___			
		6	Commscope JAHH-65B-R3B			
		1	Antel LPA-80063/6CF			
112.0	112.0	12	Decibel DB844H90E-XY	Low Profile Platform	(12) 1 1/4" Coax	Sprint Nextel
105.0	105.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS
96.0	96.0	2	Andrew DB586	Side Arms	(2) 7/8" Coax (1) 1/2" Coax	Eversource Energy
		1	Bird 429-83H-01-T			
79.0	79.0	1	PCTEL GPS-TMG-HR-26N	Flush	(1) 1/2" Coax	Sprint Nextel
30.0	30.0	1	GPS	Flush	(1) 7/8" Coax	Verizon

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
184.0	184.0	3	Powerwave 7770.00	-	-	AT&T Mobility
		3	Powerwave LGP21401			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
180.0	184.0	**3**	Powerwave TT19-08BP111-001	Low Profile Platform	(2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk	AT&T Mobility
		2	Raycap DC6-48-60-18-8F (23.5" Height)			
		3	Ericsson RRUS 32 (50.8 lbs)			
		3	CCI HPA-65R-BUU-H6			

[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	57%	Pass
Shaft	65%	Pass
Base Plate	66%	Pass
Reinforcement	65%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,075.8	45%
Axial (Kips)	70.3	6%
Shear (Kips)	34.5	88%

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) (°)
180.0	Powerwave Allgon TT19-08BP111-001	AT&T Mobility	3.055	2.131
	Raycap DC6-48-60-18-8F (23.5" Height)			
	Ericsson RRUS 32 (50.8 lbs)			
	CCI HPA-65R-BUU-H6			

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

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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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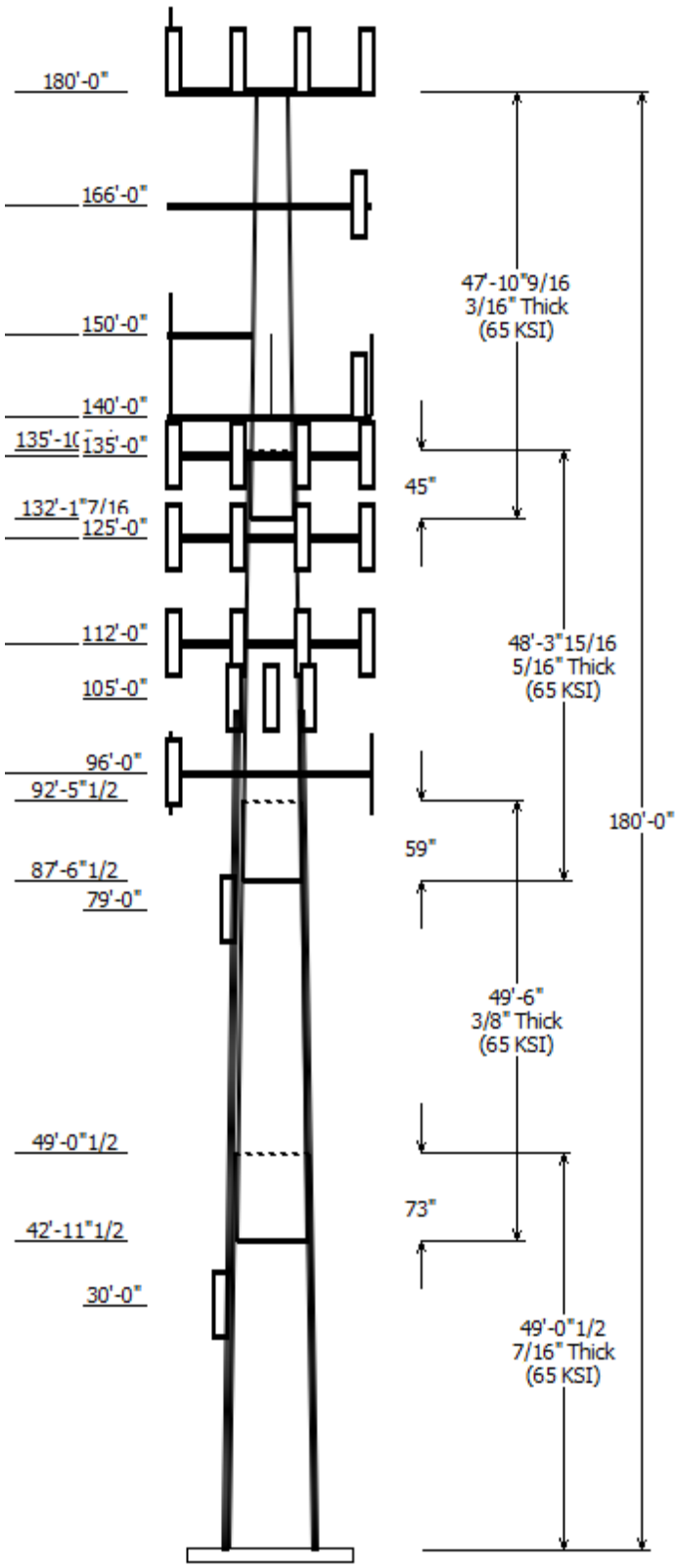


Job Information

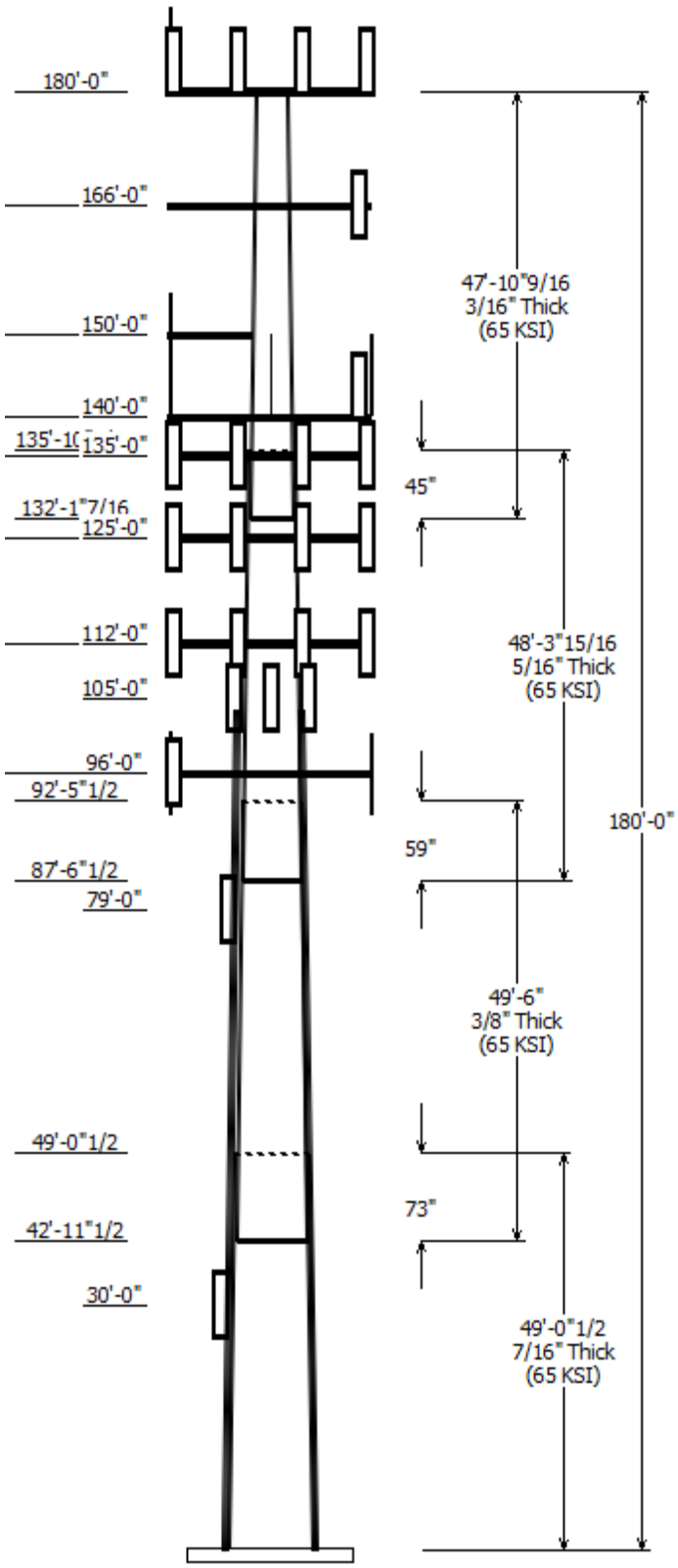
Pole :	302506	Code:	ANSI/TIA-222-G
Location :	Winchester CT 3, CT		
Description :	180 ft EEI Monopole		
Client :	AT&T MOBILITY	Struct Class :	III
Shape :	18 Sides	Exposure :	B
Height :	180.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.219444 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	49.040	41.98	52.75	0.438		0.000	18 Sides	65
2	49.500	33.21	44.07	0.375	Slip Joint	73.000	18 Sides	65
3	48.330	24.30	34.91	0.313	Slip Joint	59.000	18 Sides	65
4	47.880	15.00	25.50	0.188	Slip Joint	45.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.000	184.000	3	CCI HPA-65R-BUU-H6
180.000	184.000	1	Andrew ABT-DMDF-ADBH
180.000	184.000	3	Powerwave Allgon 7770.00
180.000	184.000	2	Raycap DC6-48-60-18-8F (23.5"
180.000	184.000	3	Powerwave Allgon TT19-
180.000	184.000	3	Ericsson RRUS 32 (50.8 lbs)
180.000	180.000	1	Flat Low Profile Platform
180.000	184.000	3	KMW AM-X-CD-16-65-00T-RET
180.000	184.000	3	Ericsson RRUS-12 B2
180.000	184.000	3	Ericsson RRUS 11 (Band 12)
180.000	184.000	3	Powerwave Allgon LGP21401
180.000	182.000	1	4' Omni
166.000	166.000	3	Ericsson AIR 21, 1.3M, B4A B2P
166.000	166.000	3	Round T-Arm
166.000	166.000	1	Fastback Networks Intelligent
166.000	166.000	3	Ericsson AIR 21, 1.3 M, B2A B4
166.000	166.000	3	Ericsson KRY 112 144/1
150.000	150.000	1	Round Side Arm
150.000	150.000	1	Sinclair SD210-SF2P4SNM
140.000	149.000	3	Decibel DB809K-XT
140.000	149.000	1	Sinclair SC432D-HF6LDF (I40-G0
140.000	141.000	2	Bird 432-83H-01-T
140.000	140.000	3	Round Side Arm
140.000	141.000	1	Telewave ANT150D (5 lbs)
135.000	135.000	1	Flat Platform w/ Handrails
135.000	135.000	3	RFS APXVSPP18-C-A20
135.000	135.000	3	RFS APXVTM14-C-I20
135.000	135.000	3	Alcatel-Lucent TD-RRH8x20-25
135.000	135.000	3	Alcatel-Lucent 1900MHz RRH
135.000	135.000	3	Alcatel-Lucent 800 MHz RRH
125.000	125.000	3	Alcatel-Lucent RRH2x60 700
125.000	125.000	2	Antel LPA-80080/6CF ___
125.000	125.000	3	Alcatel-Lucent B66a RRH4x45
125.000	125.000	1	RFS DB-B1-6C-12AB-0Z
125.000	125.000	3	Alcatel-Lucent B25 RRH4x30
125.000	125.000	3	Nokia B5 RRH4x40-850
125.000	125.000	1	Round Low Profile Platform
125.000	125.000	1	Antel LPA-80063/6CF
125.000	125.000	6	Commscope JAHH-65B-R3B
112.000	112.000	1	Round Low Profile Platform
112.000	112.000	12	Decibel DB844H90E-XY
105.000	105.000	3	RFS APXV18-206517S-C
96.000	96.000	3	Flat Side Arm
96.000	96.000	1	Bird 429-83H-01-T



96.000	96.000	2	Andrew DB586
79.000	79.000	1	PCTEL GPS-TMG-HR-26N
30.000	30.000	1	GPS

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
112.5	125.0	1 5/8" Coax	Yes
112.5	166.0	1 5/8" Coax	Yes
0.000	180.0	0.39" (10mm)	No
0.000	180.0	0.40" Fiber Cable	No
0.000	180.0	0.78" 8 AWG 6	No
0.000	180.0	0.78" 8 AWG 6	No
0.000	180.0	1 5/8" Coax	No
0.000	180.0	3" Conduit	No
0.000	135.0	1 1/4" Hybriflex	No
0.000	135.0	7/8" Fiber	No
0.000	140.0	1 5/8" Coax	No
0.000	140.0	1/2" Coax	No
0.000	140.0	3/8" Coax	No
0.000	140.0	7/8" Coax	No
0.000	150.0	1 5/8" Coax	No
0.000	166.0	0.25" (6.4mm) Cat	No
0.000	166.0	1 1/4" Hybriflex	No
0.000	166.0	1.4" (35.6mm)	No
0.000	30.000	7/8" Coax	Yes
0.000	79.000	1/2" Coax	No
0.000	96.000	1/2" Coax	No
0.000	96.000	7/8" Coax	No
0.000	105.0	1 5/8" Coax	Yes
0.000	112.0	1 1/4" Coax	Yes
0.000	112.0	Reinforcement	Yes
0.000	112.5	1 5/8" Coax	Yes
0.000	112.5	1 5/8" Coax	Yes
0.000	125.0	1 5/8" Hybriflex	No

Load Cases

1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 1.00 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

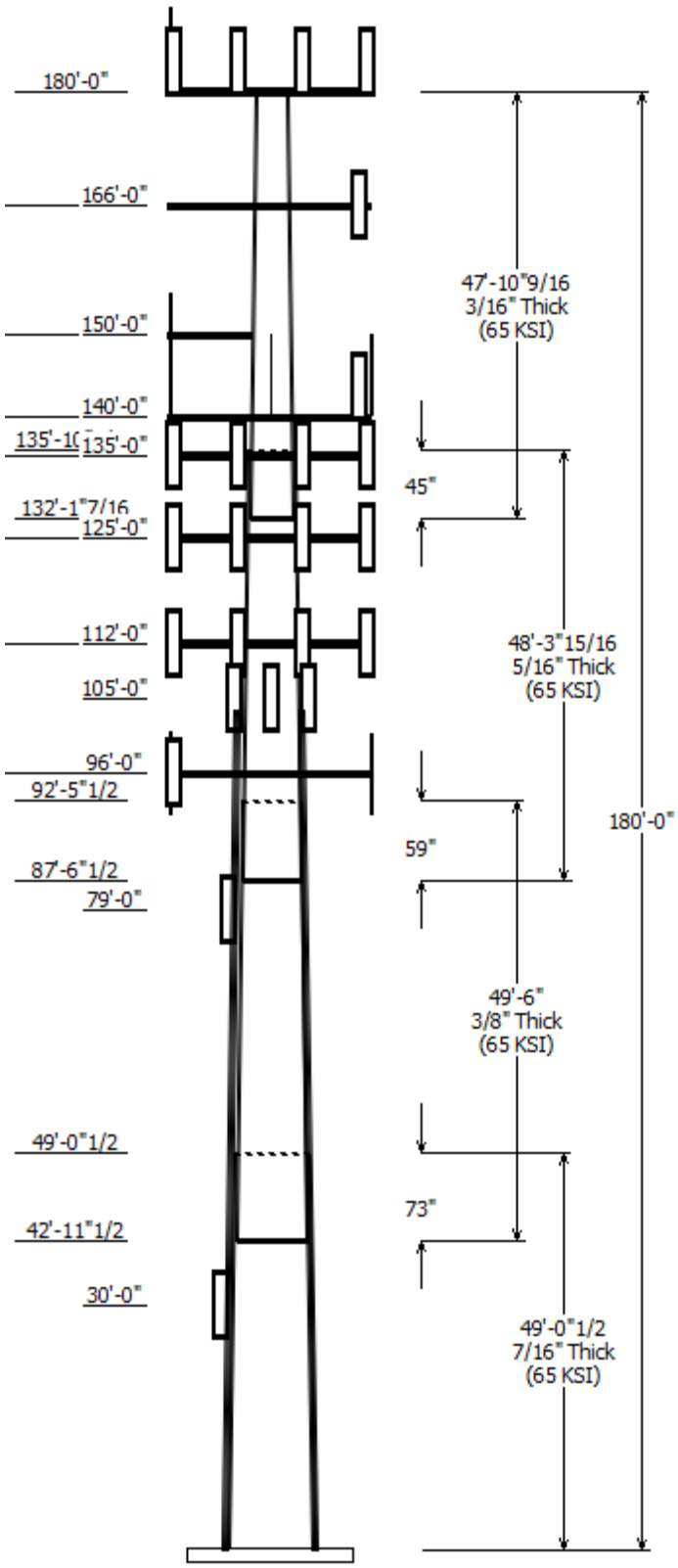
Reactions

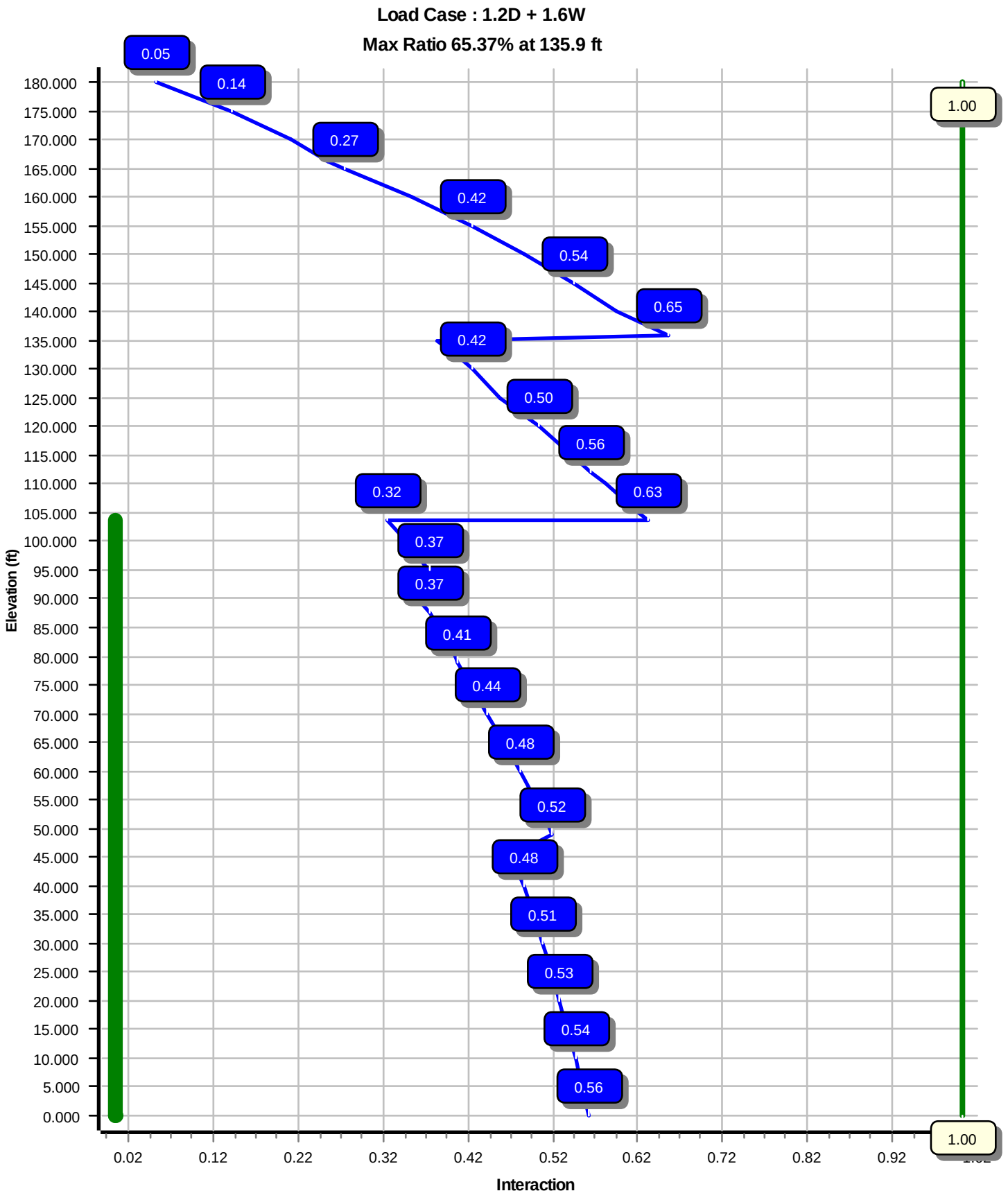
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	4075.76	34.52	70.27
0.9D + 1.6W	3921.88	33.05	52.69
1.2D + 1.0Di + 1.0Wi	837.04	6.34	143.47
(1.2 + 0.2Sds) * DL + E ELFM	404.00	2.99	69.95
(1.2 + 0.2Sds) * DL + E EMAM	372.28	3.20	69.95
(0.9 - 0.2Sds) * DL + E ELFM	397.15	2.99	48.73
(0.9 - 0.2Sds) * DL + E EMAM	365.10	3.20	48.73
1.0D + 1.0W	1098.92	9.21	58.60

