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

May 6, 2016

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

Notice of Exempt Modification
60 Rice Lane, Beacon Falls, CT 06403
41.4556919 N
-73.0397989 W
AT&T #: 10070922_LTE - CT5416

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 133-foot level of the existing 160-foot Monopole Tower at 60 Rice Lane. The tower is owned by SBA Properties. The property is owned by Charles Edwards. AT&T now intends to replace three (3) existing antennas with three (3) new L700MHz antennas. These antennas would be installed at the 133-foot level of the tower. AT&T also intends to:

Remove:

- None

Remove and Replace:

- Remove (3) CCI OPA-65R panel antennas and replace with (3) Kathrein 800 10798 panel antennas
- Remove (6) Powerwave-21401 TMAs with replace with (3) CCA-DTMABP7819VG12A TMAs
- Remove (1) ½" fiber and replace with (2) 3/8" fiber
- Remove (2) DC lines and replace with (4) ¾" DC lines inside conduit

Install:

- (3) Ericsson – RRUS 32 RRUs
- (2) Raycap – DC6-48-60-18-8F Surge Suppressor
- (1) DC-6 Squid

Existing Equipment to Remain:

- (3) Kathrein – 800 10121 panel antennas
- (3) Powerwave – 1401 TMAs (as entitlements)
- (3) Ericsson – RRUS 12 RRUs
- (3) Ericsson – RRUS 11 RRUs
- (3) Ericsson – RRUS A2 Module

- (6) 1-1/4" lines
- (6) 1-5/8" lines
- (1) Ericsson RBS 3106 Cabinet
- (1) DC-6 Squid
- (1) Commscope 3607ED-12 mount

This facility was approved by the Town of Beacon Falls Planning & Zoning Commission during their Regular Meeting of December 16, 1999. There were no conditions placed on the tower or compound, thus this modification is in full compliance.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to Christopher Bielik, First Selectman for the Town of Beacon Falls, as well as the property owner, Charles Edwards. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

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

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

Sincerely,

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

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

Attachments

cc: First Selectman Christopher Bielik –as elected official
Town of Beacon Falls, 10 Maple Ave, Beacon Falls, CT 06403
Charles Edwards–as property owner
30 Lorraine Drive, Beacon Falls, CT 06403

POWER DENSITY

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121
Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd
Height (AGL):	133 feet	Height (AGL):	133 feet	Height (AGL):	133 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	3,309.26	ERP (W):	3,309.26	ERP (W):	3,309.26
Antenna A1 MPE%	**1.02**	Antenna B1 MPE%	**1.02**	Antenna C1 MPE%	**1.02**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Quintel QS66512-3	Make / Model:	Quintel QS66512-3	Make / Model:	CCI TPA-65R-LCUUUU-H8
Gain:	15.55 dBd	Gain:	15.55 dBd	Gain:	14.45 dBd
Height (AGL):	133 feet	Height (AGL):	133 feet	Height (AGL):	133 feet
Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,307.06	ERP (W):	4,307.06	ERP (W):	3,343.35
Antenna A2 MPE%	**0.96**	Antenna B2 MPE%	**0.96**	Antenna C2 MPE%	**0.75**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	11.65 / 14.85 dBd	Gain:	11.65 / 14.85 dBd	Gain:	12.55 / 14.85 dBd
Height (AGL):	133 feet	Height (AGL):	133 feet	Height (AGL):	133 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	5,420.52	ERP (W):	5,420.52	ERP (W):	5,824.55
Antenna A3 MPE%	**1.65**	Antenna B3 MPE%	**1.65**	Antenna C3 MPE%	**1.85**

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	**3.64 %**
T-Mobile	0.02 %
Verizon Wireless	1.16 %
Clearwire	0.08 %
Sprint	0.02 %
Beacon Hose Co.	0.25 %
Site Total MPE %:	**5.17 %**

AT&T Sector 1 Total:	3.64 %
AT&T Sector 2 Total:	3.64 %
AT&T Sector 3 Total:	3.62 %
Site Total:	5.17 %

AT&T _ Max Per Sector (Sectors A & B)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	418.91	133	1.87	850	567	0.33 %
AT&T 850 MHz GSM	2	418.91	133	1.87	850	567	0.33 %
AT&T 1900 MHz (PCS) UMTS	2	816.81	133	3.64	1900	1000	0.36 %
AT&T 2300 MHz (WCS) LTE	2	2153.53	133	9.60	2300	1000	0.96 %
AT&T 700 MHz LTE	2	877.31	133	3.91	700	467	0.84 %
AT&T 1900 MHz (PCS) LTE	2	1832.95	133	8.17	1900	1000	0.82 %
						Total:	3.64 %

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

AT&T Existing Facility

Site ID: CT5416

Beacon Falls NE
10 Teresa Road
Beacon Falls, CT 06403

February 19, 2016

EBI Project Number: 6216000630

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	5.17 %

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

EBI Consulting
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February 19, 2016

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

Emissions Analysis for Site: **CT5416 – Beacon Falls NE**

EBI Consulting was directed to analyze the proposed AT&T facility located at **10 Teresa Road, Beacon Falls, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

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

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

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

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

3) 2 UMTS channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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

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

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

9) The antennas used in this modeling are the **CCI OPA-65R-LCUU-H6, CCI OPA-65R-LCUU-H8, Kathrein 800-10121, Quintel QS66512-3 and the CCI TPA-65R-LCUUUU-H8** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **133 feet** above ground level (AGL).

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

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

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121
Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd
Height (AGL):	133 feet	Height (AGL):	133 feet	Height (AGL):	133 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	3,309.26	ERP (W):	3,309.26	ERP (W):	3,309.26
Antenna A1 MPE%	**1.02**	Antenna B1 MPE%	**1.02**	Antenna C1 MPE%	**1.02**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Quintel QS66512-3	Make / Model:	Quintel QS66512-3	Make / Model:	CCI TPA-65R-LCUUUU-H8
Gain:	15.55 dBd	Gain:	15.55 dBd	Gain:	14.45 dBd
Height (AGL):	133 feet	Height (AGL):	133 feet	Height (AGL):	133 feet
Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,307.06	ERP (W):	4,307.06	ERP (W):	3,343.35
Antenna A2 MPE%	**0.96**	Antenna B2 MPE%	**0.96**	Antenna C2 MPE%	**0.75**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	11.65 / 14.85 dBd	Gain:	11.65 / 14.85 dBd	Gain:	12.55 / 14.85 dBd
Height (AGL):	133 feet	Height (AGL):	133 feet	Height (AGL):	133 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	5,420.52	ERP (W):	5,420.52	ERP (W):	5,824.55
Antenna A3 MPE%	**1.65**	Antenna B3 MPE%	**1.65**	Antenna C3 MPE%	**1.85**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**3.64 %**
T-Mobile	0.02 %
Verizon Wireless	1.16 %
Clearwire	0.08 %
Sprint	0.02 %
Beacon Hose Co.	0.25 %
Site Total MPE %:	**5.17 %**

AT&T Sector 1 Total:	3.64 %
AT&T Sector 2 Total:	3.64 %
AT&T Sector 3 Total:	3.62 %
Site Total:	5.17 %

AT&T _ Max Per Sector (Sectors A & B)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	418.91	133	1.87	850	567	0.33 %
AT&T 850 MHz GSM	2	418.91	133	1.87	850	567	0.33 %
AT&T 1900 MHz (PCS) UMTS	2	816.81	133	3.64	1900	1000	0.36 %
AT&T 2300 MHz (WCS) LTE	2	2153.53	133	9.60	2300	1000	0.96 %
AT&T 700 MHz LTE	2	877.31	133	3.91	700	467	0.84 %
AT&T 1900 MHz (PCS) LTE	2	1832.95	133	8.17	1900	1000	0.82 %
						Total:	3.64 %

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Summary

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

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

AT&T Sector	Power Density Value (%)
Sector 1:	3.64 %
Sector 2:	3.64 %
Sector 3 :	3.62 %
AT&T Maximum Total (per sector):	3.64 %
Site Total:	5.17 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **5.17%** 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

Post-Mod Structural Analysis Report

Existing 160 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT02049-S

Customer Site Name: Beacon Falls

Carrier Name: AT&T

Carrier Site ID/ Name: FA# 10070922 USID# 24518

Site Location: 60 Rice Lane

Beacon Falls, Connecticut

New Haven County

Latitude: 41.455689

Longitude: -73.039866

Analysis Result:

Max Structural Usage: 90.5% [Pass]

Max Foundation Usage: 82% [Pass]

Report Prepared By : Jarryd Tibbetts

4/11/16

Introduction

The purpose of this report is to summarize the analysis results on the 160 ft Nudd Corporation Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	Tower Drawing prepared by Fred A. Nudd, Project #7342 dated 1/14/00
Foundation Drawing	Foundation Drawing prepared by Fred A. Nudd, Project #7342 dated 1/14/00
Geotechnical Report	Geotechnical Report prepared by SEA Consultants, Ref #99339.02-A dated 8/2/99
Existing Modification	Modification Drawing prepared by O2Wireless Solutions, Job #2230-022 dated 5/23/02 Modification Drawing prepared by FDH, Project #09-04232E S2 dated 1/03/09 Modification Drawing prepared by FDH, Project #12-04772E S3 dated 10/15/13
Proposed Modification	**TES** Job # 20939

Analysis Criteria

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

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	165.0	1	Andrew - DB222 - Whip	Low Profile Platform	*(1) 7/8"	BFFD
2	162.2	6	Decibel - DB846F65ZAXY - Panel		(18) 1 5/8"	Verizon
3		6	Antel - LPA-185063/8CF - Panel			
4		3	Antel - BXA-70063/4CF - Panel			
5	152.0	3	RFS - APXVSPP18-C-A20 - Panel	Low Profile Platform	(3) 1-1/4"	Sprint
6		3	ALU - 1900MHz - RRU			
7		3	ALU - 800MHz - Filter			
8		3	ALU - 800 MHz - RRU			
9		4	RFS - ACU-A20-N - RET			
10	150.0	3	RFS - APXVTM14-C-120 - Panel		(1) 1-1/4"	
11		3	Alcatel Lucent - TD-RRH8x20-25 - RRU			
12	143.8	6	Powerwave - LGP13907 - TMA/TTA	Low Profile Platform	(12) 1 5/8" *(1) 1 5/8"	T-Mobile
13	142.9	3	Ericsson - AIR 21 B2A B4P - Panel			
14		3	Ericsson - AIR 21 B4A B2P - Panel			
15		3	Ericsson - KRY 112 144/1 - TMA/TTA			
16	133.0	3	CCI - OPA-65R-LCUU-H6 - Panel	Low Profile Platform (Commscope 3607ED-12)	(6) 1 5/8” (6) 1 1/4" (1) 1/2” Fiber (2) DC inside 3” Conduit	AT&T
17		3	Kathrein - 800 10121 - Panel			
19		6	Powerwave - 21401 - TMA/TTA			
21		3	Ericsson - RRUS 12 - RRU			
22		3	Ericsson - RRUS 11 - RRU			
23		3	Ericsson - RRUS A2 Module - RRU			
26	115.0	1	DB222 - Whip	(1) 3 ft Standoff	*(1) 7/8"	BFFD
27	40.0	1	GPS	Standoff	(1) 1/2”	Sprint

*Considered outside of the pole shaft

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
17	133.0	3	Kathrein - 800 10121 - Panel	Low Profile Platform	(6) 1 1/4" (6) 1 5/8" (2) 3/8" Fiber (4) 3/4" DC inside 3" Conduit	AT&T
18		3	Kathrein - 800 10798 - Panel			
20		3	CCI - DTMABP7819VG12A - TMA/TTA			
21		3	Ericsson - RRUS 12 - RRU			
22		3	Ericsson - RRUS 11 - RRU			
23		3	Ericsson - RRU A2 - RRU			
24		3	Ericsson - RRUS 32 - RRU			
25		2	Raycap - DC6-48-60-18-8F - Surge Suppressor			

All proposed transmission lines are considered running inside of the pole shafts.

