Filed by:
Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbasite.com

March 3, 2016

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

Notice of Exempt Modification
1279 Long Hill Road, Middletown, CT 06457
41.5112231 N
-72.6707431 W
AT&T #: 10042329_LTE

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 107-foot level of the existing 158-foot Monopole Tower at 1279 Long Hill Road. The tower and property are owned by SBA Properties, LLC. AT&T now intends to swap three (3) existing LTE antennas with three (3) new LTE antennas. These antennas would be installed at the 107-foot level of the tower. AT&T also intends to:

Remove:

- None

Remove and Replace:

- Remove (3) existing KMW AM-X-CD panel antennas and replace with (3) new CCI HPA-65R panel antennas

Install:

- (3) Ericsson RRUS-11 Remote Radio Units (Reserved entitlement to be utilized) with (3) RRUS A2 Modules

Existing Equipment to Remain (Entitlements):

- All Existing Equipment located within existing Equipment shelter
- (6) Powerwave 7770 Panel Antennas
- (3) Ericsson RRUS-11 Remote Radio Unit
- (3) CCI DTMABP - TMA/TTA
- (3) Powerwave LPG21401 TMAs
- (6) Powerwave LPG21901 Diplexer (Reserved Entitlement)
- (1) Raycap DC6 Surge Suppressor
- (12) 1-5/8" Coax Lines
- (1) 3" conduit with fiber/DC power cables listed below:
  - (1) 1/2" Fiber Cable
  - (2) 3/4" DC Power Cable

This facility was approved by the City of Middletown's Planning and Zoning Commission on 9/8/99 granting special exception for the wireless communication facility. Associated drawings show a maximum number of four panel antennas per sector per tenant. This modification complies with the aforementioned condition.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Honorable Daniel T. Drew, Mayor of the City of Middletown. (Separate notice is not being sent to the tower or property owner, as they belong to SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581

508.251.0720 x3804 + T
508.366.2610 + F
203.446.7700 + C
kpelletier@sbasite.com

Attachments
cc: The Honorable Daniel T. Drew–as elected official
The City of Middletown, 245 deKoven Drive, Middletown, CT 06457

POWER DENSITY

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	CCI OPA-65R-BUU-H6	Make / Model:	CCI OPA-65R-BUU-H6	Make / Model:	CCI OPA-65R-BUU-H6
Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd
Height (AGL):	107 feet	Height (AGL):	107 feet	Height (AGL):	107 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	5,462.56	ERP (W):	5,462.56	ERP (W):	5,462.56
Antenna A1 MPE%	**2.68**	Antenna B1 MPE%	**2.68**	Antenna C1 MPE%	**2.68**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	107 feet	Height (AGL):	107 feet	Height (AGL):	107 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A2 MPE%	**0.98**	Antenna B2 MPE%	**0.98**	Antenna C2 MPE%	**0.98**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	107 feet	Height (AGL):	107 feet	Height (AGL):	107 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A3 MPE%	**0.98**	Antenna B3 MPE%	**0.98**	Antenna C3 MPE%	**0.98**

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	**4.64 %**
T-Mobile	1.77 %
Nextel	0.40 %
Sprint	0.32 %
Clearwire	0.09 %
Verizon Wireless	1.81 %
MetroPCS	0.56 %
Site Total MPE %:	**9.59 %**

AT&T Sector 1 Total:	4.64 %
AT&T Sector 2 Total:	4.64 %
AT&T Sector 3 Total:	4.64 %
Site Total:	9.59 %

AT&T _ Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 700 MHz LTE	2	940.05	107	6.63	700	467	1.42 %
AT&T 1900 MHz (PCS) LTE	2	1791.23	107	12.63	1900	1000	1.26 %
AT&T 850 MHz UMTS	2	414.12	107	2.92	850	567	0.51 %
AT&T 1900 MHz (PCS) UMTS	2	656.33	107	4.63	1900	1000	0.46 %
AT&T 850 MHz GSM	2	414.12	107	2.92	850	567	0.51 %
AT&T 1900 MHz (PCS) GSM	2	656.33	107	4.63	1900	1000	0.46 %
						Total:	4.64 %

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 158 ft. SUMMIT Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT01080-S

Customer Site Name: Long Hill #1

Carrier Name: AT&T

Carrier Site ID / Name: FA# 10042329 USID# 59438

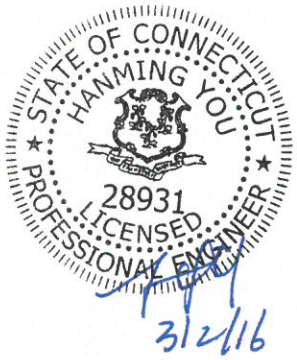
Site Location: 1279 Long Hill Road

Middletown, Connecticut

Middlesex County

Latitude: 41.511231

Longitude: -72.670744



Analysis Result:

Max Structural Usage: 97.6% [Pass]

Max Foundation Usage: 76% [Pass]

Report Prepared By : Stacey Hesselbein

Introduction

The purpose of this report is to summarize the analysis results on the 158 ft. SUMMIT Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Tower drawings prepared by Summit Manufacturing, Inc., Job No. 5173 Dated 11/08/1999
Foundation Drawing	Foundation drawings prepared by Paul J. Ford & Company, Job No. 29299-641 Dated 10/22/1999
Geotechnical Report	Geotechnical report prepared by Jawarski Geotech, Inc., Project No. C98590G Dated 02/04/1999
Modification Drawings	N/A

Analysis Criteria

The analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-F**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Basic Wind Speed Used in the Analysis:	85.0 mph (fastest mile)
Basic Wind Speed with Ice:	74 mph (fastest mile) with 1/2" radial ice concurrent
Operational Wind Speed:	50 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-F / 2005 Connecticut State Building Code

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	158.0	6	Commscope - SBNHH-1D65B - Panel	(1)Low Profile Platform	(10) 1 5/8" [1](2) 1 5/8" Hybrid	Verizon
2		2	Amphenol - LPA-80063-6CF-EDIN-5 - Panel			
3		4	RFS - APL866513-42T0 - Panel w/ Mount Pipe			
4		3	Alcatel - RRH2X60-AWS - RRU			
5		3	Alcatel - RRH2X60-700 - RRU			
6		3	Alcatel - RRH2X60-PCS - RRU			
7		6	RFS - FD9R6004/2CL-3CL - Diplexer			
8		2	RFS - DB-T1-6C-8AB-0Z - Distribution Box			
9	151.0	1	Andrew - VHLP2.5 - Dish	(1) Pipe Mount	(1) 1/2"	Clearwire
10		1	ODU			
11	146.0	3	RFS - APXVSPP18-C-A20 -Panel w/ Mount Pipe	(1) Low Profile Platform	(3) 1 1/4" (1) 1-1/4" Power/Fiber	Sprint
12		3	RFS - APXVTM14-C-120 - Panel w/ Mount Pipe			
13		3	Alcatel - TD-RRH8x20-25 - RRH			
14		3	Alcatel - 1900MHz - RRH			
15		3	Alcatel - 800 MHz - RRH			
16		3	Alcatel - 800MHz Filters			
17		4	RFS - ACU-A20-N - RET			
18		1	GPS			
19		3	Kathrein Scala - 840 10054 - Panel		(2) 1/2" (6) 5/16"	Clearwire
20		3	RRUs			
21	137.0	3	RFS - APXV18-209014-02 - Panel	(1) Low Profile Platform w/ Support Kit	(12) 1 5/8"	T-Mobile
22		3	Commscope - LNX-6515DS - Panel			
23		12	Allen Telecom - FE15S01P77/75 - TMA			
24		3	Kathrein - 782 11056 - Diplexer			
-	107.0	6	KMW - AM-X-CD-16-65-00T- Panel	(1)Low Profile Platform	(12) 1 5/8" [2](1) 1/2" Fiber [2](3) 3/4" DC	AT&T
-		3	Powerwave - 7770.00 - Panel			
-		3	Powerwave - LGP21401 - TMA			
-		3	CCI - DTMAP7819VG12A - TMA			
-		6	Ericsson - RRUS-11 - RRU			
-		1	Raycap - DC6-48-60-18-8F - SP			

1. Lines Considered outside of the pole shaft
2. Lines considered inside (1) 3" Conduit running inside of the pole shaft

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
25	107.0	3	CCI - HPA-65R-BUU-H6 - Panel	(1)Low Profile Platform	(12) 1 5/8" (1) 1/2" Fiber (2) 3/4" DC	AT&T
26		6	Powerwave - 7770.00 - Panel			
27		3	Powerwave - TT19-08BP111-001 - TMA			
28		3	CCI - DTMAP7819VG12A - TMA			
29		6	Ericsson - RRUS-11 - RRU			
30		3	Ericsson - RRUS A2 Module			
31		6	Powerwave - LGP21901 - Diplexer			
32		1	Raycap - DC6-48-60-18-8F - SP			

The (1) 1/2" Fiber Lines and (2) 3/4" DC considered inside (1) 3" Conduit running inside of the pole shaft. All other proposed transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**95.5%**	**64.2%**	**97.6%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	4350.0	37.5	51.0
Analysis Reactions	4061.8	34.7	42.3
% of Design Reactions	93.4%	92.7%	82.9%

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

Elevation (ft.)	Dish	Carrier	Twist (deg)	Sway (deg)
151.0	Andrew - VHLP2.5 - Dish	Clearwire	0.002	2.065

It is recommended that the carriers review the twist and sway values of the microwave dishes.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-F Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.

4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.

5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.

6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Stress 95.5% at 96.5ft

Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)			Page: 1	

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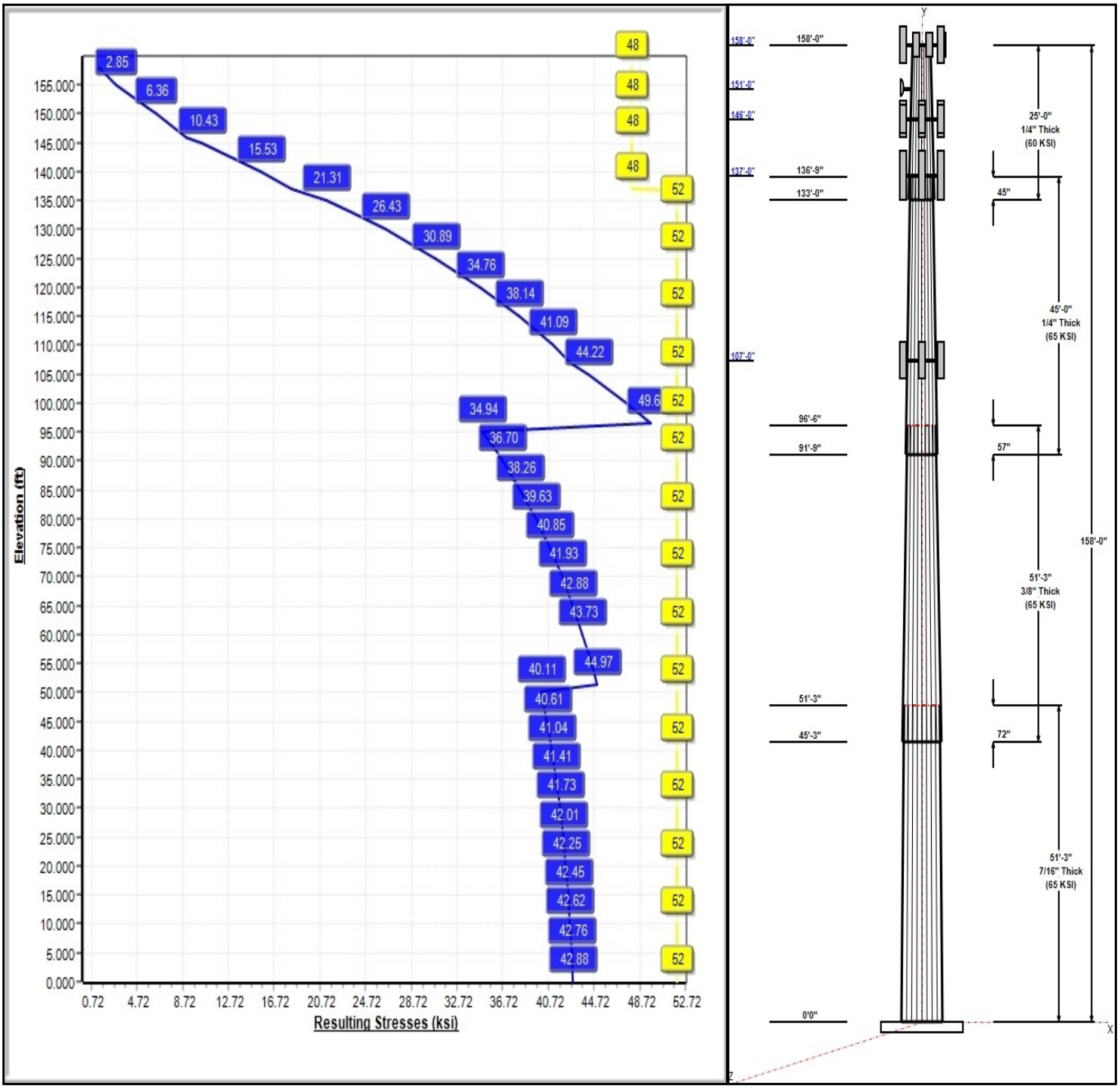
Dead Load Factor:	1.00
Wind Load Factor:	1.00

52 Alllowable Stress

50 Resulting Stress

Load Case : 85 mph Wind with 0 in Ice

Iterations: 25



Structure: CT01080-S-SBA

Type: Tapered
Site Name: Long Hill #1
Height: 158.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23500

3/2/2016

Tower Engineering Solutions

Shaft Properties

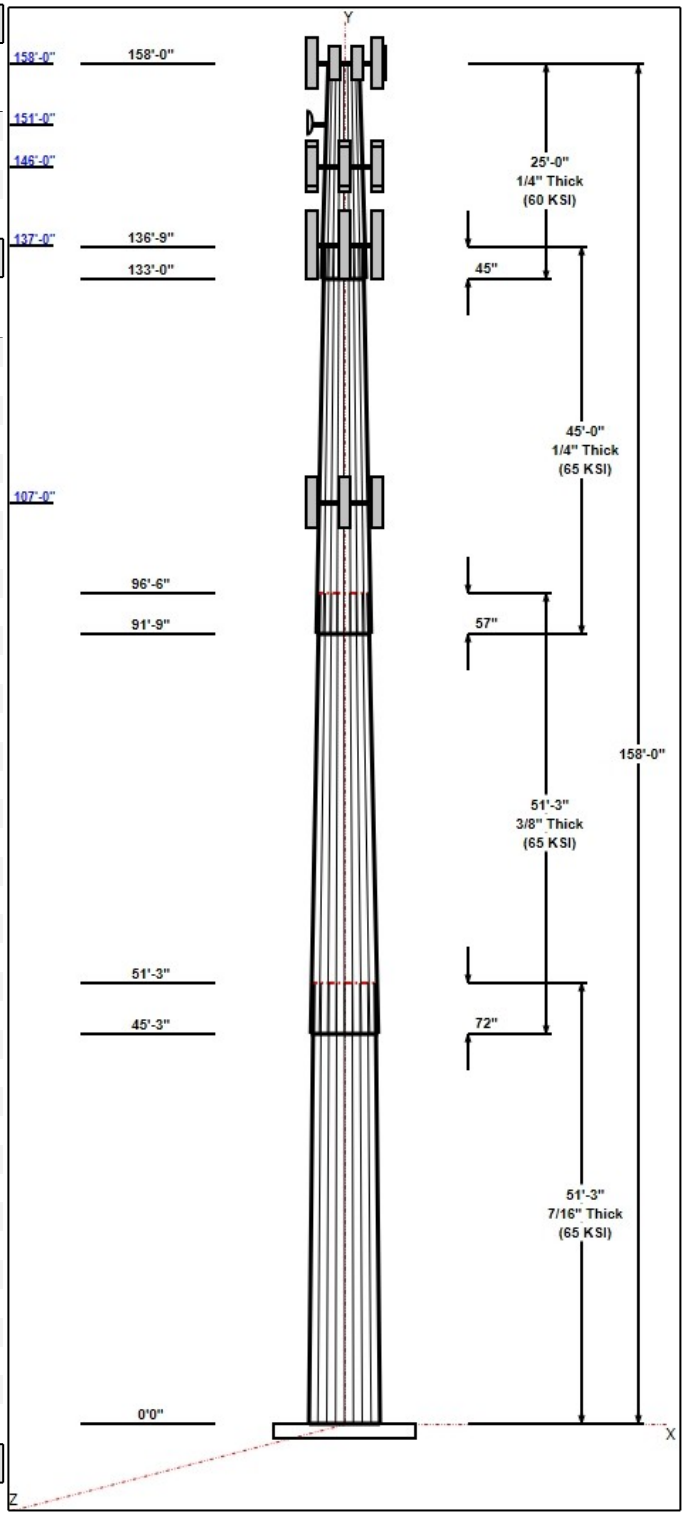
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	51.25	46.34	58.38	0.438		0.23500	65
2	51.25	36.45	48.50	0.375	Slip	0.23500	65
3	45.00	27.49	38.07	0.250	Slip	0.23500	65
4	25.00	23.00	28.88	0.250	Slip	0.23500	60

