October 7, 2015

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
12 Burr Road
Bloomfield, CT 06002
N 41.81786
W 72.76451
T-Mobile Site #: CTHA145B_L700

Members of the Siting Council:

On behalf of T-Mobile, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 12 Burr Road , Bloomfield, CT.

The 12 Burr Road facility consists of a 140' Monopole Tower owned and operated by SBA Towers II, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located, Mayor Sydney Schulman, as well as the property owner, Maple Hill Farms, Inc.

As part of T-Mobile's L700 project, T-Mobile desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in T-Mobile's operations at the site along with the required fee of $625.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The overall height of the structure will be unaffected.

2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than the new equipment cabinets.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.

4. The changes in radio frequency power density will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, SBA Communications on behalf of T-Mobile, respectfully submits that he proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at 508.251.0720 x 3804 with any questions you may have concerning this matter.

Thank you,

Kri Pelletier
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3804 + T
508-251-1755 + F
203-446-7700 + C
kpelletier@sbasite.com

T-Mobile

Equipment Modification

12 Burr Road, Bloomfield, CT 06002
Site number CTHA145B_L700

Tower Owner: SBA Towers II, LLC

Equipment Configuration: Monopole

Current and/or approved:

- (3) Ericsson AIR21 B2A/B4P
- (3) Ericsson AIR21 B4A/B2P
- (3) RFS APXV18-209014
- (6) Ericsson KRY 112 144/1
- (18) 1-5/8" Lines
- (1) 1-5/8" Fiber

Final Configuration:

- (3) Ericsson AIR21 B2A/B4P
- (3) Ericsson AIR21 B4A/B2P
- (3) Commscope LNX-6515DS-A1M
- (6) Ericsson KRY 112 144/1
- (3) Ericsson S11B12
- (18) 1-5/8" lines
- (1) 1-5/8" Fiber

Structural Information:

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed modifications.

Power Density:

The anticipated Maximum Composite contributions from the T-Mobile facility are 2.62% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 10.22% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	**2.62 %**
Clearwire	0.20 %
Verizon Wireless	3.98 %
AT&T	3.00 %
MetroPCS	0.42 %
Site Total MPE %:	**10.22 %**

October 7, 2015

Mayor Sydney Schulman
Town of Bloomfield
800 Bloomfield Ave.
Bloomfield, CT 06002

RE: Telecommunications Facility @ 12 Burr Road, Bloomfield, CT 06002

Dear Mayor Schulman,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (R.C.S.A.) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review T-Mobile's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes T-Mobile's proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at 508.251.0720 x 3804.

Thank you,

Kri Pelletier
SBA Communications Company
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3804 + T
508-251-1755 + F
203-446-7700 + C
kpelletier@sbasite.com

October 7, 2015

Maple Hill Farms, Inc.
c/o Bonee Weintraub LLC
29 South Main Street - #330N
West Hartford CT 06107
Attn: Jay Weintraub

RE: Telecommunications Facility @ 12 Burr Road, Bloomfield, CT 06002

Dear Mr. Weintraub:

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (R.C.S.A.) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review T-Mobile's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes T-Mobile's proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at 508.251.0720 x 3804.

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

T-Mobile Existing Facility

Site ID: CTHA145B

Maple Hill Farms
12 Burr Road
Bloomfield, CT 06002

October 7, 2015

EBI Project Number: 6215005005

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	10.22 %

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

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October 7, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTHA145B – Maple Hill Farms**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **12 Burr Road, Bloomfield, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile 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 limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the PCS and AWS 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 T-Mobile Wireless antenna facility located at **12 Burr Road, Bloomfield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile 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 GSM / 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

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) 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.

6) 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.

7) The antennas used in this modeling are the **Ericsson AIR21 B4A/B2P** & **B2A/B4P)** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B4A/B2P** & **B2A/B4P)** have a maximum gain of **15.9 dBd** at their main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. 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.

8) The antenna mounting height centerline of the proposed antennas is **130 feet** above ground level (AGL).

9) 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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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	130	Height (AGL):	130	Height (AGL):	130
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	1.09	Antenna B1 MPE%	1.09	Antenna C1 MPE%	1.09
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	130	Height (AGL):	130	Height (AGL):	130
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	1.09	Antenna B2 MPE%	1.09	Antenna C2 MPE%	1.09
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	130	Height (AGL):	130	Height (AGL):	130
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.43	Antenna B3 MPE%	0.43	Antenna C3 MPE%	0.43

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**2.62 %**
Clearwire	0.20 %
Verizon Wireless	3.98 %
AT&T	3.00 %
MetroPCS	0.42 %
Site Total MPE %:	**10.22 %**

T-Mobile Sector 1 Total:	2.62 %
T-Mobile Sector 2 Total:	2.62 %
T-Mobile Sector 3 Total:	2.62 %
Site Total:	10.22 %

T-Mobile _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
T-Mobile 2100 MHz (AWS) LTE	**2**	**2334.27**	**130**	**10.92**	**2100**	**1000**	**1.09 %**
T-Mobile 700 MHz LTE	**1**	**865.21**	**130**	**2.02**	**700**	**467**	**0.43 %**
T-Mobile 1900 MHz (PCS) GSM/UMTS	**2**	**1167.14**	**130**	**5.46**	**1900**	**1000**	**0.55 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**1167.14**	**130**	**5.46**	**2100**	**1000**	**0.55 %**
						Total:	**2.62%**

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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 T-Mobile 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:

T-Mobile Sector	Power Density Value (%)
Sector 1:	2.62 %
Sector 2:	2.62 %
Sector 3 :	2.62 %
T-Mobile Per Sector Maximum:	2.62 %
Site Total:	10.22 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.22%** 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

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

Structural Analysis Report

Existing 140 ft. ROHN Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13548-S

Customer Site Name: Bloomfield 4

Carrier Name: T-Mobile

Carrier Site Number: CTHA145B

Carrier Site Name: Unknown

Site Location: 12 Burr Road

Bloomfield, Connecticut

Hartford County

Latitude: 41.817858

Longitude: -72.764511

9/28/15

Analysis Result:

Max Structural Usage: 74.7 % [Pass]

Max Foundation Usage: 77.0 % [Pass]

Report Prepared By : Walter Velez

Introduction

The purpose of this report is to summarize the analysis results on the 140 ft. ROHN 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	Monopole original structural design report & shaft section data prepared by ROHN. Dated 12-02-2009. Drawing No 606820-01-D1. File No 0606820. Monopole previous structural report prepared by Tower Engineering Solutions. Dated 07-10-2015. TES Project No 16421.
Foundation Drawing	Monopole original foundation calculations & Drawings prepared by ROHN. Dated 12-02-2009. Drawing No 606820-01-F1 & 606820-01-F2. File No 0606820.
Geotechnical Report	Monopole geotechnical report prepared by Tower Engineering Professionals, Inc. Dated 03-01-2010. Project No 093184.01 Rev 1.
Modification Drawings	Monopole previous modifications by FDH Engineering, Inc. Dated 06-26-2012. Project No 12-02719E S1. Modification inspection report prepared by FDH Engineering, Inc. Dated 08-30-2012. Project No 1206095TC1.

Analysis Criteria

The analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA 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:	95 mph (3-Sec. Gust) / 78.0 mph (Fastest Mile)
Basic Wind Speed with Ice:	68 mph (fastest mile) with 1/2" radial ice concurrent
Operational Wind Speed:	50 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA- 222-F, 2003 IBC & 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	130.0	3	Ericsson AIR21 B2A/B4P	(3) T-Arms	(18) 1 5/8"; (1) 1 5/8" Fiber	T-Mobile
2		3	Ericsson AIR21 B4A/B2P			
3		3	RFS APXV18-209014			
4		6	Ericsson KRY 112 144/1			
5	117.0	3	ALU RRH2X40-AWS	(3) T-Arms	(18) 1 5/8"; (1) 1 5/8" Hybriflex	Verizon
6		3	Antel BXA-70063/6CF			
7		6	Antel LPA-80063/6CF			
8		6	Kathrein 742 213			
9		1	RFS DB-T1-6Z-8AB-0Z			
10	107.0	1	Andrew SBNH-1D6565C	Platform w/ Hand Rails	(12) 1 5/8"; (1) 1/2"; [(1) Fiber + (2) DC Cables inside (1) 3" Conduit]*	AT&T
11		1	KMW AM-X-CD-16-65-00T-RET			
12		12	Powerwave 7020.00			
13		9	Powerwave P65-16-XLH-RR			
14		1	Powerwave P65-17-XLH-RR			
15		12	Powerwave TT08-19DB111-001			
16	106.0	6	Andrew RRUS11 RRUs	(1) Valmont LWRM Ring Mount		
17		1	Raycap DC6-48-60-18-8F			

* Existing (1) Fiber + (2) DC Power lines installed inside (1) 3" Conduit running outside of the pole shaft and exposed to wind.

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
18	130.0	3	Ericsson AIR21 B2A/B4P	(3) T-Arms	(18) 1 5/8"; (1) 1 5/8" Fiber	T-Mobile
19		3	Ericsson AIR21 B4A/B2P			
20		3	Commscope LNX-6515DS-A1M			
21		6	Ericsson KRY 112 144/1			
22		3	Ericsson S11B12			

All 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:	**74.7%**	**71.5%**	**65.4%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	4028.2	38.7	95.1
Analysis Reactions	2410.8	24.2	28.5
% of Design Reactions	59.8%	62.6%	30.0%

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):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA-222-F for the installed antennas. Maximum twist/sway at the elevation of the proposed equipment is 1.7240 degrees under the operational wind speed as specified in the Analysis Criteria.

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-222-G standards, the 2003 IBC and the 2005 Connecticut State Building Code under the design basic wind speed 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 74.7% at 48.0ft

Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69	Page: 1	
Base Elev:	0.000 (ft)				

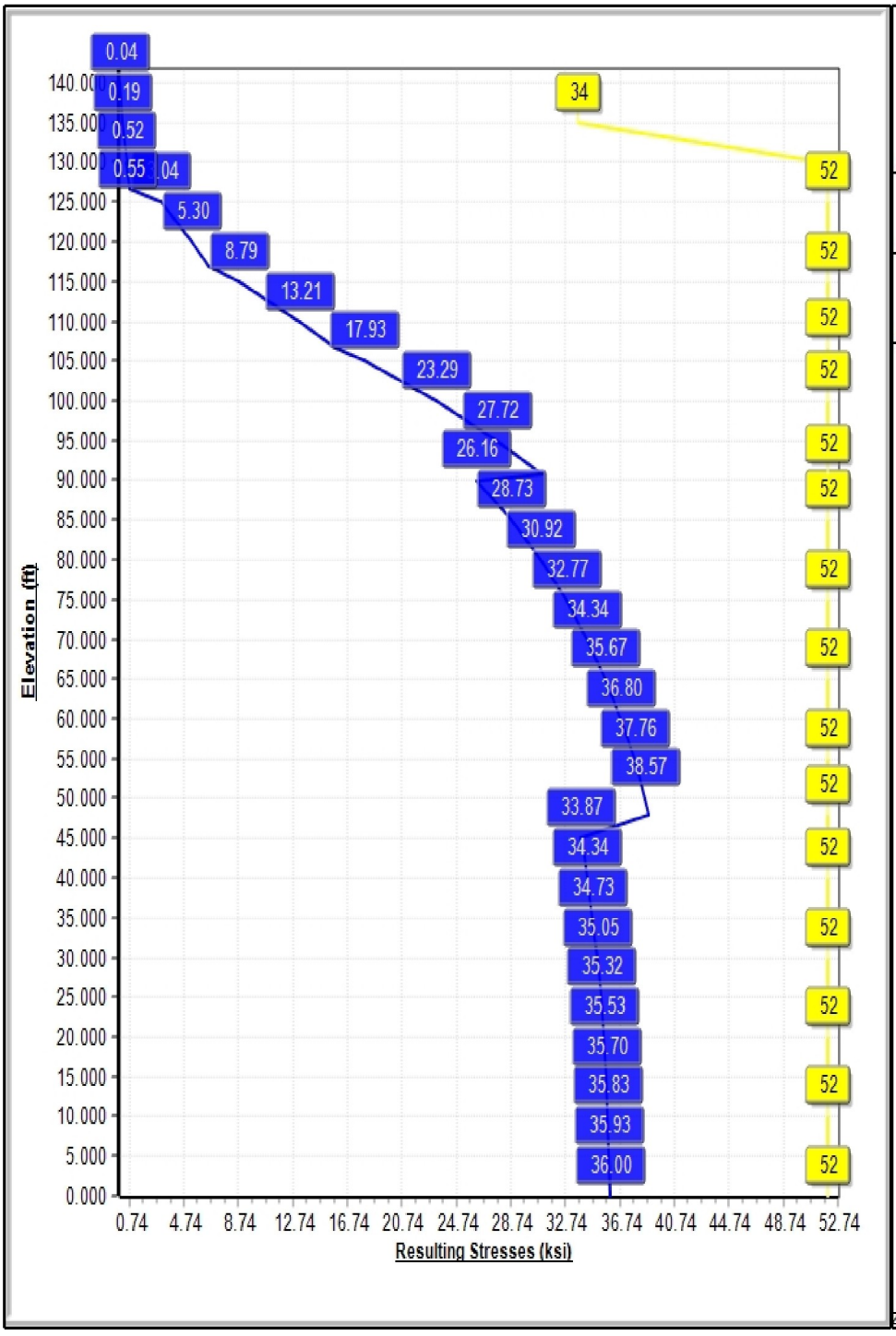
Tower Engineering Solutions

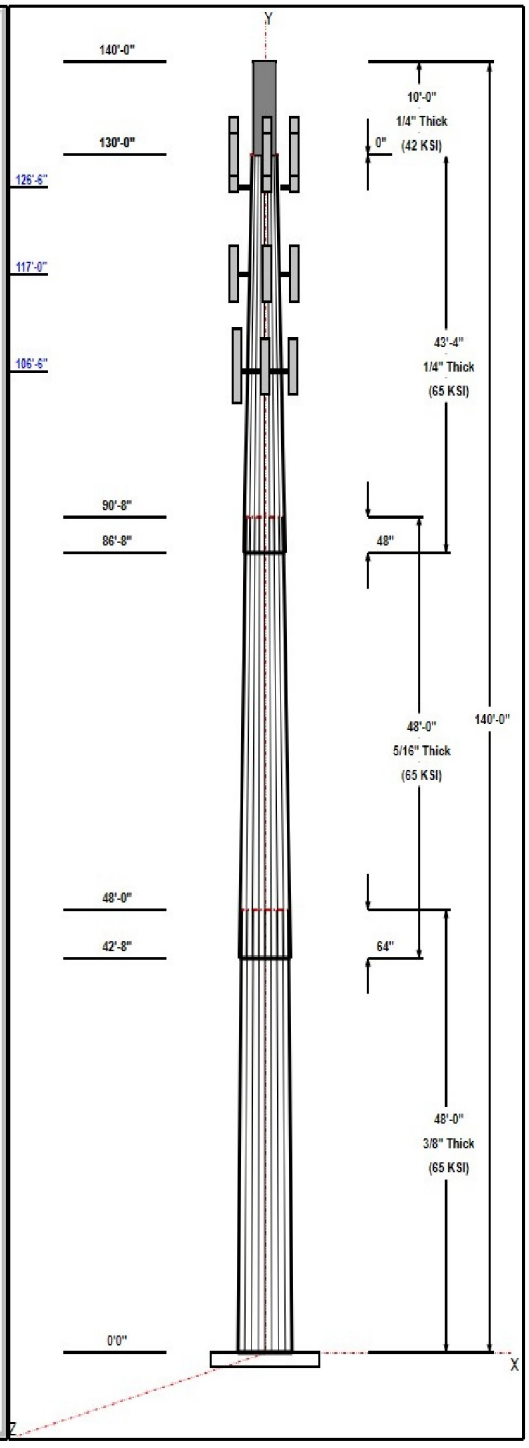
Dead Load Factor: 1.00
Wind Load Factor: 1.00

