



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 65 ft Self Support Tower
ATC Asset Name : CORNWALL CT
ATC Asset Number : 88009
Engineering Number : 14093080_C3_04
Proposed Carrier : T-MOBILE
Carrier Site Name : CTNH545A
Carrier Site Number : CTNH545A
Site Location : 36 Toomey Rd.
Cornwall, CT 06759-4232
41.8213, -73.2964
County : Litchfield
Date : November 10, 2022
Max Usage : 36%
Analysis Result : Pass

Prepared By:

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Structural Engineer I

Reviewed



COA: PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 65 ft Self Support tower to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawing:	CSEI ATC Engineering #26472221, dated September 19, 2006
Foundation Drawing:	TEP Project #74252-101870, dated November 22, 2016
Geotechnical Report:	FDH Project #16PWAQ1600, dated November 30, 2016
Modification:	ATC Project #OAA687939_C6_07, dated November 6, 2017
Mount Analysis	Engineered Tower Solutions Job #22106323.STR.4552, dated April 21, 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:	114 mph (3-second gust)
Basic Wind Speed w/ Ice:	40 mph (3-second gust) w/ 1.00" radial ice concurrent
Code(s):	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Crest Height (H):	585 ft
Crest Length (L):	3106 ft
Spectral Response:	$S_s = 0.17, S_i = 0.05$
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/Reserved Loading

Elev.*	Qty	Equipment	Lines	Carrier
82.8'	1	5' Omni	-	UNKNOWN
73.8'	1	10' Dipole	-	UNKNOWN
70.3'	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	-	SPRINT NEXTEL
69.0'	6	Side Arm	-	SPRINT NEXTEL
68.7'	3	Alcatel-Lucent RRH2x50-08	-	SPRINT NEXTEL
68.5'	3	Alcatel-Lucent RRH2x40 (700)	-	SPRINT NEXTEL
68.4'	3	Commscope DT465B-2XR	-	SPRINT NEXTEL
68.2'	3	RFS APXVSP18-C-A20	-	SPRINT NEXTEL
68.0'	-	-	(3) 1 1/4" Hybriflex Cable	SPRINT NEXTEL
67.7'	3	Alcatel-Lucent 800 MHz RRH	-	SPRINT NEXTEL
65.0'	1	Fire Warden Cabin	-	-
	1	Andrew ABT-DFDM-ADB	(2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax	AT&T MOBILITY
	2	CCI DMP65R-BU4D		
	3	Ericsson RRUS 32 (50.8 lbs)		
	3	Ericsson RRUS 4449 B5, B12		
	3	Ericsson RRUS 4478 B14		
	3	Powerwave Allgon 7770.00A		
	4	CCI DMP65R-BU6DA		
6	Powerwave Allgon TT19-08BP111-001			
63.0'	1	Sinclair SV228-HF2SNM	(1) 7/8" Coax	US DEPT OF HOMELAND SECURITY
62.0'	1	Platform with Handrails	-	UNKNOWN
60.8'	1	Raycap DC6-48-60-18	-	AT&T MOBILITY
60.4'	1	Raycap DC6-48-60-18-8F	-	AT&T MOBILITY
55.3'	1	RFS DB-C1-12C-24AB-0Z	-	ALLTEL COMMUNICATIONS, LLC
55.0'	-	-	(2) 1 5/8" (1.63"-41.3mm) Fiber	ALLTEL COMMUNICATIONS, LLC
50.0'	1	Platform w/ Handrails	-	-
48.0'	3	Decibel 776QNB120EXM	(3) 1/2" Coax (12) 7/8" Coax	ALLTEL COMMUNICATIONS, LLC
	3	Alcatel-Lucent B25 RRH4x30-4R	(6) 1 5/8" Coax	ALLTEL COMMUNICATIONS, LLC
3	Alcatel-Lucent B66a RRH4x45 (AWS-3)			
3	Nokia AirScale RRH 4T4R B5 160W AHCA			
6	Antel LPA-80063/6CF			
6	Commscope JAHH-65B-R3B			
37.5'	1	Access Platform	-	-

(If table breaks across pages, please see previous page for data in merged cells)

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

Proposed Carrier Final Loading

Elev.*	Qty	Equipment	Lines	Carrier
56.0'	3	Commscope VV-65A-R1	(3) 1 5/8" (1.63"-41.3mm) Fiber (1) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Ericsson 4460 BAND 2/25		
	3	Ericsson AIR 6419 B41		
	3	Ericsson Radio 4449 B71 B85A		
	3	RFS APXVAALL24 43-U-NA20		
	3	Site Pro TPF123XX		

(If table breaks across pages, please see previous page for data in merged cells)

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

Install proposed lines alongside existing T-MOBILE lines.

Structure Usages

Structural Component	Usage	Pass/Fail
Legs	23%	Pass
Diagonals	36%	Pass
Horizontals	10%	Pass

Foundation Reactions & Usages

Reaction Component	Analysis Reactions	Usage
Uplift (k)	32.3	14%
Download (k)	54.6	3%
Shear (k)	11.8	9%

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.

Antenna Deflection, Twist, and Sway

Elev.	Antenna	Carrier	Deflection	Twist	Sway [Rotation]
63.0'	Sinclair SV228-HF2SNM	US DEPT OF HOMELAND SECURITY	0.114'	0.587°	0.303°

**Deflection, Twist 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 Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

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

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

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

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

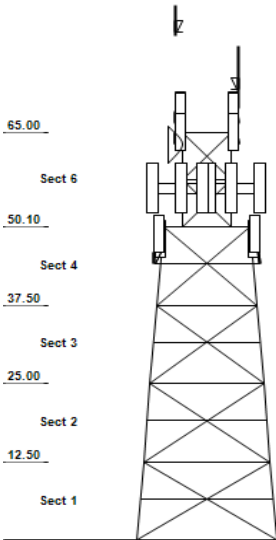
All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

ANALYSIS PARAMETERS

Nominal Wind: 114 mph	Ice Wind: 40 mph w/ 1" ice	Service Wind: 60 mph
Risk Category: II	Exposure: B	S_s: 0.173 S_t: 0.054
Topo Category: 3	Topo Factor: Method 2	Topo Feature: Flat
Structure Height: 65 ft	Base Elevation: 0 ft	Shape: Square
Base Width: 20 ft	Top Width: 7 ft	

Tower Elevation View

Quadrant 1



GLOBAL BASE REACTIONS

	DL+W/L	DL+W/L+IL
Moment (k-ft):	1183.28	279.81
Axial (k):	50.75	98.21
Shear (k):	26.00	5.88

INDIVIDUAL BASE REACTIONS

Comp (k):	54.55
Uplift (k):	32.26
Shear (k):	11.83

TOWER SECTION PROPERTIES

Section	Leg Members	Diagonal Members	Horizontal Members
1 - 2	SAE 33 ksi 6X6X0.625	SAU 36 ksi 4X3X0.25	DAL 36 ksi 3X2.5X0.25
3	SAE 33 ksi 6X6X0.5	SAU 36 ksi 3.5X3X0.25	DAL 36 ksi 3.5X3X0.3125
4	SAE 33 ksi 6X6X0.5	SAE 36 ksi 3.5x3.5x0.25	DAL 36 ksi 3.5X3X0.3125
5	SAE 33 ksi 6X6X0.5		
6	SAE 33 ksi 6X6X0.5	SAU 36 ksi 3X2X0.25	DAL 36 ksi 2.5X2X0.25

SECONDARY BRACING MEMBERS

Section	Sub Diagonal 1	Sub Diagonal 2	Sub Diagonal 3
1 - 2	-	-	-
3	-	-	-
4	-	-	-
5 - 6	-	-	-

Section	Sub Horizontal 1	Sub Horizontal 2	Sub Horizontal 3
1 - 2	S3X2.5X0.25	-	-
3	CC6 x 8.2	-	-
4	S2.5X2X0.25	-	-
5 - 6	-	-	-

DISCRETE APPURTENANCE

Elev (ft)	Description
82.8	(1) Generic 5' Omni
73.8	(1) Generic 10' Dipole
70.3	(3) Alcatel-Lucent TD-RRH8x20-25 w
69.0	(6) Generic Flat Side Arm
68.7	(3) Alcatel-Lucent RRH2x50-08
68.5	(3) Alcatel-Lucent RRH2x40 (700)
68.4	(3) Commscope DT465B-2XR
68.2	(3) RFS APXVSP18-C-A20
67.7	(3) Alcatel-Lucent 800 MHz RRH
65.0	(6) Powerwave Allgon TT19-08BP111-
65.0	(4) CCI DMP65R-BU6DA
65.0	(3) Powerwave Allgon 7770.00A
65.0	(3) Ericsson RRUS 32 (50.8 lbs)
65.0	(3) Ericsson RRUS 4449 B5, B12
65.0	(3) Ericsson RRUS 4478 B14
65.0	(2) CCI DMP65R-BU4D
65.0	(1) Andrew ABT-DFDM-ADB
65.0	(1) Fire Warden Cabin
63.0	(1) Sinclair SV228-HF2SNM
62.0	(1) Platform with Handrails
60.8	(1) Raycap DC6-48-60-18
60.4	(1) Raycap DC6-48-60-18-8F
56.0	(3) Ericsson AIR 6419 B41
56.0	(3) RFS APXVAALL24 43-U-NA20
56.0	(3) Commscope VV-65A-R1
56.0	(3) Ericsson Radio 4449 B71 B85A
56.0	(3) Ericsson 4460 BAND 2/25
56.0	(3) Site Pro TPF123XX
55.3	(1) RFS DB-C1-12C-24AB-0Z
50.0	(1) Platform w/ Handrails
48.0	(3) Decibel 776QNB120EXM
46.0	(6) Antel LPA-80063/6CF
46.0	(6) Commscope JAHH-65B-R3B
46.0	(3) Alcatel-Lucent B66a RRH4x45 (A
46.0	(3) Alcatel-Lucent B25 RRH4x30-4R
46.0	(3) Nokia AirScale RRH 4T4R B5 160
37.5	(1) Access Platform