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
158.00	158.00	1	6' Lightning rod	Verizon
158.00	158.00	4	APL866513-42T0	Verizon
158.00	158.00	2	DB-T1-6C-8AB-0Z	Verizon
158.00	158.00	6	FD9R6004/2C-3L	Verizon
158.00	158.00	1	Low Profile Platform-flat	Verizon
158.00	158.00	2	LPA-80063-6CF-EDIN-5	Verizon
158.00	158.00	3	RRH2X60-700	Verizon
158.00	158.00	3	RRH2X60-AWS	Verizon
158.00	158.00	3	RRH2X60-PCS	Verizon
158.00	158.00	6	SBNHH-1D65B	Verizon
151.00	151.00	1	ODU	Clearwire
151.00	151.00	1	Pipe	Clearwire
151.00	151.00	1	VHLP2.5	Clearwire
146.00	146.00	3	1900MHz RRH	Sprint
146.00	146.00	3	800 MHz RRH	Sprint
146.00	146.00	3	800MHz External Notch	Sprint
146.00	146.00	3	840 10054	Clearwire
146.00	146.00	4	ACU-A20-N	Sprint
146.00	146.00	3	APXVSPP18-C-A20	Sprint
146.00	146.00	3	APXVTM14-C-120	Sprint
146.00	146.00	1	GPS	Sprint
146.00	146.00	1	Low Profile Platform-flat	Sprint
146.00	146.00	3	RRH	Clearwire
146.00	146.00	3	TD-RRH8x20-25	Sprint
137.00	137.00	3	782 11056	T-Mobile
137.00	137.00	3	APXV18-209014-C	T-Mobile
137.00	137.00	12	FE15S01P77/75	T-Mobile
137.00	137.00	3	LNX-6515DS-A1M	T-Mobile
137.00	137.00	1	Low Profile Platform-flat	T-Mobile
107.00	107.00	6	7770.00	AT&T
107.00	107.00	1	DC6-48-60-18-8F	AT&T
107.00	107.00	3	DTMABP7819VG12A	AT&T
107.00	107.00	3	HPA-65R-BUU-H6	AT&T
107.00	107.00	6	LGP21901	AT&T
107.00	107.00	1	Low Profile Platform-flat	AT&T
107.00	107.00	6	RRU-11	AT&T
107.00	107.00	3	RRUS A2 Module	AT&T
107.00	107.00	3	TT19-08BP111-001	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	158.00	Inside	1 5/8" Coax	Verizon
0.00	158.00	Outside	1 5/8" Hybrid	Verizon
0.00	151.00	Inside	1/2" Coax	Clearwire
0.00	146.00	Inside	1 1/4" Coax	Sprint



0.00	146.00	Inside	1-1/4" Hybrid	Sprint
0.00	146.00	Inside	1/2" Coax	Clearwire
0.00	146.00	Inside	5/16" Coax	Clearwire
0.00	137.00	Inside	1 5/8" Coax	T-Mobile
0.00	107.00	Inside	1 1/4" Coax	AT&T
0.00	107.00	Inside	1/2" Fiber	AT&T
0.00	107.00	Inside	3" Conduit	AT&T
0.00	107.00	Inside	3/4" DC	AT&T

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
24	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	67.0	50.0	Square

Reactions

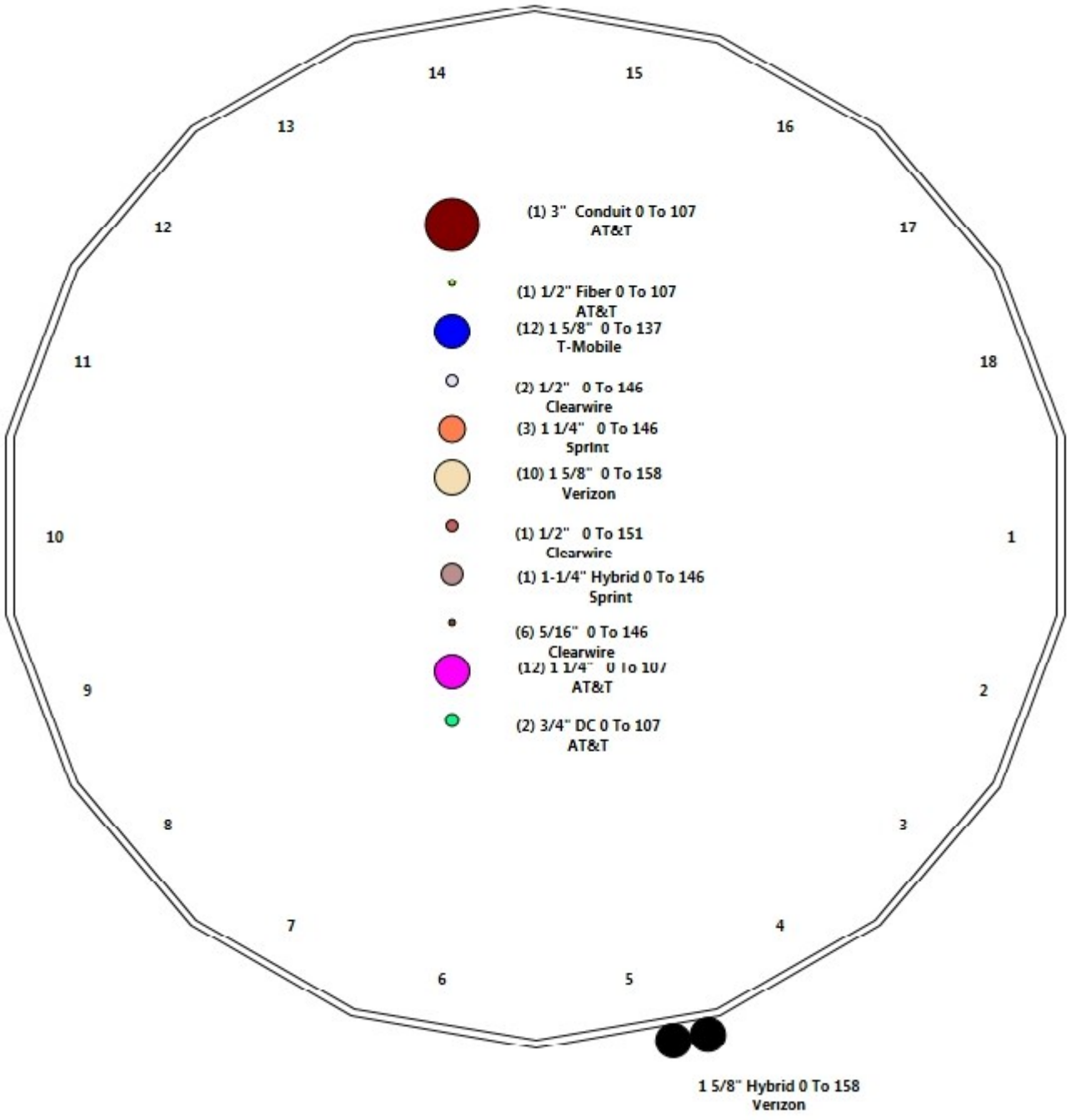
Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	4061.8	34.7	42.3
73.61 mph Wind with 0.5" Ice	3392.0	28.6	49.4
50 mph Wind with 0" Ice	1407.2	12.0	42.3

Structure: CT01080-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Long Hill #1
Height: 158.00 (ft)

3/2/2016

Tower Engineering Solutions



Shaft Properties

Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	51.250	0.4375	65		0.00	12,573
2	18	51.250	0.3750	65	Slip	72.00	8,738
3	18	45.000	0.2500	65	Slip	57.00	3,953
4	18	25.000	0.2500	60	Slip	45.00	1,734
					Total Shaft Weight:		**26,998**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	58.38	0.00	80.46	34128.26	22.12	133.44	46.34	51.25	63.73	16963.8	17.26	105.91	0.235000
2	48.50	45.25	57.27	16756.62	21.39	129.32	36.45	96.50	42.94	7061.30	15.73	97.21	0.235000
3	38.07	91.75	30.01	5422.58	25.44	152.28	27.49	136.7	21.62	2027.15	17.98	109.97	0.235000
4	28.88	133.0	22.71	2351.37	18.96	115.50	23.00	158.0	18.05	1180.40	14.81	92.00	0.235000

Loading Summary

Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	158.00	6' Lightning rod	1	6.50	0.38	1.00	11.80	0.980	1.00	0.00	0.00
2	158.00	APL866513-42T0	4	15.70	4.29	0.94	47.00	4.620	0.94	0.00	0.00
3	158.00	DB-T1-6C-8AB-0Z	2	21.40	4.78	1.00	51.10	5.040	1.00	0.00	0.00
4	158.00	FD9R6004/2C-3L	6	3.10	0.36	0.62	5.40	0.440	0.65	0.00	0.00
5	158.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	1500.00	31.000	1.00	0.00	0.00
6	158.00	LPA-80063-6CF-EDIN-5	2	27.00	10.50	1.00	101.90	11.350	1.00	0.00	0.00
7	158.00	RRH2X60-700	3	60.00	3.96	0.73	80.10	4.230	0.74	0.00	0.00
8	158.00	RRH2X60-AWS	3	60.00	3.96	0.73	80.10	4.230	0.74	0.00	0.00
9	158.00	RRH2X60-PCS	3	55.00	2.57	0.89	80.10	2.760	0.90	0.00	0.00
10	158.00	SBNHH-1D65B	6	50.71	8.33	0.82	87.00	8.800	0.82	0.00	0.00
11	151.00	ODU	1	13.20	1.24	1.00	21.70	1.470	1.00	0.00	0.00
12	151.00	Pipe	1	40.00	2.63	0.75	63.00	4.340	0.75	0.00	0.00
13	151.00	VHLP2.5	1	47.60	8.43	1.00	97.00	8.920	1.00	1.00	0.00
14	146.00	1900MHz RRH	3	44.00	2.91	1.00	75.20	3.110	1.00	0.00	0.00
15	146.00	800 MHz RRH	3	53.00	2.49	0.92	74.10	2.680	0.92	0.00	0.00
16	146.00	800MHz External Notch Filt	3	8.80	0.78	0.69	13.80	0.880	0.71	0.00	0.00
17	146.00	840 10054	3	35.00	5.18	0.63	59.10	5.500	0.64	0.00	0.00
18	146.00	ACU-A20-N	4	1.00	0.08	1.00	2.30	0.120	1.00	0.00	0.00
19	146.00	APXVSPP18-C-A20	3	57.00	8.26	0.82	106.50	8.730	0.82	0.00	0.00
20	146.00	APXVTM14-C-120	3	56.00	6.90	0.76	91.90	7.290	0.77	0.00	0.00
21	146.00	GPS	1	10.00	1.05	1.00	18.00	1.170	1.00	0.00	0.00
22	146.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	1500.00	31.000	1.00	0.00	0.00
23	146.00	RRH	3	3.13	2.92	0.88	65.00	2.920	0.88	0.00	0.00
24	146.00	TD-RRH8x20-25	3	70.00	4.72	0.68	92.00	4.970	0.69	0.00	0.00
25	137.00	782 11056	3	11.00	0.55	0.99	16.00	0.640	0.99	0.00	0.00
26	137.00	APXV18-209014-C	3	18.70	3.57	0.78	0.00	3.840	0.79	0.00	0.00
27	137.00	FE15S01P77/75	12	8.20	0.54	0.68	12.10	0.630	0.70	0.00	0.00
28	137.00	LNX-6515DS-A1M	3	49.80	11.41	0.84	115.60	11.920	0.84	0.00	0.00
29	137.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	1500.00	31.000	1.00	0.00	0.00
30	107.00	7770.00	6	35.00	5.88	0.75	0.00	6.530	0.75	0.00	0.00
31	107.00	DC6-48-60-18-8F	1	32.80	1.47	1.00	49.50	1.670	1.00	0.00	0.00
32	107.00	DTMABP7819VG12A	3	19.20	1.14	0.67	26.50	1.260	0.69	0.00	0.00
33	107.00	HPA-65R-BUU-H6	3	51.00	10.58	0.81	108.40	10.850	0.81	0.00	0.00
34	107.00	LGP21901	6	5.30	0.42	0.74	7.90	0.490	0.76	0.00	0.00
35	107.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	1500.00	31.000	1.00	0.00	0.00
36	107.00	RRU-11	6	55.00	2.94	0.71	0.00	3.140	0.72	0.00	0.00
37	107.00	RRUS A2 Module	3	21.20	2.92	0.61	31.40	3.070	0.63	0.00	0.00
38	107.00	TT19-08BP111-001	3	16.00	0.64	0.00	21.80	0.820	0.00	0.00	0.00
		Totals:	**118**	**8,173.25**			**10,924.00**				

Linear Appurtenances

			No Ice		Ice		
Bottom Elev. (ft)	Top Elev. (ft)	Description	Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	Exposed
0.00	158.00	(10) 1 5/8" Coax	10.40	0.00	10.40	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	158.00	(2) 1 5/8" Hybrid		2.20	0.20		5.00	0.30	Outside		
0.00	151.00	(1) 1/2" Coax		0.16	0.00		0.16	0.00	Inside		
0.00	146.00	(3) 1 1/4" Coax		6.00	0.00		6.00	0.00	Inside		
0.00	146.00	(1) 1-1/4" Hybrid		2.86	0.00		2.86	0.00	Inside		
0.00	146.00	(2) 1/2" Coax		0.32	0.00		0.32	0.00	Inside		
0.00	146.00	(6) 5/16" Coax		2.88	0.00		2.88	0.00	Inside		
0.00	137.00	(12) 1 5/8" Coax		12.48	0.00		12.48	0.00	Inside		
0.00	107.00	(12) 1 1/4" Coax		12.48	0.00		12.48	0.00	Inside		
0.00	107.00	(1) 1/2" Fiber		0.06	0.00		0.07	0.00	Inside		
0.00	107.00	(1) 3" Conduit		1.78	0.00		1.78	0.00	Inside		
0.00	107.00	(2) 3/4" DC		1.20	0.00		0.60	0.00	Inside		
		Totals:		**7,146.41**			**7,525.39**				

Shaft Section Properties

Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 8	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.4375	58.380	80.458	34128.3	22.12	133.44	65	52	0.0
5.00		0.4375	57.205	78.826	32093.8	21.64	130.75	65	52	1355.0
10.00		0.4375	56.030	77.194	30141.9	21.17	128.07	65	52	1327.3
15.00		0.4375	54.855	75.563	28270.8	20.70	125.38	65	52	1299.5
20.00		0.4375	53.680	73.931	26478.8	20.22	122.70	65	52	1271.7
25.00		0.4375	52.505	72.300	24764.1	19.75	120.01	65	52	1244.0
30.00		0.4375	51.330	70.668	23125.1	19.28	117.33	65	52	1216.2
35.00		0.4375	50.155	69.036	21560.1	18.80	114.64	65	52	1188.5
40.00		0.4375	48.980	67.405	20067.3	18.33	111.95	65	52	1160.7
45.00		0.4375	47.805	65.773	18645.1	17.86	109.27	65	52	1132.9
45.25	Bot - Section 2	0.4375	47.746	65.692	18575.8	17.83	109.13	65	52	55.9
50.00		0.4375	46.630	64.142	17291.7	17.38	106.58	65	52	1964.3
51.25	Top - Section 1	0.3750	47.086	55.596	15326.4	20.73	125.56	65	52	509.2
55.00		0.3750	46.205	54.547	14475.2	20.32	123.21	65	52	702.7
60.00		0.3750	45.030	53.149	13390.2	19.76	120.08	65	52	916.2
65.00		0.3750	43.855	51.750	12360.7	19.21	116.95	65	52	892.4
70.00		0.3750	42.680	50.352	11385.5	18.66	113.81	65	52	868.6
75.00		0.3750	41.505	48.953	10462.9	18.11	110.68	65	52	844.8
80.00		0.3750	40.330	47.555	9591.6	17.55	107.55	65	52	821.0
85.00		0.3750	39.155	46.156	8770.0	17.00	104.41	65	52	797.2
90.00		0.3750	37.980	44.758	7996.7	16.45	101.28	65	52	773.4
91.75	Bot - Section 3	0.3750	37.569	44.268	7737.2	16.25	100.18	65	52	265.1
95.00		0.3750	36.805	43.359	7270.3	15.90	98.15	65	52	813.0
96.50	Top - Section 2	0.2500	36.953	29.122	4956.5	24.65	147.81	65	52	369.6
100.00		0.2500	36.130	28.470	4630.6	24.07	144.52	65	52	343.0
105.00		0.2500	34.955	27.537	4190.4	23.24	139.82	65	52	476.4
107.00		0.2500	34.485	27.164	4022.5	22.91	137.94	65	52	186.1
110.00		0.2500	33.780	26.605	3779.1	22.41	135.12	65	52	274.4
115.00		0.2500	32.605	25.673	3395.5	21.59	130.42	65	52	444.7
120.00		0.2500	31.430	24.740	3038.9	20.76	125.72	65	52	428.9
125.00		0.2500	30.255	23.808	2708.1	19.93	121.02	65	52	413.0
130.00		0.2500	29.080	22.876	2402.3	19.10	116.32	65	52	397.1
133.00	Bot - Section 4	0.2500	28.375	22.316	2230.3	18.60	113.50	65	52	230.7
135.00		0.2500	27.905	21.943	2120.3	18.27	111.62	65	52	303.9
136.75	Top - Section 3	0.2500	27.994	22.014	2140.8	18.33	111.97	60	52	261.8
137.00		0.2500	27.935	21.967	2127.2	18.29	111.74	60	48	18.7
140.00		0.2500	27.230	21.408	1968.8	17.79	108.92	60	48	221.4
145.00		0.2500	26.055	20.476	1722.6	16.97	104.22	60	48	356.3
146.00		0.2500	25.820	20.289	1676.0	16.80	103.28	60	48	69.4
150.00		0.2500	24.880	19.543	1497.9	16.14	99.52	60	48	271.1
151.00		0.2500	24.645	19.357	1455.4	15.97	98.58	60	48	66.2
155.00		0.2500	23.705	18.611	1293.6	15.31	94.82	60	48	258.4
158.00		0.2500	23.000	18.051	1180.4	14.81	92.00	60	48	187.1
										26997.7