52 Alllowable Stress
39 Resulting Stress

Load Case : 78 mphWind with 0 in Ice

Iterations: 23





Structure: CT13548-S-SBA

Type: Custom
Site Name: Bloomfield 4
Height: 140.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.00000

9/28/2015

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	40.62	53.00	0.375		0.25788	65
2	48.00	30.24	42.62	0.313	Slip	0.25788	65
3	43.33	20.60	31.77	0.250	Slip	0.25788	65
4	10.00	20.00	20.00	0.250	Butt	0.00000	42

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
126.50	130.00	3	Commscope	T-Mobile
126.50	130.00	3	Ericsson AIR21 B2A/B4P	T-Mobile
126.50	130.00	3	Ericsson AIR21 B4A/B2P	T-Mobile
126.50	130.00	6	Ericsson KRY 112 144/1	T-Mobile
126.50	130.00	3	Ericsson S11B12	T-Mobile
126.50	126.50	3	T-Arms	T-Mobile
117.00	117.00	3	ALU RRH2x60-700	Verizon
117.00	117.00	3	ALU RRH2x60-AWS	Verizon
117.00	117.00	3	ALU RRH2X60-PCS	Verizon
117.00	117.00	6	Antel LPA-80063/6CFx5	Verizon
117.00	117.00	9	Commscope	Verizon
117.00	117.00	2	RFS DB-T1-6Z-8AB-0Z	Verizon
117.00	117.00	3	T-Arms	Verizon
106.50	107.00	1	Andrew SBNH-1D6565C	AT&T
106.50	107.00	1	KMW	AT&T
106.50	106.50	1	Platform w/ Hand Rails	AT&T
106.50	107.00	12	Powerwave 7020.00	AT&T
106.50	107.00	9	Powerwave	AT&T
106.50	107.00	1	Powerwave	AT&T
106.50	107.00	12	Powerwave	AT&T
105.00	106.00	6	Andrew RRUS11 RRUs	AT&T
105.00	106.00	1	Raycap DC6-48-60-18-8F	AT&T
105.00	105.00	1	Valmont LWRM Ring	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	126.50	Inside	1 5/8" Coax	T-Mobile
3.00	126.50	Inside	1 5/8" Fiber	T-Mobile
3.00	117.00	Inside	1 5/8" Coax	Verizon
3.00	117.00	Inside	1 5/8" Fiber	Verizon
3.00	106.50	Inside	1 5/8" Coax	AT&T
3.00	106.50	Inside	1/2" Coax	AT&T
3.00	106.50	Outside	3" Conduit	AT&T

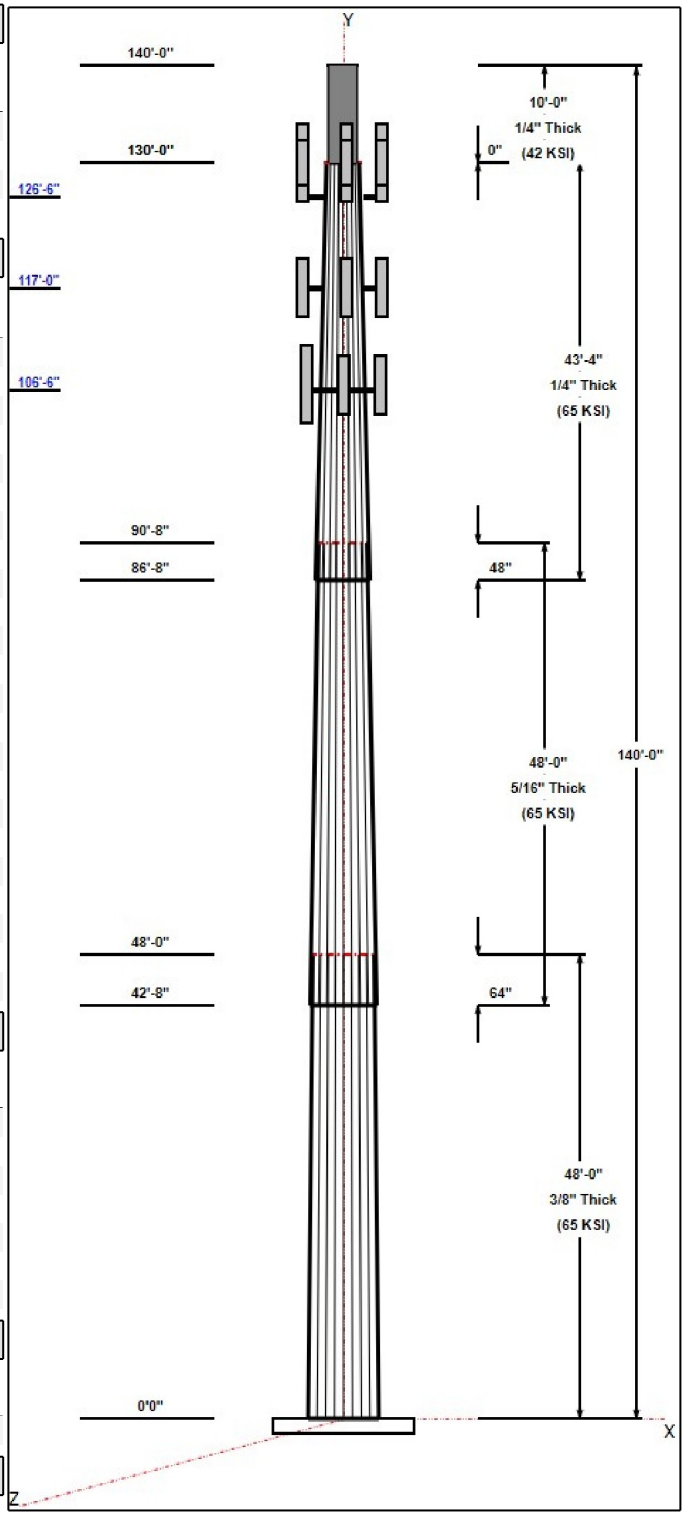
Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
24	1.5" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	61.5	50.0	Round

Reactions



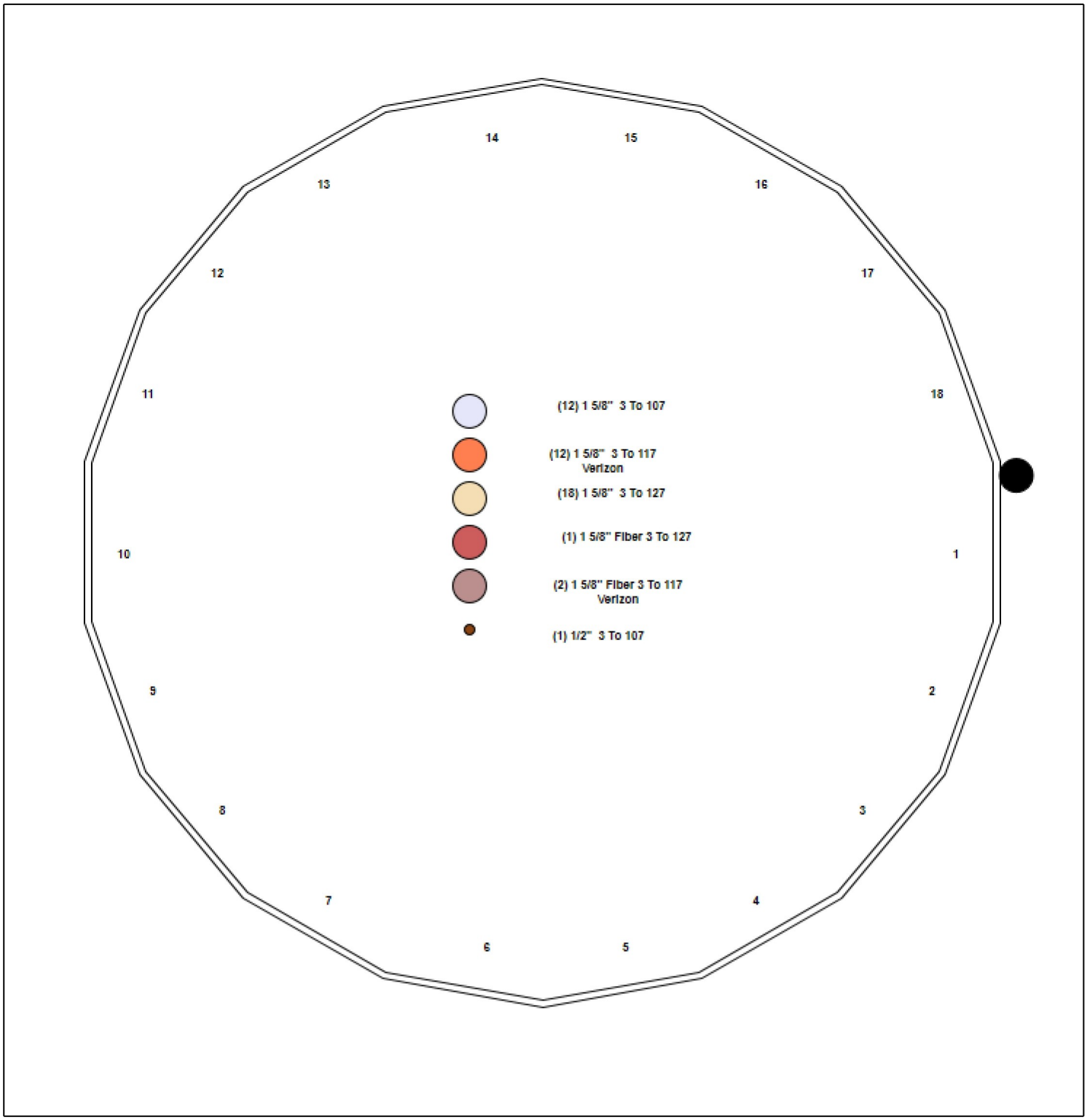
Load Case	Moment	Shear	Axial
78 mphWind with 0" Ice	2410.8	24.2	28.5
69 67.55 mph Wind with 0.5" Ice	1956.6	19.2	32.9
50 mph Wind with 0" Ice	991.2	10.0	28.6

Structure: CT13548-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Bloomfield 4
Height: 140.00 (ft)

9/28/2015

Tower Engineering Solutions



Shaft Properties

Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (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	48.000	0.3750	65		0.00	9,027
2	18	48.000	0.3125	65	Slip	64.00	5,851
3	18	43.333	0.2500	65	Slip	48.00	3,035
4	R	10.000	0.2500	42	Flange	0.00	528
					Total Shaft Weight:		**18,441**

	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	53.00	0.00	62.63	21915.53	23.51	141.3	40.62	48.00	47.90	9803.05	17.68	108.3	0.257885
2	42.62	42.67	41.96	9490.86	22.63	136.3	30.24	90.67	29.69	3360.13	15.65	96.77	0.257885
3	31.77	86.67	25.01	3140.87	21.00	127.1	20.60	130.0	16.15	844.85	13.11	82.4	0.257885
4	20.00	130.0	15.51	756.89	0	80	20.00	140.0	15.51	756.89	0	80	0.000000

Loading Summary

Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (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	126.5	Commscope LNX-6515DS-A1M	3	50.30	11.41	0.80	115.60	12.34	0.80	0.00	3.50
2	126.5	Ericsson AIR21 B2A/B4P	3	91.50	6.58	0.86	129.20	6.970	0.86	0.00	3.50
3	126.5	Ericsson AIR21 B4A/B2P	3	90.40	6.58	0.86	128.10	6.970	0.86	0.00	3.50
4	126.5	Ericsson KRY 112 144/1	6	11.00	0.41	0.67	14.10	0.550	0.67	0.00	3.50
5	126.5	Ericsson S11B12	3	51.00	3.31	0.67	67.10	3.520	0.67	0.00	3.50
6	126.5	T-Arms	3	350.00	8.00	0.75	420.00	10.50	0.75	0.00	0.00
7	117.0	ALU RRH2x60-700	3	60.00	3.96	0.67	80.10	4.230	0.67	0.00	0.00
8	117.0	ALU RRH2x60-AWS	3	60.00	3.96	0.67	80.10	4.230	0.67	0.00	0.00
9	117.0	ALU RRH2X60-PCS	3	55.00	2.57	0.67	69.70	2.300	0.67	0.00	0.00
10	117.0	Antel LPA-80063/6CFx5	6	27.00	10.34	0.85	0.00	11.18	0.85	0.00	0.00
11	117.0	Commscope SBNHH-1D65B	9	50.71	8.30	0.83	86.60	8.870	0.83	0.00	0.00
12	117.0	RFS DB-T1-6Z-8AB-0Z	2	44.00	5.60	0.75	51.10	5.040	0.75	0.00	0.00
13	117.0	T-Arms	3	350.00	8.00	0.75	420.00	10.50	0.75	0.00	0.00
14	106.5	Andrew SBNH-1D6565C	1	66.10	11.44	0.80	132.00	12.37	0.80	0.00	0.50
15	106.5	KMW AM-X-CD-16-65-00T-RET	1	48.50	8.26	0.78	95.00	9.080	0.78	0.00	0.50
16	106.5	Platform w/ Hand Rails	1	2000.00	40.00	1.00	2600.00	48.00	1.00	0.00	0.00
17	106.5	Powerwave 7020.00	12	2.20	0.40	0.50	5.10	0.540	0.50	0.00	0.50
18	106.5	Powerwave P65-16-XLH-RR	9	53.00	8.40	0.80	100.20	9.220	0.80	0.00	0.50
19	106.5	Powerwave P65-17-XLH-RR	1	59.00	11.46	0.80	121.00	12.39	0.80	0.00	0.50
20	106.5	Powerwave TT08-19DB111-001	12	22.00	0.92	0.67	29.60	1.140	0.67	0.00	0.50
21	105.0	Andrew RRUS11 RRUs	6	50.70	2.94	0.67	66.00	3.140	0.67	0.00	1.00
22	105.0	Raycap DC6-48-60-18-8F	1	32.80	1.47	0.67	50.50	1.670	0.67	0.00	1.00
23	105.0	Valmont LWRM Ring Mount	1	350.00	5.00	1.00	450.00	6.000	1.00	0.00	0.00
		Totals:	**95**	**7,874.99**			**10,658.60**				