LINEAR APPURTENANCE

Elev To (ft)	Description
68.0	(3) 1 1/4" Hybriflex Cable
67.0	(1) Waveguide
67.0	(1) Climbing Ladder
65.0	(12) 1 1/4" Coax
65.0	(4) 0.78" (19.7mm) 8 AWG 6
65.0	(2) 0.39" (10mm) Fiber Trunk
63.0	(1) 7/8" Coax
56.0	(3) 1 5/8" (1.63"-41.3mm) Fiber
56.0	(1) Waveguide
56.0	(1) 1.99" (50.7mm) Hybrid
55.0	(2) 1 5/8" (1.63"-41.3mm) Fiber
48.0	(12) 7/8" Coax
48.0	(3) 1/2" Coax
46.0	(6) 1 5/8" Coax

ASSET: 88009, CORNWALL CT

CODE: ANSI/TIA-222-H

CUSTOMER: T-MOBILE

PROJECT: 14093080_C3_04

ANALYSIS PARAMETERS

Location:	Litchfield County, CT	Height:	65 ft
Type and Shape:	Self Support, Square	Base Elevation:	0.00 ft
Manufacturer:	Undetermined	Bottom Face Width:	20.00 ft
Kd	0.85	Top Face Width:	7.00 ft
Ke:	0.94	Anchor Bolt Detail Type:	c

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed Without Ice:	114 mph
Risk Category:	II	Design Wind Speed with Ice:	40 mph
Topographic Factor Procedure:	Method 2	Operational Windspeed:	60 mph
		Design Ice Thickness:	1.00 in
		HMSL:	1678 ft
Crest Height(H):	585 ft		
Crest Length(L):	3106 ft	Distance from Apex (x):	0
Feature:	Flat	Upwind/Downwind:	Upwind

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	0.59
T_L (sec):	6	P:	1.3
S_s:	0.173	S₁:	0.054
F_a:	1.600	F_v:	2.400
S_{ds}:	0.185	S_{d1}:	0.086
		C_s:	0.049
		C_{s, Max}:	0.049
		C_{s, Min}:	0.030

LOAD CASES

1.2D + 1.0W Normal	1.2D + 1.0W Normal114 mph Wind with No Ice
1.2D + 1.0W 45°	1.2D + 1.0W 45°114 mph Wind with No Ice
0.9D + 1.0W Normal	0.9D + 1.0W Normal114 mph Wind with No Ice (Reduced DL)
0.9D + 1.0W 45°	0.9D + 1.0W 45°114 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi Normal	1.2D + 1.0Di + 1.0Wi Normal40 mph Wind with 1" Radial Ice
1.2D + 1.0Di + 1.0Wi 45°	1.2D + 1.0Di + 1.0Wi 45°40 mph Wind with 1" Radial Ice
1.2D + 1.0Ev + 1.0Eh Normal	1.2D + 1.0Ev + 1.0Eh NormalSeismic
1.2D + 1.0Ev + 1.0Eh 45°	1.2D + 1.0Ev + 1.0Eh 45°Seismic
0.9D - 1.0Ev + 1.0Eh Normal	0.9D - 1.0Ev + 1.0Eh NormalSeismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 45°	0.9D - 1.0Ev + 1.0Eh 45°Seismic (Reduced DL)
1.0D + 1.0W Service Normal	1.0D + 1.0W Service Normal60 mph Wind with No Ice
1.0D + 1.0W Service 45°	1.0D + 1.0W Service 45°60 mph Wind with No Ice

TOWER LOADING – DISCRETE APPURTENANCE

Discrete Appurtenance Properties for LC: 1.2D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc. (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
82.8	Generic 5' Omni	1	10	1.0	5.0	2.0	2.0	1.00	1.00	0.0	0.00	24.92	21	12
73.8	Generic 10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	0.0	0.00	24.11	77	36
70.3	Alcatel-Lucent TD-RRH8x20-25 w	3	70	4.0	2.2	18.6	6.7	0.80	0.61	0.0	0.00	23.78	120	252
69.0	Generic Flat Side Arm	6	188	6.3	0.0	0.0	0.0	1.00	0.67	0.0	0.00	23.65	509	1350
68.7	Alcatel-Lucent RRH2x50-08	3	53	1.7	1.3	13.0	9.8	0.80	0.50	0.0	0.00	23.62	41	190
68.5	Alcatel-Lucent RRH2x40 (700)	3	50	2.1	1.7	12.2	10.6	0.80	0.67	0.0	0.00	23.60	69	180
68.4	Commscope DT465B-2XR	3	58	9.1	6.0	13.8	8.2	0.80	0.69	0.0	0.00	23.60	302	209
68.2	RFS APXVSP18-C-A20	3	57	8.0	6.0	11.8	7.0	0.80	0.69	0.0	0.00	23.58	266	205
67.7	Alcatel-Lucent 800 MHz RRH	3	53	2.1	1.6	13.0	10.8	0.80	0.67	0.0	0.00	23.53	69	191
65.0	Andrew ABT-DFDM-ADB	1	1	0.0	0.3	1.7	1.6	0.80	1.00	2.0	1.44	23.46	1	1
65.0	Powerwave Allgon TT19-08BP111-	6	16	0.6	0.8	6.7	5.4	0.80	0.50	2.0	52.92	23.46	26	115
65.0	Ericsson RRUS 4478 B14	3	60	1.8	1.4	13.4	7.7	0.75	0.50	0.0	0.00	23.25	41	216
65.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	9.4	0.75	0.50	-4.0	171.98	22.84	43	256
65.0	Ericsson RRUS 32 (50.8 lbs)	3	51	2.7	2.2	12.1	6.7	0.80	0.67	2.0	172.61	23.46	86	183
65.0	Powerwave Allgon 7770.00A	3	27	5.6	4.6	11.0	4.9	0.80	0.65	2.0	345.55	23.46	173	97
65.0	CCI DMP65R-BU4D	2	68	8.3	4.0	20.7	7.7	0.75	0.72	0.0	0.00	23.25	177	163
65.0	CCI DMP65R-BU6DA	4	79	12.7	5.9	20.7	7.7	0.75	0.63	0.0	0.00	23.25	475	381
65.0	Fire Warden Cabin	1	2000	150.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	23.25	2965	2400
63.0	Sinclair SV228-HF2SNM	1	93	15.8	6.0	116.0	62.0	1.00	1.00	0.0	0.00	23.05	310	112
62.0	Platform with Handrails	1	2000	27.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	22.94	530	2400
60.8	Raycap DC6-48-60-18	1	30	3.8	2.3	16.7	5.5	0.75	1.00	0.0	0.00	22.81	55	36
60.4	Raycap DC6-48-60-18-8F	1	20	1.3	2.0	9.7	9.7	0.80	1.00	2.0	39.39	22.98	20	24
56.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.0	0.00	22.28	38	270
56.0	Ericsson 4460 BAND 2/25	3	109	2.6	1.6	15.7	12.1	0.80	0.67	0.0	0.00	22.28	78	392
56.0	Commscope VV-65A-R1	3	24	5.9	4.6	12.1	4.6	0.80	0.63	0.0	0.00	22.28	170	86
56.0	Ericsson AIR 6419 B41	3	83	6.3	3.0	20.9	9.0	0.80	0.63	0.0	0.00	22.28	181	300
56.0	Site Pro TPF123XX	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.00	22.28	411	1080
56.0	RFS APXVAALL24 43-U-NA20	3	123	20.2	8.0	24.0	8.5	0.80	0.63	0.0	0.00	22.28	580	442
55.3	RFS DB-C1-12C-24AB-0Z	1	32	4.1	2.5	16.5	12.6	0.75	1.00	1.0	57.71	22.32	58	38
50.0	Platform w/ Handrails	1	5000	70.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	21.57	1284	6000
48.0	Decibel 776QNB120EXM	3	117	22.2	6.0	37.0	9.5	0.80	0.59	0.0	0.00	21.32	570	421
46.0	Nokia AirScale RRH 4T4R B5 160	3	35	1.3	1.1	11.6	6.5	0.80	0.50	0.0	0.00	21.07	28	127
46.0	Alcatel-Lucent B25 RRH4x30-4R	3	51	2.1	1.8	12.0	7.2	1.00	0.67	0.0	0.00	21.07	77	184
46.0	Alcatel-Lucent B66a RRH4x45 (A	3	67	2.7	2.2	12.0	6.8	1.00	0.67	0.0	0.00	21.07	96	241
46.0	Commscope JAHH-65B-R3B	6	61	9.1	6.0	13.8	8.2	0.75	0.69	1.0	509.80	21.20	510	436
46.0	Antel LPA-80063/6CF	6	27	9.6	5.9	15.0	13.1	0.75	0.76	0.0	0.00	21.07	587	194
37.5	Access Platform	1	5000	45.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	19.87	760	6000
Totals		101	21,018	898.5									11,802	25,221