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)

0.00	0.000	0.000




Load Case : 1.2D + 1.6W
Max Ratio 65.37% at 135.9 ft
0.05
0.14
0.27
0.42
0.54
0.65
0.42
0.50
0.56
0.63
0.32
0.37
0.37
0.41
0.44
0.48
0.52
0.48
0.51
0.53
0.54
0.56
1.00
1.00
Elevation (ft)
180.000
175.000
170.000
165.000
160.000
155.000
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
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:	302506	Code: ANSI/TIA-222-G	© 2007 - 2018 by ATC IP LLC. All rights reserved.
Site Name:	Winchester CT 3, CT	Engineering Number:OAA714359_C3_02	7/30/2018 10:06:20 AM
Customer:	AT&T MOBILITY		

Analysis Parameters

Location :	LITCHFIELD County, CT	Height (ft) :	180
Code :	ANSI/TIA-222-G	Base Diameter (in) :	52.75
Shape :	18 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.219
Pole Manfacturer :	EEI	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	III	Design Wind Speed Without Ice:	90 mph
Exposure Category:	B	Design Wind Speed With Ice:	40 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods
Site Class:	D - Stiff Soil
Period Based on Rayleigh Method (sec):	2.66

T_L (sec):	6	p:	1.3	C_s:	0.039
S_s:	0.177	S_1:	0.065	C_s Max:	0.039
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.189	S_{d1}:	0.104		

Load Cases

1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 1.00 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)
1-18	49.040	0.4375	65		0.00	10,875	52.75	0.00	72.64	25115.3	19.85	120.57	41.98	49.04	57.70	12585.4	15.51	95.97	0.219444
2-18	49.500	0.3750	65	Slip	73.00	7,672	44.07	42.96	52.01	12548.0	19.31	117.53	33.21	92.46	39.08	5323.8	14.21	88.56	0.219444
3-18	48.330	0.3125	65	Slip	59.00	4,779	34.91	87.54	34.32	5191.7	18.29	111.73	24.30	135.87	23.80	1731.6	12.31	77.79	0.219444
4-18	47.880	0.1875	65	Slip	45.00	1,946	25.50	132.12	15.07	1220.4	22.58	136.04	15.00	180.00	8.81	244.4	12.70	80.00	0.219444
				Shaft Weight		25,271													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
180.00	4' Omni	1	0.000	2.000	10.00	1.000	1.00
180.00	Andrew ABT-DMDF-ADBH	1	0.000	4.000	1.10	0.050	0.50
180.00	CCI HPA-65R-BUU-H6	3	0.000	4.000	51.00	9.660	0.69
180.00	Ericsson RRUS 11 (Band 12)	3	0.000	4.000	50.00	2.570	0.50
180.00	Ericsson RRUS 32 (50.8 lbs)	3	0.000	4.000	50.80	2.690	0.67
180.00	Ericsson RRUS-12 B2	3	0.000	4.000	58.00	3.150	0.50
180.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
180.00	KMW AM-X-CD-16-65-00T-RET	3	0.000	4.000	48.50	8.020	0.67
180.00	Powerwave Allgon 7770.00	3	0.000	4.000	35.00	5.510	0.65
180.00	Powerwave Allgon LGP21401	3	0.000	4.000	14.10	1.100	0.50
180.00	Powerwave Allgon TT19-	3	0.000	4.000	16.00	0.640	0.50
180.00	Raycap DC6-48-60-18-8F (23.5"	2	0.000	4.000	20.00	1.110	1.00
166.00	Ericsson AIR 21, 1.3 M, B2A B4	3	0.000	0.000	83.00	6.050	0.71
166.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.000	0.000	81.50	6.090	0.70
166.00	Ericsson KRY 112 144/1	3	0.000	0.000	11.00	0.410	0.50
166.00	Fastback Networks Intelligent	1	0.000	0.000	8.80	0.780	0.50
166.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
150.00	Round Side Arm	1	0.000	0.000	150.00	5.200	0.67
150.00	Sinclair SD210-SF2P4SNM	1	0.000	0.000	8.30	1.370	1.00
140.00	Bird 432-83H-01-T	2	0.000	1.000	25.00	1.400	0.50
140.00	Decibel DB809K-XT	3	0.000	9.000	30.00	3.660	1.00
140.00	Round Side Arm	3	0.000	0.000	150.00	5.200	0.67
140.00	Sinclair SC432D-HF6LDF (I40-G0	1	0.000	9.000	34.00	5.030	1.00
140.00	Telewave ANT150D (5 lbs)	1	0.000	1.000	5.00	1.090	0.50
135.00	Alcatel-Lucent 1900MHz RRH	3	0.000	0.000	44.00	3.260	0.50
135.00	Alcatel-Lucent 800 MHz RRH w/	3	0.000	0.000	61.80	2.500	0.50
135.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	0.000	70.00	4.050	0.50
135.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	31.600	1.00
135.00	RFS APXVSPP18-C-A20	3	0.000	0.000	57.00	8.020	0.69
135.00	RFS APXVTM14-C-I20	3	0.000	0.000	52.90	6.340	0.66
125.00	Alcatel-Lucent B25 RRH4x30	3	0.000	0.000	53.00	2.120	0.50
125.00	Alcatel-Lucent B66a RRH4x45 (A	3	0.000	0.000	67.00	2.660	0.50
125.00	Alcatel-Lucent RRH2x60 700	3	0.000	0.000	56.70	2.150	0.50
125.00	Antel LPA-80063/6CF	1	0.000	0.000	27.00	9.590	0.76
125.00	Antel LPA-80080/6CF___	2	0.000	0.000	21.00	8.630	0.65
125.00	Commscope JAHH-65B-R3B	6	0.000	0.000	60.60	9.110	0.69
125.00	Nokia B5 RRH4x40-850	3	0.000	0.000	48.50	1.320	0.50
125.00	RFS DB-B1-6C-12AB-0Z	1	0.000	0.000	21.40	2.510	0.67
125.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
112.00	Decibel DB844H90E-XY	12	0.000	0.000	14.00	3.610	0.74
112.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
105.00	RFS APXV18-206517S-C	3	0.000	0.000	26.40	5.160	0.68
96.00	Andrew DB586	2	0.000	0.000	8.30	0.740	1.00
96.00	Bird 429-83H-01-T	1	0.000	0.000	20.00	0.920	0.50
96.00	Flat Side Arm	3	0.000	0.000	150.00	6.300	0.67
79.00	PCTEL GPS-TMG-HR-26N	1	0.000	0.000	0.60	0.090	1.00
30.00	GPS	1	0.000	0.000	10.00	1.000	1.00

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Totals Num Loadings:47 117 12325.00

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	180.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	180.00	1	0.40" Fiber Cable	0.40	0.09	N	0.00	N	AT&T Mobility
0.00	180.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	180.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	180.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	180.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	166.00	2	0.25" (6.4mm) Cat 6	0.25	0.04	N	0.00	N	T-Mobile
0.00	166.00	1	1 1/4" Hybriflex	1.54	1.00	N	0.00	N	T-Mobile
0.00	166.00	1	1.4" (35.6mm) Hybrid	1.40	1.30	N	0.00	N	T-Mobile
112.50	166.00	12	1 5/8" Coax	1.98	0.82	N	3.96	Y	T-Mobile
0.00	150.00	1	1 5/8" Coax	1.98	0.82	N	0.00	N	Litchfield County Dispatch
0.00	140.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	CT Police Dept.
0.00	140.00	1	1/2" Coax	0.63	0.15	N	0.00	N	CT Police Dept.
0.00	140.00	2	3/8" Coax	0.44	0.08	N	0.00	N	CT Police Dept.
0.00	140.00	1	7/8" Coax	1.09	0.33	N	0.00	N	CT Police Dept.
0.00	135.00	3	1 1/4" Hybriflex	1.54	1.00	N	0.00	N	Sprint Nextel
0.00	135.00	1	7/8" Fiber	0.88	0.70	N	0.00	N	Sprint Nextel
0.00	125.00	1	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon
112.50	125.00	6	1 5/8" Coax	1.98	0.82	N	3.96	Y	Verizon
0.00	112.50	6	1 5/8" Coax	1.98	0.82	N	0.00	Y	Verizon
0.00	112.50	12	1 5/8" Coax	1.98	0.82	N	0.00	Y	T-Mobile
0.00	112.00	12	1 1/4" Coax	1.55	0.63	N	4.65	Y	Sprint Nextel
0.00	112.00	1	Reinforcement	9.27	43.00	N	3.35	Y	--
0.00	105.00	6	1 5/8" Coax	1.98	0.82	N	0.00	Y	Metro PCS
0.00	96.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Eversource Energy
0.00	96.00	2	7/8" Coax	1.09	0.33	N	0.00	N	Eversource Energy
0.00	79.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel
0.00	30.00	1	7/8" Coax	1.09	0.33	N	0.00	Y	Verizon

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	103.7	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.13	5/8" A36 U-Bolt	No

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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	52.750	72.640	25,115.3	19.85	120.57	78.1	937.8	0.0	0.0	19.64	8,846	0.0
5.00		0.4375	51.653	71.116	23,567.9	19.41	118.06	78.6	898.7	0.0	1,222.9	19.64	8,521	334.0
10.00		0.4375	50.556	69.593	22,085.4	18.96	115.56	79.1	860.4	0.0	1,197.0	19.64	8,202	334.0
15.00		0.4375	49.458	68.069	20,666.4	18.52	113.05	79.6	823.0	0.0	1,171.1	19.64	7,889	334.0
20.00		0.4375	48.361	66.546	19,309.5	18.08	110.54	80.1	786.4	0.0	1,145.2	19.64	7,582	334.0
25.00		0.4375	47.264	65.022	18,013.3	17.64	108.03	80.7	750.7	0.0	1,119.2	19.64	7,281	334.0
30.00		0.4375	46.167	63.498	16,776.5	17.20	105.52	81.2	715.7	0.0	1,093.3	19.64	6,986	334.0
35.00		0.4375	45.069	61.975	15,597.7	16.75	103.02	81.7	681.6	0.0	1,067.4	19.64	6,698	334.0
40.00		0.4375	43.972	60.451	14,475.4	16.31	100.51	82.2	648.4	0.0	1,041.5	19.64	6,415	334.0
42.96	Bot - Section 2	0.4375	43.323	59.550	13,837.8	16.05	99.02	82.5	629.1	0.0	603.6	19.64	6,251	197.5
45.00		0.4375	42.875	58.928	13,408.2	15.87	98.00	82.6	616.0	0.0	771.7	19.64	6,327	136.5
49.04	Top - Section 1	0.3750	42.738	50.421	11,432.7	18.69	113.97	79.4	526.9	0.0	1,502.0	19.64	6,105	269.9
50.00		0.3750	42.528	50.171	11,263.0	18.59	113.41	79.5	521.6	0.0	164.3	19.64	6,053	64.1
55.00		0.3750	41.431	48.865	10,406.2	18.07	110.48	80.1	494.7	0.0	842.5	19.64	5,784	334.0
60.00		0.3750	40.333	47.559	9,594.0	17.55	107.56	80.8	468.5	0.0	820.3	19.64	5,522	334.0
65.00		0.3750	39.236	46.253	8,825.1	17.04	104.63	81.4	443.0	0.0	798.0	19.64	5,266	334.0
70.00		0.3750	38.139	44.947	8,098.5	16.52	101.70	82.0	418.2	0.0	775.8	19.64	5,015	334.0
75.00		0.3750	37.042	43.641	7,412.9	16.01	98.78	82.6	394.2	0.0	753.6	19.64	4,771	334.0
79.00		0.3750	36.164	42.596	6,893.2	15.59	96.44	82.6	375.4	0.0	586.9	19.64	4,581	267.2
80.00		0.3750	35.944	42.335	6,767.2	15.49	95.85	82.6	370.8	0.0	144.5	19.64	4,533	66.8
85.00		0.3750	34.847	41.029	6,160.0	14.97	92.93	82.6	348.2	0.0	709.2	19.64	4,302	334.0
87.54	Bot - Section 3	0.3750	34.290	40.366	5,866.0	14.71	91.44	82.6	336.9	0.0	351.7	19.64	4,186	169.7
90.00		0.3750	33.750	39.723	5,590.4	14.46	90.00	82.6	326.2	0.0	620.3	19.64	4,204	164.3
92.46	Top - Section 2	0.3125	33.836	33.250	4,721.1	17.68	108.27	80.6	274.8	0.0	609.5	19.64	4,093	164.1
95.00		0.3125	33.278	32.696	4,489.2	17.37	106.49	81.0	265.7	0.0	285.4	19.64	3,981	169.9
96.00		0.3125	33.058	32.479	4,400.1	17.24	105.79	81.1	262.2	0.0	110.9	19.64	3,937	66.8
100.0		0.3125	32.181	31.608	4,055.7	16.75	102.98	81.7	248.2	0.0	436.1	19.64	3,764	267.2
103.7	Reinf. Top	0.3125	31.358	30.792	3,749.5	16.28	100.34	82.2	235.5	0.0	398.1	19.64	3,605	250.5
105.0		0.3125	31.083	30.520	3,651.0	16.13	99.47	82.4	231.3	0.0	130.4			
110.0		0.3125	29.986	29.431	3,274.2	15.51	95.96	82.6	215.1	0.0	510.0			
112.0		0.3125	29.547	28.996	3,131.1	15.26	94.55	82.6	208.7	0.0	198.8			
115.0		0.3125	28.889	28.343	2,924.3	14.89	92.44	82.6	199.4	0.0	292.7			
120.0		0.3125	27.792	27.255	2,600.2	14.27	88.93	82.6	184.3	0.0	473.0			
125.0		0.3125	26.694	26.167	2,301.0	13.65	85.42	82.6	169.8	0.0	454.5			
130.0		0.3125	25.597	25.078	2,025.7	13.03	81.91	82.6	155.9	0.0	435.9			
132.1	Bot - Section 4	0.3125	25.132	24.617	1,915.9	12.77	80.42	82.6	150.2	0.0	179.2			
135.0		0.3125	24.500	23.990	1,773.2	12.41	78.40	82.6	142.6	0.0	384.0			
135.8	Top - Section 3	0.1875	24.684	14.578	1,105.3	21.80	131.65	75.8	88.2	0.0	114.0			
140.0		0.1875	23.778	14.039	987.1	20.95	126.81	76.8	81.8	0.0	201.1			
145.0		0.1875	22.681	13.386	855.6	19.92	120.96	78.0	74.3	0.0	233.3			
150.0		0.1875	21.583	12.733	736.4	18.89	115.11	79.2	67.2	0.0	222.2			
155.0		0.1875	20.486	12.080	628.8	17.85	109.26	80.4	60.5	0.0	211.1			
160.0		0.1875	19.389	11.427	532.3	16.82	103.41	81.6	54.1	0.0	200.0			
165.0		0.1875	18.292	10.774	446.2	15.79	97.56	82.6	48.0	0.0	188.9			
166.0		0.1875	18.072	10.643	430.1	15.58	96.39	82.6	46.9	0.0	36.4			
170.0		0.1875	17.194	10.121	369.8	14.76	91.70	82.6	42.4	0.0	141.3			
175.0		0.1875	16.097	9.468	302.8	13.73	85.85	82.6	37.0	0.0	166.6			
180.0		0.1875	15.000	8.815	244.4	12.70	80.00	82.6	32.1	0.0	155.5			
											25,271.1			6,930.5

Site Number: 302506 Code: ANSI/TIA-222-G © 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: Winchester CT 3, CT Engineering Number:OAA714359_C3_02 7/30/2018 10:06:21 AM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W 90 mph with No Ice 26 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.15

Dead Load Factor :1.20

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		230.9	0.0					0.0	0.0	230.9	0.0	0.0	0.0
5.00		458.9	1,467.5					0.0	1,032.1	458.9	2,499.6	0.0	0.0
10.00		453.0	1,436.4					0.0	1,032.1	453.0	2,468.5	0.0	0.0
15.00		447.1	1,405.3					0.0	1,032.1	447.1	2,437.4	0.0	0.0
20.00		441.3	1,374.2					0.0	1,032.1	441.3	2,406.3	0.0	0.0
25.00		435.4	1,343.1					0.0	1,032.1	435.4	2,375.2	0.0	0.0
30.00	Appurtenance(s)	434.6	1,312.0	27.9	0.0	0.0	12.0	0.0	1,032.1	462.5	2,356.1	0.0	0.0
35.00		442.7	1,280.9					0.0	1,030.1	442.7	2,311.0	0.0	0.0
40.00		359.4	1,249.8					0.0	1,030.1	359.4	2,279.9	0.0	0.0
42.96	Bot - Section 2	230.9	724.4					0.0	609.1	230.9	1,333.5	0.0	0.0
45.00		287.4	926.0					0.0	421.0	287.4	1,347.0	0.0	0.0
49.04	Top - Section 1	237.1	1,802.4					0.0	832.3	237.1	2,634.7	0.0	0.0
50.00		284.5	197.2					0.0	197.8	284.5	395.0	0.0	0.0
55.00		480.7	1,011.0					0.0	1,030.1	480.7	2,041.1	0.0	0.0
60.00		485.6	984.3					0.0	1,030.1	485.6	2,014.4	0.0	0.0
65.00		589.8	957.7					0.0	1,030.1	589.8	1,987.8	0.0	0.0
70.00		688.9	931.0					133.5	1,030.1	822.4	1,961.1	0.0	0.0
75.00		614.8	904.3					135.5	1,030.1	750.3	1,934.4	0.0	0.0
79.00	Appurtenance(s)	339.4	704.3	3.3	0.0	0.0	0.7	109.8	824.1	452.5	1,529.1	0.0	0.0
80.00		402.7	173.4					27.6	205.8	430.3	379.2	0.0	0.0
85.00		503.5	851.0					139.2	1,029.2	642.7	1,880.2	0.0	0.0
87.54	Bot - Section 3	333.2	422.1					71.4	522.8	404.5	944.9	0.0	0.0
90.00		328.1	744.3					69.5	506.4	397.6	1,250.7	0.0	0.0
92.46	Top - Section 2	330.9	731.5					69.8	505.7	400.7	1,237.1	0.0	0.0
95.00		233.1	342.4					72.7	523.5	305.8	866.0	0.0	0.0
96.00	Appurtenance(s)	325.0	133.1	565.1	0.0	0.0	583.9	28.7	205.8	918.8	922.8	0.0	0.0
100.00		499.1	523.4					115.4	819.5	614.5	1,342.9	0.0	0.0
103.75	Reinf. Top	318.6	477.7					109.1	768.3	427.7	1,246.0	0.0	0.0
105.00	Appurtenance(s)	390.8	156.5	420.6	0.0	0.0	95.0	36.5	155.9	847.9	407.4	0.0	0.0
110.00		434.5	612.0					147.0	594.0	581.5	1,206.0	0.0	0.0
112.00	Appurtenance(s)	304.5	238.6	1,926.9	0.0	0.0	2,001.6	59.2	237.6	2,290.6	2,477.8	0.0	0.0
115.00		478.7	351.2					80.3	174.4	558.9	525.6	0.0	0.0
120.00		585.6	567.6					161.4	290.7	747.0	858.2	0.0	0.0
125.00	Appurtenance(s)	463.0	545.3	3,272.5	0.0	0.0	3,155.5	162.3	290.7	3,897.8	3,991.5	0.0	0.0
130.00		247.3	523.1					0.0	253.4	247.3	776.5	0.0	0.0
132.12	Bot - Section 4	173.1	215.1					0.0	107.4	173.1	322.5	0.0	0.0
135.00	Appurtenance(s)	130.1	460.8	2,769.0	0.0	0.0	3,428.5	0.0	145.9	2,899.1	4,035.3	0.0	0.0
135.87	Top - Section 3	170.7	136.8					0.0	40.2	170.7	177.1	0.0	0.0
140.00	Appurtenance(s)	308.2	241.3	1,131.0	0.0	5,557.5	754.8	0.0	190.9	1,439.2	1,187.1	0.0	0.0
145.00		332.2	280.0					0.0	197.8	332.2	477.8	0.0	0.0
150.00	Appurtenance(s)	326.1	266.6	202.6	0.0	0.0	190.0	0.0	197.8	528.8	654.4	0.0	0.0
155.00		319.8	253.3					0.0	192.9	319.8	446.2	0.0	0.0
160.00		374.8	240.0					0.0	192.9	374.8	432.8	0.0	0.0
165.00		258.5	226.6					84.5	192.9	343.0	419.5	0.0	0.0
166.00	Appurtenance(s)	130.6	43.7	1,638.0	0.0	0.0	1,542.4	16.9	38.6	1,785.6	1,624.7	0.0	0.0
170.00		194.0	169.6					0.0	95.7	194.0	265.2	0.0	0.0
175.00		204.6	200.0					0.0	119.6	204.6	319.5	0.0	0.0
180.00	Appurtenance(s)	99.2	186.6	3,719.1	0.0	9,935.6	3,025.6	0.0	119.6	3,818.3	3,331.8	0.0	0.0

