



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

September 29, 2022

Victoria Masse
Northeast Site Solutions
420 Main Street, Unit 2
Sturbridge, MA 01566
victoria@northeastsitesolutions.com

RE: TS-T-MOBILE-168-220804 – T-Mobile request for an order to approve tower sharing at an existing telecommunications facility located at 478 Good Hill Road, Woodbury, Connecticut.

Dear Victoria Masse:

The Connecticut Siting Council (Council) is in receipt of your correspondence of September 14, 2022 submitted in response to the Council's September 13, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/IN/emr

From: Deborah Chase <deborah@northeastsitesolutions.com>
Sent: Tuesday, September 13, 2022 6:14 PM
To: CSC-DL Siting Council <Siting.Council@ct.gov>; Bachman, Melanie <Melanie.Bachman@ct.gov>; Fontaine, Lisa <Lisa.Fontaine@ct.gov>; Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: victoria@northeastsitesolutions.com <victoria@northeastsitesolutions.com>
Subject: CTNH290A-NSD-Fwd: Council Incomplete Letter - TS-T-MOBILE-168-220804 478 Good Hill Road, Woodbury, Connecticut.

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Siting Council-

Please see updated application containing the Structural Analysis Report as it was omitted in previous application submission.

I have also included the Structural as a separate attachment, as well as postal label.

Please let us know if this renders the application complete for further review.

Please let us know if there are any questions.

Thank you very much

Deborah Chase

Senior Project Coordinator & Analyst

Mobile: 860-490-8839

 Save a tree. Refuse. Reduce. Reuse. Recycle.





AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 147 ft Monopole
ATC Site Name : Good Hill CT,CT
ATC Site Number : 411180
Engineering Number : 14099769_C3_04
Proposed Carrier : T-MOBILE
Carrier Site Name : Good Hill Woodbury ATC
Carrier Site Number : CTNH290A
Site Location : 478 GOOD HILL ROAD
Woodbury, CT 06798-2507
41.5572, -73.2568
County : Litchfield
Date : May 19, 2022
Max Usage : 44%
Result : Pass

Prepared By:

Zachary S. Blackford
Structural Engineer

Reviewed By:



COA : PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 147 ft Monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	PJF Job #29200-1379, dated September 15, 2000 Mapping by TEP #05593, dated July 6, 2005
Foundation Drawing	PJF Job #29200-1300, dated September 14, 2000
Geotechnical Report	Clarence Welti Job #7081, dated March 27, 2000
Site Specific Study	ETS for ATC Project #14099769_C8_01, dated May 16, 2022

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:	115 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	$S_s = 0.19$, $S_i = 0.05$
Site Class:	D - Stiff Soil - Default

Conclusion

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

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

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
147.0	3	Commscope CBC78T-DS-43-2X	Triangular Platform with Handrails	(2) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	VERIZON WIRELESS
	3	Samsung B2/B66A RRH-BR049			
	1	VZW Unused Reserve (16374.48 sqin)			
	6	Commscope JAHH-65B-R3B (63.3 lb)			
	2	Antel LPA-80063/4CF			
	4	Antel LPA-80080/4CF			
	3	Samsung MT6407-77A			
	1	RFS DB-C1-12C-24AB-OZ			
	3	Samsung B5/B13 RRH-BR04C			
124.0	1	Raycap DC6-48-60-18-8F(32.8 lbs)	Triangular Low Profile Platform	(2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (1) 2" Carflex Non-Metallic Conduit (2) 0.45" (11.5mm) Fiber (4) 0.76" (19.2mm) 8 AWG 6 (12) 1 5/8" Coax	AT&T MOBILITY
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 32 B2			
	6	Ericsson RRUS-11			
	2	KMW AM-X-CD-16-65-00T-RET			
	6	Powerwave Allgon 7770.00			
	1	Kathrein Scala 800 10764			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	6	Powerwave Allgon LGP21901			
	6	Powerwave Allgon LGP2140X			
	3	KMW EPBQ-654L8H6-L2			
117.5	2	Generic 3' Omni-Grid	Stand-Off	(2) 1/2" Coax	WOODBURY VOLUNTEER FIRE DEPARTMENT
101.0	3	Fujitsu TA08025-B605	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	1	Commscope RDIDC-9181-PF-48			
	3	Fujitsu TA08025-B604			
	3	JMA Wireless MX08FRO665-21			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
135.0	3	Ericsson 4460 BAND 2/25	Triangular Platform with Handrails	(2) 1.99" (50.7mm) Hybrid (1) 1/2" Coax	T-MOBILE
	3	Ericsson 4480 BAND 71			
	1	RFS SC2-W100BD			
	3	Commscope VV-65A-R1B			
	3	Ericsson AIR 6419 B41			
	3	RFS APXVAALL24 43-U-NA20			

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	36%	Pass
Shaft	44%	Pass
Base Plate	16%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3176.4	25%
Axial (Kips)	62.3	9%
Shear (Kips)	29.0	19%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
135.0	Ericsson 4460 BAND 2/25	T-MOBILE	0.744	0.550
	Ericsson 4480 BAND 71			
	RFS APXVAALL24 43-U-NA20			
	Commscope VV-65A-R1B			
	Ericsson AIR 6419 B41			
	RFS SC2-W100BD			

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

Standard Conditions

All engineering services performed by 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.

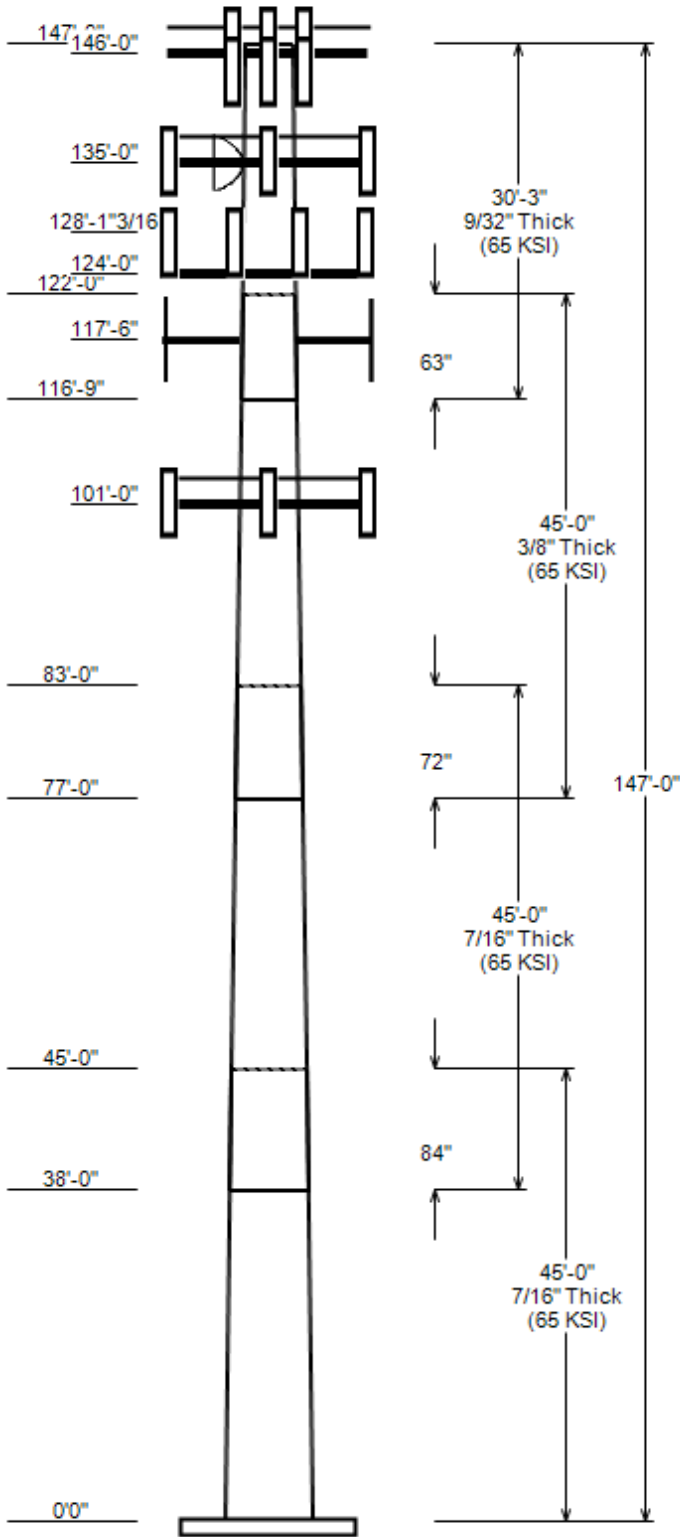
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

Asset : 411180, Good Hill CT
 Client : T-MOBILE
 Code : ANSI/TIA-222-H

Height : 147 ft
 Base Width : 62.65
 Shape : 18 Sides



SITE PARAMETERS

Nominal Wind: 115 mph wind with no ice **Topo Category:** 1
Ice Wind: 50 mph wind with 1" radial **Topo Method:** Method 1
Base Elev (ft): 0.00 **Taper :** 0.20700 (in/ft) **Topo Feature:**
Structure Class: II **Exposure :** B **S_s :** 0.194 **S₁ :** 0.054