Discrete Appurtenance Properties for LC: 0.9D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc. (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
82.8	Generic 5' Omni	1	10	1.0	5.0	2.0	2.0	1.00	1.00	0.0	0.00	24.92	21	9
73.8	Generic 10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	0.0	0.00	24.11	77	27
70.3	Alcatel-Lucent TD-RRH8x20-25 w	3	70	4.0	2.2	18.6	6.7	0.80	0.61	0.0	0.00	23.78	120	189
69.0	Generic Flat Side Arm	6	188	6.3	0.0	0.0	0.0	1.00	0.67	0.0	0.00	23.65	509	1012
68.7	Alcatel-Lucent RRH2x50-08	3	53	1.7	1.3	13.0	9.8	0.80	0.50	0.0	0.00	23.62	41	143
68.5	Alcatel-Lucent RRH2x40 (700)	3	50	2.1	1.7	12.2	10.6	0.80	0.67	0.0	0.00	23.60	69	135
68.4	Commscope DT465B-2XR	3	58	9.1	6.0	13.8	8.2	0.80	0.69	0.0	0.00	23.60	302	157
68.2	RFS APXVSP18-C-A20	3	57	8.0	6.0	11.8	7.0	0.80	0.69	0.0	0.00	23.58	266	154
67.7	Alcatel-Lucent 800 MHz RRH	3	53	2.1	1.6	13.0	10.8	0.80	0.67	0.0	0.00	23.53	69	143
65.0	Andrew ABT-DFDM-ADB	1	1	0.0	0.3	1.7	1.6	0.80	1.00	2.0	1.44	23.46	1	1
65.0	Powerwave Allgon TT19-08BP111-	6	16	0.6	0.8	6.7	5.4	0.80	0.50	2.0	52.92	23.46	26	86
65.0	Ericsson RRUS 4478 B14	3	60	1.8	1.4	13.4	7.7	0.75	0.50	0.0	0.00	23.25	41	162
65.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	9.4	0.75	0.50	-4.0	171.98	22.84	43	192
65.0	Ericsson RRUS 32 (50.8 lbs)	3	51	2.7	2.2	12.1	6.7	0.80	0.67	2.0	172.61	23.46	86	137
65.0	Powerwave Allgon 7770.00A	3	27	5.6	4.6	11.0	4.9	0.80	0.65	2.0	345.55	23.46	173	73
65.0	CCI DMP65R-BU4D	2	68	8.3	4.0	20.7	7.7	0.75	0.72	0.0	0.00	23.25	177	122
65.0	CCI DMP65R-BU6DA	4	79	12.7	5.9	20.7	7.7	0.75	0.63	0.0	0.00	23.25	475	286
65.0	Fire Warden Cabin	1	2000	150.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	23.25	2965	1800
63.0	Sinclair SV228-HF2SNM	1	93	15.8	6.0	116.0	62.0	1.00	1.00	0.0	0.00	23.05	310	84
62.0	Platform with Handrails	1	2000	27.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	22.94	530	1800
60.8	Raycap DC6-48-60-18	1	30	3.8	2.3	16.7	5.5	0.75	1.00	0.0	0.00	22.81	55	27
60.4	Raycap DC6-48-60-18-8F	1	20	1.3	2.0	9.7	9.7	0.80	1.00	2.0	39.39	22.98	20	18
56.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.0	0.00	22.28	38	202
56.0	Ericsson 4460 BAND 2/25	3	109	2.6	1.6	15.7	12.1	0.80	0.67	0.0	0.00	22.28	78	294
56.0	Commscope VV-65A-R1	3	24	5.9	4.6	12.1	4.6	0.80	0.63	0.0	0.00	22.28	170	64
56.0	Ericsson AIR 6419 B41	3	83	6.3	3.0	20.9	9.0	0.80	0.63	0.0	0.00	22.28	181	225
56.0	Site Pro TPF123XX	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.00	22.28	411	810
56.0	RFS APXVAALL24 43-U-NA20	3	123	20.2	8.0	24.0	8.5	0.80	0.63	0.0	0.00	22.28	580	332
55.3	RFS DB-C1-12C-24AB-0Z	1	32	4.1	2.5	16.5	12.6	0.75	1.00	1.0	57.71	22.32	58	29
50.0	Platform w/ Handrails	1	5000	70.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	21.57	1284	4500
48.0	Decibel 776QNB120EXM	3	117	22.2	6.0	37.0	9.5	0.80	0.59	0.0	0.00	21.32	570	316
46.0	Nokia AirScale RRH 4T4R B5 160	3	35	1.3	1.1	11.6	6.5	0.80	0.50	0.0	0.00	21.07	28	95
46.0	Alcatel-Lucent B25 RRH4x30-4R	3	51	2.1	1.8	12.0	7.2	1.00	0.67	0.0	0.00	21.07	77	138

ASSET: 88009, CORNWALL CT

CODE: ANSI/TIA-222-H

CUSTOMER: T-MOBILE

PROJECT: 14093080_C3_04

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc. (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
46.0	Alcatel-Lucent B66a RRH4x45 (A)	3	67	2.7	2.2	12.0	6.8	1.00	0.67	0.0	0.00	21.07	96	181
46.0	Commscope JAHH-65B-R3B	6	61	9.1	6.0	13.8	8.2	0.75	0.69	1.0	509.80	21.20	510	327
46.0	Antel LPA-80063/6CF	6	27	9.6	5.9	15.0	13.1	0.75	0.76	0.0	0.00	21.07	587	146
37.5	Access Platform	1	5000	45.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	19.87	760	4500
Totals		101	21,018	898.5									11,802	18,916

Discrete Appurtenance Properties for LC: 1.2D + 1.0Di + 1.0Wi

Elev (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc. (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
82.8	Generic 5' Omni	1	27	1.8	5.0	2.0	2.0	1.00	1.00	0.0	0.00	3.07	5	29
73.8	Generic 10' Dipole	1	98	7.4	10.0	3.0	3.0	1.00	1.00	0.0	0.00	2.97	19	104
70.3	Alcatel-Lucent TD-RRH8x20-25 w	3	127	4.9	2.2	18.6	6.7	0.80	0.61	0.0	0.00	2.93	18	424
69.0	Generic Flat Side Arm	6	268	8.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	2.91	82	1835
68.7	Alcatel-Lucent RRH2x50-08	3	89	2.2	1.3	13.0	9.8	0.80	0.50	0.0	0.00	2.91	7	298
68.5	Alcatel-Lucent RRH2x40 (700)	3	95	2.7	1.7	12.2	10.6	0.80	0.67	0.0	0.00	2.91	11	314
68.4	Commscope DT465B-2XR	3	181	10.8	6.0	13.8	8.2	0.80	0.69	0.0	0.00	2.90	44	577
68.2	RFS APXVSP18-C-A20	3	162	9.7	6.0	11.8	7.0	0.80	0.69	0.0	0.00	2.90	40	519
67.7	Alcatel-Lucent 800 MHz RRH	3	98	2.7	1.6	13.0	10.8	0.80	0.67	0.0	0.00	2.90	11	325
65.0	Andrew ABT-DFDM-ADB	1	2	0.2	0.3	1.7	1.6	0.80	1.00	2.0	0.59	2.89	0	3
65.0	Powerwave Allgon TT19-08BP111-	6	28	0.9	0.8	6.7	5.4	0.80	0.50	2.0	10.17	2.89	5	189
65.0	Ericsson RRUS 4478 B14	3	93	2.4	1.4	13.4	7.7	0.75	0.50	0.0	0.00	2.86	7	316
65.0	Ericsson RRUS 4449 B5, B12	3	110	2.5	1.5	13.2	9.4	0.75	0.50	-4.0	27.26	2.81	7	373
65.0	Ericsson RRUS 32 (50.8 lbs)	3	94	3.4	2.2	12.1	6.7	0.80	0.67	2.0	26.79	2.89	13	313
65.0	Powerwave Allgon 7770.00A	3	96	6.9	4.6	11.0	4.9	0.80	0.65	2.0	52.47	2.89	26	305
65.0	CCI DMP65R-BU4D	2	178	9.5	4.0	20.7	7.7	0.75	0.72	0.0	0.00	2.86	25	382
65.0	CCI DMP65R-BU6DA	4	236	14.4	5.9	20.7	7.7	0.75	0.63	0.0	0.00	2.86	66	1007
65.0	Fire Warden Cabin	1	4537	498.9	0.0	0.0	0.0	1.00	1.00	0.0	0.00	2.86	1214	4937
63.0	Sinclair SV228-HF2SNM	1	383	42.9	6.0	116.0	62.0	1.00	1.00	0.0	0.00	2.84	103	402
62.0	Platform with Handrails	1	2787	42.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	2.82	101	3187
60.8	Raycap DC6-48-60-18	1	81	4.6	2.3	16.7	5.5	0.75	1.00	0.0	0.00	2.81	8	87
60.4	Raycap DC6-48-60-18-8F	1	52	1.7	2.0	9.7	9.7	0.80	1.00	2.0	6.39	2.83	3	56
56.0	Ericsson Radio 4449 B71 B85A	3	112	2.2	1.3	13.2	10.5	0.80	0.50	0.0	0.00	2.74	6	380
56.0	Ericsson 4460 BAND 2/25	3	163	3.2	1.6	15.7	12.1	0.80	0.67	0.0	0.00	2.74	12	553
56.0	Commscope VV-65A-R1	3	95	7.2	4.6	12.1	4.6	0.80	0.63	0.0	0.00	2.74	25	300
56.0	Ericsson AIR 6419 B41	3	175	7.3	3.0	20.9	9.0	0.80	0.63	0.0	0.00	2.74	26	575
56.0	Site Pro TPF123XX	3	523	24.4	0.0	0.0	0.0	0.75	0.67	0.0	0.00	2.74	86	1750
56.0	RFS APXVAALL24 43-U-NA20	3	359	22.5	8.0	24.0	8.5	0.80	0.63	0.0	0.00	2.74	79	1151
55.3	RFS DB-C1-12C-24AB-OZ	1	109	4.9	2.5	16.5	12.6	0.75	1.00	1.0	8.56	2.75	9	116
50.0	Platform w/ Handrails	1	12200	214.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	2.66	483	13200
48.0	Decibel 776QNB120EXM	3	380	23.3	6.0	37.0	9.5	0.80	0.59	0.0	0.00	2.63	74	1211
46.0	Nokia AirScale RRH 4T4R B5 160	3	59	1.7	1.1	11.6	6.5	0.80	0.50	0.0	0.00	2.59	5	197
46.0	Alcatel-Lucent B25 RRH4x30-4R	3	87	2.7	1.8	12.0	7.2	1.00	0.67	0.0	0.00	2.59	12	291
46.0	Alcatel-Lucent B66a RRH4x45 (A)	3	109	3.3	2.2	12.0	6.8	1.00	0.67	0.0	0.00	2.59	15	367
46.0	Commscope JAHH-65B-R3B	6	180	10.8	6.0	13.8	8.2	0.75	0.69	1.0	74.05	2.61	74	1153
46.0	Antel LPA-80063/6CF	6	187	10.4	5.9	15.0	13.1	0.75	0.76	0.0	0.00	2.59	78	1153
37.5	Access Platform	1	12161	134.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	2.45	280	13161
Totals		101	47,336	1649.1									3078	51,539