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**90.5%**	**87.8%**	**70.4%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	2373.8	25.4
Analysis Reactions	3952.9	36.4

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/EIA 222-F for the installed antennas. Maximum twist/sway at the elevation of the proposed equipment is 1.8583 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA/EIA 222-F standards under a basic wind speed of 85 mph no ice and 74 mph with 1/2" radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 20939

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed AT&T equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-1019 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-1019. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-1019 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

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 90.5% at 0.0ft

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016
Site Name:	Beacon Falls	**Exposure:**	C	
Height:	160.00 (ft)	**Gh:**	1.69	
Base Elev:	0.000 (ft)			Page: 1

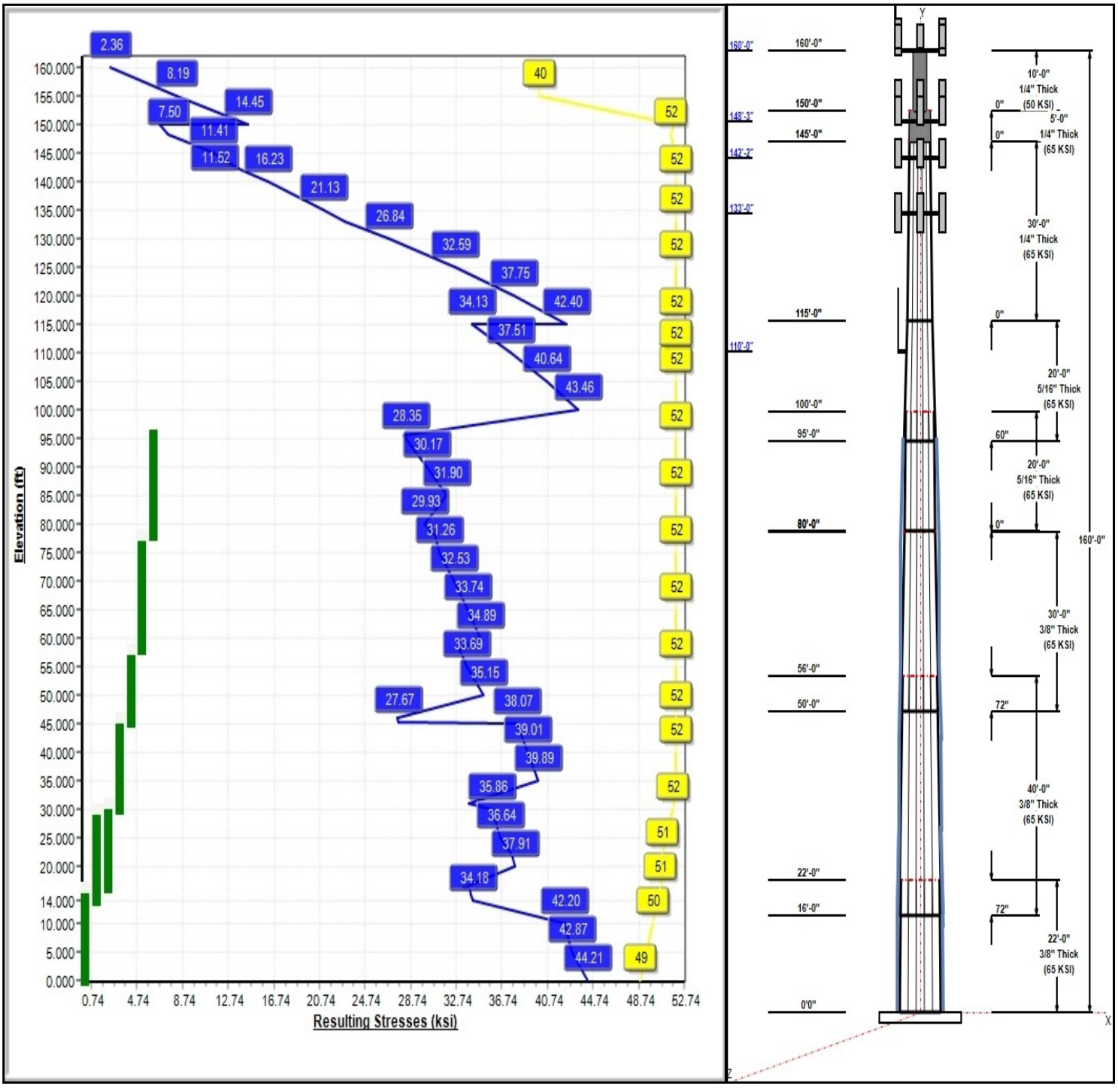
Tower Engineering Solutions

Dead Load Factor: 1.00
Wind Load Factor: 1.00

49 Alllowable Stress
44 Resulting Stress

Load Case : 85 mph Wind with 0 in Ice

Iterations: 24



Structure: CT02049-S-SBA

Type: Custom
Site Name: Beacon Falls
Height: 160.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.19400

4/11/2016

Tower Engineering Solutions

Shaft Properties

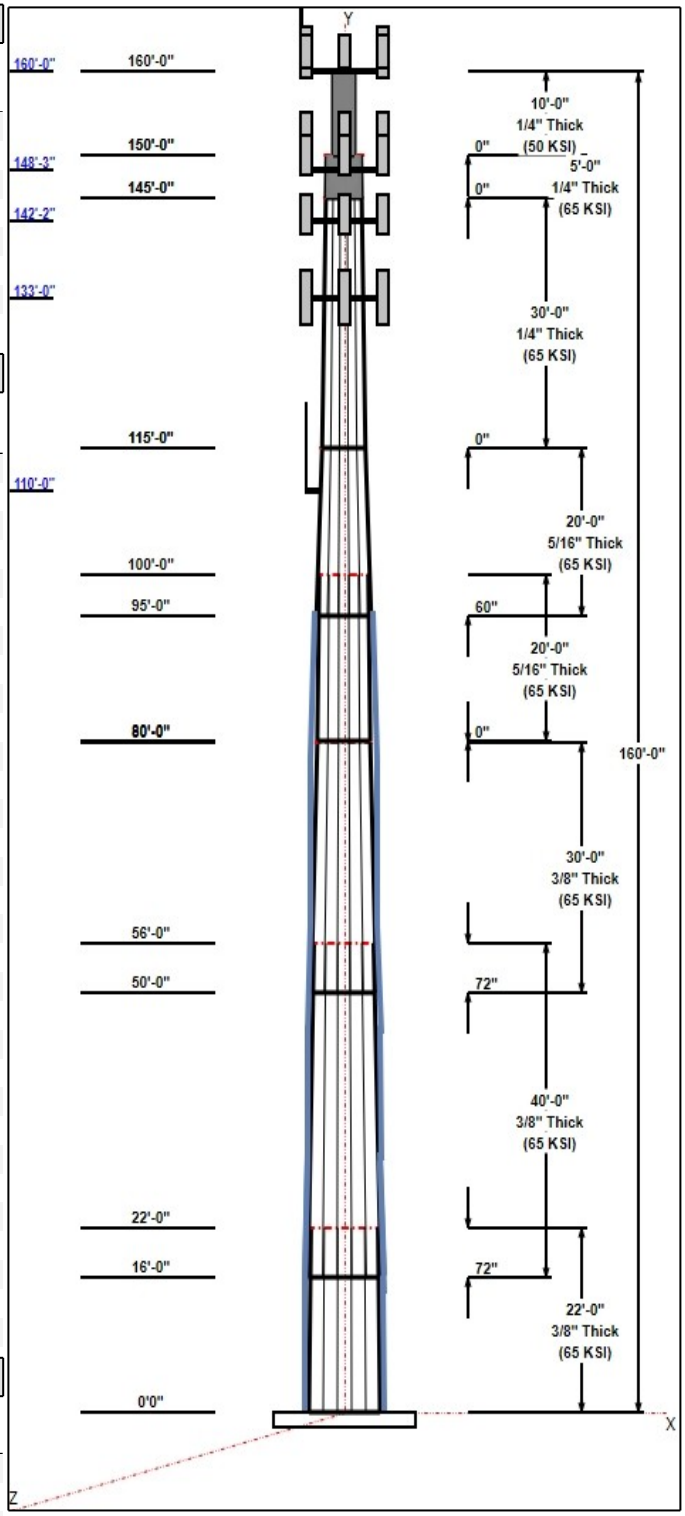
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	22.00	46.11	50.38	0.375		0.19400	65
2	40.00	40.26	48.02	0.375	Slip	0.19400	65
3	30.00	36.35	42.17	0.375	Slip	0.19400	65
4	20.00	32.48	36.35	0.313	Butt	0.19400	65
5	20.00	30.19	34.07	0.313	Slip	0.19400	65
6	30.00	24.38	30.19	0.250	Butt	0.19400	65
7	5.00	24.38	24.38	0.250	Butt	0.19400	65
8	10.00	16.00	16.00	0.250	Butt	0.00000	50

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
160.00	160.00	1	6' Lightning rod	
160.00	162.20	3	BXA-70063/4CF	Verizon
160.00	165.00	1	DB222	
160.00	162.20	6	DB846F65ZAXY	Verizon
160.00	160.00	1	Low Profile Platform	Verizon
160.00	162.20	6	LPA-185063/8CF	Verizon
148.30	152.00	3	1900MHz RRH	Sprint
148.30	152.00	3	800 MHz RRH	Sprint
148.30	152.00	4	ACU-A20-N	Sprint
148.30	152.00	3	ALU 800MHz External	Sprint
148.30	152.00	3	APXVSPP18-C-A20	Sprint
148.30	150.00	3	APXVTM14-C-120	Sprint
148.30	148.30	1	Low Profile Platform	Sprint
148.30	150.00	3	TD-RRH8x20-25	Sprint
142.20	142.90	3	AIR 21 B2A B4P	T-Mobile
142.20	142.90	3	AIR 21 B4A B2P	T-Mobile
142.20	142.90	3	KRY 112 144/1	T-Mobile
142.20	143.80	6	LGP13907	T-Mobile
142.20	142.20	1	Low Profile Platform	T-Mobile
133.00	133.00	3	800 10121	AT&T
133.00	133.00	3	800 10798	AT&T
133.00	133.00	2	DC6-48-60-18-8F	AT&T
133.00	133.00	3	DTMABP7819VG12A	AT&T
133.00	133.00	1	Low Profile Platform	AT&T
133.00	133.00	3	RRUS 11	AT&T
133.00	133.00	3	RRUS 12	AT&T
133.00	133.00	3	RRUS 32	AT&T
133.00	133.00	3	RRUS A2 Module	AT&T
110.00	110.00	1	3 ft Standoff	BFFD
110.00	115.29	1	DB222	BFFD
40.00	40.00	1	GPS	Sprint

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	160.00	Inside	1 5/8" Coax	Verizon
0.00	160.00	Outside	7/8" Coax	
0.00	148.30	Inside	1-1/4" Hybrid	Sprint
0.00	148.30	Inside	1-1/4" Hybrid	Sprint
0.00	142.20	Inside	1 5/8" Coax	T-Mobile
0.00	142.20	Outside	1 5/8" Hybrid	T-Mobile
0.00	133.00	Inside	1 1/4" Coax	AT&T



0.00	133.00	Inside	1 5/8" Coax	AT&T
0.00	133.00	Inside	3/4" DC	AT&T
0.00	133.00	Inside	3/8" Fiber	AT&T
0.00	110.00	Outside	7/8" Coax	BFFD
32.00	98.00	Outside	1.25" Reinforcing plate	
0.00	40.00	Inside	1/2" Coax	Sprint
0.00	32.00	Outside	1.25" Reinforcing plate	

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
18	2.00" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	63.0	50.0	Round