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**
3.00	126.5	(18) 1 5/8" Coax	1.04	0.00	0.00	0.00	Inside
3.00	126.5	(1) 1 5/8" Fiber	1.04	0.00	0.00	0.00	Inside
3.00	117.0	(12) 1 5/8" Coax	1.04	0.00	0.00	0.00	Inside
3.00	117.0	(2) 1 5/8" Fiber	1.04	0.00	0.00	0.00	Inside
3.00	106.5	(12) 1 5/8" Coax	1.04	0.00	0.00	0.00	Inside
3.00	106.5	(1) 1/2" Coax	1.44	0.00	0.00	0.00	Inside
3.00	106.5	(1) 3" Conduit	14.49	0.20	0.00	0.00	Outside
		Totals:	**2,250.39**		**0.00**		

Shaft Section Properties

Structure: CT13548-S-SBA
Site Name: Bloomfield 4
Height: 140.00 (ft)
Base Elev: 0.000 (ft)

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

9/28/2015

Tower Engineering Solutions

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		0.3750	53.000	62.635	21915.5	23.51	141.33	65	52	0.0
5.00		0.3750	51.711	61.100	20343.7	22.90	137.89	65	52	1052.6
10.00		0.3750	50.421	59.565	18849.0	22.30	134.46	65	52	1026.5
15.00		0.3750	49.132	58.031	17429.3	21.69	131.02	65	52	1000.4
20.00		0.3750	47.842	56.496	16082.7	21.09	127.58	65	52	974.3
25.00		0.3750	46.553	54.961	14807.4	20.48	124.14	65	52	948.2
30.00		0.3750	45.263	53.427	13601.3	19.87	120.70	65	52	922.0
35.00		0.3750	43.974	51.892	12462.5	19.27	117.26	65	52	895.9
40.00		0.3750	42.685	50.357	11389.2	18.66	113.83	65	52	869.8
42.67	Bot - Section 2	0.3750	41.997	49.539	10842.8	18.34	111.99	65	52	453.2
45.00		0.3750	41.395	48.823	10379.3	18.05	110.39	65	52	721.3
48.00	Top - Section 1	0.3125	41.247	40.600	8595.0	21.86	131.99	65	52	912.1
50.00		0.3125	40.731	40.088	8274.2	21.57	130.34	65	52	274.6
55.00		0.3125	39.441	38.810	7507.3	20.84	126.21	65	52	671.2
60.00		0.3125	38.152	37.531	6789.3	20.12	122.09	65	52	649.4
65.00		0.3125	36.862	36.252	6118.7	19.39	117.96	65	52	627.7
70.00		0.3125	35.573	34.973	5493.7	18.66	113.83	65	52	605.9
75.00		0.3125	34.284	33.694	4912.8	17.93	109.71	65	52	584.1
80.00		0.3125	32.994	32.415	4374.3	17.21	105.58	65	52	562.4
85.00		0.3125	31.705	31.136	3876.7	16.48	101.46	65	52	540.6
86.67	Bot - Section 3	0.3125	31.275	30.710	3719.7	16.24	100.08	65	52	175.4
90.00		0.3125	30.415	29.857	3418.4	15.75	97.33	65	52	623.4
90.67	Top - Section 2	0.2500	30.743	24.196	2842.5	20.27	122.97	65	52	122.6
95.00		0.2500	29.626	23.309	2541.3	19.48	118.50	65	52	350.2
100.00		0.2500	28.337	22.286	2221.2	18.58	113.35	65	52	387.9
105.00		0.2500	27.047	21.263	1929.1	17.67	108.19	65	52	370.5
106.50		0.2500	26.660	20.956	1846.7	17.39	106.64	65	52	107.7
110.00		0.2500	25.758	20.240	1663.8	16.76	103.03	65	52	245.3
115.00		0.2500	24.468	19.217	1424.0	15.85	97.87	65	52	335.7
117.00		0.2500	23.952	18.807	1335.0	15.48	95.81	65	52	129.4
120.00		0.2500	23.179	18.193	1208.5	14.94	92.72	65	52	188.9
125.00		0.2500	21.889	17.170	1015.8	14.03	87.56	65	52	300.8
126.50		0.2500	21.503	16.863	962.3	13.76	86.01	65	52	86.9
130.00	Top - Section 3	0.0000	0.000	0.000	0.0	NAN	NAN	0	0	196.6
130.00	Bot - Section 4	0.2500	20.600	16.147	844.8	13.12	82.40	65	52	
135.00		0.2500	20.000	15.512	756.9	0.00	80.00	42	34	263.9
140.00		0.2500	20.000	15.512	756.9	0.00	80.00	42	34	263.9
										18441.1

Wind Loading - Shaft

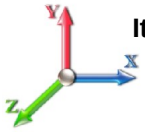
Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 78 mphWind 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	15.575	26.32	344.50	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	15.575	26.32	336.12	0.650	0.000	5.00	21.815	14.18	373.2	0.0	1052.6
10.00		0.00	1.00	15.575	26.32	327.74	0.650	0.000	5.00	21.277	13.83	364.0	0.0	1026.5
15.00		0.00	1.00	15.575	26.32	319.36	0.650	0.000	5.00	20.740	13.48	354.8	0.0	1000.4
20.00		0.00	1.00	15.575	26.32	310.97	0.650	0.000	5.00	20.203	13.13	345.7	0.0	974.3
25.00		0.00	1.00	15.575	26.32	302.59	0.650	0.000	5.00	19.666	12.78	336.5	0.0	948.2
30.00		0.00	1.00	15.575	26.32	294.21	0.650	0.000	5.00	19.128	12.43	327.3	0.0	922.0
35.00		0.00	1.02	15.839	26.77	288.24	0.650	0.000	5.00	18.591	12.08	323.5	0.0	895.9
40.00		0.00	1.06	16.455	27.81	285.18	0.650	0.000	5.00	18.054	11.74	326.3	0.0	869.8
42.67	Bot - Section 2	0.00	1.08	16.761	28.33	283.18	0.650	0.000	2.67	9.409	6.12	173.2	0.0	453.2
45.00		0.00	1.09	17.018	28.76	281.26	0.650	0.000	2.33	8.229	5.35	153.8	0.0	721.3
48.00	Top - Section 1	0.00	1.11	17.335	29.30	278.56	0.650	0.000	3.00	10.408	6.77	198.2	0.0	912.1
50.00		0.00	1.13	17.538	29.64	280.94	0.650	0.000	2.00	6.831	4.44	131.6	0.0	274.6
55.00		0.00	1.16	18.022	30.46	275.78	0.650	0.000	5.00	16.703	10.86	330.7	0.0	671.2
60.00		0.00	1.19	18.476	31.22	270.10	0.650	0.000	5.00	16.165	10.51	328.1	0.0	649.4
65.00		0.00	1.21	18.904	31.95	263.97	0.650	0.000	5.00	15.628	10.16	324.5	0.0	627.7
70.00		0.00	1.24	19.308	32.63	257.45	0.650	0.000	5.00	15.091	9.81	320.1	0.0	605.9
75.00		0.00	1.26	19.692	33.28	250.57	0.650	0.000	5.00	14.553	9.46	314.8	0.0	584.1
80.00		0.00	1.29	20.059	33.90	243.38	0.650	0.000	5.00	14.016	9.11	308.8	0.0	562.4
85.00		0.00	1.31	20.409	34.49	235.91	0.650	0.000	5.00	13.479	8.76	302.2	0.0	540.6
86.67	Bot - Section 3	0.00	1.32	20.523	34.68	233.35	0.650	0.000	1.67	4.374	2.84	98.6	0.0	175.4
90.00		0.00	1.33	20.745	35.06	228.17	0.650	0.000	3.33	8.707	5.66	198.4	0.0	623.4
90.67	Top - Section 2	0.00	1.33	20.789	35.13	227.12	0.650	0.000	0.67	1.713	1.11	39.1	0.0	122.6
95.00		0.00	1.35	21.068	35.61	223.97	0.650	0.000	4.33	10.900	7.09	252.3	0.0	350.2
100.00		0.00	1.37	21.379	36.13	215.80	0.650	0.000	5.00	12.076	7.85	283.6	0.0	387.9
105.00	Appurtenance(s)	0.00	1.39	21.680	36.64	207.42	0.650	0.000	5.00	11.538	7.50	274.8	0.0	370.5
106.50	Appurtenance(s)	0.00	1.40	21.768	36.79	204.87	0.650	0.000	1.50	3.357	2.18	80.3	0.0	107.7
110.00		0.00	1.41	21.970	37.13	198.85	0.650	0.000	3.50	7.644	4.97	184.5	0.0	245.3
115.00		0.00	1.43	22.250	37.60	190.10	0.650	0.000	5.00	10.464	6.80	255.8	0.0	335.7
117.00	Appurtenance(s)	0.00	1.44	22.360	37.79	186.55	0.650	0.000	2.00	4.035	2.62	99.1	0.0	129.4
120.00		0.00	1.45	22.523	38.06	181.18	0.650	0.000	3.00	5.891	3.83	145.8	0.0	188.9
125.00		0.00	1.46	22.787	38.51	172.10	0.650	0.000	5.00	9.389	6.10	235.0	0.0	300.8
126.50	Appurtenance(s)	0.00	1.47	22.865	38.64	169.34	0.650	0.000	1.50	2.712	1.76	68.1	0.0	86.9
130.00	Top - Section 3	0.00	1.48	23.044	38.94	162.87	0.650	0.000	3.50	6.140	3.99	155.4	0.0	196.6
135.00		0.00	1.50	23.294	39.37	158.98	0.590	0.000	5.00	8.333	4.92	193.5	0.0	263.9
140.00		0.00	1.51	23.537	39.78	159.81	0.590	0.000	5.00	8.333	4.92	195.6	0.0	263.9
								Totals:	**140.00**			**8,397.3**		**18,441.1**

Discrete Appurtenance Forces

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 78 mphWind 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	126.50	Ericsson AIR21 B4A/B2P	3	23.044	38.944	0.86	16.98	271.20	0.000	3.500	661.13	0.00	2313.94
2	126.50	Commscope	3	23.044	38.944	0.80	27.38	150.90	0.000	3.500	1066.44	0.00	3732.53
3	126.50	Ericsson AIR21 B2A/B4P	3	23.044	38.944	0.86	16.98	274.50	0.000	3.500	661.13	0.00	2313.94
4	126.50	T-Arms	3	22.865	38.641	0.75	18.00	1050.00	0.000	0.000	695.54	0.00	0.00
5	126.50	Ericsson KRY 112 144/1	6	23.044	38.944	0.67	1.65	66.00	0.000	3.500	64.19	0.00	224.66
6	126.50	Ericsson S11B12	3	23.044	38.944	0.67	6.65	153.00	0.000	3.500	259.10	0.00	906.84
7	117.00	T-Arms	3	22.360	37.789	0.75	18.00	1050.00	0.000	0.000	680.20	0.00	0.00
8	117.00	RFS DB-T1-6Z-8AB-0Z	2	22.360	37.789	0.75	8.40	88.00	0.000	0.000	317.43	0.00	0.00
9	117.00	Commscope SBNHH-1D65B	9	22.360	37.789	0.83	62.00	456.39	0.000	0.000	2342.95	0.00	0.00
10	117.00	Antel LPA-80063/6CFx5	6	22.360	37.789	0.85	52.73	162.00	0.000	0.000	1992.76	0.00	0.00
11	117.00	ALU RRH2X60-PCS	3	22.360	37.789	0.67	5.17	165.00	0.000	0.000	195.21	0.00	0.00
12	117.00	ALU RRH2x60-AWS	3	22.360	37.789	0.67	7.96	180.00	0.000	0.000	300.79	0.00	0.00
13	117.00	ALU RRH2x60-700	3	22.360	37.789	0.67	7.96	180.00	0.000	0.000	300.79	0.00	0.00
14	106.50	Powerwave 7020.00	12	21.797	36.837	0.50	2.40	26.40	0.000	0.500	88.41	0.00	44.20
15	106.50	Andrew SBNH-1D6565C	1	21.797	36.837	0.80	9.15	66.10	0.000	0.500	337.13	0.00	168.56
16	106.50	KMW	1	21.797	36.837	0.78	6.44	48.50	0.000	0.500	237.33	0.00	118.67
17	106.50	Platform w/ Hand Rails	1	21.768	36.787	1.00	40.00	2000.00	0.000	0.000	1471.49	0.00	0.00
18	106.50	Powerwave P65-16-XLH-RR	9	21.797	36.837	0.80	60.48	477.00	0.000	0.500	2227.87	0.00	1113.94
19	106.50	Powerwave P65-17-XLH-RR	1	21.797	36.837	0.80	9.17	59.00	0.000	0.500	337.72	0.00	168.86
20	106.50	Powerwave	12	21.797	36.837	0.67	7.40	264.00	0.000	0.500	272.47	0.00	136.24
21	105.00	Valmont LWRM Ring Mount	1	21.680	36.638	1.00	5.00	350.00	0.000	0.000	183.19	0.00	0.00
22	105.00	Raycap DC6-48-60-18-8F	1	21.738	36.738	0.67	0.98	32.80	0.000	1.000	36.18	0.00	36.18
23	105.00	Andrew RRUS11 RRUs	6	21.738	36.738	0.67	11.82	304.20	0.000	1.000	434.20	0.00	434.20
						Totals:		**7,874.99**			**15,163.63**		

Total Applied Force Summary

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 78 mphWind 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		383.76	1094.86	0.00	0.00
10.00		390.36	1132.14	0.00	0.00
15.00		381.17	1106.03	0.00	0.00
20.00		371.98	1079.92	0.00	0.00
25.00		362.79	1053.81	0.00	0.00
30.00		353.59	1027.70	0.00	0.00
35.00		350.24	1001.59	0.00	0.00
40.00		354.15	975.48	0.00	0.00
42.67		188.35	509.58	0.00	0.00
45.00		167.26	770.61	0.00	0.00
48.00		215.78	975.46	0.00	0.00
50.00		143.47	316.82	0.00	0.00
55.00		361.13	776.83	0.00	0.00
60.00		359.32	755.07	0.00	0.00
65.00		356.47	733.31	0.00	0.00
70.00		352.70	711.55	0.00	0.00
75.00		348.10	689.79	0.00	0.00
80.00		342.74	668.04	0.00	0.00
85.00		336.69	646.28	0.00	0.00
86.67		110.16	210.59	0.00	0.00
90.00		221.80	693.78	0.00	0.00
90.67		43.80	136.67	0.00	0.00
95.00		283.12	441.80	0.00	0.00
100.00		319.73	493.52	0.00	0.00
105.00	(8) appurtenances	964.99	1163.12	0.00	470.38
106.50	(37) appurtenances	5063.72	3080.44	0.00	1750.46
110.00		184.48	259.87	0.00	0.00
115.00		255.76	356.45	0.00	0.00
117.00	(29) appurtenances	6229.23	2419.10	0.00	0.00
120.00		145.76	195.10	0.00	0.00
125.00		235.03	311.24	0.00	0.00
126.50	(21) appurtenances	3475.63	2055.58	0.00	9491.91
130.00		155.42	196.57	0.00	0.00
135.00		193.55	263.91	0.00	0.00
140.00		195.57	263.91	0.00	0.00
	Totals:	**24,197.81**	**28,566.53**	**0.00**	**11,712.75**

