September 12, 2019

Melanie A. Bachman Executive
Director Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re:	**Notice of Exempt Modification – Antenna and RRU Add**
Property Address:	**188 Route 7, Falls Village, CT 06031**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 135-feet on an existing 157-foot monopine, owned by American Tower at 10 Presidential Way, Woburn, MA 01801. AT&T now intends to remove three (3) CCI HPA-65R-BUU-H8 Panel Antennas, each currently installed in position [4], remove three (3) CCI OPA-65R-LCUUH8 Panel Antennas, each currently installed in position [2] all sectors. Then add six (6) Kathrein 800-10966 Panel Antennas, each to be installed in position [3 + 4], all sectors. In addition, AT&T intends to add one (1) RRUS-4478 B14, one (1) RRUS-8843 B2, B66A, and (1) RRUs 4429 B5, B12 in position [3+4], all sectors, for a total of six (9) new RRUs. AT&T is also removing one (1) RRUS-11 in position [4] all sectors, for a total of three (3) removed RRUS. All of the changes will take place on a new mount.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5l0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to James Clarke – Building Official – Town of Falls Village, CT at 108 Main St., PO Box 47, Falls Village, CT 06031 and Henry Todd – First Selectman Town of Falls Village, CT at 108 Main St., PO Box 47, Falls Village, CT 06031. A copy of this letter is being sent to the property owner, Kathleen A. Christiano, Philip A. Forino, Sandra Forino at 27 Platt Drive, Prospect, CT 06712 and to the tower company, American Tower at 10 Presidential Way, Woburn, MA 01801.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **TS-CING-021-140411** – New Cingular Wireless PCS, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 188 Route 7 South, Falls Village (Canaan), Connecticut.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 105-foot level of the 147-foot self-support tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to

levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b) (2).

Sincerely,

Kristina Cottone

CC w/enclosures:
James Clarke – Building Official – Town of Falls Village, CT
Henry Todd – First Selectman, Town of Falls Village, CT
Kathleen A. Christiano, Philip A. Forino, Sandra Forino – Property Owners
American Tower – Tower Company – Ryan Tierney

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Structural Analysis Report

Structure	:	**149 ft Monopine**
ATC Site Name	:	**Falls Village CT PCS CT, CT**
ATC Site Number	:	**415121**
Engineering Number	:	**OAA749570_C3_01**
Proposed Carrier	:	**AT&T MOBILITY**
Carrier Site Name	:	**FALLS VILLAGE ROUTE**
Carrier Site Number	:	**CTL01339 - FA 10128251**
Site Location	:	**188 Route 7** **Falls Village, CT 06031-1608** **41.944400,-73.360600**
County	:	**Litchfield**
Date	:	**August 15, 2019**
Max Usage	:	**67%**
Result	:	**Pass**

Prepared By:
Cole Melody Koffi
Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32598
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Aug 20 2019 5:14 PM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft monopine to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	EEI Drawing #16975-P01, dated February 6, 2013
Foundation Drawing	EEI Drawing #16975-FND, dated February 6, 2013
Geotechnical Report	Terracon Project #J2095143, dated April 30, 2009
Mount Analysis	Ramaker & Associates, Inc Project #42862, dated July 23, 2019

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, V_{ASD})/115 mph (3-Second Gust, V_{ULT})
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
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

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
148.0	3	Alcatel-Lucent B66A RRH 4x45	T-Arms	(2) 1.54" Hybrid	VERIZON WIRELESS
	2	RFS DB-T1-6Z-8AB-0Z			
146.0	12	Commscope SBNHH-1D65B			
143.0	3	Alcatel-Lucent B13 RRH4x30-4R 700U			
140.0	4	Raycap DC6-48-60-18-8F(32.8 lbs)	T-Arms	(2) 0.39" Fiber Trunk (8) 0.78" 8 AWG 6 (3) 1/2" Coax	AT&T MOBILITY
	9	Ericsson RRUS 12 w/ RRUS A2 (80 lb)			
	6	Ericsson RRUS-11			
	3	CCI HPA-65R-BUU-H8			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	3	Ericsson RRUS E2 B29	-	-	AT&T MOBILITY
	3	Ericsson RRUS-32 (77 lbs)			
	3	CCI HPA-65R-BUU-H8			
	3	CCI OPA-65R-LCUU-H8 (92.7")			
	3	Ericsson RRUS-11			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	3	Ericsson RRUS 8843 B2, B66A	T-Arms with Site Pro 1 Pipes and Plates	(4) 3" conduit	AT&T MOBILITY
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
	6	Kathrein Scala 80010966			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	67%	Pass
Shaft	67%	Pass
Base Plate	50%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	6,642.1	8,966.8	5,580.6	62%
Shear (Kips)	62.3	84.1	49.9	59%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Ericsson RRUS 8843 B2, B66A	AT&T MOBILITY	1.661	1.299
	Ericsson RRUS 4478 B14			
	Ericsson RRUS 4449 B5, B12			
	Kathrein Scala 80010966			

***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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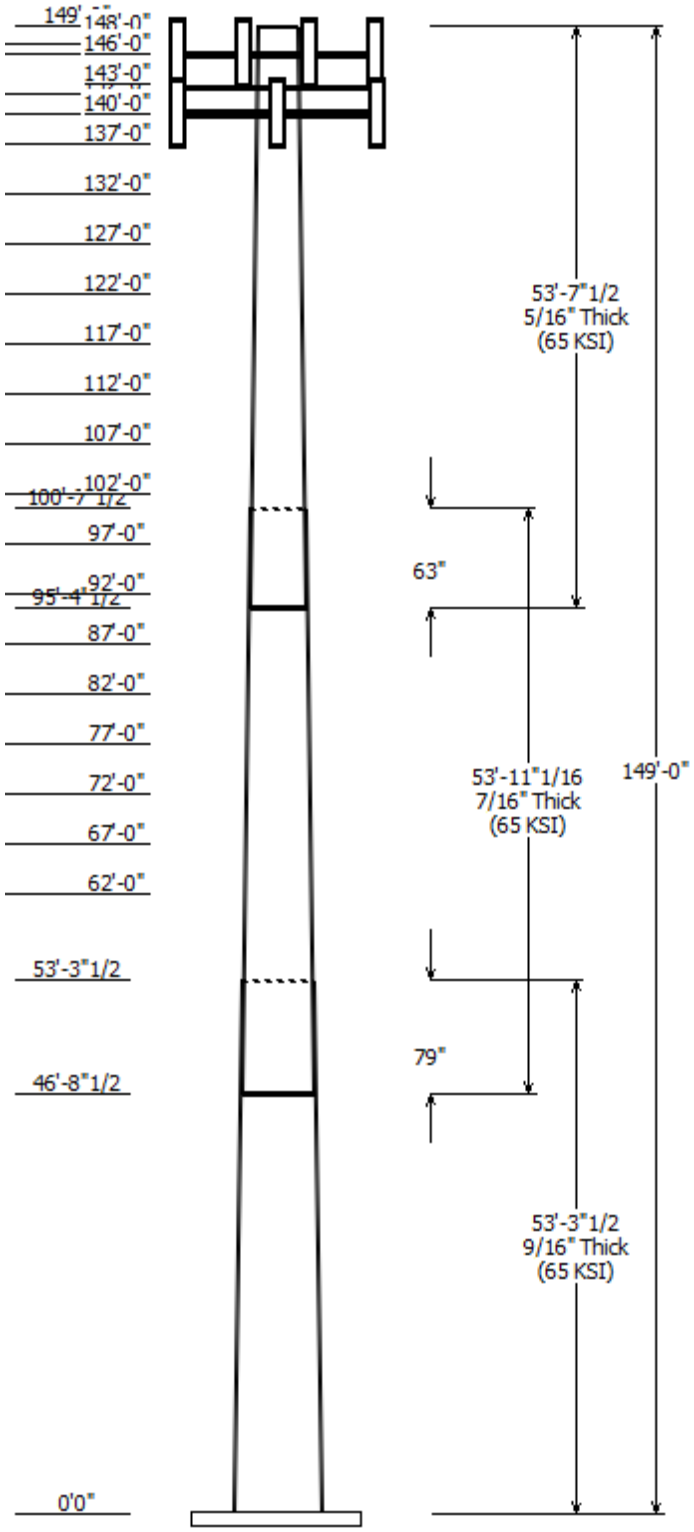
Job Information

Client :	AT&T MOBILITY		
Pole :	415121	Code:	ANSI/TIA-222-G
Location :	Falls Village CT PCS CT, CT		
Description :	149 ft EEI Monopole	Struct Class :	II
Shape :	18 Sides	Exposure :	B
Height :	149.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.234889 (in/ft)		



Sections Properties

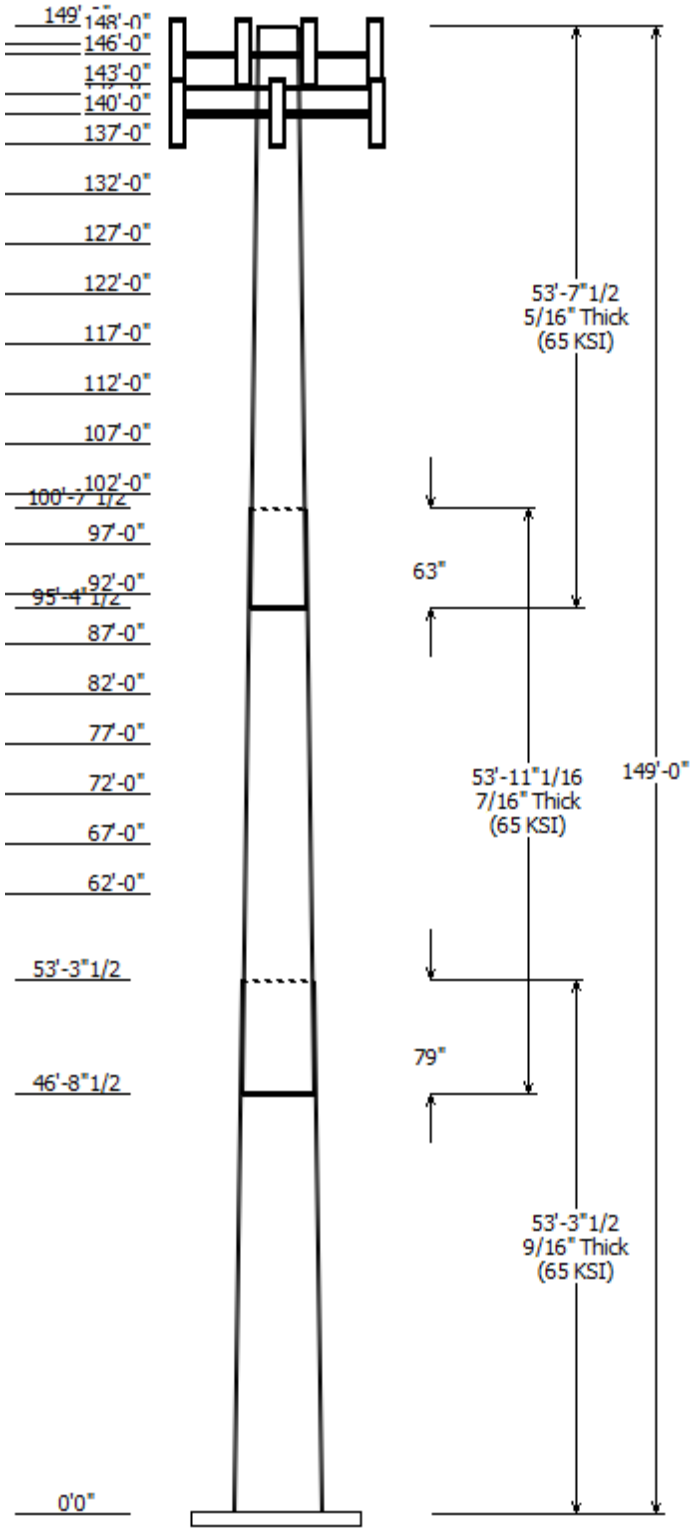
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	53.290	45.98	58.50	0.563		0.000	18 Sides	65
2	53.920	35.73	48.40	0.438	Slip Joint	79.000	18 Sides	65
3	53.623	25.00	37.59	0.313	Slip Joint	63.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
148.000	146.000	2	RFS DB-T1-6Z-8AB-0Z
148.000	146.000	3	Alcatel-Lucent B66A RRH 4x45
147.000	147.000	1	PINE BRANCH
146.000	146.000	3	Flat T-Arm
146.000	146.000	1	VZW Unused Reserve: 16756
146.000	146.000	12	Commscope SBNHH-1D65B
143.000	146.000	3	Alcatel-Lucent B13 RRH4x30-
142.000	142.000	1	PINE BRANCH
140.000	140.000	3	T-Arms with SIte Pro 1 Pipes a
140.000	140.000	6	Kathrein Scala 80010966
140.000	140.000	3	CCI HPA-65R-BUU-H8
140.000	140.000	6	Ericsson RRUS-11
140.000	140.000	9	Ericsson RRUS 12 w/ RRUS A2
140.000	140.000	3	Ericsson RRUS 4449 B5, B12
140.000	140.000	3	Ericsson RRUS 4478 B14
140.000	140.000	3	Ericsson RRUS 8843 B2, B66A
140.000	140.000	4	Raycap DC6-48-60-18-8F(32.8 lb
137.000	137.000	1	PINE BRANCH
132.000	132.000	1	PINE BRANCH
127.000	127.000	1	PINE BRANCH
122.000	122.000	1	PINE BRANCH
117.000	117.000	1	PINE BRANCH
112.000	112.000	1	PINE BRANCH
107.000	107.000	1	PINE BRANCH
102.000	102.000	1	PINE BRANCH
97.000	97.000	1	PINE BRANCH
92.000	92.000	1	PINE BRANCH
87.000	87.000	1	PINE BRANCH
82.000	82.000	1	PINE BRANCH
77.000	77.000	1	PINE BRANCH
72.000	72.000	1	PINE BRANCH
67.000	67.000	1	PINE BRANCH
62.000	62.000	1	PINE BRANCH

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	140.0	0.39" (10mm)	No
0.000	140.0	0.78" (19.7mm) 8	No
0.000	140.0	1/2" Coax	No
0.000	140.0	3" conduit	No
0.000	148.0	1.54" (39.2mm)	No



Load Cases

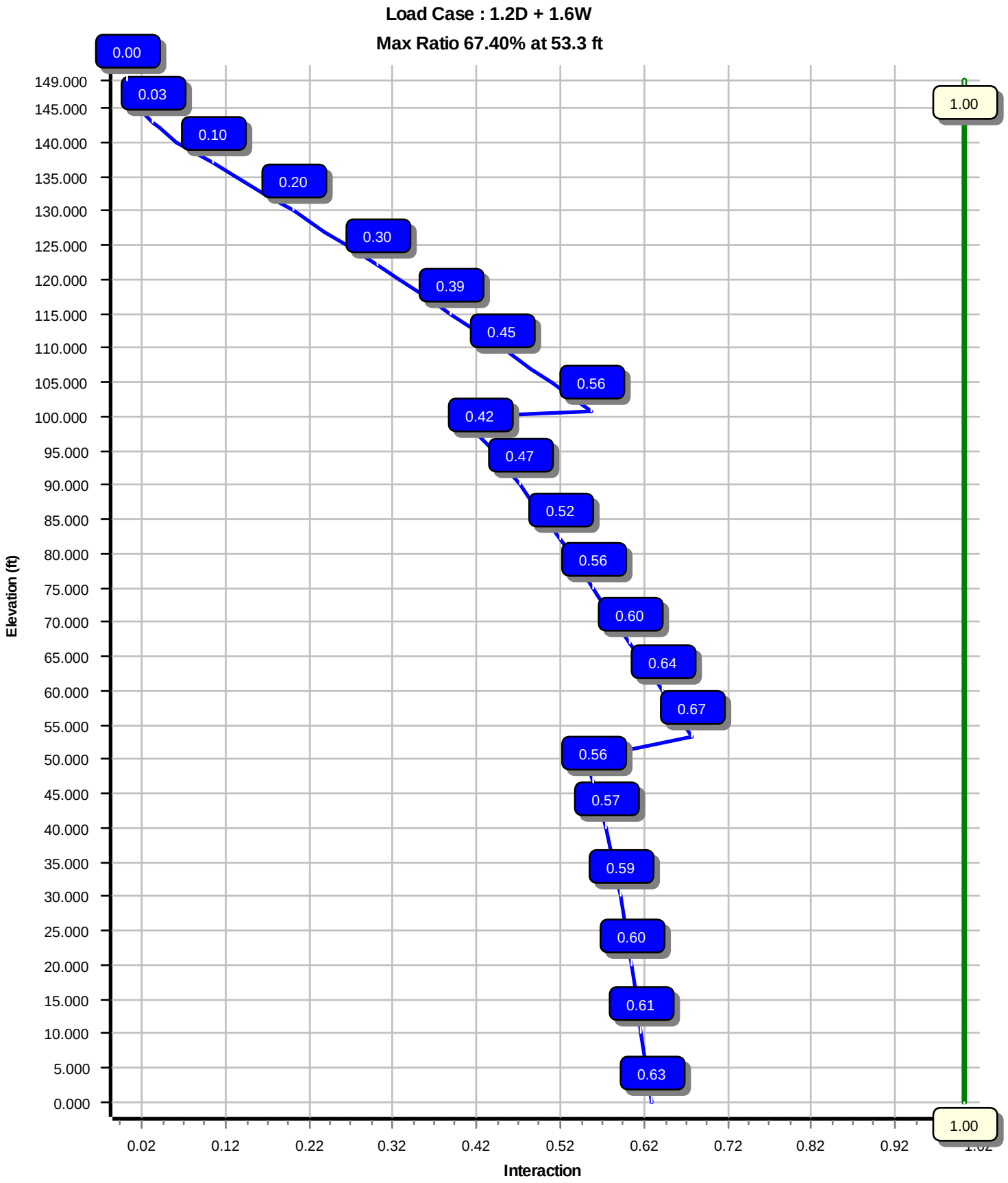
1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	5580.59	49.90	67.52
0.9D + 1.6W	5531.43	49.87	50.62
1.2D + 1.0Di + 1.0Wi	1168.20	10.43	92.33
(1.2 + 0.2Sds) * DL + E ELFM	226.66	1.90	67.32
(1.2 + 0.2Sds) * DL + E EMAM	322.39	2.66	67.32
(0.9 - 0.2Sds) * DL + E ELFM	224.16	1.90	46.92
(0.9 - 0.2Sds) * DL + E EMAM	318.56	2.66	46.92
1.0D + 1.0W	1380.13	12.40	56.33

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 67.40% at 53.3 ft
0.00
0.03
0.10
0.20
0.30
0.39
0.45
0.56
0.42
0.47
0.52
0.56
0.60
0.64
0.67
0.56
0.57
0.59
0.60
0.61
0.63
1.00
1.00
149.000
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
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 415121 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.

Site Name: Falls Village CT PCS CT, CT Engineering Number:OAA749570_C3_01 8/20/2019 1:33:48 PM

Customer: AT&T MOBILITY

Analysis Parameters

Location :	Litchfield County, CT	Height (ft) :	149
Code :	ANSI/TIA-222-G	Base Diameter (in) :	58.50
Shape :	18 Sides	Top Diameter (in) :	25.00
Pole Type :	Taper	Taper (in/ft) :	0.235
Pole Manfacturer :	EEI	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	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:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.06				
T_L (sec):	6	p:	1	C_s:	0.034
S_s:	0.176	S_1:	0.065	C_s Max:	0.034
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.188	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 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 415121 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.

Site Name: Falls Village CT PCS CT, CT Engineering Number:OAA749570_C3_01 8/20/2019 1:33:49 PM

Customer: AT&T MOBILITY

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 (in²)	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	53.290	0.5625	65		0.00	16,730	58.50	0.00	103.44	43867.8	16.93	104.00	45.98	53.29	81.09	21135.7	13.00	81.75	0.234889
2-18	53.920	0.4375	65	Slip	79.00	10,607	48.40	46.71	66.61	19361.6	18.10	110.64	35.73	100.63	49.02	7717.9	12.99	81.69	0.234889
3-18	53.623	0.3125	65	Slip	63.00	5,608	37.59	95.38	36.98	6495.1	19.80	120.31	25.00	149.00	24.49	1885.9	12.70	80.01	0.234889
				Shaft Weight		32,946													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
148.00	Alcatel-Lucent B66A RRH 4x45	3	0.80	-2.000	67.00	2.580	0.67	138.16	3.709	0.67
148.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	-2.000	44.00	4.800	0.72	169.91	6.222	0.72
147.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,017.86	76.340	1.00
146.00	Commscope SBNHH-1D65B	12	0.80	0.000	50.70	8.170	0.69	226.03	10.996	0.69
146.00	Flat T-Arm	3	0.75	0.000	250.00	12.900	0.67	458.79	21.070	0.67
146.00	VZW Unused Reserve: 16756 sq	1	0.80	0.000	1,431.00	116.360	0.90	2,426.92	197.342	0.90
143.00	Alcatel-Lucent B13 RRH4x30-4R	3	0.80	3.000	57.20	2.170	0.67	125.69	3.174	0.67
142.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,016.27	76.220	1.00
140.00	Raycap DC6-48-60-18-8F(32.8	4	0.80	0.000	32.80	1.470	1.00	94.13	2.164	1.00
140.00	Ericsson RRUS 8843 B2, B66A	3	0.80	0.000	72.00	1.640	0.50	132.93	2.480	0.50
140.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.90	1.840	0.50	114.87	2.731	0.50
140.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.970	0.50	135.07	2.898	0.50
140.00	Ericsson RRUS 12 w/ RRUS A2	9	0.80	0.000	80.00	3.150	0.67	175.18	4.304	0.67
140.00	Ericsson RRUS-11	6	0.80	0.000	55.00	3.790	0.61	144.24	5.066	0.61
140.00	CCI HPA-65R-BUU-H8	3	0.80	0.000	68.00	12.980	0.67	323.43	16.540	0.67
140.00	Kathrein Scala 80010966	6	0.80	0.000	114.60	17.360	0.63	433.81	21.027	0.63
140.00	T-Arms with SIte Pro 1 Pipes and	3	0.75	0.000	400.00	17.900	0.75	699.18	32.900	0.75
137.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,014.77	76.108	1.00
132.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,013.22	75.991	1.00
127.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,011.61	75.871	1.00
122.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,009.95	75.746	1.00
117.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,008.22	75.617	1.00
112.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,006.43	75.482	1.00
107.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,004.56	75.342	1.00
102.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,002.73	75.205	1.00
97.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	1,000.65	75.049	1.00
92.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	998.43	74.882	1.00
87.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	996.19	74.714	1.00
82.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	993.82	74.537	1.00
77.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	991.32	74.349	1.00
72.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	988.67	74.150	1.00
67.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	985.84	73.938	1.00
62.00	PINE BRANCH	1	1.00	0.000	600.00	45.000	1.00	982.81	73.711	1.00
Totals	Num Loadings:33	82			17,931.50			35,328.29		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	148.00	2	1.54" (39.2mm) Hybrid	1.54	1.60	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	140.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	140.00	8	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	140.00	3	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	140.00	4	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY

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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)
0.00		0.5625	58.500	103.436	43,867.8	16.93	104.00	81.5	1477.	0.0	0.0
5.00		0.5625	57.326	101.340	41,253.8	16.56	101.91	81.9	1417.	0.0	1,742.0
10.00		0.5625	56.151	99.243	38,745.8	16.19	99.82	82.4	1359.	0.0	1,706.3
15.00		0.5625	54.977	97.146	36,341.5	15.82	97.74	82.6	1302.	0.0	1,670.7
20.00		0.5625	53.802	95.049	34,038.8	15.45	95.65	82.6	1246.	0.0	1,635.0
25.00		0.5625	52.628	92.953	31,835.5	15.09	93.56	82.6	1191.	0.0	1,599.3
30.00		0.5625	51.453	90.856	29,729.4	14.72	91.47	82.6	1138.	0.0	1,563.7
35.00		0.5625	50.279	88.759	27,718.3	14.35	89.38	82.6	1085.	0.0	1,528.0
40.00		0.5625	49.104	86.662	25,799.9	13.98	87.30	82.6	1034.	0.0	1,492.3
45.00		0.5625	47.930	84.566	23,972.2	13.61	85.21	82.6	985.1	0.0	1,456.6
46.71	Bot - Section 2	0.5625	47.529	83.850	23,368.7	13.49	84.50	82.6	968.4	0.0	489.0
50.00		0.5625	46.756	82.469	22,233.0	13.25	83.12	82.6	936.6	0.0	1,672.3
53.29	Top - Section 1	0.4375	46.858	64.458	17,548.7	17.47	107.10	80.8	737.6	0.0	1,643.2
55.00		0.4375	46.456	63.900	17,097.1	17.31	106.19	81.0	724.9	0.0	373.4
60.00		0.4375	45.282	62.270	15,821.3	16.84	103.50	81.6	688.2	0.0	1,073.3
62.00		0.4375	44.812	61.617	15,329.2	16.65	102.43	81.8	673.8	0.0	421.6
65.00		0.4375	44.107	60.639	14,610.5	16.37	100.82	82.2	652.4	0.0	624.0
67.00		0.4375	43.637	59.986	14,144.0	16.18	99.74	82.4	638.4	0.0	410.5
70.00		0.4375	42.933	59.008	13,463.1	15.89	98.13	82.6	617.6	0.0	607.4
72.00		0.4375	42.463	58.356	13,021.5	15.70	97.06	82.6	604.0	0.0	399.4
75.00		0.4375	41.758	57.377	12,377.4	15.42	95.45	82.6	583.8	0.0	590.7
77.00		0.4375	41.289	56.725	11,960.0	15.23	94.37	82.6	570.5	0.0	388.3
80.00		0.4375	40.584	55.746	11,351.7	14.95	92.76	82.6	550.9	0.0	574.1
82.00		0.4375	40.114	55.094	10,957.9	14.76	91.69	82.6	538.0	0.0	377.2
85.00		0.4375	39.409	54.116	10,384.4	14.47	90.08	82.6	519.0	0.0	557.4
87.00		0.4375	38.940	53.463	10,013.3	14.28	89.01	82.6	506.5	0.0	366.1
90.00		0.4375	38.235	52.485	9,473.5	14.00	87.39	82.6	488.0	0.0	540.8
92.00		0.4375	37.765	51.832	9,124.7	13.81	86.32	82.6	475.9	0.0	355.0
95.00		0.4375	37.061	50.854	8,617.6	13.53	84.71	82.6	458.0	0.0	524.1
95.38	Bot - Section 3	0.4375	36.972	50.731	8,555.3	13.49	84.51	82.6	455.8	0.0	65.1
97.00		0.4375	36.591	50.202	8,290.2	13.34	83.64	82.6	446.2	0.0	482.0
100.0		0.4375	35.886	49.223	7,814.9	13.05	82.03	82.6	428.9	0.0	877.6
100.6	Top - Section 2	0.3125	36.364	35.757	5,871.7	19.11	116.36	78.9	318.0	0.0	181.1
102.0		0.3125	36.041	35.437	5,715.5	18.93	115.33	79.1	312.3	0.0	166.4
105.0		0.3125	35.337	34.738	5,383.9	18.53	113.08	79.6	300.1	0.0	358.2
107.0		0.3125	34.867	34.272	5,170.2	18.26	111.57	79.9	292.1	0.0	234.8
110.0		0.3125	34.162	33.574	4,860.3	17.87	109.32	80.4	280.2	0.0	346.3
112.0		0.3125	33.692	33.108	4,660.7	17.60	107.82	80.7	272.5	0.0	226.9
115.0		0.3125	32.988	32.409	4,371.7	17.20	105.56	81.2	261.0	0.0	334.4
117.0		0.3125	32.518	31.943	4,185.9	16.94	104.06	81.5	253.5	0.0	219.0
120.0		0.3125	31.813	31.244	3,917.1	16.54	101.80	81.9	242.5	0.0	322.5
122.0		0.3125	31.344	30.778	3,744.4	16.27	100.30	82.3	235.3	0.0	211.0
125.0		0.3125	30.639	30.079	3,495.1	15.88	98.04	82.6	224.7	0.0	310.6
127.0		0.3125	30.169	29.613	3,335.2	15.61	96.54	82.6	217.7	0.0	203.1
130.0		0.3125	29.464	28.914	3,104.6	15.21	94.29	82.6	207.5	0.0	298.7
132.0		0.3125	28.995	28.448	2,956.9	14.95	92.78	82.6	200.9	0.0	195.2
135.0		0.3125	28.290	27.749	2,744.2	14.55	90.53	82.6	191.1	0.0	286.8
137.0		0.3125	27.820	27.283	2,608.3	14.29	89.02	82.6	184.7	0.0	187.3
140.0		0.3125	27.116	26.584	2,413.0	13.89	86.77	82.6	175.3	0.0	274.9
142.0		0.3125	26.646	26.118	2,288.3	13.62	85.27	82.6	169.1	0.0	179.3
143.0		0.3125	26.411	25.885	2,227.6	13.49	84.51	82.6	166.1	0.0	88.5
145.0		0.3125	25.941	25.420	2,109.5	13.23	83.01	82.6	160.2	0.0	174.6
146.0		0.3125	25.706	25.187	2,052.0	13.09	82.26	82.6	157.2	0.0	86.1
147.0		0.3125	25.471	24.954	1,995.6	12.96	81.51	82.6	154.3	0.0	85.3
148.0		0.3125	25.236	24.721	1,940.2	12.83	80.76	82.6	151.4	0.0	84.5
149.0		0.3125	25.002	24.488	1,885.9	12.70	80.01	82.6	148.6	0.0	83.7
											32,945.6

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Load Case: 1.2D + 1.6W — 90 mph with No Ice — 24 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		193.3	0.0					0.0	0.0	193.3	0.0	0.0	0.0
5.00		382.6	2,090.4					0.0	232.9	382.6	2,323.3	0.0	0.0
10.00		374.8	2,047.6					0.0	232.9	374.8	2,280.5	0.0	0.0
15.00		366.9	2,004.8					0.0	232.9	366.9	2,237.7	0.0	0.0
20.00		359.1	1,962.0					0.0	232.9	359.1	2,194.9	0.0	0.0
25.00		351.3	1,919.2					0.0	232.9	351.3	2,152.0	0.0	0.0
30.00		347.5	1,876.4					0.0	232.9	347.5	2,109.2	0.0	0.0
35.00		350.7	1,833.6					0.0	232.9	350.7	2,066.4	0.0	0.0
40.00		355.9	1,790.8					0.0	232.9	355.9	2,023.6	0.0	0.0
45.00		240.4	1,748.0					0.0	232.9	240.4	1,980.8	0.0	0.0
46.71	Bot - Section 2	182.5	586.8					0.0	79.5	182.5	666.3	0.0	0.0
50.00		242.3	2,006.8					0.0	153.4	242.3	2,160.2	0.0	0.0
53.29	Top - Section 1	184.4	1,971.8					0.0	153.2	184.4	2,125.0	0.0	0.0
55.00		247.6	448.1					0.0	79.6	247.6	527.8	0.0	0.0
60.00		258.2	1,288.0					0.0	232.9	258.2	1,520.8	0.0	0.0
62.00	Appurtenance(s)	184.1	505.9	1,345.0	0.0	0.0	720.0	0.0	93.1	1,529.1	1,319.0	0.0	0.0
65.00		183.8	748.8					0.0	139.7	183.8	888.5	0.0	0.0
67.00	Appurtenance(s)	183.2	492.6	1,375.1	0.0	0.0	720.0	0.0	93.1	1,558.4	1,305.7	0.0	0.0
70.00		182.8	728.8					0.0	139.7	182.8	868.6	0.0	0.0
72.00	Appurtenance(s)	182.0	479.2	1,403.7	0.0	0.0	720.0	0.0	93.1	1,585.7	1,292.4	0.0	0.0
75.00		181.4	708.9					0.0	139.7	181.4	848.6	0.0	0.0
77.00	Appurtenance(s)	180.3	465.9	1,430.9	0.0	0.0	720.0	0.0	93.1	1,611.2	1,279.1	0.0	0.0
80.00		179.6	688.9					0.0	139.7	179.6	828.6	0.0	0.0
82.00	Appurtenance(s)	178.3	452.6	1,456.8	0.0	0.0	720.0	0.0	93.1	1,635.2	1,265.7	0.0	0.0
85.00		177.5	668.9					0.0	139.7	177.5	808.6	0.0	0.0
87.00	Appurtenance(s)	176.0	439.3	1,481.7	0.0	0.0	720.0	0.0	93.1	1,657.7	1,252.4	0.0	0.0
90.00		175.0	648.9					0.0	139.7	175.0	788.6	0.0	0.0
92.00	Appurtenance(s)	173.5	426.0	1,505.5	0.0	0.0	720.0	0.0	93.1	1,679.0	1,239.1	0.0	0.0
95.00		116.7	629.0					0.0	139.7	116.7	768.7	0.0	0.0
95.38	Bot - Section 3	69.5	78.1					0.0	17.5	69.5	95.7	0.0	0.0
97.00	Appurtenance(s)	160.3	578.4	1,528.5	0.0	0.0	720.0	0.0	75.6	1,688.8	1,374.0	0.0	0.0
100.00		125.3	1,053.1					0.0	139.7	125.3	1,192.8	0.0	0.0
100.63	Top - Section 2	68.6	217.4					0.0	29.2	68.6	246.6	0.0	0.0
102.00	Appurtenance(s)	148.9	199.6	1,550.6	0.0	0.0	720.0	0.0	64.0	1,699.5	983.6	0.0	0.0
105.00		169.1	429.8					0.0	139.7	169.1	569.5	0.0	0.0
107.00	Appurtenance(s)	167.1	281.8	1,571.9	0.0	0.0	720.0	0.0	93.1	1,739.0	1,094.9	0.0	0.0
110.00		165.7	415.6					0.0	139.7	165.7	555.3	0.0	0.0
112.00	Appurtenance(s)	163.6	272.3	1,592.6	0.0	0.0	720.0	0.0	93.1	1,756.1	1,085.4	0.0	0.0
115.00		162.1	401.3					0.0	139.7	162.1	541.0	0.0	0.0
117.00	Appurtenance(s)	159.8	262.8	1,612.6	0.0	0.0	720.0	0.0	93.1	1,772.4	1,075.9	0.0	0.0
120.00		158.3	387.0					0.0	139.7	158.3	526.7	0.0	0.0
122.00	Appurtenance(s)	155.9	253.3	1,631.9	0.0	0.0	720.0	0.0	93.1	1,787.8	1,066.4	0.0	0.0
125.00		154.3	372.7					0.0	139.7	154.3	512.5	0.0	0.0
127.00	Appurtenance(s)	151.8	243.7	1,650.8	0.0	0.0	720.0	0.0	93.1	1,802.5	1,056.9	0.0	0.0
130.00		150.0	358.5					0.0	139.7	150.0	498.2	0.0	0.0
132.00	Appurtenance(s)	147.4	234.2	1,669.1	0.0	0.0	720.0	0.0	93.1	1,816.5	1,047.4	0.0	0.0
135.00		145.7	344.2					0.0	139.7	145.7	483.9	0.0	0.0
137.00	Appurtenance(s)	142.9	224.7	1,686.9	0.0	0.0	720.0	0.0	93.1	1,829.9	1,037.9	0.0	0.0

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Load Case: 1.2D + 1.6W — 90 mph with No Ice — 24 Iterations

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

Wind Importance Factor 1.00

140.00	Appurtenance(s)	141.1	329.9	5,322.7	0.0	0.0	4,657.8	0.0	139.7	5,463.8	5,127.5	0.0	0.0
142.00	Appurtenance(s)	83.5	215.2	1,704.3	0.0	0.0	720.0	0.0	7.7	1,787.8	942.9	0.0	0.0
143.00	Appurtenance(s)	82.4	106.2	133.2	0.0	399.6	205.9	0.0	3.8	215.6	315.9	0.0	0.0
145.00		81.8	209.5					0.0	7.7	81.8	217.2	0.0	0.0
146.00	Appurtenance(s)	54.0	103.3	6,006.6	0.0	0.0	3,347.3	0.0	3.8	6,060.6	3,454.4	0.0	0.0
147.00	Appurtenance(s)	53.6	102.4	1,721.2	0.0	0.0	720.0	0.0	3.8	1,774.8	826.2	0.0	0.0
148.00	Appurtenance(s)	53.2	101.4	369.5	0.0	-738.9	346.8	0.0	3.8	422.7	452.1	0.0	0.0
149.00		26.5	100.5					0.0	0.0	26.5	100.5	0.0	0.0
								Totals:		49,985.2	67,603.3	0.00	0.00