Reactions

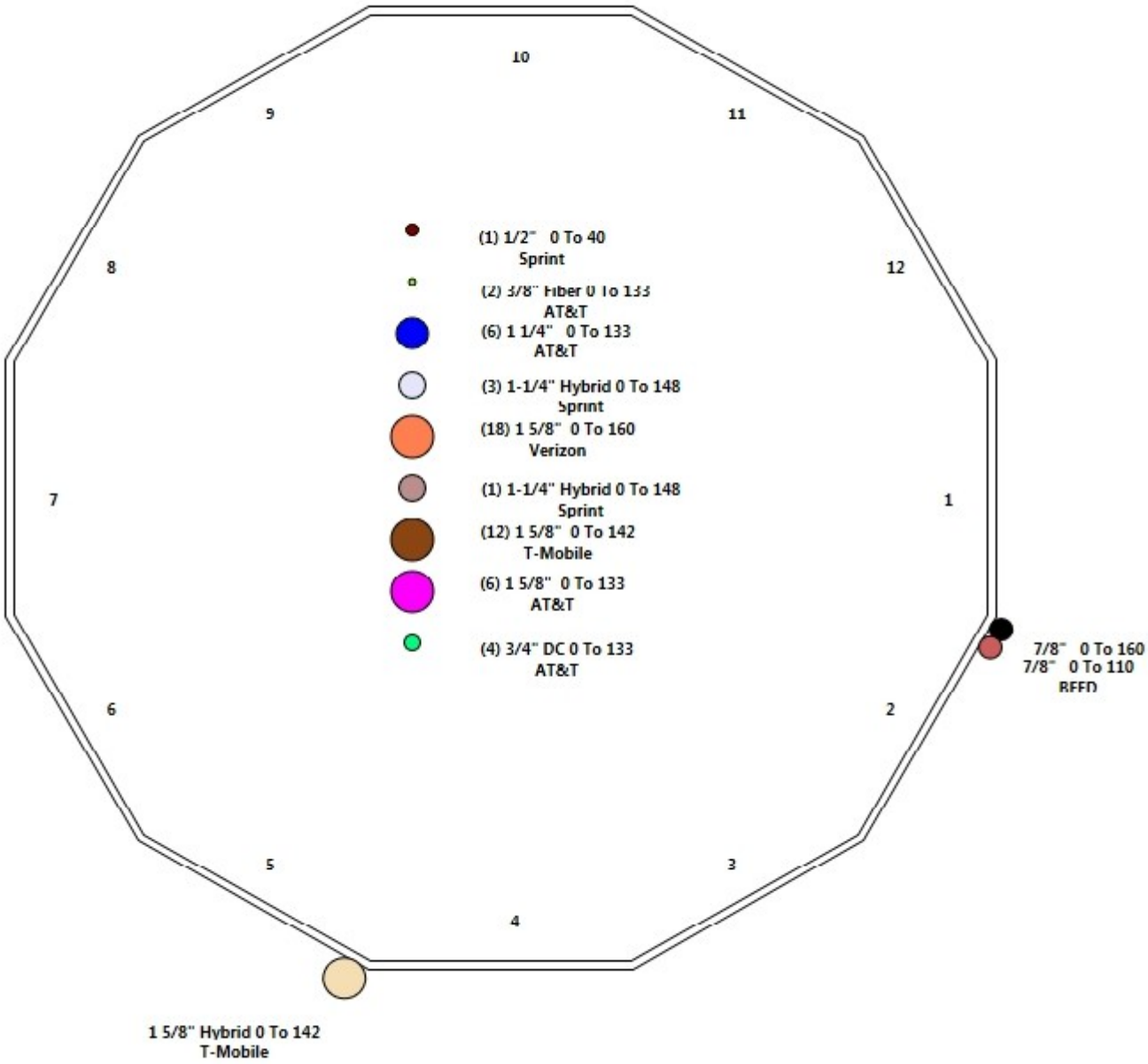
Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	3952.9	36.4	42.1
73.61 mph Wind with 0.5" Ice	3340.6	30.0	49.1
50 mph Wind with 0" Ice	1369.4	12.6	42.1

Structure: CT02049-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Beacon Falls
Height: 160.00 (ft)

4/11/2016

Tower Engineering Solutions



Shaft Properties

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (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	12	22.000	0.3750	65		0.00	4,327
2	12	40.000	0.3750	65	Slip	72.00	7,193
3	12	30.000	0.3750	65	Slip	72.00	4,794
4	12	20.000	0.3125	65	Flange	0.00	2,335
5	12	20.000	0.3125	65	Slip	60.00	2,179
6	12	30.000	0.2500	65	Flange	0.00	2,221
7	R	5.000	0.2500	65	Flange	0.00	316
8	R	10.000	0.2500	50	Flange	0.00	421
					Total Shaft Weight:		**23,786**

	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	50.38	0.00	60.38	19265.63	33.85	134.33	46.11	22.00	55.22	14741.2	30.80	122.95	0.194000
2	48.02	16.00	57.53	16670.65	32.17	128.06	40.26	56.00	48.16	9779.90	26.62	107.36	0.194000
3	42.17	50.00	50.47	11256.46	27.99	112.47	36.35	80.00	43.45	7178.88	23.83	96.95	0.194000
4	36.35	80.00	36.27	6013.63	29.03	116.34	32.48	100.0	32.36	4273.08	25.70	103.92	0.194000
5	34.07	95.00	33.97	4940.86	27.07	109.02	30.19	115.0	30.06	3425.51	23.74	96.61	0.194000
6	30.19	115.0	24.10	2757.64	30.21	120.76	24.38	145.0	19.42	1441.83	23.98	97.50	0.194000
7	24.38	145.0	18.95	1379.54	0.00	97.50	24.38	150.0	18.19	1219.74	0.00	97.50	0.194000
8	16.00	150.0	12.37	383.86	0.00	64.00	16.00	160.0	12.37	383.86	0.00	64.00	0.000000

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors: Description	Intermediate Connectors: Spacing (in)	Termination Connectors: Description	Termination Connectors: Spacing (in)	Termination Connectors: Lower Qty	Termination Connectors: Upper Qty
0.00	16.25	3	PLT C10x30(1.5" Hole)	65	80	0.00	AJM20&sleeve	20.00	AJM20&sleeve	3.00		
14.00	30.00	3	LNP LP6X100-G-20TT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00	8	8
16.25	31.00	3	PLT C10x15.3(1.5"	65	80	0.00	AJM20&sleeve	20.00	AJM20&sleeve	3.00		
30.00	46.00	3	PLT 6"X1-1/4"(1.25"	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	8	8
45.16	58.00	3	PLT 7" x	65	80	0.00	AJM20&sleeve	12.00	AJM20&sleeve	3.00	13	
58.00	78.00	3	PLT 5.5"x1 1/4"(1.25"hol	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00		
78.00	95.58	3	PLT 5.5"x1 1/4"(1.25"hol	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00		10

Loading Summary

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (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	160.00	6' Lightning rod	1	6.50	0.38	1.00	11.80	0.980	1.00	0.00	0.00
2	160.00	BXA-70063/4CF	3	9.90	5.16	0.72	38.60	5.740	0.74	0.00	2.20
3	160.00	DB222	1	16.00	2.25	1.00	35.90	3.990	1.00	0.00	5.00
4	160.00	DB846F65ZAXY	6	21.00	7.03	0.93	0.00	7.810	0.94	0.00	2.20
5	160.00	Low Profile Platform	1	1200.00	20.75	1.00	1800.00	27.000	1.00	0.00	0.00
6	160.00	LPA-185063/8CF	6	9.00	3.04	0.94	0.00	3.560	0.95	0.00	2.20
7	148.30	1900MHz RRH	3	44.00	3.80	0.75	75.20	4.200	0.77	0.00	3.70
8	148.30	800 MHz RRH	3	53.00	2.49	0.75	74.10	2.820	0.77	0.00	3.70
9	148.30	ACU-A20-N	4	1.00	0.14	0.75	2.30	0.220	0.77	0.00	3.70
10	148.30	ALU 800MHz External Notch Filt	3	8.80	0.78	0.69	13.80	0.960	0.71	0.00	3.70
11	148.30	APXVSPP18-C-A20	3	57.00	8.26	0.82	106.50	9.080	0.82	0.00	3.70
12	148.30	APXVTM14-C-120	3	56.00	6.90	0.76	91.90	7.290	0.77	0.00	1.70
13	148.30	Low Profile Platform	1	1200.00	20.75	1.00	1800.00	27.000	1.00	0.00	0.00
14	148.30	TD-RRH8x20-25	3	70.00	4.72	0.69	92.00	4.970	0.71	0.00	1.70
15	142.20	AIR 21 B2A B4P	3	91.50	6.58	0.83	129.20	6.970	0.83	0.00	0.70
16	142.20	AIR 21 B4A B2P	3	90.40	6.58	0.83	128.10	6.970	0.83	0.00	0.70
17	142.20	KRY 112 144/1	3	11.00	0.41	0.70	14.10	0.550	0.72	0.00	0.70
18	142.20	LGP13907	6	10.40	0.59	0.75	14.60	0.750	0.77	0.00	1.60
19	142.20	Low Profile Platform	1	1200.00	20.75	1.00	1800.00	27.000	1.00	0.00	0.00
20	133.00	800 10121	3	46.30	5.45	0.79	79.20	6.090	0.81	0.00	0.00
21	133.00	800 10798	3	81.40	11.30	0.75	71.80	9.670	0.76	0.00	0.00
22	133.00	DC6-48-60-18-8F	2	32.80	4.32	1.00	56.35	4.560	1.00	0.00	0.00
23	133.00	DTMABP7819VG12A	3	19.00	1.14	0.68	26.50	1.360	0.69	0.00	0.00
24	133.00	Low Profile Platform	1	1350.00	21.00	1.00	1800.00	27.000	1.00	0.00	0.00
25	133.00	RRUS 11	3	50.70	2.94	0.75	66.00	3.140	0.75	0.00	0.00
26	133.00	RRUS 12	3	58.00	3.69	0.70	75.70	3.890	0.71	0.00	0.00
27	133.00	RRUS 32	3	77.00	3.87	0.86	99.85	4.110	0.86	0.00	0.00
28	133.00	RRUS A2 Module	3	21.20	1.86	0.40	31.40	2.150	0.40	0.00	0.00
29	110.00	3 ft Standoff	1	40.00	1.00	1.00	63.00	4.340	1.00	0.00	0.00
30	110.00	DB222	1	16.00	2.25	1.00	35.90	3.990	1.00	0.00	5.29
31	40.00	GPS	1	10.00	1.00	1.00	18.00	1.250	1.00	0.00	0.00
		Totals:	**84**	**7,886.10**			**11,215.95**				

Linear Appurtenances

			No Ice		Ice		
Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Weight (lb/ft)**	**CaAa (sf/ft)**	**Weight (lb/ft)**	**CaAa (sf/ft)**	**Exposed**
0.00	160.00	(18) 1 5/8" Coax	1.04	0.00	0.00	0.00	Inside
0.00	160.00	(1) 7/8" Coax	0.52	0.00	0.00	0.00	Outside
0.00	148.30	(1) 1-1/4" Hybrid	2.86	0.00	0.00	0.00	Inside
0.00	148.30	(3) 1-1/4" Hybrid	2.86	0.00	0.00	0.00	Inside
0.00	142.20	(12) 1 5/8" Coax	1.04	0.00	0.00	0.00	Inside
0.00	142.20	(1) 1 5/8" Hybrid	1.10	0.20	1.52	0.25	Outside
0.00	133.00	(6) 1 1/4" Coax	1.98	0.00	0.00	0.00	Inside
0.00	133.00	(6) 1 5/8" Coax	1.04	0.00	0.00	0.00	Inside
0.00	133.00	(4) 3/4" DC	1.60	0.00	0.00	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	133.00	(2) 3/8" Fiber		0.12	0.00		0.00	0.00	Inside		
0.00	110.00	(1) 7/8" Coax		0.52	0.00		0.00	0.00	Outside		
32.00	98.00	(3) 1.25" Reinforcing plate		0.00	0.21		1.56	0.26	Outside		
0.00	40.00	(1) 1/2" Coax		0.00	0.00		0.00	0.00	Inside		
0.00	32.00	(3) 1.25" Reinforcing plate		0.00	0.48		3.00	0.55	Outside		
		Totals:		**2,090.40**			**415.10**				

Shaft Section Properties

Structure: CT02049-S-SBA
Site Name: Beacon Falls
Height: 160.00 (ft)
Base Elev: 0.000 (ft)

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

4/11/2016

Tower Engineering Solutions

Increment Length: 5 (ft)