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Shape	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom					
1	45.000	53.32	62.65	0.438		0.000	18 Sides	65
2	45.000	46.32	55.65	0.438	Slip Joint	84.000	18 Sides	65
3	45.000	38.98	48.31	0.375	Slip Joint	72.000	18 Sides	65
4	30.250	34.36	40.64	0.281	Slip Joint	63.000	18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
147.0	147.0	3	Commscope CBC78T-DS-43-2X
147.0	147.0	3	Samsung B2/B66A RRH-BR049
147.0	147.0	3	Samsung B5/B13 RRH-BR04C
147.0	147.0	1	RFS DB-C1-12C-24AB-0Z
147.0	147.0	3	Samsung MT6407-77A
147.0	146.0	4	Antel LPA-80080/4CF
147.0	146.0	2	Antel LPA-80063/4CF
147.0	146.0	6	Commscope JAHH-65B-R3B (63.3 l
147.0	147.0	1	VZW Unused Reserve (16374.48 s
146.0	146.0	1	Generic Flat Platform with Han
135.0	135.0	3	Ericsson 4460 BAND 2/25
135.0	135.0	3	Ericsson 4480 BAND 71
135.0	135.0	1	RFS SC2-W100BD
135.0	135.0	3	Commscope VV-65A-R1B
135.0	135.0	3	Ericsson AIR 6419 B41
135.0	135.0	2	Generic Flat Light Sector Fram
135.0	135.0	3	RFS APXVAALL24 43-U-NA20
128.1	129.1	1	Raycap DC6-48-60-18-8F(32.8 lb
124.0	125.0	6	Powerwave Allgon LGP21901
124.0	125.0	6	Powerwave Allgon LGP2140X
124.0	125.0	1	Raycap DC6-48-60-18-8F ("Squid
124.0	124.0	3	Ericsson RRUS 4478 B14
124.0	125.0	3	Ericsson RRUS 32 B2
124.0	124.0	6	Ericsson RRUS-11
124.0	125.0	6	Powerwave Allgon 7770.00
124.0	125.0	1	Kathrein Scala 800 10764
124.0	125.0	2	KMW AM-X-CD-16-65-00T-RET
124.0	125.0	3	KMW EPBQ-654L8H6-L2
124.0	124.0	1	Generic Round Low Profile Plat
117.5	117.5	2	Generic 3' Omni-Grid
117.5	117.5	2	Stand-Off
101.0	101.0	1	Commscope RDIDC-9181-PF-48
101.0	101.0	3	Fujitsu TA08025-B604
101.0	101.0	3	Fujitsu TA08025-B605
101.0	101.0	3	JMA Wireless MX08FRO665-21
101.0	101.0	1	Generic Flat Platform with Han

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	147.0	1 5/8" Coax	No
0.0	147.0	1 5/8" (1.63"-41.3mm) Fiber	No

JOB INFORMATION

Asset : 411180, Good Hill CT
 Client : T-MOBILE
 Code : ANSI/TIA-222-H

Height : 147 ft
 Base Width : 62.65
 Shape : 18 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	135.0	1/2" Coax	No
0.0	135.0	1.99" (50.7mm) Hybrid	No
0.0	128.0	2" Carflex Non-Metallic Conduit	No
0.0	128.0	0.78" (19.7mm) 8 AWG 6	No
0.0	128.0	0.39" (10mm) Fiber Trunk	No
0.0	124.0	1 5/8" Coax	No
0.0	124.0	0.76" (19.2mm) 8 AWG 6	No
0.0	124.0	0.45" (11.5mm) Fiber	No
0.0	117.5	1/2" Coax	No
0.0	101.0	1.60" (40.6mm) Hybrid	No

LOAD CASES

1.2D + 1.0W	115 mph wind with no ice
0.9D + 1.0W	115 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W	3176.43	28.96	62.27
0.9D + 1.0W	3152.64	28.95	46.70
1.2D + 1.0Di + 1.0Wi	876.70	8.19	80.06
1.2D + 1.0Ev + 1.0Eh	187.88	1.61	62.45
0.9D - 1.0Ev + 1.0Eh	186.17	1.61	43.20
1.0D + 1.0W	769.93	7.05	51.91

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	135.00	8.935	0.551

ASSET: 411180, Good Hill CT
CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
ENG NO: 14099769_C3_04

ANALYSIS PARAMETERS

Location:	Litchfield County,CT	Height:	147 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	62.65 in
Manufacturer:	Undetermined	Top Diameter:	34.36 in
K_d (non-service):	0.95	Taper:	0.2070 in/ft
K_e:	0.97	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	115 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	877.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	1.86
T_L (sec):	6	P:	1
S_s:	0.194	S₁:	0.054
F_a:	1.600	F_v:	2.400
S_{ds}:	0.207	S_{dt}:	0.086
		C_s:	0.031
		C_s Max:	0.031
		C_s Min:	0.030

LOAD CASES

1.2D + 1.0W	115 mph wind with no ice
0.9D + 1.0W	115 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom						Top							
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-18	45.00	0.4375	65		0.00	12,236	62.65	0.000	86.39	42,243.1	23.49	143.20	53.32	45.00	73.43	25,947.7	19.73	121.88	0.2073	
2-18	45.00	0.4375	65	Slip	84.00	10,747	55.65	38.000	76.66	29,524.4	20.66	127.20	46.32	83.00	63.71	16,945.2	16.90	105.87	0.2073	
3-18	45.00	0.3750	65	Slip	72.00	7,887	48.31	77.000	57.06	16,566.1	20.95	128.83	38.98	122.00	45.95	8,655.0	16.57	103.96	0.2073	
								116.75								4,466.4				
4-18	30.25	0.2813	65	Slip	63.00	3,420	40.64	0	36.03	7,412.9	23.71	144.46	34.36	147.00	30.43		19.78	122.16	0.2073	
Shaft Weight						34,290														

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
147.00	VZW Unused Reserve (16374.48 s	1	0.75	0.000	1229.20	113.71 2	0.90	1799.91	166.508	0.90
147.00	Antel LPA-80063/4CF	2	0.75	-1.000	20.00	6.142	0.82	150.01	6.820	0.82
147.00	Commscope JAHH-65B-R3B (63.3 l	6	0.75	-1.000	63.30	9.113	0.69	198.14	10.962	0.69
147.00	Antel LPA-80080/4CF	4	0.75	-1.000	12.00	5.399	0.62	95.78	3.167	0.62
147.00	Samsung MT6407-77A	3	0.75	0.000	81.60	4.709	0.61	149.53	5.721	0.61
147.00	RFS DB-C1-12C-24AB-0Z	1	0.75	0.000	32.00	4.056	1.00	116.70	4.966	1.00
147.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	108.42	2.477	0.50
147.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	126.92	2.477	0.50
147.00	Commscope CBC78T-DS-43-2X	3	0.75	0.000	20.70	0.552	0.50	35.42	0.891	0.50
146.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3683.14	56.368	1.00
135.00	RFS APXVAALL24 43-U-NA20	3	0.90	0.000	122.80	20.243	0.63	379.80	22.690	0.63
135.00	Generic Flat Light Sector Fram	2	0.90	0.000	400.00	17.900	0.67	598.57	27.856	0.67
135.00	Ericsson AIR 6419 B41	3	0.90	0.000	83.30	6.322	0.63	183.16	7.438	0.63
135.00	Commscope VV-65A-R1B	3	0.90	0.000	24.70	5.887	0.63	101.82	7.283	0.63
135.00	RFS SC2-W100BD	1	1.00	0.000	20.00	4.796	1.00	81.15	5.647	1.00
135.00	Ericsson 4480 BAND 71	3	0.90	0.000	81.00	2.878	0.50	131.23	3.619	0.50
135.00	Ericsson 4460 BAND 2/25	3	0.90	0.000	109.00	2.564	0.50	167.32	3.259	0.50
128.10	Raycap DC6-48-60-18-8F(32.8 lb	1	0.80	1.000	32.80	1.470	1.00	73.32	1.929	1.00
124.00	Generic Round Low Profile Plat	1	1.00	0.000	1875.00	21.700	1.00	2405.39	34.274	1.00
124.00	Powerwave Allgon LGP21901	6	0.80	1.000	5.50	0.200	0.50	10.53	0.409	0.50
124.00	KMW AM-X-CD-16-65-00T-RET	2	0.80	1.000	48.50	8.024	0.75	154.56	9.851	0.75
124.00	Kathrein Scala 800 10764	1	0.80	1.000	40.80	5.866	1.00	124.14	7.263	1.00
124.00	Powerwave Allgon 7770.00	6	0.80	1.000	35.00	5.508	0.65	109.45	6.900	0.65
124.00	Ericsson RRUS-11	6	0.80	0.000	55.00	3.792	0.61	113.79	4.633	0.61
124.00	Ericsson RRUS 32 B2	3	0.80	1.000	53.00	2.743	0.67	101.17	3.509	0.67
124.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.90	1.842	0.50	96.11	2.429	0.50
124.00	KMW EPBQ-654L8H6-L2	3	0.80	1.000	72.80	13.237	0.61	237.41	15.109	0.61
124.00	Powerwave Allgon LGP2140X	6	0.80	1.000	19.00	1.080	0.50	35.25	1.544	0.50
124.00	Raycap DC6-48-60-18-8F ("Squid	1	0.80	1.000	31.80	1.470	1.00	72.21	1.927	1.00
117.50	Stand-Off	2	1.00	0.000	75.00	2.500	0.90	115.86	3.885	0.90
117.50	Generic 3' Omni-Grid	2	1.00	0.000	15.00	2.460	0.68	70.03	9.917	0.68
101.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3640.16	55.860	1.00
101.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	229.46	14.293	0.64
101.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.33	2.552	0.50
101.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	115.21	2.552	0.50
101.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	58.42	2.445	1.00
Totals	Num Loadings: 36				99	13,716.00		24,211.61		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Flat	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	147.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	N	VERIZON WIREL
0.00	147.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	N	VERIZON WIREL
0.00	135.00	2	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	N	T-MOBILE
0.00	135.00	1	1/2" Coax	0.63	0.15	N	0	0	0	0	N	T-MOBILE
0.00	128.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	N	AT&T MOBILITY
0.00	128.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	N	AT&T MOBILITY
0.00	128.00	1	2" Carflex Non-Metall	2.36	0.68	N	0	0	0	0	N	AT&T MOBILITY