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Load Case: 1.2D + 1.6W 90 mph with No Ice 26 Iterations

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

Wind Importance Factor : 1.15

Totals:	34,649.2	70,318.7	0.00	0.00

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Load Case: 1.2D + 1.6W 90 mph with No Ice 26 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.15
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	-70.27	-34.52	0.00	-4,075.76	0.00	4,075.76	5,102.86	2,551.43	10,963.2	5,489.79	0.00	0.00	0.560
5.00	-67.67	-34.26	0.00	-3,903.15	0.00	3,903.15	5,029.12	2,514.56	10,576.3	5,296.03	0.09	-0.17	0.552
10.00	-65.10	-33.99	0.00	-3,731.86	0.00	3,731.86	4,953.95	2,476.98	10,193.1	5,104.17	0.36	-0.34	0.544
15.00	-62.57	-33.71	0.00	-3,561.92	0.00	3,561.92	4,877.36	2,438.68	9,813.98	4,914.28	0.80	-0.51	0.535
20.00	-60.06	-33.43	0.00	-3,393.37	0.00	3,393.37	4,799.34	2,399.67	9,438.93	4,726.48	1.43	-0.68	0.525
25.00	-57.59	-33.14	0.00	-3,226.23	0.00	3,226.23	4,719.90	2,359.95	9,068.23	4,540.86	2.23	-0.86	0.516
30.00	-55.14	-32.81	0.00	-3,060.55	0.00	3,060.55	4,639.03	2,319.51	8,702.08	4,357.51	3.23	-1.03	0.505
35.00	-52.74	-32.48	0.00	-2,896.51	0.00	2,896.51	4,556.73	2,278.36	8,340.67	4,176.53	4.40	-1.21	0.494
40.00	-50.39	-32.20	0.00	-2,734.09	0.00	2,734.09	4,473.00	2,236.50	7,984.18	3,998.03	5.77	-1.39	0.483
42.96	-49.01	-32.01	0.00	-2,638.89	0.00	2,638.89	4,422.82	2,211.41	7,775.79	3,893.68	6.66	-1.50	0.475
45.00	-47.61	-31.78	0.00	-2,573.48	0.00	2,573.48	4,378.03	2,189.01	7,615.75	3,813.53	7.32	-1.57	0.467
49.04	-44.93	-31.54	0.00	-2,445.08	0.00	2,445.08	3,604.17	1,802.08	6,267.69	3,138.50	8.72	-1.72	0.517
50.00	-44.48	-31.33	0.00	-2,414.80	0.00	2,414.80	3,591.50	1,795.75	6,214.33	3,111.78	9.07	-1.76	0.514
55.00	-42.36	-30.93	0.00	-2,258.14	0.00	2,258.14	3,524.70	1,762.35	5,938.60	2,973.71	11.01	-1.95	0.497
60.00	-40.26	-30.51	0.00	-2,103.49	0.00	2,103.49	3,456.48	1,728.24	5,666.60	2,837.51	13.15	-2.14	0.479
65.00	-38.20	-29.97	0.00	-1,950.96	0.00	1,950.96	3,386.83	1,693.41	5,398.53	2,703.28	15.50	-2.33	0.460
70.00	-36.18	-29.18	0.00	-1,801.13	0.00	1,801.13	3,315.75	1,657.87	5,134.58	2,571.11	18.04	-2.52	0.440
75.00	-34.19	-28.44	0.00	-1,655.23	0.00	1,655.23	3,242.30	1,621.15	4,873.54	2,440.39	20.78	-2.71	0.420
79.00	-32.64	-27.97	0.00	-1,541.46	0.00	1,541.46	3,164.68	1,582.34	4,641.84	2,324.37	23.11	-2.86	0.406
80.00	-32.23	-27.58	0.00	-1,513.49	0.00	1,513.49	3,145.28	1,572.64	4,584.79	2,295.80	23.71	-2.89	0.402
85.00	-30.32	-26.92	0.00	-1,375.57	0.00	1,375.57	3,048.26	1,524.13	4,304.87	2,155.63	26.84	-3.08	0.383
87.54	-29.36	-26.51	0.00	-1,307.21	0.00	1,307.21	2,998.97	1,499.48	4,166.05	2,086.12	28.51	-3.17	0.373
90.00	-28.10	-26.08	0.00	-1,242.00	0.00	1,242.00	2,951.23	1,475.62	4,033.76	2,019.88	30.16	-3.26	0.358
92.46	-26.84	-25.65	0.00	-1,177.92	0.00	1,177.92	2,412.07	1,206.04	3,317.78	1,661.36	31.86	-3.34	0.387
95.00	-25.97	-25.32	0.00	-1,112.68	0.00	1,112.68	2,382.81	1,191.41	3,222.46	1,613.62	33.67	-3.43	0.373
96.00	-25.07	-24.39	0.00	-1,087.35	0.00	1,087.35	2,371.21	1,185.60	3,185.22	1,594.98	34.39	-3.47	0.367
100.00	-23.71	-23.75	0.00	-989.79	0.00	989.79	2,324.22	1,162.11	3,037.61	1,521.06	37.35	-3.61	0.344
103.75	-22.46	-23.28	0.00	-900.72	0.00	900.72	2,279.33	1,139.67	2,901.28	1,452.80	40.24	-3.74	0.323
103.75	-22.46	-23.28	0.00	-900.72	0.00	900.72	2,279.33	1,139.67	2,901.28	1,452.80	40.24	-3.74	0.630
105.00	-22.03	-22.48	0.00	-871.63	0.00	871.63	2,264.20	1,132.10	2,856.29	1,430.27	41.23	-3.78	0.620
110.00	-20.79	-21.89	0.00	-759.25	0.00	759.25	2,186.61	1,093.30	2,659.07	1,331.51	45.36	-4.10	0.580
112.00	-18.43	-19.48	0.00	-715.46	0.00	715.46	2,154.27	1,077.13	2,580.59	1,292.21	47.10	-4.23	0.563
115.00	-17.87	-18.96	0.00	-657.03	0.00	657.03	2,105.76	1,052.88	2,465.08	1,234.37	49.82	-4.42	0.541
120.00	-16.98	-18.23	0.00	-562.24	0.00	562.24	2,024.90	1,012.45	2,278.43	1,140.91	54.60	-4.71	0.502
125.00	-13.26	-14.07	0.00	-471.08	0.00	471.08	1,944.05	972.03	2,099.13	1,051.12	59.68	-4.99	0.455
130.00	-12.47	-13.80	0.00	-400.72	0.00	400.72	1,863.20	931.60	1,927.17	965.02	65.05	-5.26	0.422
132.12	-12.13	-13.63	0.00	-371.47	0.00	371.47	1,828.92	914.46	1,856.49	929.62	67.41	-5.38	0.406
135.00	-8.37	-10.37	0.00	-332.22	0.00	332.22	1,782.35	891.17	1,762.57	882.59	70.70	-5.53	0.381
135.87	-8.19	-10.20	0.00	-323.21	0.00	323.21	993.95	496.97	1,000.68	501.09	71.71	-5.58	0.654
140.00	-7.11	-8.69	0.00	-275.52	0.00	275.52	969.84	484.92	940.01	470.70	76.61	-5.78	0.593
145.00	-6.61	-8.35	0.00	-232.08	0.00	232.08	939.35	469.68	867.78	434.53	82.86	-6.15	0.541
150.00	-5.98	-7.79	0.00	-190.34	0.00	190.34	907.44	453.72	797.07	399.13	89.47	-6.50	0.484
155.00	-5.53	-7.45	0.00	-151.41	0.00	151.41	874.09	437.05	728.06	364.57	96.44	-6.83	0.422
160.00	-5.11	-7.05	0.00	-114.17	0.00	114.17	839.33	419.66	660.97	330.98	103.74	-7.13	0.351
165.00	-4.72	-6.67	0.00	-78.93	0.00	78.93	800.44	400.22	593.98	297.43	111.33	-7.39	0.272
166.00	-3.33	-4.69	0.00	-72.26	0.00	72.26	790.74	395.37	579.60	290.23	112.88	-7.43	0.253
170.00	-3.08	-4.48	0.00	-53.49	0.00	53.49	751.93	375.97	523.82	262.30	119.16	-7.60	0.208
175.00	-2.78	-4.24	0.00	-31.12	0.00	31.12	703.42	351.71	458.07	229.37	127.19	-7.76	0.140
180.00	0.00	-3.82	0.00	-9.94	0.00	9.94	654.91	327.45	396.72	198.65	135.35	-7.86	0.050

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Load Case: 0.9D + 1.6W 90 mph with No Ice (Reduced DL) 26 Iterations

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

Wind Importance Factor : 1.15

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		200.3	0.0					0.0	0.0	200.3	0.0	0.0	0.0
5.00		396.5	1,100.6					0.0	774.1	396.5	1,874.7	0.0	0.0
10.00		388.0	1,077.3					0.0	774.1	388.0	1,851.4	0.0	0.0
15.00		379.6	1,054.0					0.0	774.1	379.6	1,828.0	0.0	0.0
20.00		371.2	1,030.6					0.0	774.1	371.2	1,804.7	0.0	0.0
25.00		362.8	1,007.3					0.0	774.1	362.8	1,781.4	0.0	0.0
30.00	Appurtenance(s)	358.6	984.0	27.9	0.0	0.0	9.0	0.0	774.1	386.5	1,767.0	0.0	0.0
35.00		361.5	960.7					0.0	772.6	361.5	1,733.2	0.0	0.0
40.00		291.0	937.3					0.0	772.6	291.0	1,709.9	0.0	0.0
42.96	Bot - Section 2	185.5	543.3					0.0	456.8	185.5	1,000.1	0.0	0.0
45.00		229.2	694.5					0.0	315.7	229.2	1,010.3	0.0	0.0
49.04	Top - Section 1	188.7	1,351.8					0.0	624.2	188.7	1,976.0	0.0	0.0
50.00		225.5	147.9					0.0	148.4	225.5	296.2	0.0	0.0
55.00		378.3	758.2					0.0	772.6	378.3	1,530.8	0.0	0.0
60.00		377.6	738.2					0.0	772.6	377.6	1,510.8	0.0	0.0
65.00		534.3	718.2					0.0	772.6	534.3	1,490.8	0.0	0.0
70.00		688.9	698.2					133.5	772.6	822.4	1,470.8	0.0	0.0
75.00		614.8	678.3					135.5	772.6	750.3	1,450.8	0.0	0.0
79.00	Appurtenance(s)	339.4	528.2	3.3	0.0	0.0	0.5	109.8	618.1	452.5	1,146.8	0.0	0.0
80.00		402.7	130.1					27.6	154.4	430.3	284.4	0.0	0.0
85.00		503.5	638.3					139.2	771.9	642.7	1,410.2	0.0	0.0
87.54	Bot - Section 3	333.2	316.6					71.4	392.1	404.5	708.7	0.0	0.0
90.00		328.1	558.2					69.5	379.8	397.6	938.0	0.0	0.0
92.46	Top - Section 2	330.9	548.6					69.8	379.2	400.7	927.8	0.0	0.0
95.00		233.1	256.8					72.7	392.7	305.8	649.5	0.0	0.0
96.00	Appurtenance(s)	325.0	99.8	565.1	0.0	0.0	437.9	28.7	154.4	918.8	692.1	0.0	0.0
100.00		499.1	392.5					115.4	614.6	614.5	1,007.1	0.0	0.0
103.75	Reinf. Top	318.6	358.3					109.1	576.2	427.7	934.5	0.0	0.0
105.00	Appurtenance(s)	390.8	117.4	420.6	0.0	0.0	71.3	36.5	116.9	847.9	305.5	0.0	0.0
110.00		434.5	459.0					147.0	445.5	581.5	904.5	0.0	0.0
112.00	Appurtenance(s)	304.5	178.9	1,926.9	0.0	0.0	1,501.2	59.2	178.2	2,290.6	1,858.3	0.0	0.0
115.00		478.7	263.4					80.3	130.8	558.9	394.2	0.0	0.0
120.00		585.6	425.7					161.4	218.0	747.0	643.7	0.0	0.0
125.00	Appurtenance(s)	440.6	409.0	3,272.5	0.0	0.0	2,366.6	162.3	218.0	3,875.4	2,993.7	0.0	0.0
130.00		214.8	392.3					0.0	190.0	214.8	582.4	0.0	0.0
132.12	Bot - Section 4	148.3	161.3					0.0	80.6	148.3	241.9	0.0	0.0
135.00	Appurtenance(s)	110.9	345.6	2,769.0	0.0	0.0	2,571.4	0.0	109.5	2,879.9	3,026.5	0.0	0.0
135.87	Top - Section 3	144.4	102.6					0.0	30.2	144.4	132.8	0.0	0.0
140.00	Appurtenance(s)	258.1	181.0	1,131.0	0.0	5,557.5	566.1	0.0	143.2	1,389.1	890.3	0.0	0.0
145.00		273.3	210.0					0.0	148.4	273.3	358.3	0.0	0.0
150.00	Appurtenance(s)	262.6	200.0	202.6	0.0	0.0	142.5	0.0	148.4	465.2	490.8	0.0	0.0
155.00		251.6	190.0					0.0	144.7	251.6	334.6	0.0	0.0
160.00		339.5	180.0					0.0	144.7	339.5	324.6	0.0	0.0
165.00		258.5	170.0					84.5	144.7	343.0	314.6	0.0	0.0
166.00	Appurtenance(s)	130.6	32.8	1,638.0	0.0	0.0	1,156.8	16.9	28.9	1,785.6	1,218.5	0.0	0.0
170.00		194.0	127.2					0.0	71.7	194.0	198.9	0.0	0.0
175.00		204.6	150.0					0.0	89.7	204.6	239.7	0.0	0.0
180.00	Appurtenance(s)	99.2	140.0	3,719.1	0.0	9,935.6	2,269.2	0.0	89.7	3,818.3	2,498.8	0.0	0.0

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Load Case: 0.9D + 1.6W 90 mph with No Ice (Reduced DL) 26 Iterations

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

Wind Importance Factor : 1.15

Totals:	33,177.2	52,739.0	0.00	0.00

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Load Case: 0.9D + 1.6W 90 mph with No Ice (Reduced DL) 26 Iterations

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

Wind Importance Factor : 1.15

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	-52.69	-33.05	0.00	-3,921.88	0.00	3,921.88	5,102.86	2,551.43	10,963.2	5,489.79	0.00	0.00	0.537
5.00	-50.72	-32.80	0.00	-3,756.62	0.00	3,756.62	5,029.12	2,514.56	10,576.3	5,296.03	0.09	-0.16	0.529
10.00	-48.78	-32.54	0.00	-3,592.64	0.00	3,592.64	4,953.95	2,476.98	10,193.1	5,104.17	0.34	-0.32	0.521
15.00	-46.86	-32.28	0.00	-3,429.95	0.00	3,429.95	4,877.36	2,438.68	9,813.98	4,914.28	0.77	-0.49	0.513
20.00	-44.97	-32.03	0.00	-3,268.53	0.00	3,268.53	4,799.34	2,399.67	9,438.93	4,726.48	1.37	-0.66	0.504
25.00	-43.10	-31.77	0.00	-3,108.41	0.00	3,108.41	4,719.90	2,359.95	9,068.23	4,540.86	2.15	-0.82	0.495
30.00	-41.24	-31.48	0.00	-2,949.57	0.00	2,949.57	4,639.03	2,319.51	8,702.08	4,357.51	3.10	-0.99	0.485
35.00	-39.42	-31.20	0.00	-2,792.19	0.00	2,792.19	4,556.73	2,278.36	8,340.67	4,176.53	4.24	-1.17	0.474
40.00	-37.65	-30.96	0.00	-2,636.19	0.00	2,636.19	4,473.00	2,236.50	7,984.18	3,998.03	5.55	-1.34	0.463
42.96	-36.60	-30.81	0.00	-2,544.64	0.00	2,544.64	4,422.82	2,211.41	7,775.79	3,893.68	6.42	-1.44	0.457
45.00	-35.54	-30.62	0.00	-2,481.68	0.00	2,481.68	4,378.03	2,189.01	7,615.75	3,813.53	7.05	-1.52	0.448
49.04	-33.53	-30.43	0.00	-2,357.97	0.00	2,357.97	3,604.17	1,802.08	6,267.69	3,138.50	8.40	-1.66	0.497
50.00	-33.18	-30.26	0.00	-2,328.76	0.00	2,328.76	3,591.50	1,795.75	6,214.33	3,111.78	8.73	-1.69	0.494
55.00	-31.56	-29.94	0.00	-2,177.46	0.00	2,177.46	3,524.70	1,762.35	5,938.60	2,973.71	10.60	-1.88	0.477
60.00	-29.97	-29.60	0.00	-2,027.79	0.00	2,027.79	3,456.48	1,728.24	5,666.60	2,837.51	12.67	-2.06	0.460
65.00	-28.41	-29.10	0.00	-1,879.77	0.00	1,879.77	3,386.83	1,693.41	5,398.53	2,703.28	14.93	-2.25	0.442
70.00	-26.88	-28.31	0.00	-1,734.25	0.00	1,734.25	3,315.75	1,657.87	5,134.58	2,571.11	17.38	-2.43	0.422
75.00	-25.39	-27.57	0.00	-1,592.72	0.00	1,592.72	3,242.30	1,621.15	4,873.54	2,440.39	20.02	-2.61	0.403
79.00	-24.22	-27.10	0.00	-1,482.45	0.00	1,482.45	3,164.68	1,582.34	4,641.84	2,324.37	22.27	-2.75	0.389
80.00	-23.91	-26.70	0.00	-1,455.36	0.00	1,455.36	3,145.28	1,572.64	4,584.79	2,295.80	22.85	-2.79	0.385
85.00	-22.47	-26.04	0.00	-1,321.86	0.00	1,321.86	3,048.26	1,524.13	4,304.87	2,155.63	25.86	-2.96	0.366
87.54	-21.75	-25.63	0.00	-1,255.73	0.00	1,255.73	2,998.97	1,499.48	4,166.05	2,086.12	27.46	-3.05	0.356
90.00	-20.80	-25.21	0.00	-1,192.68	0.00	1,192.68	2,951.23	1,475.62	4,033.76	2,019.88	29.06	-3.14	0.342
92.46	-19.86	-24.79	0.00	-1,130.74	0.00	1,130.74	2,412.07	1,206.04	3,317.78	1,661.36	30.69	-3.22	0.370
95.00	-19.20	-24.47	0.00	-1,067.69	0.00	1,067.69	2,382.81	1,191.41	3,222.46	1,613.62	32.43	-3.30	0.356
96.00	-18.53	-23.54	0.00	-1,043.22	0.00	1,043.22	2,371.21	1,185.60	3,185.22	1,594.98	33.13	-3.34	0.350
100.00	-17.51	-22.91	0.00	-949.07	0.00	949.07	2,324.22	1,162.11	3,037.61	1,521.06	35.98	-3.48	0.329
103.75	-16.57	-22.44	0.00	-863.18	0.00	863.18	2,279.33	1,139.67	2,901.28	1,452.80	38.76	-3.60	0.308
103.75	-16.57	-22.44	0.00	-863.18	0.00	863.18	2,279.33	1,139.67	2,901.28	1,452.80	38.76	-3.60	0.602
105.00	-16.25	-21.63	0.00	-835.12	0.00	835.12	2,264.20	1,132.10	2,856.29	1,430.27	39.71	-3.64	0.591
110.00	-15.31	-21.04	0.00	-726.98	0.00	726.98	2,186.61	1,093.30	2,659.07	1,331.51	43.69	-3.95	0.553
112.00	-13.57	-18.67	0.00	-684.89	0.00	684.89	2,154.27	1,077.13	2,580.59	1,292.21	45.37	-4.07	0.537
115.00	-13.14	-18.13	0.00	-628.90	0.00	628.90	2,105.76	1,052.88	2,465.08	1,234.37	47.98	-4.25	0.516
120.00	-12.47	-17.40	0.00	-538.23	0.00	538.23	2,024.90	1,012.45	2,278.43	1,140.91	52.58	-4.53	0.478
125.00	-9.74	-13.34	0.00	-451.23	0.00	451.23	1,944.05	972.03	2,099.13	1,051.12	57.46	-4.80	0.434
130.00	-9.14	-13.10	0.00	-384.54	0.00	384.54	1,863.20	931.60	1,927.17	965.02	62.63	-5.06	0.404
132.12	-8.88	-12.95	0.00	-356.76	0.00	356.76	1,828.92	914.46	1,856.49	929.62	64.89	-5.17	0.389
135.00	-6.11	-9.82	0.00	-319.45	0.00	319.45	1,782.35	891.17	1,762.57	882.59	68.05	-5.31	0.365
135.87	-5.98	-9.68	0.00	-310.91	0.00	310.91	993.95	496.97	1,000.68	501.09	69.03	-5.36	0.627
140.00	-5.18	-8.23	0.00	-265.39	0.00	265.39	969.84	484.92	940.01	470.70	73.74	-5.56	0.569
145.00	-4.80	-7.96	0.00	-224.22	0.00	224.22	939.35	469.68	867.78	434.53	79.74	-5.91	0.521
150.00	-4.32	-7.47	0.00	-184.44	0.00	184.44	907.44	453.72	797.07	399.13	86.10	-6.25	0.467
155.00	-3.98	-7.20	0.00	-147.11	0.00	147.11	874.09	437.05	728.06	364.57	92.81	-6.57	0.408
160.00	-3.66	-6.84	0.00	-111.11	0.00	111.11	839.33	419.66	660.97	330.98	99.84	-6.86	0.340
165.00	-3.38	-6.47	0.00	-76.90	0.00	76.90	800.44	400.22	593.98	297.43	107.14	-7.11	0.263
166.00	-2.38	-4.55	0.00	-70.43	0.00	70.43	790.74	395.37	579.60	290.23	108.64	-7.16	0.246
170.00	-2.20	-4.34	0.00	-52.21	0.00	52.21	751.93	375.97	523.82	262.30	114.69	-7.32	0.202
175.00	-1.98	-4.11	0.00	-30.50	0.00	30.50	703.42	351.71	458.07	229.37	122.43	-7.48	0.136
180.00	0.00	-3.82	0.00	-9.94	0.00	9.94	654.91	327.45	396.72	198.65	130.30	-7.58	0.050