											Additional Reinforcing			
Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00	RB1	0.3750	50.375	60.375	19265.6	33.85	134.33	65	49	0.0	26.46	9158.8	9158.8	0.0
5.00		0.3750	49.405	59.204	18166.0	33.16	131.75	65	49	1017.2	26.46	8824.7	8824.7	450.0
10.00		0.3750	48.435	58.032	17109.0	32.46	129.16	65	50	997.3	26.46	8496.8	8496.8	450.0
14.00	RB2	0.3750	47.659	57.095	16293.5	31.91	127.09	65	50	783.5	44.46	13594.0	13594.0	605.0
15.00		0.3750	47.465	56.861	16093.8	31.77	126.57	65	50	193.9	44.46	13487.8	13487.8	151.2
16.00	Bot - Section 2	0.3750	47.271	56.627	15895.7	31.63	126.06	65	51	193.1	44.46	13381.9	13381.9	151.2
16.25	RT1	0.3750	47.222	56.568	15846.5	31.60	125.93	65	51	97.1	44.46	13766.6	13766.6	37.8
20.00		0.3750	46.495	55.690	15119.6	31.08	123.99	65	51	1444.0	31.47	9602.0	9602.0	401.8
22.00	Top - Section 1	0.3750	46.857	56.127	15478.5	31.34	124.95	65	51	761.0	31.47	9452.1	9452.1	214.3
25.00		0.3750	46.275	55.424	14904.3	30.92	123.40	65	51	569.4	31.47	9229.5	9229.5	321.4
30.00	RT2 RB4	0.3750	45.305	54.253	13979.2	30.23	120.81	65	52	933.0	31.47	8864.3	8864.3	535.7
31.00	RT3	0.3750	45.111	54.019	13798.9	30.09	120.30	65	52	184.2	35.97	10060.6	10060.6	122.5
35.00		0.3750	44.335	53.082	13093.2	29.54	118.23	65	52	728.9	22.50	5879.6	5879.6	306.2
40.00		0.3750	43.365	51.910	12245.5	28.84	115.64	65	52	893.2	22.50	5633.5	5633.5	382.8
45.00		0.3750	42.395	50.739	11435.1	28.15	113.05	65	52	873.2	22.50	5392.7	5392.7	382.8
45.16	RB5	0.3750	42.364	50.702	11409.8	28.13	112.97	65	52	27.6	48.75	11681.9	11681.9	26.5
46.00	RT4	0.3750	42.201	50.505	11277.5	28.01	112.54	65	52	144.6	48.75	11595.5	11595.5	139.3
50.00	Bot - Section 3	0.3750	41.425	49.568	10661.4	27.46	110.47	65	52	681.1	26.25	6031.0	6031.0	357.2
55.00		0.3750	40.455	48.397	9923.3	26.76	107.88	65	52	1682.2	26.25	5969.5	5969.5	446.6
56.00	Top - Section 2	0.3750	41.011	49.068	10342.0	27.16	109.36	65	52	331.7	26.25	5915.6	5915.6	89.3
58.00	RT5	0.3750	40.623	48.599	10048.6	26.88	108.33	65	52	332.3	26.25	5808.5	5808.5	178.6
60.00		0.3750	40.235	48.131	9760.8	26.61	107.29	65	52	329.2	20.63	4464.3	4464.3	140.4
65.00		0.3750	39.265	46.960	9065.4	25.91	104.71	65	52	808.9	20.63	4259.2	4259.2	350.9
70.00		0.3750	38.295	45.788	8403.8	25.22	102.12	65	52	789.0	20.63	4059.0	4059.0	350.9
75.00		0.3750	37.325	44.617	7775.3	24.53	99.53	65	52	769.1	20.63	3863.7	3863.7	350.9
78.00	RT6	0.3750	36.743	43.914	7413.6	24.11	97.98	65	52	451.9	20.63	3748.8	3748.8	210.5
80.00	Top - Section 3	0.0000	0.000	0.000	0.0	NAN	NAN	0	0	297.3	20.63	3673.2	3673.2	140.4
80.00	Bot - Section 4	0.3750	36.355	43.446	7178.9	23.83	96.95	65	52					
85.00		0.3125	35.385	35.292	5541.0	28.20	113.23	65	52	608.8	20.63	3487.5	3487.5	350.9
90.00		0.3125	34.415	34.316	5093.9	27.37	110.13	65	52	592.1	20.63	3306.7	3306.7	350.9
95.00	Bot - Section 5	0.3125	33.445	33.340	4671.5	26.53	107.02	65	52	575.5	20.63	3130.7	3130.7	350.9
95.58	RT7	0.3125	33.332	33.226	4624.0	26.44	106.66	65	52	132.6	20.63	3223.1	3223.1	40.7
100.00	Top - Section 4	0.3125	33.100	32.992	4527.1	26.24	105.92	65	52	995.9				
105.00		0.3125	32.130	32.016	4137.0	25.41	102.82	65	52	553.0				
110.00		0.3125	31.160	31.040	3770.1	24.57	99.71	65	52	536.4				
115.00	Top - Section 5	0.0000	0.000	0.000	0.0	NAN	NAN	0	0	519.8				
115.00	Bot - Section 6	0.3125	30.190	30.064	3425.5	23.74	96.61	65	52					
120.00		0.2500	29.220	23.321	2498.2	29.17	116.88	65	52	403.4				
125.00		0.2500	28.250	22.540	2255.6	28.13	113.00	65	52	390.1				
130.00		0.2500	27.280	21.759	2029.2	27.10	109.12	65	52	376.9				
133.00		0.2500	26.698	21.291	1900.9	26.47	106.79	65	52	219.7				
135.00		0.2500	26.310	20.978	1818.5	26.06	105.24	65	52	143.8				
140.00		0.2500	25.340	20.197	1622.9	25.02	101.36	65	52	350.3				
142.20		0.2500	24.913	19.854	1541.5	24.56	99.65	65	52	149.9				
145.00	Top - Section 6	0.0000	0.000	0.000	0.0	NAN	NAN	0	0	187.1				
145.00	Bot - Section 7	0.2500	24.370	19.417	1441.8	23.98	97.48	65	52					
148.30		0.2500	23.735	18.445	1272.6	0.00	94.94	65	52	209.9				
150.00	Top - Section 7	0.0000	0.000	0.000	0.0	NAN	NAN	0	0	105.9				
150.00	Bot - Section 8	0.2500	23.405	18.186	1219.7	0.00	93.62	65	52					
155.00		0.2500	16.000	12.370	383.9	0.00	64.00	50	40	210.5				
160.00		0.2500	16.000	12.370	383.9	0.00	64.00	50	40	210.5				

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ixp (in^4)	Additional Reinforcing Iyp (in^4)	Additional Reinforcing Weight (lb)
								Total Weight		23786.1				8388.0

Wind Loading - Shaft

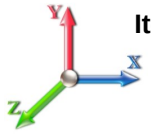
Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	0.00	1.00	18.496	31.26	356.82	1.030	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	349.95	1.030	0.000	5.00	20.788	21.41	669.3	0.0	1917.2
10.00		0.00	1.00	18.496	31.26	343.08	1.030	0.000	5.00	20.383	20.99	656.3	0.0	1897.3
14.00	RB2	0.00	1.00	18.496	31.26	337.58	1.030	0.000	4.00	16.016	16.50	515.6	0.0	1993.5
15.00		0.00	1.00	18.496	31.26	336.21	1.030	0.000	1.00	3.963	4.08	127.6	0.0	496.4
16.00	Bot - Section 2	0.00	1.00	18.496	31.26	334.84	1.030	0.000	1.00	3.947	4.07	127.1	0.0	495.6
16.25	RT1	0.00	1.00	18.496	31.26	334.49	1.030	0.000	0.25	1.000	1.03	32.2	0.0	172.7
20.00		0.00	1.00	18.496	31.26	329.34	1.030	0.000	3.75	14.878	15.32	479.0	0.0	2247.6
22.00	Top - Section 1	0.00	1.00	18.496	31.26	326.59	1.030	0.000	2.00	7.842	8.08	252.5	0.0	1189.6
25.00		0.00	1.00	18.496	31.26	327.78	1.030	0.000	3.00	11.642	11.99	374.8	0.0	1212.3
30.00	RT2 RB4	0.00	1.00	18.496	31.26	320.91	1.030	0.000	5.00	19.079	19.65	614.3	0.0	2004.5
31.00	RT3	0.00	1.00	18.496	31.26	319.54	1.030	0.000	1.00	3.767	3.88	121.3	0.0	429.1
35.00		0.00	1.02	18.810	31.79	316.69	1.030	0.000	4.00	14.908	15.35	488.1	0.0	1341.4
40.00	Appurtenance(s)	0.00	1.06	19.541	33.02	315.73	1.030	0.000	5.00	18.271	18.82	621.5	0.0	1658.8
45.00		0.00	1.09	20.210	34.15	313.90	1.030	0.000	5.00	17.867	18.40	628.5	0.0	1638.8
45.16	RB5	0.00	1.09	20.230	34.19	313.83	1.030	0.000	0.16	0.565	0.58	19.9	0.0	80.7
46.00	RT4	0.00	1.10	20.337	34.37	313.45	1.030	0.000	0.84	2.960	3.05	104.8	0.0	423.3
50.00	Bot - Section 3	0.00	1.13	20.827	35.20	311.37	1.030	0.000	4.00	13.938	14.36	505.3	0.0	1395.5
55.00		0.00	1.16	21.402	36.17	308.25	1.030	0.000	5.00	17.371	17.89	647.2	0.0	2575.3
56.00	Top - Section 2	0.00	1.16	21.513	36.36	307.56	1.030	0.000	1.00	3.426	3.53	128.3	0.0	510.3
58.00	RT5	0.00	1.17	21.730	36.72	311.89	1.030	0.000	2.00	6.803	7.01	257.3	0.0	689.6
60.00		0.00	1.19	21.941	37.08	310.41	1.030	0.000	2.00	6.738	6.94	257.4	0.0	609.9
65.00		0.00	1.21	22.449	37.94	306.41	1.030	0.000	5.00	16.563	17.06	647.2	0.0	1510.8
70.00		0.00	1.24	22.929	38.75	302.02	1.030	0.000	5.00	16.158	16.64	644.9	0.0	1490.8
75.00		0.00	1.26	23.386	39.52	297.28	1.030	0.000	5.00	15.754	16.23	641.3	0.0	1470.9
78.00	RT6	0.00	1.28	23.649	39.97	294.29	1.030	0.000	3.00	9.258	9.54	381.1	0.0	873.0
80.00	Top - Section 3	0.00	1.29	23.821	40.26	292.24	1.030	0.000	2.00	6.091	6.27	252.6	0.0	578.0
85.00		0.00	1.31	24.237	40.96	286.92	1.030	0.000	5.00	14.946	15.39	630.6	0.0	1310.6
90.00		0.00	1.33	24.636	41.63	281.34	1.030	0.000	5.00	14.542	14.98	623.6	0.0	1294.0
95.00	Bot - Section 5	0.00	1.35	25.020	42.28	275.53	1.030	0.000	5.00	14.137	14.56	615.7	0.0	1277.4
95.58	RT7	0.00	1.36	25.063	42.36	274.84	1.030	0.000	0.58	1.644	1.69	71.7	0.0	214.0
100.00	Top - Section 4	0.00	1.37	25.389	42.91	269.51	1.030	0.000	4.42	12.350	12.72	545.8	0.0	995.9
105.00		0.00	1.39	25.745	43.51	268.51	1.030	0.000	5.00	13.590	14.00	609.0	0.0	553.0
110.00	Appurtenance(s)	0.00	1.41	26.090	44.09	262.14	1.030	0.000	5.00	13.185	13.58	598.8	0.0	536.4
115.00	Top - Section 5	0.00	1.43	26.423	44.66	255.60	1.030	0.000	5.00	12.781	13.16	587.9	0.0	519.8
120.00		0.00	1.45	26.747	45.20	248.89	1.030	0.000	5.00	12.377	12.75	576.2	0.0	403.4
125.00		0.00	1.46	27.060	45.73	242.04	1.030	0.000	5.00	11.973	12.33	564.0	0.0	390.1
130.00		0.00	1.48	27.365	46.25	235.04	1.030	0.000	5.00	11.569	11.92	551.1	0.0	376.9
133.00	Appurtenance(s)	0.00	1.49	27.544	46.55	230.78	1.030	0.000	3.00	6.747	6.95	323.5	0.0	219.7
135.00		0.00	1.50	27.662	46.75	227.91	1.030	0.000	2.00	4.417	4.55	212.7	0.0	143.8
140.00		0.00	1.51	27.951	47.24	220.65	1.030	0.000	5.00	10.760	11.08	523.5	0.0	350.3
142.20	Appurtenance(s)	0.00	1.52	28.076	47.45	217.42	1.030	0.000	2.20	4.607	4.74	225.1	0.0	149.9
145.00	Top - Section 6	0.00	1.53	28.233	47.71	213.27	1.030	0.000	2.80	5.750	5.92	282.6	0.0	187.1
148.30	Appurtenance(s)	0.00	1.54	28.415	48.02	208.38	0.590	0.000	3.30	6.615	3.90	187.4	0.0	209.9
150.00	Top - Section 7	0.00	1.54	28.507	48.18	205.82	0.590	0.000	1.70	3.339	1.97	94.9	0.0	105.9
155.00		0.00	1.56	28.776	48.63	141.36	0.590	0.000	5.00	6.667	3.93	191.3	0.0	210.5
160.00	Appurtenance(s)	0.00	1.57	29.038	49.07	142.00	0.590	0.000	5.00	6.667	3.93	193.0	0.0	210.5
							Totals:		**160.00**			**18,403.8**		**40,562.0**