Wind Loading - Shaft

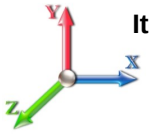
Structure: CT01080-S-SBA
Site Name: Long Hill #1
Height: 158.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

3/2/2016

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	18.496	31.26	413.53	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	405.20	0.650	0.000	5.00	24.080	15.65	489.3	0.0	1355.0
10.00		0.00	1.00	18.496	31.26	396.88	0.650	0.000	5.00	23.591	15.33	479.3	0.0	1327.3
15.00		0.00	1.00	18.496	31.26	388.56	0.650	0.000	5.00	23.101	15.02	469.4	0.0	1299.5
20.00		0.00	1.00	18.496	31.26	380.23	0.650	0.000	5.00	22.611	14.70	459.4	0.0	1271.7
25.00		0.00	1.00	18.496	31.26	371.91	0.650	0.000	5.00	22.122	14.38	449.5	0.0	1244.0
30.00		0.00	1.00	18.496	31.26	363.59	0.650	0.000	5.00	21.632	14.06	439.5	0.0	1216.2
35.00		0.00	1.02	18.810	31.79	358.26	0.650	0.000	5.00	21.143	13.74	436.9	0.0	1188.5
40.00		0.00	1.06	19.541	33.02	356.61	0.650	0.000	5.00	20.653	13.42	443.3	0.0	1160.7
45.00		0.00	1.09	20.210	34.15	353.96	0.650	0.000	5.00	20.164	13.11	447.6	0.0	1132.9
45.25	Bot - Section 2	0.00	1.09	20.242	34.21	353.80	0.650	0.000	0.25	0.995	0.65	22.1	0.0	55.9
50.00		0.00	1.13	20.827	35.20	350.50	0.650	0.000	4.75	18.976	12.33	434.1	0.0	1964.3
51.25	Top - Section 1	0.00	1.13	20.975	35.45	349.52	0.650	0.000	1.25	4.920	3.20	113.4	0.0	509.2
55.00		0.00	1.16	21.402	36.17	352.06	0.650	0.000	3.75	14.577	9.47	342.7	0.0	702.7
60.00		0.00	1.19	21.941	37.08	347.40	0.650	0.000	5.00	19.007	12.35	458.1	0.0	916.2
65.00		0.00	1.21	22.449	37.94	342.23	0.650	0.000	5.00	18.518	12.04	456.6	0.0	892.4
70.00		0.00	1.24	22.929	38.75	336.60	0.650	0.000	5.00	18.028	11.72	454.1	0.0	868.6
75.00		0.00	1.26	23.386	39.52	330.58	0.650	0.000	5.00	17.539	11.40	450.5	0.0	844.8
80.00		0.00	1.29	23.821	40.26	324.19	0.650	0.000	5.00	17.049	11.08	446.1	0.0	821.0
85.00		0.00	1.31	24.237	40.96	317.49	0.650	0.000	5.00	16.559	10.76	440.9	0.0	797.2
90.00		0.00	1.33	24.636	41.63	310.48	0.650	0.000	5.00	16.070	10.45	434.9	0.0	773.4
91.75	Bot - Section 3	0.00	1.34	24.772	41.86	307.97	0.650	0.000	1.75	5.509	3.58	149.9	0.0	265.1
95.00		0.00	1.35	25.020	42.28	303.21	0.650	0.000	3.25	10.207	6.63	280.5	0.0	813.0
96.50	Top - Section 2	0.00	1.36	25.132	42.47	300.98	0.650	0.000	1.50	4.641	3.02	128.1	0.0	369.6
100.00		0.00	1.37	25.389	42.91	299.84	0.650	0.000	3.50	10.658	6.93	297.2	0.0	343.0
105.00		0.00	1.39	25.745	43.51	292.12	0.650	0.000	5.00	14.809	9.63	418.8	0.0	476.4
107.00	Appurtenance(s)	0.00	1.40	25.885	43.74	288.97	0.650	0.000	2.00	5.787	3.76	164.5	0.0	186.1
110.00		0.00	1.41	26.090	44.09	284.18	0.650	0.000	3.00	8.533	5.55	244.6	0.0	274.4
115.00		0.00	1.43	26.423	44.66	276.04	0.650	0.000	5.00	13.830	8.99	401.4	0.0	444.7
120.00		0.00	1.45	26.747	45.20	267.72	0.650	0.000	5.00	13.341	8.67	392.0	0.0	428.9
125.00		0.00	1.46	27.060	45.73	259.22	0.650	0.000	5.00	12.851	8.35	382.0	0.0	413.0
130.00		0.00	1.48	27.365	46.25	250.55	0.650	0.000	5.00	12.361	8.03	371.6	0.0	397.1
133.00	Bot - Section 4	0.00	1.49	27.544	46.55	245.27	0.650	0.000	3.00	7.182	4.67	217.3	0.0	230.7
135.00		0.00	1.50	27.662	46.75	241.73	0.650	0.000	2.00	4.773	3.10	145.0	0.0	303.9
136.75	Top - Section 3	0.00	1.50	27.764	46.92	238.60	0.650	0.000	1.75	4.112	2.67	125.4	0.0	261.8
137.00	Appurtenance(s)	0.00	1.50	27.778	46.95	242.49	0.650	0.000	0.25	0.583	0.38	17.8	0.0	18.7
140.00		0.00	1.51	27.951	47.24	237.11	0.650	0.000	3.00	6.896	4.48	211.7	0.0	221.4
145.00		0.00	1.53	28.233	47.71	228.02	0.650	0.000	5.00	11.101	7.22	344.3	0.0	356.3
146.00	Appurtenance(s)	0.00	1.53	28.288	47.81	226.18	0.650	0.000	1.00	2.161	1.40	67.2	0.0	69.4
150.00		0.00	1.54	28.507	48.18	218.79	0.650	0.000	4.00	8.450	5.49	264.6	0.0	271.1
151.00	Appurtenance(s)	0.00	1.54	28.562	48.27	216.93	0.650	0.000	1.00	2.064	1.34	64.7	0.0	66.2
155.00		0.00	1.56	28.776	48.63	209.44	0.650	0.000	4.00	8.058	5.24	254.7	0.0	258.4
158.00	Appurtenance(s)	0.00	1.56	28.934	48.90	203.76	0.650	0.000	3.00	5.838	3.79	185.6	0.0	187.1
							Totals:		**158.00**			**13,296.9**		**26,997.7**

Discrete Appurtenance Forces

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	158.00	Low Profile Platform-flat	1	28.934	48.898	1.00	25.00	1200.00	0.000	0.000	1222.45	0.00	0.00
2	158.00	6' Lightning rod	1	28.934	48.898	1.00	0.38	6.50	0.000	0.000	18.58	0.00	0.00
3	158.00	APL866513-42T0	4	28.934	48.898	0.94	16.13	62.80	0.000	0.000	788.74	0.00	0.00
4	158.00	DB-T1-6C-8AB-0Z	2	28.934	48.898	1.00	9.56	42.80	0.000	0.000	467.46	0.00	0.00
5	158.00	FD9R6004/2C-3L	6	28.934	48.898	0.62	1.34	18.60	0.000	0.000	65.48	0.00	0.00
6	158.00	SBNHH-1D65B	6	28.934	48.898	0.82	40.98	304.26	0.000	0.000	2004.02	0.00	0.00
7	158.00	RRH2X60-700	3	28.934	48.898	0.73	8.67	180.00	0.000	0.000	424.06	0.00	0.00
8	158.00	RRH2X60-AWS	3	28.934	48.898	0.73	8.67	180.00	0.000	0.000	424.06	0.00	0.00
9	158.00	RRH2X60-PCS	3	28.934	48.898	0.89	6.86	165.00	0.000	0.000	335.53	0.00	0.00
10	158.00	LPA-80063-6CF-EDIN-5	2	28.934	48.898	1.00	21.00	54.00	0.000	0.000	1026.86	0.00	0.00
11	151.00	Pipe	1	28.562	48.269	0.75	1.97	40.00	0.000	0.000	95.21	0.00	0.00
12	151.00	ODU	1	28.562	48.269	1.00	1.24	13.20	0.000	0.000	59.85	0.00	0.00
13	151.00	VHLP2.5	1	28.562	48.269	1.00	8.43	47.60	2.043	0.000	406.91	831.20	0.00
14	146.00	TD-RRH8x20-25	3	28.288	47.807	0.68	9.63	210.00	0.000	0.000	460.32	0.00	0.00
15	146.00	RRH	3	28.288	47.807	0.88	7.71	9.39	0.000	0.000	368.53	0.00	0.00
16	146.00	Low Profile Platform-flat	1	28.288	47.807	1.00	25.00	1200.00	0.000	0.000	1195.17	0.00	0.00
17	146.00	GPS	1	28.288	47.807	1.00	1.05	10.00	0.000	0.000	50.20	0.00	0.00
18	146.00	APXVTM14-C-120	3	28.288	47.807	0.76	15.73	168.00	0.000	0.000	752.10	0.00	0.00
19	146.00	APXVSPP18-C-A20	3	28.288	47.807	0.82	20.32	171.00	0.000	0.000	971.42	0.00	0.00
20	146.00	ACU-A20-N	4	28.288	47.807	1.00	0.32	4.00	0.000	0.000	15.30	0.00	0.00
21	146.00	800MHz External Notch Filt	3	28.288	47.807	0.69	1.61	26.40	0.000	0.000	77.19	0.00	0.00
22	146.00	800 MHz RRH	3	28.288	47.807	0.92	6.87	159.00	0.000	0.000	328.55	0.00	0.00
23	146.00	1900MHz RRH	3	28.288	47.807	1.00	8.73	132.00	0.000	0.000	417.35	0.00	0.00
24	146.00	840 10054	3	28.288	47.807	0.63	9.79	105.00	0.000	0.000	468.04	0.00	0.00
25	137.00	FE15S01P77/75	12	27.778	46.946	0.68	4.41	98.40	0.000	0.000	206.86	0.00	0.00
26	137.00	APXV18-209014-C	3	27.778	46.946	0.78	8.35	56.10	0.000	0.000	392.17	0.00	0.00
27	137.00	782 11056	3	27.778	46.946	0.99	1.63	33.00	0.000	0.000	76.69	0.00	0.00
28	137.00	Low Profile Platform-flat	1	27.778	46.946	1.00	25.00	1200.00	0.000	0.000	1173.64	0.00	0.00
29	137.00	LNX-6515DS-A1M	3	27.778	46.946	0.84	28.75	149.40	0.000	0.000	1349.84	0.00	0.00
30	107.00	HPA-65R-BUU-H6	3	25.885	43.745	0.81	25.71	153.00	0.000	0.000	1124.65	0.00	0.00
31	107.00	7770.00	6	25.885	43.745	0.75	26.46	210.00	0.000	0.000	1157.49	0.00	0.00
32	107.00	DC6-48-60-18-8F	1	25.885	43.745	1.00	1.47	32.80	0.000	0.000	64.30	0.00	0.00
33	107.00	DTMABP7819VG12A	3	25.885	43.745	0.67	2.29	57.60	0.000	0.000	100.24	0.00	0.00
34	107.00	Low Profile Platform-flat	1	25.885	43.745	1.00	25.00	1200.00	0.000	0.000	1093.62	0.00	0.00
35	107.00	LGP21901	6	25.885	43.745	0.74	1.86	31.80	0.000	0.000	81.58	0.00	0.00
36	107.00	RRU-11	6	25.885	43.745	0.71	12.52	330.00	0.000	0.000	547.88	0.00	0.00
37	107.00	RRUS A2 Module	3	25.885	43.745	0.61	5.34	63.60	0.000	0.000	233.76	0.00	0.00
38	107.00	TT19-08BP111-001	3	25.885	43.745	0.00	1.92	48.00	0.000	0.000	83.99	0.00	0.00
						Totals:		**8,173.25**			**20,130.10**		

Total Applied Force Summary

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		520.52	1619.13	0.00	0.00
10.00		510.57	1591.37	0.00	0.00
15.00		500.62	1563.61	0.00	0.00
20.00		490.67	1535.85	0.00	0.00
25.00		480.73	1508.09	0.00	0.00
30.00		470.78	1480.33	0.00	0.00
35.00		468.65	1452.57	0.00	0.00
40.00		476.36	1424.81	0.00	0.00
45.00		481.80	1397.05	0.00	0.00
45.25		23.84	69.12	0.00	0.00
50.00		467.58	2215.16	0.00	0.00
51.25		122.23	575.21	0.00	0.00
55.00		369.84	900.82	0.00	0.00
60.00		495.20	1180.27	0.00	0.00
65.00		494.58	1156.48	0.00	0.00
70.00		492.84	1132.69	0.00	0.00
75.00		490.07	1108.89	0.00	0.00
80.00		486.38	1085.10	0.00	0.00
85.00		481.84	1061.30	0.00	0.00
90.00		476.53	1037.51	0.00	0.00
91.75		164.56	357.51	0.00	0.00
95.00		308.01	984.72	0.00	0.00
96.50		140.87	448.83	0.00	0.00
100.00		327.28	527.83	0.00	0.00
105.00		462.34	740.56	0.00	0.00
107.00	(32) appurtenances	4669.55	2418.58	0.00	0.00
110.00		271.01	386.35	0.00	0.00
115.00		446.09	631.23	0.00	0.00
120.00		437.16	615.37	0.00	0.00
125.00		427.74	599.51	0.00	0.00
130.00		417.84	583.65	0.00	0.00
133.00		245.23	342.57	0.00	0.00
135.00		163.75	378.52	0.00	0.00
136.75		141.85	327.04	0.00	0.00
137.00	(22) appurtenances	3219.32	1564.93	0.00	0.00
140.00		240.07	295.86	0.00	0.00
145.00		391.99	480.41	0.00	0.00
146.00	(30) appurtenances	5180.89	2288.97	0.00	0.00
150.00		303.16	322.12	0.00	0.00
151.00	(3) appurtenances	636.37	179.74	831.20	0.00
155.00		293.63	308.79	0.00	0.00
158.00	(31) appurtenances	6992.15	2438.89	0.00	0.00
	Totals:	**34,682.48**	**42,317.34**	**831.20**	**0.00**