ASSET: 411180, Good Hill CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14099769_C3_04

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	124.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	124.00	4	0.76" (19.2mm) 8 AWG	0.76	0.53	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	124.00	2	0.45" (11.5mm) Fiber	0.45	0.08	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	117.50	2	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	WOODBURY VOLU
0.00	101.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F _y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.4375	62.650	86.387	42,243.10	23.49	143.20	73.8	1328.1	0.0	0.0
5.00		0.4375	61.614	84.947	40,166.70	23.07	140.83	74.3	1284.0	0.0	1,457.5
10.00		0.4375	60.577	83.508	38,159.50	22.65	138.46	74.8	1240.7	0.0	1,433.0
15.00		0.4375	59.541	82.069	36,220.30	22.23	136.09	75.3	1198.2	0.0	1,408.6
20.00		0.4375	58.504	80.630	34,348.00	21.82	133.72	75.7	1156.4	0.0	1,384.1
25.00		0.4375	57.468	79.191	32,541.30	21.40	131.35	76.2	1115.3	0.0	1,359.6
30.00		0.4375	56.431	77.751	30,799.10	20.98	128.99	76.7	1075.0	0.0	1,335.1
35.00		0.4375	55.395	76.312	29,120.20	20.56	126.62	77.2	1035.4	0.0	1,310.6
38.00	Bot - Section 2	0.4375	54.773	75.449	28,142.80	20.31	125.19	77.5	1012.0	0.0	774.6
40.00		0.4375	54.358	74.873	27,503.50	20.14	124.25	77.7	996.6	0.0	1,031.3
45.00	Top - Section 1	0.4375	54.197	74.649	27,257.10	20.08	123.88	77.8	990.6	0.0	2,543.9
50.00		0.4375	53.160	73.209	25,710.70	19.66	121.51	78.3	952.6	0.0	1,257.8
55.00		0.4375	52.124	71.770	24,224.00	19.24	119.14	78.8	915.4	0.0	1,233.3
60.00		0.4375	51.087	70.331	22,795.70	18.83	116.77	79.3	878.9	0.0	1,208.8
65.00		0.4375	50.051	68.892	21,424.70	18.41	114.40	79.7	843.1	0.0	1,184.4
70.00		0.4375	49.014	67.452	20,109.80	17.99	112.03	80.2	808.1	0.0	1,159.9
75.00		0.4375	47.978	66.013	18,849.80	17.57	109.66	80.7	773.8	0.0	1,135.4
77.00	Bot - Section 3	0.4375	47.563	65.438	18,360.90	17.41	108.72	80.9	760.3	0.0	447.3
80.00		0.4375	46.941	64.574	17,643.60	17.16	107.29	81.2	740.3	0.0	1,242.3
83.00	Top - Section 2	0.3750	47.069	55.576	15,309.80	20.37	125.52	77.4	640.6	0.0	1,225.9
85.00		0.3750	46.655	55.083	14,905.60	20.17	124.41	77.7	629.3	0.0	376.5
90.00		0.3750	45.618	53.849	13,926.40	19.69	121.65	78.2	601.3	0.0	926.7
95.00		0.3750	44.582	52.615	12,991.00	19.20	118.88	78.8	573.9	0.0	905.7
100.00		0.3750	43.545	51.382	12,098.50	18.71	116.12	79.4	547.2	0.0	884.7
101.00		0.3750	43.338	51.135	11,925.10	18.61	115.57	79.5	542.0	0.0	174.4
105.00		0.3750	42.509	50.148	11,247.80	18.22	113.36	80	521.2	0.0	689.3
110.00		0.3750	41.472	48.914	10,438.00	17.74	110.59	80.5	495.7	0.0	842.7
115.00		0.3750	40.436	47.681	9,668.00	17.25	107.83	81.1	470.9	0.0	821.7
116.75	Bot - Section 4	0.3750	40.073	47.249	9,407.70	17.08	106.86	81.3	462.4	0.0	282.6
117.50		0.3750	39.918	47.064	9,297.60	17.01	106.45	81.4	458.8	0.0	212.1
120.00		0.3750	39.399	46.447	8,936.90	16.76	105.07	81.7	446.8	0.0	701.1
122.00	Top - Section 3	0.2813	39.547	35.057	6,829.20	23.03	140.59	74.3	340.1	0.0	554.3
124.00		0.2813	39.133	34.687	6,615.10	22.77	139.11	74.6	332.9	0.0	237.3
125.00		0.2813	38.926	34.502	6,509.80	22.64	138.38	74.8	329.4	0.0	117.7
128.10		0.2813	38.283	33.928	6,190.40	22.23	136.09	75.3	318.5	0.0	360.9
130.00		0.2813	37.889	33.577	5,999.90	21.99	134.69	75.5	311.9	0.0	218.2
135.00		0.2813	36.853	32.651	5,517.40	21.34	131.01	76.3	294.9	0.0	563.4
140.00		0.2813	35.816	31.726	5,061.40	20.69	127.32	77.1	278.3	0.0	547.7
145.00		0.2813	34.780	30.801	4,631.30	20.04	123.64	77.8	262.3	0.0	531.9
146.00		0.2813	34.572	30.615	4,548.40	19.91	122.90	78	259.1	0.0	104.5
147.00		0.2813	34.365	30.430	4,466.40	19.78	122.16	78.1	256.0	0.0	103.9

Totals: 34,290.7

Load Case: 1.2D + 1.0W	115 mph wind with no ice	21 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	1.20	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-62.27	-28.96	0.00	-3,176.4	0.00	3,176.43	5,735.95	1,516.09	8,518.97	7,348.40	0	0	0.443
5.00	-60.29	-28.62	0.00	-3,031.6	0.00	3,031.60	5,677.95	1,490.83	8,237.51	7,152.06	0.06	-0.1	0.435
10.00	-58.34	-28.27	0.00	-2,888.5	0.00	2,888.52	5,618.68	1,465.57	7,960.77	6,956.64	0.22	-0.21	0.426
15.00	-56.42	-27.92	0.00	-2,747.2	0.00	2,747.18	5,558.13	1,440.31	7,688.77	6,762.21	0.5	-0.31	0.417
20.00	-54.53	-27.58	0.00	-2,607.6	0.00	2,607.57	5,496.31	1,415.05	7,421.49	6,568.87	0.88	-0.42	0.407
25.00	-52.67	-27.23	0.00	-2,469.7	0.00	2,469.68	5,433.22	1,389.79	7,158.94	6,376.70	1.38	-0.52	0.397
30.00	-50.85	-26.89	0.00	-2,333.5	0.00	2,333.51	5,368.86	1,364.54	6,901.11	6,185.76	1.99	-0.63	0.387
35.00	-49.06	-26.59	0.00	-2,199.1	0.00	2,199.09	5,303.22	1,339.28	6,648.02	5,996.16	2.7	-0.73	0.376
38.00	-48.00	-26.41	0.00	-2,119.3	0.00	2,119.30	5,263.22	1,324.12	6,498.43	5,883.07	3.19	-0.8	0.370
40.00	-46.66	-26.14	0.00	-2,066.5	0.00	2,066.49	5,236.31	1,314.02	6,399.65	5,807.96	3.53	-0.84	0.365
45.00	-43.39	-25.71	0.00	-1,935.8	0.00	1,935.82	5,225.77	1,310.08	6,361.38	5,778.78	4.47	-0.94	0.344
50.00	-41.67	-25.30	0.00	-1,807.3	0.00	1,807.26	5,157.39	1,284.82	6,118.48	5,592.31	5.51	-1.05	0.332
55.00	-39.97	-24.87	0.00	-1,680.8	0.00	1,680.77	5,087.73	1,259.57	5,880.31	5,407.44	6.66	-1.14	0.319
60.00	-38.31	-24.44	0.00	-1,556.4	0.00	1,556.40	5,016.81	1,234.31	5,646.86	5,224.23	7.91	-1.24	0.306
65.00	-36.68	-24.00	0.00	-1,434.2	0.00	1,434.19	4,944.61	1,209.05	5,418.14	5,042.78	9.25	-1.33	0.292
70.00	-35.09	-23.56	0.00	-1,314.2	0.00	1,314.18	4,871.14	1,183.79	5,194.15	4,863.15	10.7	-1.42	0.278
75.00	-33.53	-23.23	0.00	-1,196.4	0.00	1,196.39	4,796.39	1,158.53	4,974.89	4,685.45	12.23	-1.51	0.263
77.00	-32.91	-23.01	0.00	-1,149.9	0.00	1,149.93	4,766.14	1,148.43	4,888.51	4,614.92	12.87	-1.55	0.256
80.00	-31.30	-22.71	0.00	-1,080.9	0.00	1,080.92	4,720.37	1,133.27	4,760.36	4,509.74	13.86	-1.6	0.247
83.00	-29.71	-22.45	0.00	-1,012.8	0.00	1,012.79	3,873.58	975.36	4,113.65	3,720.97	14.88	-1.65	0.280
85.00	-29.17	-22.14	0.00	-967.9	0.00	967.88	3,850.55	966.70	4,040.94	3,665.75	15.58	-1.68	0.272
90.00	-27.86	-21.68	0.00	-857.2	0.00	857.17	3,792.09	945.05	3,861.98	3,528.60	17.39	-1.77	0.251
95.00	-26.58	-21.22	0.00	-748.8	0.00	748.76	3,732.36	923.40	3,687.08	3,392.80	19.29	-1.85	0.228
100.00	-25.33	-20.92	0.00	-642.7	0.00	642.66	3,671.36	901.75	3,516.24	3,258.44	21.27	-1.93	0.205
101.00	-21.40	-18.33	0.00	-621.7	0.00	621.74	3,659.01	897.42	3,482.55	3,231.75	21.68	-1.94	0.199
105.00	-20.44	-17.91	0.00	-548.4	0.00	548.42	3,609.08	880.10	3,349.44	3,125.60	23.33	-2	0.182
110.00	-19.26	-17.45	0.00	-458.9	0.00	458.86	3,545.54	858.45	3,186.70	2,994.36	25.46	-2.06	0.159
115.00	-18.11	-17.12	0.00	-371.6	0.00	371.64	3,480.72	836.80	3,028.01	2,864.81	27.65	-2.12	0.135
116.75	-17.71	-17.00	0.00	-341.7	0.00	341.68	3,457.73	829.22	2,973.43	2,819.88	28.43	-2.14	0.127
117.50	-17.23	-16.56	0.00	-328.9	0.00	328.93	3,447.83	825.97	2,950.18	2,800.69	28.76	-2.14	0.123
120.00	-16.31	-16.33	0.00	-287.5	0.00	287.53	3,414.62	815.15	2,873.37	2,737.03	29.89	-2.17	0.110
122.00	-15.58	-16.13	0.00	-254.9	0.00	254.87	2,344.85	615.26	2,182.03	1,895.77	30.8	-2.19	0.142
124.00	-11.42	-12.43	0.00	-220.4	0.00	220.45	2,329.63	608.76	2,136.20	1,863.44	31.72	-2.2	0.124
125.00	-11.26	-12.25	0.00	-208.0	0.00	208.02	2,321.95	605.51	2,113.47	1,847.31	32.19	-2.21	0.118
128.10	-10.74	-11.98	0.00	-170.0	0.00	169.99	2,297.80	595.44	2,043.77	1,797.48	33.63	-2.24	0.100
130.00	-10.46	-11.68	0.00	-147.2	0.00	147.23	2,282.76	589.27	2,001.63	1,767.07	34.52	-2.25	0.088
135.00	-7.35	-7.85	0.00	-88.8	0.00	88.83	2,242.30	573.03	1,892.83	1,687.56	36.89	-2.28	0.056
140.00	-6.66	-7.42	0.00	-49.6	0.00	49.56	2,200.57	556.79	1,787.07	1,608.86	39.29	-2.3	0.034
145.00	-5.99	-7.14	0.00	-12.5	0.00	12.48	2,157.57	540.55	1,684.36	1,531.05	41.7	-2.3	0.011
146.00	-2.92	-5.34	0.00	-5.3	0.00	5.34	2,148.81	537.30	1,664.18	1,515.60	42.18	-2.3	0.005
147.00	0.00	-5.22	0.00	0.0	0.00	0.00	2,140.01	534.05	1,644.12	1,500.19	42.66	-2.3	0.000