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Load Case: 1.2D + 1.6W 90 mph with No Ice 24 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-67.52	-49.90	0.00	-5,580.59	0.00	5,580.59	7,586.21	3,793.11	18,027.1	9,026.97	0.00	0.00	0.627
5.00	-65.05	-49.71	0.00	-5,331.11	0.00	5,331.11	7,471.93	3,735.96	17,392.1	8,709.02	0.10	-0.18	0.621
10.00	-62.61	-49.53	0.00	-5,082.54	0.00	5,082.54	7,356.01	3,678.00	16,764.6	8,394.77	0.38	-0.36	0.614
15.00	-60.22	-49.34	0.00	-4,834.91	0.00	4,834.91	7,217.48	3,608.74	16,097.9	8,060.91	0.85	-0.54	0.608
20.00	-57.87	-49.14	0.00	-4,588.23	0.00	4,588.23	7,061.70	3,530.85	15,407.0	7,714.96	1.51	-0.72	0.603
25.00	-55.56	-48.94	0.00	-4,342.54	0.00	4,342.54	6,905.92	3,452.96	14,731.3	7,376.60	2.37	-0.91	0.597
30.00	-53.30	-48.73	0.00	-4,097.84	0.00	4,097.84	6,750.14	3,375.07	14,070.7	7,045.83	3.42	-1.10	0.590
35.00	-51.08	-48.51	0.00	-3,854.18	0.00	3,854.18	6,594.37	3,297.18	13,425.3	6,722.64	4.68	-1.29	0.581
40.00	-48.90	-48.27	0.00	-3,611.64	0.00	3,611.64	6,438.59	3,219.29	12,795.0	6,407.04	6.13	-1.48	0.572
45.00	-46.82	-48.08	0.00	-3,370.30	0.00	3,370.30	6,282.81	3,141.41	12,179.9	6,099.03	7.78	-1.67	0.560
46.71	-46.08	-47.96	0.00	-3,288.25	0.00	3,288.25	6,229.64	3,114.82	11,973.4	5,995.63	8.39	-1.74	0.556
50.00	-43.82	-47.74	0.00	-3,130.31	0.00	3,130.31	6,127.03	3,063.52	11,580.0	5,798.61	9.64	-1.87	0.547
53.29	-41.62	-47.56	0.00	-2,973.24	0.00	2,973.24	4,690.13	2,345.07	8,932.17	4,472.73	10.97	-2.00	0.674
55.00	-40.98	-47.40	0.00	-2,891.91	0.00	2,891.91	4,660.50	2,330.25	8,798.22	4,405.65	11.70	-2.06	0.666
60.00	-39.34	-47.20	0.00	-2,654.91	0.00	2,654.91	4,572.76	2,286.38	8,410.20	4,211.35	13.99	-2.30	0.639
62.00	-37.99	-45.69	0.00	-2,560.52	0.00	2,560.52	4,537.20	2,268.60	8,256.54	4,134.41	14.97	-2.39	0.628
65.00	-37.02	-45.54	0.00	-2,423.44	0.00	2,423.44	4,483.38	2,241.69	8,027.78	4,019.86	16.52	-2.53	0.612
67.00	-35.69	-44.00	0.00	-2,332.36	0.00	2,332.36	4,447.17	2,223.59	7,876.44	3,944.07	17.60	-2.62	0.600
70.00	-34.75	-43.85	0.00	-2,200.36	0.00	2,200.36	4,383.99	2,192.00	7,636.61	3,823.98	19.29	-2.76	0.584
72.00	-33.45	-42.27	0.00	-2,112.66	0.00	2,112.66	4,335.53	2,167.76	7,467.85	3,739.48	20.46	-2.85	0.573
75.00	-32.53	-42.10	0.00	-1,985.87	0.00	1,985.87	4,262.83	2,131.42	7,218.25	3,614.49	22.30	-2.98	0.557
77.00	-31.26	-40.49	0.00	-1,901.66	0.00	1,901.66	4,214.37	2,107.18	7,054.20	3,532.34	23.56	-3.07	0.546
80.00	-30.37	-40.32	0.00	-1,780.20	0.00	1,780.20	4,141.67	2,070.84	6,811.67	3,410.90	25.54	-3.20	0.530
82.00	-29.12	-38.67	0.00	-1,699.56	0.00	1,699.56	4,093.21	2,046.60	6,652.34	3,331.11	26.90	-3.29	0.518
85.00	-28.26	-38.50	0.00	-1,583.54	0.00	1,583.54	4,020.51	2,010.26	6,416.88	3,213.21	29.01	-3.42	0.500
87.00	-27.04	-36.82	0.00	-1,506.54	0.00	1,506.54	3,972.05	1,986.02	6,262.26	3,135.78	30.46	-3.50	0.488
90.00	-26.20	-36.64	0.00	-1,396.09	0.00	1,396.09	3,899.35	1,949.68	6,033.87	3,021.42	32.70	-3.63	0.469
92.00	-25.01	-34.93	0.00	-1,322.80	0.00	1,322.80	3,850.89	1,925.44	5,883.97	2,946.36	34.23	-3.71	0.456
95.00	-24.21	-34.79	0.00	-1,218.01	0.00	1,218.01	3,778.19	1,889.10	5,662.65	2,835.53	36.60	-3.83	0.436
95.38	-24.09	-34.73	0.00	-1,204.91	0.00	1,204.91	3,769.06	1,884.53	5,635.16	2,821.77	36.90	-3.84	0.434
97.00	-22.78	-32.99	0.00	-1,148.52	0.00	1,148.52	3,729.73	1,864.86	5,517.46	2,762.83	38.22	-3.91	0.422
100.00	-21.56	-32.81	0.00	-1,049.55	0.00	1,049.55	3,657.03	1,828.51	5,303.21	2,655.55	40.71	-4.02	0.401
100.63	-21.30	-32.74	0.00	-1,028.99	0.00	1,028.99	2,539.98	1,269.99	3,759.61	1,882.60	41.24	-4.04	0.556
102.00	-20.39	-31.01	0.00	-984.03	0.00	984.03	2,524.08	1,262.04	3,702.36	1,853.93	42.41	-4.09	0.539
105.00	-19.77	-30.84	0.00	-891.02	0.00	891.02	2,488.92	1,244.46	3,578.16	1,791.74	45.03	-4.23	0.506
107.00	-18.75	-29.06	0.00	-829.34	0.00	829.34	2,465.15	1,232.58	3,496.03	1,750.61	46.82	-4.32	0.482
110.00	-18.16	-28.88	0.00	-742.18	0.00	742.18	2,429.01	1,214.50	3,373.90	1,689.46	49.58	-4.45	0.447
112.00	-17.17	-27.08	0.00	-684.41	0.00	684.41	2,404.59	1,202.29	3,293.20	1,649.05	51.46	-4.54	0.423
115.00	-16.60	-26.90	0.00	-603.18	0.00	603.18	2,367.47	1,183.73	3,173.28	1,589.00	54.35	-4.66	0.387
117.00	-15.63	-25.07	0.00	-549.38	0.00	549.38	2,342.39	1,171.20	3,094.10	1,549.35	56.31	-4.73	0.362
120.00	-15.08	-24.89	0.00	-474.17	0.00	474.17	2,304.29	1,152.15	2,976.53	1,490.48	59.32	-4.84	0.325
122.00	-14.14	-23.04	0.00	-424.39	0.00	424.39	2,278.56	1,139.28	2,898.97	1,451.64	61.36	-4.90	0.299
125.00	-13.61	-22.86	0.00	-355.28	0.00	355.28	2,234.71	1,117.36	2,777.98	1,391.06	64.46	-4.99	0.262

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Load Case: 1.2D + 1.6W 90 mph with No Ice 24 Iterations

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

127.00	-12.69	-20.98	0.00	-309.57	0.00	309.57	2,200.10	1,100.05	2,692.15	1,348.08	66.56	-5.04	0.236
130.00	-12.19	-20.80	0.00	-246.62	0.00	246.62	2,148.17	1,074.09	2,565.93	1,284.87	69.75	-5.11	0.198
132.00	-11.30	-18.91	0.00	-205.02	0.00	205.02	2,113.55	1,056.78	2,483.46	1,243.58	71.90	-5.16	0.171
135.00	-10.81	-18.73	0.00	-148.30	0.00	148.30	2,061.63	1,030.81	2,362.30	1,182.90	75.15	-5.21	0.131
137.00	-9.94	-16.81	0.00	-110.85	0.00	110.85	2,027.01	1,013.51	2,283.20	1,143.30	77.34	-5.23	0.102
140.00	-5.33	-10.91	0.00	-60.41	0.00	60.41	1,975.09	987.54	2,167.08	1,085.15	80.63	-5.26	0.058
142.00	-4.55	-9.04	0.00	-38.60	0.00	38.60	1,940.47	970.23	2,091.35	1,047.23	82.84	-5.27	0.039
143.00	-4.26	-8.80	0.00	-29.16	0.00	29.16	1,923.16	961.58	2,053.99	1,028.52	83.94	-5.28	0.031
145.00	-4.05	-8.69	0.00	-11.57	0.00	11.57	1,888.54	944.27	1,980.28	991.61	86.15	-5.28	0.014
146.00	-1.17	-2.34	0.00	-2.88	0.00	2.88	1,871.23	935.62	1,943.93	973.41	87.26	-5.28	0.004
147.00	-0.51	-0.50	0.00	-0.53	0.00	0.53	1,853.93	926.96	1,907.92	955.38	88.36	-5.28	0.001
148.00	-0.10	-0.04	0.00	-0.04	0.00	0.04	1,836.62	918.31	1,872.25	937.51	89.47	-5.28	0.000
149.00	0.00	-0.03	0.00	0.00	0.00	0.00	1,819.31	909.65	1,836.91	919.82	90.57	-5.28	0.000

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Load Case: 0.9D + 1.6W — 90 mph with No Ice (Reduced DL) — 24 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		193.3	0.0					0.0	0.0	193.3	0.0	0.0	0.0
5.00		382.6	1,567.8					0.0	174.6	382.6	1,742.5	0.0	0.0
10.00		374.8	1,535.7					0.0	174.6	374.8	1,710.4	0.0	0.0
15.00		366.9	1,503.6					0.0	174.6	366.9	1,678.2	0.0	0.0
20.00		359.1	1,471.5					0.0	174.6	359.1	1,646.1	0.0	0.0
25.00		351.3	1,439.4					0.0	174.6	351.3	1,614.0	0.0	0.0
30.00		347.5	1,407.3					0.0	174.6	347.5	1,581.9	0.0	0.0
35.00		350.7	1,375.2					0.0	174.6	350.7	1,549.8	0.0	0.0
40.00		355.9	1,343.1					0.0	174.6	355.9	1,517.7	0.0	0.0
45.00		240.4	1,311.0					0.0	174.6	240.4	1,485.6	0.0	0.0
46.71	Bot - Section 2	182.5	440.1					0.0	59.6	182.5	499.7	0.0	0.0
50.00		242.3	1,505.1					0.0	115.0	242.3	1,620.1	0.0	0.0
53.29	Top - Section 1	184.4	1,478.8					0.0	114.9	184.4	1,593.8	0.0	0.0
55.00		247.6	336.1					0.0	59.7	247.6	395.8	0.0	0.0
60.00		258.2	966.0					0.0	174.6	258.2	1,140.6	0.0	0.0
62.00	Appurtenance(s)	184.1	379.4	1,345.0	0.0	0.0	540.0	0.0	69.9	1,529.1	989.3	0.0	0.0
65.00		183.8	561.6					0.0	104.8	183.8	666.4	0.0	0.0
67.00	Appurtenance(s)	183.2	369.4	1,375.1	0.0	0.0	540.0	0.0	69.9	1,558.4	979.3	0.0	0.0
70.00		182.8	546.6					0.0	104.8	182.8	651.4	0.0	0.0
72.00	Appurtenance(s)	182.0	359.4	1,403.7	0.0	0.0	540.0	0.0	69.9	1,585.7	969.3	0.0	0.0
75.00		181.4	531.6					0.0	104.8	181.4	636.4	0.0	0.0
77.00	Appurtenance(s)	180.3	349.4	1,430.9	0.0	0.0	540.0	0.0	69.9	1,611.2	959.3	0.0	0.0
80.00		179.6	516.7					0.0	104.8	179.6	621.5	0.0	0.0
82.00	Appurtenance(s)	178.3	339.4	1,456.8	0.0	0.0	540.0	0.0	69.9	1,635.2	949.3	0.0	0.0
85.00		177.5	501.7					0.0	104.8	177.5	606.5	0.0	0.0
87.00	Appurtenance(s)	176.0	329.5	1,481.7	0.0	0.0	540.0	0.0	69.9	1,657.7	939.3	0.0	0.0
90.00		175.0	486.7					0.0	104.8	175.0	591.5	0.0	0.0
92.00	Appurtenance(s)	173.5	319.5	1,505.5	0.0	0.0	540.0	0.0	69.9	1,679.0	929.3	0.0	0.0
95.00		116.7	471.7					0.0	104.8	116.7	576.5	0.0	0.0
95.38	Bot - Section 3	69.5	58.6					0.0	13.2	69.5	71.7	0.0	0.0
97.00	Appurtenance(s)	160.3	433.8	1,528.5	0.0	0.0	540.0	0.0	56.7	1,688.8	1,030.5	0.0	0.0
100.00		125.3	789.8					0.0	104.8	125.3	894.6	0.0	0.0
100.63	Top - Section 2	68.6	163.0					0.0	21.9	68.6	184.9	0.0	0.0
102.00	Appurtenance(s)	148.9	149.7	1,550.6	0.0	0.0	540.0	0.0	48.0	1,699.5	737.7	0.0	0.0
105.00		169.1	322.4					0.0	104.8	169.1	427.2	0.0	0.0
107.00	Appurtenance(s)	167.1	211.3	1,571.9	0.0	0.0	540.0	0.0	69.9	1,739.0	821.2	0.0	0.0
110.00		165.7	311.7					0.0	104.8	165.7	416.5	0.0	0.0
112.00	Appurtenance(s)	163.6	204.2	1,592.6	0.0	0.0	540.0	0.0	69.9	1,756.1	814.1	0.0	0.0
115.00		162.1	301.0					0.0	104.8	162.1	405.8	0.0	0.0
117.00	Appurtenance(s)	159.8	197.1	1,612.6	0.0	0.0	540.0	0.0	69.9	1,772.4	806.9	0.0	0.0
120.00		158.3	290.3					0.0	104.8	158.3	395.1	0.0	0.0
122.00	Appurtenance(s)	155.9	189.9	1,631.9	0.0	0.0	540.0	0.0	69.9	1,787.8	799.8	0.0	0.0
125.00		154.3	279.6					0.0	104.8	154.3	384.3	0.0	0.0
127.00	Appurtenance(s)	151.8	182.8	1,650.8	0.0	0.0	540.0	0.0	69.9	1,802.5	792.7	0.0	0.0
130.00		150.0	268.9					0.0	104.8	150.0	373.6	0.0	0.0
132.00	Appurtenance(s)	147.4	175.7	1,669.1	0.0	0.0	540.0	0.0	69.9	1,816.5	785.5	0.0	0.0
135.00		145.7	258.2					0.0	104.8	145.7	362.9	0.0	0.0
137.00	Appurtenance(s)	142.9	168.5	1,686.9	0.0	0.0	540.0	0.0	69.9	1,829.9	778.4	0.0	0.0

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Load Case: 0.9D + 1.6W — 90 mph with No Ice (Reduced DL) — 24 Iterations

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

Wind Importance Factor 1.00

140.00	Appurtenance(s)	141.1	247.5	5,322.7	0.0	0.0	3,493.3	0.0	104.8	5,463.8	3,845.6	0.0	0.0
142.00	Appurtenance(s)	83.5	161.4	1,704.3	0.0	0.0	540.0	0.0	5.8	1,787.8	707.2	0.0	0.0
143.00	Appurtenance(s)	82.4	79.6	133.2	0.0	399.6	154.4	0.0	2.9	215.6	237.0	0.0	0.0
145.00		81.8	157.1					0.0	5.8	81.8	162.9	0.0	0.0
146.00	Appurtenance(s)	54.0	77.5	6,006.6	0.0	0.0	2,510.5	0.0	2.9	6,060.6	2,590.8	0.0	0.0
147.00	Appurtenance(s)	53.6	76.8	1,721.2	0.0	0.0	540.0	0.0	2.9	1,774.8	619.7	0.0	0.0
148.00	Appurtenance(s)	53.2	76.1	369.5	0.0	-738.9	260.1	0.0	2.9	422.7	339.0	0.0	0.0
149.00		26.5	75.4					0.0	0.0	26.5	75.4	0.0	0.0
								Totals:		49,985.2	50,702.4	0.00	0.00

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Load Case: 0.9D + 1.6W 90 mph with No Ice (Reduced DL) 24 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-50.62	-49.87	0.00	-5,531.43	0.00	5,531.43	7,586.21	3,793.11	18,027.1	9,026.97	0.00	0.00	0.620
5.00	-48.73	-49.64	0.00	-5,282.07	0.00	5,282.07	7,471.93	3,735.96	17,392.1	8,709.02	0.09	-0.18	0.613
10.00	-46.87	-49.40	0.00	-5,033.90	0.00	5,033.90	7,356.01	3,678.00	16,764.6	8,394.77	0.37	-0.35	0.606
15.00	-45.04	-49.16	0.00	-4,786.90	0.00	4,786.90	7,217.48	3,608.74	16,097.9	8,060.91	0.84	-0.53	0.600
20.00	-43.24	-48.92	0.00	-4,541.09	0.00	4,541.09	7,061.70	3,530.85	15,407.0	7,714.96	1.50	-0.72	0.595
25.00	-41.47	-48.69	0.00	-4,296.47	0.00	4,296.47	6,905.92	3,452.96	14,731.3	7,376.60	2.35	-0.90	0.589
30.00	-39.74	-48.44	0.00	-4,053.04	0.00	4,053.04	6,750.14	3,375.07	14,070.7	7,045.83	3.39	-1.09	0.581
35.00	-38.04	-48.18	0.00	-3,810.84	0.00	3,810.84	6,594.37	3,297.18	13,425.3	6,722.64	4.63	-1.28	0.573
40.00	-36.37	-47.91	0.00	-3,569.93	0.00	3,569.93	6,438.59	3,219.29	12,795.0	6,407.04	6.07	-1.46	0.563
45.00	-34.78	-47.71	0.00	-3,330.37	0.00	3,330.37	6,282.81	3,141.41	12,179.9	6,099.03	7.71	-1.65	0.552
46.71	-34.21	-47.57	0.00	-3,248.95	0.00	3,248.95	6,229.64	3,114.82	11,973.4	5,995.63	8.31	-1.72	0.548
50.00	-32.49	-47.35	0.00	-3,092.28	0.00	3,092.28	6,127.03	3,063.52	11,580.0	5,798.61	9.54	-1.85	0.539
53.29	-30.83	-47.16	0.00	-2,936.51	0.00	2,936.51	4,690.13	2,345.07	8,932.17	4,472.73	10.86	-1.98	0.664
55.00	-30.32	-46.98	0.00	-2,855.86	0.00	2,855.86	4,660.50	2,330.25	8,798.22	4,405.65	11.58	-2.04	0.655
60.00	-29.06	-46.76	0.00	-2,620.95	0.00	2,620.95	4,572.76	2,286.38	8,410.20	4,211.35	13.85	-2.27	0.629
62.00	-28.04	-45.25	0.00	-2,527.43	0.00	2,527.43	4,537.20	2,268.60	8,256.54	4,134.41	14.82	-2.36	0.618
65.00	-27.29	-45.09	0.00	-2,391.68	0.00	2,391.68	4,483.38	2,241.69	8,027.78	4,019.86	16.35	-2.50	0.601
67.00	-26.30	-43.54	0.00	-2,301.50	0.00	2,301.50	4,447.17	2,223.59	7,876.44	3,944.07	17.41	-2.59	0.590
70.00	-25.57	-43.38	0.00	-2,170.87	0.00	2,170.87	4,383.99	2,192.00	7,636.61	3,823.98	19.09	-2.73	0.574
72.00	-24.60	-41.80	0.00	-2,084.11	0.00	2,084.11	4,335.53	2,167.76	7,467.85	3,739.48	20.25	-2.82	0.563
75.00	-23.89	-41.63	0.00	-1,958.71	0.00	1,958.71	4,262.83	2,131.42	7,218.25	3,614.49	22.06	-2.95	0.548
77.00	-22.94	-40.02	0.00	-1,875.45	0.00	1,875.45	4,214.37	2,107.18	7,054.20	3,532.34	23.31	-3.04	0.537
80.00	-22.26	-39.85	0.00	-1,755.40	0.00	1,755.40	4,141.67	2,070.84	6,811.67	3,410.90	25.26	-3.17	0.520
82.00	-21.33	-38.20	0.00	-1,675.71	0.00	1,675.71	4,093.21	2,046.60	6,652.34	3,331.11	26.61	-3.25	0.509
85.00	-20.66	-38.02	0.00	-1,561.12	0.00	1,561.12	4,020.51	2,010.26	6,416.88	3,213.21	28.69	-3.38	0.491
87.00	-19.76	-36.35	0.00	-1,485.07	0.00	1,485.07	3,972.05	1,986.02	6,262.26	3,135.78	30.13	-3.46	0.479
90.00	-19.12	-36.17	0.00	-1,376.03	0.00	1,376.03	3,899.35	1,949.68	6,033.87	3,021.42	32.34	-3.58	0.461
92.00	-18.24	-34.47	0.00	-1,303.68	0.00	1,303.68	3,850.89	1,925.44	5,883.97	2,946.36	33.86	-3.66	0.448
95.00	-17.63	-34.34	0.00	-1,200.28	0.00	1,200.28	3,778.19	1,889.10	5,662.65	2,835.53	36.20	-3.78	0.428
95.38	-17.54	-34.27	0.00	-1,187.35	0.00	1,187.35	3,769.06	1,884.53	5,635.16	2,821.77	36.50	-3.80	0.426
97.00	-16.57	-32.54	0.00	-1,131.71	0.00	1,131.71	3,729.73	1,864.86	5,517.46	2,762.83	37.80	-3.86	0.414
100.00	-15.65	-32.38	0.00	-1,034.08	0.00	1,034.08	3,657.03	1,828.51	5,303.21	2,655.55	40.26	-3.97	0.394
100.63	-15.45	-32.31	0.00	-1,013.79	0.00	1,013.79	2,539.98	1,269.99	3,759.61	1,882.60	40.78	-3.99	0.545
102.00	-14.78	-30.58	0.00	-969.42	0.00	969.42	2,524.08	1,262.04	3,702.36	1,853.93	41.93	-4.04	0.529
105.00	-14.31	-30.41	0.00	-877.67	0.00	877.67	2,488.92	1,244.46	3,578.16	1,791.74	44.52	-4.18	0.496
107.00	-13.56	-28.64	0.00	-816.85	0.00	816.85	2,465.15	1,232.58	3,496.03	1,750.61	46.29	-4.27	0.473
110.00	-13.11	-28.47	0.00	-730.92	0.00	730.92	2,429.01	1,214.50	3,373.90	1,689.46	49.01	-4.40	0.439
112.00	-12.39	-26.68	0.00	-673.98	0.00	673.98	2,404.59	1,202.29	3,293.20	1,649.05	50.87	-4.48	0.414
115.00	-11.95	-26.50	0.00	-593.95	0.00	593.95	2,367.47	1,183.73	3,173.28	1,589.00	53.72	-4.60	0.379
117.00	-11.25	-24.69	0.00	-540.94	0.00	540.94	2,342.39	1,171.20	3,094.10	1,549.35	55.67	-4.67	0.354
120.00	-10.84	-24.51	0.00	-466.88	0.00	466.88	2,304.29	1,152.15	2,976.53	1,490.48	58.63	-4.77	0.318
122.00	-10.16	-22.68	0.00	-417.85	0.00	417.85	2,278.56	1,139.28	2,898.97	1,451.64	60.64	-4.84	0.293
125.00	-9.76	-22.51	0.00	-349.81	0.00	349.81	2,234.71	1,117.36	2,777.98	1,391.06	63.71	-4.93	0.256

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Load Case: 0.9D + 1.6W — 90 mph with No Ice (Reduced DL) — 24 Iterations

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

Wind Importance Factor 1.00

127.00	-9.11	-20.65	0.00	-304.80	0.00	304.80	2,200.10	1,100.05	2,692.15	1,348.08	65.78	-4.98	0.231
130.00	-8.73	-20.48	0.00	-242.84	0.00	242.84	2,148.17	1,074.09	2,565.93	1,284.87	68.93	-5.05	0.193
132.00	-8.09	-18.60	0.00	-201.89	0.00	201.89	2,113.55	1,056.78	2,483.46	1,243.58	71.05	-5.09	0.166
135.00	-7.73	-18.43	0.00	-146.08	0.00	146.08	2,061.63	1,030.81	2,362.30	1,182.90	74.27	-5.14	0.128
137.00	-7.11	-16.54	0.00	-109.21	0.00	109.21	2,027.01	1,013.51	2,283.20	1,143.30	76.42	-5.17	0.099
140.00	-3.77	-10.76	0.00	-59.58	0.00	59.58	1,975.09	987.54	2,167.08	1,085.15	79.68	-5.19	0.057
142.00	-3.23	-8.91	0.00	-38.07	0.00	38.07	1,940.47	970.23	2,091.35	1,047.23	81.85	-5.21	0.038
143.00	-3.01	-8.68	0.00	-28.76	0.00	28.76	1,923.16	961.58	2,053.99	1,028.52	82.94	-5.21	0.030
145.00	-2.86	-8.58	0.00	-11.41	0.00	11.41	1,888.54	944.27	1,980.28	991.61	85.12	-5.21	0.013
146.00	-0.83	-2.31	0.00	-2.83	0.00	2.83	1,871.23	935.62	1,943.93	973.41	86.21	-5.22	0.003
147.00	-0.37	-0.48	0.00	-0.52	0.00	0.52	1,853.93	926.96	1,907.92	955.38	87.30	-5.22	0.001
148.00	-0.07	-0.03	0.00	-0.03	0.00	0.03	1,836.62	918.31	1,872.25	937.51	88.40	-5.22	0.000
149.00	0.00	-0.03	0.00	0.00	0.00	0.00	1,819.31	909.65	1,836.91	919.82	89.49	-5.22	0.000

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Load Case: 1.2D + 1.0Di + 1.0Wi — 40 mph with 0.75 in Radial Ice — 23 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		45.8	0.0					0.0	0.0	45.8	0.0	0.0	0.0
5.00		90.9	2,515.0					0.0	232.9	90.9	2,747.9	0.0	0.0
10.00		89.4	2,513.1					0.0	232.9	89.4	2,745.9	0.0	0.0
15.00		87.8	2,485.2					0.0	232.9	87.8	2,718.1	0.0	0.0
20.00		86.1	2,448.9					0.0	232.9	86.1	2,681.7	0.0	0.0
25.00		84.4	2,408.2					0.0	232.9	84.4	2,641.0	0.0	0.0
30.00		83.7	2,364.7					0.0	232.9	83.7	2,597.6	0.0	0.0
35.00		84.7	2,319.3					0.0	232.9	84.7	2,552.2	0.0	0.0
40.00		86.1	2,272.5					0.0	232.9	86.1	2,505.4	0.0	0.0
45.00		58.2	2,224.6					0.0	232.9	58.2	2,457.5	0.0	0.0
46.71	Bot - Section 2	44.3	749.5					0.0	79.5	44.3	829.0	0.0	0.0
50.00		58.8	2,323.0					0.0	153.4	58.8	2,476.4	0.0	0.0
53.29	Top - Section 1	44.8	2,284.9					0.0	153.2	44.8	2,438.1	0.0	0.0
55.00		60.3	610.3					0.0	79.6	60.3	689.9	0.0	0.0
60.00		62.9	1,753.5					0.0	232.9	62.9	1,986.3	0.0	0.0
62.00	Appurtenance(s)	44.9	691.3	272.0	0.0	0.0	982.8	0.0	93.1	316.9	1,767.3	0.0	0.0
65.00		44.9	1,023.9					0.0	139.7	44.9	1,163.6	0.0	0.0
67.00	Appurtenance(s)	44.8	674.8	278.9	0.0	0.0	985.8	0.0	93.1	323.7	1,753.8	0.0	0.0
70.00		44.7	999.0					0.0	139.7	44.7	1,138.7	0.0	0.0
72.00	Appurtenance(s)	44.6	658.1	285.6	0.0	0.0	988.7	0.0	93.1	330.2	1,739.9	0.0	0.0
75.00		44.5	973.8					0.0	139.7	44.5	1,113.5	0.0	0.0
77.00	Appurtenance(s)	44.3	641.2	291.9	0.0	0.0	991.3	0.0	93.1	336.2	1,725.7	0.0	0.0
80.00		44.2	948.4					0.0	139.7	44.2	1,088.1	0.0	0.0
82.00	Appurtenance(s)	43.9	624.2	297.9	0.0	0.0	993.8	0.0	93.1	341.8	1,711.2	0.0	0.0
85.00		43.8	922.8					0.0	139.7	43.8	1,062.5	0.0	0.0
87.00	Appurtenance(s)	43.5	607.1	303.7	0.0	0.0	996.2	0.0	93.1	347.2	1,696.5	0.0	0.0
90.00		43.3	897.1					0.0	139.7	43.3	1,036.8	0.0	0.0
92.00	Appurtenance(s)	43.0	589.9	309.3	0.0	0.0	998.4	0.0	93.1	352.3	1,681.5	0.0	0.0
95.00		28.9	871.2					0.0	139.7	28.9	1,010.9	0.0	0.0
95.38	Bot - Section 3	17.2	108.5					0.0	17.5	17.2	126.1	0.0	0.0
97.00	Appurtenance(s)	39.8	710.4	314.7	0.0	0.0	1,000.6	0.0	75.6	354.5	1,786.6	0.0	0.0
100.00		31.1	1,293.2					0.0	139.7	31.1	1,432.9	0.0	0.0
100.63	Top - Section 2	17.0	267.4					0.0	29.2	17.0	296.6	0.0	0.0
102.00	Appurtenance(s)	37.1	308.5	319.9	0.0	0.0	1,002.7	0.0	64.0	357.0	1,375.2	0.0	0.0
105.00		42.2	663.7					0.0	139.7	42.2	803.4	0.0	0.0
107.00	Appurtenance(s)	41.7	436.1	324.9	0.0	0.0	1,004.6	0.0	93.1	366.6	1,533.8	0.0	0.0
110.00		41.4	643.2					0.0	139.7	41.4	782.9	0.0	0.0
112.00	Appurtenance(s)	41.0	422.4	329.8	0.0	0.0	1,006.4	0.0	93.1	370.8	1,522.0	0.0	0.0
115.00		40.7	622.5					0.0	139.7	40.7	762.2	0.0	0.0
117.00	Appurtenance(s)	40.2	408.6	334.5	0.0	0.0	1,008.2	0.0	93.1	374.7	1,509.9	0.0	0.0
120.00		39.9	601.7					0.0	139.7	39.9	741.4	0.0	0.0
122.00	Appurtenance(s)	39.4	394.7	339.1	0.0	0.0	1,009.9	0.0	93.1	378.5	1,497.8	0.0	0.0
125.00		39.0	580.8					0.0	139.7	39.0	720.5	0.0	0.0
127.00	Appurtenance(s)	38.5	380.7	343.6	0.0	0.0	1,011.6	0.0	93.1	382.1	1,485.5	0.0	0.0
130.00		38.1	559.8					0.0	139.7	38.1	699.5	0.0	0.0
132.00	Appurtenance(s)	37.6	366.7	348.0	0.0	0.0	1,013.2	0.0	93.1	385.5	1,473.0	0.0	0.0
135.00		37.2	538.7					0.0	139.7	37.2	678.4	0.0	0.0
137.00	Appurtenance(s)	36.6	352.6	352.2	0.0	0.0	1,014.8	0.0	93.1	388.8	1,460.5	0.0	0.0

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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 0.75 in Radial Ice 23 Iterations

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

140.00	Appurtenance(s)	36.2	517.6	921.8	0.0	0.0	8,661.7	0.0	139.7	958.0	9,319.0	0.0	0.0
142.00	Appurtenance(s)	21.5	338.5	356.4	0.0	0.0	1,016.3	0.0	7.7	377.9	1,362.4	0.0	0.0
143.00	Appurtenance(s)	21.2	167.4	24.1	0.0	72.2	352.3	0.0	3.8	45.3	523.5	0.0	0.0
145.00		21.1	330.0					0.0	7.7	21.1	337.7	0.0	0.0
146.00	Appurtenance(s)	13.9	163.1	1,162.6	0.0	0.0	5,989.3	0.0	3.8	1,176.6	6,156.2	0.0	0.0
147.00	Appurtenance(s)	13.9	161.7	360.5	0.0	0.0	1,017.9	0.0	3.8	374.3	1,183.4	0.0	0.0
148.00	Appurtenance(s)	13.8	160.3	61.9	0.0	-123.8	678.4	0.0	3.8	75.7	842.5	0.0	0.0
149.00		6.9	158.9					0.0	0.0	6.9	158.9	0.0	0.0
								Totals:		10,448.7	92,328.7	0.00	0.00

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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 0.75 in Radial Ice 23 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-92.33	-10.43	0.00	-1,168.20	0.00	1,168.20	7,586.21	3,793.11	18,027.1	9,026.97	0.00	0.00	0.142
5.00	-89.57	-10.40	0.00	-1,116.04	0.00	1,116.04	7,471.93	3,735.96	17,392.1	8,709.02	0.02	-0.04	0.140
10.00	-86.82	-10.36	0.00	-1,064.04	0.00	1,064.04	7,356.01	3,678.00	16,764.6	8,394.77	0.08	-0.07	0.139
15.00	-84.09	-10.33	0.00	-1,012.22	0.00	1,012.22	7,217.48	3,608.74	16,097.9	8,060.91	0.18	-0.11	0.137
20.00	-81.40	-10.29	0.00	-960.58	0.00	960.58	7,061.70	3,530.85	15,407.0	7,714.96	0.32	-0.15	0.136
25.00	-78.76	-10.25	0.00	-909.12	0.00	909.12	6,905.92	3,452.96	14,731.3	7,376.60	0.50	-0.19	0.135
30.00	-76.15	-10.21	0.00	-857.85	0.00	857.85	6,750.14	3,375.07	14,070.7	7,045.83	0.72	-0.23	0.133
35.00	-73.59	-10.17	0.00	-806.79	0.00	806.79	6,594.37	3,297.18	13,425.3	6,722.64	0.98	-0.27	0.131
40.00	-71.08	-10.12	0.00	-755.95	0.00	755.95	6,438.59	3,219.29	12,795.0	6,407.04	1.28	-0.31	0.129
45.00	-68.62	-10.08	0.00	-705.35	0.00	705.35	6,282.81	3,141.41	12,179.9	6,099.03	1.63	-0.35	0.127
46.71	-67.79	-10.05	0.00	-688.15	0.00	688.15	6,229.64	3,114.82	11,973.4	5,995.63	1.76	-0.36	0.126
50.00	-65.31	-10.01	0.00	-655.04	0.00	655.04	6,127.03	3,063.52	11,580.0	5,798.61	2.02	-0.39	0.124
53.29	-62.87	-9.97	0.00	-622.11	0.00	622.11	4,690.13	2,345.07	8,932.17	4,472.73	2.30	-0.42	0.153
55.00	-62.17	-9.94	0.00	-605.06	0.00	605.06	4,660.50	2,330.25	8,798.22	4,405.65	2.45	-0.43	0.151
60.00	-60.18	-9.90	0.00	-555.36	0.00	555.36	4,572.76	2,286.38	8,410.20	4,211.35	2.93	-0.48	0.145
62.00	-58.41	-9.59	0.00	-535.57	0.00	535.57	4,537.20	2,268.60	8,256.54	4,134.41	3.13	-0.50	0.142
65.00	-57.24	-9.56	0.00	-506.80	0.00	506.80	4,483.38	2,241.69	8,027.78	4,019.86	3.46	-0.53	0.139
67.00	-55.49	-9.24	0.00	-487.69	0.00	487.69	4,447.17	2,223.59	7,876.44	3,944.07	3.68	-0.55	0.136
70.00	-54.35	-9.21	0.00	-459.97	0.00	459.97	4,383.99	2,192.00	7,636.61	3,823.98	4.04	-0.58	0.133
72.00	-52.61	-8.88	0.00	-441.55	0.00	441.55	4,335.53	2,167.76	7,467.85	3,739.48	4.28	-0.60	0.130
75.00	-51.49	-8.85	0.00	-414.91	0.00	414.91	4,262.83	2,131.42	7,218.25	3,614.49	4.67	-0.62	0.127
77.00	-49.76	-8.51	0.00	-397.22	0.00	397.22	4,214.37	2,107.18	7,054.20	3,532.34	4.93	-0.64	0.124
80.00	-48.67	-8.47	0.00	-371.69	0.00	371.69	4,141.67	2,070.84	6,811.67	3,410.90	5.35	-0.67	0.121
82.00	-46.96	-8.13	0.00	-354.74	0.00	354.74	4,093.21	2,046.60	6,652.34	3,331.11	5.63	-0.69	0.118
85.00	-45.90	-8.09	0.00	-330.36	0.00	330.36	4,020.51	2,010.26	6,416.88	3,213.21	6.07	-0.72	0.114
87.00	-44.20	-7.74	0.00	-314.18	0.00	314.18	3,972.05	1,986.02	6,262.26	3,135.78	6.38	-0.73	0.111
90.00	-43.16	-7.70	0.00	-290.96	0.00	290.96	3,899.35	1,949.68	6,033.87	3,021.42	6.85	-0.76	0.107
92.00	-41.49	-7.34	0.00	-275.57	0.00	275.57	3,850.89	1,925.44	5,883.97	2,946.36	7.17	-0.78	0.104
95.00	-40.47	-7.31	0.00	-253.55	0.00	253.55	3,778.19	1,889.10	5,662.65	2,835.53	7.66	-0.80	0.100
95.38	-40.35	-7.29	0.00	-250.80	0.00	250.80	3,769.06	1,884.53	5,635.16	2,821.77	7.73	-0.80	0.100
97.00	-38.56	-6.92	0.00	-238.96	0.00	238.96	3,729.73	1,864.86	5,517.46	2,762.83	8.00	-0.82	0.097
100.00	-37.13	-6.88	0.00	-218.19	0.00	218.19	3,657.03	1,828.51	5,303.21	2,655.55	8.52	-0.84	0.092
100.63	-36.83	-6.87	0.00	-213.88	0.00	213.88	2,539.98	1,269.99	3,759.61	1,882.60	8.63	-0.85	0.128
102.00	-35.46	-6.50	0.00	-204.45	0.00	204.45	2,524.08	1,262.04	3,702.36	1,853.93	8.88	-0.86	0.124
105.00	-34.65	-6.46	0.00	-184.95	0.00	184.95	2,488.92	1,244.46	3,578.16	1,791.74	9.42	-0.88	0.117
107.00	-33.12	-6.08	0.00	-172.03	0.00	172.03	2,465.15	1,232.58	3,496.03	1,750.61	9.80	-0.90	0.112
110.00	-32.34	-6.04	0.00	-153.78	0.00	153.78	2,429.01	1,214.50	3,373.90	1,689.46	10.38	-0.93	0.104
112.00	-30.82	-5.66	0.00	-141.69	0.00	141.69	2,404.59	1,202.29	3,293.20	1,649.05	10.77	-0.95	0.099
115.00	-30.06	-5.61	0.00	-124.72	0.00	124.72	2,367.47	1,183.73	3,173.28	1,589.00	11.37	-0.97	0.091
117.00	-28.55	-5.22	0.00	-113.49	0.00	113.49	2,342.39	1,171.20	3,094.10	1,549.35	11.78	-0.99	0.085
120.00	-27.81	-5.18	0.00	-97.82	0.00	97.82	2,304.29	1,152.15	2,976.53	1,490.48	12.41	-1.01	0.078
122.00	-26.32	-4.78	0.00	-87.47	0.00	87.47	2,278.56	1,139.28	2,898.97	1,451.64	12.84	-1.02	0.072
125.00	-25.60	-4.74	0.00	-73.12	0.00	73.12	2,234.71	1,117.36	2,777.98	1,391.06	13.49	-1.04	0.064

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Load Case: 1.2D + 1.0Di + 1.0Wi — 40 mph with 0.75 in Radial Ice — 23 Iterations

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

127.00	-24.12	-4.33	0.00	-63.65	0.00	63.65	2,200.10	1,100.05	2,692.15	1,348.08	13.93	-1.05	0.058
130.00	-23.42	-4.29	0.00	-50.66	0.00	50.66	2,148.17	1,074.09	2,565.93	1,284.87	14.59	-1.07	0.050
132.00	-21.95	-3.88	0.00	-42.08	0.00	42.08	2,113.55	1,056.78	2,483.46	1,243.58	15.04	-1.08	0.044
135.00	-21.28	-3.83	0.00	-30.46	0.00	30.46	2,061.63	1,030.81	2,362.30	1,182.90	15.72	-1.09	0.036
137.00	-19.82	-3.41	0.00	-22.80	0.00	22.80	2,027.01	1,013.51	2,283.20	1,143.30	16.18	-1.09	0.030
140.00	-10.52	-2.28	0.00	-12.55	0.00	12.55	1,975.09	987.54	2,167.08	1,085.15	16.86	-1.10	0.017
142.00	-9.17	-1.88	0.00	-7.99	0.00	7.99	1,940.47	970.23	2,091.35	1,047.23	17.33	-1.10	0.012
143.00	-8.65	-1.82	0.00	-6.05	0.00	6.05	1,923.16	961.58	2,053.99	1,028.52	17.56	-1.10	0.010
145.00	-8.31	-1.79	0.00	-2.40	0.00	2.40	1,888.54	944.27	1,980.28	991.61	18.02	-1.10	0.007
146.00	-2.18	-0.50	0.00	-0.61	0.00	0.61	1,871.23	935.62	1,943.93	973.41	18.25	-1.10	0.002
147.00	-1.00	-0.10	0.00	-0.11	0.00	0.11	1,853.93	926.96	1,907.92	955.38	18.48	-1.10	0.001
148.00	-0.16	-0.01	0.00	-0.01	0.00	0.01	1,836.62	918.31	1,872.25	937.51	18.71	-1.10	0.000
149.00	0.00	-0.01	0.00	0.00	0.00	0.00	1,819.31	909.65	1,836.91	919.82	18.94	-1.10	0.000