Resulting Forces and Deflections

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-34.745	-42.266	0.000	-0.012	-0.812	-4061.786	0.000	0.000	0.000	0.000	0.000
5.00	-34.341	-40.547	0.000	-0.012	-0.812	-3888.063	-0.089	0.000	0.089	-0.166	0.000
10.00	-33.938	-38.858	0.000	-0.012	-0.812	-3716.363	-0.353	0.000	0.353	-0.334	0.000
15.00	-33.539	-37.197	0.000	-0.012	-0.812	-3546.674	-0.796	0.000	0.796	-0.506	0.000
20.00	-33.141	-35.565	0.000	-0.013	-0.812	-3378.983	-1.419	0.000	1.419	-0.680	0.000
25.00	-32.746	-33.961	0.000	-0.013	-0.812	-3213.279	-2.226	0.000	2.226	-0.857	0.000
30.00	-32.354	-32.387	0.000	-0.014	-0.812	-3049.550	-3.220	0.000	3.220	-1.037	0.000
35.00	-31.956	-30.841	0.000	-0.014	-0.812	-2887.784	-4.404	0.000	4.404	-1.219	0.000
40.00	-31.543	-29.325	0.000	-0.015	-0.812	-2728.007	-5.781	0.000	5.781	-1.405	0.000
45.00	-31.072	-27.888	0.000	-0.015	-0.813	-2570.297	-7.353	0.000	7.353	-1.592	0.000
45.25	-31.093	-27.768	0.000	-0.016	-0.813	-2562.529	-7.437	0.000	7.437	-1.602	0.000
50.00	-30.611	-25.506	0.000	-0.016	-0.813	-2414.840	-9.123	0.000	9.123	-1.783	0.000
51.25	-30.513	-24.883	0.000	-0.017	-0.813	-2376.577	-9.597	0.000	9.597	-1.833	0.000
55.00	-30.189	-23.899	0.000	-0.019	-0.813	-2262.154	-11.095	0.000	11.095	-1.978	-0.001
60.00	-29.737	-22.626	0.000	-0.020	-0.814	-2111.209	-13.283	0.000	13.283	-2.193	-0.001
65.00	-29.277	-21.380	0.000	-0.022	-0.814	-1962.526	-15.696	0.000	15.696	-2.410	-0.001
70.00	-28.812	-20.161	0.000	-0.023	-0.815	-1816.141	-18.336	0.000	18.336	-2.627	-0.001
75.00	-28.342	-18.969	0.000	-0.025	-0.815	-1672.082	-21.204	0.001	21.204	-2.845	-0.001
80.00	-27.868	-17.805	0.000	-0.027	-0.816	-1530.375	-24.300	0.001	24.300	-3.063	-0.001
85.00	-27.391	-16.669	0.000	-0.029	-0.816	-1391.037	-27.623	0.001	27.623	-3.279	-0.001
90.00	-26.893	-15.594	0.001	-0.031	-0.817	-1254.083	-31.172	0.001	31.172	-3.494	-0.001
91.75	-26.736	-15.196	0.001	-0.032	-0.817	-1207.021	-32.467	0.001	32.467	-3.571	-0.001
95.00	-26.391	-14.187	0.001	-0.034	-0.817	-1120.130	-34.945	0.001	34.945	-3.710	-0.001
96.50	-26.246	-13.699	0.001	-0.035	-0.818	-1080.545	-36.120	0.001	36.120	-3.774	-0.001
100.00	-25.935	-13.096	0.001	-0.038	-0.819	-988.683	-38.941	0.002	38.941	-3.920	-0.002
105.00	-25.463	-12.303	0.001	-0.040	-0.820	-859.012	-43.198	0.002	43.198	-4.204	-0.002
107.00	-20.651	-10.188	0.001	-0.042	-0.820	-808.087	-44.983	0.002	44.983	-4.317	-0.002
110.00	-20.388	-9.747	0.001	-0.045	-0.821	-746.134	-47.747	0.002	47.747	-4.482	-0.002
115.00	-19.933	-9.065	0.001	-0.048	-0.822	-644.194	-52.579	0.003	52.579	-4.744	-0.002
120.00	-19.481	-8.407	0.001	-0.052	-0.823	-544.528	-57.677	0.004	57.677	-4.993	-0.003
125.00	-19.032	-7.775	0.001	-0.056	-0.825	-447.124	-63.027	0.005	63.027	-5.225	-0.003
130.00	-18.582	-7.181	0.001	-0.060	-0.825	-351.966	-68.608	0.006	68.608	-5.435	-0.004
133.00	-18.316	-6.834	0.001	-0.063	-0.826	-296.222	-72.056	0.007	72.056	-5.550	-0.004
135.00	-18.123	-6.453	0.001	-0.065	-0.826	-259.591	-74.394	0.007	74.394	-5.621	-0.004
136.75	-17.953	-6.131	0.001	-0.067	-0.827	-227.876	-76.463	0.008	76.463	-5.678	-0.004
137.00	-14.599	-4.882	0.001	-0.068	-0.827	-223.387	-76.760	0.008	76.760	-5.686	-0.004
140.00	-14.338	-4.587	0.001	-0.071	-0.827	-179.592	-80.354	0.009	80.354	-5.767	-0.005
145.00	-13.903	-4.136	0.001	-0.076	-0.827	-107.904	-86.444	0.011	86.444	-5.871	-0.005
146.00	-8.516	-2.384	0.001	-0.077	-0.828	-94.001	-87.674	0.011	87.674	-5.887	-0.005
150.00	-8.183	-2.091	0.001	-0.080	-0.828	-59.935	-92.622	0.013	92.622	-5.939	-0.006
151.00	-7.532	-1.975	0.001	0.005	0.000	-51.753	-93.865	0.013	93.865	-5.950	-0.006
155.00	-7.208	-1.697	0.001	0.002	0.000	-21.625	-98.856	0.014	98.856	-5.979	-0.006
158.00	-6.992	0.000	0.000	0.000	0.000	0.000	0.000	0.000	102.609	-5.986	-0.006

Resulting Stresses

Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.53	0.87	0.00	0.00	0.00	42.33	42.88	52.0	0.825
5.00	0.51	0.88	0.00	0.00	0.00	42.22	42.76	52.0	0.823
10.00	0.50	0.89	0.00	0.00	0.00	42.09	42.62	52.0	0.820
15.00	0.49	0.89	0.00	0.00	0.00	41.93	42.45	52.0	0.817
20.00	0.48	0.90	0.00	0.01	0.00	41.74	42.25	52.0	0.813
25.00	0.47	0.91	0.00	0.01	0.00	41.51	42.01	52.0	0.808
30.00	0.46	0.92	0.00	0.01	0.00	41.24	41.73	52.0	0.803
35.00	0.45	0.93	0.00	0.01	0.00	40.93	41.41	52.0	0.797
40.00	0.44	0.94	0.00	0.01	0.00	40.57	41.04	52.0	0.789
45.00	0.42	0.95	0.00	0.01	0.00	40.15	40.61	52.0	0.781
45.25	0.42	0.95	0.00	0.01	0.00	40.13	40.59	52.0	0.781
50.00	0.40	0.96	0.00	0.01	0.00	39.67	40.11	52.0	0.772
51.25	0.45	1.11	0.00	0.01	0.00	44.48	44.97	52.0	0.865
55.00	0.44	1.12	0.00	0.01	0.00	43.99	44.47	52.0	0.856
60.00	0.43	1.13	0.00	0.01	0.00	43.26	43.73	52.0	0.841
65.00	0.41	1.14	0.00	0.01	0.00	42.42	42.88	52.0	0.825
70.00	0.40	1.15	0.00	0.01	0.00	41.48	41.93	52.0	0.807
75.00	0.39	1.17	0.00	0.01	0.00	40.41	40.85	52.0	0.786
80.00	0.37	1.18	0.00	0.01	0.00	39.20	39.63	52.0	0.762
85.00	0.36	1.20	0.00	0.01	0.00	37.84	38.26	52.0	0.736
90.00	0.35	1.21	0.00	0.01	0.00	36.29	36.70	52.0	0.706
91.75	0.34	1.22	0.00	0.01	0.00	35.71	36.11	52.0	0.695
95.00	0.33	1.23	0.00	0.01	0.00	34.55	34.94	52.0	0.672
96.50	0.47	1.82	0.00	0.02	0.00	49.08	49.65	52.0	0.955
100.00	0.46	1.84	0.00	0.02	0.00	47.00	47.57	52.0	0.915
105.00	0.45	1.86	0.00	0.02	0.00	43.66	44.22	52.0	0.851
107.00	0.38	1.53	0.00	0.02	0.00	42.21	42.67	52.0	0.821
110.00	0.37	1.54	0.00	0.02	0.00	40.63	41.09	52.0	0.790
115.00	0.35	1.56	0.00	0.02	0.00	37.69	38.14	52.0	0.734
120.00	0.34	1.59	0.00	0.03	0.00	34.31	34.76	52.0	0.669
125.00	0.33	1.61	0.00	0.03	0.00	30.43	30.89	52.0	0.594
130.00	0.31	1.64	0.00	0.03	0.00	25.96	26.43	52.0	0.508
133.00	0.31	1.65	0.00	0.03	0.00	22.96	23.45	52.0	0.451
135.00	0.29	1.66	0.00	0.03	0.01	20.81	21.31	52.0	0.410
136.75	0.28	1.64	0.00	0.03	0.01	18.15	18.66	52.0	0.359
137.00	0.22	1.34	0.00	0.03	0.01	17.87	18.25	48.0	0.380
140.00	0.21	1.35	0.00	0.03	0.01	15.13	15.53	48.0	0.324
145.00	0.20	1.37	0.00	0.04	0.01	9.94	10.43	48.0	0.217
146.00	0.12	0.85	0.00	0.04	0.01	8.82	9.07	48.0	0.189
150.00	0.11	0.84	0.00	0.04	0.01	6.07	6.36	48.0	0.133
151.00	0.10	0.78	0.00	0.00	0.00	5.34	5.61	48.0	0.117
155.00	0.09	0.78	0.00	0.00	0.00	2.41	2.85	48.0	0.059
158.00	0.00	0.78	0.00	0.00	0.00	0.00	1.35	48.0	0.028

Wind Loading - Shaft

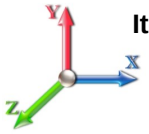
Structure: CT01080-S-SBA
Site Name: Long Hill #1
Height: 158.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

3/2/2016

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	358.11	0.650	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	350.91	0.650	0.500	5.00	24.497	15.92	373.3	178.1	1533.1
10.00		0.00	1.00	13.871	23.44	343.70	0.650	0.500	5.00	24.007	15.60	365.8	174.4	1501.7
15.00		0.00	1.00	13.871	23.44	336.49	0.650	0.500	5.00	23.518	15.29	358.4	170.8	1470.3
20.00		0.00	1.00	13.871	23.44	329.28	0.650	0.500	5.00	23.028	14.97	350.9	167.2	1438.9
25.00		0.00	1.00	13.871	23.44	322.07	0.650	0.500	5.00	22.539	14.65	343.4	163.6	1407.5
30.00		0.00	1.00	13.871	23.44	314.87	0.650	0.500	5.00	22.049	14.33	336.0	159.9	1376.2
35.00		0.00	1.02	14.106	23.84	310.26	0.650	0.500	5.00	21.559	14.01	334.1	156.3	1344.8
40.00		0.00	1.06	14.655	24.77	308.82	0.650	0.500	5.00	21.070	13.70	339.2	152.7	1313.4
45.00		0.00	1.09	15.156	25.61	306.53	0.650	0.500	5.00	20.580	13.38	342.6	149.1	1282.0
45.25	Bot - Section 2	0.00	1.09	15.181	25.66	306.39	0.650	0.500	0.25	1.016	0.66	16.9	7.4	63.4
50.00		0.00	1.13	15.620	26.40	303.53	0.650	0.500	4.75	19.371	12.59	332.4	140.4	2104.6
51.25	Top - Section 1	0.00	1.13	15.730	26.58	302.68	0.650	0.500	1.25	5.024	3.27	86.8	36.7	545.9
55.00		0.00	1.16	16.051	27.13	304.89	0.650	0.500	3.75	14.889	9.68	262.5	108.1	810.8
60.00		0.00	1.19	16.455	27.81	300.85	0.650	0.500	5.00	19.424	12.63	351.1	140.5	1056.7
65.00		0.00	1.21	16.836	28.45	296.37	0.650	0.500	5.00	18.934	12.31	350.2	136.9	1029.2
70.00		0.00	1.24	17.196	29.06	291.50	0.650	0.500	5.00	18.445	11.99	348.4	133.2	1001.8
75.00		0.00	1.26	17.538	29.64	286.28	0.650	0.500	5.00	17.955	11.67	345.9	129.6	974.4
80.00		0.00	1.29	17.865	30.19	280.75	0.650	0.500	5.00	17.466	11.35	342.7	126.0	947.0
85.00		0.00	1.31	18.177	30.72	274.94	0.650	0.500	5.00	16.976	11.03	339.0	122.4	919.6
90.00		0.00	1.33	18.476	31.22	268.88	0.650	0.500	5.00	16.486	10.72	334.6	118.7	892.1
91.75	Bot - Section 3	0.00	1.34	18.578	31.40	266.70	0.650	0.500	1.75	5.655	3.68	115.4	41.1	306.2
95.00		0.00	1.35	18.764	31.71	262.58	0.650	0.500	3.25	10.478	6.81	216.0	75.8	888.9
96.50	Top - Section 2	0.00	1.36	18.848	31.85	260.65	0.650	0.500	1.50	4.766	3.10	98.7	34.7	404.3
100.00		0.00	1.37	19.041	32.18	259.66	0.650	0.500	3.50	10.950	7.12	229.0	79.1	422.1
105.00		0.00	1.39	19.308	32.63	252.97	0.650	0.500	5.00	15.226	9.90	322.9	109.4	585.9
107.00	Appurtenance(s)	0.00	1.40	19.412	32.81	250.25	0.650	0.500	2.00	5.953	3.87	127.0	43.2	229.3
110.00		0.00	1.41	19.566	33.07	246.10	0.650	0.500	3.00	8.783	5.71	188.8	63.5	337.9
115.00		0.00	1.43	19.816	33.49	239.05	0.650	0.500	5.00	14.247	9.26	310.1	102.2	546.9
120.00		0.00	1.45	20.059	33.90	231.84	0.650	0.500	5.00	13.757	8.94	303.1	98.5	527.4
125.00		0.00	1.46	20.294	34.30	224.48	0.650	0.500	5.00	13.268	8.62	295.8	94.9	507.9
130.00		0.00	1.48	20.523	34.68	216.98	0.650	0.500	5.00	12.778	8.31	288.1	91.3	488.4
133.00	Bot - Section 4	0.00	1.49	20.657	34.91	212.41	0.650	0.500	3.00	7.432	4.83	168.6	53.5	284.1
135.00		0.00	1.50	20.745	35.06	209.33	0.650	0.500	2.00	4.940	3.21	112.6	35.7	339.6
136.75	Top - Section 3	0.00	1.50	20.822	35.19	206.63	0.650	0.500	1.75	4.258	2.77	97.4	30.8	292.5
137.00	Appurtenance(s)	0.00	1.50	20.833	35.21	210.00	0.650	0.500	0.25	0.603	0.39	13.8	4.4	23.1
140.00		0.00	1.51	20.962	35.43	205.33	0.650	0.500	3.00	7.146	4.64	164.5	51.3	272.7
145.00		0.00	1.53	21.173	35.78	197.46	0.650	0.500	5.00	11.518	7.49	267.9	81.9	438.2
146.00	Appurtenance(s)	0.00	1.53	21.215	35.85	195.87	0.650	0.500	1.00	2.245	1.46	52.3	16.2	85.6
150.00		0.00	1.54	21.379	36.13	189.47	0.650	0.500	4.00	8.783	5.71	206.3	62.7	333.7
151.00	Appurtenance(s)	0.00	1.54	21.420	36.20	187.86	0.650	0.500	1.00	2.147	1.40	50.5	15.5	81.7
155.00		0.00	1.56	21.581	36.47	181.37	0.650	0.500	4.00	8.392	5.45	198.9	59.8	318.1
158.00	Appurtenance(s)	0.00	1.56	21.699	36.67	176.46	0.650	0.500	3.00	6.088	3.96	145.1	43.5	230.6
							Totals:		**158.00**			**10,227.1**		**30,958.5**