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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 1.00 in Radial Ice 26 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 : 1.25
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		42.6	0.0					0.0	0.0	42.6	0.0	0.0	0.0
5.00		84.7	2,115.7					0.0	1,830.9	84.7	3,946.6	0.0	0.0
10.00		83.5	2,148.0					0.0	1,931.2	83.5	4,079.3	0.0	0.0
15.00		82.2	2,140.2					0.0	1,983.1	82.2	4,123.4	0.0	0.0
20.00		80.7	2,119.3					0.0	2,019.4	80.7	4,138.6	0.0	0.0
25.00		79.2	2,091.5					0.0	2,047.5	79.2	4,139.0	0.0	0.0
30.00	Appurtenance(s)	78.6	2,059.4	6.0	0.0	0.0	45.0	0.0	2,070.7	84.6	4,175.1	0.0	0.0
35.00		79.5	2,024.3					0.0	2,039.4	79.5	4,063.7	0.0	0.0
40.00		64.2	1,987.1					0.0	2,055.5	64.2	4,042.6	0.0	0.0
42.96	Bot - Section 2	41.0	1,158.9					0.0	1,222.2	41.0	2,381.1	0.0	0.0
45.00		50.7	1,230.2					0.0	847.5	50.7	2,077.7	0.0	0.0
49.04	Top - Section 1	41.8	2,396.3					0.0	1,681.8	41.8	4,078.2	0.0	0.0
50.00		50.2	338.4					0.0	400.9	50.2	739.3	0.0	0.0
55.00		84.4	1,733.2					0.0	2,094.5	84.4	3,827.7	0.0	0.0
60.00		84.5	1,695.4					0.0	2,105.4	84.5	3,800.8	0.0	0.0
65.00		84.5	1,656.7					0.0	2,115.4	84.5	3,772.2	0.0	0.0
70.00		84.2	1,617.3					35.4	2,124.8	119.7	3,742.2	0.0	0.0
75.00		75.5	1,577.3					36.3	2,133.7	111.8	3,711.0	0.0	0.0
79.00	Appurtenance(s)	41.8	1,234.2	1.5	0.0	0.0	7.0	29.7	1,712.9	72.9	2,954.1	0.0	0.0
80.00		49.8	305.6					7.5	428.9	57.3	734.4	0.0	0.0
85.00		62.4	1,495.7					38.0	2,148.9	100.3	3,644.6	0.0	0.0
87.54	Bot - Section 3	41.4	746.2					19.6	1,094.5	61.0	1,840.7	0.0	0.0
90.00		40.8	1,060.0					19.2	1,061.9	59.9	2,121.9	0.0	0.0
92.46	Top - Section 2	41.3	1,043.0					19.3	1,062.1	60.6	2,105.1	0.0	0.0
95.00		29.1	661.0					20.2	1,101.4	49.3	1,762.4	0.0	0.0
96.00	Appurtenance(s)	40.7	257.8	111.9	0.0	0.0	936.1	8.0	433.5	160.6	1,627.4	0.0	0.0
100.00		62.7	1,011.4					32.2	1,732.8	94.9	2,744.3	0.0	0.0
103.75	Reinf. Top	40.2	926.4					30.6	1,628.3	70.8	2,554.7	0.0	0.0
105.00	Appurtenance(s)	49.5	305.2	78.5	0.0	0.0	462.7	10.3	443.4	138.3	1,211.3	0.0	0.0
110.00		55.2	1,189.5					41.6	1,559.6	96.8	2,749.1	0.0	0.0
112.00	Appurtenance(s)	38.9	467.3	371.5	0.0	0.0	5,338.0	16.8	625.2	427.2	6,430.5	0.0	0.0
115.00		61.4	688.1					21.1	486.0	82.5	1,174.1	0.0	0.0
120.00		75.5	1,111.6					42.7	812.0	118.2	1,923.6	0.0	0.0
125.00	Appurtenance(s)	74.0	1,072.3	595.1	0.0	0.0	9,306.7	43.3	814.4	712.4	11,193.5	0.0	0.0
130.00		51.8	1,032.7					0.0	587.5	51.8	1,620.2	0.0	0.0
132.12	Bot - Section 4	36.0	428.2					0.0	249.5	36.0	677.7	0.0	0.0
135.00	Appurtenance(s)	26.9	748.4	504.2	0.0	0.0	7,794.8	0.0	339.4	531.1	8,882.5	0.0	0.0
135.87	Top - Section 3	35.3	223.2					0.0	98.7	35.3	321.9	0.0	0.0
140.00	Appurtenance(s)	63.5	638.8	292.8	0.0	1,706.6	2,252.7	0.0	469.3	356.3	3,360.8	0.0	0.0
145.00		67.8	742.9					0.0	536.0	67.8	1,278.9	0.0	0.0
150.00	Appurtenance(s)	65.9	711.4	64.9	0.0	0.0	332.7	0.0	537.3	130.8	1,581.4	0.0	0.0
155.00		63.8	679.7					0.0	533.6	63.8	1,213.3	0.0	0.0
160.00		61.8	647.8					0.0	534.8	61.8	1,182.6	0.0	0.0
165.00		36.3	615.8					23.9	536.0	60.2	1,151.7	0.0	0.0
166.00	Appurtenance(s)	29.3	120.9	345.5	0.0	0.0	3,929.3	4.8	107.3	379.6	4,157.5	0.0	0.0
170.00		51.5	465.9					0.0	95.7	51.5	561.6	0.0	0.0
175.00		55.2	551.2					0.0	119.6	55.2	670.8	0.0	0.0
180.00	Appurtenance(s)	27.0	518.7	720.2	0.0	1,689.9	8,560.0	0.0	119.6	747.3	9,198.2	0.0	0.0

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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 1.00 in Radial Ice 26 Iterations

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

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00
Ice Importance Factor : 1.25

Totals:	6,341.25	143,469.	0.00	0.00

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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 1.00 in Radial Ice 26 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 : 1.25
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	-143.47	-6.34	0.00	-837.04	0.00	837.04	5,102.86	2,551.43	10,963.2	5,489.79	0.00	0.00	0.135
5.00	-139.52	-6.34	0.00	-805.33	0.00	805.33	5,029.12	2,514.56	10,576.3	5,296.03	0.02	-0.03	0.133
10.00	-135.43	-6.34	0.00	-773.63	0.00	773.63	4,953.95	2,476.98	10,193.1	5,104.17	0.07	-0.07	0.132
15.00	-131.31	-6.33	0.00	-741.94	0.00	741.94	4,877.36	2,438.68	9,813.98	4,914.28	0.17	-0.10	0.130
20.00	-127.16	-6.32	0.00	-710.29	0.00	710.29	4,799.34	2,399.67	9,438.93	4,726.48	0.29	-0.14	0.128
25.00	-123.02	-6.31	0.00	-678.68	0.00	678.68	4,719.90	2,359.95	9,068.23	4,540.86	0.46	-0.18	0.126
30.00	-118.84	-6.29	0.00	-647.12	0.00	647.12	4,639.03	2,319.51	8,702.08	4,357.51	0.67	-0.22	0.124
35.00	-114.77	-6.27	0.00	-615.67	0.00	615.67	4,556.73	2,278.36	8,340.67	4,176.53	0.91	-0.25	0.122
40.00	-110.73	-6.25	0.00	-584.32	0.00	584.32	4,473.00	2,236.50	7,984.18	3,998.03	1.20	-0.29	0.120
42.96	-108.35	-6.23	0.00	-565.86	0.00	565.86	4,422.82	2,211.41	7,775.79	3,893.68	1.39	-0.31	0.119
45.00	-106.27	-6.21	0.00	-553.13	0.00	553.13	4,378.03	2,189.01	7,615.75	3,813.53	1.53	-0.33	0.117
49.04	-102.19	-6.18	0.00	-528.04	0.00	528.04	3,604.17	1,802.08	6,267.69	3,138.50	1.82	-0.36	0.130
50.00	-101.44	-6.17	0.00	-522.11	0.00	522.11	3,591.50	1,795.75	6,214.33	3,111.78	1.89	-0.37	0.129
55.00	-97.61	-6.13	0.00	-491.26	0.00	491.26	3,524.70	1,762.35	5,938.60	2,973.71	2.30	-0.41	0.126
60.00	-93.81	-6.08	0.00	-460.62	0.00	460.62	3,456.48	1,728.24	5,666.60	2,837.51	2.76	-0.45	0.122
65.00	-90.03	-6.03	0.00	-430.19	0.00	430.19	3,386.83	1,693.41	5,398.53	2,703.28	3.25	-0.50	0.118
70.00	-86.29	-5.94	0.00	-400.02	0.00	400.02	3,315.75	1,657.87	5,134.58	2,571.11	3.79	-0.54	0.114
75.00	-82.57	-5.85	0.00	-370.30	0.00	370.30	3,242.30	1,621.15	4,873.54	2,440.39	4.38	-0.58	0.110
79.00	-79.62	-5.78	0.00	-346.90	0.00	346.90	3,164.68	1,582.34	4,641.84	2,324.37	4.88	-0.61	0.107
80.00	-78.88	-5.75	0.00	-341.12	0.00	341.12	3,145.28	1,572.64	4,584.79	2,295.80	5.01	-0.62	0.106
85.00	-75.24	-5.64	0.00	-312.40	0.00	312.40	3,048.26	1,524.13	4,304.87	2,155.63	5.68	-0.66	0.102
87.54	-73.39	-5.59	0.00	-298.06	0.00	298.06	2,998.97	1,499.48	4,166.05	2,086.12	6.04	-0.68	0.100
90.00	-71.27	-5.53	0.00	-284.31	0.00	284.31	2,951.23	1,475.62	4,033.76	2,019.88	6.40	-0.70	0.097
92.46	-69.17	-5.47	0.00	-270.73	0.00	270.73	2,412.07	1,206.04	3,317.78	1,661.36	6.76	-0.72	0.105
95.00	-67.40	-5.41	0.00	-256.83	0.00	256.83	2,382.81	1,191.41	3,222.46	1,613.62	7.15	-0.74	0.102
96.00	-65.78	-5.25	0.00	-251.42	0.00	251.42	2,371.21	1,185.60	3,185.22	1,594.98	7.31	-0.75	0.100
100.00	-63.03	-5.16	0.00	-230.41	0.00	230.41	2,324.22	1,162.11	3,037.61	1,521.06	7.96	-0.78	0.095
103.75	-60.47	-5.07	0.00	-211.08	0.00	211.08	2,279.33	1,139.67	2,901.28	1,452.80	8.58	-0.81	0.090
103.75	-60.47	-5.07	0.00	-211.08	0.00	211.08	2,279.33	1,139.67	2,901.28	1,452.80	8.58	-0.81	0.172
105.00	-59.26	-4.96	0.00	-204.74	0.00	204.74	2,264.20	1,132.10	2,856.29	1,430.27	8.80	-0.82	0.169
110.00	-56.51	-4.87	0.00	-179.95	0.00	179.95	2,186.61	1,093.30	2,659.07	1,331.51	9.70	-0.90	0.161
112.00	-50.08	-4.38	0.00	-170.20	0.00	170.20	2,154.27	1,077.13	2,580.59	1,292.21	10.09	-0.93	0.155
115.00	-48.91	-4.32	0.00	-157.08	0.00	157.08	2,105.76	1,052.88	2,465.08	1,234.37	10.69	-0.97	0.150
120.00	-46.98	-4.23	0.00	-135.46	0.00	135.46	2,024.90	1,012.45	2,278.43	1,140.91	11.75	-1.05	0.142
125.00	-35.80	-3.35	0.00	-114.32	0.00	114.32	1,944.05	972.03	2,099.13	1,051.12	12.88	-1.11	0.127
130.00	-34.18	-3.29	0.00	-97.59	0.00	97.59	1,863.20	931.60	1,927.17	965.02	14.08	-1.18	0.119
132.12	-33.50	-3.26	0.00	-90.62	0.00	90.62	1,828.92	914.46	1,856.49	929.62	14.61	-1.21	0.116
135.00	-24.63	-2.55	0.00	-81.23	0.00	81.23	1,782.35	891.17	1,762.57	882.59	15.35	-1.24	0.106
135.87	-24.31	-2.52	0.00	-79.01	0.00	79.01	993.95	496.97	1,000.68	501.09	15.58	-1.26	0.182
140.00	-20.95	-2.11	0.00	-66.91	0.00	66.91	969.84	484.92	940.01	470.70	16.69	-1.31	0.164
145.00	-19.67	-2.04	0.00	-56.34	0.00	56.34	939.35	469.68	867.78	434.53	18.10	-1.39	0.151
150.00	-18.09	-1.90	0.00	-46.12	0.00	46.12	907.44	453.72	797.07	399.13	19.61	-1.48	0.136
155.00	-16.88	-1.83	0.00	-36.62	0.00	36.62	874.09	437.05	728.06	364.57	21.20	-1.56	0.120
160.00	-15.70	-1.75	0.00	-27.48	0.00	27.48	839.33	419.66	660.97	330.98	22.88	-1.63	0.102
165.00	-14.55	-1.67	0.00	-18.73	0.00	18.73	800.44	400.22	593.98	297.43	24.62	-1.69	0.081
166.00	-10.40	-1.17	0.00	-17.07	0.00	17.07	790.74	395.37	579.60	290.23	24.98	-1.71	0.072
170.00	-9.84	-1.11	0.00	-12.39	0.00	12.39	751.93	375.97	523.82	262.30	26.42	-1.74	0.060
175.00	-9.17	-1.03	0.00	-6.86	0.00	6.86	703.42	351.71	458.07	229.37	28.27	-1.78	0.043
180.00	0.00	-0.75	0.00	-1.69	0.00	1.69	654.91	327.45	396.72	198.65	30.15	-1.80	0.009

Site Number: 302506 Code: ANSI/TIA-222-G © 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: Winchester CT 3, CT Engineering Number: OAA714359_C3_02 7/30/2018 10:07:00 AM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.15

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		55.6	0.0					0.0	0.0	55.6	0.0	0.0	0.0
5.00		110.1	1,222.9					0.0	860.1	110.1	2,083.0	0.0	0.0
10.00		107.8	1,197.0					0.0	860.1	107.8	2,057.1	0.0	0.0
15.00		105.4	1,171.1					0.0	860.1	105.4	2,031.2	0.0	0.0
20.00		103.1	1,145.2					0.0	860.1	103.1	2,005.2	0.0	0.0
25.00		100.8	1,119.2					0.0	860.1	100.8	1,979.3	0.0	0.0
30.00	Appurtenance(s)	99.6	1,093.3	7.8	0.0	0.0	10.0	0.0	860.1	107.4	1,963.4	0.0	0.0
35.00		100.4	1,067.4					0.0	858.4	100.4	1,925.8	0.0	0.0
40.00		80.8	1,041.5					0.0	858.4	80.8	1,899.9	0.0	0.0
42.96	Bot - Section 2	51.5	603.6					0.0	507.6	51.5	1,111.2	0.0	0.0
45.00		63.7	771.7					0.0	350.8	63.7	1,122.5	0.0	0.0
49.04	Top - Section 1	52.4	1,502.0					0.0	693.6	52.4	2,195.6	0.0	0.0
50.00		62.6	164.3					0.0	164.8	62.6	329.2	0.0	0.0
55.00		105.1	842.5					0.0	858.4	105.1	1,700.9	0.0	0.0
60.00		104.9	820.3					0.0	858.4	104.9	1,678.7	0.0	0.0
65.00		148.4	798.0					0.0	858.4	148.4	1,656.5	0.0	0.0
70.00		191.3	775.8					39.1	858.4	230.5	1,634.3	0.0	0.0
75.00		170.8	753.6					39.9	858.4	210.7	1,612.0	0.0	0.0
79.00	Appurtenance(s)	94.3	586.9	0.9	0.0	0.0	0.6	32.5	686.7	127.7	1,274.2	0.0	0.0
80.00		111.9	144.5					8.2	171.5	120.1	316.0	0.0	0.0
85.00		139.9	709.2					41.4	857.7	181.3	1,566.8	0.0	0.0
87.54	Bot - Section 3	92.6	351.7					21.3	435.7	113.9	787.4	0.0	0.0
90.00		91.1	620.3					20.8	422.0	111.9	1,042.3	0.0	0.0
92.46	Top - Section 2	91.9	609.5					21.0	421.4	112.9	1,030.9	0.0	0.0
95.00		64.7	285.4					21.9	436.3	86.6	721.7	0.0	0.0
96.00	Appurtenance(s)	90.3	110.9	157.0	0.0	0.0	486.6	8.6	171.5	255.9	769.0	0.0	0.0
100.00		138.6	436.1					34.8	682.9	173.5	1,119.0	0.0	0.0
103.75	Reinf. Top	88.5	398.1					33.0	640.2	121.5	1,038.3	0.0	0.0
105.00	Appurtenance(s)	108.6	130.4	116.8	0.0	0.0	79.2	11.1	129.9	236.5	339.5	0.0	0.0
110.00		120.7	510.0					44.7	495.0	165.4	1,005.0	0.0	0.0
112.00	Appurtenance(s)	84.6	198.8	535.2	0.0	0.0	1,668.0	18.0	198.0	637.9	2,064.8	0.0	0.0
115.00		133.0	292.7					22.5	145.3	155.4	438.0	0.0	0.0
120.00		162.7	473.0					45.4	242.2	208.1	715.2	0.0	0.0
125.00	Appurtenance(s)	122.4	454.5	909.0	0.0	0.0	2,629.6	45.9	242.2	1,077.3	3,326.3	0.0	0.0
130.00		59.7	435.9					0.0	211.1	59.7	647.1	0.0	0.0
132.12	Bot - Section 4	41.2	179.2					0.0	89.5	41.2	268.7	0.0	0.0
135.00	Appurtenance(s)	30.8	384.0	769.2	0.0	0.0	2,857.1	0.0	121.6	800.0	3,362.7	0.0	0.0
135.87	Top - Section 3	40.1	114.0					0.0	33.5	40.1	147.5	0.0	0.0
140.00	Appurtenance(s)	71.7	201.1	314.2	0.0	1,543.7	629.0	0.0	159.1	385.9	989.2	0.0	0.0
145.00		75.9	233.3					0.0	164.8	75.9	398.1	0.0	0.0
150.00	Appurtenance(s)	72.9	222.2	56.3	0.0	0.0	158.3	0.0	164.8	129.2	545.3	0.0	0.0
155.00		69.9	211.1					0.0	160.7	69.9	371.8	0.0	0.0
160.00		94.3	200.0					0.0	160.7	94.3	360.7	0.0	0.0
165.00		71.8	188.9					24.9	160.7	96.7	349.6	0.0	0.0
166.00	Appurtenance(s)	36.3	36.4	455.0	0.0	0.0	1,285.3	5.0	32.1	496.3	1,353.9	0.0	0.0
170.00		53.9	141.3					0.0	79.7	53.9	221.0	0.0	0.0
175.00		56.8	166.6					0.0	99.6	56.8	266.3	0.0	0.0
180.00	Appurtenance(s)	27.6	155.5	1,033.1	0.0	2,759.9	2,521.3	0.0	99.6	1,060.6	2,776.5	0.0	0.0