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Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		48.0	0.0					0.0	0.0	48.0	0.0	0.0	0.0
5.00		95.1	1,742.0					0.0	194.1	95.1	1,936.1	0.0	0.0
10.00		93.1	1,706.3					0.0	194.1	93.1	1,900.4	0.0	0.0
15.00		91.2	1,670.7					0.0	194.1	91.2	1,864.7	0.0	0.0
20.00		89.2	1,635.0					0.0	194.1	89.2	1,829.0	0.0	0.0
25.00		87.3	1,599.3					0.0	194.1	87.3	1,793.4	0.0	0.0
30.00		86.4	1,563.7					0.0	194.1	86.4	1,757.7	0.0	0.0
35.00		87.2	1,528.0					0.0	194.1	87.2	1,722.0	0.0	0.0
40.00		88.5	1,492.3					0.0	194.1	88.5	1,686.4	0.0	0.0
45.00		59.8	1,456.6					0.0	194.1	59.8	1,650.7	0.0	0.0
46.71	Bot - Section 2	45.4	489.0					0.0	66.2	45.4	555.3	0.0	0.0
50.00		60.2	1,672.3					0.0	127.8	60.2	1,800.1	0.0	0.0
53.29	Top - Section 1	45.8	1,643.2					0.0	127.7	45.8	1,770.8	0.0	0.0
55.00		61.5	373.4					0.0	66.4	61.5	439.8	0.0	0.0
60.00		64.2	1,073.3					0.0	194.1	64.2	1,267.4	0.0	0.0
62.00	Appurtenance(s)	45.8	421.6	334.3	0.0	0.0	600.0	0.0	77.6	380.0	1,099.2	0.0	0.0
65.00		45.7	624.0					0.0	116.4	45.7	740.4	0.0	0.0
67.00	Appurtenance(s)	45.5	410.5	341.8	0.0	0.0	600.0	0.0	77.6	387.3	1,088.1	0.0	0.0
70.00		45.4	607.4					0.0	116.4	45.4	723.8	0.0	0.0
72.00	Appurtenance(s)	45.2	399.4	348.9	0.0	0.0	600.0	0.0	77.6	394.1	1,077.0	0.0	0.0
75.00		45.1	590.7					0.0	116.4	45.1	707.1	0.0	0.0
77.00	Appurtenance(s)	44.8	388.3	355.6	0.0	0.0	600.0	0.0	77.6	400.4	1,065.9	0.0	0.0
80.00		44.6	574.1					0.0	116.4	44.6	690.5	0.0	0.0
82.00	Appurtenance(s)	44.3	377.2	362.1	0.0	0.0	600.0	0.0	77.6	406.4	1,054.8	0.0	0.0
85.00		44.1	557.4					0.0	116.4	44.1	673.9	0.0	0.0
87.00	Appurtenance(s)	43.8	366.1	368.3	0.0	0.0	600.0	0.0	77.6	412.0	1,043.7	0.0	0.0
90.00		43.5	540.8					0.0	116.4	43.5	657.2	0.0	0.0
92.00	Appurtenance(s)	43.1	355.0	374.2	0.0	0.0	600.0	0.0	77.6	417.3	1,032.6	0.0	0.0
95.00		29.0	524.1					0.0	116.4	29.0	640.6	0.0	0.0
95.38	Bot - Section 3	17.3	65.1					0.0	14.6	17.3	79.7	0.0	0.0
97.00	Appurtenance(s)	39.9	482.0	379.9	0.0	0.0	600.0	0.0	63.0	419.7	1,145.0	0.0	0.0
100.00		31.1	877.6					0.0	116.4	31.1	994.0	0.0	0.0
100.63	Top - Section 2	17.0	181.1					0.0	24.3	17.0	205.5	0.0	0.0
102.00	Appurtenance(s)	37.0	166.4	385.4	0.0	0.0	600.0	0.0	53.3	422.4	819.7	0.0	0.0
105.00		42.0	358.2					0.0	116.4	42.0	474.6	0.0	0.0
107.00	Appurtenance(s)	41.5	234.8	390.7	0.0	0.0	600.0	0.0	77.6	432.2	912.4	0.0	0.0
110.00		41.2	346.3					0.0	116.4	41.2	462.7	0.0	0.0
112.00	Appurtenance(s)	40.7	226.9	395.8	0.0	0.0	600.0	0.0	77.6	436.5	904.5	0.0	0.0
115.00		40.3	334.4					0.0	116.4	40.3	450.8	0.0	0.0
117.00	Appurtenance(s)	39.7	219.0	400.8	0.0	0.0	600.0	0.0	77.6	440.5	896.6	0.0	0.0
120.00		39.3	322.5					0.0	116.4	39.3	438.9	0.0	0.0
122.00	Appurtenance(s)	38.7	211.0	405.6	0.0	0.0	600.0	0.0	77.6	444.3	888.7	0.0	0.0
125.00		38.3	310.6					0.0	116.4	38.3	427.1	0.0	0.0
127.00	Appurtenance(s)	37.7	203.1	410.3	0.0	0.0	600.0	0.0	77.6	448.0	880.7	0.0	0.0
130.00		37.3	298.7					0.0	116.4	37.3	415.2	0.0	0.0
132.00	Appurtenance(s)	36.6	195.2	414.8	0.0	0.0	600.0	0.0	77.6	451.5	872.8	0.0	0.0
135.00		36.2	286.8					0.0	116.4	36.2	403.3	0.0	0.0
137.00	Appurtenance(s)	35.5	187.3	419.3	0.0	0.0	600.0	0.0	77.6	454.8	864.9	0.0	0.0

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Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

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

140.00	Appurtenance(s)	35.1	274.9	1,322.9	0.0	0.0	3,881.5	0.0	116.4	1,358.0	4,272.9	0.0	0.0
142.00	Appurtenance(s)	20.8	179.3	423.6	0.0	0.0	600.0	0.0	6.4	444.3	785.7	0.0	0.0
143.00	Appurtenance(s)	20.5	88.5	33.1	0.0	99.3	171.6	0.0	3.2	53.6	263.3	0.0	0.0
145.00		20.3	174.6					0.0	6.4	20.3	181.0	0.0	0.0
146.00	Appurtenance(s)	13.4	86.1	1,492.9	0.0	0.0	2,789.4	0.0	3.2	1,506.3	2,878.7	0.0	0.0
147.00	Appurtenance(s)	13.3	85.3	427.8	0.0	0.0	600.0	0.0	3.2	441.1	688.5	0.0	0.0
148.00	Appurtenance(s)	13.2	84.5	91.8	0.0	-183.7	289.0	0.0	3.2	105.0	376.7	0.0	0.0
149.00		6.6	83.7					0.0	0.0	6.6	83.7	0.0	0.0
								Totals:		12,423.2	56,336.0	0.00	0.00

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Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.33	-12.40	0.00	-1,380.13	0.00	1,380.13	7,586.21	3,793.11	18,027.1	9,026.97	0.00	0.00	0.160
5.00	-54.39	-12.34	0.00	-1,318.15	0.00	1,318.15	7,471.93	3,735.96	17,392.1	8,709.02	0.02	-0.04	0.159
10.00	-52.48	-12.29	0.00	-1,256.45	0.00	1,256.45	7,356.01	3,678.00	16,764.6	8,394.77	0.09	-0.09	0.157
15.00	-50.60	-12.23	0.00	-1,195.02	0.00	1,195.02	7,217.48	3,608.74	16,097.9	8,060.91	0.21	-0.13	0.155
20.00	-48.76	-12.18	0.00	-1,133.86	0.00	1,133.86	7,061.70	3,530.85	15,407.0	7,714.96	0.37	-0.18	0.154
25.00	-46.96	-12.12	0.00	-1,072.98	0.00	1,072.98	6,905.92	3,452.96	14,731.3	7,376.60	0.59	-0.22	0.152
30.00	-45.19	-12.06	0.00	-1,012.37	0.00	1,012.37	6,750.14	3,375.07	14,070.7	7,045.83	0.85	-0.27	0.150
35.00	-43.46	-12.00	0.00	-952.05	0.00	952.05	6,594.37	3,297.18	13,425.3	6,722.64	1.16	-0.32	0.148
40.00	-41.77	-11.94	0.00	-892.04	0.00	892.04	6,438.59	3,219.29	12,795.0	6,407.04	1.52	-0.37	0.146
45.00	-40.11	-11.89	0.00	-832.34	0.00	832.34	6,282.81	3,141.41	12,179.9	6,099.03	1.92	-0.41	0.143
46.71	-39.55	-11.86	0.00	-812.05	0.00	812.05	6,229.64	3,114.82	11,973.4	5,995.63	2.07	-0.43	0.142
50.00	-37.74	-11.81	0.00	-772.99	0.00	772.99	6,127.03	3,063.52	11,580.0	5,798.61	2.38	-0.46	0.139
53.29	-35.97	-11.76	0.00	-734.15	0.00	734.15	4,690.13	2,345.07	8,932.17	4,472.73	2.71	-0.49	0.172
55.00	-35.52	-11.72	0.00	-714.05	0.00	714.05	4,660.50	2,330.25	8,798.22	4,405.65	2.89	-0.51	0.170
60.00	-34.25	-11.67	0.00	-655.46	0.00	655.46	4,572.76	2,286.38	8,410.20	4,211.35	3.46	-0.57	0.163
62.00	-33.15	-11.29	0.00	-632.13	0.00	632.13	4,537.20	2,268.60	8,256.54	4,134.41	3.70	-0.59	0.160
65.00	-32.40	-11.25	0.00	-598.26	0.00	598.26	4,483.38	2,241.69	8,027.78	4,019.86	4.08	-0.62	0.156
67.00	-31.31	-10.87	0.00	-575.75	0.00	575.75	4,447.17	2,223.59	7,876.44	3,944.07	4.35	-0.65	0.153
70.00	-30.58	-10.83	0.00	-543.15	0.00	543.15	4,383.99	2,192.00	7,636.61	3,823.98	4.77	-0.68	0.149
72.00	-29.50	-10.44	0.00	-521.49	0.00	521.49	4,335.53	2,167.76	7,467.85	3,739.48	5.06	-0.70	0.146
75.00	-28.79	-10.40	0.00	-490.17	0.00	490.17	4,262.83	2,131.42	7,218.25	3,614.49	5.51	-0.74	0.142
77.00	-27.73	-10.00	0.00	-469.38	0.00	469.38	4,214.37	2,107.18	7,054.20	3,532.34	5.82	-0.76	0.139
80.00	-27.03	-9.96	0.00	-439.39	0.00	439.39	4,141.67	2,070.84	6,811.67	3,410.90	6.31	-0.79	0.135
82.00	-25.98	-9.55	0.00	-419.48	0.00	419.48	4,093.21	2,046.60	6,652.34	3,331.11	6.65	-0.81	0.132
85.00	-25.30	-9.50	0.00	-390.84	0.00	390.84	4,020.51	2,010.26	6,416.88	3,213.21	7.17	-0.84	0.128
87.00	-24.26	-9.09	0.00	-371.83	0.00	371.83	3,972.05	1,986.02	6,262.26	3,135.78	7.53	-0.87	0.125
90.00	-23.60	-9.04	0.00	-344.57	0.00	344.57	3,899.35	1,949.68	6,033.87	3,021.42	8.08	-0.90	0.120
92.00	-22.57	-8.62	0.00	-326.48	0.00	326.48	3,850.89	1,925.44	5,883.97	2,946.36	8.46	-0.92	0.117
95.00	-21.93	-8.59	0.00	-300.62	0.00	300.62	3,778.19	1,889.10	5,662.65	2,835.53	9.05	-0.95	0.112
95.38	-21.85	-8.57	0.00	-297.39	0.00	297.39	3,769.06	1,884.53	5,635.16	2,821.77	9.12	-0.95	0.111
97.00	-20.71	-8.14	0.00	-283.47	0.00	283.47	3,729.73	1,864.86	5,517.46	2,762.83	9.45	-0.96	0.108
100.00	-19.71	-8.10	0.00	-259.05	0.00	259.05	3,657.03	1,828.51	5,303.21	2,655.55	10.06	-0.99	0.103
100.63	-19.50	-8.08	0.00	-253.97	0.00	253.97	2,539.98	1,269.99	3,759.61	1,882.60	10.19	-1.00	0.143
102.00	-18.69	-7.65	0.00	-242.87	0.00	242.87	2,524.08	1,262.04	3,702.36	1,853.93	10.48	-1.01	0.138
105.00	-18.21	-7.61	0.00	-219.91	0.00	219.91	2,488.92	1,244.46	3,578.16	1,791.74	11.13	-1.05	0.130
107.00	-17.30	-7.17	0.00	-204.69	0.00	204.69	2,465.15	1,232.58	3,496.03	1,750.61	11.57	-1.07	0.124
110.00	-16.84	-7.13	0.00	-183.18	0.00	183.18	2,429.01	1,214.50	3,373.90	1,689.46	12.25	-1.10	0.115
112.00	-15.94	-6.68	0.00	-168.92	0.00	168.92	2,404.59	1,202.29	3,293.20	1,649.05	12.72	-1.12	0.109
115.00	-15.49	-6.64	0.00	-148.88	0.00	148.88	2,367.47	1,183.73	3,173.28	1,589.00	13.43	-1.15	0.100
117.00	-14.60	-6.19	0.00	-135.60	0.00	135.60	2,342.39	1,171.20	3,094.10	1,549.35	13.92	-1.17	0.094
120.00	-14.16	-6.14	0.00	-117.04	0.00	117.04	2,304.29	1,152.15	2,976.53	1,490.48	14.66	-1.19	0.085
122.00	-13.28	-5.68	0.00	-104.75	0.00	104.75	2,278.56	1,139.28	2,898.97	1,451.64	15.16	-1.21	0.078
125.00	-12.85	-5.64	0.00	-87.70	0.00	87.70	2,234.71	1,117.36	2,777.98	1,391.06	15.93	-1.23	0.069

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Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

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

127.00	-11.98	-5.18	0.00	-76.42	0.00	76.42	2,200.10	1,100.05	2,692.15	1,348.08	16.45	-1.25	0.062
130.00	-11.56	-5.13	0.00	-60.89	0.00	60.89	2,148.17	1,074.09	2,565.93	1,284.87	17.24	-1.26	0.053
132.00	-10.70	-4.67	0.00	-50.62	0.00	50.62	2,113.55	1,056.78	2,483.46	1,243.58	17.77	-1.27	0.046
135.00	-10.29	-4.62	0.00	-36.62	0.00	36.62	2,061.63	1,030.81	2,362.30	1,182.90	18.58	-1.29	0.036
137.00	-9.44	-4.15	0.00	-27.38	0.00	27.38	2,027.01	1,013.51	2,283.20	1,143.30	19.12	-1.29	0.029
140.00	-5.20	-2.70	0.00	-14.93	0.00	14.93	1,975.09	987.54	2,167.08	1,085.15	19.93	-1.30	0.016
142.00	-4.42	-2.23	0.00	-9.54	0.00	9.54	1,940.47	970.23	2,091.35	1,047.23	20.48	-1.30	0.011
143.00	-4.16	-2.17	0.00	-7.21	0.00	7.21	1,923.16	961.58	2,053.99	1,028.52	20.75	-1.30	0.009
145.00	-3.98	-2.15	0.00	-2.86	0.00	2.86	1,888.54	944.27	1,980.28	991.61	21.30	-1.30	0.005
146.00	-1.14	-0.58	0.00	-0.71	0.00	0.71	1,871.23	935.62	1,943.93	973.41	21.57	-1.30	0.001
147.00	-0.46	-0.12	0.00	-0.13	0.00	0.13	1,853.93	926.96	1,907.92	955.38	21.84	-1.30	0.000
148.00	-0.08	-0.01	0.00	-0.01	0.00	0.01	1,836.62	918.31	1,872.25	937.51	22.11	-1.30	0.000
149.00	0.00	-0.01	0.00	0.00	0.00	0.00	1,819.31	909.65	1,836.91	919.82	22.39	-1.30	0.000

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Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.06	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	1.78	
Total Unfactored Dead Load:	56.34	k
Seismic Base Shear (E):	1.90	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)
55	148.50	84	612	0.004	7	104
54	147.50	88	633	0.004	7	109
53	146.50	89	631	0.004	7	110
52	145.50	89	629	0.004	7	111
51	144.00	181	1,252	0.008	15	224
50	142.50	92	622	0.004	7	113
49	141.00	186	1,237	0.008	14	230
48	138.50	391	2,525	0.015	29	484
47	136.00	265	1,655	0.010	19	328
46	133.50	403	2,437	0.015	28	499
45	131.00	273	1,594	0.010	19	338
44	128.50	415	2,344	0.014	27	514
43	126.00	281	1,531	0.009	18	347
42	123.50	427	2,247	0.014	26	528
41	121.00	289	1,465	0.009	17	357
40	118.50	439	2,146	0.013	25	543
39	116.00	297	1,396	0.009	16	367
38	113.50	451	2,041	0.013	24	558
37	111.00	305	1,325	0.008	15	377
36	108.50	463	1,934	0.012	23	573
35	106.00	312	1,253	0.008	15	387
34	103.50	475	1,824	0.011	21	587
33	101.31	220	813	0.005	9	272

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32	100.31	205	747	0.005	9	254
31	98.50	994	3,498	0.021	41	1,230
30	96.19	545	1,838	0.011	21	674
29	95.19	80	264	0.002	3	99
28	93.50	641	2,055	0.013	24	793
27	91.00	433	1,322	0.008	15	535
26	88.50	657	1,912	0.012	22	813
25	86.00	444	1,226	0.008	14	549
24	83.50	674	1,767	0.011	21	834
23	81.00	455	1,130	0.007	13	563
22	78.50	691	1,623	0.010	19	855
21	76.00	466	1,034	0.006	12	577
20	73.50	707	1,478	0.009	17	875
19	71.00	477	937	0.006	11	590
18	68.50	724	1,335	0.008	16	896
17	66.00	488	842	0.005	10	604
16	63.50	740	1,193	0.007	14	916
15	61.00	499	749	0.005	9	618
14	57.50	1,267	1,712	0.010	20	1,568
13	54.15	440	534	0.003	6	544
12	51.65	1,771	1,976	0.012	23	2,191
11	48.35	1,800	1,786	0.011	21	2,228
10	45.85	555	501	0.003	6	687
9	42.50	1,651	1,302	0.008	15	2,043
8	37.50	1,686	1,065	0.007	12	2,087
7	32.50	1,722	843	0.005	10	2,131
6	27.50	1,758	639	0.004	7	2,175
5	22.50	1,793	456	0.003	5	2,219
4	17.50	1,829	298	0.002	3	2,264
3	12.50	1,865	167	0.001	2	2,308
2	7.50	1,900	68	0.000	1	2,352
1	2.50	1,936	10	0.000	0	2,396
Alcatel-Lucent B66A	148.00	201	1,459	0.009	17	249
RFS DB-T1-6Z-8AB-0Z	148.00	88	639	0.004	7	109
PINE BRANCH	147.00	600	4,304	0.026	50	743
Commscope SBNHH-1D65	146.00	608	4,312	0.026	50	753
Flat T-Arm	146.00	750	5,315	0.033	62	928
VZW Unused Reserve:	146.00	1,431	10,142	0.062	118	1,771
Alcatel-Lucent B13 R	143.00	172	1,172	0.007	14	212
PINE BRANCH	142.00	600	4,047	0.025	47	743
Raycap DC6-48-60-18-	140.00	131	863	0.005	10	162
Ericsson RRUS 8843 B	140.00	216	1,421	0.009	17	267
Ericsson RRUS 4478 B	140.00	180	1,182	0.007	14	222
Ericsson RRUS 4449 B	140.00	213	1,401	0.009	16	264
Ericsson RRUS 12 w/	140.00	720	4,736	0.029	55	891
Ericsson RRUS-11	140.00	330	2,170	0.013	25	408
CCI HPA-65R-BUU-H8	140.00	204	1,342	0.008	16	252
Kathrein Scala 80010	140.00	688	4,523	0.028	53	851
T-Arms with SIte Pro	140.00	1,200	7,893	0.048	92	1,485
PINE BRANCH	137.00	600	3,797	0.023	44	743
PINE BRANCH	132.00	600	3,554	0.022	41	743
PINE BRANCH	127.00	600	3,318	0.020	39	743
PINE BRANCH	122.00	600	3,089	0.019	36	743
PINE BRANCH	117.00	600	2,868	0.018	33	743
PINE BRANCH	112.00	600	2,653	0.016	31	743
PINE BRANCH	107.00	600	2,446	0.015	28	743
PINE BRANCH	102.00	600	2,247	0.014	26	743
PINE BRANCH	97.00	600	2,054	0.013	24	743
PINE BRANCH	92.00	600	1,870	0.011	22	743
PINE BRANCH	87.00	600	1,693	0.010	20	743
PINE BRANCH	82.00	600	1,524	0.009	18	743
PINE BRANCH	77.00	600	1,362	0.008	16	743
PINE BRANCH	72.00	600	1,209	0.007	14	743
PINE BRANCH	67.00	600	1,064	0.007	12	743

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PINE BRANCH	62.00	600	927	0.006	11	743
		56,336	163,048	1.000	1,898	69,719

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)
55	148.50	84	612	0.004	7	72
54	147.50	88	633	0.004	7	76
53	146.50	89	631	0.004	7	76
52	145.50	89	629	0.004	7	77
51	144.00	181	1,252	0.008	15	156
50	142.50	92	622	0.004	7	79
49	141.00	186	1,237	0.008	14	160
48	138.50	391	2,525	0.015	29	338
47	136.00	265	1,655	0.010	19	228
46	133.50	403	2,437	0.015	28	348
45	131.00	273	1,594	0.010	19	235
44	128.50	415	2,344	0.014	27	358
43	126.00	281	1,531	0.009	18	242
42	123.50	427	2,247	0.014	26	368
41	121.00	289	1,465	0.009	17	249
40	118.50	439	2,146	0.013	25	379
39	116.00	297	1,396	0.009	16	256
38	113.50	451	2,041	0.013	24	389
37	111.00	305	1,325	0.008	15	263
36	108.50	463	1,934	0.012	23	399
35	106.00	312	1,253	0.008	15	269
34	103.50	475	1,824	0.011	21	409
33	101.31	220	813	0.005	9	189
32	100.31	205	747	0.005	9	177
31	98.50	994	3,498	0.021	41	857
30	96.19	545	1,838	0.011	21	470
29	95.19	80	264	0.002	3	69
28	93.50	641	2,055	0.013	24	552
27	91.00	433	1,322	0.008	15	373
26	88.50	657	1,912	0.012	22	567
25	86.00	444	1,226	0.008	14	383
24	83.50	674	1,767	0.011	21	581
23	81.00	455	1,130	0.007	13	392
22	78.50	691	1,623	0.010	19	596
21	76.00	466	1,034	0.006	12	402
20	73.50	707	1,478	0.009	17	610
19	71.00	477	937	0.006	11	411
18	68.50	724	1,335	0.008	16	624
17	66.00	488	842	0.005	10	421
16	63.50	740	1,193	0.007	14	639
15	61.00	499	749	0.005	9	431
14	57.50	1,267	1,712	0.010	20	1,093
13	54.15	440	534	0.003	6	379
12	51.65	1,771	1,976	0.012	23	1,527
11	48.35	1,800	1,786	0.011	21	1,553
10	45.85	555	501	0.003	6	479
9	42.50	1,651	1,302	0.008	15	1,424
8	37.50	1,686	1,065	0.007	12	1,454
7	32.50	1,722	843	0.005	10	1,485
6	27.50	1,758	639	0.004	7	1,516
5	22.50	1,793	456	0.003	5	1,547
4	17.50	1,829	298	0.002	3	1,577
3	12.50	1,865	167	0.001	2	1,608

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2	7.50	1,900	68	0.000	1	1,639
1	2.50	1,936	10	0.000	0	1,670
Alcatel-Lucent B66A	148.00	201	1,459	0.009	17	173
RFS DB-T1-6Z-8AB-0Z	148.00	88	639	0.004	7	76
PINE BRANCH	147.00	600	4,304	0.026	50	517
Commscope SBNHH-1D65	146.00	608	4,312	0.026	50	525
Flat T-Arm	146.00	750	5,315	0.033	62	647
VZW Unused Reserve:	146.00	1,431	10,142	0.062	118	1,234
Alcatel-Lucent B13 R	143.00	172	1,172	0.007	14	148
PINE BRANCH	142.00	600	4,047	0.025	47	517
Raycap DC6-48-60-18-	140.00	131	863	0.005	10	113
Ericsson RRUS 8843 B	140.00	216	1,421	0.009	17	186
Ericsson RRUS 4478 B	140.00	180	1,182	0.007	14	155
Ericsson RRUS 4449 B	140.00	213	1,401	0.009	16	184
Ericsson RRUS 12 w/	140.00	720	4,736	0.029	55	621
Ericsson RRUS-11	140.00	330	2,170	0.013	25	285
CCI HPA-65R-BUU-H8	140.00	204	1,342	0.008	16	176
Kathrein Scala 80010	140.00	688	4,523	0.028	53	593
T-Arms with SIte Pro	140.00	1,200	7,893	0.048	92	1,035
PINE BRANCH	137.00	600	3,797	0.023	44	517
PINE BRANCH	132.00	600	3,554	0.022	41	517
PINE BRANCH	127.00	600	3,318	0.020	39	517
PINE BRANCH	122.00	600	3,089	0.019	36	517
PINE BRANCH	117.00	600	2,868	0.018	33	517
PINE BRANCH	112.00	600	2,653	0.016	31	517
PINE BRANCH	107.00	600	2,446	0.015	28	517
PINE BRANCH	102.00	600	2,247	0.014	26	517
PINE BRANCH	97.00	600	2,054	0.013	24	517
PINE BRANCH	92.00	600	1,870	0.011	22	517
PINE BRANCH	87.00	600	1,693	0.010	20	517
PINE BRANCH	82.00	600	1,524	0.009	18	517
PINE BRANCH	77.00	600	1,362	0.008	16	517
PINE BRANCH	72.00	600	1,209	0.007	14	517
PINE BRANCH	67.00	600	1,064	0.007	12	517
PINE BRANCH	62.00	600	927	0.006	11	517
		56,336	163,048	1.000	1,898	48,587

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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	-67.32	-1.90	0.00	-226.66	0.00	226.66	7,586.21	3,793.11	18,027.1	9,026.97	0.00	0.00	0.034
5.00	-64.97	-1.91	0.00	-217.15	0.00	217.15	7,471.93	3,735.96	17,392.1	8,709.02	0.00	-0.01	0.034
10.00	-62.66	-1.91	0.00	-207.61	0.00	207.61	7,356.01	3,678.00	16,764.6	8,394.77	0.02	-0.01	0.033
15.00	-60.40	-1.92	0.00	-198.05	0.00	198.05	7,217.48	3,608.74	16,097.9	8,060.91	0.03	-0.02	0.033
20.00	-58.18	-1.92	0.00	-188.46	0.00	188.46	7,061.70	3,530.85	15,407.0	7,714.96	0.06	-0.03	0.033
25.00	-56.00	-1.92	0.00	-178.86	0.00	178.86	6,905.92	3,452.96	14,731.3	7,376.60	0.10	-0.04	0.032
30.00	-53.87	-1.91	0.00	-169.28	0.00	169.28	6,750.14	3,375.07	14,070.7	7,045.83	0.14	-0.04	0.032
35.00	-51.79	-1.91	0.00	-159.71	0.00	159.71	6,594.37	3,297.18	13,425.3	6,722.64	0.19	-0.05	0.032
40.00	-49.74	-1.90	0.00	-150.17	0.00	150.17	6,438.59	3,219.29	12,795.0	6,407.04	0.25	-0.06	0.031
45.00	-49.05	-1.89	0.00	-140.69	0.00	140.69	6,282.81	3,141.41	12,179.9	6,099.03	0.32	-0.07	0.031
46.71	-46.83	-1.87	0.00	-137.46	0.00	137.46	6,229.64	3,114.82	11,973.4	5,995.63	0.34	-0.07	0.030
50.00	-44.64	-1.85	0.00	-131.29	0.00	131.29	6,127.03	3,063.52	11,580.0	5,798.61	0.40	-0.08	0.030
53.29	-44.09	-1.85	0.00	-125.19	0.00	125.19	4,690.13	2,345.07	8,932.17	4,472.73	0.45	-0.08	0.037
55.00	-42.52	-1.83	0.00	-122.03	0.00	122.03	4,660.50	2,330.25	8,798.22	4,405.65	0.48	-0.09	0.037
60.00	-41.90	-1.83	0.00	-112.87	0.00	112.87	4,572.76	2,286.38	8,410.20	4,211.35	0.58	-0.10	0.036
62.00	-40.25	-1.80	0.00	-109.22	0.00	109.22	4,537.20	2,268.60	8,256.54	4,134.41	0.62	-0.10	0.035
65.00	-39.64	-1.80	0.00	-103.81	0.00	103.81	4,483.38	2,241.69	8,027.78	4,019.86	0.68	-0.10	0.035
67.00	-38.00	-1.77	0.00	-100.22	0.00	100.22	4,447.17	2,223.59	7,876.44	3,944.07	0.72	-0.11	0.034
70.00	-37.41	-1.76	0.00	-94.92	0.00	94.92	4,383.99	2,192.00	7,636.61	3,823.98	0.80	-0.11	0.033
72.00	-35.79	-1.73	0.00	-91.40	0.00	91.40	4,335.53	2,167.76	7,467.85	3,739.48	0.84	-0.12	0.033
75.00	-35.22	-1.72	0.00	-86.22	0.00	86.22	4,262.83	2,131.42	7,218.25	3,614.49	0.92	-0.12	0.032
77.00	-33.62	-1.68	0.00	-82.78	0.00	82.78	4,214.37	2,107.18	7,054.20	3,532.34	0.97	-0.13	0.031
80.00	-33.06	-1.67	0.00	-77.74	0.00	77.74	4,141.67	2,070.84	6,811.67	3,410.90	1.06	-0.13	0.031
82.00	-31.48	-1.63	0.00	-74.40	0.00	74.40	4,093.21	2,046.60	6,652.34	3,331.11	1.11	-0.14	0.030
85.00	-30.93	-1.62	0.00	-69.51	0.00	69.51	4,020.51	2,010.26	6,416.88	3,213.21	1.20	-0.14	0.029
87.00	-29.38	-1.57	0.00	-66.27	0.00	66.27	3,972.05	1,986.02	6,262.26	3,135.78	1.26	-0.15	0.029
90.00	-28.84	-1.56	0.00	-61.55	0.00	61.55	3,899.35	1,949.68	6,033.87	3,021.42	1.36	-0.15	0.028
92.00	-27.31	-1.51	0.00	-58.43	0.00	58.43	3,850.89	1,925.44	5,883.97	2,946.36	1.42	-0.16	0.027
95.00	-27.21	-1.51	0.00	-53.90	0.00	53.90	3,778.19	1,889.10	5,662.65	2,835.53	1.52	-0.16	0.026
95.38	-26.53	-1.49	0.00	-53.33	0.00	53.33	3,769.06	1,884.53	5,635.16	2,821.77	1.53	-0.16	0.026
97.00	-24.56	-1.42	0.00	-50.92	0.00	50.92	3,729.73	1,864.86	5,517.46	2,762.83	1.59	-0.17	0.025
100.00	-24.31	-1.41	0.00	-46.66	0.00	46.66	3,657.03	1,828.51	5,303.21	2,655.55	1.70	-0.17	0.024
100.63	-24.03	-1.40	0.00	-45.78	0.00	45.78	2,539.98	1,269.99	3,759.61	1,882.60	1.72	-0.17	0.034
102.00	-22.70	-1.35	0.00	-43.85	0.00	43.85	2,524.08	1,262.04	3,702.36	1,853.93	1.77	-0.17	0.033
105.00	-22.32	-1.34	0.00	-39.80	0.00	39.80	2,488.92	1,244.46	3,578.16	1,791.74	1.88	-0.18	0.031
107.00	-21.00	-1.28	0.00	-37.12	0.00	37.12	2,465.15	1,232.58	3,496.03	1,750.61	1.96	-0.18	0.030
110.00	-20.63	-1.27	0.00	-33.27	0.00	33.27	2,429.01	1,214.50	3,373.90	1,689.46	2.07	-0.19	0.028
112.00	-19.32	-1.21	0.00	-30.73	0.00	30.73	2,404.59	1,202.29	3,293.20	1,649.05	2.15	-0.19	0.027
115.00	-18.96	-1.20	0.00	-27.10	0.00	27.10	2,367.47	1,183.73	3,173.28	1,589.00	2.28	-0.20	0.025
117.00	-17.67	-1.13	0.00	-24.71	0.00	24.71	2,342.39	1,171.20	3,094.10	1,549.35	2.36	-0.20	0.023
120.00	-17.31	-1.12	0.00	-21.30	0.00	21.30	2,304.29	1,152.15	2,976.53	1,490.48	2.49	-0.21	0.022
122.00	-16.04	-1.05	0.00	-19.07	0.00	19.07	2,278.56	1,139.28	2,898.97	1,451.64	2.58	-0.21	0.020
125.00	-15.70	-1.03	0.00	-15.91	0.00	15.91	2,234.71	1,117.36	2,777.98	1,391.06	2.71	-0.21	0.018
127.00	-14.44	-0.96	0.00	-13.85	0.00	13.85	2,200.10	1,100.05	2,692.15	1,348.08	2.80	-0.22	0.017
130.00	-14.10	-0.94	0.00	-10.96	0.00	10.96	2,148.17	1,074.09	2,565.93	1,284.87	2.94	-0.22	0.015
132.00	-12.86	-0.87	0.00	-9.07	0.00	9.07	2,113.55	1,056.78	2,483.46	1,243.58	3.03	-0.22	0.013
135.00	-12.53	-0.85	0.00	-6.46	0.00	6.46	2,061.63	1,030.81	2,362.30	1,182.90	3.17	-0.22	0.012