Discrete Appurtenance Forces

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	158.00	Low Profile Platform-flat	1	21.699	36.671	1.00	31.00	1500.00	0.000	0.000	1136.81	0.00	0.00
2	158.00	6' Lightning rod	1	21.699	36.671	1.00	0.98	11.80	0.000	0.000	35.94	0.00	0.00
3	158.00	APL866513-42T0	4	21.699	36.671	0.94	17.37	188.00	0.000	0.000	637.03	0.00	0.00
4	158.00	DB-T1-6C-8AB-0Z	2	21.699	36.671	1.00	10.08	102.20	0.000	0.000	369.65	0.00	0.00
5	158.00	FD9R6004/2C-3L	6	21.699	36.671	0.65	1.72	32.40	0.000	0.000	62.93	0.00	0.00
6	158.00	SBNHH-1D65B	6	21.699	36.671	0.82	43.30	522.00	0.000	0.000	1587.72	0.00	0.00
7	158.00	RRH2X60-700	3	21.699	36.671	0.74	9.39	240.30	0.000	0.000	344.37	0.00	0.00
8	158.00	RRH2X60-AWS	3	21.699	36.671	0.74	9.39	240.30	0.000	0.000	344.37	0.00	0.00
9	158.00	RRH2X60-PCS	3	21.699	36.671	0.90	7.45	240.30	0.000	0.000	273.27	0.00	0.00
10	158.00	LPA-80063-6CF-EDIN-5	2	21.699	36.671	1.00	22.70	203.80	0.000	0.000	832.44	0.00	0.00
11	151.00	Pipe	1	21.420	36.200	0.75	3.25	63.00	0.000	0.000	117.83	0.00	0.00
12	151.00	ODU	1	21.420	36.200	1.00	1.47	21.70	0.000	0.000	53.21	0.00	0.00
13	151.00	VHLP2.5	1	21.420	36.200	1.00	8.92	97.00	2.043	0.000	322.90	659.59	0.00
14	146.00	TD-RRH8x20-25	3	21.215	35.853	0.69	10.29	276.00	0.000	0.000	368.85	0.00	0.00
15	146.00	RRH	3	21.215	35.853	0.88	7.71	195.00	0.000	0.000	276.38	0.00	0.00
16	146.00	Low Profile Platform-flat	1	21.215	35.853	1.00	31.00	1500.00	0.000	0.000	1111.44	0.00	0.00
17	146.00	GPS	1	21.215	35.853	1.00	1.17	18.00	0.000	0.000	41.95	0.00	0.00
18	146.00	APXVTM14-C-120	3	21.215	35.853	0.77	16.84	275.70	0.000	0.000	603.76	0.00	0.00
19	146.00	APXVSPP18-C-A20	3	21.215	35.853	0.82	21.48	319.50	0.000	0.000	769.97	0.00	0.00
20	146.00	ACU-A20-N	4	21.215	35.853	1.00	0.48	9.20	0.000	0.000	17.21	0.00	0.00
21	146.00	800MHz External Notch Filt	3	21.215	35.853	0.71	1.87	41.40	0.000	0.000	67.20	0.00	0.00
22	146.00	800 MHz RRH	3	21.215	35.853	0.92	7.40	222.30	0.000	0.000	265.20	0.00	0.00
23	146.00	1900MHz RRH	3	21.215	35.853	1.00	9.33	225.60	0.000	0.000	334.51	0.00	0.00
24	146.00	840 10054	3	21.215	35.853	0.64	10.56	177.30	0.000	0.000	378.61	0.00	0.00
25	137.00	FE15S01P77/75	12	20.833	35.207	0.70	5.29	145.20	0.000	0.000	186.32	0.00	0.00
26	137.00	APXV18-209014-C	3	20.833	35.207	0.79	9.10	0.00	0.000	0.000	320.41	0.00	0.00
27	137.00	782 11056	3	20.833	35.207	0.99	1.90	48.00	0.000	0.000	66.92	0.00	0.00
28	137.00	Low Profile Platform-flat	1	20.833	35.207	1.00	31.00	1500.00	0.000	0.000	1091.42	0.00	0.00
29	137.00	LNX-6515DS-A1M	3	20.833	35.207	0.84	30.04	346.80	0.000	0.000	1057.57	0.00	0.00
30	107.00	HPA-65R-BUU-H6	3	19.412	32.807	0.81	26.37	325.20	0.000	0.000	864.97	0.00	0.00
31	107.00	7770.00	6	19.412	32.807	0.75	29.38	0.00	0.000	0.000	964.03	0.00	0.00
32	107.00	DC6-48-60-18-8F	1	19.412	32.807	1.00	1.67	49.50	0.000	0.000	54.79	0.00	0.00
33	107.00	DTMABP7819VG12A	3	19.412	32.807	0.69	2.61	79.50	0.000	0.000	85.57	0.00	0.00
34	107.00	Low Profile Platform-flat	1	19.412	32.807	1.00	31.00	1500.00	0.000	0.000	1017.01	0.00	0.00
35	107.00	LGP21901	6	19.412	32.807	0.76	2.23	47.40	0.000	0.000	73.30	0.00	0.00
36	107.00	RRU-11	6	19.412	32.807	0.72	13.56	0.00	0.000	0.000	445.02	0.00	0.00
37	107.00	RRUS A2 Module	3	19.412	32.807	0.63	5.80	94.20	0.000	0.000	190.35	0.00	0.00
38	107.00	TT19-08BP111-001	3	19.412	32.807	0.00	2.46	65.40	0.000	0.000	80.70	0.00	0.00
						Totals:		**10,924.00**			**16,851.92**		

Total Applied Force Summary

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Iterations: 24

Dead Load Factor 1.00

Wind Load Factor 1.00

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		408.43	1811.19	0.00	0.00
10.00		400.97	1779.80	0.00	0.00
15.00		393.51	1748.42	0.00	0.00
20.00		386.05	1717.03	0.00	0.00
25.00		378.59	1685.65	0.00	0.00
30.00		371.13	1654.26	0.00	0.00
35.00		369.84	1622.88	0.00	0.00
40.00		376.34	1591.49	0.00	0.00
45.00		381.07	1560.11	0.00	0.00
45.25		18.87	77.27	0.00	0.00
50.00		369.99	2368.82	0.00	0.00
51.25		96.79	615.41	0.00	0.00
55.00		293.04	1019.41	0.00	0.00
60.00		392.82	1334.77	0.00	0.00
65.00		392.85	1307.35	0.00	0.00
70.00		392.01	1279.93	0.00	0.00
75.00		390.38	1252.51	0.00	0.00
80.00		388.04	1225.09	0.00	0.00
85.00		385.04	1197.67	0.00	0.00
90.00		381.44	1170.25	0.00	0.00
91.75		131.88	403.52	0.00	0.00
95.00		246.88	1069.64	0.00	0.00
96.50		113.01	487.70	0.00	0.00
100.00		262.81	616.75	0.00	0.00
105.00		371.89	863.96	0.00	0.00
107.00	(32) appurtenances	3922.37	2501.76	0.00	0.00
110.00		218.54	458.22	0.00	0.00
115.00		360.36	747.39	0.00	0.00
120.00		353.98	727.90	0.00	0.00
125.00		347.22	708.41	0.00	0.00
130.00		340.10	688.92	0.00	0.00
133.00		200.06	404.43	0.00	0.00
135.00		133.61	419.79	0.00	0.00
136.75		115.87	362.71	0.00	0.00
137.00	(22) appurtenances	2739.09	2073.12	0.00	0.00
140.00		196.42	355.60	0.00	0.00
145.00		321.56	576.35	0.00	0.00
146.00	(30) appurtenances	4298.16	3373.22	0.00	0.00
150.00		249.63	395.97	0.00	0.00
151.00	(3) appurtenances	555.32	278.96	659.59	0.00
155.00		242.70	379.74	0.00	0.00
158.00	(31) appurtenances	5802.64	3557.94	0.00	0.00
	Totals:	**28,491.34**	**49,471.32**	**659.59**	**0.00**

Resulting Forces and Deflections

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Iterations: 24

Dead Load Factor 1.00

Wind Load Factor 1.00

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-28.552	-49.436	0.000	-0.010	-0.649	-3391.964	0.000	0.000	0.000	0.000	0.000
5.00	-28.257	-47.556	0.000	-0.010	-0.649	-3249.208	-0.074	0.000	0.074	-0.138	0.000
10.00	-27.963	-45.709	0.000	-0.010	-0.649	-3107.925	-0.295	0.000	0.295	-0.279	0.000
15.00	-27.670	-43.893	0.000	-0.011	-0.649	-2968.112	-0.665	0.000	0.665	-0.423	0.000
20.00	-27.377	-42.109	0.000	-0.011	-0.649	-2829.766	-1.186	0.000	1.186	-0.569	0.000
25.00	-27.085	-40.358	0.000	-0.011	-0.649	-2692.883	-1.861	0.000	1.861	-0.717	0.000
30.00	-26.794	-38.638	0.000	-0.011	-0.649	-2557.460	-2.693	0.000	2.693	-0.868	0.000
35.00	-26.497	-36.950	0.000	-0.012	-0.649	-2423.495	-3.684	0.000	3.684	-1.021	0.000
40.00	-26.187	-35.294	0.000	-0.013	-0.649	-2291.013	-4.837	0.000	4.837	-1.176	0.000
45.00	-25.820	-33.706	0.000	-0.012	-0.649	-2160.083	-6.154	0.000	6.154	-1.334	0.000
45.25	-25.847	-33.593	0.000	-0.013	-0.649	-2153.628	-6.224	0.000	6.224	-1.342	0.000
50.00	-25.470	-31.191	0.000	-0.013	-0.649	-2030.859	-7.637	0.000	7.637	-1.495	0.000
51.25	-25.401	-30.542	0.000	-0.014	-0.649	-1999.022	-8.034	0.000	8.034	-1.536	0.000
55.00	-25.159	-29.464	0.000	-0.015	-0.649	-1903.769	-9.290	0.000	9.290	-1.659	0.000
60.00	-24.814	-28.063	0.000	-0.016	-0.650	-1777.979	-11.125	0.000	11.125	-1.840	0.000
65.00	-24.463	-26.692	0.000	-0.017	-0.650	-1653.910	-13.149	0.000	13.149	-2.022	-0.001
70.00	-24.105	-25.350	0.000	-0.018	-0.650	-1531.598	-15.365	0.000	15.365	-2.205	-0.001
75.00	-23.742	-24.039	0.000	-0.019	-0.650	-1411.075	-17.774	0.000	17.774	-2.389	-0.001
80.00	-23.374	-22.757	0.000	-0.020	-0.651	-1292.366	-20.374	0.000	20.374	-2.573	-0.001
85.00	-23.003	-21.505	0.000	-0.022	-0.651	-1175.497	-23.167	0.001	23.167	-2.756	-0.001
90.00	-22.607	-20.307	0.000	-0.023	-0.651	-1060.486	-26.150	0.001	26.150	-2.937	-0.001
91.75	-22.486	-19.875	0.000	-0.024	-0.652	-1020.925	-27.239	0.001	27.239	-3.002	-0.001
95.00	-22.210	-18.787	0.000	-0.025	-0.652	-947.847	-29.323	0.001	29.323	-3.120	-0.001
96.50	-22.099	-18.272	0.000	-0.026	-0.652	-914.532	-30.312	0.001	30.312	-3.174	-0.001
100.00	-21.859	-17.600	0.000	-0.028	-0.653	-837.186	-32.685	0.001	32.685	-3.298	-0.001
105.00	-21.485	-16.698	0.000	-0.029	-0.653	-727.893	-36.268	0.001	36.268	-3.538	-0.001
107.00	-17.443	-14.411	0.000	-0.030	-0.654	-684.925	-37.771	0.001	37.771	-3.634	-0.002
110.00	-17.240	-13.913	0.000	-0.032	-0.654	-632.597	-40.099	0.002	40.099	-3.774	-0.002
115.00	-16.879	-13.128	0.000	-0.034	-0.655	-546.400	-44.169	0.002	44.169	-3.996	-0.002
120.00	-16.518	-12.368	0.001	-0.036	-0.655	-462.004	-48.466	0.003	48.466	-4.207	-0.002
125.00	-16.157	-11.635	0.001	-0.039	-0.656	-379.414	-52.977	0.003	52.977	-4.404	-0.003
130.00	-15.790	-10.938	0.001	-0.041	-0.656	-298.629	-57.684	0.004	57.684	-4.582	-0.003
133.00	-15.572	-10.530	0.001	-0.043	-0.657	-251.260	-60.593	0.004	60.593	-4.680	-0.003
135.00	-15.414	-10.108	0.001	-0.045	-0.657	-220.116	-62.565	0.005	62.565	-4.740	-0.003
136.75	-15.273	-9.748	0.001	-0.046	-0.657	-193.141	-64.310	0.005	64.310	-4.788	-0.003
137.00	-12.376	-7.903	0.001	-0.046	-0.657	-189.323	-64.561	0.005	64.561	-4.795	-0.003
140.00	-12.161	-7.548	0.001	-0.048	-0.657	-152.195	-67.594	0.006	67.594	-4.864	-0.004
145.00	-11.797	-6.992	0.001	-0.051	-0.657	-91.391	-72.733	0.007	72.733	-4.952	-0.004
146.00	-7.225	-3.999	0.001	-0.052	-0.658	-79.594	-73.770	0.007	73.770	-4.966	-0.004
150.00	-6.944	-3.623	0.001	-0.054	-0.658	-50.693	-77.946	0.009	77.946	-5.010	-0.005
151.00	-6.367	-3.392	0.001	0.004	0.000	-43.749	-78.996	0.009	78.996	-5.019	-0.005
155.00	-6.093	-3.034	0.001	0.002	0.000	-18.279	-83.207	0.010	83.207	-5.043	-0.005
158.00	-5.803	0.000	0.000	0.000	0.000	0.000	0.000	0.000	86.375	-5.049	-0.005

Resulting Stresses

Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.61	0.72	0.00	0.00	0.00	35.35	35.99	52.0	0.692
5.00	0.60	0.72	0.00	0.00	0.00	35.28	35.91	52.0	0.691
10.00	0.59	0.73	0.00	0.00	0.00	35.20	35.81	52.0	0.689
15.00	0.58	0.74	0.00	0.00	0.00	35.09	35.69	52.0	0.687
20.00	0.57	0.75	0.00	0.00	0.00	34.95	35.54	52.0	0.684
25.00	0.56	0.76	0.00	0.00	0.00	34.79	35.37	52.0	0.680
30.00	0.55	0.76	0.00	0.00	0.00	34.59	35.16	52.0	0.676
35.00	0.54	0.77	0.00	0.00	0.00	34.35	34.91	52.0	0.672
40.00	0.52	0.78	0.00	0.00	0.00	34.07	34.62	52.0	0.666
45.00	0.51	0.79	0.00	0.01	0.00	33.74	34.28	52.0	0.660
45.25	0.51	0.79	0.00	0.01	0.00	33.73	34.27	52.0	0.659
50.00	0.49	0.80	0.00	0.01	0.00	33.37	33.88	52.0	0.652
51.25	0.55	0.92	0.00	0.01	0.00	37.42	38.00	52.0	0.731
55.00	0.54	0.93	0.00	0.01	0.00	37.02	37.60	52.0	0.723
60.00	0.53	0.94	0.00	0.01	0.00	36.43	36.99	52.0	0.712
65.00	0.52	0.95	0.00	0.01	0.00	35.75	36.30	52.0	0.698
70.00	0.50	0.96	0.00	0.01	0.00	34.98	35.52	52.0	0.683
75.00	0.49	0.98	0.00	0.01	0.00	34.10	34.64	52.0	0.666
80.00	0.48	0.99	0.00	0.01	0.00	33.11	33.63	52.0	0.647
85.00	0.47	1.00	0.00	0.01	0.00	31.97	32.49	52.0	0.625
90.00	0.45	1.02	0.00	0.01	0.00	30.69	31.19	52.0	0.600
91.75	0.45	1.02	0.00	0.01	0.00	30.20	30.70	52.0	0.591
95.00	0.43	1.03	0.00	0.01	0.00	29.23	29.72	52.0	0.572
96.50	0.63	1.53	0.00	0.01	0.00	41.54	42.25	52.0	0.813
100.00	0.62	1.55	0.00	0.02	0.00	39.80	40.51	52.0	0.779
105.00	0.61	1.57	0.00	0.02	0.00	36.99	37.70	52.0	0.725
107.00	0.53	1.29	0.00	0.02	0.00	35.77	36.38	52.0	0.700
110.00	0.52	1.31	0.00	0.02	0.00	34.45	35.05	52.0	0.674
115.00	0.51	1.33	0.00	0.02	0.00	31.97	32.56	52.0	0.626
120.00	0.50	1.35	0.00	0.02	0.00	29.11	29.71	52.0	0.571
125.00	0.49	1.37	0.00	0.02	0.00	25.83	26.42	52.0	0.508
130.00	0.48	1.39	0.00	0.02	0.00	22.02	22.64	52.0	0.435
133.00	0.47	1.41	0.00	0.03	0.00	19.48	20.10	52.0	0.387
135.00	0.46	1.42	0.00	0.03	0.00	17.65	18.28	52.0	0.352
136.75	0.44	1.40	0.00	0.03	0.00	15.39	16.02	52.0	0.308
137.00	0.36	1.14	0.00	0.03	0.00	15.15	15.64	48.0	0.326
140.00	0.35	1.14	0.00	0.03	0.00	12.82	13.33	48.0	0.278
145.00	0.34	1.16	0.00	0.03	0.00	8.42	9.00	48.0	0.188
146.00	0.20	0.72	0.00	0.03	0.00	7.47	7.78	48.0	0.162
150.00	0.19	0.72	0.00	0.03	0.01	5.13	5.47	48.0	0.114
151.00	0.18	0.66	0.00	0.00	0.00	4.51	4.83	48.0	0.101
155.00	0.16	0.66	0.00	0.00	0.00	2.04	2.48	48.0	0.052
158.00	0.00	0.65	0.00	0.00	0.00	0.00	1.12	48.0	0.023