ASSET: 411180, Good Hill CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14099769_C3_04

Load Case: 0.9D + 1.0W	115 mph wind with no ice	21 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 0.90		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.70	-28.95	0.00	-3,152.6	0.00	3,152.64	5,735.95	1,516.09	8,518.97	7,348.40	0	0	0.438
5.00	-45.20	-28.57	0.00	-3,007.9	0.00	3,007.89	5,677.95	1,490.83	8,237.51	7,152.06	0.06	-0.1	0.429
10.00	-43.72	-28.20	0.00	-2,865.0	0.00	2,865.03	5,618.68	1,465.57	7,960.77	6,956.64	0.22	-0.21	0.420
15.00	-42.27	-27.83	0.00	-2,724.0	0.00	2,724.02	5,558.13	1,440.31	7,688.77	6,762.21	0.49	-0.31	0.411
20.00	-40.84	-27.46	0.00	-2,584.9	0.00	2,584.88	5,496.31	1,415.05	7,421.49	6,568.87	0.88	-0.42	0.401
25.00	-39.44	-27.10	0.00	-2,447.6	0.00	2,447.57	5,433.22	1,389.79	7,158.94	6,376.70	1.37	-0.52	0.391
30.00	-38.06	-26.73	0.00	-2,312.1	0.00	2,312.09	5,368.86	1,364.54	6,901.11	6,185.76	1.97	-0.62	0.381
35.00	-36.71	-26.43	0.00	-2,178.4	0.00	2,178.44	5,303.22	1,339.28	6,648.02	5,996.16	2.68	-0.73	0.371
38.00	-35.91	-26.23	0.00	-2,099.2	0.00	2,099.17	5,263.22	1,324.12	6,498.43	5,883.07	3.16	-0.79	0.364
40.00	-34.90	-25.95	0.00	-2,046.7	0.00	2,046.71	5,236.31	1,314.02	6,399.65	5,807.96	3.5	-0.83	0.359
45.00	-32.44	-25.52	0.00	-1,917.0	0.00	1,916.98	5,225.77	1,310.08	6,361.38	5,778.78	4.43	-0.94	0.338
50.00	-31.14	-25.09	0.00	-1,789.4	0.00	1,789.40	5,157.39	1,284.82	6,118.48	5,592.31	5.46	-1.04	0.326
55.00	-29.86	-24.66	0.00	-1,663.9	0.00	1,663.94	5,087.73	1,259.57	5,880.31	5,407.44	6.6	-1.13	0.314
60.00	-28.61	-24.22	0.00	-1,540.6	0.00	1,540.65	5,016.81	1,234.31	5,646.86	5,224.23	7.84	-1.23	0.301
65.00	-27.38	-23.77	0.00	-1,419.6	0.00	1,419.55	4,944.61	1,209.05	5,418.14	5,042.78	9.17	-1.32	0.287
70.00	-26.18	-23.32	0.00	-1,300.7	0.00	1,300.69	4,871.14	1,183.79	5,194.15	4,863.15	10.6	-1.41	0.273
75.00	-25.00	-23.00	0.00	-1,184.1	0.00	1,184.08	4,796.39	1,158.53	4,974.89	4,685.45	12.13	-1.5	0.258
77.00	-24.54	-22.77	0.00	-1,138.1	0.00	1,138.09	4,766.14	1,148.43	4,888.51	4,614.92	12.76	-1.53	0.252
80.00	-23.32	-22.48	0.00	-1,069.8	0.00	1,069.78	4,720.37	1,133.27	4,760.36	4,509.74	13.74	-1.58	0.243
83.00	-22.13	-22.23	0.00	-1,002.4	0.00	1,002.35	3,873.58	975.36	4,113.65	3,720.97	14.75	-1.63	0.276
85.00	-21.72	-21.91	0.00	-957.9	0.00	957.90	3,850.55	966.70	4,040.94	3,665.75	15.44	-1.67	0.267
90.00	-20.74	-21.45	0.00	-848.3	0.00	848.34	3,792.09	945.05	3,861.98	3,528.60	17.24	-1.75	0.246
95.00	-19.77	-20.99	0.00	-741.1	0.00	741.09	3,732.36	923.40	3,687.08	3,392.80	19.12	-1.83	0.224
100.00	-18.84	-20.70	0.00	-636.2	0.00	636.15	3,671.36	901.75	3,516.24	3,258.44	21.08	-1.91	0.201
101.00	-15.91	-18.13	0.00	-615.4	0.00	615.45	3,659.01	897.42	3,482.55	3,231.75	21.48	-1.92	0.195
105.00	-15.18	-17.72	0.00	-542.9	0.00	542.91	3,609.08	880.10	3,349.44	3,125.60	23.12	-1.98	0.178
110.00	-14.30	-17.26	0.00	-454.3	0.00	454.31	3,545.54	858.45	3,186.70	2,994.36	25.22	-2.04	0.156
115.00	-13.43	-16.94	0.00	-368.0	0.00	368.02	3,480.72	836.80	3,028.01	2,864.81	27.39	-2.1	0.133
116.75	-13.14	-16.82	0.00	-338.4	0.00	338.37	3,457.73	829.22	2,973.43	2,819.88	28.17	-2.12	0.124
117.50	-12.78	-16.39	0.00	-325.8	0.00	325.76	3,447.83	825.97	2,950.18	2,800.69	28.5	-2.12	0.120
120.00	-12.09	-16.17	0.00	-284.8	0.00	284.79	3,414.62	815.15	2,873.37	2,737.03	29.62	-2.15	0.108
122.00	-11.54	-15.98	0.00	-252.5	0.00	252.46	2,344.85	615.26	2,182.03	1,895.77	30.52	-2.16	0.139
124.00	-8.45	-12.32	0.00	-218.4	0.00	218.35	2,329.63	608.76	2,136.20	1,863.44	31.43	-2.18	0.121
125.00	-8.34	-12.14	0.00	-206.0	0.00	206.04	2,321.95	605.51	2,113.47	1,847.31	31.89	-2.19	0.116
128.10	-7.95	-11.87	0.00	-168.4	0.00	168.37	2,297.80	595.44	2,043.77	1,797.48	33.32	-2.21	0.098
130.00	-7.74	-11.57	0.00	-145.8	0.00	145.82	2,282.76	589.27	2,001.63	1,767.07	34.2	-2.23	0.086
135.00	-5.44	-7.78	0.00	-88.0	0.00	87.98	2,242.30	573.03	1,892.83	1,687.56	36.55	-2.26	0.055
140.00	-4.93	-7.34	0.00	-49.1	0.00	49.11	2,200.57	556.79	1,787.07	1,608.86	38.93	-2.27	0.033
145.00	-4.42	-7.08	0.00	-12.4	0.00	12.39	2,157.57	540.55	1,684.36	1,531.05	41.31	-2.28	0.010
146.00	-2.14	-5.31	0.00	-5.3	0.00	5.31	2,148.81	537.30	1,664.18	1,515.60	41.79	-2.28	0.005
147.00	0.00	-5.22	0.00	0.0	0.00	0.00	2,140.01	534.05	1,644.12	1,500.19	42.27	-2.28	0.000