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Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

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

Wind Importance Factor : 1.15

Totals:	9,247.60	58,598.9	0.00	0.00

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Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.15
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	-58.60	-9.21	0.00	-1,098.92	0.00	1,098.92	5,102.86	2,551.43	10,963.2	5,489.79	0.00	0.00	0.157
5.00	-56.51	-9.15	0.00	-1,052.84	0.00	1,052.84	5,029.12	2,514.56	10,576.3	5,296.03	0.02	-0.05	0.155
10.00	-54.44	-9.08	0.00	-1,007.10	0.00	1,007.10	4,953.95	2,476.98	10,193.1	5,104.17	0.10	-0.09	0.152
15.00	-52.40	-9.02	0.00	-961.69	0.00	961.69	4,877.36	2,438.68	9,813.98	4,914.28	0.22	-0.14	0.150
20.00	-50.39	-8.95	0.00	-916.62	0.00	916.62	4,799.34	2,399.67	9,438.93	4,726.48	0.38	-0.18	0.147
25.00	-48.40	-8.88	0.00	-871.88	0.00	871.88	4,719.90	2,359.95	9,068.23	4,540.86	0.60	-0.23	0.145
30.00	-46.43	-8.80	0.00	-827.48	0.00	827.48	4,639.03	2,319.51	8,702.08	4,357.51	0.87	-0.28	0.142
35.00	-44.50	-8.73	0.00	-783.47	0.00	783.47	4,556.73	2,278.36	8,340.67	4,176.53	1.19	-0.33	0.139
40.00	-42.60	-8.67	0.00	-739.82	0.00	739.82	4,473.00	2,236.50	7,984.18	3,998.03	1.56	-0.38	0.135
42.96	-41.48	-8.62	0.00	-714.20	0.00	714.20	4,422.82	2,211.41	7,775.79	3,893.68	1.80	-0.40	0.133
45.00	-40.35	-8.57	0.00	-696.58	0.00	696.58	4,378.03	2,189.01	7,615.75	3,813.53	1.98	-0.43	0.131
49.04	-38.16	-8.52	0.00	-661.94	0.00	661.94	3,604.17	1,802.08	6,267.69	3,138.50	2.35	-0.46	0.145
50.00	-37.82	-8.48	0.00	-653.76	0.00	653.76	3,591.50	1,795.75	6,214.33	3,111.78	2.45	-0.47	0.144
55.00	-36.12	-8.39	0.00	-611.38	0.00	611.38	3,524.70	1,762.35	5,938.60	2,973.71	2.97	-0.53	0.139
60.00	-34.43	-8.30	0.00	-569.43	0.00	569.43	3,456.48	1,728.24	5,666.60	2,837.51	3.55	-0.58	0.134
65.00	-32.77	-8.16	0.00	-527.93	0.00	527.93	3,386.83	1,693.41	5,398.53	2,703.28	4.19	-0.63	0.129
70.00	-31.13	-7.94	0.00	-487.12	0.00	487.12	3,315.75	1,657.87	5,134.58	2,571.11	4.87	-0.68	0.124
75.00	-29.51	-7.73	0.00	-447.42	0.00	447.42	3,242.30	1,621.15	4,873.54	2,440.39	5.62	-0.73	0.118
79.00	-28.24	-7.60	0.00	-416.48	0.00	416.48	3,164.68	1,582.34	4,641.84	2,324.37	6.25	-0.77	0.114
80.00	-27.92	-7.49	0.00	-408.88	0.00	408.88	3,145.28	1,572.64	4,584.79	2,295.80	6.41	-0.78	0.113
85.00	-26.35	-7.31	0.00	-371.42	0.00	371.42	3,048.26	1,524.13	4,304.87	2,155.63	7.26	-0.83	0.107
87.54	-25.56	-7.19	0.00	-352.86	0.00	352.86	2,998.97	1,499.48	4,166.05	2,086.12	7.71	-0.86	0.104
90.00	-24.52	-7.07	0.00	-335.17	0.00	335.17	2,951.23	1,475.62	4,033.76	2,019.88	8.15	-0.88	0.100
92.46	-23.49	-6.95	0.00	-317.79	0.00	317.79	2,412.07	1,206.04	3,317.78	1,661.36	8.61	-0.90	0.109
95.00	-22.77	-6.86	0.00	-300.11	0.00	300.11	2,382.81	1,191.41	3,222.46	1,613.62	9.10	-0.93	0.105
96.00	-22.00	-6.60	0.00	-293.24	0.00	293.24	2,371.21	1,185.60	3,185.22	1,594.98	9.30	-0.94	0.103
100.00	-20.88	-6.43	0.00	-266.83	0.00	266.83	2,324.22	1,162.11	3,037.61	1,521.06	10.10	-0.98	0.097
103.75	-19.84	-6.29	0.00	-242.73	0.00	242.73	2,279.33	1,139.67	2,901.28	1,452.80	10.88	-1.01	0.091
103.75	-19.84	-6.29	0.00	-242.73	0.00	242.73	2,279.33	1,139.67	2,901.28	1,452.80	10.88	-1.01	0.176
105.00	-19.50	-6.07	0.00	-234.87	0.00	234.87	2,264.20	1,132.10	2,856.29	1,430.27	11.15	-1.02	0.173
110.00	-18.49	-5.90	0.00	-204.53	0.00	204.53	2,186.61	1,093.30	2,659.07	1,331.51	12.26	-1.11	0.162
112.00	-16.43	-5.24	0.00	-192.72	0.00	192.72	2,154.27	1,077.13	2,580.59	1,292.21	12.73	-1.14	0.157
115.00	-15.99	-5.09	0.00	-177.01	0.00	177.01	2,105.76	1,052.88	2,465.08	1,234.37	13.47	-1.19	0.151
120.00	-15.28	-4.89	0.00	-151.56	0.00	151.56	2,024.90	1,012.45	2,278.43	1,140.91	14.76	-1.27	0.140
125.00	-11.97	-3.75	0.00	-127.12	0.00	127.12	1,944.05	972.03	2,099.13	1,051.12	16.13	-1.35	0.127
130.00	-11.32	-3.69	0.00	-108.36	0.00	108.36	1,863.20	931.60	1,927.17	965.02	17.59	-1.42	0.118
132.12	-11.05	-3.64	0.00	-100.55	0.00	100.55	1,828.92	914.46	1,856.49	929.62	18.23	-1.45	0.114
135.00	-7.71	-2.76	0.00	-90.05	0.00	90.05	1,782.35	891.17	1,762.57	882.59	19.11	-1.49	0.106
135.87	-7.56	-2.72	0.00	-87.65	0.00	87.65	993.95	496.97	1,000.68	501.09	19.39	-1.51	0.183
140.00	-6.58	-2.32	0.00	-74.86	0.00	74.86	969.84	484.92	940.01	470.70	20.71	-1.56	0.166
145.00	-6.18	-2.24	0.00	-63.27	0.00	63.27	939.35	469.68	867.78	434.53	22.40	-1.66	0.152
150.00	-5.64	-2.11	0.00	-52.05	0.00	52.05	907.44	453.72	797.07	399.13	24.20	-1.76	0.137
155.00	-5.26	-2.03	0.00	-41.52	0.00	41.52	874.09	437.05	728.06	364.57	26.08	-1.85	0.120
160.00	-4.90	-1.93	0.00	-31.35	0.00	31.35	839.33	419.66	660.97	330.98	28.06	-1.93	0.101
165.00	-4.56	-1.83	0.00	-21.68	0.00	21.68	800.44	400.22	593.98	297.43	30.12	-2.00	0.079
166.00	-3.22	-1.29	0.00	-19.86	0.00	19.86	790.74	395.37	579.60	290.23	30.55	-2.01	0.072
170.00	-3.00	-1.23	0.00	-14.71	0.00	14.71	751.93	375.97	523.82	262.30	32.25	-2.06	0.060
175.00	-2.74	-1.16	0.00	-8.57	0.00	8.57	703.42	351.71	458.07	229.37	34.43	-2.10	0.041
180.00	0.00	-1.06	0.00	-2.76	0.00	2.76	654.91	327.45	396.72	198.65	36.65	-2.13	0.014

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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):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.50	
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}):	0.19	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.04	
Upper Limit C_s	0.04	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.66	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	58.60	k
Seismic Base Shear (E):	2.98	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)
47	177.50	255	8,040	0.015	46	316
46	172.50	266	7,924	0.015	45	330
45	168.00	221	6,238	0.012	36	274
44	165.50	69	1,879	0.004	11	85
43	162.50	350	9,232	0.018	53	433
42	157.50	361	8,948	0.017	51	446
41	152.50	372	8,647	0.017	49	460
40	147.50	387	8,420	0.016	48	479
39	142.50	398	8,085	0.015	46	493
38	137.93	360	6,853	0.013	39	446
37	135.43	148	2,706	0.005	15	183
36	133.56	506	9,020	0.017	51	626
35	131.06	269	4,616	0.009	26	333
34	127.50	647	10,519	0.020	60	801
33	122.50	697	10,455	0.020	60	862
32	117.50	715	9,874	0.019	56	885
31	113.50	438	5,643	0.011	32	542
30	111.00	397	4,889	0.009	28	491
29	107.50	1,005	11,614	0.022	66	1,244
28	104.38	260	2,836	0.005	16	322
27	101.88	1,038	10,776	0.021	61	1,285
26	98.00	1,119	10,747	0.021	61	1,385
25	95.50	282	2,576	0.005	15	350

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24	93.73	722	6,340	0.012	36	893
23	91.23	1,031	8,580	0.016	49	1,276
22	88.77	1,042	8,213	0.016	47	1,290
21	86.27	787	5,860	0.011	33	975
20	82.50	1,567	10,664	0.020	61	1,939
19	79.50	316	1,997	0.004	11	391
18	77.00	1,274	7,551	0.014	43	1,576
17	72.50	1,612	8,473	0.016	48	1,995
16	67.50	1,634	7,446	0.014	42	2,023
15	62.50	1,656	6,471	0.012	37	2,050
14	57.50	1,679	5,550	0.011	32	2,078
13	52.50	1,701	4,688	0.009	27	2,105
12	49.52	329	807	0.002	5	407
11	47.02	2,196	4,854	0.009	28	2,718
10	43.98	1,123	2,171	0.004	12	1,389
9	41.48	1,111	1,912	0.004	11	1,375
8	37.50	1,900	2,672	0.005	15	2,352
7	32.50	1,926	2,034	0.004	12	2,384
6	27.50	1,953	1,477	0.003	8	2,418
5	22.50	1,979	1,002	0.002	6	2,450
4	17.50	2,005	614	0.001	3	2,482
3	12.50	2,031	317	0.001	2	2,514
2	7.50	2,057	116	0.000	1	2,546
1	2.50	2,083	13	0.000	0	2,578
Andrew ABT-DMDF-ADBH	180.00	1	36	0.000	0	1
Powerwave Allgon TT1	180.00	48	1,555	0.003	9	59
4' Omni	180.00	10	324	0.001	2	12
Powerwave Allgon LGP	180.00	42	1,371	0.003	8	52
Raycap DC6-48-60-18-	180.00	40	1,296	0.002	7	50
Ericsson RRUS 11 (Ba	180.00	150	4,860	0.009	28	186
Ericsson RRUS 32 (50	180.00	152	4,938	0.009	28	189
Ericsson RRUS-12 B2	180.00	174	5,638	0.011	32	215
Powerwave Allgon 777	180.00	105	3,402	0.007	19	130
KMW AM-X-CD-16-65-00	180.00	146	4,714	0.009	27	180
CCI HPA-65R-BUU-H6	180.00	153	4,957	0.009	28	189
Flat Low Profile Pla	180.00	1,500	48,600	0.093	277	1,857
Ericsson KRY 112 144	166.00	33	909	0.002	5	41
Fastback Networks In	166.00	9	242	0.000	1	11
Ericsson AIR 21, 1.3	166.00	249	6,861	0.013	39	308
Ericsson AIR 21, 1.3	166.00	244	6,737	0.013	38	303
Round T-Arm	166.00	750	20,667	0.040	118	928
Sinclair SD210-SF2P4	150.00	8	187	0.000	1	10
Round Side Arm	150.00	150	3,375	0.006	19	186
Telewave ANT150D (5	140.00	5	98	0.000	1	6
Bird 432-83H-01-T	140.00	50	980	0.002	6	62
Decibel DB809K-XT	140.00	90	1,764	0.003	10	111
Sinclair SC432D-HF6L	140.00	34	666	0.001	4	42
Round Side Arm	140.00	450	8,820	0.017	50	557
Alcatel-Lucent 800 M	135.00	185	3,379	0.006	19	229
Alcatel-Lucent 1900M	135.00	132	2,406	0.005	14	163
Alcatel-Lucent TD-RR	135.00	210	3,827	0.007	22	260
RFS APXVTM14-C-I20	135.00	159	2,892	0.006	16	196
RFS APXVSPP18-C-A20	135.00	171	3,116	0.006	18	212
Flat Platform w/ Han	135.00	2,000	36,450	0.070	208	2,476
Nokia B5 RRH4x40-850	125.00	146	2,273	0.004	13	180
Alcatel-Lucent B25 R	125.00	159	2,484	0.005	14	197
Alcatel-Lucent RRH2x	125.00	170	2,658	0.005	15	211
RFS DB-B1-6C-12AB-0Z	125.00	21	334	0.001	2	26
Alcatel-Lucent B66a	125.00	201	3,141	0.006	18	249
Antel LPA-80080/6CF	125.00	42	656	0.001	4	52
Commscope JAHH-65B-R	125.00	364	5,681	0.011	32	450
Antel LPA-80063/6CF	125.00	27	422	0.001	2	33
Round Low Profile Pl	125.00	1,500	23,438	0.045	134	1,857
Decibel DB844H90E-XY	112.00	168	2,107	0.004	12	208

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Round Low Profile Pl	112.00	1,500	18,816	0.036	107	1,857
RFS APXV18-206517S-C	105.00	79	873	0.002	5	98
Andrew DB586	96.00	17	153	0.000	1	21
Bird 429-83H-01-T	96.00	20	184	0.000	1	25
Flat Side Arm	96.00	450	4,147	0.008	24	557
PCTEL GPS-TMG-HR-26N	79.00	1	4	0.000	0	1
GPS	30.00	10	9	0.000	0	12
		58,599	522,811	1.000	2,980	72,531

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)
47	177.50	255	8,040	0.015	46	220
46	172.50	266	7,924	0.015	45	230
45	168.00	221	6,238	0.012	36	191
44	165.50	69	1,879	0.004	11	59
43	162.50	350	9,232	0.018	53	301
42	157.50	361	8,948	0.017	51	311
41	152.50	372	8,647	0.017	49	321
40	147.50	387	8,420	0.016	48	334
39	142.50	398	8,085	0.015	46	343
38	137.93	360	6,853	0.013	39	311
37	135.43	148	2,706	0.005	15	127
36	133.56	506	9,020	0.017	51	436
35	131.06	269	4,616	0.009	26	232
34	127.50	647	10,519	0.020	60	558
33	122.50	697	10,455	0.020	60	601
32	117.50	715	9,874	0.019	56	617
31	113.50	438	5,643	0.011	32	378
30	111.00	397	4,889	0.009	28	342
29	107.50	1,005	11,614	0.022	66	867
28	104.38	260	2,836	0.005	16	224
27	101.88	1,038	10,776	0.021	61	895
26	98.00	1,119	10,747	0.021	61	965
25	95.50	282	2,576	0.005	15	244
24	93.73	722	6,340	0.012	36	622
23	91.23	1,031	8,580	0.016	49	889
22	88.77	1,042	8,213	0.016	47	899
21	86.27	787	5,860	0.011	33	679
20	82.50	1,567	10,664	0.020	61	1,351
19	79.50	316	1,997	0.004	11	272
18	77.00	1,274	7,551	0.014	43	1,098
17	72.50	1,612	8,473	0.016	48	1,390
16	67.50	1,634	7,446	0.014	42	1,409
15	62.50	1,656	6,471	0.012	37	1,428
14	57.50	1,679	5,550	0.011	32	1,447
13	52.50	1,701	4,688	0.009	27	1,467
12	49.52	329	807	0.002	5	284
11	47.02	2,196	4,854	0.009	28	1,893
10	43.98	1,123	2,171	0.004	12	968
9	41.48	1,111	1,912	0.004	11	958
8	37.50	1,900	2,672	0.005	15	1,638
7	32.50	1,926	2,034	0.004	12	1,661
6	27.50	1,953	1,477	0.003	8	1,684
5	22.50	1,979	1,002	0.002	6	1,707
4	17.50	2,005	614	0.001	3	1,729
3	12.50	2,031	317	0.001	2	1,751
2	7.50	2,057	116	0.000	1	1,774
1	2.50	2,083	13	0.000	0	1,796