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137.00	-11.31	-0.77	0.00	-4.76	0.00	4.76	2,027.01	1,013.51	2,283.20	1,143.30	3.26	-0.22	0.010
140.00	-6.28	-0.44	0.00	-2.44	0.00	2.44	1,975.09	987.54	2,167.08	1,085.15	3.40	-0.23	0.005
142.00	-5.42	-0.38	0.00	-1.56	0.00	1.56	1,940.47	970.23	2,091.35	1,047.23	3.50	-0.23	0.004
143.00	-4.98	-0.35	0.00	-1.18	0.00	1.18	1,923.16	961.58	2,053.99	1,028.52	3.55	-0.23	0.004
145.00	-4.87	-0.35	0.00	-0.47	0.00	0.47	1,888.54	944.27	1,980.28	991.61	3.64	-0.23	0.003
146.00	-1.31	-0.09	0.00	-0.13	0.00	0.13	1,871.23	935.62	1,943.93	973.41	3.69	-0.23	0.001
147.00	-0.46	-0.03	0.00	-0.03	0.00	0.03	1,853.93	926.96	1,907.92	955.38	3.74	-0.23	0.000
148.00	0.00	0.00	0.00	0.00	0.00	0.00	1,836.62	918.31	1,872.25	937.51	3.78	-0.23	0.000
149.00	0.00	0.00	0.00	0.00	0.00	0.00	1,819.31	909.65	1,836.91	919.82	3.83	-0.23	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	-46.92	-1.90	0.00	-224.16	0.00	224.16	7,586.21	3,793.11	18,027.1	9,026.97	0.00	0.00	0.031
5.00	-45.28	-1.90	0.00	-214.67	0.00	214.67	7,471.93	3,735.96	17,392.1	8,709.02	0.00	-0.01	0.031
10.00	-43.67	-1.91	0.00	-205.14	0.00	205.14	7,356.01	3,678.00	16,764.6	8,394.77	0.02	-0.01	0.030
15.00	-42.09	-1.91	0.00	-195.61	0.00	195.61	7,217.48	3,608.74	16,097.9	8,060.91	0.03	-0.02	0.030
20.00	-40.54	-1.91	0.00	-186.06	0.00	186.06	7,061.70	3,530.85	15,407.0	7,714.96	0.06	-0.03	0.030
25.00	-39.03	-1.91	0.00	-176.52	0.00	176.52	6,905.92	3,452.96	14,731.3	7,376.60	0.10	-0.04	0.030
30.00	-37.54	-1.90	0.00	-166.99	0.00	166.99	6,750.14	3,375.07	14,070.7	7,045.83	0.14	-0.04	0.029
35.00	-36.09	-1.89	0.00	-157.50	0.00	157.50	6,594.37	3,297.18	13,425.3	6,722.64	0.19	-0.05	0.029
40.00	-34.66	-1.88	0.00	-148.04	0.00	148.04	6,438.59	3,219.29	12,795.0	6,407.04	0.25	-0.06	0.028
45.00	-34.19	-1.88	0.00	-138.65	0.00	138.65	6,282.81	3,141.41	12,179.9	6,099.03	0.31	-0.07	0.028
46.71	-32.63	-1.86	0.00	-135.45	0.00	135.45	6,229.64	3,114.82	11,973.4	5,995.63	0.34	-0.07	0.028
50.00	-31.11	-1.83	0.00	-129.34	0.00	129.34	6,127.03	3,063.52	11,580.0	5,798.61	0.39	-0.08	0.027
53.29	-30.73	-1.83	0.00	-123.30	0.00	123.30	4,690.13	2,345.07	8,932.17	4,472.73	0.44	-0.08	0.034
55.00	-29.63	-1.81	0.00	-120.18	0.00	120.18	4,660.50	2,330.25	8,798.22	4,405.65	0.47	-0.08	0.034
60.00	-29.20	-1.80	0.00	-111.12	0.00	111.12	4,572.76	2,286.38	8,410.20	4,211.35	0.57	-0.09	0.033
62.00	-28.05	-1.78	0.00	-107.51	0.00	107.51	4,537.20	2,268.60	8,256.54	4,134.41	0.61	-0.10	0.032
65.00	-27.63	-1.77	0.00	-102.17	0.00	102.17	4,483.38	2,241.69	8,027.78	4,019.86	0.67	-0.10	0.032
67.00	-26.48	-1.74	0.00	-98.63	0.00	98.63	4,447.17	2,223.59	7,876.44	3,944.07	0.72	-0.11	0.031
70.00	-26.07	-1.73	0.00	-93.40	0.00	93.40	4,383.99	2,192.00	7,636.61	3,823.98	0.78	-0.11	0.030
72.00	-24.94	-1.70	0.00	-89.93	0.00	89.93	4,335.53	2,167.76	7,467.85	3,739.48	0.83	-0.12	0.030
75.00	-24.54	-1.69	0.00	-84.82	0.00	84.82	4,262.83	2,131.42	7,218.25	3,614.49	0.91	-0.12	0.029
77.00	-23.43	-1.66	0.00	-81.43	0.00	81.43	4,214.37	2,107.18	7,054.20	3,532.34	0.96	-0.13	0.029
80.00	-23.04	-1.65	0.00	-76.46	0.00	76.46	4,141.67	2,070.84	6,811.67	3,410.90	1.04	-0.13	0.028
82.00	-21.94	-1.61	0.00	-73.17	0.00	73.17	4,093.21	2,046.60	6,652.34	3,331.11	1.10	-0.14	0.027
85.00	-21.56	-1.59	0.00	-68.35	0.00	68.35	4,020.51	2,010.26	6,416.88	3,213.21	1.19	-0.14	0.027
87.00	-20.47	-1.55	0.00	-65.16	0.00	65.16	3,972.05	1,986.02	6,262.26	3,135.78	1.25	-0.15	0.026
90.00	-20.10	-1.53	0.00	-60.51	0.00	60.51	3,899.35	1,949.68	6,033.87	3,021.42	1.34	-0.15	0.025
92.00	-19.03	-1.49	0.00	-57.44	0.00	57.44	3,850.89	1,925.44	5,883.97	2,946.36	1.40	-0.15	0.024
95.00	-18.96	-1.49	0.00	-52.98	0.00	52.98	3,778.19	1,889.10	5,662.65	2,835.53	1.50	-0.16	0.024
95.38	-18.49	-1.46	0.00	-52.42	0.00	52.42	3,769.06	1,884.53	5,635.16	2,821.77	1.51	-0.16	0.023
97.00	-17.11	-1.40	0.00	-50.04	0.00	50.04	3,729.73	1,864.86	5,517.46	2,762.83	1.57	-0.16	0.023
100.00	-16.94	-1.39	0.00	-45.86	0.00	45.86	3,657.03	1,828.51	5,303.21	2,655.55	1.67	-0.17	0.022
100.63	-16.75	-1.38	0.00	-44.99	0.00	44.99	2,539.98	1,269.99	3,759.61	1,882.60	1.69	-0.17	0.030
102.00	-15.82	-1.33	0.00	-43.09	0.00	43.09	2,524.08	1,262.04	3,702.36	1,853.93	1.74	-0.17	0.030
105.00	-15.55	-1.32	0.00	-39.11	0.00	39.11	2,488.92	1,244.46	3,578.16	1,791.74	1.85	-0.18	0.028
107.00	-14.64	-1.26	0.00	-36.47	0.00	36.47	2,465.15	1,232.58	3,496.03	1,750.61	1.93	-0.18	0.027
110.00	-14.37	-1.25	0.00	-32.69	0.00	32.69	2,429.01	1,214.50	3,373.90	1,689.46	2.04	-0.19	0.025
112.00	-13.47	-1.19	0.00	-30.19	0.00	30.19	2,404.59	1,202.29	3,293.20	1,649.05	2.12	-0.19	0.024
115.00	-13.21	-1.18	0.00	-26.62	0.00	26.62	2,367.47	1,183.73	3,173.28	1,589.00	2.24	-0.20	0.022
117.00	-12.31	-1.11	0.00	-24.27	0.00	24.27	2,342.39	1,171.20	3,094.10	1,549.35	2.33	-0.20	0.021
120.00	-12.07	-1.10	0.00	-20.92	0.00	20.92	2,304.29	1,152.15	2,976.53	1,490.48	2.45	-0.20	0.019
122.00	-11.18	-1.03	0.00	-18.73	0.00	18.73	2,278.56	1,139.28	2,898.97	1,451.64	2.54	-0.21	0.018
125.00	-10.94	-1.01	0.00	-15.63	0.00	15.63	2,234.71	1,117.36	2,777.98	1,391.06	2.67	-0.21	0.016
127.00	-10.06	-0.95	0.00	-13.60	0.00	13.60	2,200.10	1,100.05	2,692.15	1,348.08	2.76	-0.21	0.015
130.00	-9.83	-0.93	0.00	-10.76	0.00	10.76	2,148.17	1,074.09	2,565.93	1,284.87	2.89	-0.22	0.013
132.00	-8.96	-0.85	0.00	-8.91	0.00	8.91	2,113.55	1,056.78	2,483.46	1,243.58	2.98	-0.22	0.011
135.00	-8.73	-0.83	0.00	-6.34	0.00	6.34	2,061.63	1,030.81	2,362.30	1,182.90	3.12	-0.22	0.010

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137.00	-7.88	-0.76	0.00	-4.67	0.00	4.67	2,027.01	1,013.51	2,283.20	1,143.30	3.21	-0.22	0.008
140.00	-4.37	-0.43	0.00	-2.40	0.00	2.40	1,975.09	987.54	2,167.08	1,085.15	3.35	-0.22	0.004
142.00	-3.78	-0.38	0.00	-1.53	0.00	1.53	1,940.47	970.23	2,091.35	1,047.23	3.45	-0.22	0.003
143.00	-3.47	-0.35	0.00	-1.16	0.00	1.16	1,923.16	961.58	2,053.99	1,028.52	3.49	-0.22	0.003
145.00	-3.40	-0.34	0.00	-0.46	0.00	0.46	1,888.54	944.27	1,980.28	991.61	3.59	-0.22	0.002
146.00	-0.91	-0.09	0.00	-0.13	0.00	0.13	1,871.23	935.62	1,943.93	973.41	3.63	-0.22	0.001
147.00	-0.32	-0.03	0.00	-0.03	0.00	0.03	1,853.93	926.96	1,907.92	955.38	3.68	-0.22	0.000
148.00	0.00	0.00	0.00	0.00	0.00	0.00	1,836.62	918.31	1,872.25	937.51	3.73	-0.22	0.000
149.00	0.00	0.00	0.00	0.00	0.00	0.00	1,819.31	909.65	1,836.91	919.82	3.77	-0.22	0.000

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Equivalent Modal Analysis Method

(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):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.06
Redundancy Factor (p):	1.00

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)
55	148.50	84	1.877	1.914	1.116	0.353	20	104
54	147.50	88	1.852	1.786	1.070	0.337	20	109
53	146.50	89	1.827	1.665	1.025	0.322	19	110
52	145.50	89	1.802	1.549	0.981	0.307	18	111
51	144.00	181	1.765	1.385	0.919	0.285	34	224
50	142.50	92	1.729	1.234	0.859	0.264	16	113
49	141.00	186	1.692	1.094	0.803	0.244	30	230
48	138.50	391	1.633	0.884	0.716	0.212	55	484
47	136.00	265	1.575	0.702	0.636	0.182	32	328
46	133.50	403	1.517	0.544	0.564	0.154	41	499
45	131.00	273	1.461	0.409	0.498	0.128	23	338
44	128.50	415	1.406	0.295	0.438	0.104	29	514
43	126.00	281	1.352	0.198	0.384	0.082	15	347
42	123.50	427	1.298	0.118	0.335	0.062	18	528
41	121.00	289	1.246	0.053	0.291	0.045	9	357
40	118.50	439	1.195	0.000	0.251	0.029	8	543
39	116.00	297	1.146	-0.041	0.216	0.015	3	367
38	113.50	451	1.097	-0.072	0.185	0.003	1	558
37	111.00	305	1.049	-0.094	0.157	-0.007	-1	377
36	108.50	463	1.002	-0.109	0.132	-0.015	-5	573
35	106.00	312	0.957	-0.118	0.111	-0.021	-4	387
34	103.50	475	0.912	-0.122	0.092	-0.026	-8	587
33	101.31	220	0.874	-0.121	0.078	-0.028	-4	272
32	100.31	205	0.857	-0.120	0.072	-0.029	-4	254
31	98.50	994	0.826	-0.116	0.062	-0.029	-19	1,230
30	96.19	545	0.788	-0.110	0.050	-0.028	-10	674
29	95.19	80	0.771	-0.106	0.046	-0.027	-1	99
28	93.50	641	0.744	-0.099	0.039	-0.026	-11	793
27	91.00	433	0.705	-0.088	0.031	-0.022	-6	535
26	88.50	657	0.667	-0.076	0.024	-0.017	-7	813
25	86.00	444	0.630	-0.064	0.018	-0.011	-3	549
24	83.50	674	0.594	-0.051	0.014	-0.005	-2	834
23	81.00	455	0.559	-0.038	0.011	0.002	1	563
22	78.50	691	0.525	-0.025	0.008	0.008	4	855

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21	76.00	466	0.492	-0.013	0.007	0.015	5	577
20	73.50	707	0.460	-0.002	0.006	0.021	10	875
19	71.00	477	0.429	0.009	0.006	0.027	8	590
18	68.50	724	0.399	0.018	0.007	0.032	15	896
17	66.00	488	0.371	0.027	0.008	0.036	12	604
16	63.50	740	0.343	0.035	0.009	0.039	19	916
15	61.00	499	0.317	0.041	0.011	0.042	14	618
14	57.50	1,267	0.281	0.049	0.014	0.045	38	1,568
13	54.15	440	0.250	0.055	0.017	0.046	14	544
12	51.65	1,771	0.227	0.059	0.020	0.047	55	2,191
11	48.35	1,800	0.199	0.063	0.023	0.047	56	2,228
10	45.85	555	0.179	0.065	0.026	0.047	17	687
9	42.50	1,651	0.154	0.068	0.030	0.046	51	2,043
8	37.50	1,686	0.120	0.070	0.034	0.045	51	2,087
7	32.50	1,722	0.090	0.071	0.038	0.044	50	2,131
6	27.50	1,758	0.064	0.072	0.041	0.043	50	2,175
5	22.50	1,793	0.043	0.071	0.042	0.041	49	2,219
4	17.50	1,829	0.026	0.067	0.040	0.039	47	2,264
3	12.50	1,865	0.013	0.059	0.034	0.034	43	2,308
2	7.50	1,900	0.005	0.044	0.025	0.027	34	2,352
1	2.50	1,936	0.001	0.018	0.010	0.012	15	2,396
Alcatel-Lucent B66A	148.00	201	1.865	1.849	1.093	0.345	46	249
RFS DB-T1-6Z-8AB-0Z	148.00	88	1.865	1.849	1.093	0.345	20	109
PINE BRANCH	147.00	600	1.840	1.725	1.047	0.330	132	743
Commscope SBNHH-	146.00	608	1.815	1.606	1.003	0.315	128	753
Flat T-Arm	146.00	750	1.815	1.606	1.003	0.315	157	928
VZW Unused Reserve:	146.00	1,431	1.815	1.606	1.003	0.315	300	1,771
Alcatel-Lucent B13 R	143.00	172	1.741	1.283	0.879	0.271	31	212
PINE BRANCH	142.00	600	1.717	1.186	0.840	0.258	103	743
Raycap DC6-48-60-18-	140.00	131	1.669	1.007	0.767	0.231	20	162
Ericsson RRUS 8843 B	140.00	216	1.669	1.007	0.767	0.231	33	267
Ericsson RRUS 4478 B	140.00	180	1.669	1.007	0.767	0.231	28	222
Ericsson RRUS 4449 B	140.00	213	1.669	1.007	0.767	0.231	33	264
Ericsson RRUS 12 w/	140.00	720	1.669	1.007	0.767	0.231	111	891
Ericsson RRUS-11	140.00	330	1.669	1.007	0.767	0.231	51	408
CCI HPA-65R-BUU-H8	140.00	204	1.669	1.007	0.767	0.231	31	252
Kathrein Scala 80010	140.00	688	1.669	1.007	0.767	0.231	106	851
T-Arms with SIte Pro	140.00	1,200	1.669	1.007	0.767	0.231	185	1,485
PINE BRANCH	137.00	600	1.598	0.772	0.667	0.194	78	743
PINE BRANCH	132.00	600	1.483	0.461	0.523	0.138	55	743
PINE BRANCH	127.00	600	1.373	0.235	0.405	0.091	36	743
PINE BRANCH	122.00	600	1.267	0.077	0.308	0.052	21	743
PINE BRANCH	117.00	600	1.165	-0.025	0.230	0.020	8	743
PINE BRANCH	112.00	600	1.068	-0.086	0.168	-0.003	-1	743
PINE BRANCH	107.00	600	0.975	-0.115	0.119	-0.019	-8	743
PINE BRANCH	102.00	600	0.886	-0.122	0.082	-0.027	-11	743
PINE BRANCH	97.00	600	0.801	-0.112	0.054	-0.029	-11	743
PINE BRANCH	92.00	600	0.721	-0.093	0.034	-0.023	-9	743
PINE BRANCH	87.00	600	0.644	-0.069	0.020	-0.014	-5	743
PINE BRANCH	82.00	600	0.572	-0.043	0.012	-0.001	0	743
PINE BRANCH	77.00	600	0.505	-0.018	0.007	0.012	5	743
PINE BRANCH	72.00	600	0.441	0.005	0.006	0.025	10	743
PINE BRANCH	67.00	600	0.382	0.024	0.007	0.034	14	743
PINE BRANCH	62.00	600	0.327	0.039	0.010	0.041	16	743
		56,336	88.087	35.908	30.192	8.683	2,673	69,719

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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)
55	148.50	84	1.877	1.914	1.116	0.353	20	72
54	147.50	88	1.852	1.786	1.070	0.337	20	76
53	146.50	89	1.827	1.665	1.025	0.322	19	76
52	145.50	89	1.802	1.549	0.981	0.307	18	77
51	144.00	181	1.765	1.385	0.919	0.285	34	156
50	142.50	92	1.729	1.234	0.859	0.264	16	79
49	141.00	186	1.692	1.094	0.803	0.244	30	160
48	138.50	391	1.633	0.884	0.716	0.212	55	338
47	136.00	265	1.575	0.702	0.636	0.182	32	228
46	133.50	403	1.517	0.544	0.564	0.154	41	348
45	131.00	273	1.461	0.409	0.498	0.128	23	235
44	128.50	415	1.406	0.295	0.438	0.104	29	358
43	126.00	281	1.352	0.198	0.384	0.082	15	242
42	123.50	427	1.298	0.118	0.335	0.062	18	368
41	121.00	289	1.246	0.053	0.291	0.045	9	249
40	118.50	439	1.195	0.000	0.251	0.029	8	379
39	116.00	297	1.146	-0.041	0.216	0.015	3	256
38	113.50	451	1.097	-0.072	0.185	0.003	1	389
37	111.00	305	1.049	-0.094	0.157	-0.007	-1	263
36	108.50	463	1.002	-0.109	0.132	-0.015	-5	399
35	106.00	312	0.957	-0.118	0.111	-0.021	-4	269
34	103.50	475	0.912	-0.122	0.092	-0.026	-8	409
33	101.31	220	0.874	-0.121	0.078	-0.028	-4	189
32	100.31	205	0.857	-0.120	0.072	-0.029	-4	177
31	98.50	994	0.826	-0.116	0.062	-0.029	-19	857
30	96.19	545	0.788	-0.110	0.050	-0.028	-10	470
29	95.19	80	0.771	-0.106	0.046	-0.027	-1	69
28	93.50	641	0.744	-0.099	0.039	-0.026	-11	552
27	91.00	433	0.705	-0.088	0.031	-0.022	-6	373
26	88.50	657	0.667	-0.076	0.024	-0.017	-7	567
25	86.00	444	0.630	-0.064	0.018	-0.011	-3	383
24	83.50	674	0.594	-0.051	0.014	-0.005	-2	581
23	81.00	455	0.559	-0.038	0.011	0.002	1	392
22	78.50	691	0.525	-0.025	0.008	0.008	4	596
21	76.00	466	0.492	-0.013	0.007	0.015	5	402
20	73.50	707	0.460	-0.002	0.006	0.021	10	610
19	71.00	477	0.429	0.009	0.006	0.027	8	411
18	68.50	724	0.399	0.018	0.007	0.032	15	624
17	66.00	488	0.371	0.027	0.008	0.036	12	421
16	63.50	740	0.343	0.035	0.009	0.039	19	639
15	61.00	499	0.317	0.041	0.011	0.042	14	431
14	57.50	1,267	0.281	0.049	0.014	0.045	38	1,093
13	54.15	440	0.250	0.055	0.017	0.046	14	379
12	51.65	1,771	0.227	0.059	0.020	0.047	55	1,527
11	48.35	1,800	0.199	0.063	0.023	0.047	56	1,553
10	45.85	555	0.179	0.065	0.026	0.047	17	479
9	42.50	1,651	0.154	0.068	0.030	0.046	51	1,424
8	37.50	1,686	0.120	0.070	0.034	0.045	51	1,454
7	32.50	1,722	0.090	0.071	0.038	0.044	50	1,485
6	27.50	1,758	0.064	0.072	0.041	0.043	50	1,516
5	22.50	1,793	0.043	0.071	0.042	0.041	49	1,547
4	17.50	1,829	0.026	0.067	0.040	0.039	47	1,577
3	12.50	1,865	0.013	0.059	0.034	0.034	43	1,608
2	7.50	1,900	0.005	0.044	0.025	0.027	34	1,639
1	2.50	1,936	0.001	0.018	0.010	0.012	15	1,670
Alcatel-Lucent B66A	148.00	201	1.865	1.849	1.093	0.345	46	173

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RFS DB-T1-6Z-8AB-0Z	148.00	88	1.865	1.849	1.093	0.345	20	76
PINE BRANCH	147.00	600	1.840	1.725	1.047	0.330	132	517
Commscope SBNHH-	146.00	608	1.815	1.606	1.003	0.315	128	525
Flat T-Arm	146.00	750	1.815	1.606	1.003	0.315	157	647
VZW Unused Reserve:	146.00	1,431	1.815	1.606	1.003	0.315	300	1,234
Alcatel-Lucent B13 R	143.00	172	1.741	1.283	0.879	0.271	31	148
PINE BRANCH	142.00	600	1.717	1.186	0.840	0.258	103	517
Raycap DC6-48-60-18-	140.00	131	1.669	1.007	0.767	0.231	20	113
Ericsson RRUS 8843 B	140.00	216	1.669	1.007	0.767	0.231	33	186
Ericsson RRUS 4478 B	140.00	180	1.669	1.007	0.767	0.231	28	155
Ericsson RRUS 4449 B	140.00	213	1.669	1.007	0.767	0.231	33	184
Ericsson RRUS 12 w/	140.00	720	1.669	1.007	0.767	0.231	111	621
Ericsson RRUS-11	140.00	330	1.669	1.007	0.767	0.231	51	285
CCI HPA-65R-BUU-H8	140.00	204	1.669	1.007	0.767	0.231	31	176
Kathrein Scala 80010	140.00	688	1.669	1.007	0.767	0.231	106	593
T-Arms with SIte Pro	140.00	1,200	1.669	1.007	0.767	0.231	185	1,035
PINE BRANCH	137.00	600	1.598	0.772	0.667	0.194	78	517
PINE BRANCH	132.00	600	1.483	0.461	0.523	0.138	55	517
PINE BRANCH	127.00	600	1.373	0.235	0.405	0.091	36	517
PINE BRANCH	122.00	600	1.267	0.077	0.308	0.052	21	517
PINE BRANCH	117.00	600	1.165	-0.025	0.230	0.020	8	517
PINE BRANCH	112.00	600	1.068	-0.086	0.168	-0.003	-1	517
PINE BRANCH	107.00	600	0.975	-0.115	0.119	-0.019	-8	517
PINE BRANCH	102.00	600	0.886	-0.122	0.082	-0.027	-11	517
PINE BRANCH	97.00	600	0.801	-0.112	0.054	-0.029	-11	517
PINE BRANCH	92.00	600	0.721	-0.093	0.034	-0.023	-9	517
PINE BRANCH	87.00	600	0.644	-0.069	0.020	-0.014	-5	517
PINE BRANCH	82.00	600	0.572	-0.043	0.012	-0.001	0	517
PINE BRANCH	77.00	600	0.505	-0.018	0.007	0.012	5	517
PINE BRANCH	72.00	600	0.441	0.005	0.006	0.025	10	517
PINE BRANCH	67.00	600	0.382	0.024	0.007	0.034	14	517
PINE BRANCH	62.00	600	0.327	0.039	0.010	0.041	16	517
		56,336	88.087	35.908	30.192	8.683	2,673	48,587

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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	-67.32	-2.66	0.00	-322.39	0.00	322.39	7,586.21	3,793.11	18,027.15	9,026.97	0.00	0.00	0.045
5.00	-64.97	-2.64	0.00	-309.08	0.00	309.08	7,471.93	3,735.96	17,392.19	8,709.02	0.01	-0.01	0.044
10.00	-62.66	-2.61	0.00	-295.88	0.00	295.88	7,356.01	3,678.00	16,764.62	8,394.77	0.02	-0.02	0.044
15.00	-60.40	-2.57	0.00	-282.84	0.00	282.84	7,217.48	3,608.74	16,097.90	8,060.91	0.05	-0.03	0.043
20.00	-58.18	-2.53	0.00	-269.99	0.00	269.99	7,061.70	3,530.85	15,407.03	7,714.96	0.09	-0.04	0.043
25.00	-56.00	-2.49	0.00	-257.33	0.00	257.33	6,905.92	3,452.96	14,731.31	7,376.60	0.14	-0.05	0.043
30.00	-53.87	-2.45	0.00	-244.88	0.00	244.88	6,750.14	3,375.07	14,070.74	7,045.83	0.20	-0.06	0.043
35.00	-51.78	-2.41	0.00	-232.63	0.00	232.63	6,594.37	3,297.18	13,425.33	6,722.64	0.27	-0.08	0.042
40.00	-49.74	-2.36	0.00	-220.60	0.00	220.60	6,438.59	3,219.29	12,795.07	6,407.04	0.36	-0.09	0.042
45.00	-49.05	-2.35	0.00	-208.79	0.00	208.79	6,282.81	3,141.41	12,179.96	6,099.03	0.46	-0.10	0.042
46.71	-46.82	-2.30	0.00	-204.77	0.00	204.77	6,229.64	3,114.82	11,973.47	5,995.63	0.49	-0.10	0.042
50.00	-44.63	-2.24	0.00	-197.21	0.00	197.21	6,127.03	3,063.52	11,580.00	5,798.61	0.57	-0.11	0.041
53.29	-44.09	-2.23	0.00	-189.83	0.00	189.83	4,690.13	2,345.07	8,932.17	4,472.73	0.65	-0.12	0.052
55.00	-42.52	-2.20	0.00	-186.02	0.00	186.02	4,660.50	2,330.25	8,798.22	4,405.65	0.69	-0.12	0.051
60.00	-41.90	-2.19	0.00	-175.02	0.00	175.02	4,572.76	2,286.38	8,410.20	4,211.35	0.83	-0.14	0.051
62.00	-40.24	-2.16	0.00	-170.64	0.00	170.64	4,537.20	2,268.60	8,256.54	4,134.41	0.89	-0.15	0.050
65.00	-39.64	-2.15	0.00	-164.16	0.00	164.16	4,483.38	2,241.69	8,027.78	4,019.86	0.98	-0.15	0.050
67.00	-38.00	-2.12	0.00	-159.86	0.00	159.86	4,447.17	2,223.59	7,876.44	3,944.07	1.05	-0.16	0.049
70.00	-37.41	-2.12	0.00	-153.50	0.00	153.50	4,383.99	2,192.00	7,636.61	3,823.98	1.15	-0.17	0.049
72.00	-35.79	-2.10	0.00	-149.27	0.00	149.27	4,335.53	2,167.76	7,467.85	3,739.48	1.23	-0.18	0.048
75.00	-35.21	-2.10	0.00	-142.97	0.00	142.97	4,262.83	2,131.42	7,218.25	3,614.49	1.34	-0.19	0.048
77.00	-33.62	-2.09	0.00	-138.78	0.00	138.78	4,214.37	2,107.18	7,054.20	3,532.34	1.42	-0.19	0.047
80.00	-33.05	-2.09	0.00	-132.53	0.00	132.53	4,141.67	2,070.84	6,811.67	3,410.90	1.54	-0.20	0.047
82.00	-31.48	-2.09	0.00	-128.35	0.00	128.35	4,093.21	2,046.60	6,652.34	3,331.11	1.63	-0.21	0.046
85.00	-30.93	-2.10	0.00	-122.08	0.00	122.08	4,020.51	2,010.26	6,416.88	3,213.21	1.76	-0.22	0.046
87.00	-29.37	-2.11	0.00	-117.89	0.00	117.89	3,972.05	1,986.02	6,262.26	3,135.78	1.86	-0.23	0.045
90.00	-28.84	-2.11	0.00	-111.57	0.00	111.57	3,899.35	1,949.68	6,033.87	3,021.42	2.00	-0.24	0.044
92.00	-27.30	-2.13	0.00	-107.34	0.00	107.34	3,850.89	1,925.44	5,883.97	2,946.36	2.10	-0.24	0.044
95.00	-27.20	-2.14	0.00	-100.94	0.00	100.94	3,778.19	1,889.10	5,662.65	2,835.53	2.26	-0.25	0.043
95.38	-26.53	-2.14	0.00	-100.14	0.00	100.14	3,769.06	1,884.53	5,635.16	2,821.77	2.28	-0.25	0.043
97.00	-24.55	-2.17	0.00	-96.66	0.00	96.66	3,729.73	1,864.86	5,517.46	2,762.83	2.36	-0.26	0.042
100.00	-24.30	-2.18	0.00	-90.15	0.00	90.15	3,657.03	1,828.51	5,303.21	2,655.55	2.53	-0.27	0.041
100.63	-24.03	-2.18	0.00	-88.79	0.00	88.79	2,539.98	1,269.99	3,759.61	1,882.60	2.56	-0.27	0.057
102.00	-22.70	-2.20	0.00	-85.79	0.00	85.79	2,524.08	1,262.04	3,702.36	1,853.93	2.64	-0.27	0.055
105.00	-22.31	-2.20	0.00	-79.21	0.00	79.21	2,488.92	1,244.46	3,578.16	1,791.74	2.82	-0.29	0.053
107.00	-20.99	-2.21	0.00	-74.80	0.00	74.80	2,465.15	1,232.58	3,496.03	1,750.61	2.94	-0.29	0.051
110.00	-20.62	-2.21	0.00	-68.17	0.00	68.17	2,429.01	1,214.50	3,373.90	1,689.46	3.13	-0.31	0.049
112.00	-19.32	-2.21	0.00	-63.74	0.00	63.74	2,404.59	1,202.29	3,293.20	1,649.05	3.26	-0.31	0.047
115.00	-18.95	-2.21	0.00	-57.10	0.00	57.10	2,367.47	1,183.73	3,173.28	1,589.00	3.46	-0.33	0.044
117.00	-17.66	-2.19	0.00	-52.69	0.00	52.69	2,342.39	1,171.20	3,094.10	1,549.35	3.60	-0.33	0.042
120.00	-17.31	-2.18	0.00	-46.12	0.00	46.12	2,304.29	1,152.15	2,976.53	1,490.48	3.81	-0.34	0.038
122.00	-16.03	-2.14	0.00	-41.76	0.00	41.76	2,278.56	1,139.28	2,898.97	1,451.64	3.95	-0.35	0.036
125.00	-15.69	-2.12	0.00	-35.35	0.00	35.35	2,234.71	1,117.36	2,777.98	1,391.06	4.18	-0.36	0.032
127.00	-14.43	-2.05	0.00	-31.11	0.00	31.11	2,200.10	1,100.05	2,692.15	1,348.08	4.33	-0.36	0.030
130.00	-14.09	-2.03	0.00	-24.96	0.00	24.96	2,148.17	1,074.09	2,565.93	1,284.87	4.56	-0.37	0.026
132.00	-12.85	-1.92	0.00	-20.91	0.00	20.91	2,113.55	1,056.78	2,483.46	1,243.58	4.71	-0.37	0.023
135.00	-12.52	-1.89	0.00	-15.15	0.00	15.15	2,061.63	1,030.81	2,362.30	1,182.90	4.95	-0.38	0.019

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137.00	-11.30	-1.75	0.00	-11.37	0.00	11.37	2,027.01	1,013.51	2,283.20	1,143.30	5.11	-0.38	0.016
140.00	-6.27	-1.09	0.00	-6.13	0.00	6.13	1,975.09	987.54	2,167.08	1,085.15	5.35	-0.39	0.009
142.00	-5.41	-0.96	0.00	-3.96	0.00	3.96	1,940.47	970.23	2,091.35	1,047.23	5.51	-0.39	0.007
143.00	-4.98	-0.89	0.00	-3.00	0.00	3.00	1,923.16	961.58	2,053.99	1,028.52	5.59	-0.39	0.006
145.00	-4.87	-0.87	0.00	-1.21	0.00	1.21	1,888.54	944.27	1,980.28	991.61	5.76	-0.39	0.004
146.00	-1.31	-0.25	0.00	-0.34	0.00	0.34	1,871.23	935.62	1,943.93	973.41	5.84	-0.39	0.001
147.00	-0.46	-0.09	0.00	-0.09	0.00	0.09	1,853.93	926.96	1,907.92	955.38	5.92	-0.39	0.000
148.00	0.00	0.00	0.00	0.00	0.00	0.00	1,836.62	918.31	1,872.25	937.51	6.00	-0.39	0.000
149.00	0.00	0.00	0.00	0.00	0.00	0.00	1,819.31	909.65	1,836.91	919.82	6.08	-0.39	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	-46.92	-2.66	0.00	-318.56	0.00	318.56	7,586.21	3,793.11	18,027.15	9,026.97	0.00	0.00	0.041
5.00	-45.28	-2.63	0.00	-305.26	0.00	305.26	7,471.93	3,735.96	17,392.19	8,709.02	0.01	-0.01	0.041
10.00	-43.67	-2.60	0.00	-292.09	0.00	292.09	7,356.01	3,678.00	16,764.62	8,394.77	0.02	-0.02	0.041
15.00	-42.09	-2.56	0.00	-279.10	0.00	279.10	7,217.48	3,608.74	16,097.90	8,060.91	0.05	-0.03	0.040
20.00	-40.54	-2.52	0.00	-266.30	0.00	266.30	7,061.70	3,530.85	15,407.03	7,714.96	0.09	-0.04	0.040
25.00	-39.03	-2.47	0.00	-253.72	0.00	253.72	6,905.92	3,452.96	14,731.31	7,376.60	0.14	-0.05	0.040
30.00	-37.54	-2.43	0.00	-241.35	0.00	241.35	6,750.14	3,375.07	14,070.74	7,045.83	0.20	-0.06	0.040
35.00	-36.09	-2.38	0.00	-229.21	0.00	229.21	6,594.37	3,297.18	13,425.33	6,722.64	0.27	-0.07	0.040
40.00	-34.66	-2.34	0.00	-217.29	0.00	217.29	6,438.59	3,219.29	12,795.07	6,407.04	0.35	-0.09	0.039
45.00	-34.18	-2.32	0.00	-205.60	0.00	205.60	6,282.81	3,141.41	12,179.96	6,099.03	0.45	-0.10	0.039
46.71	-32.63	-2.27	0.00	-201.64	0.00	201.64	6,229.64	3,114.82	11,973.47	5,995.63	0.49	-0.10	0.039
50.00	-31.10	-2.21	0.00	-194.17	0.00	194.17	6,127.03	3,063.52	11,580.00	5,798.61	0.56	-0.11	0.039
53.29	-30.72	-2.20	0.00	-186.88	0.00	186.88	4,690.13	2,345.07	8,932.17	4,472.73	0.64	-0.12	0.048
55.00	-29.63	-2.17	0.00	-183.11	0.00	183.11	4,660.50	2,330.25	8,798.22	4,405.65	0.68	-0.12	0.048
60.00	-29.20	-2.16	0.00	-172.27	0.00	172.27	4,572.76	2,286.38	8,410.20	4,211.35	0.82	-0.14	0.047
62.00	-28.04	-2.12	0.00	-167.95	0.00	167.95	4,537.20	2,268.60	8,256.54	4,134.41	0.88	-0.14	0.047
65.00	-27.62	-2.12	0.00	-161.57	0.00	161.57	4,483.38	2,241.69	8,027.78	4,019.86	0.97	-0.15	0.046
67.00	-26.48	-2.09	0.00	-157.34	0.00	157.34	4,447.17	2,223.59	7,876.44	3,944.07	1.03	-0.16	0.046
70.00	-26.07	-2.08	0.00	-151.08	0.00	151.08	4,383.99	2,192.00	7,636.61	3,823.98	1.14	-0.17	0.045
72.00	-24.94	-2.06	0.00	-146.92	0.00	146.92	4,335.53	2,167.76	7,467.85	3,739.48	1.21	-0.17	0.045
75.00	-24.54	-2.06	0.00	-140.73	0.00	140.73	4,262.83	2,131.42	7,218.25	3,614.49	1.32	-0.18	0.045
77.00	-23.43	-2.05	0.00	-136.62	0.00	136.62	4,214.37	2,107.18	7,054.20	3,532.34	1.40	-0.19	0.044
80.00	-23.03	-2.05	0.00	-130.47	0.00	130.47	4,141.67	2,070.84	6,811.67	3,410.90	1.52	-0.20	0.044
82.00	-21.93	-2.05	0.00	-126.36	0.00	126.36	4,093.21	2,046.60	6,652.34	3,331.11	1.61	-0.21	0.043
85.00	-21.55	-2.06	0.00	-120.20	0.00	120.20	4,020.51	2,010.26	6,416.88	3,213.21	1.74	-0.22	0.043
87.00	-20.47	-2.07	0.00	-116.09	0.00	116.09	3,972.05	1,986.02	6,262.26	3,135.78	1.83	-0.22	0.042
90.00	-20.09	-2.08	0.00	-109.88	0.00	109.88	3,899.35	1,949.68	6,033.87	3,021.42	1.97	-0.23	0.042
92.00	-19.02	-2.10	0.00	-105.73	0.00	105.73	3,850.89	1,925.44	5,883.97	2,946.36	2.07	-0.24	0.041
95.00	-18.95	-2.10	0.00	-99.44	0.00	99.44	3,778.19	1,889.10	5,662.65	2,835.53	2.22	-0.25	0.040
95.38	-18.48	-2.11	0.00	-98.65	0.00	98.65	3,769.06	1,884.53	5,635.16	2,821.77	2.24	-0.25	0.040
97.00	-17.11	-2.13	0.00	-95.23	0.00	95.23	3,729.73	1,864.86	5,517.46	2,762.83	2.33	-0.25	0.039
100.00	-16.93	-2.14	0.00	-88.82	0.00	88.82	3,657.03	1,828.51	5,303.21	2,655.55	2.49	-0.26	0.038
100.63	-16.74	-2.14	0.00	-87.48	0.00	87.48	2,539.98	1,269.99	3,759.61	1,882.60	2.53	-0.27	0.053
102.00	-15.82	-2.16	0.00	-84.54	0.00	84.54	2,524.08	1,262.04	3,702.36	1,853.93	2.60	-0.27	0.052
105.00	-15.55	-2.17	0.00	-78.06	0.00	78.06	2,488.92	1,244.46	3,578.16	1,791.74	2.78	-0.28	0.050
107.00	-14.63	-2.18	0.00	-73.72	0.00	73.72	2,465.15	1,232.58	3,496.03	1,750.61	2.90	-0.29	0.048
110.00	-14.37	-2.18	0.00	-67.19	0.00	67.19	2,429.01	1,214.50	3,373.90	1,689.46	3.08	-0.30	0.046
112.00	-13.46	-2.18	0.00	-62.83	0.00	62.83	2,404.59	1,202.29	3,293.20	1,649.05	3.21	-0.31	0.044
115.00	-13.20	-2.18	0.00	-56.30	0.00	56.30	2,367.47	1,183.73	3,173.28	1,589.00	3.41	-0.32	0.041
117.00	-12.31	-2.16	0.00	-51.95	0.00	51.95	2,342.39	1,171.20	3,094.10	1,549.35	3.55	-0.33	0.039
120.00	-12.06	-2.15	0.00	-45.48	0.00	45.48	2,304.29	1,152.15	2,976.53	1,490.48	3.75	-0.34	0.036
122.00	-11.17	-2.11	0.00	-41.19	0.00	41.19	2,278.56	1,139.28	2,898.97	1,451.64	3.90	-0.34	0.033
125.00	-10.93	-2.09	0.00	-34.87	0.00	34.87	2,234.71	1,117.36	2,777.98	1,391.06	4.12	-0.35	0.030
127.00	-10.05	-2.02	0.00	-30.69	0.00	30.69	2,200.10	1,100.05	2,692.15	1,348.08	4.26	-0.36	0.027
130.00	-9.82	-2.00	0.00	-24.63	0.00	24.63	2,148.17	1,074.09	2,565.93	1,284.87	4.49	-0.36	0.024
132.00	-8.95	-1.90	0.00	-20.64	0.00	20.64	2,113.55	1,056.78	2,483.46	1,243.58	4.65	-0.37	0.021
135.00	-8.73	-1.86	0.00	-14.95	0.00	14.95	2,061.63	1,030.81	2,362.30	1,182.90	4.88	-0.37	0.017

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137.00	-7.87	-1.72	0.00	-11.23	0.00	11.23	2,027.01	1,013.51	2,283.20	1,143.30	5.04	-0.38	0.014
140.00	-4.37	-1.07	0.00	-6.06	0.00	6.06	1,975.09	987.54	2,167.08	1,085.15	5.27	-0.38	0.008
142.00	-3.77	-0.95	0.00	-3.91	0.00	3.91	1,940.47	970.23	2,091.35	1,047.23	5.43	-0.38	0.006
143.00	-3.47	-0.88	0.00	-2.96	0.00	2.96	1,923.16	961.58	2,053.99	1,028.52	5.51	-0.38	0.005
145.00	-3.39	-0.86	0.00	-1.20	0.00	1.20	1,888.54	944.27	1,980.28	991.61	5.67	-0.38	0.003
146.00	-0.91	-0.24	0.00	-0.33	0.00	0.33	1,871.23	935.62	1,943.93	973.41	5.75	-0.38	0.001
147.00	-0.32	-0.09	0.00	-0.09	0.00	0.09	1,853.93	926.96	1,907.92	955.38	5.83	-0.38	0.000
148.00	0.00	0.00	0.00	0.00	0.00	0.00	1,836.62	918.31	1,872.25	937.51	5.91	-0.38	0.000
149.00	0.00	0.00	0.00	0.00	0.00	0.00	1,819.31	909.65	1,836.91	919.82	5.99	-0.38	0.000