ASSET: 411180, Good Hill CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14099769_C3_04

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice		20 Iterations
Gust Response Factor: 1.10	Ice Dead Load Factor	1.00	
Dead load Factor: 1.20			Ice Importance Factor 1.00
Wind Load Factor: 1.00			

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-80.06	-8.19	0.00	-876.7	0.00	876.70	5,735.95	1,516.09	8,518.97	7,348.40	0	0	0.133
5.00	-77.83	-8.09	0.00	-835.7	0.00	835.74	5,677.95	1,490.83	8,237.51	7,152.06	0.02	-0.03	0.131
10.00	-75.59	-7.98	0.00	-795.3	0.00	795.31	5,618.68	1,465.57	7,960.77	6,956.64	0.06	-0.06	0.128
15.00	-73.38	-7.87	0.00	-755.4	0.00	755.42	5,558.13	1,440.31	7,688.77	6,762.21	0.14	-0.09	0.125
20.00	-71.18	-7.76	0.00	-716.1	0.00	716.06	5,496.31	1,415.05	7,421.49	6,568.87	0.24	-0.12	0.122
25.00	-69.01	-7.66	0.00	-677.2	0.00	677.24	5,433.22	1,389.79	7,158.94	6,376.70	0.38	-0.14	0.119
30.00	-66.88	-7.55	0.00	-639.0	0.00	638.95	5,368.86	1,364.54	6,901.11	6,185.76	0.55	-0.17	0.116
35.00	-64.77	-7.46	0.00	-601.2	0.00	601.20	5,303.22	1,339.28	6,648.02	5,996.16	0.74	-0.2	0.113
38.00	-63.52	-7.40	0.00	-578.8	0.00	578.83	5,263.22	1,324.12	6,498.43	5,883.07	0.88	-0.22	0.110
40.00	-62.06	-7.31	0.00	-564.0	0.00	564.03	5,236.31	1,314.02	6,399.65	5,807.96	0.97	-0.23	0.109
45.00	-58.47	-7.18	0.00	-527.5	0.00	527.46	5,225.77	1,310.08	6,361.38	5,778.78	1.23	-0.26	0.102
50.00	-56.43	-7.05	0.00	-491.6	0.00	491.55	5,157.39	1,284.82	6,118.48	5,592.31	1.51	-0.29	0.099
55.00	-54.42	-6.92	0.00	-456.3	0.00	456.29	5,087.73	1,259.57	5,880.31	5,407.44	1.83	-0.31	0.095
60.00	-52.44	-6.78	0.00	-421.7	0.00	421.70	5,016.81	1,234.31	5,646.86	5,224.23	2.17	-0.34	0.091
65.00	-50.49	-6.64	0.00	-387.8	0.00	387.80	4,944.61	1,209.05	5,418.14	5,042.78	2.54	-0.36	0.087
70.00	-48.58	-6.50	0.00	-354.6	0.00	354.59	4,871.14	1,183.79	5,194.15	4,863.15	2.93	-0.39	0.083
75.00	-46.71	-6.39	0.00	-322.1	0.00	322.10	4,796.39	1,158.53	4,974.89	4,685.45	3.35	-0.41	0.079
77.00	-45.96	-6.32	0.00	-309.3	0.00	309.31	4,766.14	1,148.43	4,888.51	4,614.92	3.53	-0.42	0.077
80.00	-44.17	-6.23	0.00	-290.3	0.00	290.34	4,720.37	1,133.27	4,760.36	4,509.74	3.8	-0.44	0.074
83.00	-42.39	-6.15	0.00	-271.7	0.00	271.66	3,873.58	975.36	4,113.65	3,720.97	4.08	-0.45	0.084
85.00	-41.73	-6.05	0.00	-259.4	0.00	259.37	3,850.55	966.70	4,040.94	3,665.75	4.27	-0.46	0.082
90.00	-40.12	-5.90	0.00	-229.1	0.00	229.13	3,792.09	945.05	3,861.98	3,528.60	4.76	-0.48	0.076
95.00	-38.53	-5.75	0.00	-199.6	0.00	199.63	3,732.36	923.40	3,687.08	3,392.80	5.28	-0.5	0.069
100.00	-36.98	-5.65	0.00	-170.9	0.00	170.88	3,671.36	901.75	3,516.24	3,258.44	5.82	-0.52	0.063
101.00	-31.44	-5.00	0.00	-165.2	0.00	165.22	3,659.01	897.42	3,482.55	3,231.75	5.93	-0.53	0.060
105.00	-30.23	-4.86	0.00	-145.2	0.00	145.24	3,609.08	880.10	3,349.44	3,125.60	6.38	-0.54	0.055
110.00	-28.75	-4.71	0.00	-120.9	0.00	120.94	3,545.54	858.45	3,186.70	2,994.36	6.95	-0.56	0.049
115.00	-27.31	-4.60	0.00	-97.4	0.00	97.40	3,480.72	836.80	3,028.01	2,864.81	7.55	-0.57	0.042
116.75	-26.81	-4.56	0.00	-89.4	0.00	89.35	3,457.73	829.22	2,973.43	2,819.88	7.76	-0.58	0.039
117.50	-26.12	-4.37	0.00	-85.9	0.00	85.93	3,447.83	825.97	2,950.18	2,800.69	7.85	-0.58	0.038
120.00	-25.05	-4.30	0.00	-75.0	0.00	75.00	3,414.62	815.15	2,873.37	2,737.03	8.16	-0.59	0.035
122.00	-24.21	-4.23	0.00	-66.4	0.00	66.40	2,344.85	615.26	2,182.03	1,895.77	8.4	-0.59	0.045
124.00	-17.82	-3.28	0.00	-57.4	0.00	57.44	2,329.63	608.76	2,136.20	1,863.44	8.65	-0.6	0.039
125.00	-17.60	-3.22	0.00	-54.2	0.00	54.16	2,321.95	605.51	2,113.47	1,847.31	8.78	-0.6	0.037
128.10	-16.87	-3.13	0.00	-44.2	0.00	44.16	2,297.80	595.44	2,043.77	1,797.48	9.17	-0.61	0.032
130.00	-16.47	-3.03	0.00	-38.2	0.00	38.21	2,282.76	589.27	2,001.63	1,767.07	9.41	-0.61	0.029
135.00	-11.33	-2.06	0.00	-23.0	0.00	23.04	2,242.30	573.03	1,892.83	1,687.56	10.05	-0.62	0.019
140.00	-10.36	-1.91	0.00	-12.7	0.00	12.74	2,200.57	556.79	1,787.07	1,608.86	10.7	-0.62	0.013
145.00	-9.41	-1.82	0.00	-3.2	0.00	3.17	2,157.57	540.55	1,684.36	1,531.05	11.35	-0.62	0.006
146.00	-5.30	-1.35	0.00	-1.4	0.00	1.35	2,148.81	537.30	1,664.18	1,515.60	11.48	-0.62	0.003
147.00	0.00	-1.29	0.00	0.0	0.00	0.00	2,140.01	534.05	1,644.12	1,500.19	11.61	-0.62	0.000