Resulting Forces and Deflections

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 78 mphWind 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	-24.236	-28.533	0.000	0.000	0.000	-2410.7	0.000	0.000	0.000	0.000	0.000
5.00	-23.925	-27.375	0.000	0.000	0.000	-2289.5	-0.082	0.000	0.082	-0.153	0.000
10.00	-23.602	-26.179	0.000	0.000	0.000	-2169.9	-0.326	0.000	0.326	-0.308	0.000
15.00	-23.284	-25.011	0.000	0.000	0.000	-2051.9	-0.735	0.000	0.735	-0.468	0.000
20.00	-22.970	-23.868	0.000	0.000	0.000	-1935.5	-1.312	0.000	1.312	-0.630	0.000
25.00	-22.661	-22.753	0.000	0.000	0.000	-1820.6	-2.062	0.000	2.062	-0.797	0.000
30.00	-22.356	-21.664	0.000	0.000	0.000	-1707.3	-2.988	0.000	2.988	-0.966	0.000
35.00	-22.050	-20.602	0.000	0.000	0.000	-1595.6	-4.092	0.000	4.092	-1.139	0.000
40.00	-21.722	-19.583	0.000	0.000	0.000	-1485.3	-5.380	0.000	5.380	-1.315	0.000
42.67	-21.552	-19.044	0.000	0.000	0.000	-1427.4	-6.142	0.000	6.142	-1.412	0.000
45.00	-21.396	-18.241	0.000	0.000	0.000	-1377.1	-6.854	0.000	6.854	-1.498	0.000
48.00	-21.182	-17.237	0.000	0.000	0.000	-1312.9	-7.831	0.000	7.831	-1.608	0.000
50.00	-21.072	-16.872	0.000	0.000	0.000	-1270.6	-8.521	0.000	8.521	-1.683	0.000
55.00	-20.746	-16.031	0.000	0.000	0.000	-1165.2	-10.396	0.000	10.396	-1.892	0.000
60.00	-20.417	-15.214	0.000	0.000	0.000	-1061.5	-12.492	0.000	12.492	-2.103	0.000
65.00	-20.086	-14.420	0.000	0.000	0.000	-959.43	-14.809	0.000	14.809	-2.315	0.000
70.00	-19.753	-13.652	0.000	0.000	0.000	-859.00	-17.348	0.000	17.348	-2.527	0.000
75.00	-19.421	-12.908	0.000	0.000	0.000	-760.24	-20.107	0.000	20.107	-2.736	0.000
80.00	-19.089	-12.190	0.000	0.000	0.000	-663.13	-23.084	0.000	23.084	-2.942	0.000
85.00	-18.745	-11.520	0.000	0.000	0.000	-567.69	-26.273	0.000	26.273	-3.142	0.000
86.67	-18.643	-11.284	0.000	0.000	0.000	-536.45	-27.382	0.000	27.382	-3.210	0.000
90.00	-18.396	-10.579	0.000	0.000	0.000	-474.31	-29.670	0.000	29.670	-3.339	0.000
90.67	-18.361	-10.416	0.000	0.000	0.000	-462.04	-30.138	0.000	30.138	-3.365	0.000
95.00	-18.082	-9.937	0.000	0.000	0.000	-382.48	-33.264	0.000	33.264	-3.520	0.000
100.00	-17.761	-9.410	0.000	0.000	0.000	-292.07	-37.054	0.000	37.054	-3.708	0.000
105.00	-16.735	-8.286	0.000	0.000	0.000	-202.80	-41.026	0.000	41.026	-3.867	0.000
106.50	-11.480	-5.543	0.000	0.000	0.000	-175.95	-42.248	0.000	42.248	-3.909	0.000
110.00	-11.286	-5.279	0.000	0.000	0.000	-135.77	-45.145	0.000	45.145	-3.993	0.000
115.00	-11.011	-4.930	0.000	0.000	0.000	-79.341	-49.377	0.000	49.377	-4.085	0.000
117.00	-4.626	-2.961	0.000	0.000	0.000	-57.320	-51.094	0.000	51.094	-4.112	0.000
120.00	-4.468	-2.774	0.000	0.000	0.000	-43.442	-53.687	0.000	53.687	-4.145	0.000
125.00	-4.212	-2.479	0.000	0.000	0.000	-21.101	-58.047	0.000	58.047	-4.183	0.000
126.50	-0.596	-0.683	0.000	0.000	0.000	-5.290	-59.361	0.000	59.361	-4.190	0.000
130.00	-0.427	-0.498	0.000	0.000	0.000	-3.205	-62.432	0.000	62.432	-4.195	0.000
135.00	-0.214	-0.249	0.000	0.000	0.000	-1.072	-66.823	0.000	66.823	-4.198	0.000
140.00	-0.196	0.000	0.000	0.000	0.000	0.000	0.000	0.000	71.216	-4.199	0.000

Resulting Stresses

Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 12	

IES Tower Engineering Solutions

Load Case: 78 mphWind 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	0.46	0.78	0.00	0.00	0.00	35.52	36.00	52.0		0.693
5.00	0.45	0.79	0.00	0.00	0.00	35.46	35.93	52.0		0.691
10.00	0.44	0.80	0.00	0.00	0.00	35.37	35.83	52.0		0.689
15.00	0.43	0.81	0.00	0.00	0.00	35.24	35.70	52.0		0.687
20.00	0.42	0.82	0.00	0.00	0.00	35.08	35.53	52.0		0.684
25.00	0.41	0.83	0.00	0.00	0.00	34.87	35.32	52.0		0.679
30.00	0.41	0.84	0.00	0.00	0.00	34.62	35.05	52.0		0.674
35.00	0.40	0.86	0.00	0.00	0.00	34.30	34.73	52.0		0.668
40.00	0.39	0.87	0.00	0.00	0.00	33.92	34.34	52.0		0.661
42.67	0.38	0.88	0.00	0.00	0.00	33.68	34.10	52.0		0.656
45.00	0.37	0.88	0.00	0.00	0.00	33.46	33.87	52.0		0.652
48.00	0.42	1.05	0.00	0.00	0.00	38.39	38.86	52.0		0.747
50.00	0.42	1.06	0.00	0.00	0.00	38.11	38.57	52.0		0.742
55.00	0.41	1.08	0.00	0.00	0.00	37.30	37.76	52.0		0.726
60.00	0.41	1.10	0.00	0.00	0.00	36.34	36.80	52.0		0.708
65.00	0.40	1.12	0.00	0.00	0.00	35.22	35.67	52.0		0.686
70.00	0.39	1.14	0.00	0.00	0.00	33.89	34.34	52.0		0.661
75.00	0.38	1.16	0.00	0.00	0.00	32.32	32.77	52.0		0.630
80.00	0.38	1.19	0.00	0.00	0.00	30.47	30.92	52.0		0.595
85.00	0.37	1.21	0.00	0.00	0.00	28.29	28.73	52.0		0.553
86.67	0.37	1.22	0.00	0.00	0.00	27.48	27.93	52.0		0.537
90.00	0.35	1.24	0.00	0.00	0.00	25.71	26.16	52.0		0.503
90.67	0.43	1.53	0.00	0.00	0.00	30.45	30.99	52.0		0.596
95.00	0.43	1.56	0.00	0.00	0.00	27.17	27.72	52.0		0.533
100.00	0.42	1.61	0.00	0.00	0.00	22.70	23.29	52.0		0.448
105.00	0.39	1.59	0.00	0.00	0.00	17.32	17.93	52.0		0.345
106.50	0.26	1.10	0.00	0.00	0.00	15.48	15.86	52.0		0.305
110.00	0.26	1.12	0.00	0.00	0.00	12.81	13.21	52.0		0.254
115.00	0.26	1.15	0.00	0.00	0.00	8.31	8.79	52.0		0.169
117.00	0.16	0.50	0.00	0.00	0.00	6.27	6.48	52.0		0.125
120.00	0.15	0.49	0.00	0.00	0.00	5.08	5.30	52.0		0.102
125.00	0.14	0.49	0.00	0.00	0.00	2.77	3.04	52.0		0.058
126.50	0.04	0.07	0.00	0.00	0.00	0.72	0.77	52.0		0.015
130.00	0.03	0.05	0.00	0.00	0.00	0.48	0.52	52.0		0.010
130.00	0.03	0.05	0.00	0.00	0.00	0.48	0.52	52.0		0.011
135.00	0.02	0.03	0.00	0.00	0.00	0.17	0.19	33.6	33.6	0.006
140.00	0.00	0.03	0.00	0.00	0.00	0.00	0.04	33.6	33.6	0.001

Wind Loading - Shaft

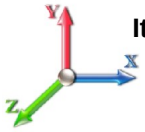
Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 69 67.55 mph Wind with 0.5" 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	11.681	19.74	298.35	0.650	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	11.681	19.74	291.09	0.650	0.500	5.00	22.231	14.45	285.3	159.5	1212.1
10.00		0.00	1.00	11.681	19.74	283.83	0.650	0.500	5.00	21.694	14.10	278.4	155.5	1182.0
15.00		0.00	1.00	11.681	19.74	276.57	0.650	0.500	5.00	21.157	13.75	271.5	151.6	1152.0
20.00		0.00	1.00	11.681	19.74	269.31	0.650	0.500	5.00	20.620	13.40	264.6	147.7	1121.9
25.00		0.00	1.00	11.681	19.74	262.05	0.650	0.500	5.00	20.082	13.05	257.7	143.7	1091.9
30.00		0.00	1.00	11.681	19.74	254.80	0.650	0.500	5.00	19.545	12.70	250.8	139.8	1061.8
35.00		0.00	1.02	11.879	20.08	249.63	0.650	0.500	5.00	19.008	12.36	248.0	135.8	1031.8
40.00		0.00	1.06	12.341	20.86	246.97	0.650	0.500	5.00	18.471	12.01	250.4	131.9	1001.7
42.67	Bot - Section 2	0.00	1.08	12.571	21.24	245.25	0.650	0.500	2.67	9.631	6.26	133.0	69.2	522.5
45.00		0.00	1.09	12.764	21.57	243.58	0.650	0.500	2.33	8.424	5.48	118.1	60.6	781.9
48.00	Top - Section 1	0.00	1.11	13.001	21.97	241.24	0.650	0.500	3.00	10.658	6.93	152.2	76.5	988.6
50.00		0.00	1.13	13.154	22.23	243.30	0.650	0.500	2.00	6.998	4.55	101.1	50.4	324.9
55.00		0.00	1.16	13.517	22.84	238.83	0.650	0.500	5.00	17.119	11.13	254.2	122.0	793.2
60.00		0.00	1.19	13.857	23.42	233.91	0.650	0.500	5.00	16.582	10.78	252.4	118.1	767.5
65.00		0.00	1.21	14.178	23.96	228.61	0.650	0.500	5.00	16.045	10.43	249.9	114.1	741.8
70.00		0.00	1.24	14.481	24.47	222.96	0.650	0.500	5.00	15.507	10.08	246.7	110.2	716.1
75.00		0.00	1.26	14.769	24.96	217.00	0.650	0.500	5.00	14.970	9.73	242.9	106.2	690.4
80.00		0.00	1.29	15.044	25.42	210.78	0.650	0.500	5.00	14.433	9.38	238.5	102.3	664.7
85.00		0.00	1.31	15.307	25.87	204.30	0.650	0.500	5.00	13.896	9.03	233.7	98.4	639.0
86.67	Bot - Section 3	0.00	1.32	15.392	26.01	202.09	0.650	0.500	1.67	4.512	2.93	76.3	32.4	207.7
90.00		0.00	1.33	15.559	26.29	197.60	0.650	0.500	3.33	8.985	5.84	153.6	64.0	687.3
90.67	Top - Section 2	0.00	1.33	15.592	26.35	196.69	0.650	0.500	0.67	1.768	1.15	30.3	12.7	135.3
95.00		0.00	1.35	15.801	26.70	193.96	0.650	0.500	4.33	11.261	7.32	195.5	79.7	430.0
100.00		0.00	1.37	16.035	27.10	186.89	0.650	0.500	5.00	12.492	8.12	220.0	88.1	475.9
105.00	Appurtenance(s)	0.00	1.39	16.260	27.48	179.63	0.650	0.500	5.00	11.955	7.77	213.5	84.1	454.6
106.50	Appurtenance(s)	0.00	1.40	16.326	27.59	177.42	0.650	0.500	1.50	3.482	2.26	62.4	24.9	132.6
110.00		0.00	1.41	16.477	27.85	172.21	0.650	0.500	3.50	7.936	5.16	143.6	56.1	301.5
115.00		0.00	1.43	16.688	28.20	164.63	0.650	0.500	5.00	10.880	7.07	199.5	76.3	411.9
117.00	Appurtenance(s)	0.00	1.44	16.770	28.34	161.55	0.650	0.500	2.00	4.202	2.73	77.4	29.9	159.3
120.00		0.00	1.45	16.892	28.55	156.90	0.650	0.500	3.00	6.141	3.99	114.0	43.4	232.3
125.00		0.00	1.46	17.090	28.88	149.04	0.650	0.500	5.00	9.806	6.37	184.1	68.4	369.2
126.50	Appurtenance(s)	0.00	1.47	17.149	28.98	146.66	0.650	0.500	1.50	2.837	1.84	53.4	20.2	107.0
130.00	Top - Section 3	0.00	1.48	17.283	29.21	141.05	0.650	0.500	3.50	6.432	4.18	122.1	45.1	241.7
135.00		0.00	1.50	17.470	29.52	137.68	0.590	0.500	5.00	8.750	5.16	152.4	62.6	326.5
140.00		0.00	1.51	17.653	29.83	138.40	0.590	0.500	5.00	8.750	5.16	154.0	62.6	326.5
								Totals:	**140.00**			**6,481.5**		**21,485.0**

Discrete Appurtenance Forces

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 69 67.55 mph Wind with 0.5" 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	126.50	Ericsson AIR21 B4A/B2P	3	17.283	29.208	0.86	17.98	384.30	0.000	3.500	525.23	0.00	1838.32
2	126.50	Commscope	3	17.283	29.208	0.80	29.62	346.80	0.000	3.500	865.02	0.00	3027.57
3	126.50	Ericsson AIR21 B2A/B4P	3	17.283	29.208	0.86	17.98	387.60	0.000	3.500	525.23	0.00	1838.32
4	126.50	T-Arms	3	17.149	28.981	0.75	23.63	1260.00	0.000	0.000	684.68	0.00	0.00
5	126.50	Ericsson KRY 112 144/1	6	17.283	29.208	0.67	2.21	84.60	0.000	3.500	64.58	0.00	226.03
6	126.50	Ericsson S11B12	3	17.283	29.208	0.67	7.08	201.30	0.000	3.500	206.65	0.00	723.28
7	117.00	T-Arms	3	16.770	28.342	0.75	23.63	1260.00	0.000	0.000	669.57	0.00	0.00
8	117.00	RFS DB-T1-6Z-8AB-0Z	2	16.770	28.342	0.75	7.56	102.20	0.000	0.000	214.26	0.00	0.00
9	117.00	Commscope SBNHH-1D65B	9	16.770	28.342	0.83	66.26	779.40	0.000	0.000	1877.89	0.00	0.00
10	117.00	Antel LPA-80063/6CFx5	6	16.770	28.342	0.85	57.02	0.00	0.000	0.000	1615.99	0.00	0.00
11	117.00	ALU RRH2X60-PCS	3	16.770	28.342	0.67	4.62	209.10	0.000	0.000	131.02	0.00	0.00
12	117.00	ALU RRH2x60-AWS	3	16.770	28.342	0.67	8.50	240.30	0.000	0.000	240.97	0.00	0.00
13	117.00	ALU RRH2x60-700	3	16.770	28.342	0.67	8.50	240.30	0.000	0.000	240.97	0.00	0.00
14	106.50	Powerwave 7020.00	12	16.348	27.627	0.50	3.24	61.20	0.000	0.500	89.51	0.00	44.76
15	106.50	Andrew SBNH-1D6565C	1	16.348	27.627	0.80	9.90	132.00	0.000	0.500	273.40	0.00	136.70
16	106.50	KMW	1	16.348	27.627	0.78	7.08	95.00	0.000	0.500	195.67	0.00	97.83
17	106.50	Platform w/ Hand Rails	1	16.326	27.590	1.00	48.00	2600.00	0.000	0.000	1324.34	0.00	0.00
18	106.50	Powerwave P65-16-XLH-RR	9	16.348	27.627	0.80	66.38	901.80	0.000	0.500	1834.02	0.00	917.01
19	106.50	Powerwave P65-17-XLH-RR	1	16.348	27.627	0.80	9.91	121.00	0.000	0.500	273.84	0.00	136.92
20	106.50	Powerwave	12	16.348	27.627	0.67	9.17	355.20	0.000	0.500	253.22	0.00	126.61
21	105.00	Valmont LWRM Ring Mount	1	16.260	27.479	1.00	6.00	450.00	0.000	0.000	164.87	0.00	0.00
22	105.00	Raycap DC6-48-60-18-8F	1	16.304	27.553	0.67	1.12	50.50	0.000	1.000	30.83	0.00	30.83
23	105.00	Andrew RRUS11 RRUs	6	16.304	27.553	0.67	12.62	396.00	0.000	1.000	347.80	0.00	347.80
						Totals:		**10,658.60**			**12,649.59**		