Discrete Appurtenance Properties for LC: 1.0D + 1.0W Service

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc. (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
82.8	Generic 5' Omni	1	10	1.0	5.0	2.0	2.0	1.00	1.00	0.0	0.00	6.90	6	10
73.8	Generic 10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	0.0	0.00	6.68	21	30
70.3	Alcatel-Lucent TD-RRH8x20-25 w	3	70	4.0	2.2	18.6	6.7	0.80	0.61	0.0	0.00	6.59	33	210
69.0	Generic Flat Side Arm	6	188	6.3	0.0	0.0	0.0	1.00	0.67	0.0	0.00	6.55	141	1125
68.7	Alcatel-Lucent RRH2x50-08	3	53	1.7	1.3	13.0	9.8	0.80	0.50	0.0	0.00	6.54	11	159
68.5	Alcatel-Lucent RRH2x40 (700)	3	50	2.1	1.7	12.2	10.6	0.80	0.67	0.0	0.00	6.54	19	150
68.4	Commscope DT465B-2XR	3	58	9.1	6.0	13.8	8.2	0.80	0.69	0.0	0.00	6.54	84	174
68.2	RFS APXVSP18-C-A20	3	57	8.0	6.0	11.8	7.0	0.80	0.69	0.0	0.00	6.53	74	171
67.7	Alcatel-Lucent 800 MHz RRH	3	53	2.1	1.6	13.0	10.8	0.80	0.67	0.0	0.00	6.52	19	159
65.0	Andrew ABT-DFDM-ADB	1	1	0.0	0.3	1.7	1.6	0.80	1.00	2.0	0.40	6.50	0	1
65.0	Powerwave Allgon TT19-08BP111-	6	16	0.6	0.8	6.7	5.4	0.80	0.50	2.0	14.66	6.50	7	96
65.0	Ericsson RRUS 4478 B14	3	60	1.8	1.4	13.4	7.7	0.75	0.50	0.0	0.00	6.44	11	180
65.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	9.4	0.75	0.50	-4.0	47.64	6.33	12	213
65.0	Ericsson RRUS 32 (50.8 lbs)	3	51	2.7	2.2	12.1	6.7	0.80	0.67	2.0	47.81	6.50	24	152
65.0	Powerwave Allgon 7770.00A	3	27	5.6	4.6	11.0	4.9	0.80	0.65	2.0	95.72	6.50	48	81
65.0	CCI DMP65R-BU4D	2	68	8.3	4.0	20.7	7.7	0.75	0.72	0.0	0.00	6.44	49	136
65.0	CCI DMP65R-BU6DA	4	79	12.7	5.9	20.7	7.7	0.75	0.63	0.0	0.00	6.44	132	318
65.0	Fire Warden Cabin	1	2000	150.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	6.44	821	2000
63.0	Sinclair SV228-HF2SNM	1	93	15.8	6.0	116.0	62.0	1.00	1.00	0.0	0.00	6.38	86	93
62.0	Platform with Handrails	1	2000	27.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	6.36	147	2000
60.8	Raycap DC6-48-60-18	1	30	3.8	2.3	16.7	5.5	0.75	1.00	0.0	0.00	6.32	15	30
60.4	Raycap DC6-48-60-18-8F	1	20	1.3	2.0	9.7	9.7	0.80	1.00	2.0	10.91	6.37	5	20
56.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.0	0.00	6.17	10	225
56.0	Ericsson 4460 BAND 2/25	3	109	2.6	1.6	15.7	12.1	0.80	0.67	0.0	0.00	6.17	22	327
56.0	Commscope VV-65A-R1	3	24	5.9	4.6	12.1	4.6	0.80	0.63	0.0	0.00	6.17	47	71

ASSET: 88009, CORNWALL CT

CODE: ANSI/TIA-222-H

CUSTOMER: T-MOBILE

PROJECT: 14093080_C3_04

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc. (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
56.0	Ericsson Air 6419 B41	3	83	6.3	3.0	20.9	9.0	0.80	0.63	0.0	0.00	6.17	50	250
56.0	Site Pro TPF123XX	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.00	6.17	114	900
56.0	RFS APXVAALL24 43-U-NA20	3	123	20.2	8.0	24.0	8.5	0.80	0.63	0.0	0.00	6.17	161	368
55.3	RFS DB-C1-12C-24AB-0Z	1	32	4.1	2.5	16.5	12.6	0.75	1.00	1.0	15.99	6.18	16	32
50.0	Platfrom w/ Handrails	1	5000	70.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	5.98	356	5000
48.0	Decibel 776QNB120EXM	3	117	22.2	6.0	37.0	9.5	0.80	0.59	0.0	0.00	5.91	158	351
46.0	Nokia AirScale RRH 4T4R B5 160	3	35	1.3	1.1	11.6	6.5	0.80	0.50	0.0	0.00	5.84	8	106
46.0	Alcatel-Lucent B25 RRH4x30-4R	3	51	2.1	1.8	12.0	7.2	1.00	0.67	0.0	0.00	5.84	21	153
46.0	Alcatel-Lucent B66a RRH4x45 (A	3	67	2.7	2.2	12.0	6.8	1.00	0.67	0.0	0.00	5.84	27	201
46.0	Commscope JAHH-65B-R3B	6	61	9.1	6.0	13.8	8.2	0.75	0.69	1.0	141.22	5.87	141	364
46.0	Antel LPA-80063/6CF	6	27	9.6	5.9	15.0	13.1	0.75	0.76	0.0	0.00	5.84	163	162
37.5	Access Platform	1	5000	45.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	5.50	211	5000
Totals		101	21,018	898.5									3,269	21,018

ASSET: 88009, CORNWALL CT

CODE: ANSI/TIA-222-H

CUSTOMER: T-MOBILE

PROJECT: 14093080_C3_04

TOWER LOADING – LINEAR APPURTENANCE

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	% In Wind	Spread On Faces	Bundling	Cluster Dia (in)	Out of Zone	Spacing (in)	Orient. Factor	K _a Override
0.0	68.0	1 1/4" Hybriflex Cable	3	1.54	1.00	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	67.0	Climbing Ladder	1	2.00	6.90	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	67.0	Waveguide	1	2.00	6.00	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	65.0	0.78" (19.7mm) 8 AWG 6	4	0.78	0.59	100	None	Individual	0.00	N	1.00	1.00	0.00
0.0	65.0	1 1/4" Coax	12	1.55	0.63	33	1	Block	0.00	N	1.00	1.00	0.00
0.0	65.0	0.39" (10mm) Fiber Trunk	2	0.39	0.06	100	None	Individual	0.00	N	1.00	1.00	0.00
0.0	63.0	7/8" Coax	1	1.09	0.33	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	56.0	1.99" (50.7mm) Hybrid	1	1.99	1.90	100	None	Individual	0.00	N	1.00	1.00	0.00
0.0	56.0	1 5/8" (1.63"-41.3mm) Fiber	3	1.63	1.61	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	56.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	55.0	1 5/8" (1.63"-41.3mm) Fiber	2	1.63	1.61	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	48.0	7/8" Coax	12	1.09	0.33	100	None	Individual	0.00	N	1.00	1.00	0.00
0.0	48.0	1/2" Coax	3	0.63	0.15	100	None	Individual	0.00	N	1.00	1.00	0.00
0.0	46.0	1 5/8" Coax	6	1.98	0.82	67	1	Block	0.00	N	1.00	1.00	0.00

SECTION FORCES

1.2D + 1.0W Normal
114 mph Wind with No Ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Section #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
6	58	22.46	30.065	0.000	0.00	0.269	2.70	1.00	1.00	0.0	30.06	81.24	0.00	3537	0	1551	559	2110	
5	50	21.58	4.279	0.000	0.00	1.000	2.10	1.00	1.00	0.0	4.28	8.99	0.00	408	0	165	0	39	
4	44	20.77	32.213	0.000	0.00	0.185	3.05	1.00	1.00	0.0	32.21	98.12	0.00	4908	0	1732	820	2551	
3	31	18.86	39.046	0.000	0.00	0.198	2.99	1.00	1.00	0.0	39.05	116.77	0.00	5573	0	1872	819	2691	
2	19	18.63	38.105	0.000	0.00	0.172	3.10	1.00	1.00	0.0	38.10	118.20	0.00	5408	0	1872	809	2680	
1	6	18.63	40.268	0.000	0.00	0.165	3.14	1.00	1.00	0.0	40.27	126.32	0.00	5699	0	2000	809	2809	
														Totals	25,534	0			12,881

** = Section Force Exceeds Solidity Ratio Criteria

1.2D + 1.0W 45°
114 mph Wind with No Ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Section #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
6	58	22.46	30.065	0.000	0.00	0.269	2.70	1.20	1.20	0.0	36.08	97.49	0.00	3537	0	1861	559	2420	
5	50	21.58	4.279	0.000	0.00	1.000	2.10	1.20	1.20	0.0	5.14	10.78	0.00	408	0	198	0	39	
4	44	20.77	32.213	0.000	0.00	0.185	3.05	1.14	1.14	0.0	36.68	111.72	0.00	4908	0	1972	820	2792	
3	31	18.86	39.046	0.000	0.00	0.198	2.99	1.15	1.15	0.0	44.83	134.07	0.00	5573	0	2150	819	2969	
2	19	18.63	38.105	0.000	0.00	0.172	3.10	1.13	1.13	0.0	43.03	133.48	0.00	5408	0	2114	809	2922	
1	6	18.63	40.268	0.000	0.00	0.165	3.14	1.12	1.12	0.0	45.24	141.92	0.00	5699	0	2247	809	3056	
														Totals	25,534	0			14,198