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Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	49.90	0.00	67.52	0.00	0.00	5580.59	53.29	0.67
0.9D + 1.6W	49.87	0.00	50.62	0.00	0.00	5531.43	53.29	0.66
1.2D + 1.0Di + 1.0Wi	10.43	0.00	92.33	0.00	0.00	1168.20	53.29	0.15
(1.2 + 0.2Sds) * DL + E ELFM	1.90	0.00	67.32	0.00	0.00	226.66	53.29	0.04
(1.2 + 0.2Sds) * DL + E EMAM	2.66	0.00	67.32	0.00	0.00	322.39	100.63	0.06
(0.9 - 0.2Sds) * DL + E ELFM	1.90	0.00	46.92	0.00	0.00	224.16	53.29	0.03
(0.9 - 0.2Sds) * DL + E EMAM	2.66	0.00	46.92	0.00	0.00	318.56	100.63	0.05
1.0D + 1.0W	12.40	0.00	56.33	0.00	0.00	1380.13	53.29	0.17

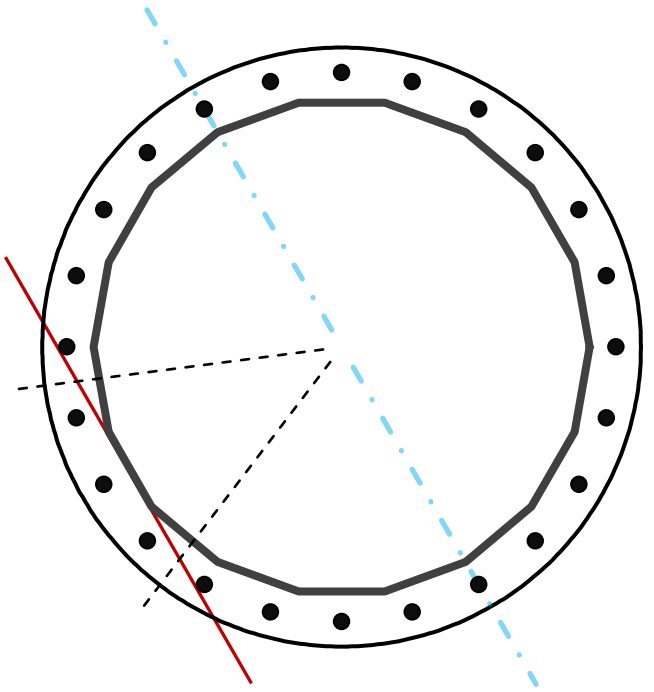
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	58.5	in
Thickness	0.5625	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	5580.6	k-ft
Axial, Pu	67.5	k
Shear, Vu	49.9	k
Neutral Axis	120	°

Report Capacities		
Component	Capacity	Result
Base Plate	50%	Pass
Anchor Rods	67%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	72	in
Thickness	3	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	1453.5	k
Bending Stress, ϕMn	2908.9	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	24	-
Diameter, ø	2 1/4	in
Bolt Circle	66	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	8.6	in
Orientation Offset	0	°
Applied Force, Pu	171.8	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	49.9	5580.6	1.00
Anchor Rod Forces	49.9	5580.6	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	101.8650	5.6592	0.5998		42752.77
Bolt	3.9761	3.2477	0.8393	4.5	42460.95
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	72	in
Thickness, t	3	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	41.973	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	24	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	66	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	171.8	k
Applied Shear, Vu	0.9	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.661	OK
Interaction Capacity	0.668	OK

External Base Plate		
Chord Length AA	35.223	in
Additional AA	6.000	in
Section Modulus, Z	92.753	in^3
Applied Moment, Mu	1453.5	k-ft
Bending Capacity, ϕMn	4173.9	k-ft
Capacity, Mu/ϕMn	0.348	OK
Chord Length AB	33.666	in
Additional AB	6.000	in
Section Modulus, Z	89.248	in^3
Applied Moment, Mu	1225.1	k-ft
Bending Capacity, ϕMn	4016.1	k-ft
Capacity, Mu/ϕMn	0.305	OK
Bend Line Length	28.730	in
Additional Bend Line	0.000	in
Section Modulus, Z	64.643	in^3
Applied Moment, Mu	1453.5	k-ft
Bending Capacity, ϕMn	2908.9	k-ft
Capacity, Mu/ϕMn	0.500	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		

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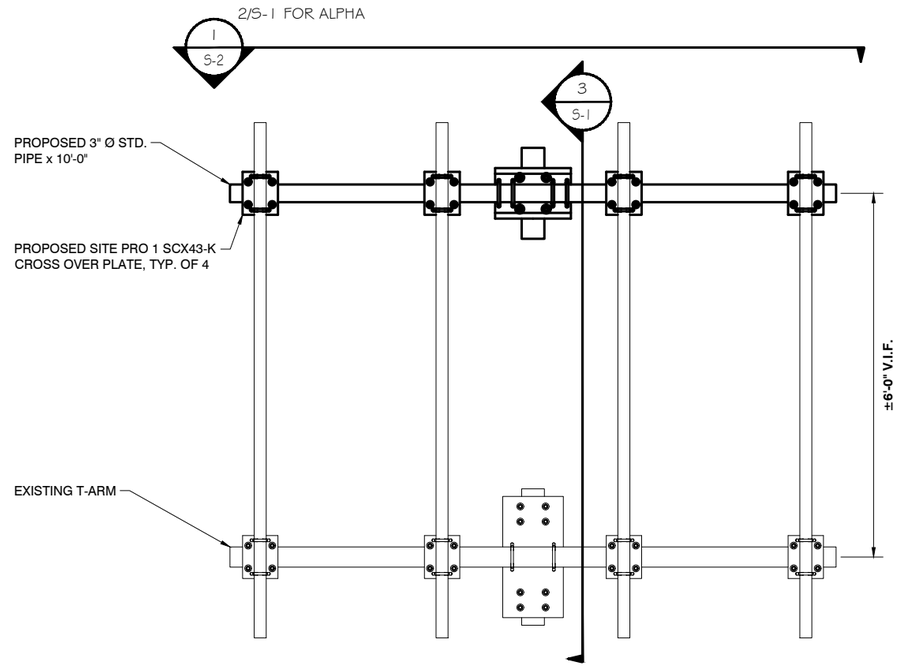
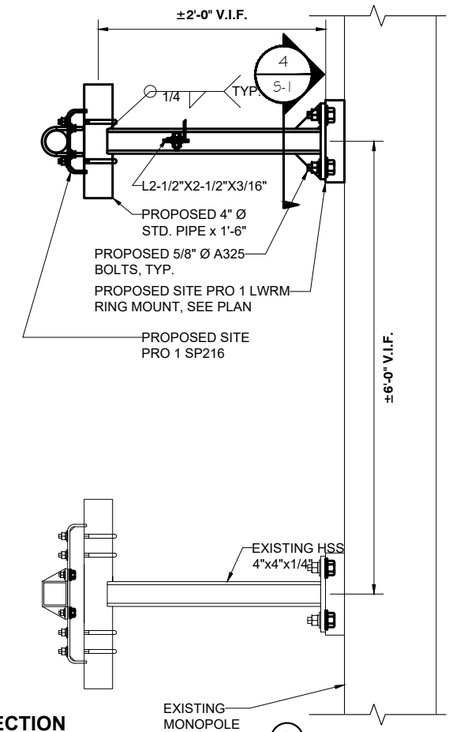
DRAWN BY: KJH CHECKED BY: AJK

STRUCTURAL STEEL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES
2. MATERIAL SPECIFICATIONS
   ANGLES, PLATES, AND CHANNELS 36 KSI, ASTM A36
   SQUARE AND RECTANGULAR HSS 46 KSI, ASTM A500
   GRADE B PIPE 35 KSI, ASTM A53 GRADE B HIGH STRENGTH BOLTS ASTM A325-N HEAVY HEX NUTS ASTM A563 WELDING ELECTRODES E70XX
3. ALL CONNECTION BOLTING IS TO BE WITH GALV. A-325N BOLTS UNLESS NOTED OTHERWISE. BOLTS NEED ONLY BE TIGHTENED TO THE SNUG-TIGHT CONDITION. SNUG-TIGHT IS DEFINED AS THE TIGHTNESS OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A PERSON USING AN ORDINARY SPUD WRENCH.
4. ALL WELDING SHALL COMPLY WITH THE AWS STRUCTURAL WELDING CODES. ALL WELDING TO BE PERFORMED BY AWS PRE-QUALIFIED WELDERS CERTIFIED FOR THE GIVEN APPLICATION. ALL WELDING TO BE SHOP WELDED.
5. ALL STEEL EXPOSED TO MOISTURE, SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH 2 COATS OF ZRC COLD GALVANIZING COMPOUND MANUFACTURED BY ZRC CHEMICAL PRODUCTS CO. QUINCY, MA OR USE THERMAL SPRAYING WITH PLATTZINC 85/15 AS MANUFACTURED BY PLATT BROTHERS & COMPANY WATERBURY,CT.
6. ALL PIPE SIZES ARE NOMINAL DIAMETER.
7. CONTRACTOR SHALL MEASURE AND VERIFY ALL EXISTING CONDITIONS AND MEASUREMENTS IN FIELD. ANY UNUSUAL CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE PURCHASE, FABRICATION AND ERECTION OF ANY MATERIAL.
8. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO THE OWNER, ENGINEER, AND CONSTRUCTION MANAGER PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE APPROVAL FROM THE OWNER.
9. CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE.
10. ALL STEEL TO BE ERECTED PLUMB AND LEVEL.



MOUNT ELEVATION VIEW (1)
SCALE: NTS



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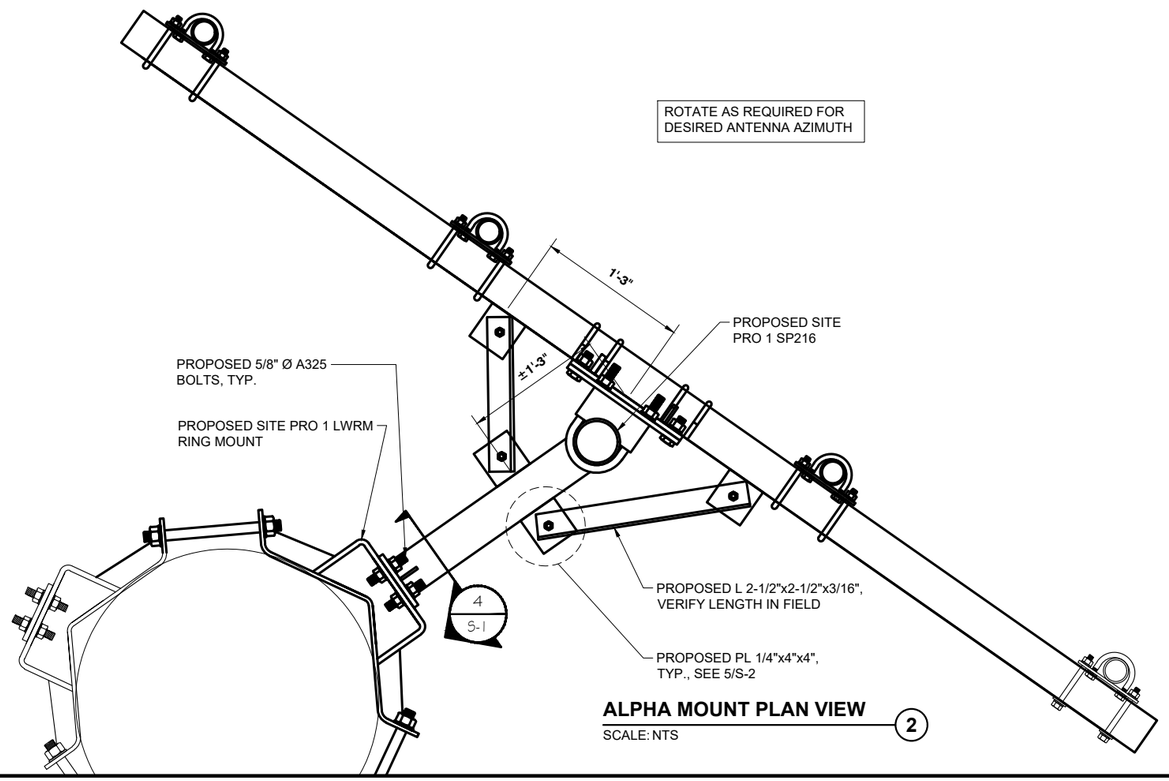

ALPHA MOUNT PLAN VIEW (2)
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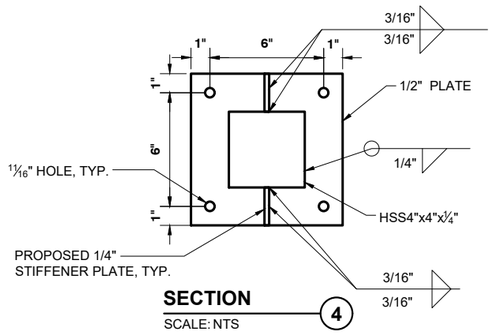

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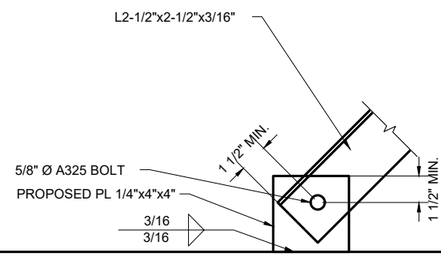

DETAIL (5)
SCALE: NTS

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Certification & Seal:

MARK	DATE	DESCRIPTION
2	07/25/19	REVISED FINAL CDs ISSUED
1	06/05/19	FINAL CDs ISSUED
0	05/21/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 07/25/2019

PROJECT TITLE:
FALLS VILLAGE ROUTE 7
FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: S-1

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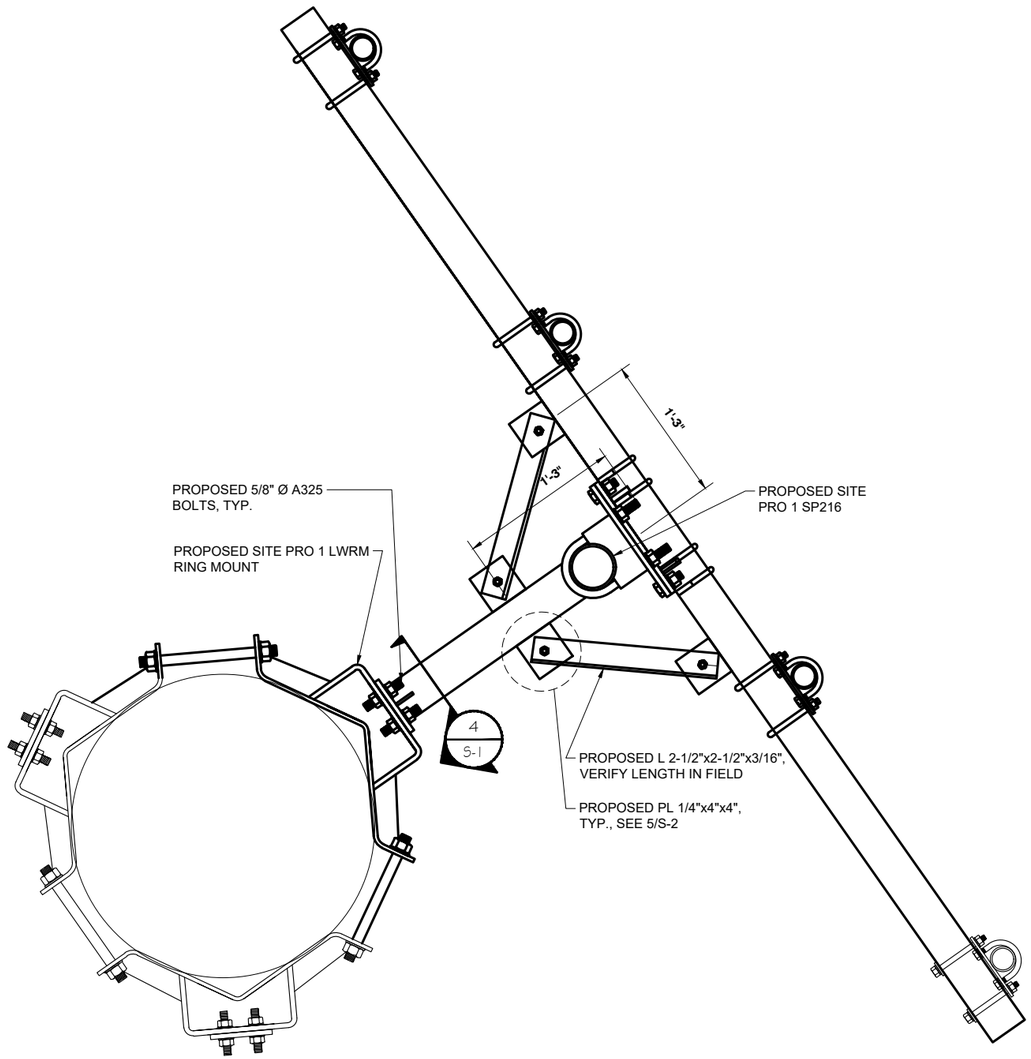

BETA & GAMMA MOUNT PLAN VIEW (1)
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Certification & Seal:

MARK	DATE	DESCRIPTION
2	07/25/19	REVISED FINAL CDs ISSUED
1	06/05/19	FINAL CDs ISSUED
0	05/21/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 07/25/2019

PROJECT TITLE:
FALLS VILLAGE ROUTE 7
FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: S-2

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RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED

July 23, 2019

April Grasso
Smartlink
85 Rangeway Road, Bldg. # 3, Suite 102
North Billerica, MA 01862

Ramaker & Associates, Inc.
855 Community Drive
Sauk City, WI 53583

SUBJECT:	**POST-MOD MOUNT ASSESSMENT**
CARRIER:	**AT&T**
SITE:	**FALLS VILLAGE ROUTE 7 (CTL01339)**
ADDRESS:	**188 ROUTE 7** **FALLS VILLAGE, LITCHFIELD COUNTY, CONNECTICUT 06031**
LATITUDE:	**41.9445560°**
LONGITUDE:	**-73.3604720°**
FA LOCATION CODE:	**10128251**
SCOPE:	**2C/ 3C/ 4C/ 5C/ SOFTWARE RETROFIT**
PACE NUMBER:	**MRCTB037905/ MRCTB037982/ MRCTB038060/MRCTB038000/ MRCTB038053**
PTN NUMBER:	**2051A0MC6X/ 2051A0MCKV/ 2051A0MC8S/ 2051A0MCED/ 2051A0MCE7**

RAMAKER & ASSOCIATES PROJECT NUMBER: 42862

RESULTS: **MOUNT:** **PASS WITH MODIFICATION** **31.4 %**

Dear April Grasso:

Ramaker & Associates, Inc. (RAMAKER) respectfully submits this mount assessment for the above-mentioned site. The purpose of this report is to determine the structural integrity of the mounting structure with the proposed loading configurations. Engineering recommendations regarding the analysis results are provided in the following pages.

RAMAKER developed a finite element model of the mount(s) using RISA analysis software. All information contained herein is valid only for the described structure configuration and loading conditions. RAMAKER reserves the right to modify our recommendations should alterations to the mount loading occur.

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

RAMAKER & ASSOCIATES, INC.

Simon V. Breunig
Structural Designer

James R. Skowronski, P.E.
Supervising Engineer

TABLE OF CONTENTS

ANALYSIS CRITERIA

State Building Code	2018 Connecticut Building Code
Adopted Building Code	2015 IBC
Referenced Standard	TIA-222-G
Risk Category	II
Ultimate Design Wind Speed, V_{ult}	115 mph (3 sec. gust)
Nominal Design Wind Speed, V_{asd}	89 mph (3 sec. gust)
Design Wind Speed w/ Ice	40 mph (3 sec. gust)
Ice Thickness	3/4 inch
Exposure Category	C
Topographic Feature	None

SUPPORTING DOCUMENTATION

- Mount mapping by ATC, job number 77119, dated 04/18/2019
- Construction drawings by RAMAKER, project number 42862
- Site visit(s) conducted by RAMAKER
- Other pertinent data procured or assumed by RAMAKER during site due diligence activities

MOUNT LOADING

RAMAKER understands that the loading to be used for this analysis will consist of the antennas and equipment configurations as shown in the following chart(s):

Antenna Mount – Alpha & Gamma Sectors				
Elevation	**Position**	**Appurtenance**	**Mount Type**	**Status**
135	1	(1) CCI HPA-65R-BUU-H8	Sector Frame	Existing
		(1) Ericsson RRUS-11		
	2	**(1) CCI OPA-65R-LCUU-H8**		**Remove**
		(1) Kathrein 800-10966		**Proposed**
		(1) Ericsson RRU B14 4478		
	3	(1) Raycap DC6-48-60-18-8F		Existing
	4	**(1) CCI HPA-65R-BUU-H8**		**Remove**
		(1) Ericsson RRUS-11		
		(1) Kathrein 800-10966		**Proposed**
		(1) Ericsson RRU 8843		
		(1) Ericsson RRU 4449		

Antenna Mount – Beta Sector				
Elevation	**Position**	**Appurtenance**	**Mount Type**	**Status**
135	1	(1) CCI HPA-65R-BUU-H8	Sector Frame	Existing
		(1) Ericsson RRUS-11		
	2	**(1) CCI OPA-65R-LCUU-H8**		**Remove**
		(1) Kathrein 800-10966		**Proposed**
		(1) Ericsson RRU B14 4478		
	3	(1) Raycap DC6-48-60-18-8F		Existing
	4	**(1) CCI HPA-65R-BUU-H8**		**Remove**
		(1) Ericsson RRUS-11		
		(1) Kathrein 800-10966		**Proposed**
		(1) Ericsson RRU 8843		
		(1) Ericsson RRU 4449		
	--	(1) Raycap DC6-48-60-18-8F		Existing

MOUNT RESULTS

By engineering calculation and inspection, the ***modified*** antenna and equipment mounting structure(s) are capable of supporting the proposed loading configurations without causing an overstress condition in the antenna and equipment mounting structure(s), ***provided the proposed structural modifications are completed prior to antenna and equipment installation. See associated RAMAKER constructions drawings for modification details.***

LIMITATIONS

The recommendations contained within this report were developed using the supporting documentation as previously described. All recommendations pertain only to the proposed antenna installation activities as described in this report. RAMAKER assumes no responsibility for failures caused by factors beyond our control. These include but are not limited to the following:

- Missing, corroding, and/or deteriorating members
- Improper manufacturing and/or construction
- Improper maintenance
- Member grades less than assumed grades shown below:

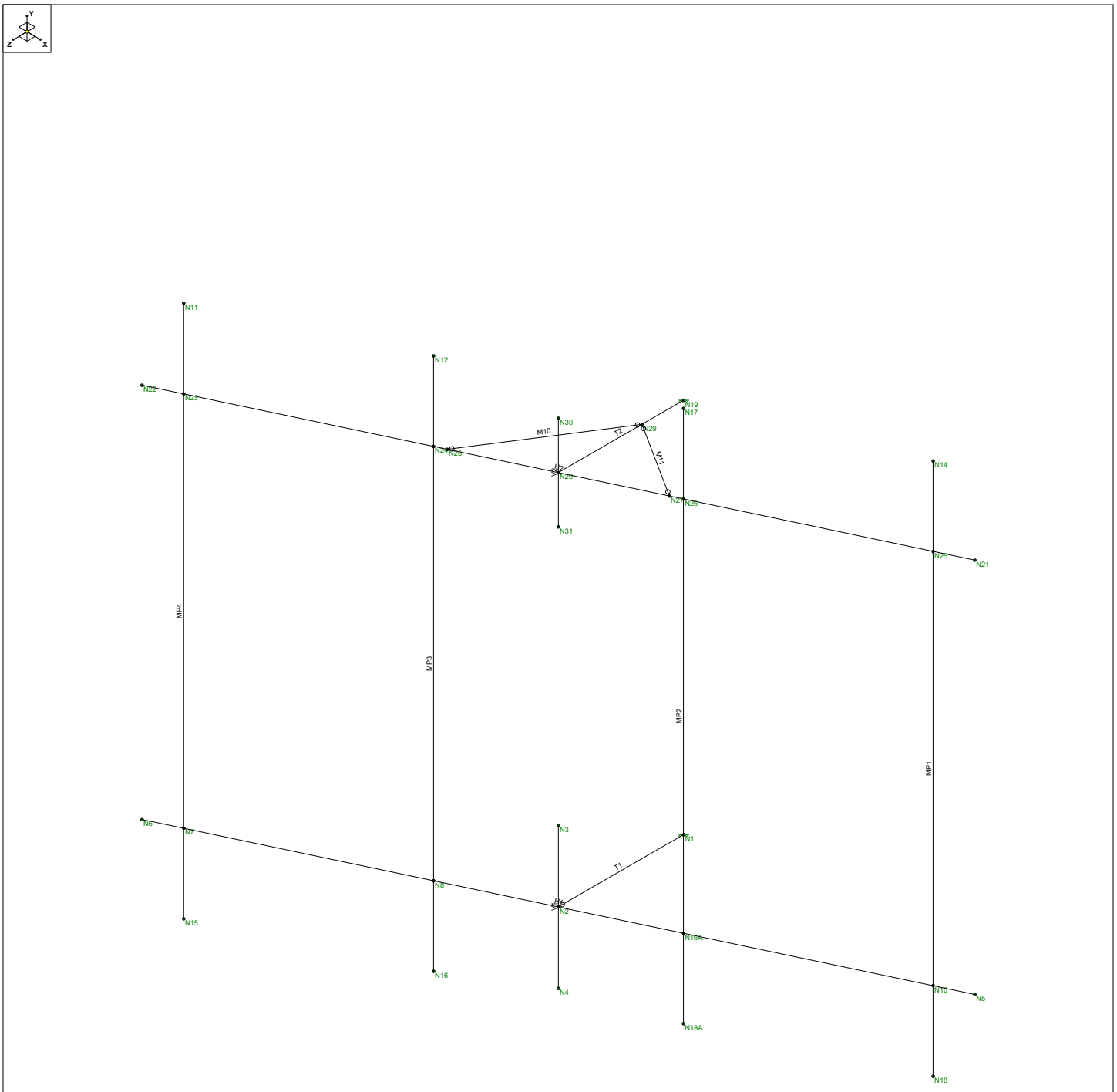
Assumed Steel Member Grades	
Angles/Plates/Channels/Solid Rods	ASTM A36, 36 ksi
Pipes	ASTM A53 Gr. B, 35 ksi
Existing HSS (Square Tube)	ASTM A36, 36 ksi
Proposed HSS (Square Tube)	ASTM A500 Gr. B, 46 ksi

RAMAKER is not responsible for verifying that the loading on the structure is consistent with the loading applied to the structure within this report. If there is any information contrary to that contained herein, or if there are any defects arising from the original design, material, fabrication and erection deficiencies, this report should be disregarded and RAMAKER should be contacted immediately. RAMAKER is not liable for any representation, recommendation, or conclusion not expressly stated herein.

This analysis pertains only to the mounting structure, and no analyses or conclusions were made regarding the supporting structure. Analysis and certification of the supporting structure is performed and submitted separately.

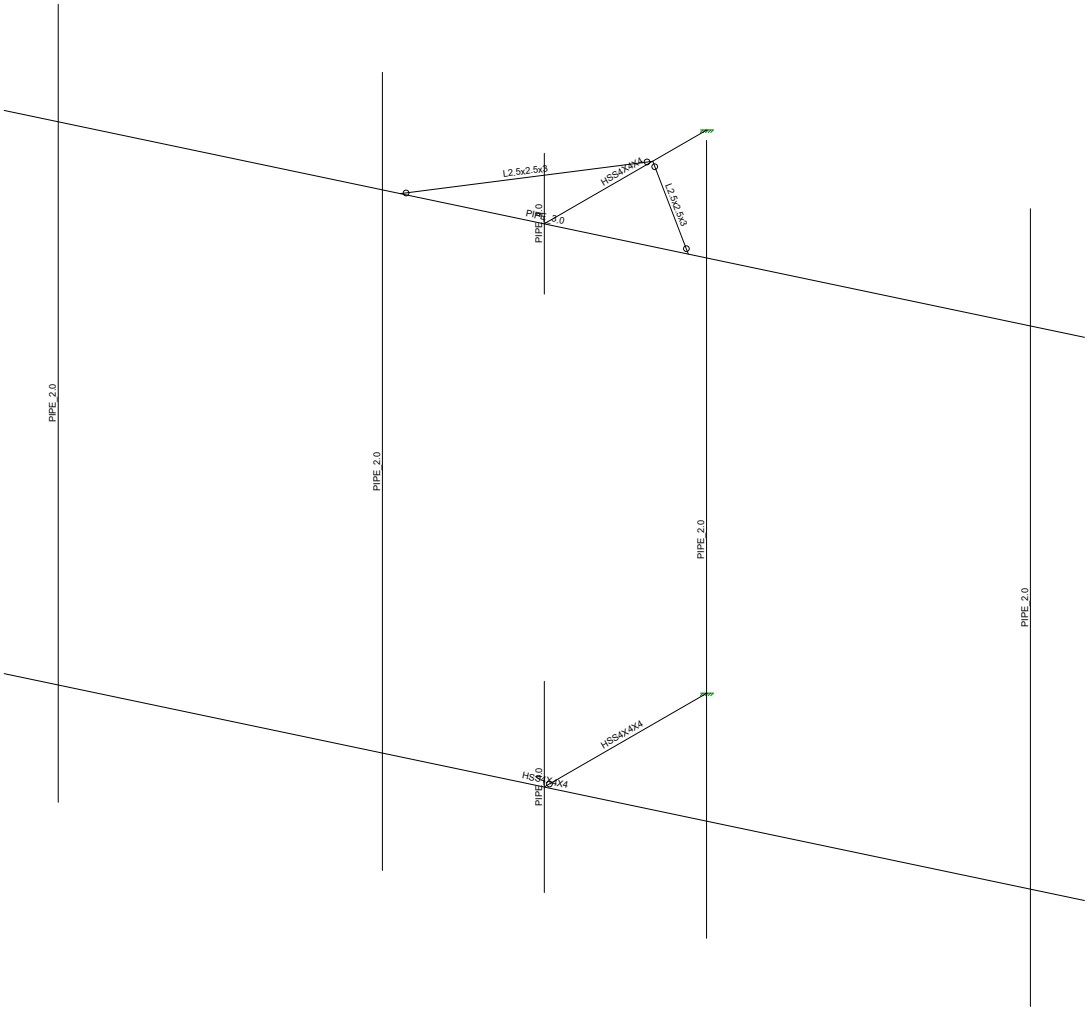
ATTACHMENTS

- Analysis Figures
- Analysis Calculations



Envelope Only Solution

Ramaker & Associates, Inc.	CTL01339 (10128251)	SK - 1
SVB		July 23, 2019 at 12:30 PM
42862		42862 Rev2 Mount.r3d



Envelope Only Solution

Ramaker & Associates, Inc.	CTL01339 (10128251)	SK - 2
SVB		July 23, 2019 at 12:30 PM
42862		42862 Rev2 Mount.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe 4.0	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
2	Pipe 3.0	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	Pipe 2.0	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	HSS4x4x1/4	HSS4X4X4	Beam	SquareTube	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
5	New HSS4x4x1/4	HSS4X4X4	Beam	SquareTube	A500 Gr.B ...	Typical	3.37	7.8	7.8	12.8
6	L2.5x2.5x3/16	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	T1	N1	N2			HSS4x4x1/4	Beam	SquareTube	A36 Gr.36	Typical
2	V1	N4	N3			Pipe 4.0	Beam	Pipe	A53 Gr.B	Typical
3	H1	N6	N5			HSS4x4x1/4	Beam	SquareTube	A36 Gr.36	Typical
4	MP4	N15	N11			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
5	MP3	N16	N12			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
6	MP1	N18	N14			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
7	MP2	N18A	N17			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
8	H2	N21	N22			Pipe 3.0	Beam	Pipe	A53 Gr.B	Typical
9	T2	N19	N20			New HSS4x4x...	Beam	SquareTube	A500 Gr.B...	Typical
10	M10	N29	N28			L2.5x2.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N29	N27			L2.5x2.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
12	V2	N31	N30			Pipe 4.0	Beam	Pipe	A53 Gr.B	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Mem...	Surface(P...
1	Antenna Dead	None					12			
2	Antenna Wind 0	None					24			
3	Antenna Wind 30	None					24			
4	Antenna Wind 45	None					24			
5	Antenna Wind 60	None					24			
6	Antenna Wind 90	None					24			
7	Antenna Wind 120	None					24			
8	Antenna Wind 135	None					24			
9	Antenna Wind 150	None					24			
10	Antenna Wind 180	None					24			
11	Antenna Wind 210	None					24			
12	Antenna Wind 225	None					24			
13	Antenna Wind 240	None					24			
14	Antenna Wind 270	None					24			
15	Antenna Wind 300	None					24			
16	Antenna Wind 315	None					24			
17	Antenna Wind 330	None					24			
18	Antenna Ice Dead	None					12			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Mem...	Surface(P...
19	Antenna Wind w/Ice 0	None					24			
20	Antenna Wind w/Ice 30	None					24			
21	Antenna Wind w/Ice 45	None					24			
22	Antenna Wind w/Ice 60	None					24			
23	Antenna Wind w/Ice 90	None					24			
24	Antenna Wind w/Ice 120	None					24			
25	Antenna Wind w/Ice 135	None					24			
26	Antenna Wind w/Ice 150	None					24			
27	Antenna Wind w/Ice 180	None					24			
28	Antenna Wind w/Ice 210	None					24			
29	Antenna Wind w/Ice 225	None					24			
30	Antenna Wind w/Ice 240	None					24			
31	Antenna Wind w/Ice 270	None					24			
32	Antenna Wind w/Ice 300	None					24			
33	Antenna Wind w/Ice 315	None					24			
34	Antenna Wind w/Ice 330	None					24			
35	Member Dead	None		-1						
36	Member Wind 0	None						20		
37	Member Wind 30	None						20		
38	Member Wind 45	None						20		
39	Member Wind 60	None						20		
40	Member Wind 90	None						20		
41	Member Wind 120	None						20		
42	Member Wind 135	None						20		
43	Member Wind 150	None						20		
44	Member Wind 180	None						20		
45	Member Wind 210	None						20		
46	Member Wind 225	None						20		
47	Member Wind 240	None						20		
48	Member Wind 270	None						20		
49	Member Wind 300	None						20		
50	Member Wind 315	None						20		
51	Member Wind 330	None						20		
52	Member Ice Dead	None						10		
53	Member Wind w/Ice 0	None						20		
54	Member Wind w/Ice 30	None						20		
55	Member Wind w/Ice 45	None						20		
56	Member Wind w/Ice 60	None						20		
57	Member Wind w/Ice 90	None						20		
58	Member Wind w/Ice 120	None						20		
59	Member Wind w/Ice 135	None						20		
60	Member Wind w/Ice 150	None						20		
61	Member Wind w/Ice 180	None						20		
62	Member Wind w/Ice 210	None						20		
63	Member Wind w/Ice 225	None						20		
64	Member Wind w/Ice 240	None						20		
65	Member Wind w/Ice 270	None						20		
66	Member Wind w/Ice 300	None						20		
67	Member Wind w/Ice 315	None						20		
68	Member Wind w/Ice 330	None						20		
69	LV-1	None					1			
70	LV-2	None					1			
71	LV-3	None					1			
72	LV-4	None					1			
73	LV-5	None					1			
74	LV-6	None					1			
75	LV-7	None								

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Mem...	Surface(P...
76	LV-8	None								
77	LV-9	None								
78	LV-10	None								
79	LV-11	None								
80	LV-12	None								
81	LV-13	None								
82	LV-14	None								
83	LV-15	None								
84	LM-1	None					1			
85	LM-2	None					1			
86	LM-3	None					1			
87	LM-4	None					1			
88	LM-5	None								
89	LM-6	None								
90	LM-7	None								
91	LM-8	None								
92	LM-9	None								
93	LM-10	None								
94	LM-11	None								
95	LM-12	None								
96	LM-13	None								
97	LM-14	None								
98	LM-15	None								