Total Applied Force Summary

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 69 67.55 mph Wind with 0.5" 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		285.27	1225.35	0.00	0.00
10.00		278.38	1215.22	0.00	0.00
15.00		271.48	1185.17	0.00	0.00
20.00		264.59	1155.12	0.00	0.00
25.00		257.69	1125.07	0.00	0.00
30.00		250.80	1095.03	0.00	0.00
35.00		248.04	1064.98	0.00	0.00
40.00		250.40	1034.93	0.00	0.00
42.67		133.00	540.16	0.00	0.00
45.00		118.11	797.40	0.00	0.00
48.00		152.22	1008.50	0.00	0.00
50.00		101.12	338.22	0.00	0.00
55.00		254.19	826.37	0.00	0.00
60.00		252.41	800.68	0.00	0.00
65.00		249.88	774.98	0.00	0.00
70.00		246.68	749.28	0.00	0.00
75.00		242.88	723.58	0.00	0.00
80.00		238.52	697.89	0.00	0.00
85.00		233.65	672.19	0.00	0.00
86.67		76.30	218.79	0.00	0.00
90.00		153.56	709.45	0.00	0.00
90.67		30.29	139.73	0.00	0.00
95.00		195.47	458.76	0.00	0.00
100.00		220.04	509.15	0.00	0.00
105.00	(8) appurtenances	757.03	1384.30	0.00	378.63
106.50	(37) appurtenances	4306.45	4408.79	0.00	1459.83
110.00		143.64	316.01	0.00	0.00
115.00		199.46	432.71	0.00	0.00
117.00	(29) appurtenances	5068.09	2998.88	0.00	0.00
120.00		113.96	238.49	0.00	0.00
125.00		184.09	379.62	0.00	0.00
126.50	(21) appurtenances	2924.84	2774.74	0.00	7653.51
130.00		122.11	241.69	0.00	0.00
135.00		152.42	326.53	0.00	0.00
140.00		154.01	326.53	0.00	0.00
	Totals:	**19,131.07**	**32,894.30**	**0.00**	**9,491.98**

Resulting Forces and Deflections

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 69 67.55 mph Wind with 0.5" 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	-19.167	-32.873	0.000	0.000	0.000	-1956.6	0.000	0.000	0.000	0.000	0.000
5.00	-18.950	-31.607	0.000	0.000	0.000	-1860.7	-0.067	0.000	0.067	-0.124	0.000
10.00	-18.735	-30.350	0.000	0.000	0.000	-1766.0	-0.265	0.000	0.265	-0.251	0.000
15.00	-18.524	-29.124	0.000	0.000	0.000	-1672.3	-0.597	0.000	0.597	-0.380	0.000
20.00	-18.316	-27.929	0.000	0.000	0.000	-1579.7	-1.067	0.000	1.067	-0.513	0.000
25.00	-18.111	-26.763	0.000	0.000	0.000	-1488.1	-1.677	0.000	1.677	-0.649	0.000
30.00	-17.909	-25.627	0.000	0.000	0.000	-1397.6	-2.431	0.000	2.431	-0.787	0.000
35.00	-17.706	-24.522	0.000	0.000	0.000	-1308.0	-3.332	0.000	3.332	-0.929	0.000
40.00	-17.484	-23.458	0.000	0.000	0.000	-1219.5	-4.383	0.000	4.383	-1.073	0.000
42.67	-17.370	-22.898	0.000	0.000	0.000	-1172.9	-5.005	0.000	5.005	-1.153	0.000
45.00	-17.267	-22.078	0.000	0.000	0.000	-1132.3	-5.587	0.000	5.587	-1.223	0.000
48.00	-17.120	-21.051	0.000	0.000	0.000	-1080.5	-6.385	0.000	6.385	-1.314	0.000
50.00	-17.054	-20.680	0.000	0.000	0.000	-1046.3	-6.949	0.000	6.949	-1.376	0.000
55.00	-16.839	-19.809	0.000	0.000	0.000	-961.08	-8.483	0.000	8.483	-1.549	0.000
60.00	-16.621	-18.966	0.000	0.000	0.000	-876.89	-10.199	0.000	10.199	-1.723	0.000
65.00	-16.403	-18.149	0.000	0.000	0.000	-793.78	-12.098	0.000	12.098	-1.898	0.000
70.00	-16.183	-17.359	0.000	0.000	0.000	-711.77	-14.180	0.000	14.180	-2.073	0.000
75.00	-15.963	-16.597	0.000	0.000	0.000	-630.86	-16.445	0.000	16.445	-2.247	0.000
80.00	-15.743	-15.863	0.000	0.000	0.000	-551.04	-18.891	0.000	18.891	-2.418	0.000
85.00	-15.510	-15.172	0.000	0.000	0.000	-472.33	-21.513	0.000	21.513	-2.584	0.000
86.67	-15.445	-14.935	0.000	0.000	0.000	-446.48	-22.426	0.000	22.426	-2.640	0.000
90.00	-15.274	-14.217	0.000	0.000	0.000	-395.00	-24.308	0.000	24.308	-2.748	0.000
90.67	-15.256	-14.058	0.000	0.000	0.000	-384.81	-24.693	0.000	24.693	-2.769	0.000
95.00	-15.072	-13.571	0.000	0.000	0.000	-318.70	-27.268	0.000	27.268	-2.898	0.000
100.00	-14.859	-13.037	0.000	0.000	0.000	-243.34	-30.390	0.000	30.390	-3.056	0.000
105.00	-14.044	-11.676	0.000	0.000	0.000	-168.67	-33.665	0.000	33.665	-3.188	0.000
106.50	-9.505	-7.507	0.000	0.000	0.000	-146.14	-34.672	0.000	34.672	-3.223	0.000
110.00	-9.353	-7.187	0.000	0.000	0.000	-112.88	-37.061	0.000	37.061	-3.293	0.000
115.00	-9.134	-6.759	0.000	0.000	0.000	-66.119	-40.552	0.000	40.552	-3.369	0.000
117.00	-3.900	-4.063	0.000	0.000	0.000	-47.851	-41.969	0.000	41.969	-3.392	0.000
120.00	-3.774	-3.830	0.000	0.000	0.000	-36.153	-44.108	0.000	44.108	-3.419	0.000
125.00	-3.568	-3.461	0.000	0.000	0.000	-17.285	-47.705	0.000	47.705	-3.450	0.000
126.50	-0.482	-0.867	0.000	0.000	0.000	-4.279	-48.790	0.000	48.790	-3.456	0.000
130.00	-0.345	-0.633	0.000	0.000	0.000	-2.593	-51.323	0.000	51.323	-3.460	0.000
135.00	-0.173	-0.317	0.000	0.000	0.000	-0.867	-54.946	0.000	54.946	-3.463	0.000
140.00	-0.154	0.000	0.000	0.000	0.000	0.000	0.000	0.000	58.571	-3.464	0.000

Resulting Stresses

Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 69 67.55 mph Wind with 0.5" 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	0.52	0.62	0.00	0.00	0.00	28.83	29.37	52.0		0.565
5.00	0.52	0.63	0.00	0.00	0.00	28.82	29.35	52.0		0.565
10.00	0.51	0.63	0.00	0.00	0.00	28.78	29.31	52.0		0.564
15.00	0.50	0.64	0.00	0.00	0.00	28.72	29.25	52.0		0.563
20.00	0.49	0.65	0.00	0.00	0.00	28.63	29.15	52.0		0.561
25.00	0.49	0.66	0.00	0.00	0.00	28.51	29.01	52.0		0.558
30.00	0.48	0.68	0.00	0.00	0.00	28.34	28.84	52.0		0.555
35.00	0.47	0.69	0.00	0.00	0.00	28.12	28.62	52.0		0.551
40.00	0.47	0.70	0.00	0.00	0.00	27.85	28.34	52.0		0.545
42.67	0.46	0.71	0.00	0.00	0.00	27.68	28.17	52.0		0.542
45.00	0.45	0.71	0.00	0.00	0.00	27.52	27.99	52.0		0.539
48.00	0.52	0.85	0.00	0.00	0.00	31.59	32.15	52.0		0.618
50.00	0.52	0.86	0.00	0.00	0.00	31.38	31.93	52.0		0.614
55.00	0.51	0.87	0.00	0.00	0.00	30.76	31.31	52.0		0.602
60.00	0.51	0.89	0.00	0.00	0.00	30.02	30.57	52.0		0.588
65.00	0.50	0.91	0.00	0.00	0.00	29.14	29.68	52.0		0.571
70.00	0.50	0.93	0.00	0.00	0.00	28.08	28.62	52.0		0.551
75.00	0.49	0.95	0.00	0.00	0.00	26.82	27.36	52.0		0.526
80.00	0.49	0.98	0.00	0.00	0.00	25.32	25.87	52.0		0.498
85.00	0.49	1.00	0.00	0.00	0.00	23.53	24.08	52.0		0.463
86.67	0.49	1.01	0.00	0.00	0.00	22.87	23.42	52.0		0.451
90.00	0.48	1.03	0.00	0.00	0.00	21.41	21.96	52.0		0.422
90.67	0.58	1.27	0.00	0.00	0.00	25.36	26.03	52.0		0.501
95.00	0.58	1.30	0.00	0.00	0.00	22.64	23.33	52.0		0.449
100.00	0.58	1.34	0.00	0.00	0.00	18.91	19.64	52.0		0.378
105.00	0.55	1.33	0.00	0.00	0.00	14.41	15.13	52.0		0.291
106.50	0.36	0.91	0.00	0.00	0.00	12.85	13.31	52.0		0.256
110.00	0.36	0.93	0.00	0.00	0.00	10.65	11.12	52.0		0.214
115.00	0.35	0.96	0.00	0.00	0.00	6.92	7.46	52.0		0.144
117.00	0.22	0.42	0.00	0.00	0.00	5.23	5.49	52.0		0.106
120.00	0.21	0.42	0.00	0.00	0.00	4.22	4.49	52.0		0.086
125.00	0.20	0.42	0.00	0.00	0.00	2.27	2.58	52.0		0.050
126.50	0.05	0.06	0.00	0.00	0.00	0.58	0.64	52.0		0.012
130.00	0.04	0.04	0.00	0.00	0.00	0.39	0.43	52.0		0.008
130.00	0.04	0.04	0.00	0.00	0.00	0.39	0.43	52.0		0.009
135.00	0.02	0.02	0.00	0.00	0.00	0.14	0.16	33.6	33.6	0.005
140.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	33.6	33.6	0.001

Wind Loading - Shaft

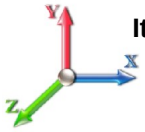
Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

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	220.83	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	215.46	0.650	0.000	5.00	21.815	14.18	153.4	0.0	1052.6
10.00		0.00	1.00	6.400	10.82	210.09	0.650	0.000	5.00	21.277	13.83	149.6	0.0	1026.5
15.00		0.00	1.00	6.400	10.82	204.72	0.650	0.000	5.00	20.740	13.48	145.8	0.0	1000.4
20.00		0.00	1.00	6.400	10.82	199.34	0.650	0.000	5.00	20.203	13.13	142.0	0.0	974.3
25.00		0.00	1.00	6.400	10.82	193.97	0.650	0.000	5.00	19.666	12.78	138.3	0.0	948.2
30.00		0.00	1.00	6.400	10.82	188.60	0.650	0.000	5.00	19.128	12.43	134.5	0.0	922.0
35.00		0.00	1.02	6.509	11.00	184.77	0.650	0.000	5.00	18.591	12.08	132.9	0.0	895.9
40.00		0.00	1.06	6.762	11.43	182.81	0.650	0.000	5.00	18.054	11.74	134.1	0.0	869.8
42.67	Bot - Section 2	0.00	1.08	6.887	11.64	181.53	0.650	0.000	2.67	9.409	6.12	71.2	0.0	453.2
45.00		0.00	1.09	6.993	11.82	180.29	0.650	0.000	2.33	8.229	5.35	63.2	0.0	721.3
48.00	Top - Section 1	0.00	1.11	7.123	12.04	178.56	0.650	0.000	3.00	10.408	6.77	81.4	0.0	912.1
50.00		0.00	1.13	7.207	12.18	180.09	0.650	0.000	2.00	6.831	4.44	54.1	0.0	274.6
55.00		0.00	1.16	7.406	12.52	176.78	0.650	0.000	5.00	16.703	10.86	135.9	0.0	671.2
60.00		0.00	1.19	7.592	12.83	173.14	0.650	0.000	5.00	16.165	10.51	134.8	0.0	649.4
65.00		0.00	1.21	7.768	13.13	169.21	0.650	0.000	5.00	15.628	10.16	133.4	0.0	627.7
70.00		0.00	1.24	7.934	13.41	165.03	0.650	0.000	5.00	15.091	9.81	131.5	0.0	605.9
75.00		0.00	1.26	8.092	13.68	160.62	0.650	0.000	5.00	14.553	9.46	129.4	0.0	584.1
80.00		0.00	1.29	8.242	13.93	156.01	0.650	0.000	5.00	14.016	9.11	126.9	0.0	562.4
85.00		0.00	1.31	8.387	14.17	151.22	0.650	0.000	5.00	13.479	8.76	124.2	0.0	540.6
86.67	Bot - Section 3	0.00	1.32	8.433	14.25	149.59	0.650	0.000	1.67	4.374	2.84	40.5	0.0	175.4
90.00		0.00	1.33	8.525	14.41	146.26	0.650	0.000	3.33	8.707	5.66	81.5	0.0	623.4
90.67	Top - Section 2	0.00	1.33	8.543	14.44	145.59	0.650	0.000	0.67	1.713	1.11	16.1	0.0	122.6
95.00		0.00	1.35	8.657	14.63	143.57	0.650	0.000	4.33	10.900	7.09	103.7	0.0	350.2
100.00		0.00	1.37	8.785	14.85	138.33	0.650	0.000	5.00	12.076	7.85	116.5	0.0	387.9
105.00	Appurtenance(s)	0.00	1.39	8.908	15.06	132.96	0.650	0.000	5.00	11.538	7.50	112.9	0.0	370.5
106.50	Appurtenance(s)	0.00	1.40	8.945	15.12	131.32	0.650	0.000	1.50	3.357	2.18	33.0	0.0	107.7
110.00		0.00	1.41	9.028	15.26	127.47	0.650	0.000	3.50	7.644	4.97	75.8	0.0	245.3
115.00		0.00	1.43	9.143	15.45	121.86	0.650	0.000	5.00	10.464	6.80	105.1	0.0	335.7
117.00	Appurtenance(s)	0.00	1.44	9.188	15.53	119.58	0.650	0.000	2.00	4.035	2.62	40.7	0.0	129.4
120.00		0.00	1.45	9.255	15.64	116.14	0.650	0.000	3.00	5.891	3.83	59.9	0.0	188.9
125.00		0.00	1.46	9.363	15.82	110.32	0.650	0.000	5.00	9.389	6.10	96.6	0.0	300.8
126.50	Appurtenance(s)	0.00	1.47	9.395	15.88	108.55	0.650	0.000	1.50	2.712	1.76	28.0	0.0	86.9
130.00	Top - Section 3	0.00	1.48	9.469	16.00	104.40	0.650	0.000	3.50	6.140	3.99	63.9	0.0	196.6
135.00		0.00	1.50	9.572	16.18	101.91	0.590	0.000	5.00	8.333	4.92	79.5	0.0	263.9
140.00		0.00	1.51	9.672	16.35	102.44	0.590	0.000	5.00	8.333	4.92	80.4	0.0	263.9
								Totals:	**140.00**			**3,450.6**		**18,441.1**