Discrete Appurtenance Forces

Structure:	CT02049-S-SB	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	160.00	Low Profile Platform	1	29.038	49.074	1.00	20.75	1200.00	0.000	0.000	1018.29	0.00	0.00
2	160.00	DB846F65ZAXY	6	29.151	49.266	0.93	39.23	126.00	0.000	2.200	1932.57	0.00	4251.66
3	160.00	DB222	1	29.294	49.507	1.00	2.25	16.00	0.000	5.000	111.39	0.00	556.96
4	160.00	BXA-70063/4CF	3	29.151	49.266	0.72	11.15	29.70	0.000	2.200	549.10	0.00	1208.02
5	160.00	6' Lightning rod	1	29.038	49.074	1.00	0.38	6.50	0.000	0.000	18.65	0.00	0.00
6	160.00	LPA-185063/8CF	6	29.151	49.266	0.94	17.15	54.00	0.000	2.200	844.69	0.00	1858.33
7	148.30	ALU 800MHz External Notch	3	28.615	48.360	0.69	1.61	26.40	0.000	3.700	78.08	0.00	288.90
8	148.30	1900MHz RRH	3	28.615	48.360	0.75	8.55	132.00	0.000	3.700	413.48	0.00	1529.87
9	148.30	800 MHz RRH	3	28.615	48.360	0.75	5.60	159.00	0.000	3.700	270.94	0.00	1002.47
10	148.30	ACU-A20-N	4	28.615	48.360	0.75	0.42	4.00	0.000	3.700	20.31	0.00	75.15
11	148.30	Low Profile Platform	1	28.415	48.021	1.00	20.75	1200.00	0.000	0.000	996.43	0.00	0.00
12	148.30	APXVSPP18-C-A20	3	28.615	48.360	0.82	20.32	171.00	0.000	3.700	982.66	0.00	3635.83
13	148.30	APXVTM14-C-120	3	28.507	48.177	0.76	15.77	168.00	0.000	1.700	759.92	0.00	1291.87
14	148.30	TD-RRH8x20-25	3	28.507	48.177	0.69	9.77	210.00	0.000	1.700	470.71	0.00	800.21
15	142.20	Low Profile Platform	1	28.076	47.448	1.00	20.75	1200.00	0.000	0.000	984.55	0.00	0.00
16	142.20	LGP13907	6	28.166	47.600	0.75	2.66	62.40	0.000	1.600	126.38	0.00	202.20
17	142.20	KRY 112 144/1	3	28.115	47.515	0.70	0.86	33.00	0.000	0.700	40.91	0.00	28.64
18	142.20	AIR 21 B4A B2P	3	28.115	47.515	0.83	16.32	271.20	0.000	0.700	775.67	0.00	542.97
19	142.20	AIR 21 B2A B4P	3	28.115	47.515	0.83	16.32	274.50	0.000	0.700	775.67	0.00	542.97
20	133.00	800 10121	3	27.544	46.550	0.79	12.92	138.90	0.000	0.000	601.26	0.00	0.00
21	133.00	800 10798	3	27.544	46.550	0.75	25.49	244.20	0.000	0.000	1186.69	0.00	0.00
22	133.00	DC6-48-60-18-8F	2	27.544	46.550	1.00	8.64	65.60	0.000	0.000	402.19	0.00	0.00
23	133.00	DTMABP7819VG12A	3	27.544	46.550	0.68	2.32	57.00	0.000	0.000	107.94	0.00	0.00
24	133.00	Low Profile Platform	1	27.544	46.550	1.00	21.00	1350.00	0.000	0.000	977.55	0.00	0.00
25	133.00	RRUS 11	3	27.544	46.550	0.75	6.62	152.10	0.000	0.000	307.93	0.00	0.00
26	133.00	RRUS 12	3	27.544	46.550	0.70	7.78	174.00	0.000	0.000	362.26	0.00	0.00
27	133.00	RRUS 32	3	27.544	46.550	0.86	9.95	231.00	0.000	0.000	463.16	0.00	0.00
28	133.00	RRUS A2 Module	3	27.544	46.550	0.40	2.23	63.60	0.000	0.000	103.90	0.00	0.00
29	110.00	DB222	1	26.442	44.688	1.00	2.25	16.00	0.000	5.292	100.55	0.00	532.07
30	110.00	3 ft Standoff	1	26.090	44.092	1.00	1.00	40.00	0.000	0.000	44.09	0.00	0.00
31	40.00	GPS	1	19.541	33.024	1.00	1.00	10.00	0.000	0.000	33.02	0.00	0.00
						Totals:		**7,886.10**			**15,860.94**		

Total Applied Force Summary

Structure:	CT02049-S-SB	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

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		775.55	1540.67	0.00	0.00
10.00		762.54	1520.74	0.00	0.00
14.00		600.66	1447.24	0.00	0.00
15.00		148.86	359.82	0.00	0.00
16.00		148.34	359.02	0.00	0.00
16.25		37.51	138.55	0.00	0.00
20.00		558.71	1900.90	0.00	0.00
22.00		294.99	1004.64	0.00	0.00
25.00		438.58	934.88	0.00	0.00
30.00		720.55	1542.19	0.00	0.00
31.00		142.55	321.36	0.00	0.00
35.00		548.82	1093.85	0.00	0.00
40.00	(1) appurtenances	722.21	1359.38	0.00	0.00
45.00		698.55	1329.45	0.00	0.00
45.16		22.14	56.50	0.00	0.00
46.00		116.62	296.31	0.00	0.00
50.00		563.03	1097.03	0.00	0.00
55.00		721.30	2202.13	0.00	0.00
56.00		143.19	435.64	0.00	0.00
58.00		287.43	540.33	0.00	0.00
60.00		287.76	498.88	0.00	0.00
65.00		724.98	1233.26	0.00	0.00
70.00		724.36	1213.33	0.00	0.00
75.00		722.33	1193.40	0.00	0.00
78.00		430.30	706.48	0.00	0.00
80.00		285.59	467.00	0.00	0.00
85.00		714.52	1033.08	0.00	0.00
90.00		708.96	1016.48	0.00	0.00
95.00		702.39	999.87	0.00	0.00
95.58		81.80	181.84	0.00	0.00
100.00		605.53	1060.85	0.00	0.00
105.00		652.53	626.45	0.00	0.00
110.00	(2) appurtenances	787.54	665.84	0.00	532.07
115.00		632.53	590.63	0.00	0.00
120.00		621.45	474.24	0.00	0.00
125.00		609.70	460.96	0.00	0.00
130.00		597.32	447.67	0.00	0.00
133.00	(24) appurtenances	4864.30	2738.63	0.00	0.00
135.00		231.40	162.68	0.00	0.00
140.00		570.78	397.40	0.00	0.00
142.20	(16) appurtenances	2949.19	2011.75	0.00	1316.79
145.00		282.57	207.48	0.00	0.00
148.30	(23) appurtenances	4179.96	2304.38	0.00	8624.31
150.00		94.91	108.60	0.00	0.00
155.00		191.28	218.26	0.00	0.00
160.00	(18) appurtenances	4667.72	1650.46	0.00	7874.96
	Totals:	**36,373.82**	**42,150.54**	**0.00**	**18,348.13**

Resulting Forces and Deflections

Structure:	CT02049-S-SB	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

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	-36.446	-42.088	0.000	0.000	0.000	-3952.938	0.000	0.000	0.000	0.000	0.000
5.00	-35.805	-40.427	0.000	0.000	0.000	-3770.710	-0.104	0.000	0.104	-0.193	0.000
10.00	-35.153	-38.803	0.000	0.000	0.000	-3591.689	-0.410	0.000	0.410	-0.387	0.000
14.00	-34.602	-37.305	0.000	0.000	0.000	-3451.078	-0.802	0.000	0.802	-0.544	0.000
15.00	-34.471	-36.927	0.000	0.000	0.000	-3416.477	-0.920	0.000	0.920	-0.576	0.000
16.00	-34.332	-36.557	0.000	0.000	0.000	-3382.006	-1.044	0.000	1.044	-0.609	0.000
16.25	-34.333	-36.380	0.000	0.000	0.000	-3373.424	-1.076	0.000	1.076	-0.617	0.000
20.00	-33.810	-34.429	0.000	0.000	0.000	-3244.675	-1.609	0.000	1.609	-0.737	0.000
22.00	-33.555	-33.375	0.000	0.000	0.000	-3177.056	-1.934	0.000	1.934	-0.810	0.000
25.00	-33.184	-32.363	0.000	0.000	0.000	-3076.391	-2.479	0.000	2.479	-0.921	0.000
30.00	-32.493	-30.774	0.000	0.000	0.000	-2910.473	-3.538	0.000	3.538	-1.097	0.000
31.00	-32.390	-30.408	0.000	0.000	0.000	-2877.980	-3.772	0.000	3.772	-1.133	0.000
35.00	-31.904	-29.232	0.000	0.000	0.000	-2748.422	-4.779	0.000	4.779	-1.267	0.000
40.00	-31.247	-27.782	0.000	0.000	0.000	-2588.905	-6.214	0.000	6.214	-1.468	0.000
45.00	-30.559	-26.417	0.000	0.000	0.000	-2432.675	-7.858	0.000	7.858	-1.667	0.000
45.16	-30.542	-26.353	0.000	0.000	0.000	-2427.785	-7.914	0.000	7.914	-1.674	0.000
46.00	-30.449	-26.023	0.000	0.000	0.000	-2402.130	-8.211	0.000	8.211	-1.699	0.000
50.00	-29.919	-24.864	0.000	0.000	0.000	-2280.334	-9.684	0.000	9.684	-1.815	0.000
55.00	-29.169	-22.630	0.000	0.000	0.000	-2130.738	-11.686	0.000	11.686	-2.003	0.000
56.00	-29.033	-22.171	0.000	0.000	0.000	-2101.569	-12.109	0.000	12.109	-2.041	0.000
58.00	-28.754	-21.604	0.000	0.000	0.000	-2043.504	-12.981	0.000	12.981	-2.116	0.000
60.00	-28.496	-21.051	0.000	0.000	0.000	-1985.997	-13.883	0.000	13.883	-2.189	0.000
65.00	-27.789	-19.755	0.000	0.000	0.000	-1843.517	-16.277	0.000	16.277	-2.380	0.000
70.00	-27.073	-18.485	0.000	0.000	0.000	-1704.576	-18.871	0.000	18.871	-2.570	0.000
75.00	-26.341	-17.258	0.000	0.000	0.000	-1569.210	-21.662	0.000	21.662	-2.756	0.000
78.00	-25.904	-16.532	0.000	0.000	0.000	-1490.188	-23.429	0.000	23.429	-2.869	0.000
80.00	-25.631	-16.022	0.000	0.000	0.000	-1438.381	-24.647	0.000	24.647	-2.943	0.000
85.00	-24.912	-14.947	0.000	0.000	0.000	-1310.229	-27.825	0.000	27.825	-3.123	0.000
90.00	-24.194	-13.890	0.000	0.000	0.000	-1185.671	-31.200	0.000	31.200	-3.320	0.000
95.00	-23.457	-12.891	0.000	0.000	0.000	-1064.702	-34.778	0.000	34.778	-3.510	0.000
95.58	-23.384	-12.677	0.000	0.000	0.000	-1051.098	-35.206	0.000	35.206	-3.533	0.000
100.00	-22.760	-11.564	0.000	0.000	0.000	-947.739	-38.551	0.000	38.551	-3.693	0.000
105.00	-22.121	-10.874	0.000	0.000	0.000	-833.940	-42.577	0.000	42.577	-3.990	0.000
110.00	-21.334	-10.170	0.000	0.000	0.000	-722.805	-46.897	0.000	46.897	-4.257	0.000
115.00	-20.699	-9.542	0.000	0.000	0.000	-616.137	-51.490	0.000	51.490	-4.510	0.000
120.00	-20.081	-9.031	0.000	0.000	0.000	-512.645	-56.336	0.000	56.336	-4.744	0.000
125.00	-19.471	-8.540	0.000	0.000	0.000	-412.242	-61.445	0.000	61.445	-5.008	0.000
130.00	-18.860	-8.091	0.000	0.000	0.000	-314.889	-66.810	0.000	66.810	-5.237	0.000
133.00	-13.773	-5.791	0.000	0.000	0.000	-258.308	-70.137	0.000	70.137	-5.357	0.000
135.00	-13.539	-5.623	0.000	0.000	0.000	-230.762	-72.395	0.000	72.395	-5.431	0.000
140.00	-12.942	-5.259	0.000	0.000	0.000	-163.066	-78.161	0.000	78.161	-5.585	0.000
142.20	-9.814	-3.536	0.000	0.000	0.000	-133.276	-80.744	0.000	80.744	-5.642	0.000
145.00	-9.516	-3.347	0.000	0.000	0.000	-105.797	-84.068	0.000	84.068	-5.704	0.000
148.30	-5.128	-1.469	0.000	0.000	0.000	-65.770	-88.026	0.000	88.026	-5.763	0.000
150.00	-5.023	-1.367	0.000	0.000	0.000	-57.053	-90.079	0.000	90.079	-5.786	0.000
155.00	-4.812	-1.163	0.000	0.000	0.000	-31.936	-96.158	0.000	96.158	-5.838	0.000
160.00	-4.668	0.000	0.000	0.000	0.000	-7.875	0.000	0.000	102.309	-5.912	0.000