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Andrew ABT-DMDF-ADBH	180.00	1	36	0.000	0	1
Powerwave Allgon TT1	180.00	48	1,555	0.003	9	41
4' Omni	180.00	10	324	0.001	2	9
Powerwave Allgon LGP	180.00	42	1,371	0.003	8	36
Raycap DC6-48-60-18-	180.00	40	1,296	0.002	7	34
Ericsson RRUS 11 (Ba	180.00	150	4,860	0.009	28	129
Ericsson RRUS 32 (50	180.00	152	4,938	0.009	28	131
Ericsson RRUS-12 B2	180.00	174	5,638	0.011	32	150
Powerwave Allgon 777	180.00	105	3,402	0.007	19	91
KMW AM-X-CD-16-65-00	180.00	146	4,714	0.009	27	125
CCI HPA-65R-BUU-H6	180.00	153	4,957	0.009	28	132
Flat Low Profile Pla	180.00	1,500	48,600	0.093	277	1,293
Ericsson KRY 112 144	166.00	33	909	0.002	5	28
Fastback Networks In	166.00	9	242	0.000	1	8
Ericsson AIR 21, 1.3	166.00	249	6,861	0.013	39	215
Ericsson AIR 21, 1.3	166.00	244	6,737	0.013	38	211
Round T-Arm	166.00	750	20,667	0.040	118	647
Sinclair SD210-SF2P4	150.00	8	187	0.000	1	7
Round Side Arm	150.00	150	3,375	0.006	19	129
Telewave ANT150D (5	140.00	5	98	0.000	1	4
Bird 432-83H-01-T	140.00	50	980	0.002	6	43
Decibel DB809K-XT	140.00	90	1,764	0.003	10	78
Sinclair SC432D-HF6L	140.00	34	666	0.001	4	29
Round Side Arm	140.00	450	8,820	0.017	50	388
Alcatel-Lucent 800 M	135.00	185	3,379	0.006	19	160
Alcatel-Lucent 1900M	135.00	132	2,406	0.005	14	114
Alcatel-Lucent TD-RR	135.00	210	3,827	0.007	22	181
RFS APXVTM14-C-I20	135.00	159	2,892	0.006	16	137
RFS APXVSPP18-C-A20	135.00	171	3,116	0.006	18	147
Flat Platform w/ Han	135.00	2,000	36,450	0.070	208	1,724
Nokia B5 RRH4x40-850	125.00	146	2,273	0.004	13	125
Alcatel-Lucent B25 R	125.00	159	2,484	0.005	14	137
Alcatel-Lucent RRH2x	125.00	170	2,658	0.005	15	147
RFS DB-B1-6C-12AB-0Z	125.00	21	334	0.001	2	18
Alcatel-Lucent B66a	125.00	201	3,141	0.006	18	173
Antel LPA-80080/6CF	125.00	42	656	0.001	4	36
Commscope JAHH-65B-R	125.00	364	5,681	0.011	32	314
Antel LPA-80063/6CF	125.00	27	422	0.001	2	23
Round Low Profile Pl	125.00	1,500	23,438	0.045	134	1,293
Decibel DB844H90E-XY	112.00	168	2,107	0.004	12	145
Round Low Profile Pl	112.00	1,500	18,816	0.036	107	1,293
RFS APXV18-206517S-C	105.00	79	873	0.002	5	68
Andrew DB586	96.00	17	153	0.000	1	14
Bird 429-83H-01-T	96.00	20	184	0.000	1	17
Flat Side Arm	96.00	450	4,147	0.008	24	388
PCTEL GPS-TMG-HR-26N	79.00	1	4	0.000	0	1
GPS	30.00	10	9	0.000	0	9
		58,599	522,811	1.000	2,980	50,526

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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	-69.95	-2.99	0.00	-404.00	0.00	404.00	5,102.86	2,551.43	10,963.2	5,489.79	0.00	0.00	0.065
5.00	-67.41	-3.01	0.00	-389.06	0.00	389.06	5,029.12	2,514.56	10,576.3	5,296.03	0.01	-0.02	0.064
10.00	-64.89	-3.02	0.00	-374.02	0.00	374.02	4,953.95	2,476.98	10,193.1	5,104.17	0.04	-0.03	0.064
15.00	-62.41	-3.04	0.00	-358.90	0.00	358.90	4,877.36	2,438.68	9,813.98	4,914.28	0.08	-0.05	0.063
20.00	-59.96	-3.05	0.00	-343.71	0.00	343.71	4,799.34	2,399.67	9,438.93	4,726.48	0.14	-0.07	0.062
25.00	-57.54	-3.05	0.00	-328.48	0.00	328.48	4,719.90	2,359.95	9,068.23	4,540.86	0.22	-0.09	0.061
30.00	-55.14	-3.06	0.00	-313.21	0.00	313.21	4,639.03	2,319.51	8,702.08	4,357.51	0.32	-0.10	0.060
35.00	-52.79	-3.05	0.00	-297.93	0.00	297.93	4,556.73	2,278.36	8,340.67	4,176.53	0.44	-0.12	0.059
40.00	-51.41	-3.05	0.00	-282.66	0.00	282.66	4,473.00	2,236.50	7,984.18	3,998.03	0.58	-0.14	0.058
42.96	-50.02	-3.04	0.00	-273.64	0.00	273.64	4,422.82	2,211.41	7,775.79	3,893.68	0.67	-0.15	0.057
45.00	-47.30	-3.02	0.00	-267.42	0.00	267.42	4,378.03	2,189.01	7,615.75	3,813.53	0.74	-0.16	0.056
49.04	-46.90	-3.02	0.00	-255.22	0.00	255.22	3,604.17	1,802.08	6,267.69	3,138.50	0.88	-0.18	0.062
50.00	-44.79	-3.00	0.00	-252.32	0.00	252.32	3,591.50	1,795.75	6,214.33	3,111.78	0.92	-0.18	0.062
55.00	-42.71	-2.97	0.00	-237.33	0.00	237.33	3,524.70	1,762.35	5,938.60	2,973.71	1.11	-0.20	0.060
60.00	-40.66	-2.94	0.00	-222.47	0.00	222.47	3,456.48	1,728.24	5,666.60	2,837.51	1.33	-0.22	0.058
65.00	-38.64	-2.91	0.00	-207.75	0.00	207.75	3,386.83	1,693.41	5,398.53	2,703.28	1.57	-0.24	0.056
70.00	-36.64	-2.86	0.00	-193.21	0.00	193.21	3,315.75	1,657.87	5,134.58	2,571.11	1.83	-0.26	0.054
75.00	-35.06	-2.82	0.00	-178.90	0.00	178.90	3,242.30	1,621.15	4,873.54	2,440.39	2.12	-0.28	0.052
79.00	-34.67	-2.82	0.00	-167.61	0.00	167.61	3,164.68	1,582.34	4,641.84	2,324.37	2.36	-0.30	0.051
80.00	-32.73	-2.75	0.00	-164.79	0.00	164.79	3,145.28	1,572.64	4,584.79	2,295.80	2.42	-0.30	0.050
85.00	-31.76	-2.72	0.00	-151.03	0.00	151.03	3,048.26	1,524.13	4,304.87	2,155.63	2.75	-0.32	0.048
87.54	-30.47	-2.67	0.00	-144.12	0.00	144.12	2,998.97	1,499.48	4,166.05	2,086.12	2.92	-0.33	0.047
90.00	-29.19	-2.62	0.00	-137.54	0.00	137.54	2,951.23	1,475.62	4,033.76	2,019.88	3.09	-0.34	0.045
92.46	-28.30	-2.58	0.00	-131.10	0.00	131.10	2,412.07	1,206.04	3,317.78	1,661.36	3.27	-0.35	0.050
95.00	-27.95	-2.57	0.00	-124.53	0.00	124.53	2,382.81	1,191.41	3,222.46	1,613.62	3.46	-0.36	0.048
96.00	-25.96	-2.48	0.00	-121.95	0.00	121.95	2,371.21	1,185.60	3,185.22	1,594.98	3.53	-0.36	0.047
100.00	-24.67	-2.41	0.00	-112.05	0.00	112.05	2,324.22	1,162.11	3,037.61	1,521.06	3.85	-0.38	0.045
103.75	-24.35	-2.40	0.00	-103.00	0.00	103.00	2,279.33	1,139.67	2,901.28	1,452.80	4.15	-0.39	0.043
103.75	-24.35	-2.40	0.00	-103.00	0.00	103.00	2,279.33	1,139.67	2,901.28	1,452.80	4.15	-0.39	0.082
105.00	-23.01	-2.33	0.00	-100.00	0.00	100.00	2,264.20	1,132.10	2,856.29	1,430.27	4.25	-0.40	0.080
110.00	-22.52	-2.31	0.00	-88.36	0.00	88.36	2,186.61	1,093.30	2,659.07	1,331.51	4.69	-0.44	0.077
112.00	-19.91	-2.14	0.00	-83.75	0.00	83.75	2,154.27	1,077.13	2,580.59	1,292.21	4.88	-0.45	0.074
115.00	-19.03	-2.09	0.00	-77.32	0.00	77.32	2,105.76	1,052.88	2,465.08	1,234.37	5.17	-0.47	0.072
120.00	-18.16	-2.03	0.00	-66.89	0.00	66.89	2,024.90	1,012.45	2,278.43	1,140.91	5.68	-0.51	0.068
125.00	-14.11	-1.71	0.00	-56.73	0.00	56.73	1,944.05	972.03	2,099.13	1,051.12	6.23	-0.54	0.061
130.00	-13.78	-1.68	0.00	-48.19	0.00	48.19	1,863.20	931.60	1,927.17	965.02	6.82	-0.57	0.057
132.12	-13.15	-1.63	0.00	-44.62	0.00	44.62	1,828.92	914.46	1,856.49	929.62	7.08	-0.59	0.055
135.00	-9.43	-1.28	0.00	-39.93	0.00	39.93	1,782.35	891.17	1,762.57	882.59	7.44	-0.61	0.051
135.87	-8.99	-1.24	0.00	-38.82	0.00	38.82	993.95	496.97	1,000.68	501.09	7.55	-0.61	0.087
140.00	-7.72	-1.11	0.00	-33.70	0.00	33.70	969.84	484.92	940.01	470.70	8.09	-0.64	0.080
145.00	-7.24	-1.07	0.00	-28.13	0.00	28.13	939.35	469.68	867.78	434.53	8.78	-0.68	0.072
150.00	-6.58	-0.99	0.00	-22.79	0.00	22.79	907.44	453.72	797.07	399.13	9.51	-0.72	0.064
155.00	-6.14	-0.94	0.00	-17.83	0.00	17.83	874.09	437.05	728.06	364.57	10.29	-0.76	0.056
160.00	-5.70	-0.89	0.00	-13.12	0.00	13.12	839.33	419.66	660.97	330.98	11.11	-0.80	0.046
165.00	-5.62	-0.88	0.00	-8.70	0.00	8.70	800.44	400.22	593.98	297.43	11.96	-0.83	0.036
166.00	-3.76	-0.61	0.00	-7.82	0.00	7.82	790.74	395.37	579.60	290.23	12.13	-0.83	0.032
170.00	-3.43	-0.56	0.00	-5.38	0.00	5.38	751.93	375.97	523.82	262.30	12.84	-0.85	0.025
175.00	-3.11	-0.51	0.00	-2.56	0.00	2.56	703.42	351.71	458.07	229.37	13.74	-0.86	0.016
180.00	0.00	-0.47	0.00	0.00	0.00	0.00	654.91	327.45	396.72	198.65	14.65	-0.87	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	-48.73	-2.99	0.00	-397.15	0.00	397.15	5,102.86	2,551.43	10,963.2	5,489.79	0.00	0.00	0.061
5.00	-46.96	-3.00	0.00	-382.22	0.00	382.22	5,029.12	2,514.56	10,576.3	5,296.03	0.01	-0.02	0.060
10.00	-45.20	-3.01	0.00	-367.23	0.00	367.23	4,953.95	2,476.98	10,193.1	5,104.17	0.03	-0.03	0.060
15.00	-43.47	-3.02	0.00	-352.19	0.00	352.19	4,877.36	2,438.68	9,813.98	4,914.28	0.08	-0.05	0.059
20.00	-41.77	-3.02	0.00	-337.10	0.00	337.10	4,799.34	2,399.67	9,438.93	4,726.48	0.14	-0.07	0.058
25.00	-40.08	-3.02	0.00	-321.99	0.00	321.99	4,719.90	2,359.95	9,068.23	4,540.86	0.22	-0.08	0.057
30.00	-38.41	-3.02	0.00	-306.87	0.00	306.87	4,639.03	2,319.51	8,702.08	4,357.51	0.32	-0.10	0.056
35.00	-36.77	-3.01	0.00	-291.76	0.00	291.76	4,556.73	2,278.36	8,340.67	4,176.53	0.43	-0.12	0.055
40.00	-35.81	-3.01	0.00	-276.69	0.00	276.69	4,473.00	2,236.50	7,984.18	3,998.03	0.57	-0.14	0.054
42.96	-34.84	-3.00	0.00	-267.79	0.00	267.79	4,422.82	2,211.41	7,775.79	3,893.68	0.66	-0.15	0.053
45.00	-32.95	-2.98	0.00	-261.66	0.00	261.66	4,378.03	2,189.01	7,615.75	3,813.53	0.72	-0.16	0.052
49.04	-32.67	-2.98	0.00	-249.64	0.00	249.64	3,604.17	1,802.08	6,267.69	3,138.50	0.86	-0.17	0.058
50.00	-31.20	-2.95	0.00	-246.78	0.00	246.78	3,591.50	1,795.75	6,214.33	3,111.78	0.90	-0.18	0.058
55.00	-29.75	-2.92	0.00	-232.03	0.00	232.03	3,524.70	1,762.35	5,938.60	2,973.71	1.09	-0.19	0.056
60.00	-28.32	-2.89	0.00	-217.41	0.00	217.41	3,456.48	1,728.24	5,666.60	2,837.51	1.31	-0.21	0.054
65.00	-26.91	-2.85	0.00	-202.95	0.00	202.95	3,386.83	1,693.41	5,398.53	2,703.28	1.54	-0.23	0.053
70.00	-25.52	-2.81	0.00	-188.68	0.00	188.68	3,315.75	1,657.87	5,134.58	2,571.11	1.80	-0.25	0.051
75.00	-24.42	-2.77	0.00	-174.64	0.00	174.64	3,242.30	1,621.15	4,873.54	2,440.39	2.08	-0.27	0.049
79.00	-24.15	-2.76	0.00	-163.57	0.00	163.57	3,164.68	1,582.34	4,641.84	2,324.37	2.31	-0.29	0.048
80.00	-22.80	-2.70	0.00	-160.81	0.00	160.81	3,145.28	1,572.64	4,584.79	2,295.80	2.37	-0.29	0.047
85.00	-22.12	-2.66	0.00	-147.33	0.00	147.33	3,048.26	1,524.13	4,304.87	2,155.63	2.69	-0.31	0.045
87.54	-21.22	-2.62	0.00	-140.57	0.00	140.57	2,998.97	1,499.48	4,166.05	2,086.12	2.86	-0.32	0.044
90.00	-20.33	-2.57	0.00	-134.13	0.00	134.13	2,951.23	1,475.62	4,033.76	2,019.88	3.03	-0.33	0.043
92.46	-19.71	-2.53	0.00	-127.83	0.00	127.83	2,412.07	1,206.04	3,317.78	1,661.36	3.20	-0.34	0.046
95.00	-19.46	-2.52	0.00	-121.39	0.00	121.39	2,382.81	1,191.41	3,222.46	1,613.62	3.39	-0.35	0.045
96.00	-18.08	-2.42	0.00	-118.88	0.00	118.88	2,371.21	1,185.60	3,185.22	1,594.98	3.46	-0.36	0.044
100.00	-17.18	-2.36	0.00	-109.19	0.00	109.19	2,324.22	1,162.11	3,037.61	1,521.06	3.77	-0.37	0.042
103.75	-16.96	-2.35	0.00	-100.33	0.00	100.33	2,279.33	1,139.67	2,901.28	1,452.80	4.07	-0.39	0.040
103.75	-16.96	-2.35	0.00	-100.33	0.00	100.33	2,279.33	1,139.67	2,901.28	1,452.80	4.07	-0.39	0.077
105.00	-16.02	-2.27	0.00	-97.40	0.00	97.40	2,264.20	1,132.10	2,856.29	1,430.27	4.17	-0.39	0.075
110.00	-15.68	-2.25	0.00	-86.03	0.00	86.03	2,186.61	1,093.30	2,659.07	1,331.51	4.59	-0.43	0.072
112.00	-13.87	-2.09	0.00	-81.53	0.00	81.53	2,154.27	1,077.13	2,580.59	1,292.21	4.78	-0.44	0.070
115.00	-13.25	-2.04	0.00	-75.26	0.00	75.26	2,105.76	1,052.88	2,465.08	1,234.37	5.06	-0.46	0.067
120.00	-12.65	-1.98	0.00	-65.09	0.00	65.09	2,024.90	1,012.45	2,278.43	1,140.91	5.56	-0.50	0.063
125.00	-9.82	-1.66	0.00	-55.20	0.00	55.20	1,944.05	972.03	2,099.13	1,051.12	6.10	-0.53	0.058
130.00	-9.59	-1.64	0.00	-46.88	0.00	46.88	1,863.20	931.60	1,927.17	965.02	6.67	-0.56	0.054
132.12	-9.16	-1.59	0.00	-43.40	0.00	43.40	1,828.92	914.46	1,856.49	929.62	6.92	-0.57	0.052
135.00	-6.57	-1.25	0.00	-38.83	0.00	38.83	1,782.35	891.17	1,762.57	882.59	7.28	-0.59	0.048
135.87	-6.26	-1.21	0.00	-37.75	0.00	37.75	993.95	496.97	1,000.68	501.09	7.38	-0.60	0.082
140.00	-5.37	-1.09	0.00	-32.76	0.00	32.76	969.84	484.92	940.01	470.70	7.91	-0.62	0.075
145.00	-5.04	-1.04	0.00	-27.33	0.00	27.33	939.35	469.68	867.78	434.53	8.58	-0.66	0.068
150.00	-4.58	-0.97	0.00	-22.14	0.00	22.14	907.44	453.72	797.07	399.13	9.30	-0.71	0.061
155.00	-4.27	-0.91	0.00	-17.31	0.00	17.31	874.09	437.05	728.06	364.57	10.06	-0.74	0.052
160.00	-3.97	-0.86	0.00	-12.74	0.00	12.74	839.33	419.66	660.97	330.98	10.86	-0.78	0.043
165.00	-3.91	-0.85	0.00	-8.44	0.00	8.44	800.44	400.22	593.98	297.43	11.69	-0.81	0.033
166.00	-2.62	-0.59	0.00	-7.59	0.00	7.59	790.74	395.37	579.60	290.23	11.86	-0.81	0.029
170.00	-2.39	-0.55	0.00	-5.22	0.00	5.22	751.93	375.97	523.82	262.30	12.55	-0.83	0.023
175.00	-2.17	-0.50	0.00	-2.49	0.00	2.49	703.42	351.71	458.07	229.37	13.42	-0.84	0.014
180.00	0.00	-0.47	0.00	0.00	0.00	0.00	654.91	327.45	396.72	198.65	14.31	-0.85	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):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.50
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}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.66
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)
47	177.50	255	1.838	1.716	1.044	0.325	108	316
46	172.50	266	1.736	1.263	0.871	0.264	91	330
45	168.00	221	1.646	0.929	0.735	0.214	62	274
44	165.50	69	1.598	0.772	0.667	0.188	17	85
43	162.50	350	1.540	0.605	0.592	0.159	72	433
42	157.50	361	1.447	0.379	0.482	0.115	54	446
41	152.50	372	1.357	0.207	0.388	0.076	37	460
40	147.50	387	1.269	0.080	0.309	0.043	22	479
39	142.50	398	1.185	-0.009	0.243	0.015	8	493
38	137.93	360	1.110	-0.064	0.193	-0.006	-3	446
37	135.43	148	1.070	-0.085	0.169	-0.016	-3	183
36	133.56	506	1.041	-0.097	0.152	-0.023	-15	626
35	131.06	269	1.002	-0.109	0.132	-0.030	-10	333
34	127.50	647	0.948	-0.119	0.107	-0.038	-32	801
33	122.50	697	0.875	-0.121	0.078	-0.045	-41	862
32	117.50	715	0.805	-0.113	0.055	-0.047	-44	885
31	113.50	438	0.751	-0.101	0.041	-0.045	-26	542
30	111.00	397	0.719	-0.092	0.034	-0.042	-22	491
29	107.50	1,005	0.674	-0.079	0.025	-0.036	-47	1,244
28	104.38	260	0.635	-0.066	0.019	-0.029	-10	322
27	101.88	1,038	0.605	-0.055	0.015	-0.023	-31	1,285
26	98.00	1,119	0.560	-0.038	0.011	-0.012	-17	1,385
25	95.50	282	0.532	-0.028	0.009	-0.004	-2	350
24	93.73	722	0.512	-0.021	0.008	0.001	1	893
23	91.23	1,031	0.485	-0.011	0.007	0.008	11	1,276
22	88.77	1,042	0.460	-0.002	0.006	0.015	21	1,290
21	86.27	787	0.434	0.007	0.006	0.022	22	975
20	82.50	1,567	0.397	0.019	0.007	0.031	62	1,939
19	79.50	316	0.369	0.028	0.008	0.036	15	391
18	77.00	1,274	0.346	0.034	0.009	0.040	67	1,576
17	72.50	1,612	0.307	0.044	0.012	0.046	96	1,995
16	67.50	1,634	0.266	0.052	0.015	0.050	106	2,023
15	62.50	1,656	0.228	0.059	0.020	0.052	112	2,050
14	57.50	1,679	0.193	0.064	0.024	0.052	114	2,078