Discrete Appurtenance Forces

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (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: 22

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	126.50	Ericsson AIR21 B4A/B2P	3	9.469	16.003	0.86	16.98	271.20	0.000	3.500	271.67	0.00	950.83
2	126.50	Commscope	3	9.469	16.003	0.80	27.38	150.90	0.000	3.500	438.21	0.00	1533.75
3	126.50	Ericsson AIR21 B2A/B4P	3	9.469	16.003	0.86	16.98	274.50	0.000	3.500	271.67	0.00	950.83
4	126.50	T-Arms	3	9.395	15.878	0.75	18.00	1050.00	0.000	0.000	285.81	0.00	0.00
5	126.50	Ericsson KRY 112 144/1	6	9.469	16.003	0.67	1.65	66.00	0.000	3.500	26.38	0.00	92.31
6	126.50	Ericsson S11B12	3	9.469	16.003	0.67	6.65	153.00	0.000	3.500	106.47	0.00	372.63
7	117.00	T-Arms	3	9.188	15.528	0.75	18.00	1050.00	0.000	0.000	279.50	0.00	0.00
8	117.00	RFS DB-T1-6Z-8AB-0Z	2	9.188	15.528	0.75	8.40	88.00	0.000	0.000	130.44	0.00	0.00
9	117.00	Commscope SBNHH-1D65B	9	9.188	15.528	0.83	62.00	456.39	0.000	0.000	962.75	0.00	0.00
10	117.00	Antel LPA-80063/6CFx5	6	9.188	15.528	0.85	52.73	162.00	0.000	0.000	818.85	0.00	0.00
11	117.00	ALU RRH2X60-PCS	3	9.188	15.528	0.67	5.17	165.00	0.000	0.000	80.21	0.00	0.00
12	117.00	ALU RRH2x60-AWS	3	9.188	15.528	0.67	7.96	180.00	0.000	0.000	123.60	0.00	0.00
13	117.00	ALU RRH2x60-700	3	9.188	15.528	0.67	7.96	180.00	0.000	0.000	123.60	0.00	0.00
14	106.50	Powerwave 7020.00	12	8.957	15.137	0.50	2.40	26.40	0.000	0.500	36.33	0.00	18.16
15	106.50	Andrew SBNH-1D6565C	1	8.957	15.137	0.80	9.15	66.10	0.000	0.500	138.53	0.00	69.27
16	106.50	KMW	1	8.957	15.137	0.78	6.44	48.50	0.000	0.500	97.52	0.00	48.76
17	106.50	Platform w/ Hand Rails	1	8.945	15.116	1.00	40.00	2000.00	0.000	0.000	604.66	0.00	0.00
18	106.50	Powerwave P65-16-XLH-RR	9	8.957	15.137	0.80	60.48	477.00	0.000	0.500	915.46	0.00	457.73
19	106.50	Powerwave P65-17-XLH-RR	1	8.957	15.137	0.80	9.17	59.00	0.000	0.500	138.77	0.00	69.39
20	106.50	Powerwave	12	8.957	15.137	0.67	7.40	264.00	0.000	0.500	111.96	0.00	55.98
21	105.00	Valmont LWRM Ring Mount	1	8.908	15.055	1.00	5.00	350.00	0.000	0.000	75.28	0.00	0.00
22	105.00	Raycap DC6-48-60-18-8F	1	8.933	15.096	0.67	0.98	32.80	0.000	1.000	14.87	0.00	14.87
23	105.00	Andrew RRUS11 RRUs	6	8.933	15.096	0.67	11.82	304.20	0.000	1.000	178.42	0.00	178.42
						Totals:		**7,874.99**			**6,230.95**		

Total Applied Force Summary

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 20	

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 22

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		157.69	1094.86	0.00	0.00
10.00		160.40	1132.14	0.00	0.00
15.00		156.63	1106.03	0.00	0.00
20.00		152.85	1079.92	0.00	0.00
25.00		149.07	1053.81	0.00	0.00
30.00		145.30	1027.70	0.00	0.00
35.00		143.92	1001.59	0.00	0.00
40.00		145.52	975.48	0.00	0.00
42.67		77.40	509.58	0.00	0.00
45.00		68.73	770.61	0.00	0.00
48.00		88.67	975.46	0.00	0.00
50.00		58.95	316.82	0.00	0.00
55.00		148.39	776.83	0.00	0.00
60.00		147.65	755.07	0.00	0.00
65.00		146.48	733.31	0.00	0.00
70.00		144.93	711.55	0.00	0.00
75.00		143.04	689.79	0.00	0.00
80.00		140.84	668.04	0.00	0.00
85.00		138.35	646.28	0.00	0.00
86.67		45.27	210.59	0.00	0.00
90.00		91.14	693.78	0.00	0.00
90.67		18.00	136.67	0.00	0.00
95.00		116.34	441.80	0.00	0.00
100.00		131.38	493.52	0.00	0.00
105.00	(8) appurtenances	396.53	1163.12	0.00	193.29
106.50	(37) appurtenances	2080.75	3080.44	0.00	719.29
110.00		75.81	259.87	0.00	0.00
115.00		105.09	356.45	0.00	0.00
117.00	(29) appurtenances	2559.68	2419.10	0.00	0.00
120.00		59.89	195.10	0.00	0.00
125.00		96.58	311.24	0.00	0.00
126.50	(21) appurtenances	1428.19	2055.58	0.00	3900.36
130.00		63.87	196.57	0.00	0.00
135.00		79.53	263.91	0.00	0.00
140.00		80.36	263.91	0.00	0.00
	Totals:	**9,943.22**	**28,566.53**	**0.00**	**4,812.93**

Resulting Forces and Deflections

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (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: 22

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	-9.958	-28.561	0.000	0.000	0.000	-991.22	0.000	0.000	0.000	0.000	0.000
5.00	-9.830	-27.455	0.000	0.000	0.000	-941.43	-0.034	0.000	0.034	-0.063	0.000
10.00	-9.698	-26.312	0.000	0.000	0.000	-892.28	-0.134	0.000	0.134	-0.127	0.000
15.00	-9.567	-25.196	0.000	0.000	0.000	-843.79	-0.302	0.000	0.302	-0.192	0.000
20.00	-9.439	-24.105	0.000	0.000	0.000	-795.95	-0.540	0.000	0.540	-0.259	0.000
25.00	-9.312	-23.041	0.000	0.000	0.000	-748.76	-0.848	0.000	0.848	-0.328	0.000
30.00	-9.187	-22.003	0.000	0.000	0.000	-702.20	-1.229	0.000	1.229	-0.397	0.000
35.00	-9.062	-20.991	0.000	0.000	0.000	-656.27	-1.683	0.000	1.683	-0.468	0.000
40.00	-8.927	-20.008	0.000	0.000	0.000	-610.96	-2.212	0.000	2.212	-0.541	0.000
42.67	-8.858	-19.494	0.000	0.000	0.000	-587.15	-2.526	0.000	2.526	-0.581	0.000
45.00	-8.794	-18.718	0.000	0.000	0.000	-566.48	-2.819	0.000	2.819	-0.616	0.000
48.00	-8.707	-17.738	0.000	0.000	0.000	-540.10	-3.220	0.000	3.220	-0.661	0.000
50.00	-8.662	-17.413	0.000	0.000	0.000	-522.69	-3.504	0.000	3.504	-0.692	0.000
55.00	-8.529	-16.625	0.000	0.000	0.000	-479.38	-4.276	0.000	4.276	-0.778	0.000
60.00	-8.394	-15.859	0.000	0.000	0.000	-436.74	-5.138	0.000	5.138	-0.865	0.000
65.00	-8.259	-15.116	0.000	0.000	0.000	-394.77	-6.091	0.000	6.091	-0.952	0.000
70.00	-8.124	-14.395	0.000	0.000	0.000	-353.47	-7.135	0.000	7.135	-1.039	0.000
75.00	-7.988	-13.696	0.000	0.000	0.000	-312.85	-8.271	0.000	8.271	-1.125	0.000
80.00	-7.853	-13.019	0.000	0.000	0.000	-272.91	-9.496	0.000	9.496	-1.210	0.000
85.00	-7.712	-12.369	0.000	0.000	0.000	-233.65	-10.808	0.000	10.808	-1.293	0.000
86.67	-7.671	-12.154	0.000	0.000	0.000	-220.80	-11.264	0.000	11.264	-1.320	0.000
90.00	-7.569	-11.458	0.000	0.000	0.000	-195.23	-12.206	0.000	12.206	-1.373	0.000
90.67	-7.556	-11.317	0.000	0.000	0.000	-190.18	-12.398	0.000	12.398	-1.384	0.000
95.00	-7.442	-10.869	0.000	0.000	0.000	-157.44	-13.685	0.000	13.685	-1.448	0.000
100.00	-7.311	-10.370	0.000	0.000	0.000	-120.23	-15.245	0.000	15.245	-1.526	0.000
105.00	-6.889	-9.213	0.000	0.000	0.000	-83.489	-16.880	0.000	16.880	-1.591	0.000
106.50	-4.726	-6.190	0.000	0.000	0.000	-72.436	-17.383	0.000	17.383	-1.608	0.000
110.00	-4.647	-5.929	0.000	0.000	0.000	-55.895	-18.576	0.000	18.576	-1.643	0.000
115.00	-4.534	-5.574	0.000	0.000	0.000	-32.660	-20.319	0.000	20.319	-1.681	0.000
117.00	-1.905	-3.231	0.000	0.000	0.000	-23.593	-21.025	0.000	21.025	-1.692	0.000
120.00	-1.840	-3.038	0.000	0.000	0.000	-17.879	-22.093	0.000	22.093	-1.705	0.000
125.00	-1.735	-2.729	0.000	0.000	0.000	-8.679	-23.888	0.000	23.888	-1.721	0.000
126.50	-0.245	-0.717	0.000	0.000	0.000	-2.177	-24.429	0.000	24.429	-1.724	0.000
130.00	-0.176	-0.523	0.000	0.000	0.000	-1.319	-25.693	0.000	25.693	-1.726	0.000
135.00	-0.088	-0.261	0.000	0.000	0.000	-0.441	-27.501	0.000	27.501	-1.727	0.000
140.00	-0.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.310	-1.728	0.000

Resulting Stresses

Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (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: 22

	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	0.46	0.32	0.00	0.00	0.00	14.60	15.07	52.0		0.290
5.00	0.45	0.32	0.00	0.00	0.00	14.58	15.04	52.0		0.289
10.00	0.44	0.33	0.00	0.00	0.00	14.54	14.99	52.0		0.288
15.00	0.43	0.33	0.00	0.00	0.00	14.49	14.94	52.0		0.287
20.00	0.43	0.34	0.00	0.00	0.00	14.43	14.86	52.0		0.286
25.00	0.42	0.34	0.00	0.00	0.00	14.34	14.77	52.0		0.284
30.00	0.41	0.35	0.00	0.00	0.00	14.24	14.66	52.0		0.282
35.00	0.40	0.35	0.00	0.00	0.00	14.11	14.53	52.0		0.279
40.00	0.40	0.36	0.00	0.00	0.00	13.95	14.36	52.0		0.276
42.67	0.39	0.36	0.00	0.00	0.00	13.86	14.26	52.0		0.274
45.00	0.38	0.36	0.00	0.00	0.00	13.76	14.16	52.0		0.272
48.00	0.44	0.43	0.00	0.00	0.00	15.79	16.25	52.0		0.313
50.00	0.43	0.44	0.00	0.00	0.00	15.68	16.13	52.0		0.310
55.00	0.43	0.44	0.00	0.00	0.00	15.34	15.79	52.0		0.304
60.00	0.42	0.45	0.00	0.00	0.00	14.95	15.39	52.0		0.296
65.00	0.42	0.46	0.00	0.00	0.00	14.49	14.93	52.0		0.287
70.00	0.41	0.47	0.00	0.00	0.00	13.94	14.38	52.0		0.277
75.00	0.41	0.48	0.00	0.00	0.00	13.30	13.73	52.0		0.264
80.00	0.40	0.49	0.00	0.00	0.00	12.54	12.97	52.0		0.250
85.00	0.40	0.50	0.00	0.00	0.00	11.64	12.07	52.0		0.232
86.67	0.40	0.50	0.00	0.00	0.00	11.31	11.74	52.0		0.226
90.00	0.38	0.51	0.00	0.00	0.00	10.58	11.00	52.0		0.212
90.67	0.47	0.63	0.00	0.00	0.00	12.53	13.05	52.0		0.251
95.00	0.47	0.64	0.00	0.00	0.00	11.18	11.70	52.0		0.225
100.00	0.47	0.66	0.00	0.00	0.00	9.35	9.88	52.0		0.190
105.00	0.43	0.65	0.00	0.00	0.00	7.13	7.65	52.0		0.147
106.50	0.30	0.45	0.00	0.00	0.00	6.37	6.71	52.0		0.129
110.00	0.29	0.46	0.00	0.00	0.00	5.27	5.62	52.0		0.108
115.00	0.29	0.48	0.00	0.00	0.00	3.42	3.80	52.0		0.073
117.00	0.17	0.20	0.00	0.00	0.00	2.58	2.77	52.0		0.053
120.00	0.17	0.20	0.00	0.00	0.00	2.09	2.28	52.0		0.044
125.00	0.16	0.20	0.00	0.00	0.00	1.14	1.35	52.0		0.026
126.50	0.04	0.03	0.00	0.00	0.00	0.30	0.34	52.0		0.007
130.00	0.03	0.02	0.00	0.00	0.00	0.20	0.23	52.0		0.004
130.00	0.03	0.02	0.00	0.00	0.00	0.20	0.23	52.0		0.005
135.00	0.02	0.01	0.00	0.00	0.00	0.07	0.09	33.6	33.6	0.003
140.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	33.6	33.6	0.001