Resulting Stresses

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)		f/Fb Stress Ratio
0.00	0.70	1.23	0.00	0.00	0.00	43.52	44.21	48.9		0.905
5.00	0.68	1.23	0.00	0.00	0.00	42.87	42.87	49.4		0.868
10.00	0.67	1.23	0.00	0.00	0.00	42.20	42.20	49.9		0.845
14.00	0.65	1.23	0.00	0.00	0.00	34.18	34.18	50.4		0.679
15.00	0.65	1.23	0.00	0.00	0.00	34.05	34.05	50.5		0.675
16.00	0.65	1.23	0.00	0.00	0.00	33.92	33.92	50.6		0.670
16.25	0.64	1.23	0.00	0.00	0.00	33.42	33.42	50.6		0.660
20.00	0.62	1.23	0.00	0.00	0.00	37.91	37.91	51.0		0.743
22.00	0.59	1.21	0.00	0.00	0.00	37.61	37.61	51.2		0.734
25.00	0.58	1.22	0.00	0.00	0.00	36.64	36.64	51.2		0.716
30.00	0.57	1.22	0.00	0.00	0.00	35.86	35.86	51.7		0.694
31.00	0.56	1.22	0.00	0.00	0.00	33.80	33.80	51.8		0.652
35.00	0.55	1.22	0.00	0.00	0.00	39.89	39.89	52.0		0.767
40.00	0.54	1.22	0.00	0.00	0.00	39.01	39.01	52.0		0.750
45.00	0.52	1.22	0.00	0.00	0.00	38.07	38.07	52.0		0.732
45.16	0.52	1.22	0.00	0.00	0.00	27.67	27.67	52.0		0.532
46.00	0.52	1.22	0.00	0.00	0.00	27.53	27.53	52.0		0.529
50.00	0.50	1.23	0.00	0.00	0.00	35.15	35.15	52.0		0.676
55.00	0.47	1.22	0.00	0.00	0.00	33.69	33.69	52.0		0.648
56.00	0.45	1.20	0.00	0.00	0.00	33.49	33.49	52.0		0.644
58.00	0.44	1.20	0.00	0.00	0.00	32.52	32.96	52.0		0.634
60.00	0.44	1.20	0.00	0.00	0.00	34.89	34.89	52.0		0.671
65.00	0.42	1.20	0.00	0.00	0.00	33.74	33.74	52.0		0.649
70.00	0.40	1.20	0.00	0.00	0.00	32.53	32.53	52.0		0.626
75.00	0.39	1.20	0.00	0.00	0.00	31.26	31.26	52.0		0.601
78.00	0.38	1.20	0.00	0.00	0.00	30.47	30.85	52.0		0.593
80.00	0.37	1.20	0.00	0.00	0.00	29.93	29.93	52.0		0.576
85.00	0.42	1.43	0.00	0.00	0.00	31.90	31.90	52.0		0.613
90.00	0.40	1.43	0.00	0.00	0.00	30.17	30.17	52.0		0.580
95.00	0.39	1.43	0.00	0.00	0.00	28.35	28.35	52.0		0.545
95.58	0.38	1.43	0.00	0.00	0.00	27.73	28.12	52.0		0.541
100.00	0.35	1.40	0.00	0.00	0.00	43.04	43.46	52.0		0.836
105.00	0.34	1.40	0.00	0.00	0.00	40.23	40.64	52.0		0.782
110.00	0.33	1.40	0.00	0.00	0.00	37.11	37.51	52.0		0.721
115.00	0.32	1.40	0.00	0.00	0.00	33.73	34.13	52.0		0.656
115.00	0.32	1.40	0.00	0.00	0.00	33.73	34.13	52.0		0.815
120.00	0.39	1.75	0.00	0.00	0.00	37.25	37.75	52.0		0.726
125.00	0.38	1.76	0.00	0.00	0.00	32.07	32.59	52.0		0.627
130.00	0.37	1.76	0.00	0.00	0.00	26.30	26.84	52.0		0.516
133.00	0.27	1.31	0.00	0.00	0.00	22.54	22.92	52.0		0.441
135.00	0.27	1.31	0.00	0.00	0.00	20.74	21.13	52.0		0.406
140.00	0.26	1.30	0.00	0.00	0.00	15.82	16.23	52.0		0.312
142.20	0.18	1.00	0.00	0.00	0.00	13.38	13.67	52.0		0.263
145.00	0.17	1.00	0.00	0.00	0.00	11.11	11.41	52.0		0.219
145.00	0.17	1.00	0.00	0.00	0.00	11.11	11.41	52.0		0.222
148.30	0.08	0.56	0.00	0.00	0.00	7.36	7.50	51.6	47.0	0.145
150.00	0.08	0.55	0.00	0.00	0.00	6.57	6.71	51.8	47.1	0.130

Resulting Stresses

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 15	

150.00	0.08	0.55	0.00	0.00	0.00	6.57	6.71	51.8	47.1	0.279
155.00	0.09	0.78	0.00	0.00	0.00	7.99	8.19	40.0	40.0	0.205
160.00	0.00	0.76	0.00	0.00	0.00	1.97	2.36	40.0	40.0	0.059

Wind Loading - Shaft

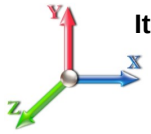
Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

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	RB1	0.00	1.00	13.871	23.44	309.01	1.030	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	303.06	1.030	0.500	5.00	21.204	21.84	512.0	152.4	2069.7
10.00		0.00	1.00	13.871	23.44	297.11	1.030	0.500	5.00	20.800	21.42	502.2	149.5	2046.8
14.00	RB2	0.00	1.00	13.871	23.44	292.35	1.030	0.500	4.00	16.349	16.84	394.8	117.7	2111.2
15.00		0.00	1.00	13.871	23.44	291.16	1.030	0.500	1.00	4.047	4.17	97.7	29.3	525.7
16.00	Bot - Section 2	0.00	1.00	13.871	23.44	289.97	1.030	0.500	1.00	4.031	4.15	97.3	29.2	524.8
16.25	RT1	0.00	1.00	13.871	23.44	289.67	1.030	0.500	0.25	1.021	1.05	24.6	7.4	180.1
20.00		0.00	1.00	13.871	23.44	285.21	1.030	0.500	3.75	15.190	15.65	366.8	109.4	2357.0
22.00	Top - Section 1	0.00	1.00	13.871	23.44	282.83	1.030	0.500	2.00	8.008	8.25	193.4	57.9	1247.4
25.00		0.00	1.00	13.871	23.44	283.86	1.030	0.500	3.00	11.892	12.25	287.1	85.7	1298.0
30.00	RT2 RB4	0.00	1.00	13.871	23.44	277.91	1.030	0.500	5.00	19.496	20.08	470.7	139.9	2144.4
31.00	RT3	0.00	1.00	13.871	23.44	276.72	1.030	0.500	1.00	3.851	3.97	93.0	27.9	457.0
35.00		0.00	1.02	14.106	23.84	274.25	1.030	0.500	4.00	15.241	15.70	374.2	109.6	1450.9
40.00	Appurtenance(s)	0.00	1.06	14.655	24.77	273.42	1.030	0.500	5.00	18.688	19.25	476.7	134.0	1792.7
45.00		0.00	1.09	15.156	25.61	271.84	1.030	0.500	5.00	18.283	18.83	482.4	131.0	1769.8
45.16	RB5	0.00	1.09	15.172	25.64	271.78	1.030	0.500	0.16	0.578	0.60	15.3	4.2	84.9
46.00	RT4	0.00	1.10	15.252	25.78	271.45	1.030	0.500	0.84	3.030	3.12	80.4	21.9	445.2
50.00	Bot - Section 3	0.00	1.13	15.620	26.40	269.65	1.030	0.500	4.00	14.271	14.70	388.0	102.4	1498.0
55.00		0.00	1.16	16.051	27.13	266.94	1.030	0.500	5.00	17.787	18.32	497.0	127.4	2702.6
56.00	Top - Section 2	0.00	1.16	16.134	27.27	266.35	1.030	0.500	1.00	3.509	3.61	98.5	25.4	535.6
58.00	RT5	0.00	1.17	16.296	27.54	270.09	1.030	0.500	2.00	6.970	7.18	197.7	50.2	739.8
60.00		0.00	1.19	16.455	27.81	268.81	1.030	0.500	2.00	6.905	7.11	197.8	49.8	659.6
65.00		0.00	1.21	16.836	28.45	265.35	1.030	0.500	5.00	16.979	17.49	497.6	121.5	1632.2
70.00		0.00	1.24	17.196	29.06	261.55	1.030	0.500	5.00	16.575	17.07	496.1	118.5	1609.3
75.00		0.00	1.26	17.538	29.64	257.45	1.030	0.500	5.00	16.171	16.66	493.7	115.5	1586.4
78.00	RT6	0.00	1.28	17.736	29.97	254.86	1.030	0.500	3.00	9.508	9.79	293.6	68.3	941.2
80.00	Top - Section 3	0.00	1.29	17.865	30.19	253.08	1.030	0.500	2.00	6.258	6.45	194.6	45.0	623.0
85.00		0.00	1.31	18.177	30.72	248.47	1.030	0.500	5.00	15.362	15.82	486.1	109.6	1420.2
90.00		0.00	1.33	18.476	31.22	243.64	1.030	0.500	5.00	14.958	15.41	481.1	106.6	1400.6
95.00	Bot - Section 5	0.00	1.35	18.764	31.71	238.61	1.030	0.500	5.00	14.554	14.99	475.4	103.7	1381.0
95.58	RT7	0.00	1.36	18.796	31.77	238.01	1.030	0.500	0.58	1.692	1.74	55.4	12.2	226.2
100.00	Top - Section 4	0.00	1.37	19.041	32.18	233.39	1.030	0.500	4.42	12.718	13.10	421.5	90.7	1086.7
105.00		0.00	1.39	19.308	32.63	232.53	1.030	0.500	5.00	14.006	14.43	470.7	99.7	652.7
110.00	Appurtenance(s)	0.00	1.41	19.566	33.07	227.01	1.030	0.500	5.00	13.602	14.01	463.3	96.7	633.1
115.00	Top - Section 5	0.00	1.43	19.816	33.49	221.35	1.030	0.500	5.00	13.198	13.59	455.3	93.7	613.6
120.00		0.00	1.45	20.059	33.90	215.54	1.030	0.500	5.00	12.794	13.18	446.7	90.8	494.2
125.00		0.00	1.46	20.294	34.30	209.61	1.030	0.500	5.00	12.390	12.76	437.7	87.8	477.9
130.00		0.00	1.48	20.523	34.68	203.55	1.030	0.500	5.00	11.985	12.34	428.2	84.8	461.7
133.00	Appurtenance(s)	0.00	1.49	20.657	34.91	199.85	1.030	0.500	3.00	6.997	7.21	251.6	49.8	269.6
135.00		0.00	1.50	20.745	35.06	197.37	1.030	0.500	2.00	4.584	4.72	165.5	32.8	176.6
140.00		0.00	1.51	20.962	35.43	191.08	1.030	0.500	5.00	11.177	11.51	407.8	78.9	429.2
142.20	Appurtenance(s)	0.00	1.52	21.056	35.58	188.28	1.030	0.500	2.20	4.790	4.93	175.6	34.2	184.1
145.00	Top - Section 6	0.00	1.53	21.173	35.78	184.69	1.030	0.500	2.80	5.983	6.16	220.5	42.5	229.6
148.30	Appurtenance(s)	0.00	1.54	21.310	36.01	180.46	0.590	0.500	3.30	6.890	4.07	146.4	48.9	258.8
150.00	Top - Section 7	0.00	1.54	21.379	36.13	178.24	0.590	0.500	1.70	3.481	2.05	74.2	24.8	130.8
155.00		0.00	1.56	21.581	36.47	122.42	0.590	0.500	5.00	7.083	4.18	152.4	50.4	260.9
160.00	Appurtenance(s)	0.00	1.57	21.777	36.80	122.98	0.590	0.500	5.00	7.083	4.18	153.8	50.4	260.9
							Totals:		**160.00**			**14,192.4**		**44,081.8**