** = Section Force Exceeds Solidity Ratio Criteria

0.9D + 1.0W Normal
114 mph Wind with No Ice (Reduced DL)

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Section #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
6	58	22.46	30.065	0.000	0.00	0.269	2.70	1.00	1.00	0.0	30.06	81.24	0.00	2653	0	1551	559	2110	
5	50	21.58	4.279	0.000	0.00	1.000	2.10	1.00	1.00	0.0	4.28	8.99	0.00	306	0	165	0	39	
4	44	20.77	32.213	0.000	0.00	0.185	3.05	1.14	1.14	0.0	36.68	111.72	0.00	3681	0	1732	820	2551	
3	31	18.86	39.046	0.000	0.00	0.198	2.99	1.15	1.15	0.0	44.83	134.07	0.00	4180	0	2150	819	2969	
2	19	18.63	38.105	0.000	0.00	0.172	3.10	1.00	1.00	0.0	38.10	118.20	0.00	4056	0	1872	809	2680	
1	6	18.63	40.268	0.000	0.00	0.165	3.14	1.12	1.12	0.0	45.24	141.92	0.00	4274	0	2247	809	2809	
														Totals	19,150	0			12,881

** = Section Force Exceeds Solidity Ratio Criteria

0.9D + 1.0W 45°
114 mph Wind with No Ice (Reduced DL)

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Section #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
6	58	22.46	30.065	0.000	0.00	0.269	2.70	1.20	1.20	0.0	36.08	97.49	0.00	2653	0	1861	559	2420	
5	50	21.58	4.279	0.000	0.00	1.000	2.10	1.20	1.20	0.0	5.14	10.78	0.00	306	0	198	0	39	
4	44	20.77	32.213	0.000	0.00	0.185	3.05	1.14	1.14	0.0	36.68	111.72	0.00	3681	0	1972	820	2792	
3	31	18.86	39.046	0.000	0.00	0.198	2.99	1.15	1.15	0.0	44.83	134.07	0.00	4180	0	2150	819	2969	
2	19	18.63	38.105	0.000	0.00	0.172	3.10	1.13	1.13	0.0	43.03	133.48	0.00	4056	0	2114	809	2922	
1	6	18.63	40.268	0.000	0.00	0.165	3.14	1.12	1.12	0.0	45.24	141.92	0.00	4274	0	2247	809	3056	
														Totals	19,150	0			14,198

** = Section Force Exceeds Solidity Ratio Criteria

1.2D + 1.0Di + 1.0Wi Normal
40 mph Wind with 1" Radial Ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00
Ice Importance Factor: 1.00
Ice Dead Load Factor: 1.00

Section #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
6	58	2.76	30.065	16.415	16.42	0.406	2.26	1.00	1.00	1.1	46.48	105.18	16.42	6649	3112	247	144	392	
5	50	2.66	4.279	1.487	1.49	1.000	2.10	1.00	1.00	1.0	5.77	12.11	1.49	597	190	27	0	5	
4	44	2.56	32.213	14.029	14.03	0.262	2.73	1.00	1.00	1.0	46.24	126.15	14.03	9319	4411	274	257	531	
3	31	2.32	39.046	14.422	14.42	0.268	2.71	1.00	1.00	1.0	53.47	144.75	14.42	10348	4775	286	248	534	
2	19	2.29	38.105	14.543	14.54	0.236	2.83	1.00	1.00	0.9	52.65	149.01	14.54	9906	4498	290	246	536	
1	6	2.29	40.268	13.799	13.80	0.220	2.90	1.00	1.00	0.8	54.07	156.66	13.80	9854	4155	305	236	541	
														Totals	46,674	21,141			2,539

** = Section Force Exceeds Solidity Ratio Criteria

1.2D + 1.0Di + 1.0Wi 45°
40 mph Wind with 1" Radial Ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00
Ice Importance Factor: 1.00
Ice Dead Load Factor: 1.00

Section #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
6	58	2.76	30.065	16.415	16.42	0.406	2.26	1.20	1.20	1.1	55.78	126.22	16.42	6649	3112	297	144	441	
5	50	2.66	4.279	1.487	1.49	1.000	2.10	1.20	1.20	1.0	6.92	14.53	1.49	597	190	33	0	5	
4	44	2.56	32.213	14.029	14.03	0.262	2.73	1.20	1.20	1.0	55.33	150.96	14.03	9319	4411	328	257	585	
3	31	2.32	39.046	14.422	14.42	0.268	2.71	1.20	1.20	1.0	64.16	173.70	14.42	10348	4775	343	248	591	
2	19	2.29	38.105	14.543	14.54	0.236	2.83	1.18	1.18	0.9	61.97	175.38	14.54	9906	4498	342	246	588	
1	6	2.29	40.268	13.799	13.80	0.220	2.90	1.16	1.16	0.8	62.97	182.46	13.80	9854	4155	356	236	592	
														Totals	46,674	21,141			2,801

** = Section Force Exceeds Solidity Ratio Criteria

SECTION FORCES

1.0D + 1.0W Service Normal
60 mph Wind with No Ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Section #	Elev (ft)	Q _z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
6	58	6.22	30.065	0.000	0.00	0.269	2.70	1.00	1.00	0.0	30.06	81.24	0.00	2948	0	430	155	584	
5	50	5.98	4.279	0.000	0.00	1.000	2.10	1.00	1.00	0.0	4.28	8.99	0.00	340	0	46	0	11	
4	44	5.75	32.213	0.000	0.00	0.185	3.05	1.00	1.00	0.0	32.21	98.12	0.00	4090	0	480	227	707	
3	31	5.23	39.046	0.000	0.00	0.198	2.99	1.00	1.00	0.0	39.05	116.77	0.00	4645	0	519	227	745	
2	19	5.16	38.105	0.000	0.00	0.172	3.10	1.00	1.00	0.0	38.10	118.20	0.00	4506	0	518	224	742	
1	6	5.16	40.268	0.000	0.00	0.165	3.14	1.00	1.00	0.0	40.27	126.32	0.00	4749	0	554	224	778	
														Totals	21,278	0			3,568

** = Section Force Exceeds Solidity Ratio Criteria

1.0D + 1.0W Service 45°
60 mph Wind with No Ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Section #	Elev (ft)	Q _z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
6	58	6.22	30.065	0.000	0.00	0.269	2.70	1.20	1.20	0.0	36.08	97.49	0.00	2948	0	516	155	670	
5	50	5.98	4.279	0.000	0.00	1.000	2.10	1.20	1.20	0.0	5.14	10.78	0.00	340	0	55	0	11	
4	44	5.75	32.213	0.000	0.00	0.185	3.05	1.14	1.14	0.0	36.68	111.72	0.00	4090	0	546	227	773	
3	31	5.23	39.046	0.000	0.00	0.198	2.99	1.15	1.15	0.0	44.83	134.07	0.00	4645	0	595	227	822	
2	19	5.16	38.105	0.000	0.00	0.172	3.10	1.13	1.13	0.0	43.03	133.48	0.00	4506	0	585	224	810	
1	6	5.16	40.268	0.000	0.00	0.165	3.14	1.12	1.12	0.0	45.24	141.92	0.00	4749	0	622	224	847	
														Totals	21,278	0			3,933

** = Section Force Exceeds Solidity Ratio Criteria

ASSET: 88009, CORNWALL CT

CODE: ANSI/TIA-222-H

CUSTOMER: T-MOBILE

PROJECT: 14093080_C3_04

EQUIVALENT LATERAL FORCE METHOD

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L - Seconds):	6
Importance Factor (I_e):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Seismic Response Coefficient (C_s):	0.05
Upper Limit C_s :	0.05
Lower Limit C_s :	0.03
Period based on Rayleigh Method (sec):	0.59
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.04
Total Unfactored Dead Load:	42.30 k
Seismic Base Shear (E):	2.69 k

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh

Section/Appurtenance	Height Above Base (ft)	Weight (lb)	W_2 (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
6	57.55	2,948	202,744	0.099	267	2,544
5	50.05	340	20,196	0.010	27	293
4	43.75	4,090	211,296	0.103	278	3,530
3	31.25	4,645	168,860	0.083	222	4,009
2	18.75	4,506	96,121	0.047	127	3,889
1	6.25	4,749	32,173	0.016	42	4,099
Generic 5' Omni	65.00	10	781	0.000	1	9
Generic 10' Dipole	65.00	30	2,343	0.001	3	26
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	65.00	210	16,400	0.008	22	181
Generic Flat Side Arm	65.00	1,125	87,859	0.043	116	971
Alcatel-Lucent RRH2x50-08	65.00	159	12,394	0.006	16	137
Alcatel-Lucent RRH2x40 (700)	65.00	150	11,715	0.006	15	129
Commscope DT465B-2XR	65.00	174	13,589	0.007	18	150
RFS APXVSP18-C-A20	65.00	171	13,355	0.006	18	148
Alcatel-Lucent 800 MHz RRH	65.00	159	12,417	0.006	16	137
Andrew ABT-DFDM-ADB	65.00	1	86	0.000	0	1
Powerwave Allgon TT19-08BP111-001	65.00	96	7,497	0.004	10	83
Ericsson RRUS 4478 B14	65.00	180	14,034	0.007	18	155
Ericsson RRUS 4449 B5, B12	65.00	213	16,635	0.008	22	184
Ericsson RRUS 32 (50.8 lbs)	65.00	152	11,902	0.006	16	132
Powerwave Allgon 7770.00A	65.00	81	6,326	0.003	8	70
CCI DMP65R-BU4D	65.00	136	10,606	0.005	14	117
CCI DMP65R-BU6DA	65.00	318	24,804	0.012	33	274
Fire Warden Cabin	65.00	2,000	156,194	0.076	206	1,726
Sinclair SV228-HF2SNM	63.00	93	7,030	0.003	9	80
Platform with Handrails	62.00	2,000	148,676	0.073	196	1,726
Raycap DC6-48-60-18	60.80	30	2,185	0.001	3	26
Raycap DC6-48-60-18-8F	60.40	20	1,447	0.001	2	17
Ericsson Radio 4449 B71 B85A	56.00	225	15,040	0.007	20	194
Ericsson 4460 BAND 2/25	56.00	327	21,858	0.011	29	282
Commscope VV-65A-R1	56.00	71	4,773	0.002	6	62
Ericsson AIR 6419 B41	56.00	250	16,704	0.008	22	216
Site Pro TPF123XX	56.00	900	60,160	0.029	79	777
RFS APXVAALL24 43-U-NA20	56.00	368	24,625	0.012	32	318
RFS DB-C1-12C-24AB-OZ	55.30	32	2,111	0.001	3	28
Platform w/ Handrails	50.00	5,000	296,928	0.145	391	4,315
Decibel 776QNB120EXM	48.00	351	19,975	0.010	26	303
Nokia AirScale RRH 4T4R B5 160W AHCA	46.00	106	5,765	0.003	8	91
Alcatel-Lucent B25 RRH4x30-4R	46.00	153	8,329	0.004	11	132
Alcatel-Lucent B66a RRH4x45 (AWS-3)	46.00	201	10,941	0.005	14	173
Commscope JAHH-65B-R3B	46.00	364	19,793	0.010	26	314
Antel LPA-80063/6CF	46.00	162	8,818	0.004	12	140