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4	35	1.4																		
2	0.9D + 1.6 (0-Wind)	Yes	Y		1	.9	35	.9	2	1.6	36	1.6														
3	0.9D + 1.6 (30-Wind)	Yes	Y		1	.9	35	.9	3	1.6	37	1.6														
4	0.9D + 1.6 (45-Wind)	Yes	Y		1	.9	35	.9	4	1.6	38	1.6														
5	0.9D + 1.6 (60-Wind)	Yes	Y		1	.9	35	.9	5	1.6	39	1.6														
6	0.9D + 1.6 (90-Wind)	Yes	Y		1	.9	35	.9	6	1.6	40	1.6														
7	0.9D + 1.6 (120-Wind)	Yes	Y		1	.9	35	.9	7	1.6	41	1.6														
8	0.9D + 1.6 (135-Wind)	Yes	Y		1	.9	35	.9	8	1.6	42	1.6														
9	0.9D + 1.6 (150-Wind)	Yes	Y		1	.9	35	.9	9	1.6	43	1.6														
10	0.9D + 1.6 (180-Wind)	Yes	Y		1	.9	35	.9	10	1.6	44	1.6														
11	0.9D + 1.6 (210-Wind)	Yes	Y		1	.9	35	.9	11	1.6	45	1.6														
12	0.9D + 1.6 (225-Wind)	Yes	Y		1	.9	35	.9	12	1.6	46	1.6														
13	0.9D + 1.6 (240-Wind)	Yes	Y		1	.9	35	.9	13	1.6	47	1.6														
14	0.9D + 1.6 (270-Wind)	Yes	Y		1	.9	35	.9	14	1.6	48	1.6														
15	0.9D + 1.6 (300-Wind)	Yes	Y		1	.9	35	.9	15	1.6	49	1.6														
16	0.9D + 1.6 (315-Wind)	Yes	Y		1	.9	35	.9	16	1.6	50	1.6														
17	0.9D + 1.6 (330-Wind)	Yes	Y		1	.9	35	.9	17	1.6	51	1.6														
18	1.2D + 1.6 (0-Wind)	Yes	Y		1	1.2	35	1.2	2	1.6	36	1.6														
19	1.2D + 1.6 (30-Wind)	Yes	Y		1	1.2	35	1.2	3	1.6	37	1.6														
20	1.2D + 1.6 (45-Wind)	Yes	Y		1	1.2	35	1.2	4	1.6	38	1.6														
21	1.2D + 1.6 (60-Wind)	Yes	Y		1	1.2	35	1.2	5	1.6	39	1.6														
22	1.2D + 1.6 (90-Wind)	Yes	Y		1	1.2	35	1.2	6	1.6	40	1.6														
23	1.2D + 1.6 (120-Wind)	Yes	Y		1	1.2	35	1.2	7	1.6	41	1.6														
24	1.2D + 1.6 (135-Wind)	Yes	Y		1	1.2	35	1.2	8	1.6	42	1.6														
25	1.2D + 1.6 (150-Wind)	Yes	Y		1	1.2	35	1.2	9	1.6	43	1.6														
26	1.2D + 1.6 (180-Wind)	Yes	Y		1	1.2	35	1.2	10	1.6	44	1.6														
27	1.2D + 1.6 (210-Wind)	Yes	Y		1	1.2	35	1.2	11	1.6	45	1.6														
28	1.2D + 1.6 (225-Wind)	Yes	Y		1	1.2	35	1.2	12	1.6	46	1.6														
29	1.2D + 1.6 (240-Wind)	Yes	Y		1	1.2	35	1.2	13	1.6	47	1.6														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
30	1.2D + 1.6 (270-Wind)	Yes	Y		1	1.2	35	1.2	14	1.6	48	1.6														
31	1.2D + 1.6 (300-Wind)	Yes	Y		1	1.2	35	1.2	15	1.6	49	1.6														
32	1.2D + 1.6 (315-Wind)	Yes	Y		1	1.2	35	1.2	16	1.6	50	1.6														
33	1.2D + 1.6 (330-Wind)	Yes	Y		1	1.2	35	1.2	17	1.6	51	1.6														
34	1.2D + 1.0Di + 1.0 (0-Wind Ice)	Yes	Y		1	1.2	35	1.2	18	1	52	1	19	1	53	1										
35	1.2D + 1.0Di + 1.0 (30-Wind I...	Yes	Y		1	1.2	35	1.2	18	1	52	1	20	1	54	1										
36	1.2D + 1.0Di + 1.0 (45-Wind I...	Yes	Y		1	1.2	35	1.2	18	1	52	1	21	1	55	1										
37	1.2D + 1.0Di + 1.0 (60-Wind I...	Yes	Y		1	1.2	35	1.2	18	1	52	1	22	1	56	1										
38	1.2D + 1.0Di + 1.0 (90-Wind I...	Yes	Y		1	1.2	35	1.2	18	1	52	1	23	1	57	1										
39	1.2D + 1.0Di + 1.0 (120-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	24	1	58	1										
40	1.2D + 1.0Di + 1.0 (135-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	25	1	59	1										
41	1.2D + 1.0Di + 1.0 (150-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	26	1	60	1										
42	1.2D + 1.0Di + 1.0 (180-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	27	1	61	1										
43	1.2D + 1.0Di + 1.0 (210-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	28	1	62	1										
44	1.2D + 1.0Di + 1.0 (225-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	29	1	63	1										
45	1.2D + 1.0Di + 1.0 (240-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	30	1	64	1										
46	1.2D + 1.0Di + 1.0 (270-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	31	1	65	1										
47	1.2D + 1.0Di + 1.0 (300-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	32	1	66	1										
48	1.2D + 1.0Di + 1.0 (315-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	33	1	67	1										
49	1.2D + 1.0Di + 1.0 (330-Wind ...	Yes	Y		1	1.2	35	1.2	18	1	52	1	34	1	68	1										
50	1.2D + 1.5LV-1	Yes	Y		1	1.2	35	1.2	69	1.5																
51	1.2D + 1.5LV-2	Yes	Y		1	1.2	35	1.2	70	1.5																
52	1.2D + 1.5LV-3	Yes	Y		1	1.2	35	1.2	71	1.5																
53	1.2D + 1.5LV-4	Yes	Y		1	1.2	35	1.2	72	1.5																
54	1.2D + 1.5LV-5	Yes	Y		1	1.2	35	1.2	73	1.5																
55	1.2D + 1.5LV-6	Yes	Y		1	1.2	35	1.2	74	1.5																
56	1.2D + 1.5LV-7	Yes	Y		1	1.2	35	1.2	75	1.5																
57	1.2D + 1.5LV-8	Yes	Y		1	1.2	35	1.2	76	1.5																
58	1.2D + 1.5LV-9	Yes	Y		1	1.2	35	1.2	77	1.5																
59	1.2D + 1.5LV-10	Yes	Y		1	1.2	35	1.2	78	1.5																
60	1.2D + 1.5LV-11	Yes	Y		1	1.2	35	1.2	79	1.5																
61	1.2D + 1.5LV-12	Yes	Y		1	1.2	35	1.2	80	1.5																
62	1.2D + 1.5LV-13	Yes	Y		1	1.2	35	1.2	81	1.5																
63	1.2D + 1.5LV-14	Yes	Y		1	1.2	35	1.2	82	1.5																
64	1.2D + 1.5LV-15	Yes	Y		1	1.2	35	1.2	83	1.5																
65	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	2	.113	36	.113												
66	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	3	.113	37	.113												
67	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	4	.113	38	.113												
68	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	5	.113	39	.113												
69	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	6	.113	40	.113												
70	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	7	.113	41	.113												
71	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	8	.113	42	.113												
72	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	9	.113	43	.113												
73	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	10	.113	44	.113												
74	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	11	.113	45	.113												
75	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	12	.113	46	.113												
76	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	13	.113	47	.113												
77	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	14	.113	48	.113												
78	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	15	.113	49	.113												
79	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	16	.113	50	.113												
80	1.2D + 1.5LM-1 + Maintenanc...	Yes	Y		1	1.2	35	1.2	84	1.5	17	.113	51	.113												
81	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	2	.113	36	.113												
82	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	3	.113	37	.113												
83	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	4	.113	38	.113												
84	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	5	.113	39	.113												
85	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	6	.113	40	.113												
86	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	7	.113	41	.113												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
87	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	8	.113	42	.113										
88	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	9	.113	43	.113										
89	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	10	.113	44	.113										
90	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	11	.113	45	.113										
91	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	12	.113	46	.113										
92	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	13	.113	47	.113										
93	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	14	.113	48	.113										
94	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	15	.113	49	.113										
95	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	16	.113	50	.113										
96	1.2D + 1.5LM-2 + Maintenanc...	Yes	Y		1	1.2	35	1.2	85	1.5	17	.113	51	.113										
97	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	2	.113	36	.113										
98	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	3	.113	37	.113										
99	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	4	.113	38	.113										
100	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	5	.113	39	.113										
101	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	6	.113	40	.113										
102	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	7	.113	41	.113										
103	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	8	.113	42	.113										
104	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	9	.113	43	.113										
105	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	10	.113	44	.113										
106	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	11	.113	45	.113										
107	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	12	.113	46	.113										
108	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	13	.113	47	.113										
109	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	14	.113	48	.113										
110	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	15	.113	49	.113										
111	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	16	.113	50	.113										
112	1.2D + 1.5LM-3 + Maintenanc...	Yes	Y		1	1.2	35	1.2	86	1.5	17	.113	51	.113										
113	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	2	.113	36	.113										
114	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	3	.113	37	.113										
115	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	4	.113	38	.113										
116	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	5	.113	39	.113										
117	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	6	.113	40	.113										
118	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	7	.113	41	.113										
119	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	8	.113	42	.113										
120	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	9	.113	43	.113										
121	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	10	.113	44	.113										
122	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	11	.113	45	.113										
123	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	12	.113	46	.113										
124	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	13	.113	47	.113										
125	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	14	.113	48	.113										
126	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	15	.113	49	.113										
127	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	16	.113	50	.113										
128	1.2D + 1.5LM-4 + Maintenanc...	Yes	Y		1	1.2	35	1.2	87	1.5	17	.113	51	.113										
129	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	2	.113	36	.113										
130	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	3	.113	37	.113										
131	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	4	.113	38	.113										
132	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	5	.113	39	.113										
133	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	6	.113	40	.113										
134	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	7	.113	41	.113										
135	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	8	.113	42	.113										
136	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	9	.113	43	.113										
137	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	10	.113	44	.113										
138	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	11	.113	45	.113										
139	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	12	.113	46	.113										
140	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	13	.113	47	.113										
141	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	14	.113	48	.113										
142	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	15	.113	49	.113										
143	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	16	.113	50	.113										

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
144	1.2D + 1.5LM-5 + Maintenanc...	Yes	Y		1	1.2	35	1.2	88	1.5	17	.113	51	.113										
145	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	2	.113	36	.113										
146	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	3	.113	37	.113										
147	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	4	.113	38	.113										
148	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	5	.113	39	.113										
149	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	6	.113	40	.113										
150	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	7	.113	41	.113										
151	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	8	.113	42	.113										
152	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	9	.113	43	.113										
153	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	10	.113	44	.113										
154	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	11	.113	45	.113										
155	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	12	.113	46	.113										
156	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	13	.113	47	.113										
157	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	14	.113	48	.113										
158	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	15	.113	49	.113										
159	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	16	.113	50	.113										
160	1.2D + 1.5LM-6 + Maintenanc...	Yes	Y		1	1.2	35	1.2	89	1.5	17	.113	51	.113										
161	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	2	.113	36	.113										
162	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	3	.113	37	.113										
163	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	4	.113	38	.113										
164	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	5	.113	39	.113										
165	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	6	.113	40	.113										
166	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	7	.113	41	.113										
167	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	8	.113	42	.113										
168	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	9	.113	43	.113										
169	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	10	.113	44	.113										
170	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	11	.113	45	.113										
171	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	12	.113	46	.113										
172	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	13	.113	47	.113										
173	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	14	.113	48	.113										
174	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	15	.113	49	.113										
175	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	16	.113	50	.113										
176	1.2D + 1.5LM-7 + Maintenanc...	Yes	Y		1	1.2	35	1.2	90	1.5	17	.113	51	.113										
177	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	2	.113	36	.113										
178	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	3	.113	37	.113										
179	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	4	.113	38	.113										
180	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	5	.113	39	.113										
181	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	6	.113	40	.113										
182	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	7	.113	41	.113										
183	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	8	.113	42	.113										
184	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	9	.113	43	.113										
185	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	10	.113	44	.113										
186	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	11	.113	45	.113										
187	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	12	.113	46	.113										
188	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	13	.113	47	.113										
189	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	14	.113	48	.113										
190	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	15	.113	49	.113										
191	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	16	.113	50	.113										
192	1.2D + 1.5LM-8 + Maintenanc...	Yes	Y		1	1.2	35	1.2	91	1.5	17	.113	51	.113										
193	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	2	.113	36	.113										
194	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	3	.113	37	.113										
195	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	4	.113	38	.113										
196	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	5	.113	39	.113										
197	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	6	.113	40	.113										
198	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	7	.113	41	.113										
199	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	8	.113	42	.113										
200	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	9	.113	43	.113										

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
201	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	10	.113	44	.113										
202	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	11	.113	45	.113										
203	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	12	.113	46	.113										
204	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	13	.113	47	.113										
205	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	14	.113	48	.113										
206	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	15	.113	49	.113										
207	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	16	.113	50	.113										
208	1.2D + 1.5LM-9 + Maintenanc...	Yes	Y		1	1.2	35	1.2	92	1.5	17	.113	51	.113										
209	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	2	.113	36	.113										
210	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	3	.113	37	.113										
211	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	4	.113	38	.113										
212	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	5	.113	39	.113										
213	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	6	.113	40	.113										
214	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	7	.113	41	.113										
215	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	8	.113	42	.113										
216	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	9	.113	43	.113										
217	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	10	.113	44	.113										
218	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	11	.113	45	.113										
219	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	12	.113	46	.113										
220	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	13	.113	47	.113										
221	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	14	.113	48	.113										
222	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	15	.113	49	.113										
223	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	16	.113	50	.113										
224	1.2D + 1.5LM-10 + Maintenan...	Yes	Y		1	1.2	35	1.2	93	1.5	17	.113	51	.113										
225	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	2	.113	36	.113										
226	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	3	.113	37	.113										
227	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	4	.113	38	.113										
228	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	5	.113	39	.113										
229	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	6	.113	40	.113										
230	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	7	.113	41	.113										
231	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	8	.113	42	.113										
232	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	9	.113	43	.113										
233	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	10	.113	44	.113										
234	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	11	.113	45	.113										
235	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	12	.113	46	.113										
236	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	13	.113	47	.113										
237	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	14	.113	48	.113										
238	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	15	.113	49	.113										
239	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	16	.113	50	.113										
240	1.2D + 1.5LM-11 + Maintenan...	Yes	Y		1	1.2	35	1.2	94	1.5	17	.113	51	.113										
241	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	2	.113	36	.113										
242	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	3	.113	37	.113										
243	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	4	.113	38	.113										
244	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	5	.113	39	.113										
245	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	6	.113	40	.113										
246	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	7	.113	41	.113										
247	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	8	.113	42	.113										
248	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	9	.113	43	.113										
249	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	10	.113	44	.113										
250	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	11	.113	45	.113										
251	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	12	.113	46	.113										
252	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	13	.113	47	.113										
253	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	14	.113	48	.113										
254	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	15	.113	49	.113										
255	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	16	.113	50	.113										
256	1.2D + 1.5LM-12 + Maintenan...	Yes	Y		1	1.2	35	1.2	95	1.5	17	.113	51	.113										
257	1.2D + 1.5LM-13 + Maintenan...	Yes	Y		1	1.2	35	1.2	96	1.5	2	.113	36	.113										

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
258	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	3	.113	37	.113										
259	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	4	.113	38	.113										
260	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	5	.113	39	.113										
261	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	6	.113	40	.113										
262	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	7	.113	41	.113										
263	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	8	.113	42	.113										
264	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	9	.113	43	.113										
265	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	10	.113	44	.113										
266	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	11	.113	45	.113										
267	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	12	.113	46	.113										
268	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	13	.113	47	.113										
269	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	14	.113	48	.113										
270	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	15	.113	49	.113										
271	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	16	.113	50	.113										
272	1.2D + 1.5LM-13 + Maintenan..	Yes	Y		1	1.2	35	1.2	96	1.5	17	.113	51	.113										
273	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	2	.113	36	.113										
274	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	3	.113	37	.113										
275	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	4	.113	38	.113										
276	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	5	.113	39	.113										
277	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	6	.113	40	.113										
278	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	7	.113	41	.113										
279	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	8	.113	42	.113										
280	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	9	.113	43	.113										
281	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	10	.113	44	.113										
282	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	11	.113	45	.113										
283	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	12	.113	46	.113										
284	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	13	.113	47	.113										
285	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	14	.113	48	.113										
286	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	15	.113	49	.113										
287	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	16	.113	50	.113										
288	1.2D + 1.5LM-14 + Maintenan..	Yes	Y		1	1.2	35	1.2	97	1.5	17	.113	51	.113										
289	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	2	.113	36	.113										
290	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	3	.113	37	.113										
291	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	4	.113	38	.113										
292	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	5	.113	39	.113										
293	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	6	.113	40	.113										
294	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	7	.113	41	.113										
295	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	8	.113	42	.113										
296	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	9	.113	43	.113										
297	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	10	.113	44	.113										
298	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	11	.113	45	.113										
299	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	12	.113	46	.113										
300	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	13	.113	47	.113										
301	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	14	.113	48	.113										
302	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	15	.113	49	.113										
303	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	16	.113	50	.113										
304	1.2D + 1.5LM-15 + Maintenan..	Yes	Y		1	1.2	35	1.2	98	1.5	17	.113	51	.113										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	1168.701	15	1741.3287	41	1467.6723	33	-642.89...	17	2293.1826	15	500.4185	80
2		min	-1242.3515	23	346.0273	17	-1379.939	9	-3332.3...	41	-2436.5533	23	-868.76...	120
3	N19	max	1129.9847	31	1626.2389	49	1003.4104	17	-583.18...	17	2061.489	31	875.8989	72
4		min	-1056.4665	7	301.6448	9	-1091.3289	25	-2832.6...	41	-1928.7245	7	-897.193	128
5	Totals:	max	2288.2807	31	3329.5402	49	2458.6227	33						

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
6		min	-2288.2807	7	916.6962	2	-2458.6227	9						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Che...	Loc[ft]	LC	Shear Che...	Lo...	...	...	phi*Pnc ...	phi*Pnt [lb]	phi*M...	phi*M...	...	Eqn
1	T1	HSS4X4X4	.309	0	23	.119	0	y	...	107766....	109188	12663	12663	...	H1-1b
2	V1	PIPE_4.0	.001	1.125	29	.000	1.1...		...	91742.2...	93240	1063...	1063...	...	H1-1b
3	H1	HSS4X4X4	.285	5	25	.061	5	z	...	78692.0...	109188	12663	12663	...	H1-1b
4	MP4	PIPE_2.0	.314	1.3281	116	.038	7.2...		...	13511.2...	32130	1871....	1871....	...	H1-1b
5	MP3	PIPE_2.0	.244	1.3281	113	.018	1.3...		...	13511.2...	32130	1871....	1871....	...	H1-1b
6	MP1	PIPE_2.0	.256	1.3281	76	.028	7.2...		...	13511.2...	32130	1871....	1871....	...	H1-1b
7	MP2	PIPE_2.0	.241	1.2396	25	.038	7.2...		...	13511.2...	32130	1871....	1871....	...	H1-1b
8	H2	PIPE_3.0	.256	5	47	.129	5		...	38176.6...	65205	5748....	5748....	...	H1-1b
9	T2	HSS4X4X4	.202	0	46	.091	0	y	...	137201....	139518	1618...	1618...	...	H1-1b
10	M10	L2.5x2.5x3	.110	1.1242	33	.008	2.2...	y	...	24419.5...	29192.4	872.5...	1945....	...	H2-1
11	M11	L2.5x2.5x3	.072	.7162	17	.015	1.4...	y	...	26891.7...	29192.4	872.5...	1971....	...	H2-1
12	V2	PIPE_4.0	.000	.75	25	.000	.75		...	92571.3...	93240	1063...	1063...	...	H1-1b

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED

Job	CTL01339
Project	42862
By	SVB
Date	7/23/19

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	89	mph	Basic Wind Speed (Annex B)
z :	135	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.35		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	26.0	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
HPA-65R-BUU-H8	92.8	14.4	6.4	Flat	1.375	9.28	332.0	
800 10966	96.0	20.0	4.8	Flat	1.302	13.33	451.7	
RRUS-11	19.7	17.0	1.2	Flat	1.200	2.32	72.4	
RRUS 4478 B14	18.1	13.4	1.4	Flat	1.200	1.68	52.6	
8843	17.9	13.2	1.4	Flat	1.200	1.64	51.2	
4449	17.9	13.2	1.4	Flat	1.200	1.64	51.2	
DC6-48-60-18-8F	24.0	11.0	2.2	Round	0.500	1.83	23.8	
Pipe2STD x 8.5 ft	102.0	2.4	42.9	Round	1.200	1.68	52.5	6.2
Pipe3STD x 10 ft	120.0	3.5	34.3	Round	1.200	2.92	91.1	9.1
Pipe4STD x 2.25 ft	27.0	4.5	6.0	Round	0.716	0.84	15.7	7.0
HSS4X4X1/4 x 2 ft	24.0	4.0	6.0	Flat	1.356	0.67	23.5	11.8
HSS4X4X1/4 x 10 ft	120.0	4.0	30.0	Flat	2.000	3.33	173.4	17.3
Pipe4STD x 1.5 ft	18.0	4.5	4.0	Round	0.671	0.56	9.8	6.5

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Job	CTL01339
Project	42862
By	SVB
Date	7/23/19

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	89	mph	Basic Wind Speed (Annex B)
z :	135	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.35		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	26.0	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
HPA-65R-BUU-H8	92.8	7.3	12.7	Flat	1.590	4.70	194.7	
800 10966	96.0	6.9	13.9	Flat	1.630	4.60	195.1	
RRUS-11	19.7	7.2	2.7	Flat	1.211	0.98	30.9	
RRUS 4478 B14	18.1	8.3	2.2	Flat	1.200	1.04	32.4	
8843	17.9	11.3	1.6	Flat	1.200	1.41	43.9	
4449	17.9	9.5	1.9	Flat	1.200	1.18	36.7	
DC6-48-60-18-8F	24.0	11.0	2.2	Round	0.500	1.83	23.8	
Pipe2STD x 8.5 ft	102.0	2.4	42.9	Round	1.200	1.68	52.5	6.2
Pipe3STD x 10 ft	120.0	3.5	34.3	Round	1.200	2.92	91.1	9.1
Pipe4STD x 2.25 ft	27.0	4.5	6.0	Round	0.716	0.84	15.7	7.0
HSS4X4X1/4 x 2 ft	24.0	3.3	7.3	Flat	1.409	0.55	20.2	10.1
HSS4X4X1/4 x 10 ft	120.0	3.3	36.4	Flat	2.000	2.75	143.1	14.3
Pipe4STD x 1.5 ft	18.0	4.5	4.0	Round	0.671	0.56	9.8	6.5

RAMAKER & ASSOCIATES, INC.
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Job	CTL01339
Project	42862
By	SVB
Date	7/23/19

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	40	mph	Basic Wind Speed (Annex B)
z :	135	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.35		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	5.25	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	1.73	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
HPA-65R-BUU-H8	96.3	17.9	5.4	Flat	1.328	11.93	83.2	
800 10966	99.5	23.5	4.2	Flat	1.277	16.20	108.5	
RRUS-11	23.1	20.4	1.1	Flat	1.200	3.28	20.7	
RRUS 4478 B14	21.6	16.9	1.3	Flat	1.200	2.52	15.9	
8843	21.4	16.6	1.3	Flat	1.200	2.47	15.5	
4449	21.4	16.6	1.3	Flat	1.200	2.47	15.5	
DC6-48-60-18-8F	27.5	14.5	1.9	Round	0.700	2.76	10.1	
Pipe2STD x 8.5 ft	105.5	5.8	18.1	Round	1.046	4.27	23.4	2.7
Pipe3STD x 10 ft	123.5	7.0	17.8	Round	1.039	5.96	32.5	3.2
Pipe4STD x 2.25 ft	30.5	8.0	3.8	Round	0.730	1.68	6.4	2.5
HSS4X4X1/4 x 2 ft	27.5	7.5	3.7	Flat	1.253	1.42	9.3	4.1
HSS4X4X1/4 x 10 ft	123.5	7.5	16.6	Flat	1.719	6.39	57.6	5.6
Pipe4STD x 1.5 ft	21.5	8.0	2.7	Round	0.704	1.19	4.4	2.4

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED

Job	CTL01339
Project	42862
By	SVB
Date	7/23/19

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	40	mph	Basic Wind Speed (Annex B)
z :	135	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.35		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	5.25	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	1.73	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
HPA-65R-BUU-H8	96.3	10.8	9.0	Flat	1.465	7.19	55.2	
800 10966	99.5	10.4	9.6	Flat	1.487	7.15	55.8	
RRUS-11	23.1	10.6	2.2	Flat	1.200	1.71	10.7	
RRUS 4478 B14	21.6	11.7	1.8	Flat	1.200	1.75	11.0	
8843	21.4	14.8	1.4	Flat	1.200	2.19	13.8	
4449	21.4	12.9	1.7	Flat	1.200	1.91	12.1	
DC6-48-60-18-8F	27.5	14.5	1.9	Round	0.700	2.76	10.1	
Pipe2STD x 8.5 ft	105.5	5.8	18.1	Round	1.046	4.27	23.4	2.7
Pipe3STD x 10 ft	123.5	7.0	17.8	Round	1.039	5.96	32.5	3.2
Pipe4STD x 2.25 ft	30.5	8.0	3.8	Round	0.730	1.68	6.4	2.5
HSS4X4X1/4 x 2 ft	27.5	6.8	4.1	Flat	1.270	1.29	8.6	3.7
HSS4X4X1/4 x 10 ft	123.5	6.8	18.3	Flat	1.776	5.79	53.9	5.2
Pipe4STD x 1.5 ft	21.5	8.0	2.7	Round	0.704	1.19	4.4	2.4

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Job	CTL01339
Project	42862
By	SVB
Date	7/23/19

Ice Load on Antennas TIA-222-G

Ice Weight :	56	pcf	Ice Density
t_i :	0.75		Design Ice Thickness
Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	40	mph	Basic Wind Speed (Annex B)
z :	135	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_{iz} :	1.15		Height Escalation Factor for Ice Thickness
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
t_{iz} :	1.73	in	Design Thickness of Radial Ice at Height z (2.6.8)

Platform Grating :	None	
Ice Load :		psf

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	Depth	Diam.	Area	Perim.	Ice Weight	
	in	*in*	*in*	*in*	*sq in*	*in*	*lb*	*plf*
HPA-65R-BUU-H8	96.3	17.9	10.8	16.14	96.96	50.31	291.6	
800 10966	99.5	23.5	10.4	21.16	124.15	60.71	386.2	
RRUS-11	23.1	20.4	10.6	18.42	109.30	55.18	69.7	
RRUS 4478 B14	21.6	16.9	11.7	15.74	94.77	50.23	55.6	
8843	21.4	16.6	14.8	17.37	103.60	55.89	60.1	
4449	21.4	16.6	12.9	16.23	97.40	52.19	56.5	
DC6-48-60-18-8F	27.5	14.5	14.5	11.00	69.05	39.98	53.7	
Pipe2STD x 8.5 ft	105.5	5.8	5.8	2.38	22.25	12.89	73.6	8.7
Pipe3STD x 10 ft	123.5	7.0	7.0	3.50	28.36	16.42	110.3	11.0
Pipe4STD x 2.25 ft	30.5	8.0	8.0	4.50	33.78	19.56	29.6	13.1
HSS4X4X1/4 x 2 ft	27.5	7.5	6.8	5.19	37.53	27.24	29.2	14.6
HSS4X4X1/4 x 10 ft	123.5	7.5	6.8	5.19	37.53	27.24	146.0	14.6
Pipe4STD x 1.5 ft	21.5	8.0	8.0	4.50	33.78	19.56	19.7	13.1

SITESAFE
RF COMPLIANCE EXPERTS

8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 ● 703.276.1169 fax
info@sitesafe.com ● www.sitesafe.com

Smartlink on behalf of AT&T Mobility, LLC Site FA – 10128251 Site ID – CT1339 USID – 161443 Site Name – FALLS VILLAGE ROUTE 7 MRCTB037905-MRCTB037982-MRCTB038060

188 ROUTE 7
FALLS VILLAGE, CT 06031

Latitude: N41-56-40.40
Longitude: W73-21-37.70
Structure Type: Monotree

Report generated date: August 29, 2019
Report by: Sam Cosgrove
Customer Contact: Kristina Cottone

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

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Table of Contents

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1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
Max Cumulative Simulated RFE Level at the Antenna Level	8,435.6% General Public Limit
Compliant per FCC Rules and Regulations?	Will Be Compliant
Compliant per AT&T Mobility, LLC's Policy?	No

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CT1339_2019-LTE-Next-Carrier_LTE_mr673a_2051A0MC6X_10128251_161443_12-18-2018_Final-Approved_v3.00

CD's: 10128251_AE201_190725_CTL01339_Rev2_2C-3C-4C-5C-Retrofit

RF Configuration Datasheet:

RF Powers Used: Max RRH Power

1.2 Fall Arrest Anchor Point Summary

Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	N	N/A	N

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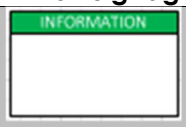
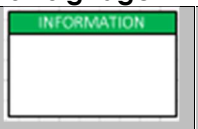
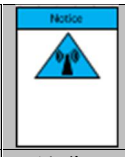
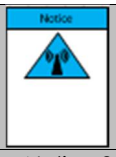
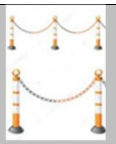
1.3 Signage Summary

a. Pre-Site Visit AT&T Signage (Existing Signage)

AT&T Signage Locations	 Information 1	 Information 2	 Notice	 Notice 2	 Caution	 Caution 2	 Warning	 Warning 2	 Barriers
Access Point(s)									
Alpha									
Beta									
Gamma									
Delta									
Epsilon									

b. Proposed AT&T Signage

AT&T Signage Locations	 Information 1	 Information 2	 Notice	 Notice 2	 Caution	 Caution 2	 Warning	 Warning 2	 Barriers
Access Point(s)						**1**			
Alpha									
Beta									
Gamma									
Delta									
Epsilon									

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2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- RF Exposure Diagram – Elevation View
- RF Exposure Diagram – Detail View
- AT&T Mobility, LLC Contribution

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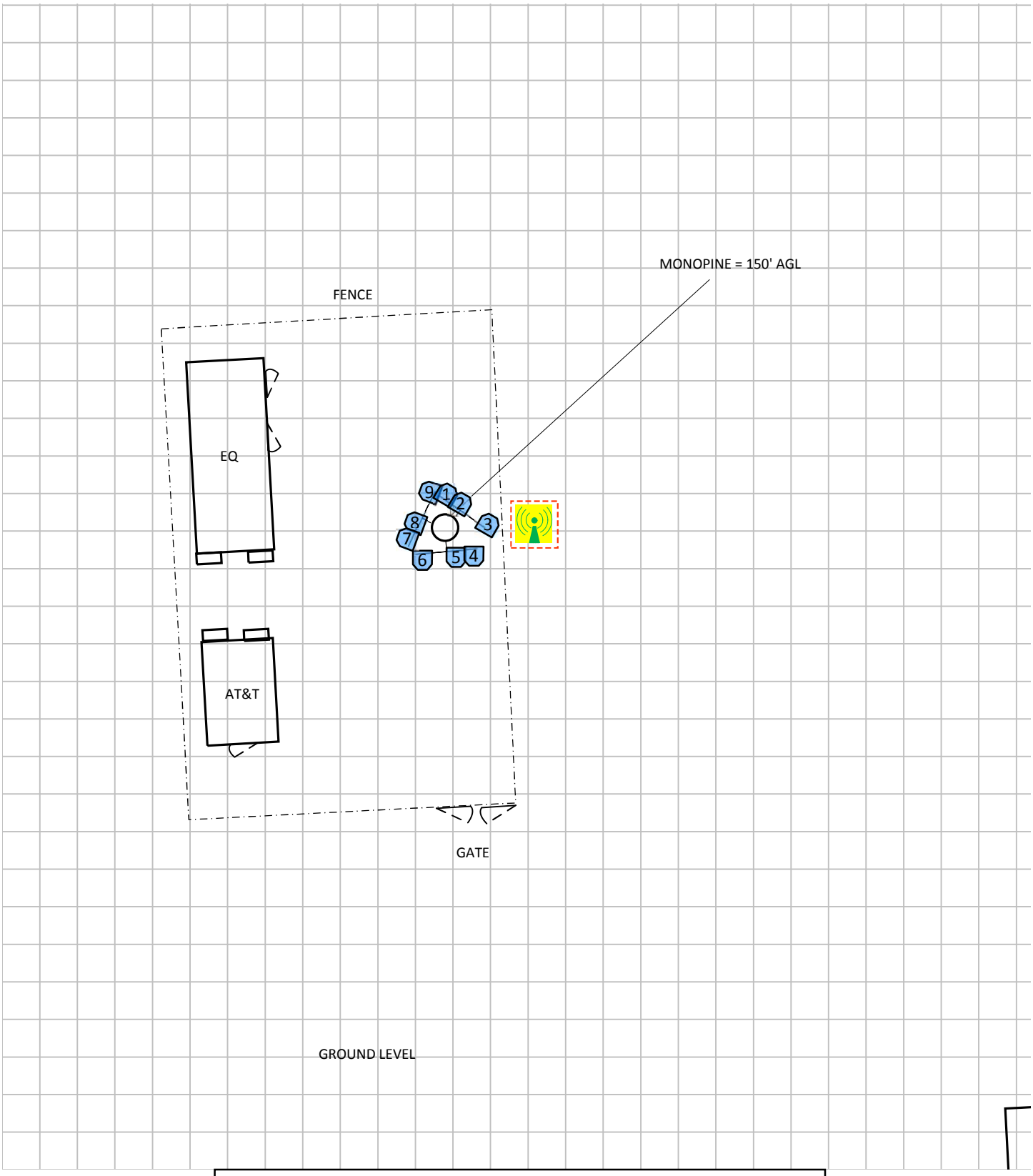
Site Scale Map For: FALLS VILLAGE ROUTE 7



% of FCC Public Exposure Limit

>= 5000	>= 500	>= 100	>= 5	< 5

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Barrier

Proposed Barriers/ Signs

(Feet)

0 11.4 22.8

www.sitesafe.com
Site Name:FALLS VILLAGE ROUTE 7
8/29/2019 1:42:40 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Tech	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z (AGL)	MDT	EDT
1	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	850	UMTS	30	58.1	7.7	80	TPO	Watt	0	1	2234	14.46	131.2'	0°	2°
2	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	763	LTE	30	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	131'	0°	2°
2	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	1900	LTE	30	66	8	160	TPO	Watt	0	1	6153.5	15.85	131'	0°	2°
3	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	737	LTE	30	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	131'	0°	2°
3	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	850	LTE	30	66	8	80	TPO	Watt	0	1	2128.6	14.25	131'	0°	2°
3	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	2100	AWS	30	64.4	8	160	TPO	Watt	0	1	6593.6	16.15	131'	0°	2°
3	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	850	EVDO	30	66	8	80	TPO	Watt	0	1	2128.6	14.25	131'	0°	2°
4	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	850	UMTS	180	58.1	7.7	80	TPO	Watt	0	1	2234	14.46	131.2'	0°	2°
5	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	763	LTE	180	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	131'	0°	10°
5	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	1900	LTE	180	66	8	160	TPO	Watt	0	1	6153.5	15.85	131'	0°	2°
6	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	737	LTE	180	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	131'	0°	2°
6	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	850	LTE	180	66	8	80	TPO	Watt	0	1	2128.6	14.25	131'	0°	2°
6	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	2100	AWS	180	64.4	8	160	TPO	Watt	0	1	6593.6	16.15	131'	0°	2°
6	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	850	EVDO	180	66	8	80	TPO	Watt	0	1	2128.6	14.25	131'	0°	2°
7	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	850	UMTS	290	58.1	7.7	80	TPO	Watt	0	1	2234	14.46	131.2'	0°	2°
8	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	763	LTE	290	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	131'	0°	2°
8	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	1900	LTE	290	66	8	160	TPO	Watt	0	1	6153.5	15.85	131'	0°	2°
9	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	2100	AWS	290	64.4	8	160	TPO	Watt	0	1	6593.6	16.15	131'	0°	2°
9	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	850	EVDO	290	66	8	80	TPO	Watt	0	1	2128.6	14.25	131'	0°	2°
9	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	737	LTE	290	67.9	8	160	TPO	Watt	0	1	3623.4	13.55	131'	0°	2°

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Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Tech	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z (AGL)	MDT	EDT
9	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10966	Panel	850	LTE	290	66	8	80	TPO	Watt	0	1	2128.6	14.25	131'	0°	2°

Note: The Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed.

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4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

- Ground Level = 0'
- Sloped Rooftop = 20'

The Antenna Inventory heights are referenced to the same level.