Discrete Appurtenance Forces

Structure:	CT02049-S-SB	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

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	160.00	Low Profile Platform	1	21.777	36.803	1.00	27.00	1800.00	0.000	0.000	993.69	0.00	0.00
2	160.00	DB846F65ZAXY	6	21.862	36.947	0.94	44.05	0.00	0.000	2.200	1627.47	0.00	3580.43
3	160.00	DB222	1	21.969	37.128	1.00	3.99	35.90	0.000	5.000	148.14	0.00	740.71
4	160.00	BXA-70063/4CF	3	21.862	36.947	0.74	12.74	115.80	0.000	2.200	470.81	0.00	1035.79
5	160.00	6' Lightning rod	1	21.777	36.803	1.00	0.98	11.80	0.000	0.000	36.07	0.00	0.00
6	160.00	LPA-185063/8CF	6	21.862	36.947	0.95	20.29	0.00	0.000	2.200	749.73	0.00	1649.41
7	148.30	ALU 800MHz External Notch	3	21.460	36.268	0.71	2.04	41.40	0.000	3.700	74.16	0.00	274.39
8	148.30	1900MHz RRH	3	21.460	36.268	0.77	9.70	225.60	0.000	3.700	351.87	0.00	1301.93
9	148.30	800 MHz RRH	3	21.460	36.268	0.77	6.51	222.30	0.000	3.700	236.26	0.00	874.15
10	148.30	ACU-A20-N	4	21.460	36.268	0.77	0.68	9.20	0.000	3.700	24.58	0.00	90.93
11	148.30	Low Profile Platform	1	21.310	36.013	1.00	27.00	1800.00	0.000	0.000	972.36	0.00	0.00
12	148.30	APXVSPP18-C-A20	3	21.460	36.268	0.82	22.39	319.50	0.000	3.700	812.09	0.00	3004.72
13	148.30	APXVTM14-C-120	3	21.379	36.131	0.77	16.75	275.70	0.000	1.700	605.28	0.00	1028.98
14	148.30	TD-RRH8x20-25	3	21.379	36.131	0.71	10.59	276.00	0.000	1.700	382.49	0.00	650.23
15	142.20	Low Profile Platform	1	21.056	35.584	1.00	27.00	1800.00	0.000	0.000	960.76	0.00	0.00
16	142.20	LGP13907	6	21.123	35.698	0.77	3.46	87.60	0.000	1.600	123.69	0.00	197.91
17	142.20	KRY 112 144/1	3	21.085	35.634	0.72	1.19	42.30	0.000	0.700	42.33	0.00	29.63
18	142.20	AIR 21 B4A B2P	3	21.085	35.634	0.83	17.44	384.30	0.000	0.700	621.42	0.00	434.99
19	142.20	AIR 21 B2A B4P	3	21.085	35.634	0.83	17.44	387.60	0.000	0.700	621.42	0.00	434.99
20	133.00	800 10121	3	20.657	34.910	0.81	14.80	237.60	0.000	0.000	516.63	0.00	0.00
21	133.00	800 10798	3	20.657	34.910	0.76	21.93	215.40	0.000	0.000	765.64	0.00	0.00
22	133.00	DC6-48-60-18-8F	2	20.657	34.910	1.00	9.12	112.70	0.000	0.000	318.38	0.00	0.00
23	133.00	DTMABP7819VG12A	3	20.657	34.910	0.69	2.84	79.50	0.000	0.000	98.99	0.00	0.00
24	133.00	Low Profile Platform	1	20.657	34.910	1.00	27.00	1800.00	0.000	0.000	942.58	0.00	0.00
25	133.00	RRUS 11	3	20.657	34.910	0.75	7.06	198.00	0.000	0.000	246.64	0.00	0.00
26	133.00	RRUS 12	3	20.657	34.910	0.71	8.31	227.10	0.000	0.000	290.07	0.00	0.00
27	133.00	RRUS 32	3	20.657	34.910	0.86	10.64	299.55	0.000	0.000	371.47	0.00	0.00
28	133.00	RRUS A2 Module	3	20.657	34.910	0.40	2.58	94.20	0.000	0.000	90.07	0.00	0.00
29	110.00	DB222	1	19.831	33.514	1.00	3.99	35.90	0.000	5.292	133.72	0.00	707.61
30	110.00	3 ft Standoff	1	19.566	33.067	1.00	4.34	63.00	0.000	0.000	143.51	0.00	0.00
31	40.00	GPS	1	14.655	24.767	1.00	1.25	18.00	0.000	0.000	30.96	0.00	0.00
						Totals:		**11,215.95**			**13,803.28**		

Total Applied Force Summary

Structure:	CT02049-S-SB	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Iterations: 23

Dead Load Factor 1.00

Wind Load Factor 1.00

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		605.76	1705.00	0.00	0.00
10.00		596.00	1682.11	0.00	0.00
14.00		469.77	1574.44	0.00	0.00
15.00		116.47	391.50	0.00	0.00
16.00		116.08	390.58	0.00	0.00
16.25		29.34	146.55	0.00	0.00
20.00		437.10	2019.19	0.00	0.00
22.00		230.88	1067.26	0.00	0.00
25.00		343.39	1027.74	0.00	0.00
30.00		564.51	1693.99	0.00	0.00
31.00		111.73	351.60	0.00	0.00
35.00		429.79	1208.61	0.00	0.00
40.00	(1) appurtenances	570.83	1506.06	0.00	0.00
45.00		547.68	1465.17	0.00	0.00
45.16		17.37	60.84	0.00	0.00
46.00		91.48	319.01	0.00	0.00
50.00		441.87	1203.23	0.00	0.00
55.00		566.15	2334.22	0.00	0.00
56.00		112.45	461.94	0.00	0.00
58.00		225.80	592.45	0.00	0.00
60.00		226.14	550.53	0.00	0.00
65.00		570.14	1359.42	0.00	0.00
70.00		570.24	1336.53	0.00	0.00
75.00		569.26	1313.63	0.00	0.00
78.00		339.41	777.55	0.00	0.00
80.00		225.40	513.91	0.00	0.00
85.00		564.40	1147.39	0.00	0.00
90.00		560.70	1127.82	0.00	0.00
95.00		556.23	1108.25	0.00	0.00
95.58		64.77	194.59	0.00	0.00
100.00		477.33	1152.61	0.00	0.00
105.00		511.53	723.01	0.00	0.00
110.00	(2) appurtenances	781.84	802.34	0.00	707.61
115.00		497.11	683.87	0.00	0.00
120.00		489.08	564.52	0.00	0.00
125.00		480.54	548.27	0.00	0.00
130.00		471.52	532.02	0.00	0.00
133.00	(24) appurtenances	3918.26	3575.82	0.00	0.00
135.00		183.06	195.23	0.00	0.00
140.00		452.12	475.82	0.00	0.00
142.20	(16) appurtenances	2564.75	2906.38	0.00	1097.52
145.00		220.51	248.56	0.00	0.00
148.30	(23) appurtenances	3605.48	3450.82	0.00	7225.32
150.00		74.20	132.54	0.00	0.00
155.00		152.42	266.06	0.00	0.00
160.00	(18) appurtenances	4179.72	2229.56	0.00	7006.34
	Totals:	**29,930.61**	**49,118.50**	**0.00**	**16,036.79**

Resulting Forces and Deflections

Structure: CT02049-S-SB
Site Name: Beacon Falls
Height: 160.00 (ft)
Base Elev: 0.000 (ft)

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

4/11/2016

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00

Iterations: 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	-30.001	-49.075	0.000	0.000	0.000	-3340.610	0.000	0.000	0.000	0.000	0.000
5.00	-29.528	-47.286	0.000	0.000	0.000	-3190.608	-0.088	0.000	0.088	-0.163	0.000
10.00	-29.043	-45.532	0.000	0.000	0.000	-3042.971	-0.347	0.000	0.347	-0.328	0.000
14.00	-28.623	-43.921	0.000	0.000	0.000	-2926.802	-0.678	0.000	0.678	-0.460	0.000
15.00	-28.524	-43.517	0.000	0.000	0.000	-2898.180	-0.778	0.000	0.778	-0.488	0.000
16.00	-28.418	-43.119	0.000	0.000	0.000	-2869.656	-0.883	0.000	0.883	-0.516	0.000
16.25	-28.428	-42.945	0.000	0.000	0.000	-2862.552	-0.911	0.000	0.911	-0.523	0.000
20.00	-28.029	-40.891	0.000	0.000	0.000	-2755.948	-1.362	0.000	1.362	-0.624	0.000
22.00	-27.841	-39.788	0.000	0.000	0.000	-2699.891	-1.637	0.000	1.637	-0.687	0.000
25.00	-27.567	-38.706	0.000	0.000	0.000	-2616.370	-2.099	0.000	2.099	-0.781	0.000
30.00	-27.035	-36.978	0.000	0.000	0.000	-2478.538	-2.997	0.000	2.997	-0.931	0.000
31.00	-26.964	-36.594	0.000	0.000	0.000	-2451.504	-3.195	0.000	3.195	-0.961	0.000
35.00	-26.601	-35.327	0.000	0.000	0.000	-2343.649	-4.050	0.000	4.050	-1.076	0.000
40.00	-26.101	-33.755	0.000	0.000	0.000	-2210.646	-5.268	0.000	5.268	-1.246	0.000
45.00	-25.568	-32.264	0.000	0.000	0.000	-2080.145	-6.665	0.000	6.665	-1.417	0.000
45.16	-25.557	-32.198	0.000	0.000	0.000	-2076.055	-6.713	0.000	6.713	-1.423	0.000
46.00	-25.491	-31.854	0.000	0.000	0.000	-2054.587	-6.965	0.000	6.965	-1.444	0.000
50.00	-25.088	-30.606	0.000	0.000	0.000	-1952.624	-8.218	0.000	8.218	-1.544	0.000
55.00	-24.503	-28.248	0.000	0.000	0.000	-1827.186	-9.921	0.000	9.921	-1.705	0.000
56.00	-24.401	-27.769	0.000	0.000	0.000	-1802.683	-10.282	0.000	10.282	-1.737	0.000
58.00	-24.187	-27.157	0.000	0.000	0.000	-1753.882	-11.023	0.000	11.023	-1.802	0.000
60.00	-23.996	-26.566	0.000	0.000	0.000	-1705.510	-11.792	0.000	11.792	-1.864	0.000
65.00	-23.452	-25.160	0.000	0.000	0.000	-1585.532	-13.832	0.000	13.832	-2.029	0.000
70.00	-22.900	-23.780	0.000	0.000	0.000	-1468.274	-16.043	0.000	16.043	-2.192	0.000
75.00	-22.330	-22.441	0.000	0.000	0.000	-1353.775	-18.425	0.000	18.425	-2.353	0.000
78.00	-21.988	-21.647	0.000	0.000	0.000	-1286.787	-19.934	0.000	19.934	-2.449	0.000
80.00	-21.782	-21.101	0.000	0.000	0.000	-1242.811	-20.974	0.000	20.974	-2.514	0.000
85.00	-21.223	-19.920	0.000	0.000	0.000	-1133.903	-23.689	0.000	23.689	-2.670	0.000
90.00	-20.664	-18.760	0.000	0.000	0.000	-1027.790	-26.576	0.000	26.576	-2.840	0.000
95.00	-20.080	-17.650	0.000	0.000	0.000	-924.473	-29.638	0.000	29.638	-3.005	0.000
95.58	-20.029	-17.431	0.000	0.000	0.000	-912.827	-30.005	0.000	30.005	-3.025	0.000
100.00	-19.548	-16.237	0.000	0.000	0.000	-824.298	-32.870	0.000	32.870	-3.164	0.000
105.00	-19.062	-15.463	0.000	0.000	0.000	-726.562	-36.322	0.000	36.322	-3.422	0.000
110.00	-18.290	-14.638	0.000	0.000	0.000	-630.547	-40.030	0.000	40.030	-3.655	0.000
115.00	-17.801	-13.922	0.000	0.000	0.000	-539.097	-43.976	0.000	43.976	-3.876	0.000
120.00	-17.325	-13.327	0.000	0.000	0.000	-450.093	-48.145	0.000	48.145	-4.081	0.000
125.00	-16.855	-12.751	0.000	0.000	0.000	-363.468	-52.544	0.000	52.544	-4.313	0.000
130.00	-16.376	-12.214	0.000	0.000	0.000	-279.197	-57.170	0.000	57.170	-4.516	0.000
133.00	-12.198	-8.944	0.000	0.000	0.000	-230.071	-60.041	0.000	60.041	-4.623	0.000
135.00	-12.016	-8.742	0.000	0.000	0.000	-205.674	-61.990	0.000	61.990	-4.688	0.000
140.00	-11.539	-8.287	0.000	0.000	0.000	-145.595	-66.972	0.000	66.972	-4.825	0.000
142.20	-8.743	-5.600	0.000	0.000	0.000	-119.112	-69.206	0.000	69.206	-4.877	0.000
145.00	-8.507	-5.363	0.000	0.000	0.000	-94.632	-72.080	0.000	72.080	-4.932	0.000
148.30	-4.618	-2.234	0.000	0.000	0.000	-59.333	-75.505	0.000	75.505	-4.984	0.000
150.00	-4.534	-2.106	0.000	0.000	0.000	-51.482	-77.281	0.000	77.281	-5.006	0.000
155.00	-4.361	-1.850	0.000	0.000	0.000	-28.812	-82.544	0.000	82.544	-5.052	0.000
160.00	-4.180	0.000	0.000	0.000	0.000	-7.006	0.000	0.000	87.871	-5.119	0.000