Wind Loading - Shaft

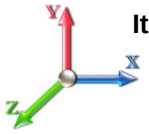
Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	243.25	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	238.35	0.650	0.000	5.00	24.080	15.65	169.3	0.0	1355.0
10.00		0.00	1.00	6.400	10.82	233.46	0.650	0.000	5.00	23.591	15.33	165.9	0.0	1327.3
15.00		0.00	1.00	6.400	10.82	228.56	0.650	0.000	5.00	23.101	15.02	162.4	0.0	1299.5
20.00		0.00	1.00	6.400	10.82	223.67	0.650	0.000	5.00	22.611	14.70	159.0	0.0	1271.7
25.00		0.00	1.00	6.400	10.82	218.77	0.650	0.000	5.00	22.122	14.38	155.5	0.0	1244.0
30.00		0.00	1.00	6.400	10.82	213.88	0.650	0.000	5.00	21.632	14.06	152.1	0.0	1216.2
35.00		0.00	1.02	6.509	11.00	210.74	0.650	0.000	5.00	21.143	13.74	151.2	0.0	1188.5
40.00		0.00	1.06	6.762	11.43	209.77	0.650	0.000	5.00	20.653	13.42	153.4	0.0	1160.7
45.00		0.00	1.09	6.993	11.82	208.21	0.650	0.000	5.00	20.164	13.11	154.9	0.0	1132.9
45.25	Bot - Section 2	0.00	1.09	7.004	11.84	208.12	0.650	0.000	0.25	0.995	0.65	7.7	0.0	55.9
50.00		0.00	1.13	7.207	12.18	206.17	0.650	0.000	4.75	18.976	12.33	150.2	0.0	1964.3
51.25	Top - Section 1	0.00	1.13	7.258	12.27	205.60	0.650	0.000	1.25	4.920	3.20	39.2	0.0	509.2
55.00		0.00	1.16	7.406	12.52	207.10	0.650	0.000	3.75	14.577	9.47	118.6	0.0	702.7
60.00		0.00	1.19	7.592	12.83	204.35	0.650	0.000	5.00	19.007	12.35	158.5	0.0	916.2
65.00		0.00	1.21	7.768	13.13	201.31	0.650	0.000	5.00	18.518	12.04	158.0	0.0	892.4
70.00		0.00	1.24	7.934	13.41	198.00	0.650	0.000	5.00	18.028	11.72	157.1	0.0	868.6
75.00		0.00	1.26	8.092	13.68	194.46	0.650	0.000	5.00	17.539	11.40	155.9	0.0	844.8
80.00		0.00	1.29	8.242	13.93	190.70	0.650	0.000	5.00	17.049	11.08	154.4	0.0	821.0
85.00		0.00	1.31	8.387	14.17	186.76	0.650	0.000	5.00	16.559	10.76	152.6	0.0	797.2
90.00		0.00	1.33	8.525	14.41	182.64	0.650	0.000	5.00	16.070	10.45	150.5	0.0	773.4
91.75	Bot - Section 3	0.00	1.34	8.572	14.49	181.16	0.650	0.000	1.75	5.509	3.58	51.9	0.0	265.1
95.00		0.00	1.35	8.657	14.63	178.36	0.650	0.000	3.25	10.207	6.63	97.1	0.0	813.0
96.50	Top - Section 2	0.00	1.36	8.696	14.70	177.05	0.650	0.000	1.50	4.641	3.02	44.3	0.0	369.6
100.00		0.00	1.37	8.785	14.85	176.38	0.650	0.000	3.50	10.658	6.93	102.9	0.0	343.0
105.00		0.00	1.39	8.908	15.06	171.83	0.650	0.000	5.00	14.809	9.63	144.9	0.0	476.4
107.00	Appurtenance(s)	0.00	1.40	8.957	15.14	169.98	0.650	0.000	2.00	5.787	3.76	56.9	0.0	186.1
110.00		0.00	1.41	9.028	15.26	167.17	0.650	0.000	3.00	8.533	5.55	84.6	0.0	274.4
115.00		0.00	1.43	9.143	15.45	162.38	0.650	0.000	5.00	13.830	8.99	138.9	0.0	444.7
120.00		0.00	1.45	9.255	15.64	157.48	0.650	0.000	5.00	13.341	8.67	135.6	0.0	428.9
125.00		0.00	1.46	9.363	15.82	152.48	0.650	0.000	5.00	12.851	8.35	132.2	0.0	413.0
130.00		0.00	1.48	9.469	16.00	147.38	0.650	0.000	5.00	12.361	8.03	128.6	0.0	397.1
133.00	Bot - Section 4	0.00	1.49	9.531	16.11	144.28	0.650	0.000	3.00	7.182	4.67	75.2	0.0	230.7
135.00		0.00	1.50	9.572	16.18	142.19	0.650	0.000	2.00	4.773	3.10	50.2	0.0	303.9
136.75	Top - Section 3	0.00	1.50	9.607	16.24	140.35	0.650	0.000	1.75	4.112	2.67	43.4	0.0	261.8
137.00	Appurtenance(s)	0.00	1.50	9.612	16.24	142.64	0.650	0.000	0.25	0.583	0.38	6.2	0.0	18.7
140.00		0.00	1.51	9.672	16.35	139.47	0.650	0.000	3.00	6.896	4.48	73.3	0.0	221.4
145.00		0.00	1.53	9.769	16.51	134.13	0.650	0.000	5.00	11.101	7.22	119.1	0.0	356.3
146.00	Appurtenance(s)	0.00	1.53	9.788	16.54	133.05	0.650	0.000	1.00	2.161	1.40	23.2	0.0	69.4
150.00		0.00	1.54	9.864	16.67	128.70	0.650	0.000	4.00	8.450	5.49	91.6	0.0	271.1
151.00	Appurtenance(s)	0.00	1.54	9.883	16.70	127.61	0.650	0.000	1.00	2.064	1.34	22.4	0.0	66.2
155.00		0.00	1.56	9.957	16.83	123.20	0.650	0.000	4.00	8.058	5.24	88.1	0.0	258.4
158.00	Appurtenance(s)	0.00	1.56	10.012	16.92	119.86	0.650	0.000	3.00	5.838	3.79	64.2	0.0	187.1
								Totals:	**158.00**			**4,601.0**		**26,997.7**

Discrete Appurtenance Forces

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	158.00	Low Profile Platform-flat	1	10.012	16.920	1.00	25.00	1200.00	0.000	0.000	422.99	0.00	0.00
2	158.00	6' Lightning rod	1	10.012	16.920	1.00	0.38	6.50	0.000	0.000	6.43	0.00	0.00
3	158.00	APL866513-42T0	4	10.012	16.920	0.94	16.13	62.80	0.000	0.000	272.92	0.00	0.00
4	158.00	DB-T1-6C-8AB-0Z	2	10.012	16.920	1.00	9.56	42.80	0.000	0.000	161.75	0.00	0.00
5	158.00	FD9R6004/2C-3L	6	10.012	16.920	0.62	1.34	18.60	0.000	0.000	22.66	0.00	0.00
6	158.00	SBNHH-1D65B	6	10.012	16.920	0.82	40.98	304.26	0.000	0.000	693.43	0.00	0.00
7	158.00	RRH2X60-700	3	10.012	16.920	0.73	8.67	180.00	0.000	0.000	146.73	0.00	0.00
8	158.00	RRH2X60-AWS	3	10.012	16.920	0.73	8.67	180.00	0.000	0.000	146.73	0.00	0.00
9	158.00	RRH2X60-PCS	3	10.012	16.920	0.89	6.86	165.00	0.000	0.000	116.10	0.00	0.00
10	158.00	LPA-80063-6CF-EDIN-5	2	10.012	16.920	1.00	21.00	54.00	0.000	0.000	355.31	0.00	0.00
11	151.00	Pipe	1	9.883	16.702	0.75	1.97	40.00	0.000	0.000	32.94	0.00	0.00
12	151.00	ODU	1	9.883	16.702	1.00	1.24	13.20	0.000	0.000	20.71	0.00	0.00
13	151.00	VHLP2.5	1	9.883	16.702	1.00	8.43	47.60	2.043	0.000	140.80	287.61	0.00
14	146.00	TD-RRH8x20-25	3	9.788	16.542	0.68	9.63	210.00	0.000	0.000	159.28	0.00	0.00
15	146.00	RRH	3	9.788	16.542	0.88	7.71	9.39	0.000	0.000	127.52	0.00	0.00
16	146.00	Low Profile Platform-flat	1	9.788	16.542	1.00	25.00	1200.00	0.000	0.000	413.55	0.00	0.00
17	146.00	GPS	1	9.788	16.542	1.00	1.05	10.00	0.000	0.000	17.37	0.00	0.00
18	146.00	APXVTM14-C-120	3	9.788	16.542	0.76	15.73	168.00	0.000	0.000	260.24	0.00	0.00
19	146.00	APXVSPP18-C-A20	3	9.788	16.542	0.82	20.32	171.00	0.000	0.000	336.13	0.00	0.00
20	146.00	ACU-A20-N	4	9.788	16.542	1.00	0.32	4.00	0.000	0.000	5.29	0.00	0.00
21	146.00	800MHz External Notch Filt	3	9.788	16.542	0.69	1.61	26.40	0.000	0.000	26.71	0.00	0.00
22	146.00	800 MHz RRH	3	9.788	16.542	0.92	6.87	159.00	0.000	0.000	113.68	0.00	0.00
23	146.00	1900MHz RRH	3	9.788	16.542	1.00	8.73	132.00	0.000	0.000	144.41	0.00	0.00
24	146.00	840 10054	3	9.788	16.542	0.63	9.79	105.00	0.000	0.000	161.95	0.00	0.00
25	137.00	FE15S01P77/75	12	9.612	16.244	0.68	4.41	98.40	0.000	0.000	71.58	0.00	0.00
26	137.00	APXV18-209014-C	3	9.612	16.244	0.78	8.35	56.10	0.000	0.000	135.70	0.00	0.00
27	137.00	782 11056	3	9.612	16.244	0.99	1.63	33.00	0.000	0.000	26.53	0.00	0.00
28	137.00	Low Profile Platform-flat	1	9.612	16.244	1.00	25.00	1200.00	0.000	0.000	406.10	0.00	0.00
29	137.00	LNX-6515DS-A1M	3	9.612	16.244	0.84	28.75	149.40	0.000	0.000	467.07	0.00	0.00
30	107.00	HPA-65R-BUU-H6	3	8.957	15.137	0.81	25.71	153.00	0.000	0.000	389.15	0.00	0.00
31	107.00	7770.00	6	8.957	15.137	0.75	26.46	210.00	0.000	0.000	400.52	0.00	0.00
32	107.00	DC6-48-60-18-8F	1	8.957	15.137	1.00	1.47	32.80	0.000	0.000	22.25	0.00	0.00
33	107.00	DTMABP7819VG12A	3	8.957	15.137	0.67	2.29	57.60	0.000	0.000	34.68	0.00	0.00
34	107.00	Low Profile Platform-flat	1	8.957	15.137	1.00	25.00	1200.00	0.000	0.000	378.42	0.00	0.00
35	107.00	LGP21901	6	8.957	15.137	0.74	1.86	31.80	0.000	0.000	28.23	0.00	0.00
36	107.00	RRU-11	6	8.957	15.137	0.71	12.52	330.00	0.000	0.000	189.58	0.00	0.00
37	107.00	RRUS A2 Module	3	8.957	15.137	0.61	5.34	63.60	0.000	0.000	80.88	0.00	0.00
38	107.00	TT19-08BP111-001	3	8.957	15.137	0.00	1.92	48.00	0.000	0.000	29.06	0.00	0.00
						Totals:		**8,173.25**			**6,965.43**		

Total Applied Force Summary

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		180.11	1619.13	0.00	0.00
10.00		176.67	1591.37	0.00	0.00
15.00		173.23	1563.61	0.00	0.00
20.00		169.78	1535.85	0.00	0.00
25.00		166.34	1508.09	0.00	0.00
30.00		162.90	1480.33	0.00	0.00
35.00		162.16	1452.57	0.00	0.00
40.00		164.83	1424.81	0.00	0.00
45.00		166.71	1397.05	0.00	0.00
45.25		8.25	69.12	0.00	0.00
50.00		161.79	2215.16	0.00	0.00
51.25		42.29	575.21	0.00	0.00
55.00		127.97	900.82	0.00	0.00
60.00		171.35	1180.27	0.00	0.00
65.00		171.14	1156.48	0.00	0.00
70.00		170.53	1132.69	0.00	0.00
75.00		169.57	1108.89	0.00	0.00
80.00		168.30	1085.10	0.00	0.00
85.00		166.73	1061.30	0.00	0.00
90.00		164.89	1037.51	0.00	0.00
91.75		56.94	357.51	0.00	0.00
95.00		106.58	984.72	0.00	0.00
96.50		48.74	448.83	0.00	0.00
100.00		113.25	527.83	0.00	0.00
105.00		159.98	740.56	0.00	0.00
107.00	(32) appurtenances	1615.76	2418.58	0.00	0.00
110.00		93.78	386.35	0.00	0.00
115.00		154.36	631.23	0.00	0.00
120.00		151.27	615.37	0.00	0.00
125.00		148.01	599.51	0.00	0.00
130.00		144.58	583.65	0.00	0.00
133.00		84.86	342.57	0.00	0.00
135.00		56.66	378.52	0.00	0.00
136.75		49.08	327.04	0.00	0.00
137.00	(22) appurtenances	1113.95	1564.93	0.00	0.00
140.00		83.07	295.86	0.00	0.00
145.00		135.64	480.41	0.00	0.00
146.00	(30) appurtenances	1792.70	2288.97	0.00	0.00
150.00		104.90	322.12	0.00	0.00
151.00	(3) appurtenances	220.20	179.74	287.61	0.00
155.00		101.60	308.79	0.00	0.00
158.00	(31) appurtenances	2419.43	2438.89	0.00	0.00
	Totals:	**12,000.86**	**42,317.34**	**287.61**	**0.00**

Resulting Forces and Deflections

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-12.022	-42.311	0.000	-0.001	-0.287	-1407.189	0.000	0.000	0.000	0.000	0.000
5.00	-11.882	-40.680	0.000	-0.001	-0.287	-1347.082	-0.031	0.000	0.031	-0.057	0.000
10.00	-11.743	-39.077	0.000	-0.001	-0.287	-1287.675	-0.122	0.000	0.122	-0.116	0.000
15.00	-11.605	-37.502	0.000	-0.001	-0.287	-1228.962	-0.276	0.000	0.276	-0.175	0.000
20.00	-11.468	-35.954	0.000	-0.001	-0.287	-1170.939	-0.492	0.000	0.492	-0.236	0.000
25.00	-11.332	-34.435	0.000	-0.002	-0.287	-1113.602	-0.771	0.000	0.771	-0.297	0.000
30.00	-11.196	-32.943	0.000	-0.002	-0.287	-1056.945	-1.116	0.000	1.116	-0.359	0.000
35.00	-11.059	-31.479	0.000	-0.002	-0.287	-1000.965	-1.526	0.000	1.526	-0.423	0.000
40.00	-10.917	-30.044	0.000	-0.002	-0.287	-945.670	-2.003	0.000	2.003	-0.487	0.000
45.00	-10.755	-28.642	0.000	-0.002	-0.287	-891.086	-2.548	0.000	2.548	-0.552	0.000
45.25	-10.762	-28.567	0.000	-0.002	-0.287	-888.397	-2.577	0.000	2.577	-0.555	0.000
50.00	-10.596	-26.346	0.000	-0.002	-0.287	-837.277	-3.162	0.000	3.162	-0.618	0.000
51.25	-10.563	-25.765	0.000	-0.002	-0.287	-824.032	-3.326	0.000	3.326	-0.635	0.000
55.00	-10.452	-24.854	0.000	-0.002	-0.287	-784.422	-3.845	0.000	3.845	-0.686	0.000
60.00	-10.296	-23.663	0.000	-0.002	-0.287	-732.165	-4.603	0.000	4.603	-0.760	0.000
65.00	-10.139	-22.495	0.000	-0.003	-0.287	-680.684	-5.440	0.000	5.440	-0.835	0.000
70.00	-9.979	-21.352	0.000	-0.003	-0.287	-629.991	-6.356	0.000	6.356	-0.911	0.000
75.00	-9.818	-20.233	0.000	-0.003	-0.287	-580.096	-7.350	0.000	7.350	-0.986	0.000
80.00	-9.655	-19.139	0.000	-0.003	-0.287	-531.008	-8.424	0.000	8.424	-1.062	0.000
85.00	-9.492	-18.069	0.000	-0.004	-0.287	-482.732	-9.577	0.000	9.577	-1.137	0.000
90.00	-9.321	-17.027	0.000	-0.004	-0.287	-435.273	-10.808	0.000	10.808	-1.211	0.000
91.75	-9.267	-16.664	0.000	-0.004	-0.287	-418.962	-11.257	0.000	11.257	-1.238	0.000
95.00	-9.148	-15.676	0.000	-0.004	-0.287	-388.844	-12.117	0.000	12.117	-1.286	0.000
96.50	-9.099	-15.223	0.000	-0.004	-0.287	-375.122	-12.524	0.000	12.524	-1.309	-0.001
100.00	-8.993	-14.686	0.000	-0.005	-0.287	-343.274	-13.503	0.000	13.503	-1.359	-0.001
105.00	-8.832	-13.939	0.000	-0.005	-0.287	-298.309	-14.981	0.000	14.981	-1.458	-0.001
107.00	-7.164	-11.557	0.000	-0.005	-0.287	-280.646	-15.600	0.000	15.600	-1.497	-0.001
110.00	-7.074	-11.164	0.000	-0.005	-0.287	-259.154	-16.560	0.000	16.560	-1.555	-0.001
115.00	-6.919	-10.527	0.000	-0.006	-0.287	-223.783	-18.237	0.000	18.237	-1.645	-0.001
120.00	-6.764	-9.906	0.000	-0.006	-0.287	-189.189	-20.008	0.000	20.008	-1.732	-0.001
125.00	-6.610	-9.303	0.000	-0.007	-0.287	-155.370	-21.866	0.001	21.866	-1.813	-0.001
130.00	-6.455	-8.718	0.000	-0.007	-0.287	-122.320	-23.804	0.001	23.804	-1.885	-0.001
133.00	-6.364	-8.375	0.000	-0.008	-0.287	-102.955	-25.002	0.001	25.002	-1.925	-0.001
135.00	-6.297	-7.996	0.000	-0.008	-0.287	-90.228	-25.814	0.001	25.814	-1.950	-0.001
136.75	-6.239	-7.670	0.000	-0.008	-0.287	-79.208	-26.533	0.001	26.533	-1.970	-0.001
137.00	-5.073	-6.142	0.000	-0.008	-0.287	-77.648	-26.636	0.001	26.636	-1.973	-0.002
140.00	-4.983	-5.847	0.000	-0.009	-0.287	-62.428	-27.885	0.001	27.885	-2.001	-0.002
145.00	-4.833	-5.370	0.000	-0.009	-0.287	-37.512	-30.002	0.001	30.002	-2.037	-0.002
146.00	-2.960	-3.145	0.000	-0.009	-0.287	-32.679	-30.429	0.001	30.429	-2.043	-0.002
150.00	-2.845	-2.827	0.000	-0.010	-0.287	-20.837	-32.149	0.002	32.149	-2.061	-0.002
151.00	-2.619	-2.655	0.000	0.001	0.000	-17.993	-32.581	0.002	32.581	-2.065	-0.002
155.00	-2.506	-2.350	0.000	0.000	0.000	-7.518	-34.315	0.002	34.315	-2.075	-0.002
158.00	-2.419	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.620	-2.077	-0.002