Load Case: 1.0D + 1.0W	60 mph Wind with No Ice	20 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.91	-7.05	0.00	-769.9	0.00	769.93	5,735.95	1,516.09	8,518.97	7,348.40	0	0	0.114
5.00	-50.30	-6.96	0.00	-734.7	0.00	734.67	5,677.95	1,490.83	8,237.51	7,152.06	0.01	-0.03	0.112
10.00	-48.72	-6.87	0.00	-699.9	0.00	699.86	5,618.68	1,465.57	7,960.77	6,956.64	0.05	-0.05	0.109
15.00	-47.16	-6.79	0.00	-665.5	0.00	665.49	5,558.13	1,440.31	7,688.77	6,762.21	0.12	-0.08	0.107
20.00	-45.62	-6.70	0.00	-631.6	0.00	631.57	5,496.31	1,415.05	7,421.49	6,568.87	0.21	-0.1	0.104
25.00	-44.11	-6.61	0.00	-598.1	0.00	598.08	5,433.22	1,389.79	7,158.94	6,376.70	0.33	-0.13	0.102
30.00	-42.62	-6.52	0.00	-565.0	0.00	565.03	5,368.86	1,364.54	6,901.11	6,185.76	0.48	-0.15	0.099
35.00	-41.16	-6.45	0.00	-532.4	0.00	532.41	5,303.22	1,339.28	6,648.02	5,996.16	0.66	-0.18	0.097
38.00	-40.29	-6.40	0.00	-513.1	0.00	513.06	5,263.22	1,324.12	6,498.43	5,883.07	0.77	-0.19	0.095
40.00	-39.20	-6.34	0.00	-500.3	0.00	500.26	5,236.31	1,314.02	6,399.65	5,807.96	0.86	-0.2	0.094
45.00	-36.50	-6.23	0.00	-468.6	0.00	468.58	5,225.77	1,310.08	6,361.38	5,778.78	1.08	-0.23	0.088
50.00	-35.09	-6.13	0.00	-437.4	0.00	437.43	5,157.39	1,284.82	6,118.48	5,592.31	1.33	-0.25	0.085
55.00	-33.71	-6.02	0.00	-406.8	0.00	406.78	5,087.73	1,259.57	5,880.31	5,407.44	1.61	-0.28	0.082
60.00	-32.34	-5.92	0.00	-376.7	0.00	376.66	5,016.81	1,234.31	5,646.86	5,224.23	1.91	-0.3	0.079
65.00	-31.01	-5.81	0.00	-347.1	0.00	347.08	4,944.61	1,209.05	5,418.14	5,042.78	2.24	-0.32	0.075
70.00	-29.70	-5.70	0.00	-318.0	0.00	318.03	4,871.14	1,183.79	5,194.15	4,863.15	2.59	-0.34	0.072
75.00	-28.41	-5.62	0.00	-289.5	0.00	289.53	4,796.39	1,158.53	4,974.89	4,685.45	2.96	-0.37	0.068
77.00	-27.90	-5.57	0.00	-278.3	0.00	278.28	4,766.14	1,148.43	4,888.51	4,614.92	3.12	-0.37	0.066
80.00	-26.57	-5.49	0.00	-261.6	0.00	261.58	4,720.37	1,133.27	4,760.36	4,509.74	3.36	-0.39	0.064
83.00	-25.25	-5.43	0.00	-245.1	0.00	245.10	3,873.58	975.36	4,113.65	3,720.97	3.6	-0.4	0.072
85.00	-24.82	-5.36	0.00	-234.2	0.00	234.23	3,850.55	966.70	4,040.94	3,665.75	3.77	-0.41	0.070
90.00	-23.74	-5.25	0.00	-207.4	0.00	207.45	3,792.09	945.05	3,861.98	3,528.60	4.21	-0.43	0.065
95.00	-22.68	-5.13	0.00	-181.2	0.00	181.22	3,732.36	923.40	3,687.08	3,392.80	4.67	-0.45	0.060
100.00	-21.65	-5.06	0.00	-155.6	0.00	155.56	3,671.36	901.75	3,516.24	3,258.44	5.15	-0.47	0.054
101.00	-18.31	-4.43	0.00	-150.5	0.00	150.49	3,659.01	897.42	3,482.55	3,231.75	5.25	-0.47	0.052
105.00	-17.51	-4.33	0.00	-132.8	0.00	132.76	3,609.08	880.10	3,349.44	3,125.60	5.65	-0.48	0.047
110.00	-16.53	-4.22	0.00	-111.1	0.00	111.09	3,545.54	858.45	3,186.70	2,994.36	6.16	-0.5	0.042
115.00	-15.57	-4.14	0.00	-90.0	0.00	89.98	3,480.72	836.80	3,028.01	2,864.81	6.7	-0.51	0.036
116.75	-15.24	-4.11	0.00	-82.7	0.00	82.73	3,457.73	829.22	2,973.43	2,819.88	6.88	-0.52	0.034
117.50	-14.83	-4.01	0.00	-79.6	0.00	79.65	3,447.83	825.97	2,950.18	2,800.69	6.97	-0.52	0.033
120.00	-14.06	-3.95	0.00	-69.6	0.00	69.63	3,414.62	815.15	2,873.37	2,737.03	7.24	-0.52	0.030
122.00	-13.45	-3.91	0.00	-61.7	0.00	61.72	2,344.85	615.26	2,182.03	1,895.77	7.46	-0.53	0.038
124.00	-9.88	-3.01	0.00	-53.4	0.00	53.39	2,329.63	608.76	2,136.20	1,863.44	7.68	-0.53	0.033
125.00	-9.75	-2.97	0.00	-50.4	0.00	50.38	2,321.95	605.51	2,113.47	1,847.31	7.79	-0.54	0.031
128.10	-9.31	-2.90	0.00	-41.2	0.00	41.17	2,297.80	595.44	2,043.77	1,797.48	8.14	-0.54	0.027
130.00	-9.07	-2.83	0.00	-35.6	0.00	35.65	2,282.76	589.27	2,001.63	1,767.07	8.36	-0.54	0.024
135.00	-6.37	-1.90	0.00	-21.5	0.00	21.51	2,242.30	573.03	1,892.83	1,687.56	8.93	-0.55	0.016
140.00	-5.78	-1.80	0.00	-12.0	0.00	12.01	2,200.57	556.79	1,787.07	1,608.86	9.52	-0.56	0.010
145.00	-5.21	-1.73	0.00	-3.0	0.00	3.03	2,157.57	540.55	1,684.36	1,531.05	10.1	-0.56	0.004
146.00	-2.60	-1.30	0.00	-1.3	0.00	1.30	2,148.81	537.30	1,664.18	1,515.60	10.22	-0.56	0.002
147.00	0.00	-1.27	0.00	0.0	0.00	0.00	2,140.01	534.05	1,644.12	1,500.19	10.33	-0.56	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.194
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.207
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
Seismic Response Coefficient (C_s):	0.031
Upper Limit C_s :	0.031
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	1.860
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	1.680
Total Unfactored Dead Load:	51.920 k
Seismic Base Shear (E):	1.610 k

1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
40	146.5	112	490	0.005	8	139
39	145.5	113	487	0.005	8	140
38	142.5	573	2,391	0.024	39	711
37	137.5	588	2,314	0.024	38	730
36	132.5	624	2,305	0.024	38	774
35	129.05	241	853	0.009	14	299
34	126.55	408	1,395	0.014	23	506
33	124.5	133	443	0.004	7	165
32	123	292	952	0.010	16	363
31	121	609	1,932	0.020	32	756
30	118.75	770	2,365	0.024	39	955
29	117.125	233	699	0.007	11	289
28	115.875	331	977	0.010	16	411
27	112.5	960	2,695	0.028	44	1,192
26	107.5	981	2,551	0.026	42	1,218
25	103	800	1,936	0.020	32	993
24	100.5	204	475	0.005	8	254
23	97.5	1,035	2,283	0.023	37	1,285
22	92.5	1,056	2,132	0.022	35	1,311
21	87.5	1,077	1,981	0.020	33	1,337
20	84	437	750	0.008	12	542
19	81.5	1,316	2,148	0.022	35	1,634
18	78.5	1,332	2,042	0.021	34	1,654
17	76	507	736	0.008	12	630
16	72.5	1,285	1,724	0.018	28	1,596
15	67.5	1,310	1,558	0.016	26	1,626
14	62.5	1,334	1,394	0.014	23	1,657
13	57.5	1,359	1,234	0.013	20	1,687
12	52.5	1,383	1,078	0.011	18	1,717
11	47.5	1,408	927	0.010	15	1,748
10	42.5	2,694	1,472	0.015	24	3,344
9	39	1,091	516	0.005	8	1,355
8	36.5	865	366	0.004	6	1,073
7	32.5	1,461	508	0.005	8	1,813

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
6	27.5	1,485	390	0.004	6	1,844
5	22.5	1,510	283	0.003	5	1,874
4	17.5	1,534	189	0.002	3	1,904
3	12.5	1,559	109	0.001	2	1,935
2	7.5	1,583	47	0.000	1	1,965
1	2.5	1,608	8	0.000	0	1,996
Commscope CBC78T-DS-43-2X	147	62	273	0.003	4	77
Samsung B2/B66A RRH-BR049	147	253	1,114	0.011	18	314
Samsung B5/B13 RRH-BR04C	147	211	928	0.010	15	262
RFS DB-C1-12C-24AB-0Z	147	32	141	0.001	2	40
Samsung MT6407-77A	147	245	1,077	0.011	18	304
Antel LPA-80080/4CF	147	48	211	0.002	3	60
Antel LPA-80063/4CF	147	40	176	0.002	3	50
Commscope JAHH-65B-R3B (63.3 lb)	147	380	1,671	0.017	27	471
VZW Unused Reserve (16374.48 sqin)	147	1,229	5,409	0.055	89	1,526
Generic Flat Platform with Handrails	146	2,500	10,876	0.111	179	3,103
Generic Flat Platform with Handrails	101	2,500	5,854	0.060	96	3,103
Ericsson 4460 BAND 2/25	135	327	1,247	0.013	20	406
Ericsson 4480 BAND 71	135	243	927	0.010	15	302
RFS SC2-W100BD	135	20	76	0.001	1	25
Commscope VV-65A-R1B	135	74	283	0.003	5	92
Ericsson AIR 6419 B41	135	250	953	0.010	16	310
Generic Flat Light Sector Frame	135	800	3,051	0.031	50	993
RFS APXVAALL24 43-U-NA20	135	368	1,405	0.014	23	457
Raycap DC6-48-60-18-8F(32.8 lbs)	128.1	33	115	0.001	2	41
Powerwave Allgon LGP21901	124	33	109	0.001	2	41
Powerwave Allgon LGP2140X	124	114	377	0.004	6	142
Raycap DC6-48-60-18-8F ("Squid")	124	32	105	0.001	2	39
Ericsson RRUS 4478 B14	124	180	594	0.006	10	223
Ericsson RRUS 32 B2	124	159	526	0.005	9	197
Ericsson RRUS-11	124	330	1,091	0.011	18	410
Powerwave Allgon 7770.00	124	210	694	0.007	11	261
Kathrein Scala 800 10764	124	41	135	0.001	2	51
KMW AM-X-CD-16-65-00T-RET	124	97	321	0.003	5	120
KMW EPBQ-654L8H6-L2	124	218	722	0.007	12	271
Generic Round Low Profile Platform	124	1,875	6,198	0.063	102	2,328
Generic 3' Omni-Grid	117.5	30	91	0.001	1	37
Stand-Off	117.5	150	453	0.005	7	186
Commscope RDIDC-9181-PF-48	101	22	51	0.000	1	27
Fujitsu TA08025-B605	101	225	527	0.005	9	279
Fujitsu TA08025-B604	101	192	449	0.005	7	238
JMA Wireless MX08FRO665-21	101	194	453	0.005	7	240
		51,916	97,819	1.000	1,606	64,447