ASSET: 88009, CORNWALL CT

CODE: ANSI/TIA-222-H

CUSTOMER: T-MOBILE

PROJECT: 14093080_C3_04

Access Platform	37.50	5,000	219,897	0.108	290	4,315
Totals	42,295	2,045,382	1.000	2,693	36,505	

1.2D + 1.0Ev + 1.0Eh

Section/Appurtenance	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	Cvx	Horizontal Force (lb)	Vertical Force (lb)
6	57.55	2,948	202,744	0.099	267	3,646
5	50.05	340	20,196	0.010	27	420
4	43.75	4,090	211,296	0.103	278	5,059
3	31.25	4,645	168,860	0.083	222	5,745
2	18.75	4,506	96,121	0.047	127	5,574
1	6.25	4,749	32,173	0.016	42	5,874
Generic 5' Omni	65.00	10	781	0.000	1	12
Generic 10' Dipole	65.00	30	2,343	0.001	3	37
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	65.00	210	16,400	0.008	22	260
Generic Flat Side Arm	65.00	1,125	87,859	0.043	116	1,392
Alcatel-Lucent RRH2x50-08	65.00	159	12,394	0.006	16	196
Alcatel-Lucent RRH2x40 (700)	65.00	150	11,715	0.006	15	186
Commscope DT465B-2XR	65.00	174	13,589	0.007	18	215
RFS APXVSP18-C-A20	65.00	171	13,355	0.006	18	212
Alcatel-Lucent 800 MHz RRH	65.00	159	12,417	0.006	16	197
Andrew ABT-DFDM-ADB	65.00	1	86	0.000	0	1
Powerwave Allgon TT19-08BP111-001	65.00	96	7,497	0.004	10	119
Ericsson RRUS 4478 B14	65.00	180	14,034	0.007	18	222
Ericsson RRUS 4449 B5, B12	65.00	213	16,635	0.008	22	263
Ericsson RRUS 32 (50.8 lbs)	65.00	152	11,902	0.006	16	189
Powerwave Allgon 7770.00A	65.00	81	6,326	0.003	8	100
CCI DMP65R-BU4D	65.00	136	10,606	0.005	14	168
CCI DMP65R-BU6DA	65.00	318	24,804	0.012	33	393
Fire Warden Cabin	65.00	2,000	156,194	0.076	206	2,474
Sinclair SV228-HF2SNM	63.00	93	7,030	0.003	9	115
Platform with Handrails	62.00	2,000	148,676	0.073	196	2,474
Raycap DC6-48-60-18	60.80	30	2,185	0.001	3	37
Raycap DC6-48-60-18-8F	60.40	20	1,447	0.001	2	25
Ericsson Radio 4449 B71 B85A	56.00	225	15,040	0.007	20	278
Ericsson 4460 BAND 2/25	56.00	327	21,858	0.011	29	404
Commscope VV-65A-R1	56.00	71	4,773	0.002	6	88
Ericsson AIR 6419 B41	56.00	250	16,704	0.008	22	309
Site Pro TPF123XX	56.00	900	60,160	0.029	79	1,113
RFS APXVAALL24 43-U-NA20	56.00	368	24,625	0.012	32	456
RFS DB-C1-12C-24AB-0Z	55.30	32	2,111	0.001	3	40
Platform w/ Handrails	50.00	5,000	296,928	0.145	391	6,185
Decibel 776QNB120EXM	48.00	351	19,975	0.010	26	434
Nokia AirScale RRH 4T4R B5 160W AHCA	46.00	106	5,765	0.003	8	131
Alcatel-Lucent B25 RRH4x30-4R	46.00	153	8,329	0.004	11	189
Alcatel-Lucent B66a RRH4x45 (AWS-3)	46.00	201	10,941	0.005	14	249
Commscope JAHH-65B-R3B	46.00	364	19,793	0.010	26	450
Antel LPA-80063/6CF	46.00	162	8,818	0.004	12	200
Access Platform	37.50	5,000	219,897	0.108	290	6,185
Totals	42,295	2,045,382	1.000	2,693	52,316	

ASSET: 88009, CORNWALL CT

CODE: ANSI/TIA-222-H

CUSTOMER: T-MOBILE

PROJECT: 14093080_C3_04

FORCE/STRESS SUMMARY

Section 1 – 0.0' to 12.50'

Member Compression	Pu (kip)	Load Case	Len (ft)	Bracing %			F _y (ksi)	Φ _c P _n (kip)	Shear		# Bolt	# Hole	Use %	Controls	
				X	Y	Z			Φ _{R_{nv}} (kip)	Bear Φ _{R_n} (kip)					
L SAE - 6X6X0.625	-48.46	1.2D + 1.0W 45°	12.57	50	50	50	63.92	63.92	207.00	0.00	0.00	0	0	23	Member Z
H DAL - 3X2.5X0.25	-1.52	0.9D + 1.0W N	18.125	50	100	13	199.79	199.79	18.86	0.00	0.00	0	0	8	Member Y
D SAU - 4X3X0.25	-5.53	1.2D + 1.0W N	22.815	47	47	47	179.21	179.21	15.06	0.00	0.00	0	0	36	Member Z

Member Tension	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Shear Φ _{R_{nv}} (kip)	Bear Φ _{R_n} (kip)	Blk Shear		# Bolt	# Hole	Use %	Controls
								Φ _t P _n (kip)					
L SAE - 6X6X0.625	28.61	0.9D + 1.0W 45°	33.0	45	211.17	0.00	0.00			0	0	13	Member
H DAL - 3X2.5X0.25	2.63	1.2D + 1.0W N	36.0	58	85.21	0.00	0.00	0.00		0	0	3	Member
D SAU - 4X3X0.25	4.15	1.2D + 1.0W N	36.0	58	54.76	0.00	0.00	0.00		0	0	7	Member

Max Splice Forces	Pu (kip)	Load Case	Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type

Section 2 – 12.5' to 25.00'

Member Compression	Pu (kip)	Load Case	Len (ft)	Bracing %			F _y (ksi)	Φ _c P _n (kip)	Shear		# Bolt	# Hole	Use %	Controls	
				X	Y	Z			Φ _{R_{nv}} (kip)	Bear Φ _{R_n} (kip)					
L SAE - 6X6X0.625	-39.96	1.2D + 1.0W 45°	12.57	50	50	50	63.92	63.92	207.00	0.00	0.00	0	0	19	Member Z
H DAL - 3X2.5X0.25	-0.80	1.2D + 1.0W N	16.25	50	50	17	106.71	106.71	60.78	0.00	0.00	0	0	1	Member Y
D SAU - 4X3X0.25	-5.74	1.2D + 1.0W N	21.273	47	47	47	169.04	169.04	16.93	0.00	0.00	0	0	33	Member Z

Member Tension	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Shear Φ _{R_{nv}} (kip)	Bear Φ _{R_n} (kip)	Blk Shear		# Bolt	# Hole	Use %	Controls
								Φ _t P _n (kip)					
L SAE - 6X6X0.625	21.34	0.9D + 1.0W 45°	33.0	45	211.17	0.00	0.00			0	0	10	Member
H DAL - 3X2.5X0.25	1.77	1.2D + 1.0W N	36.0	58	85.21	0.00	0.00	0.00		0	0	2	Member
D SAU - 4X3X0.25	4.44	1.2D + 1.0W N	36.0	58	54.76	0.00	0.00	0.00		0	0	8	Member

Max Splice Forces	Pu (kip)	Load Case	Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type

Section 3 – 25.0' to 37.50'

Member Compression	Pu (kip)	Load Case	Len (ft)	Bracing %			F _y (ksi)	Φ _c P _n (kip)	Shear		# Bolt	# Hole	Use %	Controls	
				X	Y	Z			Φ _{R_{nv}} (kip)	Bear Φ _{R_n} (kip)					
L SAE - 6X6X0.5	-29.35	1.2D + 1.0W 45°	12.57	50	50	50	63.92	63.92	167.41	0.00	0.00	0	0	17	Member Z
H DAL - 3.5X3X0.3125	-1.22	1.2D + 1.0W N	14.375	50	100	17	136.07	136.07	59.82	0.00	0.00	0	0	2	Member Y
D SAU - 3.5X3X0.25	-5.85	1.2D + 1.0W N	19.789	47	47	47	163.38	163.38	16.73	0.00	0.00	0	0	34	Member Z