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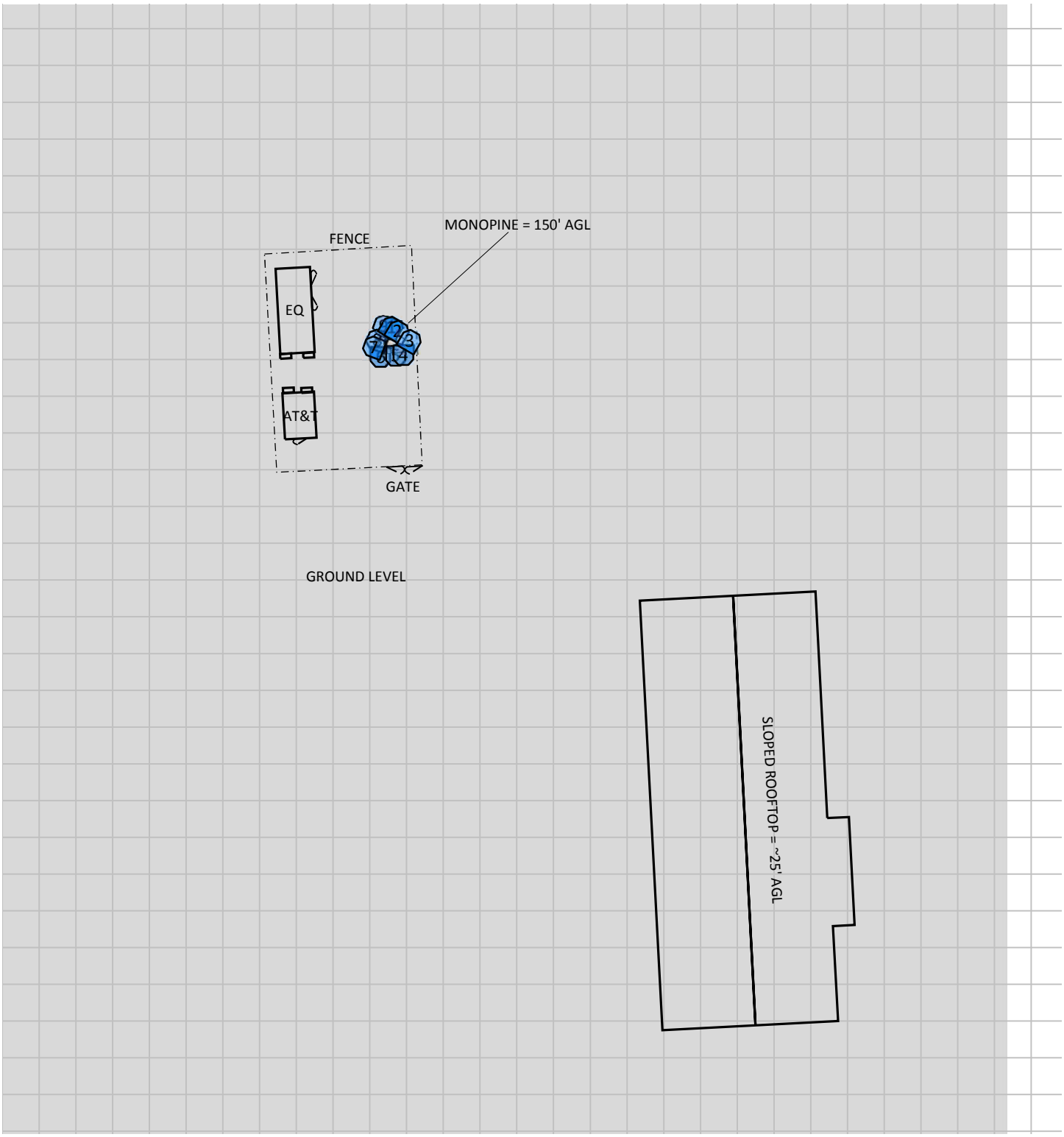
RF Exposure Simulation For: FALLS VILLAGE ROUTE 7



% of FCC Public Exposure Limit
Spatial average 0' - 6'

% of FCC Public Exposure Limit
>= 5000 | >= 500 | >= 100 | >= 5 | < 5

Carrier Identification
AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Barrier

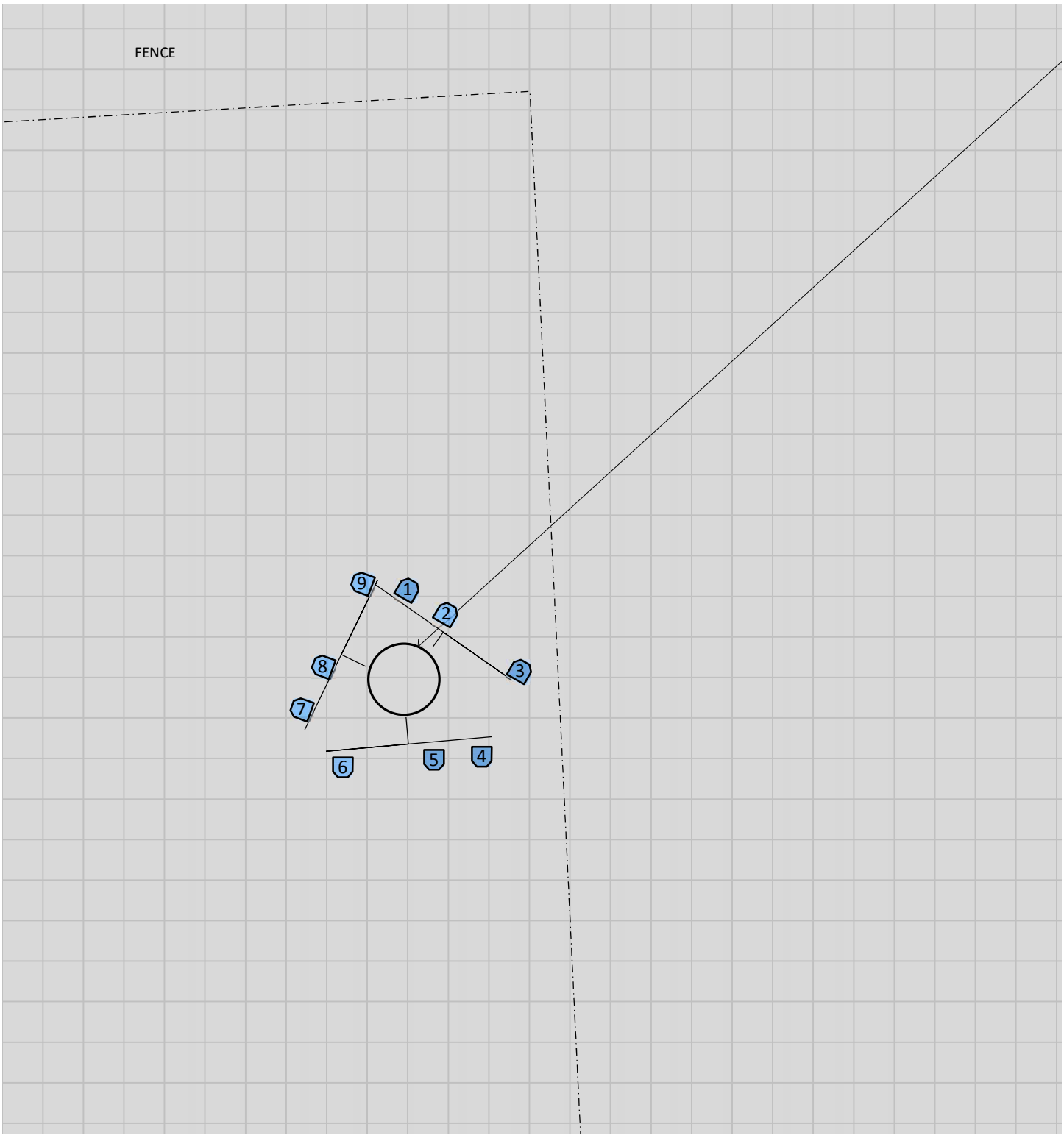
Proposed Barriers/ Signs

(Feet)
0 28.1 56.2

www.sitesafe.com
Site Name:FALLS VILLAGE ROUTE 7
8/29/2019 1:37:32 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: FALLS VILLAGE ROUTE 7
Detail View



% of FCC Public Exposure Limit
Spatial average 0' - 6'

% of FCC Public Exposure Limit

>= 5000	>= 500	>= 100	>= 5	< 5

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Barrier

Proposed Barriers/ Signs

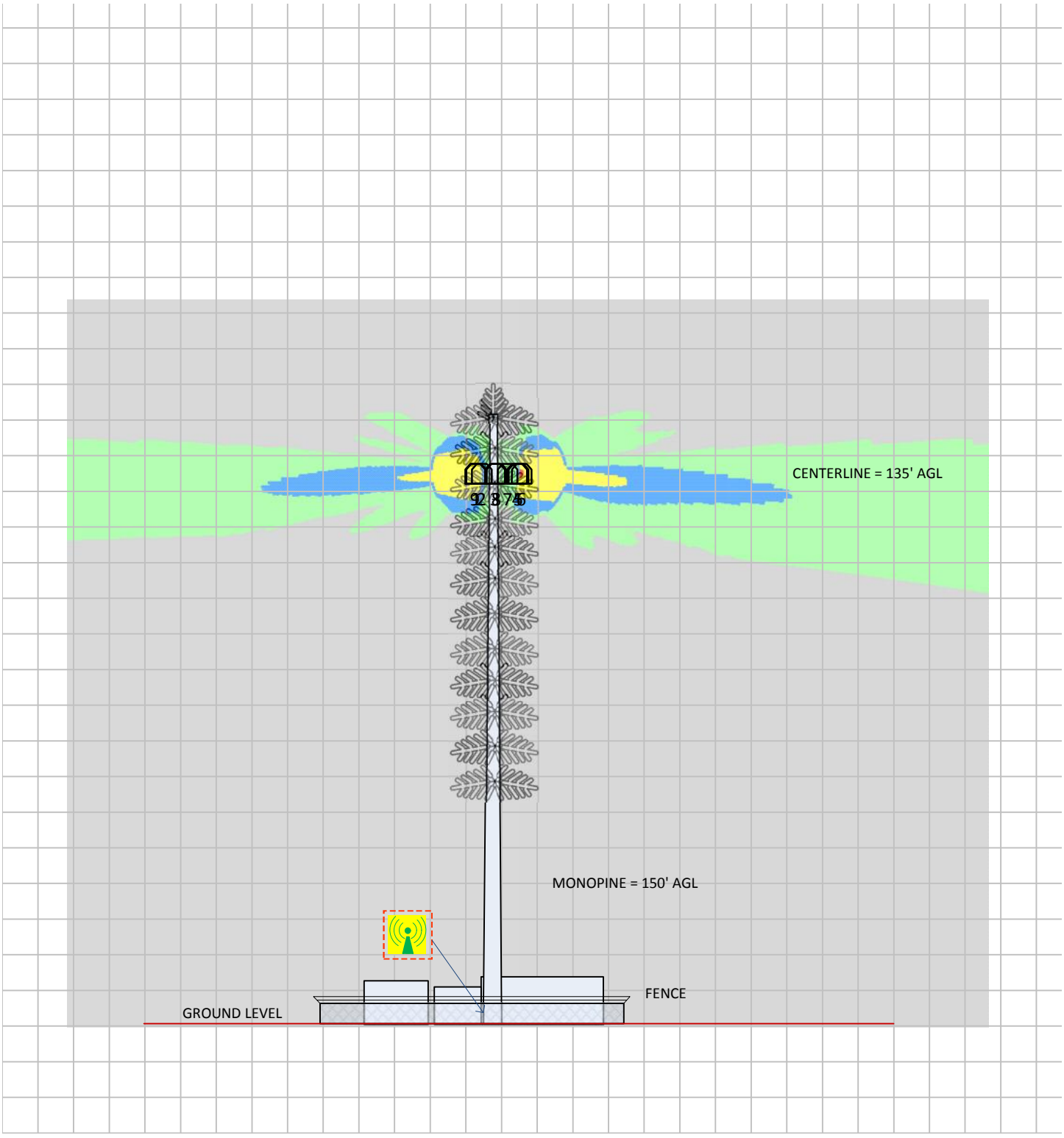
(Feet)

0 4.4 8.7

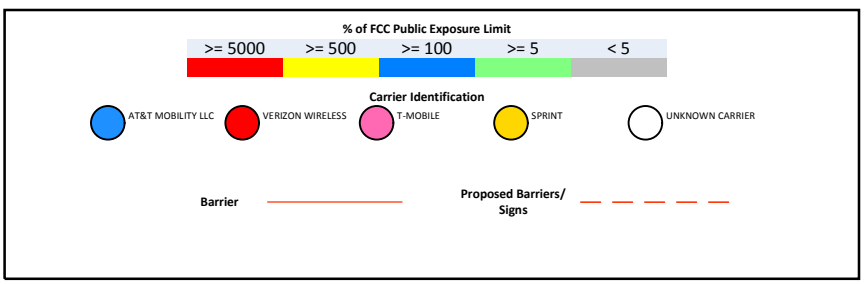
www.sitesafe.com
Site Name:FALLS VILLAGE ROUTE 7
8/29/2019 1:38:07 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: FALLS VILLAGE ROUTE 7
Elevation View



% of FCC Public Exposure Limit



5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Site Access Location

(1) Yellow Caution 2 sign(s) required.

Notes:

- Signage may already be in place. Sitesafe does not have record of any existing signage because there were no previous visits or data supplied regarding them. All remediation is based on a worst-case scenario.
- Any existing signage that conflicts with the proposed signage in this report should be removed per AT&T Signage Posting Rules.

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6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Site Safe, LLC, in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Sam Cosgrove.

August 29, 2019

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Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

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Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

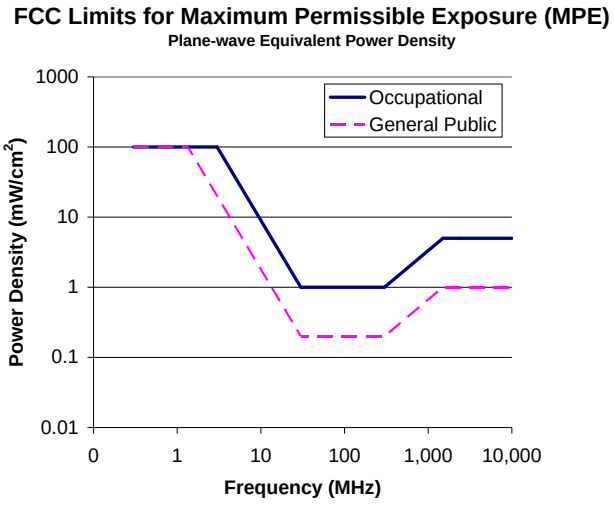
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



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Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lockout/Tagout procedure aimed to control the unexpected energization or startup of machines when maintenance or service is being performed.

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Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a worker's understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet-based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst-case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

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Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit. **Gray areas are accessible to anyone**.
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers**.
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.**
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

If trained occupational personnel require access to areas that are delineated as above 100% of the limit, Sitesafe recommends that they utilize the proper personal protection equipment (RF monitors), coordinate with the carriers to reduce or shutdown power, or make real-time power density measurements with the appropriate power density meter to determine real-time MPE levels. This will allow the personnel to ensure that their work area is within exposure limits.

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Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

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Appendix F – Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible for taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site complies with FCC standards with regards to Human Exposure to Radio Frequency Electromagnetic Fields from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

Gain (of an antenna) – The ratio of the maximum power in a given direction to the maximum power in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antenna as compared to an omnidirectional antenna.

General Population/Uncontrolled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **unaware** of the potential for exposure and who have no control over their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use its industry specific knowledge of antenna models to select a worst-case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

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Occupational/Controlled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of RF exposure on humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Exposure or Electromagnetic Fields – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy a 6-foot tall human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

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Appendix G – References

The following references can be followed for further information about RF Health and Safety.

Site Safe, LLC
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-Ionizing Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf

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188 RT 7 S

Location	188 RT 7 S	**Mblu**	15/ / 11/1T /
Acct#	14105233	**Owner**	CELLCO PARTNERSHIP
Assessment	$22,600	**Appraisal**	$32,200
PID	100810	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$32,200	$0	$32,200
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$22,600	$0	$22,600

Owner of Record

Owner	CELLCO PARTNERSHIP	**Sale Price**	$0
Co-Owner	DBA VERIZON WIRELESS	**Certificate**	
Address	PO BOX 2549 ADDISON, TX 75001	**Book & Page**	71/ 600
		Sale Date	07/28/2008
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CELLCO PARTNERSHIP	$0		71/ 600	25	07/28/2008

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**

Style	Outbuildings
Model	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fin Bsmt	
Fin Bsmt Qual	

Building Photo

(http://images.vgsi.com/photos/CanaanCTPhotos//\00\00\11/34.

Building Layout

Building Layout
(http://images.vgsi.com/photos/CanaanCTPhotos//Sketches/1008

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	300
Description	Industrial Vacant
Zone	R80
Neighborhood	6
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$0
Appraised Value	$0

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
TAB	Telecomm Accessory Bldg			360 Units	$19,400	1
TAB	Telecomm Accessory Bldg			192 Units	$10,400	1
FN4	Fence 8' Chain			248 L.F.	$2,000	1
PAT2	Patio - Good			96 S.F.	$400	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$38,900	$0	$38,900
2015	$38,900	$0	$38,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$27,200	$0	$27,200
2015	$27,200	$0	$27,200

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IMPORTANT!
FedEx has now returned to standard operations in the eastern coastal areas of the U.S. recently affected by Hurricane Dorian.
Learn More

775923344835

Delivered
Monday 9/09/2019 at 9:27 am

DELIVERED

Signed for by: M.PALMER

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

TO

FALLS VILLAGE, CT US

Shipment Facts

TRACKING NUMBER
775923344835

SERVICE
FedEx Express Saver

WEIGHT
1 lbs / 0.45 kgs

DELIVERY ATTEMPTS
1

DELIVERED TO
Receptionist/Front Desk

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT

9/06/2019 by 4:30 pm

SHIP DATE

Tue 9/03/2019

ACTUAL DELIVERY
Mon 9/09/2019 9:27 am

Travel History

Local Scan Time

Monday , 9/09/2019

9:27 am		Delivered
7:58 am	WATERTOWN, CT	On FedEx vehicle for delivery
7:56 am	WATERTOWN, CT	At local FedEx facility

Friday , 9/06/2019

7:10 pm	WATERTOWN, CT	At local FedEx facility

9:08 am	WATERTOWN, CT	At local FedEx facility Package not due for delivery
8:26 am	WATERTOWN, CT	At local FedEx facility
Thursday , 9/05/2019		
7:14 pm	WATERTOWN, CT	At local FedEx facility
9:50 am	WATERTOWN, CT	At local FedEx facility Package not due for delivery
8:23 am	WATERTOWN, CT	At local FedEx facility
6:32 am	EAST GRANBY, CT	At destination sort facility
3:22 am	MEMPHIS, TN	Departed FedEx location
Wednesday , 9/04/2019		
10:29 am	MEMPHIS, TN	Arrived at FedEx location
Tuesday , 9/03/2019		
8:07 pm	WILMINGTON, MA	Left FedEx origin facility
6:50 pm	WILMINGTON, MA	Picked up

IMPORTANT!
FedEx has now returned to standard operations in the eastern coastal areas of the U.S. recently affected by Hurricane Dorian.
Learn More

775923372489

Delivered
Thursday 9/05/2019 at 12:53 pm

DELIVERED

Signature not required

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

Shipment Facts

TRACKING NUMBER
775923372489

SERVICE
FedEx Express Saver

WEIGHT
1 lbs / 0.45 kgs

DELIVERY ATTEMPTS
1

DELIVERED TO
Residence

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday, Residential Delivery

STANDARD TRANSIT

9/06/2019 by 8:00 pm

SHIP DATE

Tue 9/03/2019

ACTUAL DELIVERY
Thu 9/05/2019 12:53 pm

Travel History

Local Scan Time

Thursday , 9/05/2019

12:53 pm		Delivered Left at garage. Package delivered to recipient address - release authorized
8:50 am	WATERTOWN, CT	On FedEx vehicle for delivery
8:26 am	WATERTOWN, CT	At local FedEx facility
6:32 am	EAST GRANBY, CT	At destination sort facility

3:22 am	MEMPHIS, TN	Departed FedEx location
Wednesday , 9/04/2019		
10:29 am	MEMPHIS, TN	Arrived at FedEx location
Tuesday , 9/03/2019		
8:07 pm	WILMINGTON, MA	Left FedEx origin facility
6:50 pm	WILMINGTON, MA	Picked up

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FedEx has now returned to standard operations in the eastern coastal areas of the U.S. recently affected by Hurricane Dorian.
Learn More

775923329640

Delivered
Monday 9/09/2019 at 9:27 am

DELIVERED

Signed for by: M.PALMER

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

Shipment Facts

TRACKING NUMBER
775923329640

SERVICE
FedEx Express Saver

WEIGHT
1 lbs / 0.45 kgs

DELIVERY ATTEMPTS
1

DELIVERED TO
Receptionist/Front Desk

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT

9/09/2019 by 4:30 pm

SHIP DATE

Tue 9/03/2019

ACTUAL DELIVERY
Mon 9/09/2019 9:27 am

Travel History

Local Scan Time

Monday , 9/09/2019

9:27 am		Delivered
8:04 am	WATERTOWN, CT	On FedEx vehicle for delivery
8:02 am	WATERTOWN, CT	At local FedEx facility

Friday , 9/06/2019

7:10 pm	WATERTOWN, CT	At local FedEx facility
1:09 pm	WATERTOWN, CT	Delivery exception

		Business closed - No delivery attempt
9:09 am	WATERTOWN, CT	Delivery exception
		Business closed - No delivery attempt
8:26 am	WATERTOWN, CT	At local FedEx facility
Thursday , 9/05/2019		
7:14 pm	WATERTOWN, CT	At local FedEx facility
9:50 am	WATERTOWN, CT	At local FedEx facility
		Package not due for delivery
8:23 am	WATERTOWN, CT	At local FedEx facility
6:32 am	EAST GRANBY, CT	At destination sort facility
3:22 am	MEMPHIS, TN	Departed FedEx location
Wednesday , 9/04/2019		
10:29 am	MEMPHIS, TN	Arrived at FedEx location
Tuesday , 9/03/2019		
8:07 pm	WILMINGTON, MA	Left FedEx origin facility
6:50 pm	WILMINGTON, MA	Picked up

IMPORTANT!
FedEx has now returned to standard operations in the eastern coastal areas of the U.S. recently affected by Hurricane Dorian.
Learn More

775923298291

Delivered
Wednesday 9/04/2019 at 9:59 am

DELIVERED

Signed for by: R.ROGERS

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

Shipment Facts

TRACKING NUMBER
775923298291

SERVICE
FedEx Express Saver

DELIVERY ATTEMPTS
1

DELIVERED TO
Receptionist/Front Desk

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT

9/06/2019 by 4:30 pm

SHIP DATE

Tue 9/03/2019

ACTUAL DELIVERY
Wed 9/04/2019 9:59 am

Travel History

Local Scan Time

Wednesday , 9/04/2019		
9:59 am		Delivered
8:55 am	WILMINGTON, MA	On FedEx vehicle for delivery
7:54 am	WILMINGTON, MA	At local FedEx facility
Tuesday , 9/03/2019		
10:58 pm	WILMINGTON, MA	At local FedEx facility
6:50 pm	WILMINGTON, MA	Picked up

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DRAWN BY: KJH CHECKED BY: AJK

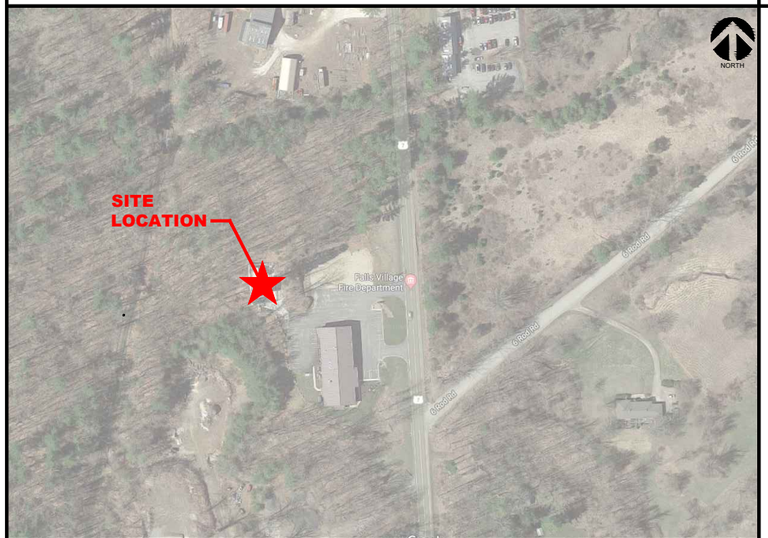
PROJECT NOTES:

1. SITE INFORMATION OBTAINED FROM THE FOLLOWING:
   A. PLAN ENTITLED "CANAAN - ROUTE 7 SOUTH" PREPARED BY CENTEK ENGINEERING OF BRANFORD, CT LAST REVISED 07/09/2014.
   B. LIMITED FIELD OBSERVATION BY RAMAKER & ASSOCIATES ON 02/05/2019.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. THE PROPOSED FACILITY WILL CAUSE NO INCREASE IN STORM WATER RUNOFF, THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
11. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
12. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
13. THE FACILITY DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
14. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTHS WITH RF ENGINEERING PRIOR TO INSTALLATION.
15. THE TOWER, MOUNTS AND ANTENNAS SHALL BE DESIGNED TO MEET EIA/TIA-222-G AS PER IBC REQUIREMENTS.
16. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
17. CONTRACTOR MUST FIELD LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
18. CONSTRUCTION SHALL NOT COMMENCE UNTIL COMPLETION OF A PASSING STRUCTURAL ANALYSIS CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. THE STRUCTURAL ANALYSIS IS TO BE PERFORMED BY OTHERS.
19. CONTRACTOR SHALL CONTACT STATE SPECIFIC ONE CALL SYSTEM THREE WORKING DAYS PRIOR TO ANY EARTH MOVING ACTIVITIES.

at&t

SITE NAME: FALLS VILLAGE ROUTE 7
FA NUMBER: 10128251
SITE NUMBER: CTL01339
ADDRESS: 188 ROUTE 7
FALLS VILLAGE, CT 06031
SCOPE: 2C - MRCTB037905 (2051A0MC6X), 3C - MRCTB037982 (2051A0MCKV), 4C - MRCTB038060 (2051A0MC8S), 5C - MRCTB038000 (2051A0MCED), SOFTWARE RETROFIT - MRCTB038053 (2051A0MCE7)

AERIAL MAP:



CODE COMPLIANCE:

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE
2. ANSI/TIA-222 STRUCTURAL STANDARD FOR ANTENNA STRUCTURES
3. NFPA 780 - LIGHTNING PROTECTION CODE
4. NATIONAL ELECTRIC CODE

811 Know what's below. Call before you dig. www.call811.com

PROJECT INFORMATION:

SITE INFORMATION:
LATITUDE: 41.9445560° N
LONGITUDE: 73.3604720° W
JURISDICTION: LITCHFIELD COUNTY

APPLICANT/LESSEE:
COMPANY: AT&T
ADDRESS: NEW ENGLAND MARKET

PROPERTY OWNER:
PROPERTY OWNER: TBD
ADDRESS: TBD
CITY, STATE, ZIP: TBD

CLIENT REPRESENTATIVE:
COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD
BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: APRIL GRASSO
E-MAIL: APRIL.GRASSO@SMARTLINKLLC.COM

SITE ACQUISITION:
COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD
BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: SHARON KEEFE
E-MAIL: SHARON.KEEFE@SMARTLINKLLC.COM

CONSTRUCTION MANAGER:
COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD
BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: JASON MATTHEWS
E-MAIL: JASON.MATTHEWS@SMARTLINKLLC.COM

ENGINEER:
COMPANY: RAMAKER & ASSOCIATES, INC.
ADDRESS: 855 COMMUNITY DRIVE
CITY, STATE, ZIP: SAUK CITY, WI 53583
CONTACT: ANGELA KVALHEIM
E-MAIL: AKVALHEIM@RAMAKER.COM

PROJECT DESCRIPTION/ SCOPE OF WORK

- INSTALL (9) NEW RRUs, (3) PER SECTOR
- REMOVE (3) EXISTING RRUs, (1) PER SECTOR
- INSTALL (6) NEW ANTENNAS, (2) PER SECTOR
- REMOVE (6) EXISTING ANTENNAS, (2) PER SECTOR
- SWAP BB WITH 6630
- ADD (1) XMU & 5G 6630

PROPOSED PROJECT SCOPE BASED ON RFDS ID# 2742664, VERSION 3.0, LAST UPDATED 05/28/2019.
CONTRACTOR TO VERIFY IN FIELD.

SHEET INDEX

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NORTH BILLERICA, MA 01862
SMARTLINKLLC.COM

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608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 LICENSED PROFESSIONAL ENGINEER

Signature: James R Skowronski Date: 7/24/2019

MARK	DATE	DESCRIPTION
2	07/25/19	REVISED FINAL CDs ISSUED
1	06/05/19	FINAL CDs ISSUED
0	05/21/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 07/25/2019

PROJECT TITLE:
FALLS VILLAGE ROUTE 7
FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
TITLE SHEET

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: T-1

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GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5O HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
    CONTRACTOR - SMARTLINK
    SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
    OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (FY = 36 KSI) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (FY = 36 KSI). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.

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85 RANGEWAY ROAD - BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862
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608-643-4100 www.Ramaker.com
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Certification & Seal:

MARK	DATE	DESCRIPTION
2	07/25/19	REVISED FINAL CDs ISSUED
1	06/05/19	FINAL CDs ISSUED
0	05/21/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 07/25/2019

PROJECT TITLE:
FALLS VILLAGE ROUTE 7
FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
NOTES

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: GN-1

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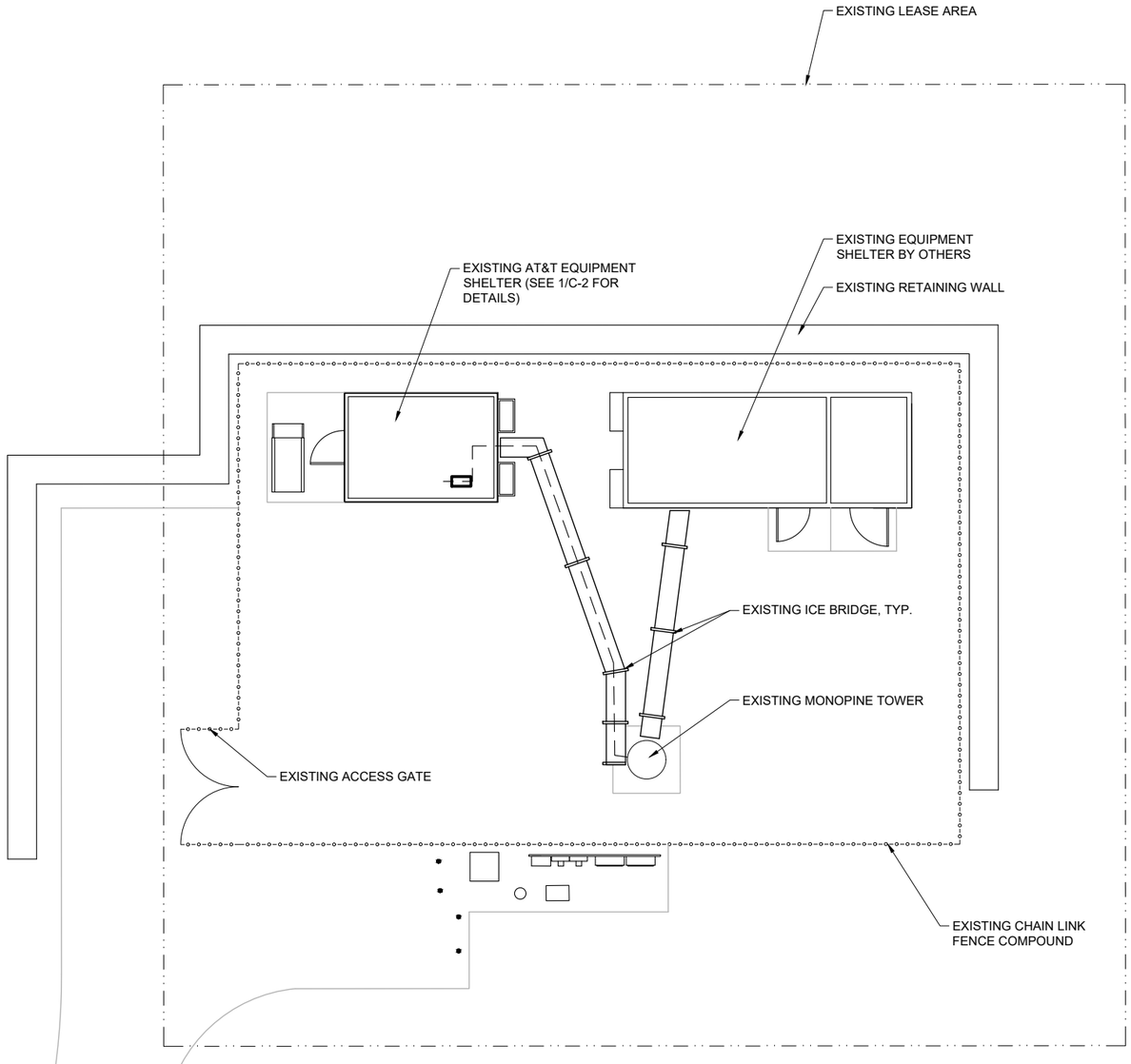

COMPOUND PLAN
SCALE: 1" = 15'
1

NORTH

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FALLS VILLAGE ROUTE 7
FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
COMPOUND PLAN

0 7.5' 15' 30'
11" x 17" - 1" = 15'
22" x 34" - 1" = 7.5'

PROJECT NUMBER: 42862
SHEET NUMBER: C-1

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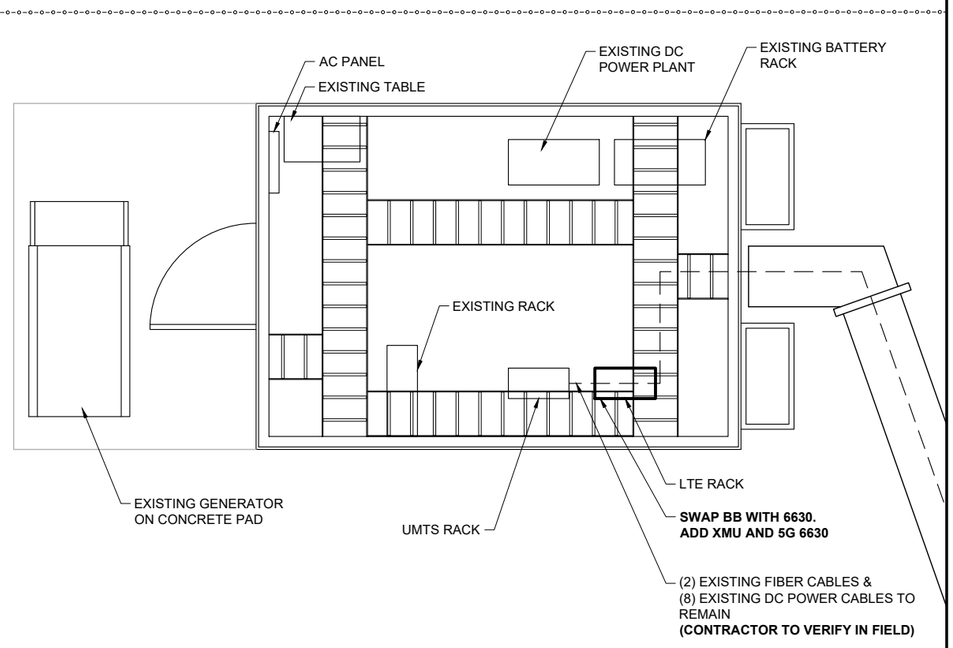
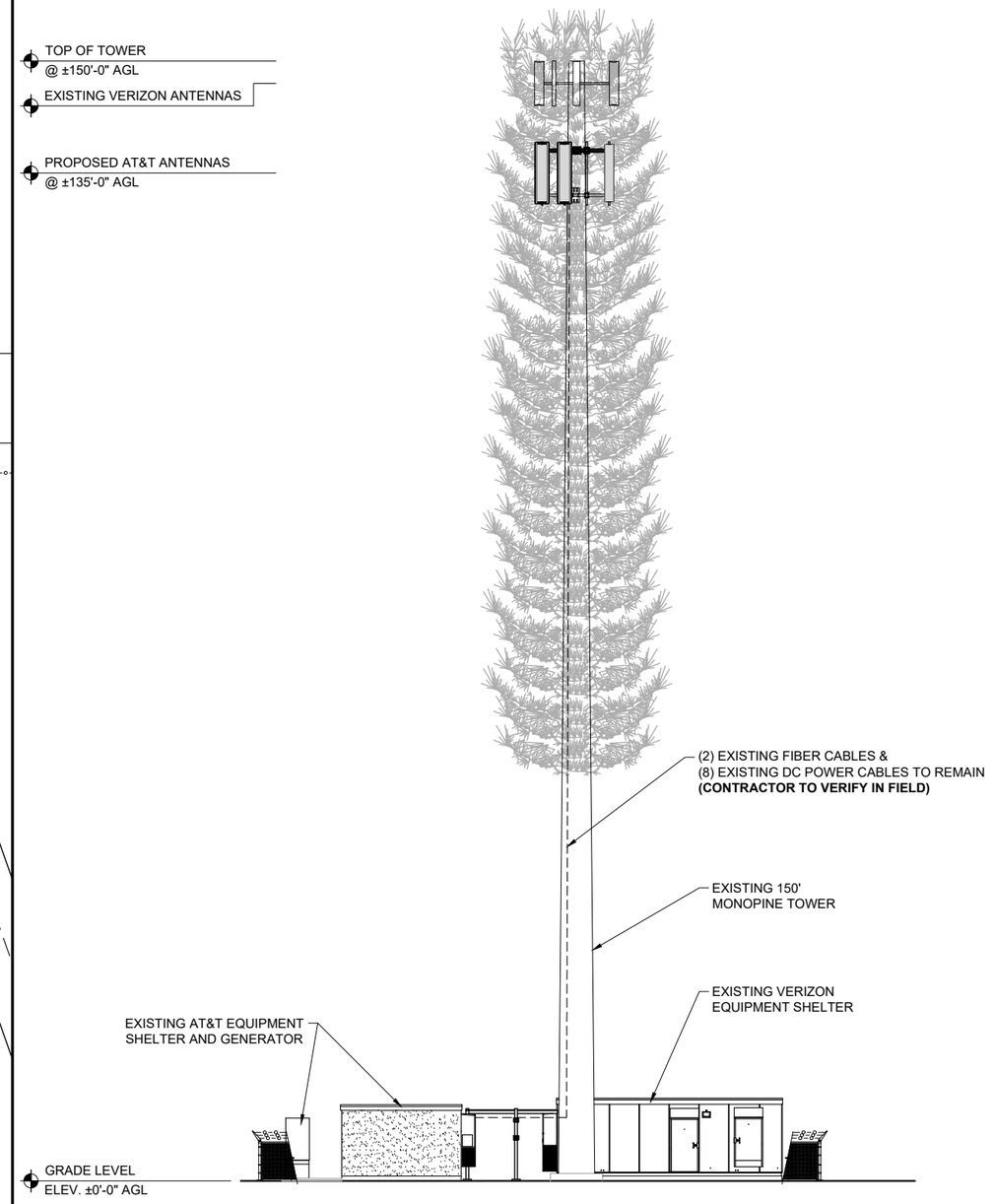
NORTH



EQUIPMENT LAYOUT (1)
SCALE: 1" = 5'

NOTE:
A MOUNT ASSESSMENT OF THE ANTENNA AND EQUIPMENT MOUNTING STRUCTURE HAS BEEN COMPLETED BY RAMAKER & ASSOCIATES, INC., DATED JULY 23, 2019. STRUCTURAL MODIFICATIONS TO THE EXISTING MOUNTING STRUCTURE TO BE COMPLETED PRIOR TO ANTENNA AND EQUIPMENT INSTALLATION. SEE S-1 FOR STRUCTURAL DETAILS.



ELEVATION VIEW (2)
SCALE: 1" = 20'

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ISSUE PHASE: FINAL
DATE ISSUED: 07/25/2019

PROJECT TITLE:
FALLS VILLAGE ROUTE 7
FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
EQUIPMENT LAYOUT AND ELEVATION VIEW

SCALE:
AS NOTED

PROJECT NUMBER: 42862
SHEET NUMBER: C-2

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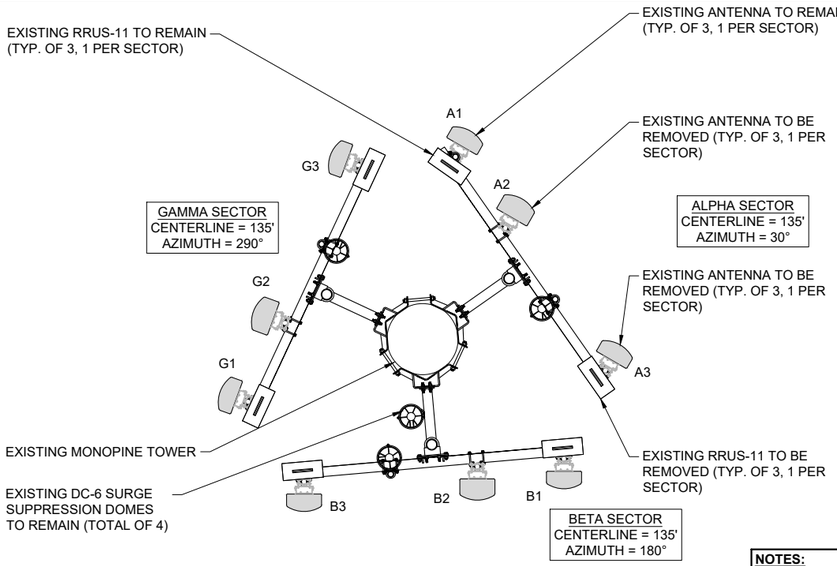
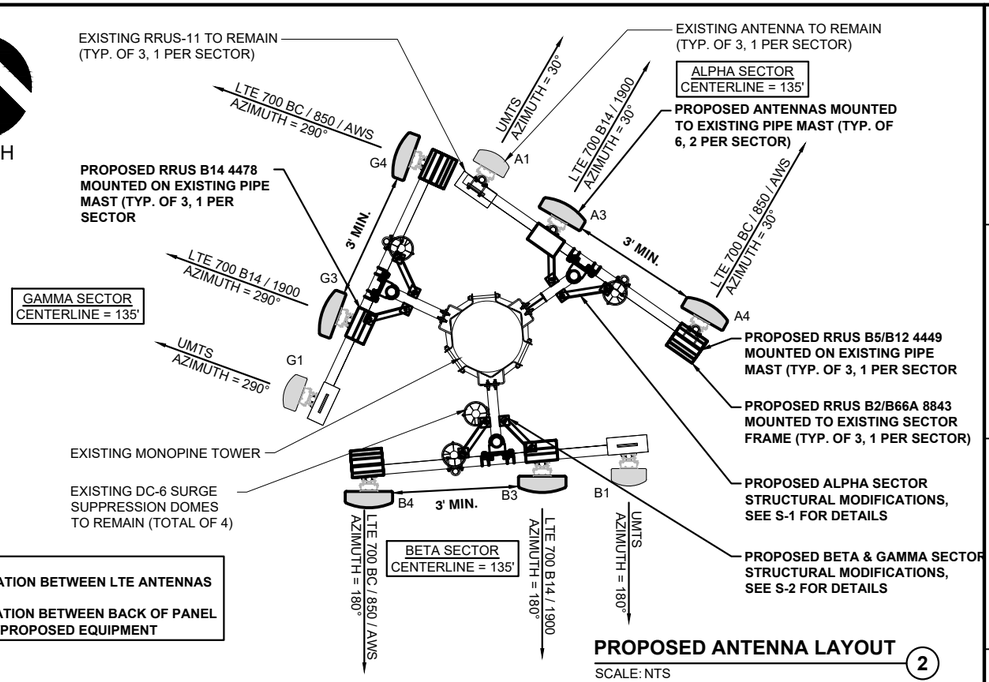


EXISTING ANTENNA LAYOUT (1)
SCALE: NTS

NORTH



PROPOSED ANTENNA LAYOUT (2)
SCALE: NTS

NOTES:
-3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS

-8 INCH MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND EXISTING/PROPOSED EQUIPMENT

BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CT1339_2019-LTE-NEXT-CARRIER_LTE_MR673A_2051A0MC6X_10128251_161443_12-18-2018_FINAL-APPROVED_V3.00" LAST REVISED 5/28/2019.