Final Analysis Summary

Structure:	CT13548-S-SBA	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	t MZ (ft-kips)
78 mphWind with 0" Ice	24.2	0.00	28.53	0.00	0.00	2410.77
69 67.55 mph Wind with 0.5"	19.2	0.00	32.87	0.00	0.00	1956.62
50 mph Wind with 0" Ice	10.0	0.00	28.56	0.00	0.00	991.23

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
78 mphWind with 0" Ice	0.42	1.05	0.00	0.00	0.00	38.39	38.86	52.0	48.00	0.747
69 67.55 mph Wind with 0.5" Ice	0.52	0.85	0.00	0.00	0.00	31.59	32.15	52.0	48.00	0.618
50 mph Wind with 0" Ice	0.44	0.43	0.00	0.00	0.00	15.79	16.25	52.0	48.00	0.313

Base Plate Summary

Structure:	CT13548-S-SB	**Code:**	EIA/TIA-222-F	9/28/2015	
Site Name:	Bloomfield 4	**Exposure:**	C		
Height:	140.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	50.00	**Bolt Circle:**	57.88
Moment (kip-ft):	4028.20	**Width (in):**	61.50	**Number Bolts:**	24.00
Axial (kip):	95.10	**Style:**	Round	**Bolt Type:**	1.5" F1554 105
Shear (kip):	38.70	**Polygon Sides:**	0.00	**Bolt Diameter (in):**	1.50
Analysis		**Clip Length (in):**	0.00	**Yield (ksi):**	105.00
Moment (kip-ft):	2410.77	**Effective Len (in):**	9.48	**Ultimate (ksi):**	125.00
Axial (kip):	32.87	**Moment (kip-in):**	206.60	**Arrangement:**	Radial
Shear (kip):	24.24	**Allow Stress (ksi):**	50.00	**Cluster Dist (in):**	0.00
		Applied Stress (ksi):	32.67	**Start Angle (deg):**	0.00
Moment Design %:	59.85	**Stress Ratio:**	0.65	Compression	
				Force (kip):	84.67
				Allowable (kip):	118.44
				Ratio:	0.71
				Tension	
				Force (kip):	81.93
				Allowable (kip):	97.19
				Ratio:	0.84

Monopole Mat Foundation Design

				Date
				9/28/2015
Customer Name:	T-Mobile	**EIA/TIA Standard:**	EIA-222-F
Site Name:	Bloomfield 4	**Structure Height (Ft.):**	140
Site Nmber:	CT13548-S-SBA	**Engineer Name:**	W. Velez
Engr. Number:	17787	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

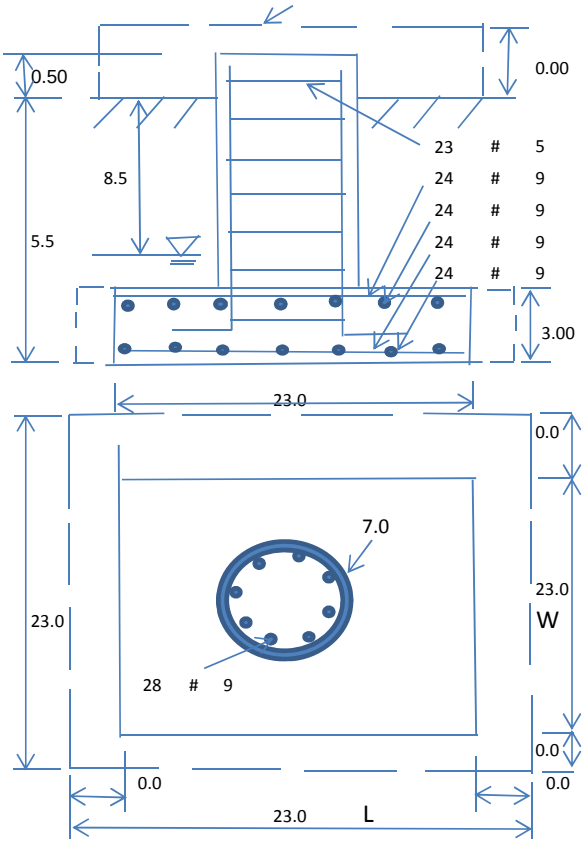
Analysis or Design? Analysis

Base Reactions (Unfactored)

Axial Load (Kips):	28.5	Shear Force (Kips):	24.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2410.8
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.00
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):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	28	Tie Spacing (in):	3.0	
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):	24	Qty. of Rebar in Pad (W):	24	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	24	Qty. of Rebar in Pad (W):	24	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	64.1	Pcf		
Water Table B.G.S. (ft):	8.5	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Allowable Net Soil Bearing (psf):	3000	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.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	1226.29	Total Dry Soil Weight (Kips):	141.02
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	141.02	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1702.45	Total Dry Concrete Weight (Kips):	255.37
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	255.37	Total Vertical Load on Base (Kips):	424.92

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2267	<	Allowable Soil Bearing (psf): 3000	0.76	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	3257.7	>	Applied Momont (kips-ft): 2522	0.77	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.94	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):	1.00		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	4737.7	>	Design Factored Moment (Mu, Kips-Ft	3228.4	0.68	OK!
Calculated Shear Capacity (Kips):	1359.0	>	Design Factored Shear (Kips):	31.5	0.02	OK!
Calculated Tension Capacity (Tn, Kips):	1512.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9748.3	>	Design Factored Axial Load (Pu Kips):	37.1	0.00	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.69	OK!	Check Tie Spacing (Design/Required):		0.25	OK!
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is too small			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	849.3	>	One-Way Factored Shear (L-D. Kips):	192.2	0.23	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	849.3	>	One-Way Factored Shear (W-D., Kips)	192.2	0.23	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	942.6	>	One-Way Factored Shear (C-C, Kips):	336.0	0.36	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0027	OK!	Lower Steel Pad Reinf. Ratio (W-Direct	0.0027		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3420.4	>	Moment at Bottom (L-Direct. K-Ft):	391.5	0.11	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3420.4	>	Moment at Bottom (W-Direct. K-Ft):	391.5	0.11	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	4805.0	>	Moment at Bottom (C-C Dir. K-Ft):	553.7	0.12	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0027	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0027		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	3420.4	>	Moment at the top (L-Dir Kips-Ft):	533.3	0.16	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	3420.4	>	Moment at the top (W-Dir Kips-Ft):	533.3	0.16	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	4805.0	>	Moment at the top (C-C Direc. K-Ft):	514.4	0.11	OK!

Pier Foundation Design For Monopole

			Date: 9/28/2015
Customer Name:	T-Mobile	EIA/TIA Standard:	EIA-222-F
Site Name:	Bloomfield 4	Structure Height (Ft.):	140
Site Number:	CT13548-S-SBA	Engineer Name:	W. Velez
Engr. Number:	17787	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Acceptable overstress (5.0%

Base Reactions (Unfactored)

Axial Load (Kips):	28.5	Shear Force (Kips):	24.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2410.8

Foundation Geometries:

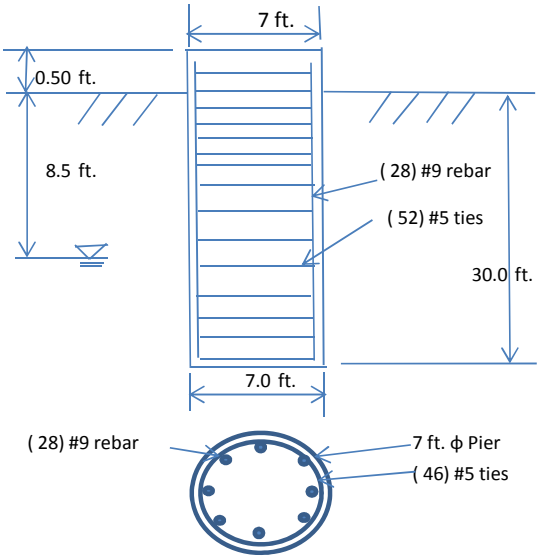
Mods required -Yes/No ?:	No			ft.
Diameter of Pier (ft.):	7.0	Depth of Base B. G. S. :	30.0	ft.
Pier Height A. G. (ft.):	0.50			

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	60	ksi
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	28	Tie Spacing:	8.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	8.5	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)
Skin Frictions are to be obtained from:		Soil Report		



Monopole Pier Foundation

Depth of Layers (ft) Top	Depth of Layers (ft) Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Allowable Skin Friction (psf)	Allowable Bearing (psf)	Soil Types
0.0	4.0	110	10	0	0	0	Sand
4.0	8.0	115	33	0	200	0	Sand
8.0	15.0	115	33	0	275	0	Sand
15.0	26.0	115	33	0	400	0	Sand
26.0	31.0	115	33	0	550	3000	Sand

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Total Dry Soil Volume from Conical Failure (cu. Ft.):	8715	Dry Soil Weight from Conical Failure:	982	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	6404	Buoyant Soil Weight from Conical Failure (K	447	Kips
Total Dry Concrete Volume (cu. Ft.):	346	Total Dry Concrete Weight:	52.0	Kips
Total Buoyant Concrete Volume (cu. Ft.):	827.4	Total Buoyant Concrete Weight:	72.48	Kips
Total Effective Concrete Weight (Kips):	124.4	Total Effective Soil Weight:	1429.1	Kips
Total Effective Vertical Load on Base (Kips):	58.3			

Check Soil Capacities:

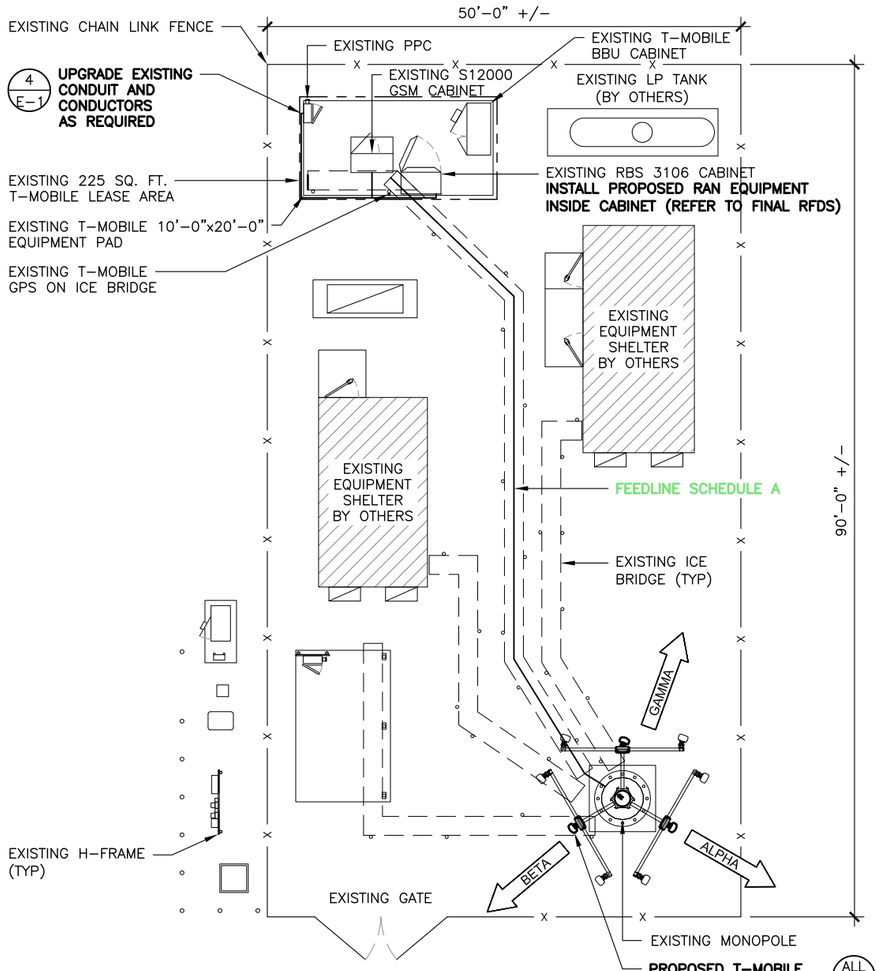
					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	6773.0	>	Applied Momont (kips-ft):	2895	0.43	OK!
Factor of Safety of Passive Soil Resistance against Moment:	4.68	OK!				

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	

Reinforcing Concrete Pier:

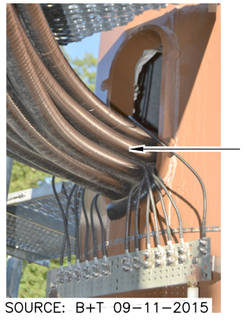
					Usage	
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	4738	>	Design Factored Moment (Mu, K-Ft):	3278.4	0.69	OK!
Calculated Shear Capacity (Kips):	1021.8	>	Design Factored Shear (Kips):	285.0	0.28	OK!
Calculated Tension Capacity (Tn, Kips):	1512.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9748	>	Design Factored Axial Load (Pu Kips):	37.1	0.00	OK!
Moment & Axial Strength Combination(Tu/Tn+Mu/Mn):	0.70	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is too small			



1 OVERALL SITE PLAN

SCALE: 0' 8' 16' 32' 64'

11x17 SCALE: 1/16"=1'-0"
22x34 SCALE: 1/8"=1'-0"



EXISTING (12) LINES OF 1 5/8" COAX AND (1) 1 5/8" HYBRID FIBER TO 130' TO REMAIN. **(REFER TO SBA PROVIDED STRUCTURAL ANALYSIS FOR SPECIAL CABLE INSTALLATION REQUIREMENTS, BUNDLING, SHIELDING, MOUNTING AND RELOCATION OF EXISTING CABLES)**

SOURCE: B+T 09-11-2015

2A FEEDLINE PHOTO DETAIL @ TOWER BASE

SCALE: N.T.S.

STRUCTURAL NOTES:

PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY SBA TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING OR RELOCATION ARRANGEMENTS.

ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:

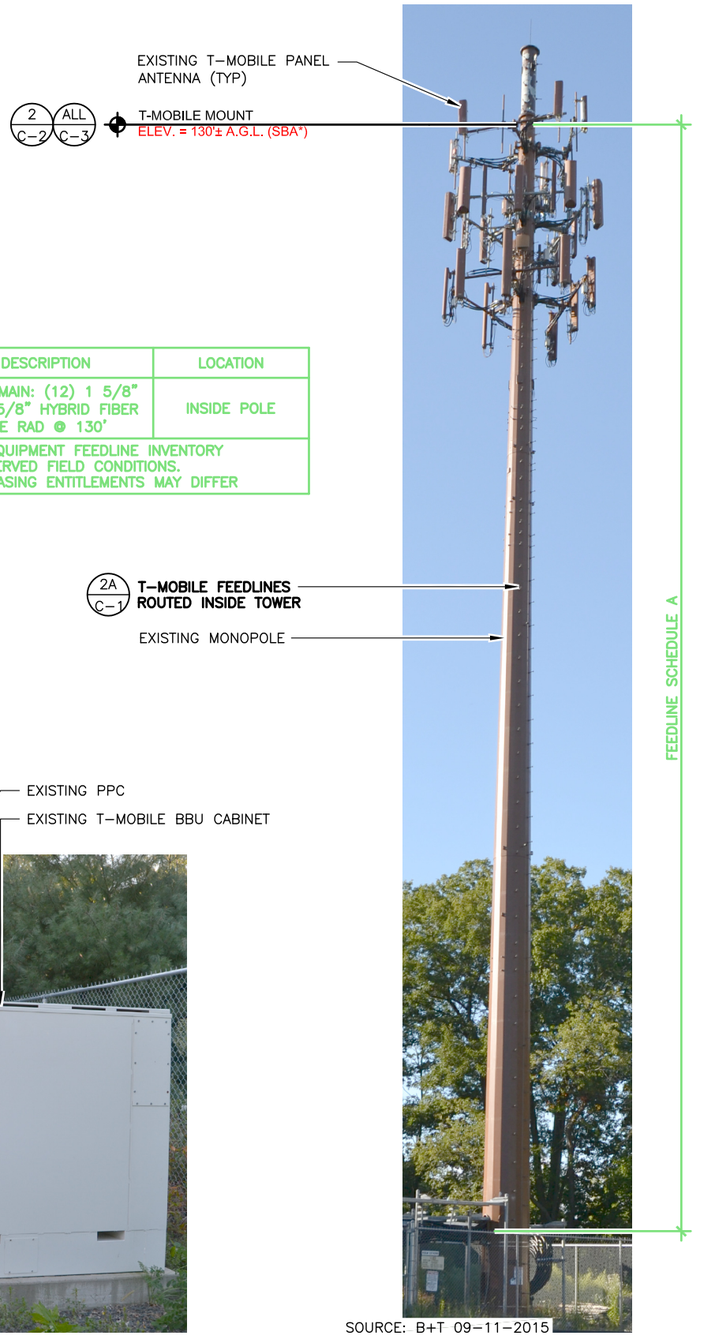
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND HAS DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING TO REMAIN: (12) 1 5/8" COAX & (1) 1 5/8" HYBRID FIBER TO T-MOBILE RAD @ 130'	INSIDE POLE
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER		

SOURCE: B+T 09-11-2015

2B EQUIPMENT PHOTO DETAIL

SCALE: N.T.S.



SOURCE: B+T 09-11-2015

3 ELEVATION PHOTO DETAIL

SCALE: N.T.S.

B+T GRP
1717 S. BOULDER
SUITE 300
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PH: (918) 587-4630
www.btgrp.com

T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

SBA COMMUNICATIONS CORP.
33 BOSTON POST ROAD WEST, SUITE 320
MARLBOROUGH, MA 01752

CTHA145B

MAPLE HILL FARMS

12 BURR ROAD
BLOOMFIELD, CT 06002

PROJECT NO:	101028.001
CHECKED BY:	RCM

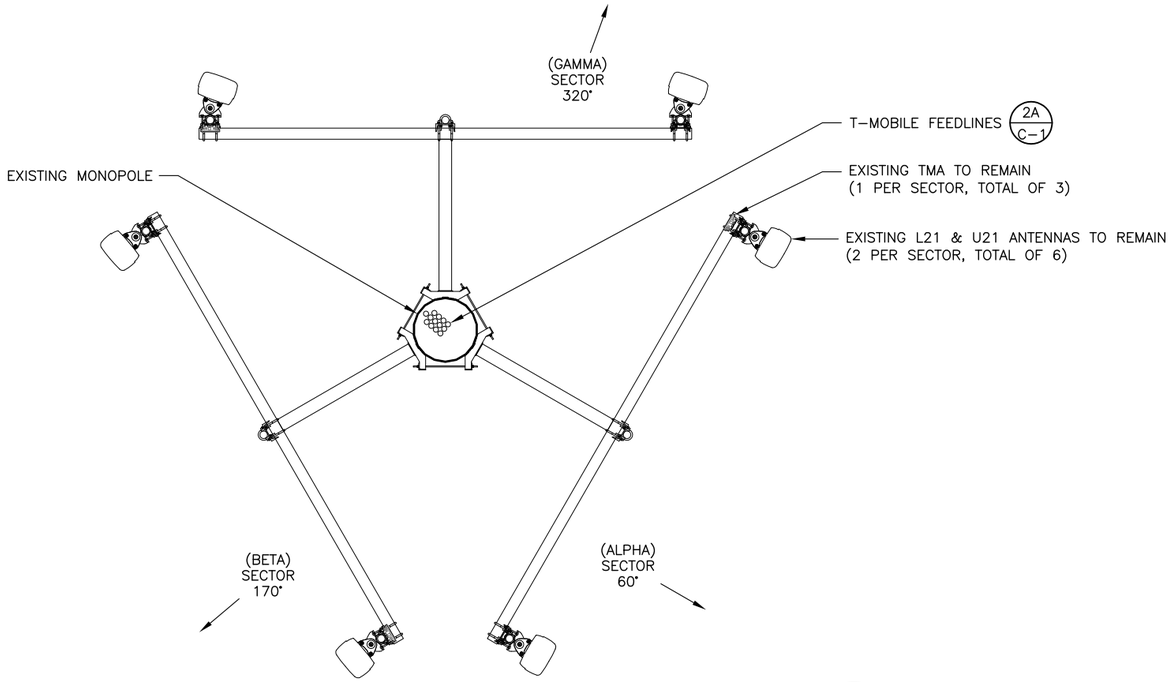
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	9/24/15	MDW	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/16

9/24/15
STATE OF CONNECTICUT ★ CHAD TUTTLE ★ No. 23924 LICENSED PROFESSIONAL ENGINEER

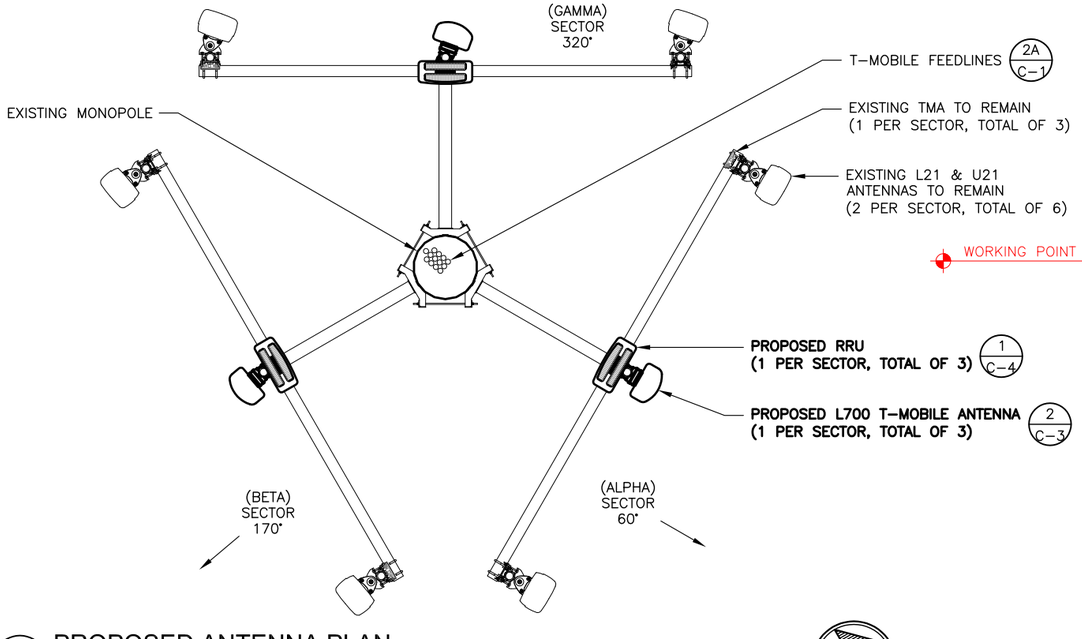
SHEET NUMBER:	REVISION:
C-1	0



1A EXISTING ANTENNA PLAN

SCALE: 0' 1' 4' 10'

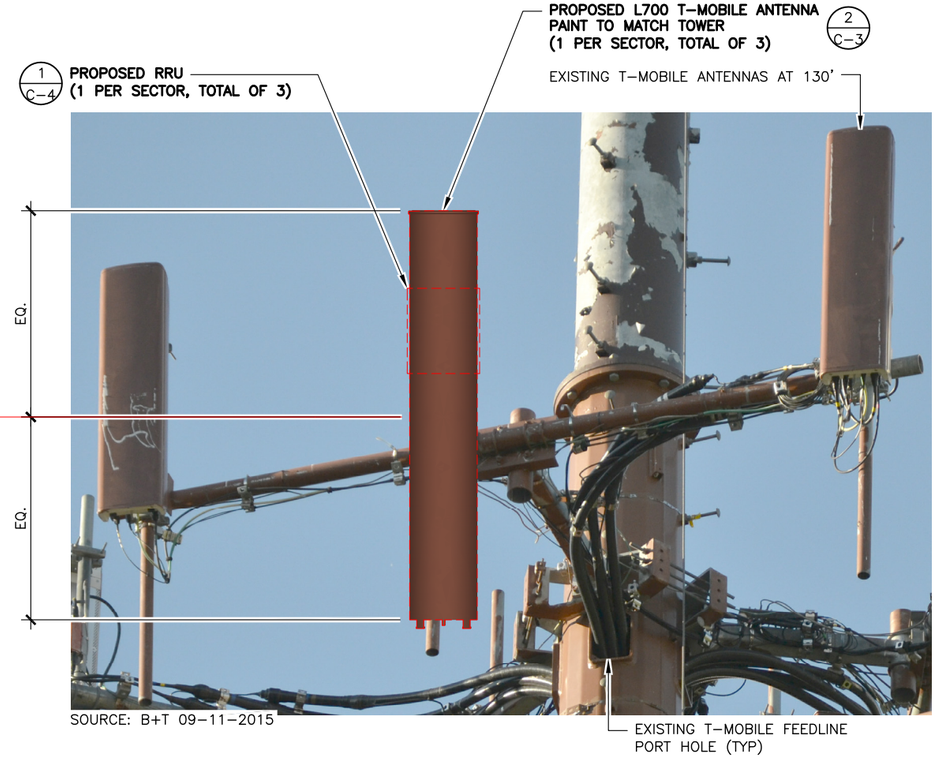
11x17 SCALE: 1/4"=1'–0"
22x34 SCALE: 1/2"=1'–0"



1B PROPOSED ANTENNA PLAN

SCALE: 0' 1' 4' 10'

11x17 SCALE: 1/4"=1'–0"
22x34 SCALE: 1/2"=1'–0"



SOURCE: B+T 09–11–2015

2 ANTENNA MOUNT PHOTO DETAIL

SCALE: N.T.S.

STRUCTURAL NOTES:

PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY SBA TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING OR RELOCATION ARRANGEMENTS.

SPECIAL WORK NOTE:

GC AND TOWER CREW SHALL CHECK WITH THE RF ENGINEER FOR LATEST RFDS, RAN SCENARIO AND TOWER TOP EQUIPMENT SPECIFICATIONS.

ANTENNA INSTALLATION SPECIAL WORK NOTE:

ANTENNA INSTALLATION WORKING POINT IS THE STRUCTURAL FACE FRAME VERTICAL CENTERLINE OF THE EXISTING ANTENNA SUPPORT ASSEMBLY. UNLESS NOTED OTHERWISE, VERTICALLY CENTER ALL PIPE MASTS AND ANTENNAS ON THIS WORKING POINT.

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CTHA145B

MAPLE HILL FARMS

12 BURR ROAD
BLOOMFIELD, CT 06002

PROJECT NO:	101028.001
CHECKED BY:	RCM

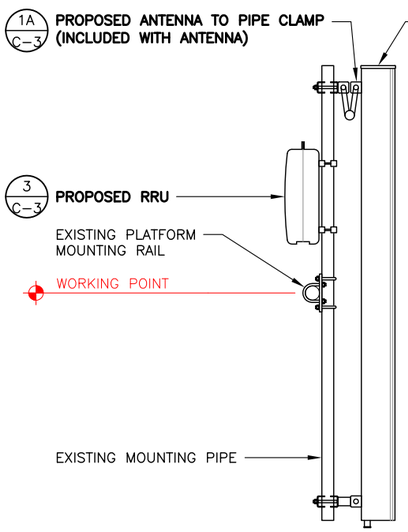
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	9/24/15	MDW	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/16

9/24/15
STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

SHEET NUMBER:	REVISION:
C-2	0

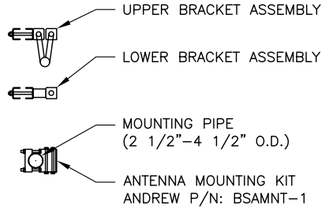


ANTENNA INSTALLATION SPECIAL WORK NOTE:

ANTENNA INSTALLATION WORKING POINT IS THE STRUCTURAL FACE FRAME VERTICAL CENTERLINE OF THE EXISTING ANTENNA SUPPORT ASSEMBLY. UNLESS NOTED OTHERWISE VERTICALLY CENTER ALL PIPE MASTS AND ANTENNAS ON THIS WORKING POINT.

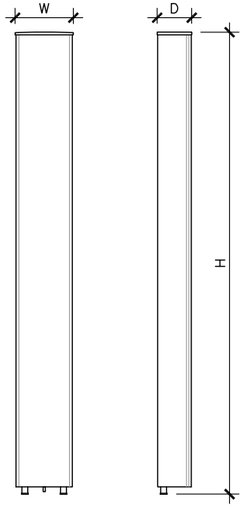
1 PROPOSED L700 ANTENNA & RRU MOUNTING DETAIL

SCALE: N.T.S.



1A L700 ANTENNA MOUNTING BRACKET

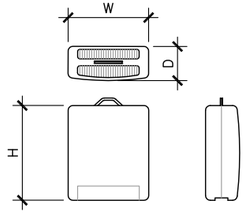
SCALE: N.T.S.



L700 ANTENNA SPECS	
MANUFACTURER	ANDREW
MODEL #	LNX-6515DS
WIDTH	11.9"
DEPTH	7.1"
HEIGHT	96.4"
WEIGHT	50.3 LBS

2 L700 ANTENNA DETAIL

SCALE: N.T.S.



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RRUS11 B12
WIDTH	17"
DEPTH	7"
HEIGHT	20"
WEIGHT	50.6 LBS

3 REMOTE RADIO UNIT (RRU)

SCALE: N.T.S.

ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:

ENGINEER OF RECORD HAD MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

STRUCTURAL NOTES:

PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY SBA TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING OR RELOCATION ARRANGEMENTS.

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

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BLOOMFIELD, CT 06002

SBA COMMUNICATIONS CORP.
33 BOSTON POST ROAD WEST, SUITE 320
MARLBOROUGH, MA 01752

CTHA145B

MAPLE HILL FARMS

12 BURR ROAD
BLOOMFIELD, CT 06002

PROJECT NO:	101028.001
CHECKED BY:	RCM

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	9/24/15	MDW	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/16

9/24/15

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

SHEET NUMBER:	REVISION:
C-3	0