0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
40	146.5	112	490	0.005	8	96
39	145.5	113	487	0.005	8	97
38	142.5	573	2,391	0.024	39	492
37	137.5	588	2,314	0.024	38	505
36	132.5	624	2,305	0.024	38	536
35	129.05	241	853	0.009	14	207
34	126.55	408	1,395	0.014	23	350
33	124.5	133	443	0.004	7	114
32	123	292	952	0.010	16	251
31	121	609	1,932	0.020	32	523
30	118.75	770	2,365	0.024	39	661
29	117.125	233	699	0.007	11	200
28	115.875	331	977	0.010	16	284
27	112.5	960	2,695	0.028	44	824
26	107.5	981	2,551	0.026	42	842

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
25	103	800	1,936	0.020	32	687
24	100.5	204	475	0.005	8	176
23	97.5	1,035	2,283	0.023	37	888
22	92.5	1,056	2,132	0.022	35	906
21	87.5	1,077	1,981	0.020	33	924
20	84	437	750	0.008	12	375
19	81.5	1,316	2,148	0.022	35	1,130
18	78.5	1,332	2,042	0.021	34	1,144
17	76	507	736	0.008	12	436
16	72.5	1,285	1,724	0.018	28	1,104
15	67.5	1,310	1,558	0.016	26	1,125
14	62.5	1,334	1,394	0.014	23	1,146
13	57.5	1,359	1,234	0.013	20	1,167
12	52.5	1,383	1,078	0.011	18	1,188
11	47.5	1,408	927	0.010	15	1,209
10	42.5	2,694	1,472	0.015	24	2,313
9	39	1,091	516	0.005	8	937
8	36.5	865	366	0.004	6	742
7	32.5	1,461	508	0.005	8	1,254
6	27.5	1,485	390	0.004	6	1,275
5	22.5	1,510	283	0.003	5	1,296
4	17.5	1,534	189	0.002	3	1,317
3	12.5	1,559	109	0.001	2	1,338
2	7.5	1,583	47	0.000	1	1,359
1	2.5	1,608	8	0.000	0	1,380
Commscope CBC78T-DS-43-2X	147	62	273	0.003	4	53
Samsung B2/B66A RRH-BR049	147	253	1,114	0.011	18	217
Samsung B5/B13 RRH-BR04C	147	211	928	0.010	15	181
RFS DB-C1-12C-24AB-0Z	147	32	141	0.001	2	27
Samsung MT6407-77A	147	245	1,077	0.011	18	210
Antel LPA-80080/4CF ____	147	48	211	0.002	3	41
Antel LPA-80063/4CF	147	40	176	0.002	3	34
Commscope JAHH-65B-R3B (63.3 lb)	147	380	1,671	0.017	27	326
VZW Unused Reserve (16374.48 sqin)	147	1,229	5,409	0.055	89	1,055
Generic Flat Platform with Handrails	146	2,500	10,876	0.111	179	2,147
Generic Flat Platform with Handrails	101	2,500	5,854	0.060	96	2,147
Ericsson 4460 BAND 2/25	135	327	1,247	0.013	20	281
Ericsson 4480 BAND 71	135	243	927	0.010	15	209
RFS SC2-W100BD	135	20	76	0.001	1	17
Commscope VV-65A-R1B	135	74	283	0.003	5	64
Ericsson AIR 6419 B41	135	250	953	0.010	16	215
Generic Flat Light Sector Frame	135	800	3,051	0.031	50	687
RFS APXVAALL24 43-U-NA20	135	368	1,405	0.014	23	316
Raycap DC6-48-60-18-8F(32.8 lbs)	128.1	33	115	0.001	2	28
Powerwave Allgon LGP21901	124	33	109	0.001	2	28
Powerwave Allgon LGP2140X	124	114	377	0.004	6	98
Raycap DC6-48-60-18-8F ("Squid")	124	32	105	0.001	2	27
Ericsson RRUS 4478 B14	124	180	594	0.006	10	154
Ericsson RRUS 32 B2	124	159	526	0.005	9	137
Ericsson RRUS-11	124	330	1,091	0.011	18	283
Powerwave Allgon 7770.00	124	210	694	0.007	11	180
Kathrein Scala 800 10764	124	41	135	0.001	2	35
KMW AM-X-CD-16-65-00T-RET	124	97	321	0.003	5	83
KMW EPBQ-654L8H6-L2	124	218	722	0.007	12	188
Generic Round Low Profile Platform	124	1,875	6,198	0.063	102	1,610
Generic 3' Omni-Grid	117.5	30	91	0.001	1	26
Stand-Off	117.5	150	453	0.005	7	129
Commscope RDIDC-9181-PF-48	101	22	51	0.000	1	19
Fujitsu TA08025-B605	101	225	527	0.005	9	193
Fujitsu TA08025-B604	101	192	449	0.005	7	165
JMA Wireless MX08FRO665-21	101	194	453	0.005	7	166
		51,916	97,819	1.000	1,606	44,575

1.2D + 1.0Ev + 1.0Eh Seismic

CALCULATED FORCES

ASSET: 411180, Good Hill CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14099769_C3_04

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
85.00	-20.41	-1.32	0.00	-54.83	0.00	54.83	3,850.55	966.70	4,041	3,665.75	0.92	-0.10	0.02
90.00	-19.51	-1.29	0.00	-48.22	0.00	48.22	3,792.09	945.05	3,862	3,528.60	1.02	-0.10	0.02
95.00	-18.62	-1.25	0.00	-41.79	0.00	41.79	3,732.36	923.40	3,687	3,392.80	1.13	-0.11	0.02
100.00	-18.44	-1.24	0.00	-35.54	0.00	35.54	3,671.36	901.75	3,516	3,258.44	1.25	-0.11	0.02
101.00	-15.07	-1.08	0.00	-34.30	0.00	34.30	3,659.01	897.42	3,483	3,231.75	1.27	-0.11	0.02
105.00	-14.23	-1.04	0.00	-29.97	0.00	29.97	3,609.08	880.10	3,349	3,125.60	1.37	-0.12	0.01
110.00	-13.40	-1.00	0.00	-24.76	0.00	24.76	3,545.54	858.45	3,187	2,994.36	1.49	-0.12	0.01
115.00	-13.12	-0.98	0.00	-19.78	0.00	19.78	3,480.72	836.80	3,028	2,864.81	1.62	-0.12	0.01
116.75	-12.92	-0.97	0.00	-18.07	0.00	18.07	3,457.73	829.22	2,973	2,819.88	1.66	-0.12	0.01
117.50	-12.10	-0.92	0.00	-17.34	0.00	17.34	3,447.83	825.97	2,950	2,800.69	1.68	-0.12	0.01
120.00	-11.58	-0.89	0.00	-15.04	0.00	15.04	3,414.62	815.15	2,873	2,737.03	1.75	-0.13	0.01
122.00	-11.33	-0.87	0.00	-13.27	0.00	13.27	2,344.85	615.26	2,182	1,895.77	1.80	-0.13	0.01
124.00	-8.39	-0.68	0.00	-11.53	0.00	11.53	2,329.63	608.76	2,136	1,863.44	1.85	-0.13	0.01
125.00	-8.04	-0.65	0.00	-10.86	0.00	10.86	2,321.95	605.51	2,113	1,847.31	1.88	-0.13	0.01
128.10	-7.80	-0.64	0.00	-8.83	0.00	8.83	2,297.80	595.44	2,044	1,797.48	1.96	-0.13	0.01
130.00	-7.27	-0.60	0.00	-7.61	0.00	7.61	2,282.76	589.27	2,002	1,767.07	2.02	-0.13	0.01
135.00	-4.98	-0.43	0.00	-4.62	0.00	4.62	2,242.30	573.03	1,893	1,687.56	2.15	-0.13	0.01
140.00	-4.49	-0.39	0.00	-2.49	0.00	2.49	2,200.57	556.79	1,787	1,608.86	2.29	-0.13	0.00
145.00	-4.39	-0.38	0.00	-0.56	0.00	0.56	2,157.57	540.55	1,684	1,531.05	2.43	-0.13	0.00
146.00	-2.15	-0.19	0.00	-0.19	0.00	0.19	2,148.81	537.30	1,664	1,515.60	2.46	-0.13	0.00
147.00	0.00	-0.18	0.00	0.00	0.00	0.00	2,140.01	534.05	1,644	1,500.19	2.48	-0.13	0.00

ASSET: 411180, Good Hill CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14099769_C3_04

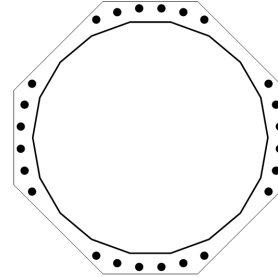
ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	28.96	0.00	62.27	0.00	0.00	3176.43	0.00	0.44
0.9D + 1.0W	28.95	0.00	46.70	0.00	0.00	3152.64	0.00	0.44
1.2D + 1.0Di + 1.0Wi	8.19	0.00	80.06	0.00	0.00	876.70	0.00	0.13
1.2D + 1.0Ev + 1.0Eh	1.62	0.00	62.45	0.00	0.00	187.88	0.00	0.04
0.9D - 1.0Ev + 1.0Eh	1.61	0.00	43.20	0.00	0.00	186.17	0.00	0.03
1.0D + 1.0W	7.05	0.00	51.91	0.00	0.00	769.93	0.00	0.11