SECTOR		EXISTING ANTENNA	PROPOSED ANTENNA	TECHNOLOGY	ANTENNA STATUS	HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)	WEIGHT (LBS.)	ANTENNA AZIMUTH (DEG.)	ANT. C/L ELEV. (FT.)	REMOTE RADIO/TMA CONFIGURATION	TRANSMISSION CABLE		
													QUANTITY	TYPE	STATUS
SECTOR A	1	CCI HPA-65R-BUU-H8	CCI HPA-65R-BUU-H8	UMTS	EXISTING	92.4	14.8	7.4	68	30	135	RRUS-11	1 2	FIBER DC POWER	EXISTING (SHARED) EXISTING (SHARED)
	2	*CCI (REMOVE)* *OPA-65R-LCUU-H4*	-	-	VACANT	-	-	-	-	-	-	-	-	-	-
	3	*CCI (REMOVE)* *HPA-65R-BUU-H8*	**KATHREIN 800-10966**	**LTE 700 B14/1900**	**REPLACE**	**96**	**20**	**6.9**	**114.6**	**30**	**135**	**B14 4478**	2	DC POWER	EXISTING (SHARED)
	4	-	**KATHREIN 800-10966**	**LTE 700 BC/850/AWS**	**PROPOSED**	**96**	**20**	**6.9**	**114.6**	**30**	**135**	**B2/B66A 8843** **B5/B12 4449**	1 4	FIBER DC POWER	EXISTING (SHARED) EXISTING (SHARED)
SECTOR B	1	CCI HPA-65R-BUU-H8	CCI HPA-65R-BUU-H8	UMTS	EXISTING	92.4	14.8	7.4	68	180	135	RRUS-11	1 2	FIBER DC POWER	EXISTING (SHARED)
	2	*CCI (REMOVE)* *OPA-65R-LCUU-H4*	-	-	VACANT	-	-	-	-	-	-	-	-	-	-
	3	*CCI (REMOVE)* *HPA-65R-BUU-H8*	**KATHREIN 800-10966**	**LTE 700 B14/1900**	**REPLACE**	**96**	**20**	**6.9**	**114.6**	**180**	**135**	**B14 4478**	2	DC POWER	EXISTING (SHARED)
	4	-	**KATHREIN 800-10966**	**LTE 700 BC/850/AWS**	**PROPOSED**	**96**	**20**	**6.9**	**114.6**	**180**	**135**	**B2/B66A 8843** **B5/B12 4449**	1 4	FIBER DC POWER	EXISTING (SHARED) EXISTING (SHARED)
SECTOR C	1	CCI HPA-65R-BUU-H8	CCI HPA-65R-BUU-H8	UMTS	EXISTING	92.4	14.8	7.4	68	290	135	RRUS-11	1 2	FIBER DC POWER	EXISTING (SHARED) EXISTING (SHARED)
	2	*CCI (REMOVE)* *OPA-65R-LCUU-H4*	-	-	VACANT	-	-	-	-	-	-	-	-	-	-
	3	*CCI (REMOVE)* *HPA-65R-BUU-H8*	**KATHREIN 800-10966**	**LTE 700 B14/1900**	**REPLACE**	**96**	**20**	**6.9**	**114.6**	**290**	**135**	**B14 4478**	2	DC POWER	EXISTING (SHARED)
	4	-	**KATHREIN 800-10966**	**LTE 700 BC/850/AWS**	**PROPOSED**	**96**	**20**	**6.9**	**114.6**	**290**	**135**	**B2/B66A 8843** **B5/B12 4449**	1 4	FIBER DC POWER	EXISTING (SHARED) EXISTING (SHARED)

ANTENNA SCHEDULE (3)
SCALE: NTS

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FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
ANTENNA LAYOUTS AND ANTENNA SCHEDULE

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: C-3

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NOTES:
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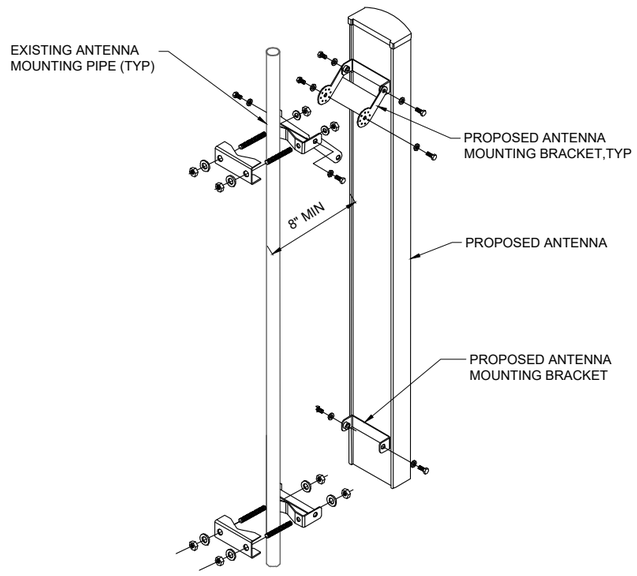
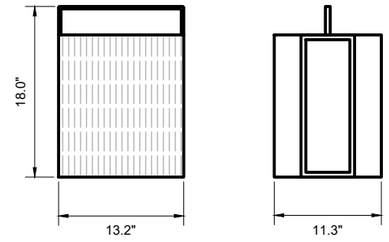
-8 INCH MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND EXISTING/PROPOSED EQUIPMENT



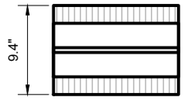
ANTENNA MOUNTING DETAIL (1)
SCALE: NTS

ERICSSON B2/B66A 8843

DIMENSIONS (HxWxD):
18.0"x13.2"x11.3"
WEIGHT (LBS): 70

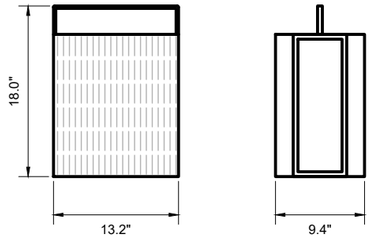


RRUS B2/B66A 8843 DETAIL (2)
SCALE: NTS

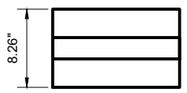


ERICSSON B5/B12 4449

DIMENSIONS (HxWxD):
18.0"x13.2"x9.4"
WEIGHT (LBS): 75

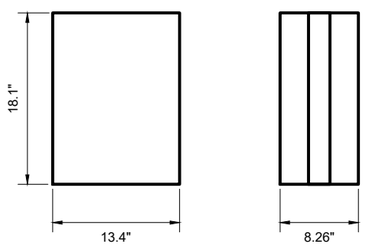


RRUS B5/B12 4449 DETAIL (3)
SCALE: NTS

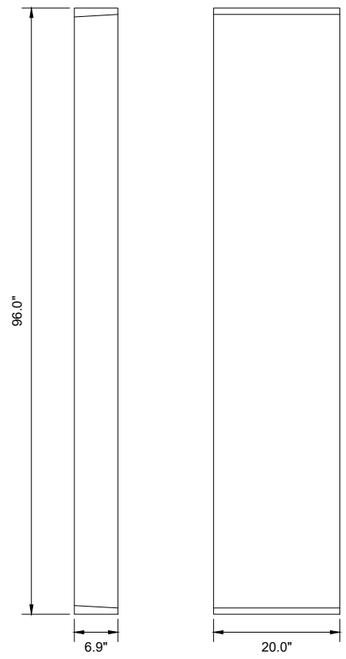


ERICSSON B14 4478

DIMENSIONS (HxWxD):
18.1"x13.4"x8.26"
WEIGHT (LBS): 59.4



RRUS B14 4478 DETAIL (4)
SCALE: NTS



KATHREIN 80010966

DIMENSIONS (HxWxD):
96.0"x20.0"x6.9"
WEIGHT (LBS): 114.6

ANTENNA DETAIL (5)
SCALE: NTS

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FALLS VILLAGE ROUTE 7
FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
CONSTRUCTION DETAILS

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: A-1

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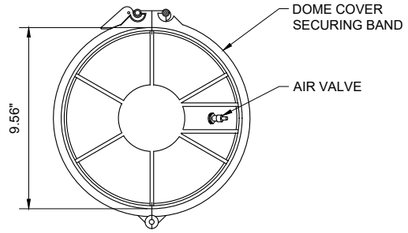
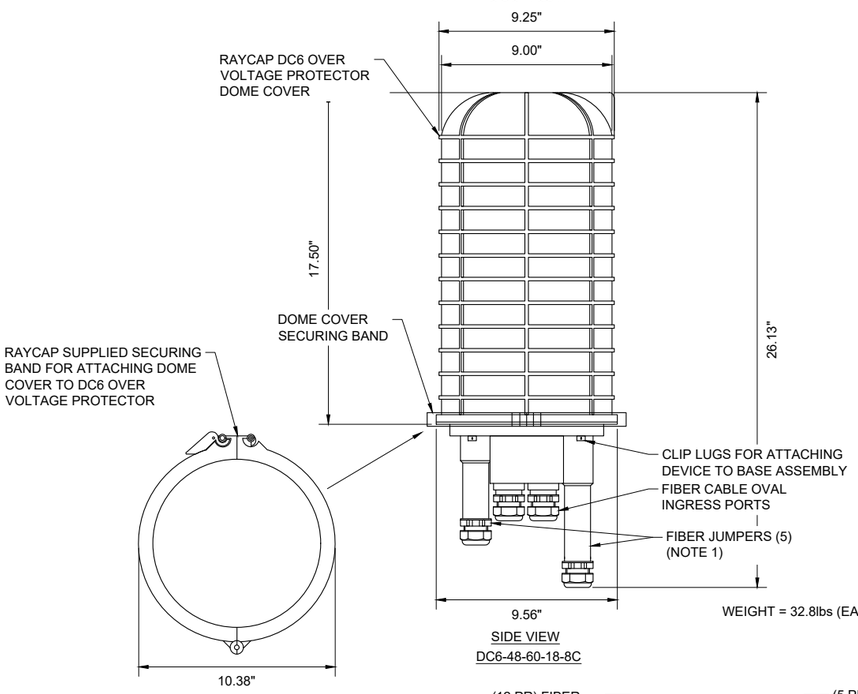
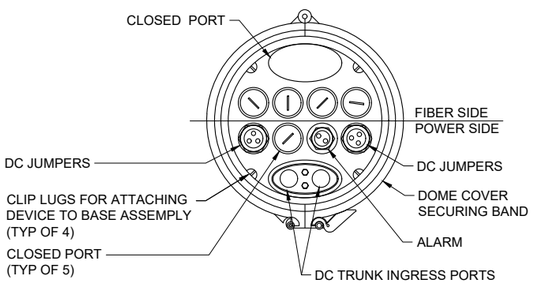


TOP VIEW

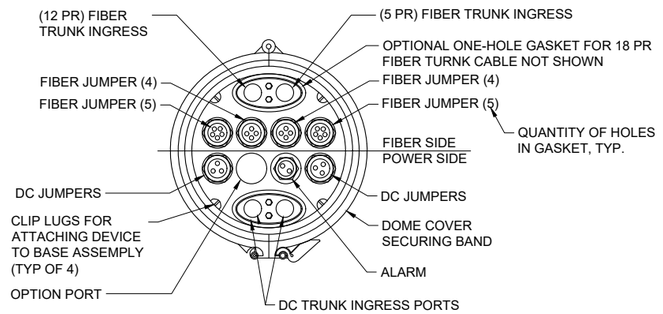


SIDE VIEW
DC6-48-60-18-8C

WEIGHT = 32.8lbs (EACH)



BOTTOM VIEW
DC6-48-60-18-8C

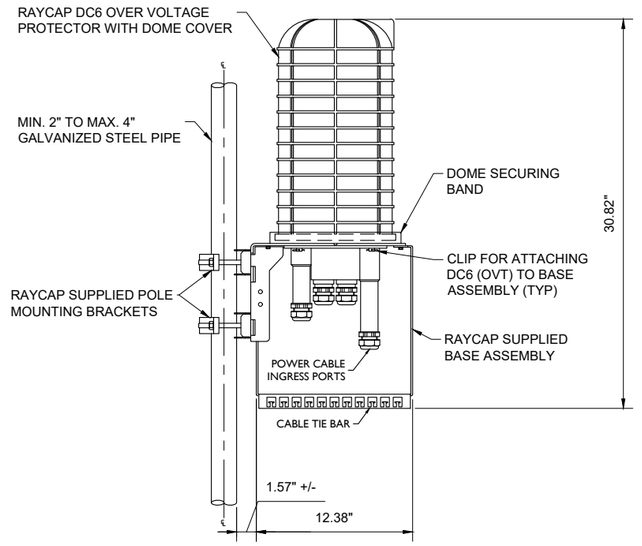


BOTTOM VIEW
DC6-48-60-18-8C

WEIGHT = 26.2 lbs

NOTE:
REMOVE CABLE SEALING GLAND & INSTALL M32x1.5 METRIC -TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP

DC6 SURGE SUPPRESSION DOME
SCALE: NTS (1)



NOTE:
RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE

DC6 SURGE SUPPRESSION DOME
POLE MOUNT ASSEMBLY
NOT TO SCALE

DC6 SURGE SUPPRESSION DOME
POLE MOUNT ASSEMBLY
SCALE: NTS (2)

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SHEET TITLE:
CONSTRUCTION DETAILS

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: A-2

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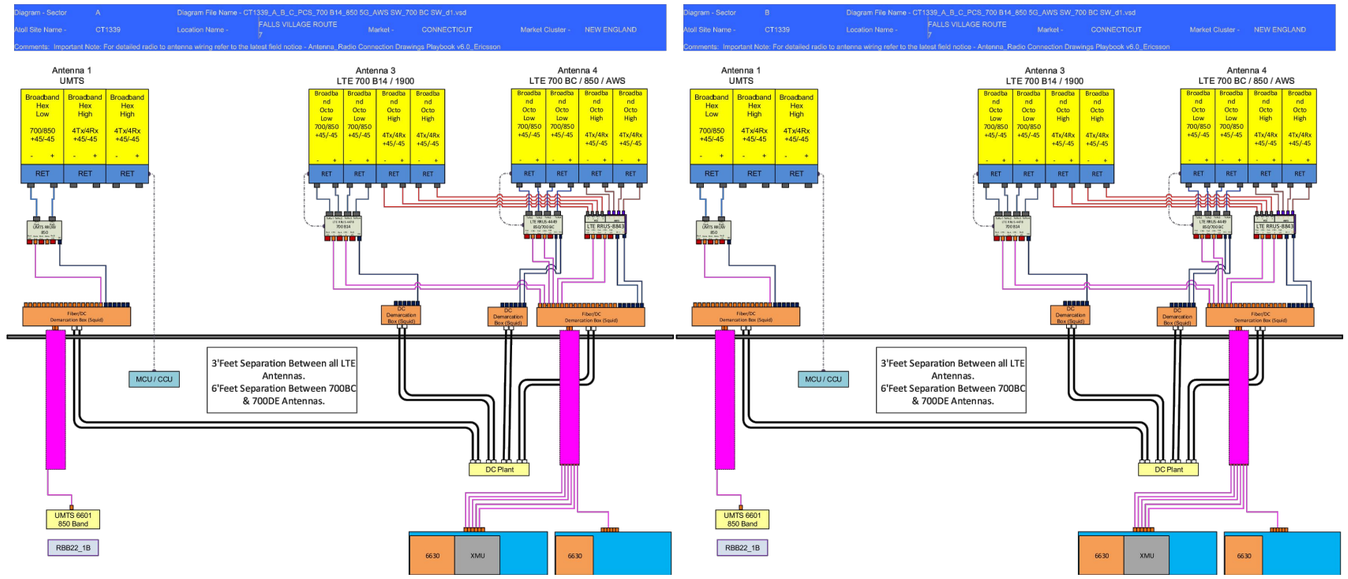

BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CT1339_2019-LTE-NEXT-CARRIER_LTE_MR673A_PTN_10128251_161443_12-18-2018_PRELIMINARY-APPROVED_V1.00" LAST REVISED 1/09/2019.

RF PLUMBING DIAGRAMS

SCALE: NTS

1

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RF PLUMBING DIAGRAMS

SCALE: NONE

PROJECT NUMBER: 42862
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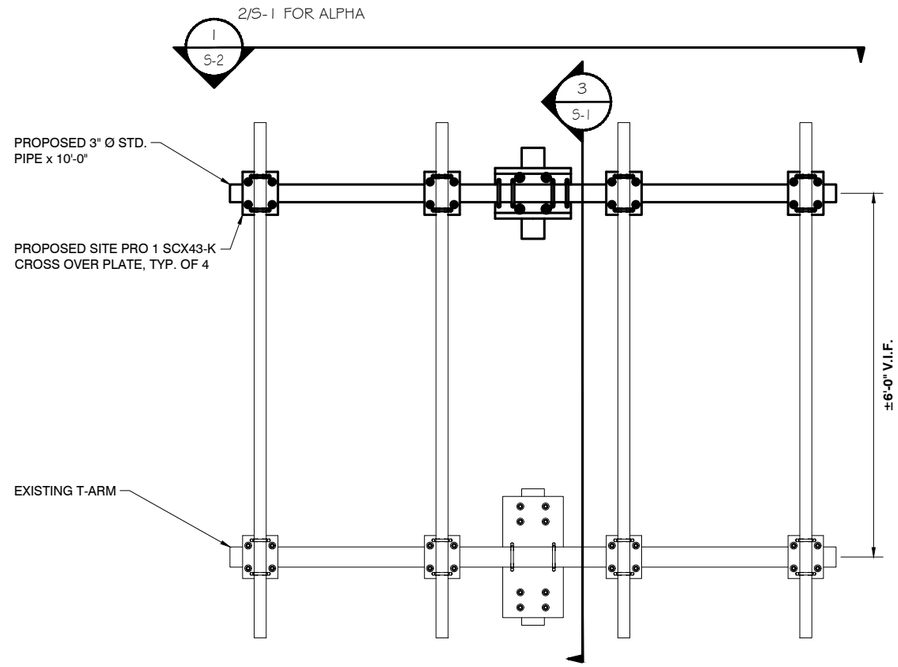
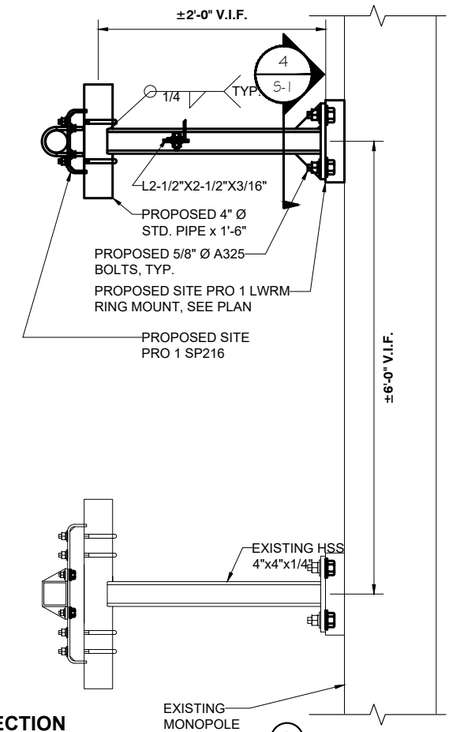
STRUCTURAL STEEL NOTES

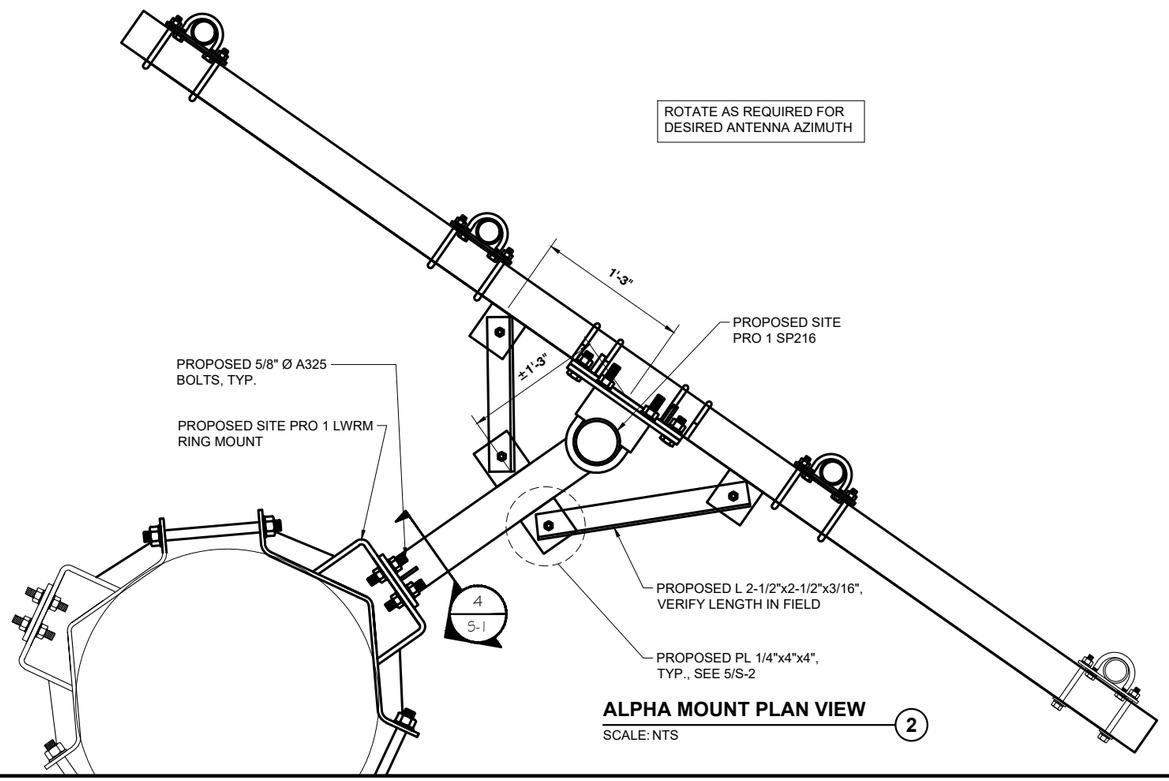
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES
2. MATERIAL SPECIFICATIONS
   ANGLES, PLATES, AND CHANNELS 36 KSI, ASTM A36
   SQUARE AND RECTANGULAR HSS 46 KSI, ASTM A500
   GRADE B PIPE 35 KSI, ASTM A53 GRADE B HIGH STRENGTH BOLTS ASTM A325-N HEAVY HEX NUTS ASTM A563 WELDING ELECTRODES E70XX
3. ALL CONNECTION BOLTING IS TO BE WITH GALV. A-325N BOLTS UNLESS NOTED OTHERWISE. BOLTS NEED ONLY BE TIGHTENED TO THE SNUG-TIGHT CONDITION. SNUG-TIGHT IS DEFINED AS THE TIGHTNESS OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A PERSON USING AN ORDINARY SPUD WRENCH.
4. ALL WELDING SHALL COMPLY WITH THE AWS STRUCTURAL WELDING CODES. ALL WELDING TO BE PERFORMED BY AWS PRE-QUALIFIED WELDERS CERTIFIED FOR THE GIVEN APPLICATION. ALL WELDING TO BE SHOP WELDED.
5. ALL STEEL EXPOSED TO MOISTURE, SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH 2 COATS OF ZRC COLD GALVANIZING COMPOUND MANUFACTURED BY ZRC CHEMICAL PRODUCTS CO. QUINCY, MA OR USE THERMAL SPRAYING WITH PLATTZINC 85/15 AS MANUFACTURED BY PLATT BROTHERS & COMPANY WATERBURY,CT.
6. ALL PIPE SIZES ARE NOMINAL DIAMETER.
7. CONTRACTOR SHALL MEASURE AND VERIFY ALL EXISTING CONDITIONS AND MEASUREMENTS IN FIELD. ANY UNUSUAL CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE PURCHASE, FABRICATION AND ERECTION OF ANY MATERIAL.
8. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO THE OWNER, ENGINEER, AND CONSTRUCTION MANAGER PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE APPROVAL FROM THE OWNER.
9. CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE.
10. ALL STEEL TO BE ERECTED PLUMB AND LEVEL.



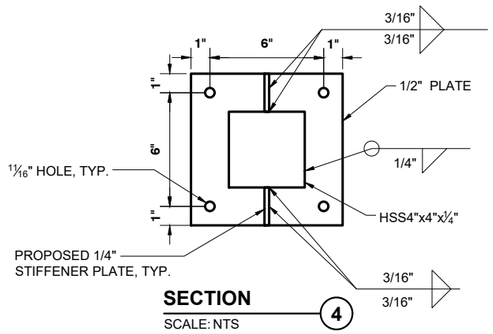
MOUNT ELEVATION VIEW (1)
SCALE: NTS



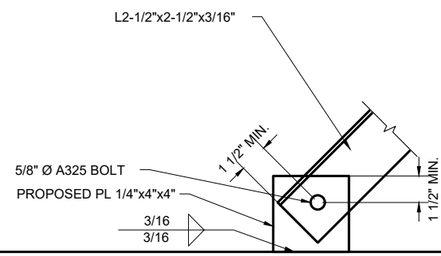
SECTION (3)
SCALE: NTS



ALPHA MOUNT PLAN VIEW (2)
SCALE: NTS



SECTION (4)
SCALE: NTS



DETAIL (5)
SCALE: NTS

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LITCHFIELD COUNTY

SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: S-1

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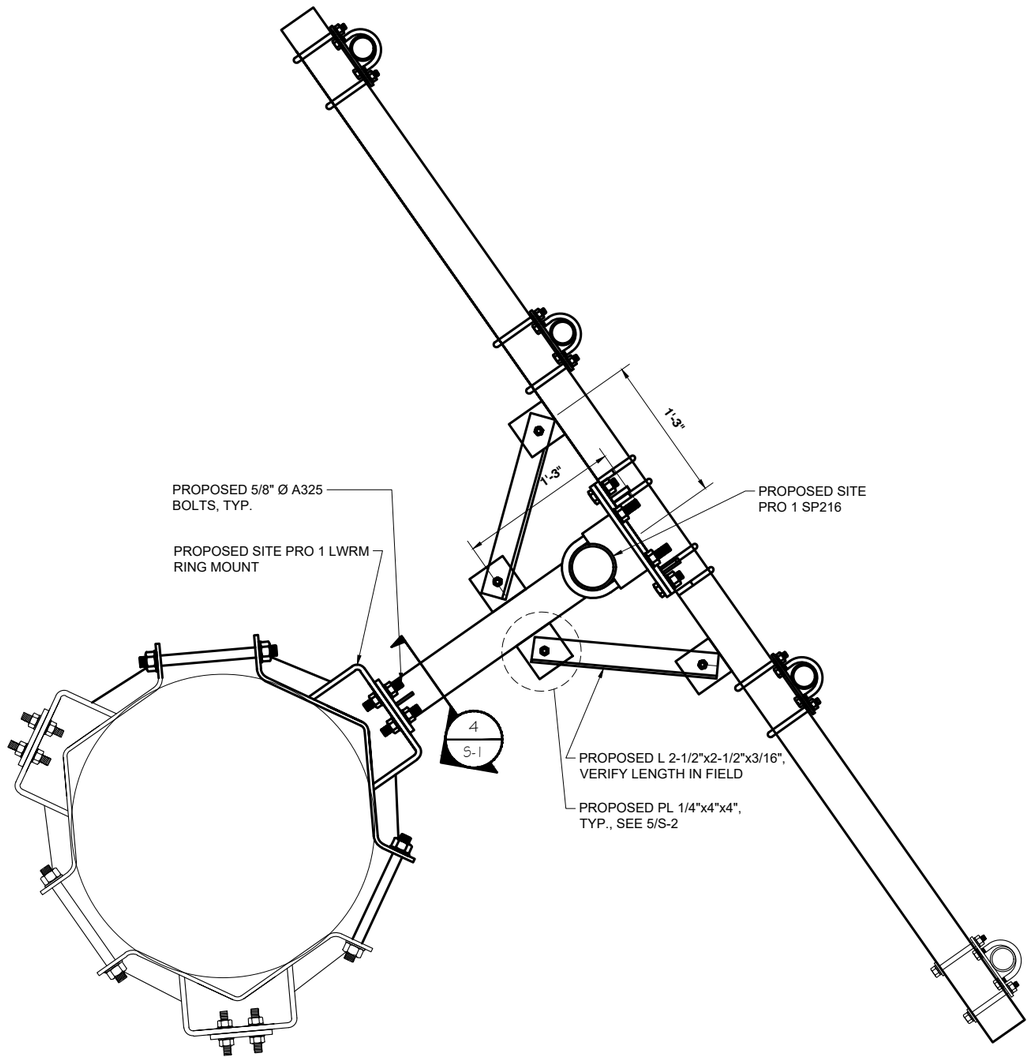

BETA & GAMMA MOUNT PLAN VIEW (1)
SCALE: NTS

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1	06/05/19	FINAL CDs ISSUED
0	05/21/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 07/25/2019

PROJECT TITLE:
FALLS VILLAGE ROUTE 7
FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: S-2

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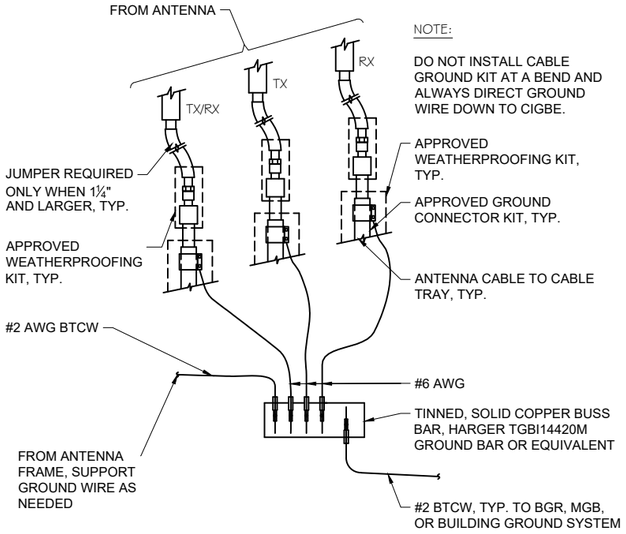
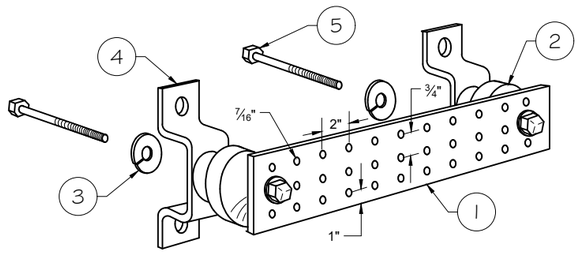


GROUND WIRE TO GROUND BAR DETAIL (1)

SCALE: NTS

NOTES:

1. ALL MOUNTING HARDWARE CAN BE USED ON 6", 12", 18", ETC. GROUND BARS.
2. ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGBI14420M.

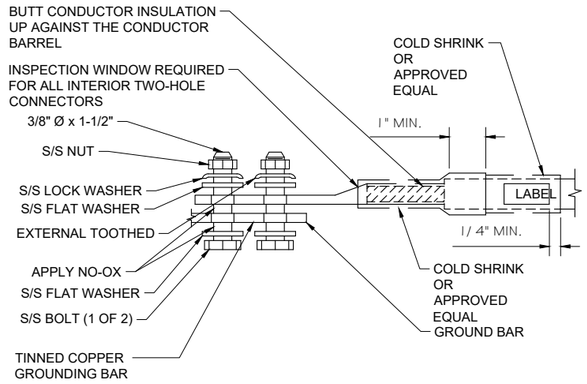


LEGEND

1. TINNED COPPER GROUND BAR, ¼" x 4" x 20", NEWTON CO., HARGER TGBI14420M, OR EQUIVALENT. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS. INSTRUMENT CO. CAT. NO. 3061-4 OR HARGER EQUIVALENT.
3. ⅝" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
5. ⅝" x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

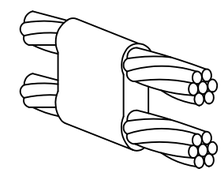
TYPICAL GROUND BAR DETAIL (2)

SCALE: NTS

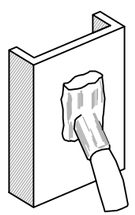


TYPICAL GROUND BAR CONNECTION DETAIL (3)

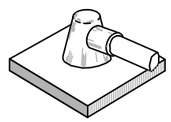
SCALE: NTS



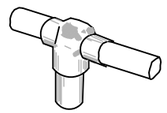
TYPE PT (PARALLEL HORIZ. COND.)
PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES



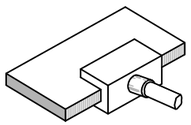
TYPE VS (VERT. STEEL SURFACE)
CABLE TAP DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE



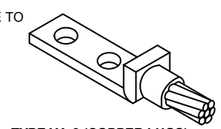
TYPE HS (HORIZ. STEEL SURFACE)
TO FLAT STEEL SURFACE OR HORIZONTAL PIPE



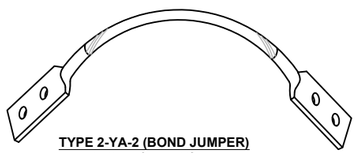
TYPE GT (THROUGH CABLE TO GROUND ROD)
THROUGH CABLE TO TOP OF GROUND ROD



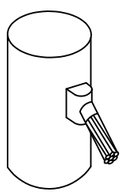
TYPE LJ (FLAT BUSBAR)
TAP OF HORIZONTAL CABLE TO EDGE OF HORIZONTAL



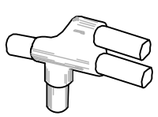
TYPE YA-2 (COPPER LUGS)
TWO HOLE- LONG BARREL LENGTH



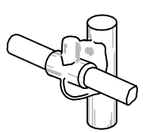
TYPE 2-YA-2 (BOND JUMPER)
FIELD FABRICATED GREEN STRANDED INSULATED



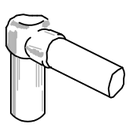
TYPE VS (VERTICAL PIPE)
CABLE TAP DOWN AT 45° TO RANGE OF VERTICAL PIPES



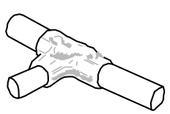
TYPE NC
THROUGH AND TAP CABLES TO GROUND ROD



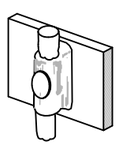
TYPE GY
THROUGH CABLE TO SIDE OF GROUND ROD



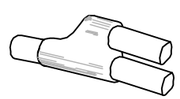
TYPE GR
CABLE TAP TO TOP OF GROUND ROD



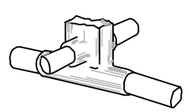
TYPE TA
TEE OF HORIZONTAL RUN AND TAP CABLES



TYPE W
THROUGH VERTICAL CABLE TO VERTICAL STEEL SURFACE OR TO THE SIDE OF EITHER HORIZONTAL OR VERTICAL PIPE



TYPE PC
PARALLEL TAP CABLES



TYPE XB
CROSS OF HORIZONTAL CABLES. LAPPED AND NOT CUT.

TYPICAL CADWELD TYPES DETAIL (4)

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FA# 10128251
SITE# CTL01339

PROJECT INFORMATION:
188 ROUTE 7
FALLS VILLAGE, CT 06031
LITCHFIELD COUNTY

SHEET TITLE:
GROUNDING DETAILS

SCALE: NONE

PROJECT NUMBER: 42862
SHEET NUMBER: G-1

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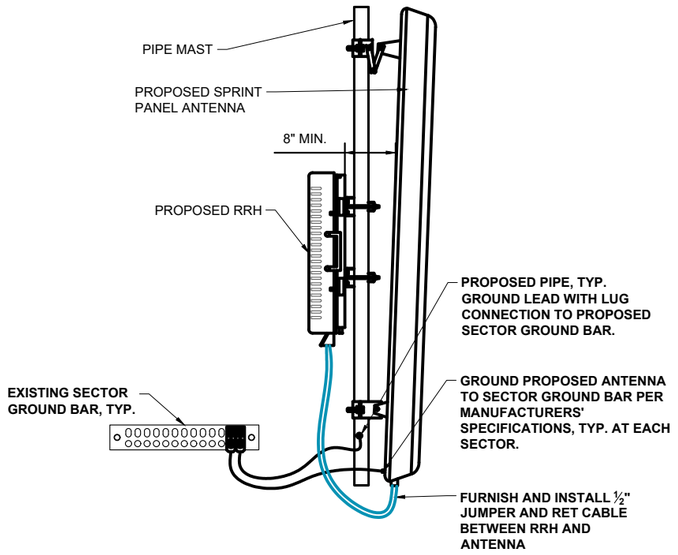
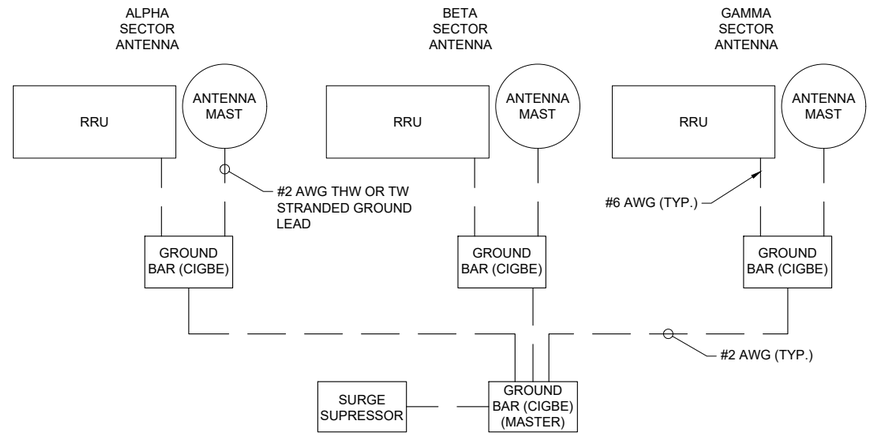


ANTENNA & RRU GROUNDING DETAIL

SCALE: NTS

1



SCHEMATIC DIAGRAM GROUNDING SYSTEM

SCALE: NTS

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