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13	52.50	1,701	0.161	0.067	0.029	0.052	115	2,105
12	49.52	329	0.143	0.068	0.031	0.052	22	407
11	47.02	2,196	0.129	0.069	0.033	0.051	146	2,718
10	43.98	1,123	0.113	0.070	0.035	0.051	74	1,389
9	41.48	1,111	0.100	0.071	0.037	0.050	73	1,375
8	37.50	1,900	0.082	0.072	0.039	0.049	122	2,352
7	32.50	1,926	0.062	0.072	0.041	0.048	121	2,384
6	27.50	1,953	0.044	0.071	0.042	0.047	120	2,418
5	22.50	1,979	0.030	0.068	0.040	0.045	117	2,450
4	17.50	2,005	0.018	0.063	0.037	0.042	111	2,482
3	12.50	2,031	0.009	0.054	0.031	0.037	99	2,514
2	7.50	2,057	0.003	0.039	0.022	0.029	77	2,546
1	2.50	2,083	0.000	0.015	0.008	0.013	35	2,578
Andrew ABT-DMDF-	180.00	1	1.890	1.980	1.140	0.358	1	1
Powerwave Allgon TT1	180.00	48	1.890	1.980	1.140	0.358	22	59
4' Omni	180.00	10	1.890	1.980	1.140	0.358	5	12
Powerwave Allgon LGP	180.00	42	1.890	1.980	1.140	0.358	20	52
Raycap DC6-48-60-18-	180.00	40	1.890	1.980	1.140	0.358	19	50
Ericsson RRUS 11 (Ba	180.00	150	1.890	1.980	1.140	0.358	70	186
Ericsson RRUS 32 (50	180.00	152	1.890	1.980	1.140	0.358	71	189
Ericsson RRUS-12 B2	180.00	174	1.890	1.980	1.140	0.358	81	215
Powerwave Allgon 777	180.00	105	1.890	1.980	1.140	0.358	49	130
KMW AM-X-CD-16-65-00	180.00	146	1.890	1.980	1.140	0.358	68	180
CCI HPA-65R-BUU-H6	180.00	153	1.890	1.980	1.140	0.358	71	189
Flat Low Profile Pla	180.00	1,500	1.890	1.980	1.140	0.358	698	1,857
Ericsson KRY 112 144	166.00	33	1.607	0.802	0.680	0.193	8	41
Fastback Networks In	166.00	9	1.607	0.802	0.680	0.193	2	11
Ericsson AIR 21, 1.3	166.00	249	1.607	0.802	0.680	0.193	63	308
Ericsson AIR 21, 1.3	166.00	244	1.607	0.802	0.680	0.193	61	303
Round T-Arm	166.00	750	1.607	0.802	0.680	0.193	188	928
Sinclair SD210-SF2P4	150.00	8	1.312	0.138	0.347	0.059	1	10
Round Side Arm	150.00	150	1.312	0.138	0.347	0.059	11	186
Telewave ANT150D (5	140.00	5	1.143	-0.042	0.215	0.003	0	6
Bird 432-83H-01-T	140.00	50	1.143	-0.042	0.215	0.003	0	62
Decibel DB809K-XT	140.00	90	1.143	-0.042	0.215	0.003	0	111
Sinclair SC432D-HF6L	140.00	34	1.143	-0.042	0.215	0.003	0	42
Round Side Arm	140.00	450	1.143	-0.042	0.215	0.003	1	557
Alcatel-Lucent 800 M	135.00	185	1.063	-0.088	0.165	-0.018	-4	229
Alcatel-Lucent 1900M	135.00	132	1.063	-0.088	0.165	-0.018	-3	163
Alcatel-Lucent TD-RR	135.00	210	1.063	-0.088	0.165	-0.018	-5	260
RFS APXVTM14-C-I20	135.00	159	1.063	-0.088	0.165	-0.018	-4	196
RFS APXVSPP18-C-A20	135.00	171	1.063	-0.088	0.165	-0.018	-4	212
Flat Platform w/ Han	135.00	2,000	1.063	-0.088	0.165	-0.018	-46	2,476
Nokia B5 RRH4x40-850	125.00	146	0.911	-0.122	0.092	-0.042	-8	180
Alcatel-Lucent B25 R	125.00	159	0.911	-0.122	0.092	-0.042	-9	197
Alcatel-Lucent RRH2x	125.00	170	0.911	-0.122	0.092	-0.042	-9	211
RFS DB-B1-6C-12AB-0Z	125.00	21	0.911	-0.122	0.092	-0.042	-1	26
Alcatel-Lucent B66a	125.00	201	0.911	-0.122	0.092	-0.042	-11	249
Antel LPA-80080/6CF	125.00	42	0.911	-0.122	0.092	-0.042	-2	52
Commscope JAHH-65B-	125.00	364	0.911	-0.122	0.092	-0.042	-20	450
Antel LPA-80063/6CF	125.00	27	0.911	-0.122	0.092	-0.042	-1	33
Round Low Profile Pl	125.00	1,500	0.911	-0.122	0.092	-0.042	-83	1,857
Decibel DB844H90E-XY	112.00	168	0.732	-0.096	0.036	-0.043	-9	208
Round Low Profile Pl	112.00	1,500	0.732	-0.096	0.036	-0.043	-85	1,857
RFS APXV18-206517S-C	105.00	79	0.643	-0.068	0.020	-0.031	-3	98
Andrew DB586	96.00	17	0.538	-0.030	0.009	-0.006	0	21
Bird 429-83H-01-T	96.00	20	0.538	-0.030	0.009	-0.006	0	25
Flat Side Arm	96.00	450	0.538	-0.030	0.009	-0.006	-3	557
PCTEL GPS-TMG-HR-	79.00	1	0.364	0.029	0.008	0.037	0	1
GPS	30.00	10	0.053	0.071	0.042	0.048	1	12
		58,599	87.611	31.803	27.754	6.778	3,226	72,531

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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)
47	177.50	255	1.838	1.716	1.044	0.325	108	220
46	172.50	266	1.736	1.263	0.871	0.264	91	230
45	168.00	221	1.646	0.929	0.735	0.214	62	191
44	165.50	69	1.598	0.772	0.667	0.188	17	59
43	162.50	350	1.540	0.605	0.592	0.159	72	301
42	157.50	361	1.447	0.379	0.482	0.115	54	311
41	152.50	372	1.357	0.207	0.388	0.076	37	321
40	147.50	387	1.269	0.080	0.309	0.043	22	334
39	142.50	398	1.185	-0.009	0.243	0.015	8	343
38	137.93	360	1.110	-0.064	0.193	-0.006	-3	311
37	135.43	148	1.070	-0.085	0.169	-0.016	-3	127
36	133.56	506	1.041	-0.097	0.152	-0.023	-15	436
35	131.06	269	1.002	-0.109	0.132	-0.030	-10	232
34	127.50	647	0.948	-0.119	0.107	-0.038	-32	558
33	122.50	697	0.875	-0.121	0.078	-0.045	-41	601
32	117.50	715	0.805	-0.113	0.055	-0.047	-44	617
31	113.50	438	0.751	-0.101	0.041	-0.045	-26	378
30	111.00	397	0.719	-0.092	0.034	-0.042	-22	342
29	107.50	1,005	0.674	-0.079	0.025	-0.036	-47	867
28	104.38	260	0.635	-0.066	0.019	-0.029	-10	224
27	101.88	1,038	0.605	-0.055	0.015	-0.023	-31	895
26	98.00	1,119	0.560	-0.038	0.011	-0.012	-17	965
25	95.50	282	0.532	-0.028	0.009	-0.004	-2	244
24	93.73	722	0.512	-0.021	0.008	0.001	1	622
23	91.23	1,031	0.485	-0.011	0.007	0.008	11	889
22	88.77	1,042	0.460	-0.002	0.006	0.015	21	899
21	86.27	787	0.434	0.007	0.006	0.022	22	679
20	82.50	1,567	0.397	0.019	0.007	0.031	62	1,351
19	79.50	316	0.369	0.028	0.008	0.036	15	272
18	77.00	1,274	0.346	0.034	0.009	0.040	67	1,098
17	72.50	1,612	0.307	0.044	0.012	0.046	96	1,390
16	67.50	1,634	0.266	0.052	0.015	0.050	106	1,409
15	62.50	1,656	0.228	0.059	0.020	0.052	112	1,428
14	57.50	1,679	0.193	0.064	0.024	0.052	114	1,447
13	52.50	1,701	0.161	0.067	0.029	0.052	115	1,467
12	49.52	329	0.143	0.068	0.031	0.052	22	284
11	47.02	2,196	0.129	0.069	0.033	0.051	146	1,893
10	43.98	1,123	0.113	0.070	0.035	0.051	74	968
9	41.48	1,111	0.100	0.071	0.037	0.050	73	958
8	37.50	1,900	0.082	0.072	0.039	0.049	122	1,638
7	32.50	1,926	0.062	0.072	0.041	0.048	121	1,661
6	27.50	1,953	0.044	0.071	0.042	0.047	120	1,684
5	22.50	1,979	0.030	0.068	0.040	0.045	117	1,707
4	17.50	2,005	0.018	0.063	0.037	0.042	111	1,729
3	12.50	2,031	0.009	0.054	0.031	0.037	99	1,751
2	7.50	2,057	0.003	0.039	0.022	0.029	77	1,774
1	2.50	2,083	0.000	0.015	0.008	0.013	35	1,796
Andrew ABT-DMDF-	180.00	1	1.890	1.980	1.140	0.358	1	1
Powerwave Allgon TT1	180.00	48	1.890	1.980	1.140	0.358	22	41
4' Omni	180.00	10	1.890	1.980	1.140	0.358	5	9
Powerwave Allgon LGP	180.00	42	1.890	1.980	1.140	0.358	20	36
Raycap DC6-48-60-18-	180.00	40	1.890	1.980	1.140	0.358	19	34
Ericsson RRUS 11 (Ba	180.00	150	1.890	1.980	1.140	0.358	70	129
Ericsson RRUS 32 (50	180.00	152	1.890	1.980	1.140	0.358	71	131
Ericsson RRUS-12 B2	180.00	174	1.890	1.980	1.140	0.358	81	150
Powerwave Allgon 777	180.00	105	1.890	1.980	1.140	0.358	49	91

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KMW AM-X-CD-16-65-00	180.00	146	1.890	1.980	1.140	0.358	68	125
CCI HPA-65R-BUU-H6	180.00	153	1.890	1.980	1.140	0.358	71	132
Flat Low Profile Pla	180.00	1,500	1.890	1.980	1.140	0.358	698	1,293
Ericsson KRY 112 144	166.00	33	1.607	0.802	0.680	0.193	8	28
Fastback Networks In	166.00	9	1.607	0.802	0.680	0.193	2	8
Ericsson AIR 21, 1.3	166.00	249	1.607	0.802	0.680	0.193	63	215
Ericsson AIR 21, 1.3	166.00	244	1.607	0.802	0.680	0.193	61	211
Round T-Arm	166.00	750	1.607	0.802	0.680	0.193	188	647
Sinclair SD210-SF2P4	150.00	8	1.312	0.138	0.347	0.059	1	7
Round Side Arm	150.00	150	1.312	0.138	0.347	0.059	11	129
Telewave ANT150D (5	140.00	5	1.143	-0.042	0.215	0.003	0	4
Bird 432-83H-01-T	140.00	50	1.143	-0.042	0.215	0.003	0	43
Decibel DB809K-XT	140.00	90	1.143	-0.042	0.215	0.003	0	78
Sinclair SC432D-HF6L	140.00	34	1.143	-0.042	0.215	0.003	0	29
Round Side Arm	140.00	450	1.143	-0.042	0.215	0.003	1	388
Alcatel-Lucent 800 M	135.00	185	1.063	-0.088	0.165	-0.018	-4	160
Alcatel-Lucent 1900M	135.00	132	1.063	-0.088	0.165	-0.018	-3	114
Alcatel-Lucent TD-RR	135.00	210	1.063	-0.088	0.165	-0.018	-5	181
RFS APXVTM14-C-I20	135.00	159	1.063	-0.088	0.165	-0.018	-4	137
RFS APXVSPP18-C-A20	135.00	171	1.063	-0.088	0.165	-0.018	-4	147
Flat Platform w/ Han	135.00	2,000	1.063	-0.088	0.165	-0.018	-46	1,724
Nokia B5 RRH4x40-850	125.00	146	0.911	-0.122	0.092	-0.042	-8	125
Alcatel-Lucent B25 R	125.00	159	0.911	-0.122	0.092	-0.042	-9	137
Alcatel-Lucent RRH2x	125.00	170	0.911	-0.122	0.092	-0.042	-9	147
RFS DB-B1-6C-12AB-0Z	125.00	21	0.911	-0.122	0.092	-0.042	-1	18
Alcatel-Lucent B66a	125.00	201	0.911	-0.122	0.092	-0.042	-11	173
Antel LPA-80080/6CF	125.00	42	0.911	-0.122	0.092	-0.042	-2	36
Commscope JAHH-65B-	125.00	364	0.911	-0.122	0.092	-0.042	-20	314
Antel LPA-80063/6CF	125.00	27	0.911	-0.122	0.092	-0.042	-1	23
Round Low Profile Pl	125.00	1,500	0.911	-0.122	0.092	-0.042	-83	1,293
Decibel DB844H90E-XY	112.00	168	0.732	-0.096	0.036	-0.043	-9	145
Round Low Profile Pl	112.00	1,500	0.732	-0.096	0.036	-0.043	-85	1,293
RFS APXV18-206517S-C	105.00	79	0.643	-0.068	0.020	-0.031	-3	68
Andrew DB586	96.00	17	0.538	-0.030	0.009	-0.006	0	14
Bird 429-83H-01-T	96.00	20	0.538	-0.030	0.009	-0.006	0	17
Flat Side Arm	96.00	450	0.538	-0.030	0.009	-0.006	-3	388
PCTEL GPS-TMG-HR-	79.00	1	0.364	0.029	0.008	0.037	0	1
GPS	30.00	10	0.053	0.071	0.042	0.048	1	9
		58,599	87.611	31.803	27.754	6.778	3,226	50,526