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 2223)

Width:	70	in
Shape:	Square	
Thickness:	3	in
Grade:	A572-55	
Yield Strength:	55	ksi
Tensile Strength:	70	ksi
Clip Length:	18	in
Rod Detail Type:	d	
Clear Distance:	3	in
Base Weld Size:	0.125	in
Orientation Offset:	45	°
Analysis Type:	Plastic	
Neutral Axis:	180	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 7996]	Cluster	24	2.25	70	A615-75	75	100	6	45

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (24) 2.25"Ø [ID 7996]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)	Shear Load (k)
1	1.142	14.54	31.84	-30.641	3049.964	-72.77	0.83
2	1.314	8.90	33.85	-32.580	3448.093	-72.77	0.51
3	1.485	3.00	34.87	-33.564	3659.460	-72.77	0.17
4	1.657	-3.00	34.87	-33.564	3659.460	-72.77	0.17
5	1.828	-8.90	33.85	-32.580	3448.094	-72.77	0.51
6	1.999	-14.54	31.84	-30.641	3049.963	-72.77	0.83
7	2.713	-31.84	14.54	-14.000	637.349	-72.77	1.82
8	2.884	-33.85	8.90	-8.567	239.218	-72.77	1.93
9	3.056	-34.87	3.00	-2.884	27.851	-72.77	1.99
10	3.227	-34.87	-3.00	2.884	27.851	83.15	1.99
11	3.399	-33.85	-8.90	8.567	239.219	83.15	1.93
12	3.570	-31.84	-14.54	14.000	637.348	83.15	1.82
13	4.284	-14.54	-31.84	30.641	3049.965	83.15	0.83
14	4.455	-8.90	-33.85	32.580	3448.093	83.15	0.51
15	4.627	-3.00	-34.87	33.564	3659.461	83.15	0.17
16	4.798	3.00	-34.87	33.564	3659.460	83.15	0.17
17	4.970	8.90	-33.85	32.580	3448.093	83.15	0.51
18	5.141	14.54	-31.84	30.641	3049.965	83.15	0.83
19	5.855	31.84	-14.54	14.000	637.348	83.15	1.82
20	6.026	33.85	-8.90	8.567	239.219	83.15	1.93
21	6.197	34.87	-3.00	2.884	27.851	83.15	1.99
22	0.086	34.87	3.00	-2.884	27.851	-72.77	1.99
23	0.257	33.85	8.90	-8.567	239.218	-72.77	1.93
24	0.429	31.84	14.54	-14.000	637.347	-72.77	1.82

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	62.65"Ø x 0.4375" (18 Sides)	3176.4	62.27	28.96	1.000
Bolt Group	Original (24) 2.25"Ø	3176.4	-	28.96	1.000
TOTALS		3176.43	62.27	28.96	

COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	62.65"Ø x 0.4375" (18 Sides)	85.0743	-	-	41164.35	-
Bolt Group	Original (24) 2.25"Ø	3.9761	3.2477	0.8393	44247.74	4.5

ASSET: 411180, Good Hill CT
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
 ENG NO: 13702538

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 62.78 in
 Point-to-Point Diameter: 63.74 in
 Flat Width: 11.069 in
 Flat Radians: 0.349 rad

PLATE PROPERTIES

Neutral Axis: 180 °
 Bend Line Lower Limit: rad
 Bend Line Upper Limit: -0.118 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	36.220	0.00	81.495	643.6	4034.0	0.160
Corner	35.252	0.00	79.316	459.3	3926.1	0.117

PLASTIC ANCHOR ROD ANALYSIS

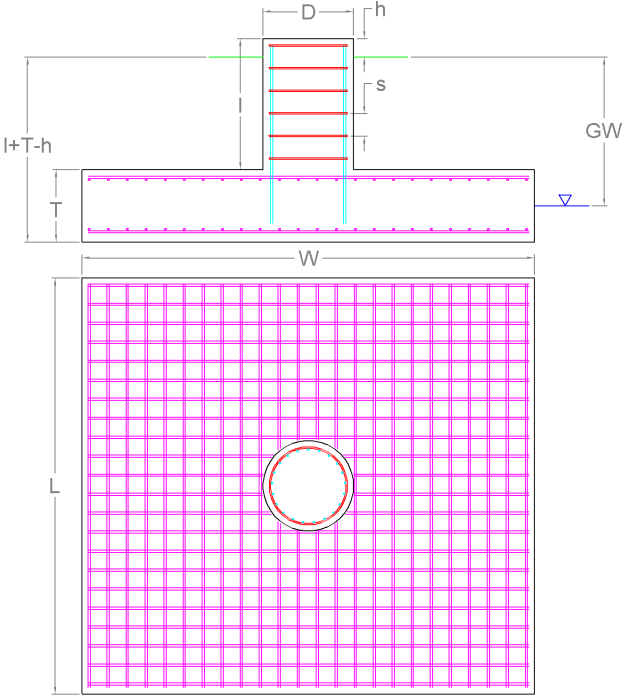
Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio
Original	24	2.25	83.1	2.0	243.6	0.358

Monolithic Mat Foundation Analysis (ANSI/TIA-222-H)

Foundation & Tower Parameters			
Ignore Mat Rebar?		N	
Ignore Pier Rebar?			
Foundation has Pier(s)?		Y	
Pier Shape		Round	
Pier Diameter	<i>D</i>	9.07	ft
Pier Height Above Ground	<i>h</i>	0.5	ft
Pier Length	<i>l</i>	7.5	ft
Mat Base Depth	<i>l+T-h</i>	10	ft
Mat Length	<i>L</i>	28	ft
Mat Width	<i>W</i>	28	ft
Mat Thickness	<i>T</i>	3	ft
Unit Weight of Concrete		150	pcf
Tower Eccentricity	ecc	0	ft
Tower Face Width	FW	0	ft
Tower Leg Count		1	

Reactions			
Moment, M_u		3,176.4	k-ft
Shear, V_u		29	k
Axial, P_u		62.3	k
Uplift, T_u		0	k
Tower Weight		62.3	k
Tower Dead Load Factor		0.9	

Soil Parameters			
Water Table Depth [BGL]	<i>GW</i>	5	ft
Unit Weight of Soil		135	pcf
Unit Weight of Soil [Submerged]		72.6	pcf
Shear Friction Coefficient		0.2	
Ultimate Bearing Pressure		24,000	psf
Bearing Pressure Type		Gross	
Conical Failure Angle		15	°
Capacity Increase (Transient Loads)		1.00	
Soil Strength Reduction Factor, ϕ_s		0.75	
Dead Load Factor		1.2	



Soil Capacities			
Design Moment, M_u		3,480.9	k-ft
Nominal Moment Capacity, $\phi_m M_n$		14,164.62	k-ft
$M_u / \phi_s M_n$		24.6%	
Net Bearing Pressure		1,564	k
Nominal Bearing Capacity, $\phi_b P_n$		18,000	k
Bearing Pressure Controlling Load Direction		Parallel to Pad Edge	
$P_u / \phi_s P_n$		8.7%	
Ultimate Friction Resistance		206.04	k
Ultimate Passive Pressure Resistance		78.04	k
Nominal Shear Capacity, $\phi_s V_n$		213.06	k
$V_u / \phi_s V_n$		14.0%	



Mat Reinforcement Parameters		
Concrete Compressive Strength, f'_c	3,000	psi
Mat Rebar Quantity [Lower]	48	
Mat Rebar Size # [Lower]	11	
Mat Single Rebar Area [Lower]	1.56	in ²
Mat Rebar Quantity [Upper]	48	
Mat Rebar Size # [Upper]	11	
Mat Single Rebar Area [Upper]	1.56	in ²
Mat Rebar Yield Strength, F_y	60	ksi
Mat Clear Cover	3	in
Bending Reduction Factor, ϕ_B	0.9	
Shear Reduction Factor, ϕ_V	0.75	
Compression Reduction Factor, ϕ_C	0.65	
Steel Elastic Modulus	29,000	ksi

Mat Reinforcement Capacities		
Compression Zone Factor, β_1	0.85	
Lower Reinforcement Spacing	7.01	in
Upper Reinforcement Spacing	7.01	in
One Way Design Shear, V_u	91.93	k
One Way Shear Capacity, ϕV_c	873.01	k
One Way Shear Controlling Load Direction	Parallel to Pad Edge	
$V_u / \phi V_c$	10.5%	
Punching Design Shear Stress, v_u	31.32	psi
Punching Shear Capacity, $\phi_c V_n$	164.32	psi
$v_u / \phi_c V_n$	19.1%	
Moment Transfer Effective Flexural Width, f	18.07	in
Neutral Axis Depth	5.41	In
Moment Transfer Flexural Capacity, $\phi M_{sc,f}$	78,926.04	k-in
$\gamma_f M_{sc} / \phi M_{sc,f}$	0.0%	
Flexure Due to Soil Pressure, M_u	1,961.3	k-ft
Lower Steel Mat Moment Capacity, ϕM_n	9,905.42	k-ft
Flexural Steel Controlling Load Direction	Parallel to Pad Edge	
$M_u / \phi M_n$	19.8%	
Flexure Due to Uplift, M_u	1,060.85	k-ft
Upper Steel Mat Moment Capacity, ϕM_n	9,905.42	k-ft
$M_u / \phi M_n$	10.7%	