Resulting Stresses

Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.53	0.30	0.00	0.00	0.00	14.67	15.20	52.0	0.292
5.00	0.52	0.30	0.00	0.00	0.00	14.63	15.15	52.0	0.292
10.00	0.51	0.31	0.00	0.00	0.00	14.58	15.10	52.0	0.290
15.00	0.50	0.31	0.00	0.00	0.00	14.53	15.03	52.0	0.289
20.00	0.49	0.31	0.00	0.00	0.00	14.46	14.96	52.0	0.288
25.00	0.48	0.32	0.00	0.00	0.00	14.38	14.87	52.0	0.286
30.00	0.47	0.32	0.00	0.00	0.00	14.29	14.77	52.0	0.284
35.00	0.46	0.32	0.00	0.00	0.00	14.19	14.65	52.0	0.282
40.00	0.45	0.33	0.00	0.00	0.00	14.06	14.52	52.0	0.279
45.00	0.44	0.33	0.00	0.00	0.00	13.92	14.37	52.0	0.276
45.25	0.43	0.33	0.00	0.00	0.00	13.91	14.36	52.0	0.276
50.00	0.41	0.33	0.00	0.00	0.00	13.76	14.18	52.0	0.273
51.25	0.46	0.38	0.00	0.00	0.00	15.42	15.90	52.0	0.306
55.00	0.46	0.39	0.00	0.00	0.00	15.26	15.73	52.0	0.303
60.00	0.45	0.39	0.00	0.00	0.00	15.00	15.46	52.0	0.297
65.00	0.43	0.39	0.00	0.00	0.00	14.71	15.16	52.0	0.292
70.00	0.42	0.40	0.00	0.00	0.00	14.39	14.83	52.0	0.285
75.00	0.41	0.40	0.00	0.00	0.00	14.02	14.45	52.0	0.278
80.00	0.40	0.41	0.00	0.00	0.00	13.60	14.02	52.0	0.270
85.00	0.39	0.41	0.00	0.00	0.00	13.13	13.54	52.0	0.261
90.00	0.38	0.42	0.00	0.00	0.00	12.60	13.00	52.0	0.250
91.75	0.38	0.42	0.00	0.00	0.00	12.39	12.79	52.0	0.246
95.00	0.36	0.43	0.00	0.00	0.00	11.99	12.38	52.0	0.238
96.50	0.52	0.63	0.00	0.01	0.00	17.04	17.60	52.0	0.339
100.00	0.52	0.64	0.00	0.01	0.00	16.32	16.87	52.0	0.325
105.00	0.51	0.65	0.00	0.01	0.00	15.16	15.71	52.0	0.302
107.00	0.43	0.53	0.00	0.01	0.00	14.66	15.11	52.0	0.291
110.00	0.42	0.54	0.00	0.01	0.00	14.11	14.56	52.0	0.280
115.00	0.41	0.54	0.00	0.01	0.00	13.09	13.54	52.0	0.260
120.00	0.40	0.55	0.00	0.01	0.00	11.92	12.36	52.0	0.238
125.00	0.39	0.56	0.00	0.01	0.00	10.58	11.01	52.0	0.212
130.00	0.38	0.57	0.00	0.01	0.00	9.02	9.46	52.0	0.182
133.00	0.38	0.57	0.00	0.01	0.00	7.98	8.42	52.0	0.162
135.00	0.36	0.58	0.00	0.01	0.00	7.23	7.67	52.0	0.148
136.75	0.35	0.57	0.00	0.01	0.00	6.31	6.73	52.0	0.130
137.00	0.28	0.47	0.00	0.01	0.00	6.21	6.54	48.0	0.136
140.00	0.27	0.47	0.00	0.01	0.00	5.26	5.60	48.0	0.117
145.00	0.26	0.48	0.00	0.01	0.00	3.46	3.81	48.0	0.079
146.00	0.16	0.29	0.00	0.01	0.00	3.07	3.27	48.0	0.068
150.00	0.14	0.29	0.00	0.01	0.00	2.11	2.32	48.0	0.048
151.00	0.14	0.27	0.00	0.00	0.00	1.86	2.05	48.0	0.043
155.00	0.13	0.27	0.00	0.00	0.00	0.84	1.07	48.0	0.022
158.00	0.00	0.27	0.00	0.00	0.00	0.00	0.47	48.0	0.010

Final Analysis Summary

Structure:	CT01080-S-SBA	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
85 mph Wind with 0" Ice	34.7	0.00	42.27	0.01	0.81	4061.79
73.61 mph Wind with 0.5" Ice	28.6	0.00	49.44	0.01	0.65	3391.96
50 mph Wind with 0" Ice	12.0	0.00	42.31	0.00	0.29	1407.19

Max Stresses

Load Case	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.47	1.82	0.00	0.02	0.00	49.08	49.65	52.0	96.50	0.955
73.61 mph Wind with 0.5" Ice	0.63	1.53	0.00	0.01	0.00	41.54	42.25	52.0	96.50	0.813
50 mph Wind with 0" Ice	0.52	0.63	0.00	0.01	0.00	17.04	17.60	52.0	96.50	0.339

Base Plate Summary

Structure:	CT01080-S-SB	**Code:**	EIA/TIA-222-F	3/2/2016	
Site Name:	Long Hill #1	**Exposure:**	C		
Height:	158.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	50.00	**Bolt Circle:**	66.00
Moment (kip-ft):	4350.00	**Width (in):**	67.00	**Number Bolts:**	24.00
Axial (kip):	51.00	**Style:**	Square	**Bolt Type:**	2.25" 18J
Shear (kip):	37.50	**Polygon Sides:**	4.00	**Bolt Diameter (in):**	2.25
Analysis		**Clip Length (in):**	0.00	**Yield (ksi):**	75.00
Moment (kip-ft):	4061.79	**Effective Len (in):**	7.75	**Ultimate (ksi):**	100.00
Axial (kip):	49.44	**Moment (kip-in):**	476.80	**Arrangement:**	Clustered
Shear (kip):	34.75	**Allow Stress (ksi):**	50.00	**Cluster Dist (in):**	6.00
		Applied Stress (ksi):	48.80	**Start Angle (deg):**	45.00
Moment Design %:	93.37	**Stress Ratio:**	0.98	Compression	
				Force (kip):	125.14
				Allowable (kip):	195.00
				Ratio:	0.64
				Tension	
				Force (kip):	121.02
				Allowable (kip):	195.00
				Ratio:	0.62

Monopole Mat Foundation Design

			Date: 3/2/2016
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-F
Site Name:		**Structure Height (Ft.):**	158
Site Number:	CT01080-S-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:	20865	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

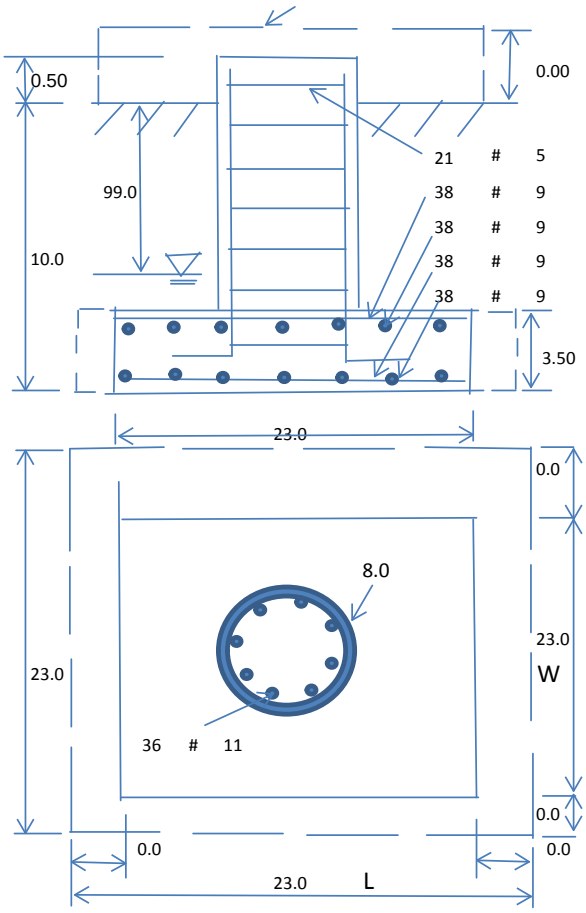
Analysis or Design? Analysis

Base Reactions (Unfactored)

Axial Load (Kips):	42.3	Shear Force (Kips):	34.7
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4061.8
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	10.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.50
Length of Pad (ft.):	23	Width of Pad (ft.):	23
Final Length of pad (ft)	23.0	Final width of pad (ft):	23.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	40	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	38	Qty. of Rebar in Pad (W):	38	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	38	Qty. of Rebar in Pad (W):	38	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Allowable Net Soil Bearing (psf):	8000	Allowable Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hori. force for O.T.M.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	3111.77	Total Dry Soil Weight (Kips):	388.97
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	388.97	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2203.36	Total Dry Concrete Weight (Kips):	330.50
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	330.50	Total Vertical Load on Base (Kips):	761.78

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3776	<	Allowable Soil Bearing (psf): 8000	0.47	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	5840.3	>	Applied Momont (kips-ft): 4426	0.76	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.98	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.30		
				Load/ Capacity Ratio	
(1) Concrete Pier:					
Vertical Steel Rebar Area (sq. in./each):	1.56	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	10952.9 >	Design Factored Moment (Mu, Kips-Ft	5596.1	0.51	OK!
Calculated Shear Capacity (Kips):	912.1 >	Design Factored Shear (Kips):	45.1	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	3032.6 >	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9523.4 >	Design Factored Axial Load (Pu Kips):	55.0	0.01	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.52 OK!	Check Tie Spacing (Design/Required):		0.5	OK!
Pier Reinforcement Ratio:	0.008	Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:					
One-Way Design Shear Capacity (L-Direction, Kips):	871.6 >	One-Way Factored Shear (L-D. Kips):	271.4	0.31	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	871.6 >	One-Way Factored Shear (W-D., Kips)	271.4	0.31	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	929.5 >	One-Way Factored Shear (C-C, Kips):	554.7	0.60	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0036 OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0036		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	6295.8 >	Moment at Bottom (L-Direct. K-Ft):	448.5	0.07	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	6295.8 >	Moment at Bottom (W-Direct. K-Ft):	448.5	0.07	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	8775.9 >	Moment at Bottom (C-C Dir. K-Ft):	634.2	0.07	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0036 OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0036		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	6295.8 >	Moment at the top (L-Dir Kips-Ft):	530.8	0.08	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	6295.8 >	Moment at the top (W-Dir Kips-Ft):	530.8	0.08	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	8775.9 >	Moment at the top (C-C Direc. K-Ft):	810.1	0.09	OK!

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CTV1208

Middletown So. Main
1825 South Main Street
Middletown, CT 06457

February 9, 2016

EBI Project Number: 6216000619

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	9.59 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

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February 9, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CTV1208 – Middletown So. Main**

EBI Consulting was directed to analyze the proposed AT&T facility located at **1825 South Main Street, Middletown, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **1825 South Main Street, Middletown, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 GSM channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

8) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antennas used in this modeling are the **CCI HPA-65R-BUU-H6 and the Powerwave 7770.00** for transmission in the 700 MHz, 850 MHz and1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **107 feet** above ground level (AGL).

11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

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AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	CCI OPA-65R-BUU-H6	Make / Model:	CCI OPA-65R-BUU-H6	Make / Model:	CCI OPA-65R-BUU-H6
Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd
Height (AGL):	107 feet	Height (AGL):	107 feet	Height (AGL):	107 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	5,462.56	ERP (W):	5,462.56	ERP (W):	5,462.56
Antenna A1 MPE%	**2.68**	Antenna B1 MPE%	**2.68**	Antenna C1 MPE%	**2.68**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	107 feet	Height (AGL):	107 feet	Height (AGL):	107 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A2 MPE%	**0.98**	Antenna B2 MPE%	**0.98**	Antenna C2 MPE%	**0.98**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	107 feet	Height (AGL):	107 feet	Height (AGL):	107 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A3 MPE%	**0.98**	Antenna B3 MPE%	**0.98**	Antenna C3 MPE%	**0.98**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**4.64 %**
T-Mobile	1.77 %
Nextel	0.40 %
Sprint	0.32 %
Clearwire	0.09 %
Verizon Wireless	1.81 %
MetroPCS	0.56 %
Site Total MPE %:	**9.59 %**

AT&T Sector 1 Total:	4.64 %
AT&T Sector 2 Total:	4.64 %
AT&T Sector 3 Total:	4.64 %
Site Total:	9.59 %

AT&T _ Per Sector	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density ($\mu W/cm^2$)**	**Frequency (MHz)**	**Allowable MPE ($\mu W/cm^2$)**	**Calculated % MPE**
AT&T 700 MHz LTE	2	940.05	107	6.63	700	467	1.42 %
AT&T 1900 MHz (PCS) LTE	2	1791.23	107	12.63	1900	1000	1.26 %
AT&T 850 MHz UMTS	2	414.12	107	2.92	850	567	0.51 %
AT&T 1900 MHz (PCS) UMTS	2	656.33	107	4.63	1900	1000	0.46 %
AT&T 850 MHz GSM	2	414.12	107	2.92	850	567	0.51 %
AT&T 1900 MHz (PCS) GSM	2	656.33	107	4.63	1900	1000	0.46 %
						Total:	4.64 %

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

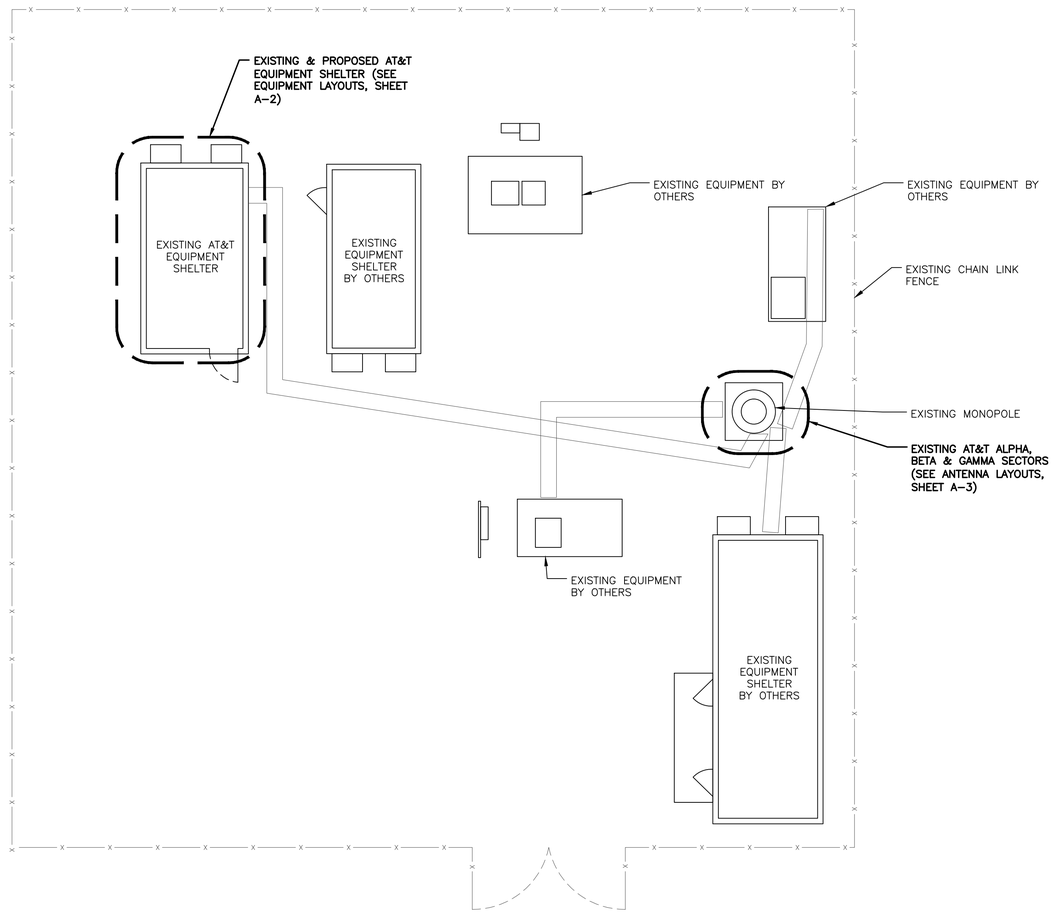
AT&T Sector	Power Density Value (%)
Sector 1:	4.64 %
Sector 2:	4.64 %
Sector 3 :	4.64 %
AT&T Maximum Total (per sector):	4.64 %
Site Total:	9.59 %
Site Compliance Status:	**COMPLIANT**