Member Tension	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Shear Φ _{R_{nv}} (kip)	Bear Φ _{R_n} (kip)	Blk Shear		# Bolt	# Hole	Use %	Controls
								Φ _t P _n (kip)					
L SAE - 6X6X0.5	13.49	0.9D + 1.0W 45°	33.0	45	170.78	0.00	0.00			0	0	7	Member
H DAL - 3.5X3X0.3125	3.09	1.2D + 1.0W N	36.0	58	125.39	0.00	0.00	0.00		0	0	2	Member
D SAU - 3.5X3X0.25	4.22	1.2D + 1.0W N	36.0	58	50.54	0.00	0.00	0.00		0	0	8	Member

Max Splice Forces	Pu (kip)	Load Case	Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type

Section 4 – 37.5' to 50.00'

Member Compression	Pu (kip)	Load Case	Len (ft)	Bracing %			F _y (ksi)	Φ _c P _n (kip)	Shear		# Bolt	# Hole	Use %	Controls	
				X	Y	Z			Φ _{R_{nv}} (kip)	Bear Φ _{R_n} (kip)					
L SAE - 6X6X0.5	-18.27	1.2D + 1.0W 45°	12.57	50	50	50	63.92	63.92	167.41	0.00	0.00	0	0	10	Member Z
H DAL - 3.5X3X0.3125	-1.82	1.2D + 1.0W 45°	12.5	100	100	17	136.37	136.37	59.56	0.00	0.00	0	0	3	Member X
D SAE - 3.5x3.5x0.25	-5.41	1.2D + 1.0W N	18.377	47	47	47	143.39	143.39	23.52	0.00	0.00	0	0	23	Member Z

Member Tension	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Shear Φ _{R_{nv}} (kip)	Bear Φ _{R_n} (kip)	Blk Shear		# Bolt	# Hole	Use %	Controls
								Φ _t P _n (kip)					
L SAE - 6X6X0.5	7.26	0.9D + 1.0W 45°	33.0	45	170.78	0.00	0.00			0	0	4	Member
H DAL - 3.5X3X0.3125	1.80	1.2D + 1.0W N	36.0	58	125.39	0.00	0.00	0.00		0	0	1	Member
D SAE - 3.5x3.5x0.25	3.84	1.2D + 1.0W N	36.0	58	54.76	0.00	0.00	0.00		0	0	7	Member

FORCE/STRESS SUMMARY

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
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Section 5 – 50.0' to 50.10'

Member Compression	Pu (kip)	Load Case	Len (ft)	Bracing %			F _y (ksi)	$\Phi_c P_n$ (kip)	Shear		# Bolt	# Hole	Use %	Controls	
				X	Y	Z			ΦR_{nv} (kip)	Bear ΦR_n (kip)					
L SAE - 6X6X0.5	-4.30	1.2D + 1.0W N	0.389	50	50	50	1.98	1.98	189.73	0.00	0.00	0	0	2	Member Z

Member Tension	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	$\Phi_c P_n$ (kip)	Shear		Bear		Blk Shear		# Bolt	# Hole	Use %	Controls
						ΦR_{nv} (kip)	ΦR_n (kip)	$\Phi_t P_n$ (kip)	ΦR_n (kip)						
L SAE - 6X6X0.5	5.70	1.2D + 1.0W 45°	33.0	45	170.78	0.00	0.00	0.00	0.00	0	0	0	0	3	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
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Section 6 – 50.1' to 65.00'

Member Compression	Pu (kip)	Load Case	Len (ft)	Bracing %			F _y (ksi)	$\Phi_c P_n$ (kip)	Shear		# Bolt	# Hole	Use %	Controls	
				X	Y	Z			ΦR_{nv} (kip)	Bear ΦR_n (kip)					
L SAE - 6X6X0.5	-13.17	1.2D + 1.0W 45°	7.45	100	100	100	75.76	75.76	158.36	0.00	0.00	0	0	8	Member Z
H DAL - 2.5X2X0.25	-3.50	1.2D + 1.0W 45°	7	100	100	50	133.74	133.74	34.09	0.00	0.00	0	0	10	Member Y
D SAU - 3X2X0.25	-4.31	1.2D + 1.0W N	10.223	50	50	50	136.05	136.05	18.40	0.00	0.00	0	0	23	Member Z

Member Tension	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	$\Phi_c P_n$ (kip)	Shear		Bear		Blk Shear		# Bolt	# Hole	Use %	Controls
						ΦR_{nv} (kip)	ΦR_n (kip)	$\Phi_t P_n$ (kip)	ΦR_n (kip)						
L SAE - 6X6X0.5	0.27	1.2D + 1.0W N	33.0	45	170.78	0.00	0.00	0.00	0.00	0	0	0	0	0	Member
H DAL - 2.5X2X0.25	0.85	1.2D + 1.0W N	36.0	58	69.01	0.00	0.00	0.00	0.00	0	0	0	0	1	Member
D SAU - 3X2X0.25	3.92	1.2D + 1.0W 45°	36.0	58	38.56	0.00	0.00	0.00	0.00	0	0	0	0	10	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
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DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.0D + 1.0W Service 45° 60 mph Wind with No Ice	37.50	0.0046	0.4200	0.2742	0.4893
1.0D + 1.0W Service 45° 60 mph Wind with No Ice	50.00	0.0067	0.5721	0.9581	1.1159
1.0D + 1.0W Service 45° 60 mph Wind with No Ice	57.55	0.0795	0.5873	0.5240	0.7871
1.0D + 1.0W Service 45° 60 mph Wind with No Ice	65.00	0.1138	0.5871	0.3033	0.6531
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	37.50	0.0043	0.3047	0.2428	0.3752
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	50.00	0.0063	0.4112	0.8646	0.9574
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	57.55	0.0601	0.4266	0.4132	0.5939
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	65.00	0.0897	0.4258	0.2506	0.4875
0.9D - 1.0Ev + 1.0Eh 45° Seismic (Reduced DL)	37.50	0.0019	0.0064	0.1749	0.175
0.9D - 1.0Ev + 1.0Eh 45° Seismic (Reduced DL)	50.00	0.0028	-0.0009	0.6402	0.6402
0.9D - 1.0Ev + 1.0Eh 45° Seismic (Reduced DL)	57.55	0.015	-0.0020	0.2342	0.2342
0.9D - 1.0Ev + 1.0Eh 45° Seismic (Reduced DL)	65.00	0.0273	-0.0017	0.1281	0.1281
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	37.50	0.0019	0.0065	0.1627	0.1628
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	50.00	0.0028	0.0006	0.6012	0.6012
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	57.55	0.0141	0.0023	0.1850	0.185
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	65.00	0.0255	0.0020	0.1115	0.1115
1.2D + 1.0Ev + 1.0Eh 45° Seismic	37.50	0.002	0.0072	0.2358	0.2359
1.2D + 1.0Ev + 1.0Eh 45° Seismic	50.00	0.0029	-0.0009	0.8698	0.8698
1.2D + 1.0Ev + 1.0Eh 45° Seismic	57.55	0.0151	-0.0041	0.2809	0.2809
1.2D + 1.0Ev + 1.0Eh 45° Seismic	65.00	0.0277	-0.0038	0.1510	0.151
1.2D + 1.0Ev + 1.0Eh Normal Seismic	37.50	0.0019	0.0073	0.2234	0.2235
1.2D + 1.0Ev + 1.0Eh Normal Seismic	50.00	0.0028	0.0011	0.8302	0.8302
1.2D + 1.0Ev + 1.0Eh Normal Seismic	57.55	0.0143	0.0043	0.2276	0.2276
1.2D + 1.0Ev + 1.0Eh Normal Seismic	65.00	0.0258	0.0039	0.1293	0.1293
1.2D + 1.0Di + 1.0Wi 45° 40 mph Wind with 1" Radial Ice	37.50	0.0055	0.4289	0.4653	0.6266
1.2D + 1.0Di + 1.0Wi 45° 40 mph Wind with 1" Radial Ice	50.00	0.007	0.5984	1.6952	1.7977
1.2D + 1.0Di + 1.0Wi 45° 40 mph Wind with 1" Radial Ice	57.55	0.0791	0.6118	0.7324	0.9543
1.2D + 1.0Di + 1.0Wi 45° 40 mph Wind with 1" Radial Ice	65.00	0.1132	0.6120	0.4126	0.7155
1.2D + 1.0Di + 1.0Wi Normal 40 mph Wind with 1" Radial Ice	37.50	0.0048	0.3137	0.4354	0.5302
1.2D + 1.0Di + 1.0Wi Normal 40 mph Wind with 1" Radial Ice	50.00	0.0062	0.4399	1.6031	1.6624
1.2D + 1.0Di + 1.0Wi Normal 40 mph Wind with 1" Radial Ice	57.55	0.0581	0.4558	0.5887	0.7445
1.2D + 1.0Di + 1.0Wi Normal 40 mph Wind with 1" Radial Ice	65.00	0.0837	0.4549	0.2702	0.5056
0.9D + 1.0W 45° 114 mph Wind with No Ice (Reduced DL)	37.50	0.0164	0.9824	0.5329	1.0842
0.9D + 1.0W 45° 114 mph Wind with No Ice (Reduced DL)	50.00	0.0241	1.3354	1.7591	2.2086
0.9D + 1.0W 45° 114 mph Wind with No Ice (Reduced DL)	57.55	0.2332	1.3761	1.3983	1.9619
0.9D + 1.0W 45° 114 mph Wind with No Ice (Reduced DL)	65.00	0.3537	1.3738	0.9225	1.6331
0.9D + 1.0W Normal 114 mph Wind with No Ice (Reduced DL)	37.50	0.0155	0.7922	0.4286	0.8635
0.9D + 1.0W Normal 114 mph Wind with No Ice (Reduced DL)	50.00	0.0228	1.0707	1.4374	1.7906
0.9D + 1.0W Normal 114 mph Wind with No Ice (Reduced DL)	57.55	0.1947	1.1244	1.1350	1.5977
0.9D + 1.0W Normal 114 mph Wind with No Ice (Reduced DL)	65.00	0.3069	1.1182	0.8494	1.3818
1.2D + 1.0W 45° 114 mph Wind with No Ice	37.50	0.0164	1.0304	0.5865	1.1566
1.2D + 1.0W 45° 114 mph Wind with No Ice	50.00	0.0241	1.4109	1.9584	2.4137
1.2D + 1.0W 45° 114 mph Wind with No Ice	57.55	0.2396	1.4530	1.4598	2.0597
1.2D + 1.0W 45° 114 mph Wind with No Ice	65.00	0.3613	1.4507	0.9427	1.6981
1.2D + 1.0W Normal 114 mph Wind with No Ice	37.50	0.0155	0.8440	0.4818	0.9331
1.2D + 1.0W Normal 114 mph Wind with No Ice	50.00	0.0228	1.1510	1.6342	1.9988
1.2D + 1.0W Normal 114 mph Wind with No Ice	57.55	0.2	1.2121	1.1749	1.6881
1.2D + 1.0W Normal 114 mph Wind with No Ice	65.00	0.3124	1.2052	0.8605	1.4507