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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	-69.95	-3.20	0.00	-372.28	0.00	372.28	5,102.86	2,551.43	10,963.2	5,489.79	0.00	0.00	0.061
5.00	-67.41	-3.14	0.00	-356.28	0.00	356.28	5,029.12	2,514.56	10,576.3	5,296.03	0.01	-0.02	0.060
10.00	-64.89	-3.06	0.00	-340.58	0.00	340.58	4,953.95	2,476.98	10,193.1	5,104.17	0.03	-0.03	0.059
15.00	-62.41	-2.96	0.00	-325.29	0.00	325.29	4,877.36	2,438.68	9,813.98	4,914.28	0.07	-0.05	0.058
20.00	-59.96	-2.86	0.00	-310.48	0.00	310.48	4,799.34	2,399.67	9,438.93	4,726.48	0.13	-0.06	0.057
25.00	-57.54	-2.75	0.00	-296.17	0.00	296.17	4,719.90	2,359.95	9,068.23	4,540.86	0.20	-0.08	0.056
30.00	-55.14	-2.65	0.00	-282.40	0.00	282.40	4,639.03	2,319.51	8,702.08	4,357.51	0.29	-0.09	0.055
35.00	-52.79	-2.53	0.00	-269.18	0.00	269.18	4,556.73	2,278.36	8,340.67	4,176.53	0.40	-0.11	0.054
40.00	-51.41	-2.47	0.00	-256.50	0.00	256.50	4,473.00	2,236.50	7,984.18	3,998.03	0.53	-0.13	0.053
42.96	-50.02	-2.40	0.00	-249.20	0.00	249.20	4,422.82	2,211.41	7,775.79	3,893.68	0.61	-0.14	0.053
45.00	-47.31	-2.26	0.00	-244.29	0.00	244.29	4,378.03	2,189.01	7,615.75	3,813.53	0.67	-0.15	0.052
49.04	-46.90	-2.24	0.00	-235.18	0.00	235.18	3,604.17	1,802.08	6,267.69	3,138.50	0.80	-0.16	0.058
50.00	-44.79	-2.13	0.00	-233.03	0.00	233.03	3,591.50	1,795.75	6,214.33	3,111.78	0.83	-0.16	0.058
55.00	-42.72	-2.02	0.00	-222.39	0.00	222.39	3,524.70	1,762.35	5,938.60	2,973.71	1.01	-0.18	0.057
60.00	-40.67	-1.92	0.00	-212.28	0.00	212.28	3,456.48	1,728.24	5,666.60	2,837.51	1.21	-0.20	0.056
65.00	-38.64	-1.82	0.00	-202.70	0.00	202.70	3,386.83	1,693.41	5,398.53	2,703.28	1.43	-0.22	0.055
70.00	-36.65	-1.73	0.00	-193.61	0.00	193.61	3,315.75	1,657.87	5,134.58	2,571.11	1.67	-0.24	0.054
75.00	-35.07	-1.66	0.00	-184.99	0.00	184.99	3,242.30	1,621.15	4,873.54	2,440.39	1.94	-0.26	0.054
79.00	-34.68	-1.65	0.00	-178.34	0.00	178.34	3,164.68	1,582.34	4,641.84	2,324.37	2.16	-0.28	0.054
80.00	-32.74	-1.59	0.00	-176.68	0.00	176.68	3,145.28	1,572.64	4,584.79	2,295.80	2.22	-0.28	0.053
85.00	-31.76	-1.57	0.00	-168.74	0.00	168.74	3,048.26	1,524.13	4,304.87	2,155.63	2.53	-0.30	0.053
87.54	-30.47	-1.55	0.00	-164.75	0.00	164.75	2,998.97	1,499.48	4,166.05	2,086.12	2.69	-0.31	0.053
90.00	-29.20	-1.54	0.00	-160.95	0.00	160.95	2,951.23	1,475.62	4,033.76	2,019.88	2.86	-0.33	0.052
92.46	-28.30	-1.54	0.00	-157.17	0.00	157.17	2,412.07	1,206.04	3,317.78	1,661.36	3.03	-0.34	0.058
95.00	-27.95	-1.54	0.00	-153.27	0.00	153.27	2,382.81	1,191.41	3,222.46	1,613.62	3.21	-0.35	0.058
96.00	-25.97	-1.55	0.00	-151.73	0.00	151.73	2,371.21	1,185.60	3,185.22	1,594.98	3.28	-0.35	0.057
100.00	-24.68	-1.58	0.00	-145.52	0.00	145.52	2,324.22	1,162.11	3,037.61	1,521.06	3.59	-0.37	0.056
103.75	-24.36	-1.60	0.00	-139.58	0.00	139.58	2,279.33	1,139.67	2,901.28	1,452.80	3.89	-0.39	0.056
103.75	-24.36	-1.60	0.00	-139.58	0.00	139.58	2,279.33	1,139.67	2,901.28	1,452.80	3.89	-0.39	0.107
105.00	-23.01	-1.65	0.00	-137.58	0.00	137.58	2,264.20	1,132.10	2,856.29	1,430.27	4.00	-0.40	0.106
110.00	-22.52	-1.68	0.00	-129.33	0.00	129.33	2,186.61	1,093.30	2,659.07	1,331.51	4.44	-0.45	0.107
112.00	-19.91	-1.79	0.00	-125.97	0.00	125.97	2,154.27	1,077.13	2,580.59	1,292.21	4.64	-0.48	0.107
115.00	-19.03	-1.84	0.00	-120.59	0.00	120.59	2,105.76	1,052.88	2,465.08	1,234.37	4.95	-0.51	0.107
120.00	-18.16	-1.89	0.00	-111.38	0.00	111.38	2,024.90	1,012.45	2,278.43	1,140.91	5.51	-0.57	0.107
125.00	-14.10	-2.04	0.00	-101.92	0.00	101.92	1,944.05	972.03	2,099.13	1,051.12	6.13	-0.62	0.104
130.00	-13.77	-2.06	0.00	-91.70	0.00	91.70	1,863.20	931.60	1,927.17	965.02	6.82	-0.68	0.102
132.12	-13.14	-2.07	0.00	-87.34	0.00	87.34	1,828.92	914.46	1,856.49	929.62	7.13	-0.71	0.101
135.00	-9.42	-2.10	0.00	-81.36	0.00	81.36	1,782.35	891.17	1,762.57	882.59	7.57	-0.75	0.097
135.87	-8.97	-2.10	0.00	-79.54	0.00	79.54	993.95	496.97	1,000.68	501.09	7.71	-0.76	0.168
140.00	-7.70	-2.08	0.00	-70.85	0.00	70.85	969.84	484.92	940.01	470.70	8.38	-0.81	0.158
145.00	-7.22	-2.07	0.00	-60.43	0.00	60.43	939.35	469.68	867.78	434.53	9.28	-0.90	0.147
150.00	-6.56	-2.02	0.00	-50.09	0.00	50.09	907.44	453.72	797.07	399.13	10.28	-0.99	0.133
155.00	-6.11	-1.97	0.00	-40.00	0.00	40.00	874.09	437.05	728.06	364.57	11.37	-1.08	0.117
160.00	-5.68	-1.89	0.00	-30.17	0.00	30.17	839.33	419.66	660.97	330.98	12.54	-1.16	0.098
165.00	-5.59	-1.88	0.00	-20.71	0.00	20.71	800.44	400.22	593.98	297.43	13.80	-1.23	0.077
166.00	-3.74	-1.45	0.00	-18.83	0.00	18.83	790.74	395.37	579.60	290.23	14.06	-1.24	0.070
170.00	-3.41	-1.36	0.00	-13.02	0.00	13.02	751.93	375.97	523.82	262.30	15.12	-1.28	0.054
175.00	-3.09	-1.24	0.00	-6.22	0.00	6.22	703.42	351.71	458.07	229.37	16.48	-1.32	0.032
180.00	0.00	-1.17	0.00	0.00	0.00	0.00	654.91	327.45	396.72	198.65	17.88	-1.34	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	-48.73	-3.20	0.00	-365.10	0.00	365.10	5,102.86	2,551.43	10,963.2	5,489.79	0.00	0.00	0.057
5.00	-46.96	-3.13	0.00	-349.11	0.00	349.11	5,029.12	2,514.56	10,576.3	5,296.03	0.01	-0.01	0.056
10.00	-45.20	-3.04	0.00	-333.45	0.00	333.45	4,953.95	2,476.98	10,193.1	5,104.17	0.03	-0.03	0.055
15.00	-43.47	-2.94	0.00	-318.23	0.00	318.23	4,877.36	2,438.68	9,813.98	4,914.28	0.07	-0.05	0.054
20.00	-41.77	-2.84	0.00	-303.51	0.00	303.51	4,799.34	2,399.67	9,438.93	4,726.48	0.13	-0.06	0.053
25.00	-40.08	-2.73	0.00	-289.32	0.00	289.32	4,719.90	2,359.95	9,068.23	4,540.86	0.20	-0.08	0.052
30.00	-38.41	-2.61	0.00	-275.69	0.00	275.69	4,639.03	2,319.51	8,702.08	4,357.51	0.29	-0.09	0.051
35.00	-36.77	-2.50	0.00	-262.62	0.00	262.62	4,556.73	2,278.36	8,340.67	4,176.53	0.39	-0.11	0.050
40.00	-35.81	-2.43	0.00	-250.13	0.00	250.13	4,473.00	2,236.50	7,984.18	3,998.03	0.52	-0.12	0.049
42.96	-34.85	-2.36	0.00	-242.93	0.00	242.93	4,422.82	2,211.41	7,775.79	3,893.68	0.60	-0.13	0.049
45.00	-32.95	-2.22	0.00	-238.11	0.00	238.11	4,378.03	2,189.01	7,615.75	3,813.53	0.66	-0.14	0.048
49.04	-32.67	-2.20	0.00	-229.15	0.00	229.15	3,604.17	1,802.08	6,267.69	3,138.50	0.78	-0.16	0.054
50.00	-31.20	-2.09	0.00	-227.04	0.00	227.04	3,591.50	1,795.75	6,214.33	3,111.78	0.81	-0.16	0.054
55.00	-29.75	-1.98	0.00	-216.61	0.00	216.61	3,524.70	1,762.35	5,938.60	2,973.71	0.99	-0.18	0.053
60.00	-28.33	-1.87	0.00	-206.73	0.00	206.73	3,456.48	1,728.24	5,666.60	2,837.51	1.19	-0.20	0.052
65.00	-26.92	-1.77	0.00	-197.39	0.00	197.39	3,386.83	1,693.41	5,398.53	2,703.28	1.40	-0.21	0.051
70.00	-25.53	-1.67	0.00	-188.55	0.00	188.55	3,315.75	1,657.87	5,134.58	2,571.11	1.64	-0.23	0.051
75.00	-24.43	-1.61	0.00	-180.18	0.00	180.18	3,242.30	1,621.15	4,873.54	2,440.39	1.89	-0.25	0.050
79.00	-24.16	-1.60	0.00	-173.74	0.00	173.74	3,164.68	1,582.34	4,641.84	2,324.37	2.11	-0.27	0.050
80.00	-22.80	-1.53	0.00	-172.14	0.00	172.14	3,145.28	1,572.64	4,584.79	2,295.80	2.17	-0.27	0.050
85.00	-22.12	-1.52	0.00	-164.47	0.00	164.47	3,048.26	1,524.13	4,304.87	2,155.63	2.47	-0.30	0.050
87.54	-21.23	-1.49	0.00	-160.62	0.00	160.62	2,998.97	1,499.48	4,166.05	2,086.12	2.63	-0.31	0.050
90.00	-20.34	-1.48	0.00	-156.95	0.00	156.95	2,951.23	1,475.62	4,033.76	2,019.88	2.79	-0.32	0.049
92.46	-19.71	-1.48	0.00	-153.31	0.00	153.31	2,412.07	1,206.04	3,317.78	1,661.36	2.96	-0.33	0.055
95.00	-19.47	-1.48	0.00	-149.54	0.00	149.54	2,382.81	1,191.41	3,222.46	1,613.62	3.13	-0.34	0.054
96.00	-18.09	-1.50	0.00	-148.06	0.00	148.06	2,371.21	1,185.60	3,185.22	1,594.98	3.21	-0.35	0.054
100.00	-17.19	-1.53	0.00	-142.06	0.00	142.06	2,324.22	1,162.11	3,037.61	1,521.06	3.50	-0.37	0.053
103.75	-16.96	-1.54	0.00	-136.32	0.00	136.32	2,279.33	1,139.67	2,901.28	1,452.80	3.80	-0.38	0.052
103.75	-16.96	-1.54	0.00	-136.32	0.00	136.32	2,279.33	1,139.67	2,901.28	1,452.80	3.80	-0.38	0.101
105.00	-16.03	-1.60	0.00	-134.39	0.00	134.39	2,264.20	1,132.10	2,856.29	1,430.27	3.90	-0.39	0.101
110.00	-15.69	-1.62	0.00	-126.41	0.00	126.41	2,186.61	1,093.30	2,659.07	1,331.51	4.34	-0.44	0.102
112.00	-13.87	-1.74	0.00	-123.16	0.00	123.16	2,154.27	1,077.13	2,580.59	1,292.21	4.53	-0.46	0.102
115.00	-13.25	-1.79	0.00	-117.96	0.00	117.96	2,105.76	1,052.88	2,465.08	1,234.37	4.83	-0.50	0.102
120.00	-12.65	-1.83	0.00	-109.03	0.00	109.03	2,024.90	1,012.45	2,278.43	1,140.91	5.38	-0.55	0.102
125.00	-9.82	-1.99	0.00	-99.87	0.00	99.87	1,944.05	972.03	2,099.13	1,051.12	5.99	-0.61	0.100
130.00	-9.58	-2.01	0.00	-89.91	0.00	89.91	1,863.20	931.60	1,927.17	965.02	6.66	-0.67	0.098
132.12	-9.15	-2.02	0.00	-85.66	0.00	85.66	1,828.92	914.46	1,856.49	929.62	6.96	-0.69	0.097
135.00	-6.56	-2.06	0.00	-79.84	0.00	79.84	1,782.35	891.17	1,762.57	882.59	7.39	-0.73	0.094
135.87	-6.24	-2.06	0.00	-78.04	0.00	78.04	993.95	496.97	1,000.68	501.09	7.52	-0.74	0.162
140.00	-5.36	-2.05	0.00	-69.52	0.00	69.52	969.84	484.92	940.01	470.70	8.19	-0.79	0.153
145.00	-5.02	-2.03	0.00	-59.28	0.00	59.28	939.35	469.68	867.78	434.53	9.06	-0.88	0.142
150.00	-4.56	-1.98	0.00	-49.14	0.00	49.14	907.44	453.72	797.07	399.13	10.04	-0.97	0.128
155.00	-4.25	-1.93	0.00	-39.23	0.00	39.23	874.09	437.05	728.06	364.57	11.10	-1.06	0.112
160.00	-3.94	-1.85	0.00	-29.60	0.00	29.60	839.33	419.66	660.97	330.98	12.26	-1.14	0.094
165.00	-3.88	-1.84	0.00	-20.33	0.00	20.33	800.44	400.22	593.98	297.43	13.48	-1.20	0.073
166.00	-2.59	-1.43	0.00	-18.49	0.00	18.49	790.74	395.37	579.60	290.23	13.74	-1.22	0.067
170.00	-2.36	-1.33	0.00	-12.78	0.00	12.78	751.93	375.97	523.82	262.30	14.78	-1.26	0.052
175.00	-2.15	-1.22	0.00	-6.11	0.00	6.11	703.42	351.71	458.07	229.37	16.11	-1.29	0.030
180.00	0.00	-1.17	0.00	0.00	0.00	0.00	654.91	327.45	396.72	198.65	17.48	-1.31	0.000

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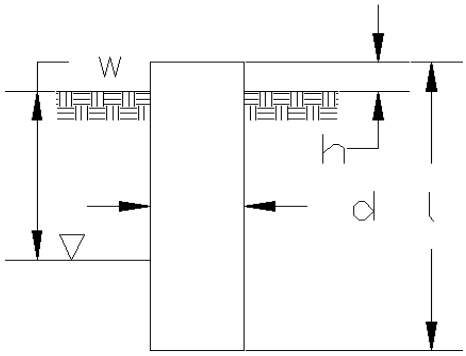
Analysis Summary

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	34.52	0.00	70.27	0.00	0.00	4075.76	135.87	0.65
0.9D + 1.6W	33.05	0.00	52.69	0.00	0.00	3921.88	135.87	0.63
1.2D + 1.0Di + 1.0Wi	6.34	0.00	143.47	0.00	0.00	837.04	135.87	0.18
(1.2 + 0.2Sds) * DL + E ELFM	2.99	0.00	69.95	0.00	0.00	404.00	135.87	0.09
(1.2 + 0.2Sds) * DL + E EMAM	3.20	0.00	69.95	0.00	0.00	372.28	135.87	0.17
(0.9 - 0.2Sds) * DL + E ELFM	2.99	0.00	48.73	0.00	0.00	397.15	135.87	0.08
(0.9 - 0.2Sds) * DL + E EMAM	3.20	0.00	48.73	0.00	0.00	365.10	135.87	0.16
1.0D + 1.0W	9.21	0.00	58.60	0.00	0.00	1098.92	135.87	0.18

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	103.	(4) SOL-#20 All Thre	297.4	8.9	16.8	138.1	12.0	12	24	0.0	12.0	0	0	215.9	330.5	0.653

Site Name:	Winchester CT 3, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302506	*American Tower Corporation*	
Engineer:	Trevor.Ridilla		
Engineering Number:	OAA714359		
Date:	07/30/18		



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

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	N	
Moment (M):	4075.8	k-ft
Shear/Leg (V):	34.5	k
Axial Load (P):	70.3	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	7.0	ft
Caisson Embedment (L-h):	17.0	ft
Caisson Height Above Ground (h):	1.0	ft
Depth Below Ground Surface to Water Table (w):	99.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

Engineer Notes

Soil Mechanical Properties

Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	3.5	165	0	0	0	0
3.5	7.5	165	6000	0	2700	0
7.5	18.0	165	6000	0	2700	11277

Required Embedment:	14.0	ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	692.7	ft^3 = 25.7 yd^3
Weight of Concrete (Buoyancy Effect Considered):	103.9	k
Average Soil Unit Weight:	165.0	pcf
Skin Friction Resistance:	801.6	k
Compressive Bearing Resistance:	434.0	k
Pullout Weight (Minus Concrete Weight):	585.7	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	439.3	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	926.7	k
P_u:	58.5	k
$T_u/\phi_s T_n$:	0.00	Result: OK
$P_u/\phi_s P_n$:	0.06	Result: OK
Total Lateral Resistance:	4082.8	k
Inflection Point (Below Ground Surface):	10.8	ft
Design Overturning Moment At Inflection Point (M_D):	4482.1	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	9851.4	k-ft
$M_D/\phi_s M_n$:	0.45	Result: OK
ϕ_s:	0.75	

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	4000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	42	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	5	
Horizontal Tie / Stirrup Area:	0.31	in^2
Design Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	76.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	4119.1	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	10956.3	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.38	Result: OK
Design Shear (V_u):	605.7	k
Nominal Shear Capacity ($\phi_V V_n$):	685.3	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.88	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	3538.1	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	58.5	k
Nominal Compression Capacity ($\phi_P P_n$):	9682.0	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.01	Result: OK
Bending Reinforcement Ratio:	0.012	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.38	Result: OK

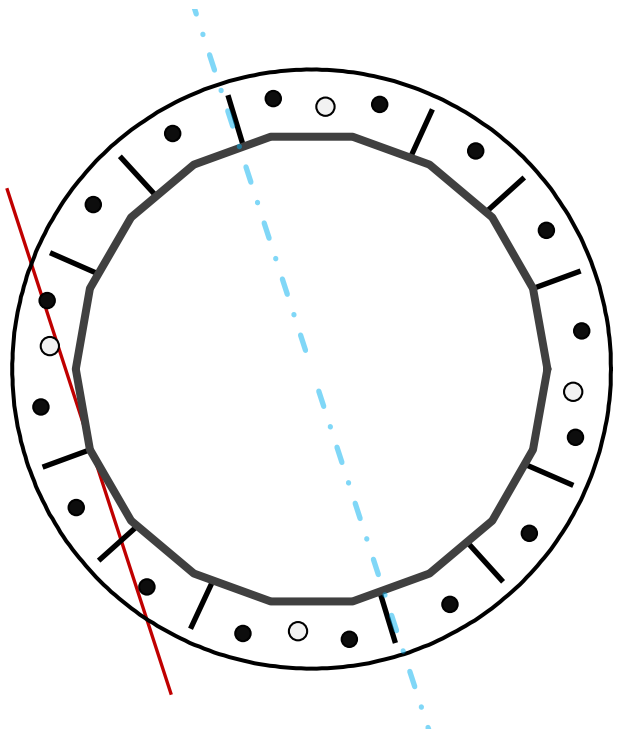
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	52.75	in
Thickness	0.438	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	4075.8	k-ft
Axial, Pu	70.3	k
Shear, Vu	34.5	k
Neutral Axis	108	°

Report Capacities		
Component	Capacity	Result
Base Plate	66%	Pass
Anchor Rods	57%	Pass
Dwyidag	52%	Pass

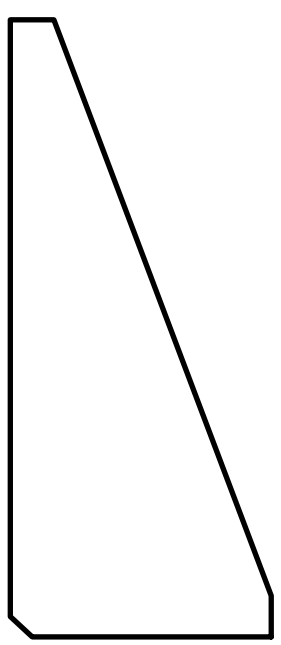
Base Plate		
Shape	Round	-
Diameter, ø	68	in
Thickness	2	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1179.5	k
Bending Stress, ϕMn	1796.9	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	59.63	in
Orientation Offset	0	°
Applied Force, Pu	204.2	k
Dywidag Bar, ϕPn	392.7	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	62	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	12.2	in
Orientation Offset	8	°
Applied Force, Pu	147.2	k
Anchor Rods, ϕPn	259.8	k

Stiffeners		
Arrangement	Radial	-
Quantity	12	-
Height	15	in
Width	6	in
Effective Width	6.000	in
Thickness	3/4	in
Effective Thickness	0.750	in
Notch	0.5	in
Flat Edge	1	in
Grade	A36	-
Yield Strength, Fy	36	ksi
Tensile Strength, Fu	58	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	5/16	in
Bevel Depth		in
Vertical Weld	Fillet	
Vertical Fillet Size	5/16	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	0	°
Vertical Weld, ϕRn	209.3	k
Horz. Weld, ϕRn	88.7	k
Ten. Capacity, ϕTn	133.7	k
Comp. Capacity, ϕPn	539.3	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	34.5	3023.0	0.74
Anchor Rod Forces	34.5	3023.0	0.74
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1052.7	0.26
Stiffener Forces	15.3	1337.0	0.33

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	71.5363	3.9742	0.2546		24475.33
Bolt	3.9761	3.2477	0.8393	4.5	24981.67
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		8523.19
Stiffener	4.1250	3.7125	54.0000		19408.26

Base Plate		
Shape	Round	-
Diameter, D	68	in
Thickness, t	2	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	42.912	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

External Base Plate		
Chord Length AA	37.117	in
Additional AA	10.063	in
Section Modulus, Z	47.181	in^3
Applied Moment, Mu	1179.5	k-ft
Bending Capacity, ϕMn	2123.1	k-ft
Capacity, Mu/ϕMn	0.556	OK
Chord Length AB	35.933	in
Additional AB	9.338	in
Section Modulus, Z	45.271	in^3
Applied Moment, Mu	1060.2	k-ft
Bending Capacity, ϕMn	2037.2	k-ft
Capacity, Mu/ϕMn	0.520	OK
Bend Line Length	28.491	in
Additional Bend Line	11.440	in
Section Modulus, Z	39.932	in^3
Applied Moment, Mu	1179.5	k-ft
Bending Capacity, ϕMn	1796.9	k-ft
Capacity, Mu/ϕMn	0.656	OK

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

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	62	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	147.2	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.567	OK
Interaction Capacity	0.567	OK

Additional Bolt Group 1		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Compressive Capacity, ϕPn		
Interaction Capacity		

Additional Bolt Group 2		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Compressive Capacity, ϕPn		
Interaction Capacity		

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	59.63	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	204.2	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.520	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	92.0	k
Applied Horizontal Force, Vu	0.64	k

Vertical Weld		
Vert.-to-Stiffener $a=e_x/l$	0.133	-
Spacing Ratio, k	0.050	-
Weld Coefficient, C	3.720	-
Compressive Capacity, ϕPn	209.3	k
Vert.-to-Plate $a=e_x/l$	0.333	-
Spacing Ratio, k	0.050	-
Weld Coefficient, C	2.940	-
Shear Capacity, ϕVn	165.4	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.444	OK

Horizontal Weld		
Horz.-to-Stiffener $a=e_x/l$	0.167	-
Spacing Ratio, k	0.125	-
Weld Coefficient, C	3.940	-
Effective Fillet	0.313	in
Compressive Capacity, ϕPn	88.7	k
Horz.-to-Pole $a=e_x/l$	0.417	-
Spacing Ratio, k	0.125	-
Weld Coefficient, C	2.670	-
Shear Capacity, ϕVn	60.1	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	1.049	OK

Plate Tension		
Gross Cross Section	4.125	in^2
Net Cross Section	3.713	in^2
Tensile Capacity, ϕTn	133.7	k
Capacity, Tu/ϕTn	0.344	OK

Plate Compression		
Radius of Gyration	0.217	in^3
kl/r	41.57	-
$4.71\sqrt{(E/Fy)}$	133.68	-
Buckling Stress(Fe)	165.6	-
Crit. Buckling Stress(Fcr)	145.3	ksi
Compressive Capacity, ϕPn	539.3	k
Capacity, Pu/ϕPn	0.085	OK