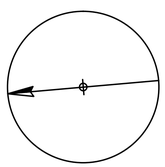
The anticipated composite MPE value for this site assuming all carriers present is **9.59%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803





COMPOUND LAYOUT

SCALE: 1/8" = 1'-0"

0 4 8 16

GRAPHIC SCALE: 1/8"=1'-0"

NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CTV1208

SITE NAME: MIDDLETOWN SO MAIN

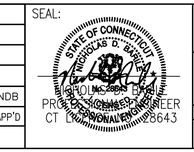
1825 SOUTH MAIN STREET
MIDDLETOWN, CT 06457
MIDDLESEX COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	01/27/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:

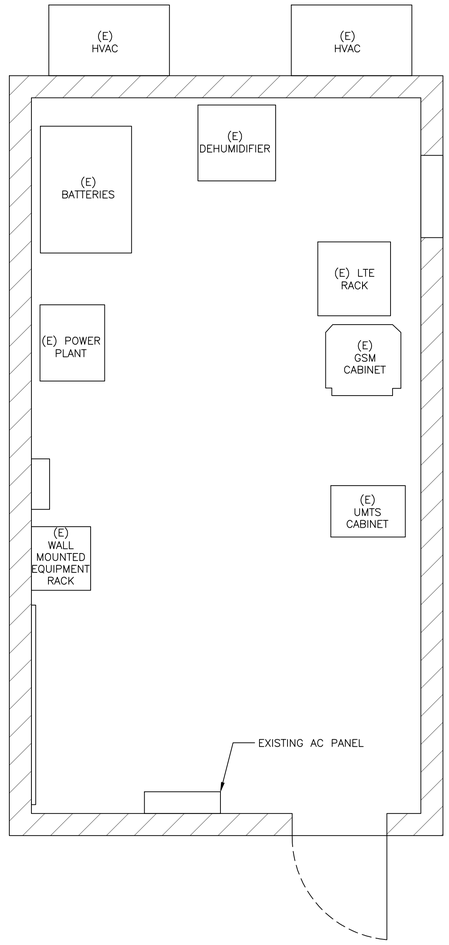


NICHOLAS D. BARLOW
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15117-EMP	A-1	0

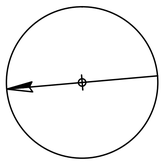


EXISTING EQUIPMENT LAYOUT

SCALE: 1/2" = 1'-0"

0 1 2 4

GRAPHIC SCALE: 1/2"=1'-0"



NORTH

NO GROUND EQUIPMENT MODIFICATIONS ARE BEING MADE AS PART OF THIS SCOPE. EXISTING GROUND EQUIPMENT CONFIGURATION TO REMAIN.

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MIDDLESEX COUNTY

at&t MOBILITY
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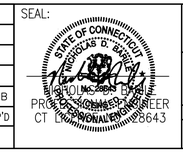
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	01/27/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:



PRINCIPAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
EQUIPMENT LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
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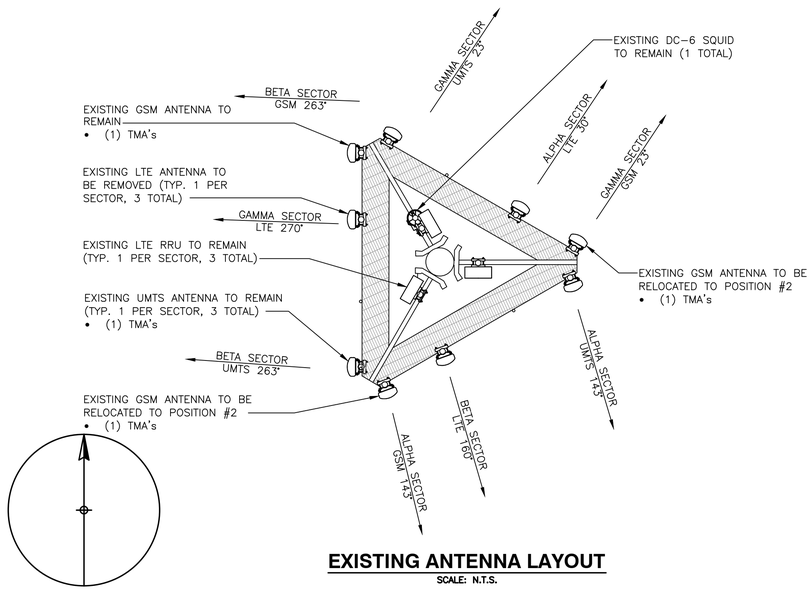
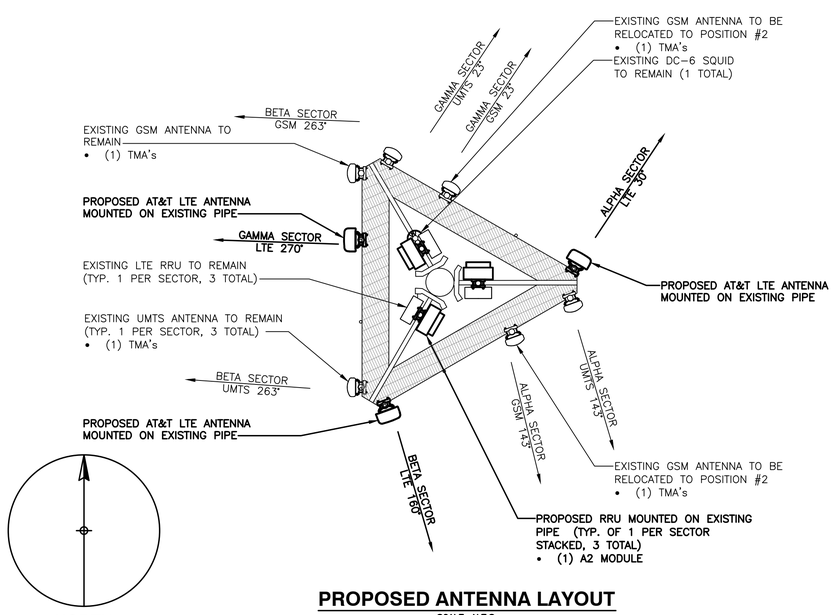


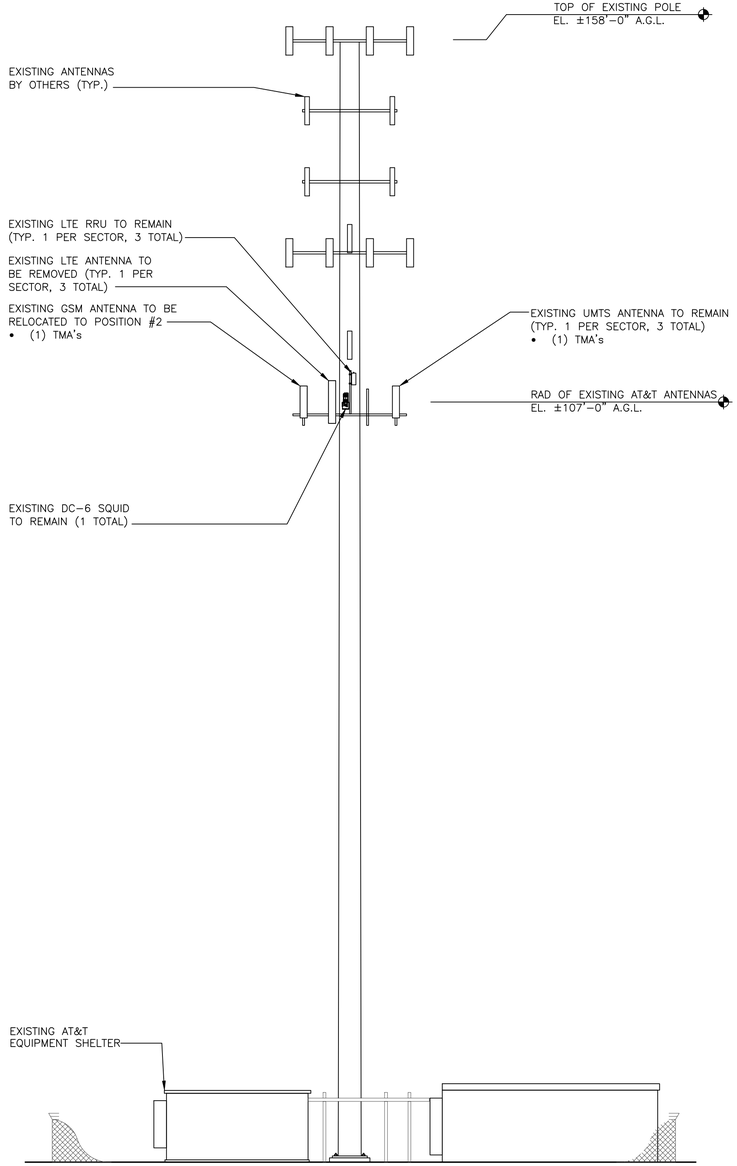
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

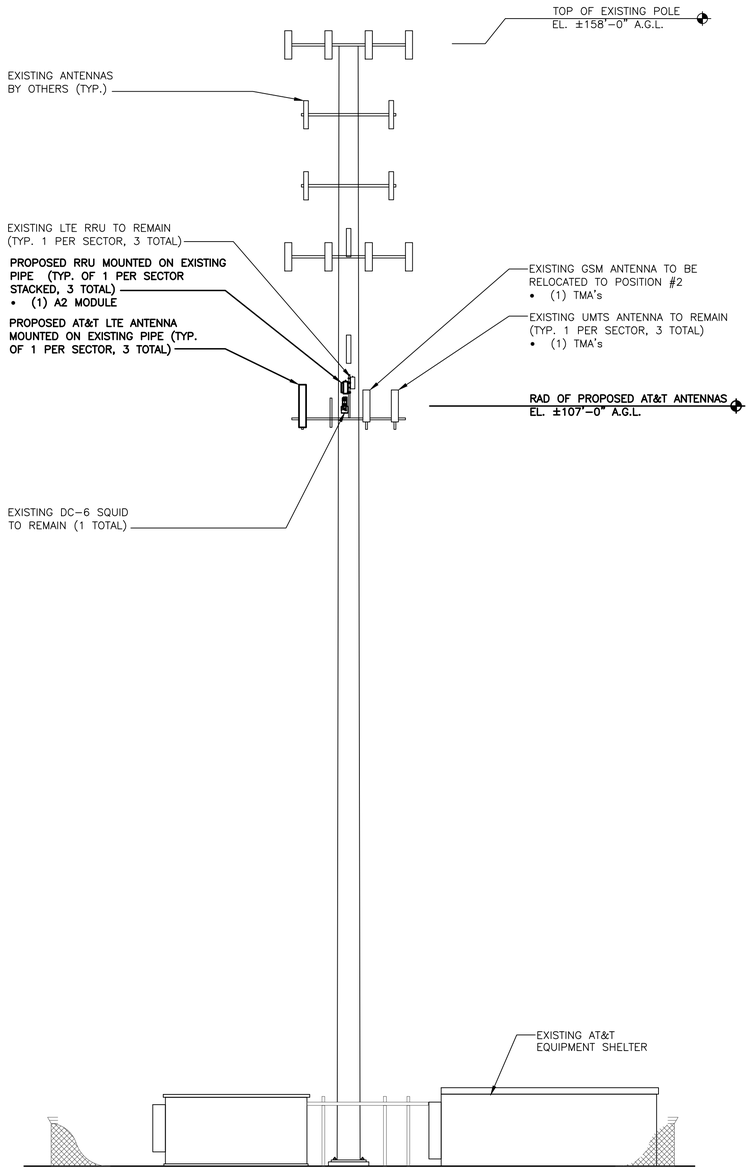
SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.



PROPOSED TOWER ELEVATION

SCALE: NTS

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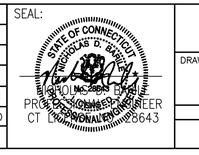
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	01/27/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:



AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
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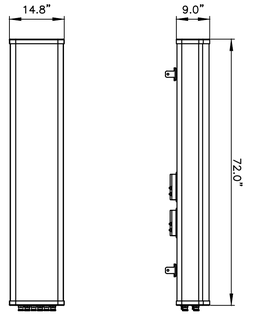
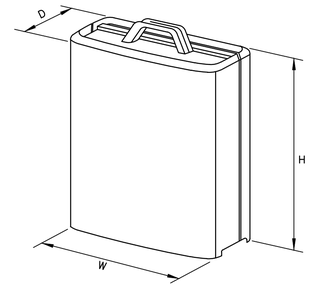


FRONT VIEW SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	HPA-65R-BUU-H6
WEIGHT	51.0 LBS

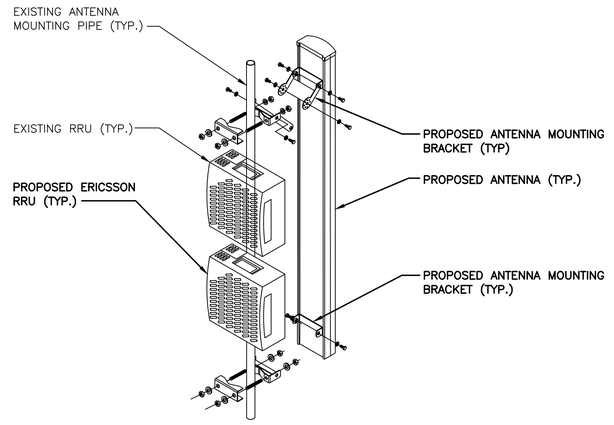
LTE ANTENNA DETAIL
SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00.850.00	55"x11"x5"
	A2	–	–	–
	A3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A4	POWERWAVE	7770.00.850.00	55"x11"x5"
BETA	B1	POWERWAVE	7770.00.850.00	55"x11"x5"
	B2	–	–	–
	B3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	B4	POWERWAVE	7770.00.850.00	55"x11"x5"
GAMMA	G1	POWERWAVE	7770.00.850.00	55"x11"x5"
	G2	–	–	–
	G3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	G4	POWERWAVE	7770.00.850.00	55"x11"x5"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00.850.00	55"x11"x5"
	A2	POWERWAVE	7770.00.850.00	55"x11"x5"
	A3	–	–	–
	A4	**CCI**	**HPA-65R-BUU-H6**	**72"x14.8"x9"**
BETA	B1	POWERWAVE	7770.00.850.00	55"x11"x5"
	B2	POWERWAVE	7770.00.850.00	55"x11"x5"
	B3	–	–	–
	B4	**CCI**	**HPA-65R-BUU-H6**	**72"x14.8"x9"**
GAMMA	G1	POWERWAVE	7770.00.850.00	55"x11"x5"
	G2	–	–	–
	G3	**CCI**	**HPA-65R-BUU-H6**	**72"x14.8"x9"**
	G4	POWERWAVE	7770.00.850.00	55"x11"x5"

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	**ERICSSON**	**RRUS-12**	**20.4"x18.5"x9.5"**	**A2 MODULE**	**16.4"X15.2"X3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–
	–	–	–		
BETA	**ERICSSON**	**RRUS-12**	**20.4"x18.5"x9.5"**	**A2 MODULE**	**16.4"X15.2"X3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–
	–	–	–		
GAMMA	**ERICSSON**	**RRUS-12**	**20.4"x18.5"x9.5"**	**A2 MODULE**	**16.4"X15.2"X3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–
	–	–	–		

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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SITE NUMBER: CTV1208

SITE NAME: MIDDLETOWN SO MAIN

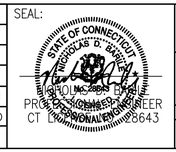
1825 SOUTH MAIN STREET
MIDDLETOWN, CT 06457
MIDDLESEX COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	01/27/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:



PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15117-EMP	A-4	0