DETAILED REACTIONS

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down		
					FX* (kip)	FY* (kip)	FZ* (kip)
1.2D + 1.0W Normal	14.14	0.00	45	1	-4.42	41.16	-7.77
	14.14	0.00	135	1a	1.58	-15.27	-4.87
	14.14	0.00	225	1b	-1.90	-15.59	-4.63
	14.14	0.00	315	1c	4.74	40.45	-7.41
1.2D + 1.0W 45°	14.14	0.00	45	1	-8.12	54.55	-8.61
	14.14	0.00	135	1a	-3.91	13.15	-1.00
	14.14	0.00	225	1b	-5.72	-29.12	-5.35
	14.14	0.00	315	1c	-0.64	12.18	-3.43
0.9D + 1.0W Normal	14.14	0.00	45	1	-4.07	37.96	-7.40
	14.14	0.00	135	1a	1.95	-18.54	-5.23
	14.14	0.00	225	1b	-2.26	-18.75	-4.98
	14.14	0.00	315	1c	4.39	37.40	-7.06
0.9D + 1.0W 45°	14.14	0.00	45	1	-7.77	51.34	-8.24
	14.14	0.00	135	1a	-3.54	9.85	-1.36
	14.14	0.00	225	1b	-6.08	-32.26	-5.70
	14.14	0.00	315	1c	-0.99	9.14	-3.08
1.2D + 1.0Di + 1.0Wi Normal	14.14	0.00	45	1	-1.33	31.35	-2.18
	14.14	0.00	135	1a	-0.02	18.88	-0.69
	14.14	0.00	225	1b	-0.06	17.92	-0.75
	14.14	0.00	315	1c	1.40	30.06	-2.00
1.2D + 1.0Di + 1.0Wi 45°	14.14	0.00	45	1	-2.15	34.45	-2.39
	14.14	0.00	135	1a	-1.27	25.60	0.22
	14.14	0.00	225	1b	-0.91	14.79	-0.93
	14.14	0.00	315	1c	0.18	23.36	-1.06
1.2D + 1.0Ev + 1.0Eh Normal	14.14	0.00	45	1	-1.85	15.77	-2.14
	14.14	0.00	135	1a	-1.08	8.91	0.80
	14.14	0.00	225	1b	1.08	8.91	0.80
	14.14	0.00	315	1c	1.85	15.77	-2.14
1.2D + 1.0Ev + 1.0Eh 45°	14.14	0.00	45	1	-2.21	17.20	-2.22
	14.14	0.00	135	1a	-1.66	12.35	1.27
	14.14	0.00	225	1b	0.72	7.49	0.72
	14.14	0.00	315	1c	1.27	12.34	-1.67
0.9D - 1.0Ev + 1.0Eh Normal	14.14	0.00	45	1	-1.41	12.04	-1.69
	14.14	0.00	135	1a	-0.64	5.19	0.36
	14.14	0.00	225	1b	0.64	5.19	0.36
	14.14	0.00	315	1c	1.41	12.04	-1.69
0.9D - 1.0Ev + 1.0Eh 45°	14.14	0.00	45	1	-1.77	13.46	-1.77
	14.14	0.00	135	1a	-1.22	8.61	0.83
	14.14	0.00	225	1b	0.28	3.77	0.28
	14.14	0.00	315	1c	0.82	8.61	-1.22
1.0D + 1.0W Service Normal	14.14	0.00	45	1	-1.99	18.47	-2.97
	14.14	0.00	135	1a	-0.37	3.10	-0.54
	14.14	0.00	225	1b	0.28	2.76	-0.50
	14.14	0.00	315	1c	2.09	17.96	-2.83
1.0D + 1.0W Service 45°	14.14	0.00	45	1	-3.02	22.18	-3.20
	14.14	0.00	135	1a	-1.90	10.96	0.53
	14.14	0.00	225	1b	-0.78	-0.98	-0.70
	14.14	0.00	315	1c	0.61	10.13	-1.72

ASSET: 88009, CORNWALL CT

CODE: ANSI/TIA-222-H

CUSTOMER: T-MOBILE

PROJECT: 14093080_C3_04

MAXIMUM REACTIONS SUMMARY

	<u>Individual</u>		<u>Global (DL+WL+IL)</u>		<u>Global (DL+WL)</u>
Max Uplift:	32.26 (kip)	Moment Ice:	279.81 (kip-ft)	Moment:	1183.28 (kip-ft)
Max Down:	54.55 (kip)	Total Down Ice:	98.21 (kip)	Total Down:	50.75 (kip)
Max Shear:	11.83 (kip)	Total Shear Ice:	5.88 (kip)	Total Shear:	26 (kip)
1.2D + 1.0W 45°					

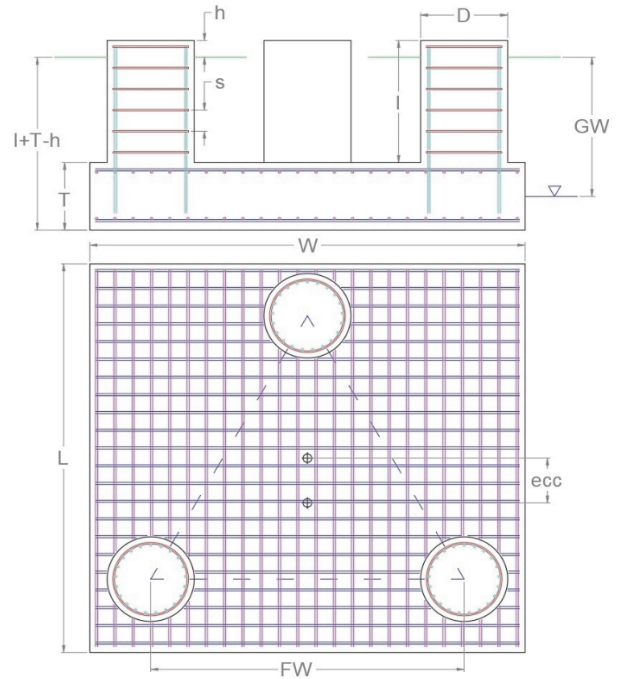
MONOLITHIC MAT & PIER FOUNDATION ANALYSIS

APPLIED REACTIONS

GLOBAL (PER FOUNDATION)			LOCAL (PER LEG)	
Moment (k-ft)	Axial (k)	Shear (k)	Compression (k)	Uplift (k)
1,183.28	50.75	26.00	54.55	32.26

FOUNDATION PARAMETERS

Mat Length:	L	30	ft
Mat Width:	W	30	ft
Mat Thickness:	T	2.92	ft
Base Depth:	L+T-h	4.92	ft
Pier Shape:		Round	
Pier Diameter:	D	4	ft
Pier Height above Grade:	h	0.5	ft
Tower Eccentricity:	ecc	0	ft
Tower Face Width	FW	20	ft
Tower Leg Count		4	



SOIL PARAMETERS

Water Table Depth [BGL]:	GW	-	ft
Soil Unit Weight:		125	pcf
Ultimate Skin Friction:		0	psf
Ultimate Bearing Pressure:		40,000	psf
Bearing Pressure Type:		Gross	
Coefficient of Shear Friction:		0.5	

SOIL STRENGTH ANALYSIS

Soil Strength Reduction Factor, Φ_s	Uplift Strength Reduction Factor, Φ_s	Asset Dead Load Factor	Dead Load Factor
0.75	0.75	0.9	1.2

SOIL OVERTURNING ANALYSIS

Design Moment, $M_{u,Design}$ (k-ft)	Nominal Overturning Capacity, $\Phi_m M_n$ (k-ft)	Soil Overturning Usage, $M_{u,Design} / \Phi_m M_n$
1,324.20	9,334.09	14.2% ✔

SOIL BEARING ANALYSIS

Net Bearing Pressure, $P_{u,Net}$ (psf)	Nominal Bearing Capacity, $\Phi_b P_n$ (k-ft)	Bearing Pressure Controlling Load Direction	Soil Bearing Usage, $P_{u,net} / \Phi_b P_n$
775.00	30,000.00	Parallel to Pad Edge	2.6% ✔

SOIL SLIDING SHEAR ANALYSIS

Applied Shear Force, V_u (k)	Friction Resistance (k)	Passive Pressure (psf)	Passive Pressure Resistance (k)	Nominal Shear Capacity, Φ_s V_n (k)	Soil Sliding Shear Usage, $V_u / \Phi_s V_n$
26.00	0.00	432.5	37.89	278.83	9.0% ✔