Resulting Stresses

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 73.61 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	0.81	1.01	0.00	0.00	0.00	36.78	37.59	48.9		0.769
5.00	0.80	1.01	0.00	0.00	0.00	36.28	36.28	49.4		0.734
10.00	0.78	1.02	0.00	0.00	0.00	35.75	35.75	49.9		0.716
14.00	0.77	1.02	0.00	0.00	0.00	28.99	28.99	50.4		0.575
15.00	0.77	1.02	0.00	0.00	0.00	28.89	28.89	50.5		0.572
16.00	0.76	1.02	0.00	0.00	0.00	28.78	28.78	50.6		0.569
16.25	0.76	1.02	0.00	0.00	0.00	28.35	28.35	50.6		0.560
20.00	0.73	1.02	0.00	0.00	0.00	32.20	32.20	51.0		0.631
22.00	0.71	1.01	0.00	0.00	0.00	31.96	31.96	51.2		0.624
25.00	0.70	1.01	0.00	0.00	0.00	31.16	31.16	51.2		0.609
30.00	0.68	1.01	0.00	0.00	0.00	30.53	30.53	51.7		0.591
31.00	0.68	1.01	0.00	0.00	0.00	28.79	28.79	51.8		0.556
35.00	0.67	1.02	0.00	0.00	0.00	34.02	34.02	52.0		0.654
40.00	0.65	1.02	0.00	0.00	0.00	33.31	33.31	52.0		0.641
45.00	0.64	1.02	0.00	0.00	0.00	32.55	32.55	52.0		0.626
45.16	0.64	1.02	0.00	0.00	0.00	23.66	23.66	52.0		0.455
46.00	0.63	1.03	0.00	0.00	0.00	23.55	23.55	52.0		0.453
50.00	0.62	1.03	0.00	0.00	0.00	30.10	30.10	52.0		0.579
55.00	0.58	1.03	0.00	0.00	0.00	28.89	28.89	52.0		0.556
56.00	0.57	1.01	0.00	0.00	0.00	28.72	28.72	52.0		0.552
58.00	0.56	1.01	0.00	0.00	0.00	27.91	28.47	52.0		0.547
60.00	0.55	1.01	0.00	0.00	0.00	29.96	29.96	52.0		0.576
65.00	0.54	1.01	0.00	0.00	0.00	29.02	29.02	52.0		0.558
70.00	0.52	1.02	0.00	0.00	0.00	28.02	28.02	52.0		0.539
75.00	0.50	1.02	0.00	0.00	0.00	26.97	26.97	52.0		0.519
78.00	0.49	1.02	0.00	0.00	0.00	26.31	26.80	52.0		0.515
80.00	0.49	1.02	0.00	0.00	0.00	25.86	25.86	52.0		0.497
85.00	0.56	1.22	0.00	0.00	0.00	27.60	27.60	52.0		0.531
90.00	0.55	1.22	0.00	0.00	0.00	26.15	26.15	52.0		0.503
95.00	0.53	1.22	0.00	0.00	0.00	24.62	24.62	52.0		0.473
95.58	0.52	1.22	0.00	0.00	0.00	24.09	24.61	52.0		0.473
100.00	0.49	1.20	0.00	0.00	0.00	37.44	37.99	52.0		0.731
105.00	0.48	1.21	0.00	0.00	0.00	35.05	35.60	52.0		0.685
110.00	0.47	1.20	0.00	0.00	0.00	32.37	32.91	52.0		0.633
115.00	0.46	1.20	0.00	0.00	0.00	29.51	30.05	52.0		0.578
115.00	0.46	1.20	0.00	0.00	0.00	29.51	30.05	52.0		0.718
120.00	0.57	1.51	0.00	0.00	0.00	32.70	33.38	52.0		0.642
125.00	0.57	1.52	0.00	0.00	0.00	28.28	28.96	52.0		0.557
130.00	0.56	1.53	0.00	0.00	0.00	23.32	24.02	52.0		0.462
133.00	0.42	1.16	0.00	0.00	0.00	20.07	20.59	52.0		0.396
135.00	0.42	1.16	0.00	0.00	0.00	18.48	19.01	52.0		0.366
140.00	0.41	1.16	0.00	0.00	0.00	14.12	14.67	52.0		0.282
142.20	0.28	0.89	0.00	0.00	0.00	11.96	12.34	52.0		0.237
145.00	0.28	0.89	0.00	0.00	0.00	9.94	10.33	52.0		0.199
145.00	0.28	0.89	0.00	0.00	0.00	9.94	10.33	52.0		0.201
148.30	0.12	0.50	0.00	0.00	0.00	6.64	6.82	51.6	47.0	0.132
150.00	0.12	0.50	0.00	0.00	0.00	5.93	6.10	51.8	47.1	0.118

Resulting Stresses

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 21	

150.00	0.12	0.50	0.00	0.00	0.00	5.93	6.10	51.8	47.1	0.253
155.00	0.15	0.71	0.00	0.00	0.00	7.21	7.46	40.0	40.0	0.186
160.00	0.00	0.68	0.00	0.00	0.00	1.75	2.11	40.0	40.0	0.053

Wind Loading - Shaft

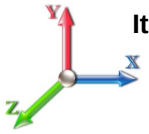
Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 23

Elev (ft)	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	RB1	0.00	1.00	6.400	10.82	209.90	1.030	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	205.85	1.030	0.000	5.00	20.788	21.41	231.6	0.0	1917.2
10.00		0.00	1.00	6.400	10.82	201.81	1.030	0.000	5.00	20.383	20.99	227.1	0.0	1897.3
14.00	RB2	0.00	1.00	6.400	10.82	198.58	1.030	0.000	4.00	16.016	16.50	178.4	0.0	1993.5
15.00		0.00	1.00	6.400	10.82	197.77	1.030	0.000	1.00	3.963	4.08	44.2	0.0	496.4
16.00	Bot - Section 2	0.00	1.00	6.400	10.82	196.96	1.030	0.000	1.00	3.947	4.07	44.0	0.0	495.6
16.25	RT1	0.00	1.00	6.400	10.82	196.76	1.030	0.000	0.25	1.000	1.03	11.1	0.0	172.7
20.00		0.00	1.00	6.400	10.82	193.73	1.030	0.000	3.75	14.878	15.32	165.7	0.0	2247.6
22.00	Top - Section 1	0.00	1.00	6.400	10.82	192.11	1.030	0.000	2.00	7.842	8.08	87.4	0.0	1189.6
25.00		0.00	1.00	6.400	10.82	192.81	1.030	0.000	3.00	11.642	11.99	129.7	0.0	1212.3
30.00	RT2 RB4	0.00	1.00	6.400	10.82	188.77	1.030	0.000	5.00	19.079	19.65	212.6	0.0	2004.5
31.00	RT3	0.00	1.00	6.400	10.82	187.96	1.030	0.000	1.00	3.767	3.88	42.0	0.0	429.1
35.00		0.00	1.02	6.509	11.00	186.29	1.030	0.000	4.00	14.908	15.35	168.9	0.0	1341.4
40.00	Appurtenance(s)	0.00	1.06	6.762	11.43	185.72	1.030	0.000	5.00	18.271	18.82	215.0	0.0	1658.8
45.00		0.00	1.09	6.993	11.82	184.65	1.030	0.000	5.00	17.867	18.40	217.5	0.0	1638.8
45.16	RB5	0.00	1.09	7.000	11.83	184.61	1.030	0.000	0.16	0.565	0.58	6.9	0.0	80.7
46.00	RT4	0.00	1.10	7.037	11.89	184.38	1.030	0.000	0.84	2.960	3.05	36.3	0.0	423.3
50.00	Bot - Section 3	0.00	1.13	7.207	12.18	183.16	1.030	0.000	4.00	13.938	14.36	174.8	0.0	1395.5
55.00		0.00	1.16	7.406	12.52	181.32	1.030	0.000	5.00	17.371	17.89	223.9	0.0	2575.3
56.00	Top - Section 2	0.00	1.16	7.444	12.58	180.92	1.030	0.000	1.00	3.426	3.53	44.4	0.0	510.3
58.00	RT5	0.00	1.17	7.519	12.71	183.46	1.030	0.000	2.00	6.803	7.01	89.0	0.0	689.6
60.00		0.00	1.19	7.592	12.83	182.59	1.030	0.000	2.00	6.738	6.94	89.0	0.0	609.9
65.00		0.00	1.21	7.768	13.13	180.24	1.030	0.000	5.00	16.563	17.06	223.9	0.0	1510.8
70.00		0.00	1.24	7.934	13.41	177.66	1.030	0.000	5.00	16.158	16.64	223.2	0.0	1490.8
75.00		0.00	1.26	8.092	13.68	174.87	1.030	0.000	5.00	15.754	16.23	221.9	0.0	1470.9
78.00	RT6	0.00	1.28	8.183	13.83	173.11	1.030	0.000	3.00	9.258	9.54	131.9	0.0	873.0
80.00	Top - Section 3	0.00	1.29	8.242	13.93	171.91	1.030	0.000	2.00	6.091	6.27	87.4	0.0	578.0
85.00		0.00	1.31	8.387	14.17	168.78	1.030	0.000	5.00	14.946	15.39	218.2	0.0	1310.6
90.00		0.00	1.33	8.525	14.41	165.49	1.030	0.000	5.00	14.542	14.98	215.8	0.0	1294.0
95.00	Bot - Section 5	0.00	1.35	8.657	14.63	162.08	1.030	0.000	5.00	14.137	14.56	213.0	0.0	1277.4
95.58	RT7	0.00	1.36	8.672	14.66	161.67	1.030	0.000	0.58	1.644	1.69	24.8	0.0	214.0
100.00	Top - Section 4	0.00	1.37	8.785	14.85	158.53	1.030	0.000	4.42	12.350	12.72	188.9	0.0	995.9
105.00		0.00	1.39	8.908	15.06	157.95	1.030	0.000	5.00	13.590	14.00	210.7	0.0	553.0
110.00	Appurtenance(s)	0.00	1.41	9.028	15.26	154.20	1.030	0.000	5.00	13.185	13.58	207.2	0.0	536.4
115.00	Top - Section 5	0.00	1.43	9.143	15.45	150.35	1.030	0.000	5.00	12.781	13.16	203.4	0.0	519.8
120.00		0.00	1.45	9.255	15.64	146.41	1.030	0.000	5.00	12.377	12.75	199.4	0.0	403.4
125.00		0.00	1.46	9.363	15.82	142.38	1.030	0.000	5.00	11.973	12.33	195.1	0.0	390.1
130.00		0.00	1.48	9.469	16.00	138.26	1.030	0.000	5.00	11.569	11.92	190.7	0.0	376.9
133.00	Appurtenance(s)	0.00	1.49	9.531	16.11	135.75	1.030	0.000	3.00	6.747	6.95	111.9	0.0	219.7
135.00		0.00	1.50	9.572	16.18	134.06	1.030	0.000	2.00	4.417	4.55	73.6	0.0	143.8
140.00		0.00	1.51	9.672	16.35	129.79	1.030	0.000	5.00	10.760	11.08	181.2	0.0	350.3
142.20	Appurtenance(s)	0.00	1.52	9.715	16.42	127.89	1.030	0.000	2.20	4.607	4.74	77.9	0.0	149.9
145.00	Top - Section 6	0.00	1.53	9.769	16.51	125.45	1.030	0.000	2.80	5.750	5.92	97.8	0.0	187.1
148.30	Appurtenance(s)	0.00	1.54	9.832	16.62	122.58	0.590	0.000	3.30	6.615	3.90	64.9	0.0	209.9
150.00	Top - Section 7	0.00	1.54	9.864	16.67	121.07	0.590	0.000	1.70	3.339	1.97	32.8	0.0	105.9
155.00		0.00	1.56	9.957	16.83	83.15	0.590	0.000	5.00	6.667	3.93	66.2	0.0	210.5
160.00	Appurtenance(s)	0.00	1.57	10.048	16.98	83.53	0.590	0.000	5.00	6.667	3.93	66.8	0.0	210.5
								Totals:	**160.00**			**6,368.1**		**40,562.0**

Discrete Appurtenance Forces

Structure:	CT02049-S-SB	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

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	160.00	Low Profile Platform	1	10.048	16.981	1.00	20.75	1200.00	0.000	0.000	352.35	0.00	0.00
2	160.00	DB846F65ZAXY	6	10.087	17.047	0.93	39.23	126.00	0.000	2.200	668.71	0.00	1471.16
3	160.00	DB222	1	10.136	17.131	1.00	2.25	16.00	0.000	5.000	38.54	0.00	192.72
4	160.00	BXA-70063/4CF	3	10.087	17.047	0.72	11.15	29.70	0.000	2.200	190.00	0.00	418.00
5	160.00	6' Lightning rod	1	10.048	16.981	1.00	0.38	6.50	0.000	0.000	6.45	0.00	0.00
6	160.00	LPA-185063/8CF	6	10.087	17.047	0.94	17.15	54.00	0.000	2.200	292.28	0.00	643.02
7	148.30	ALU 800MHz External Notch	3	9.902	16.734	0.69	1.61	26.40	0.000	3.700	27.02	0.00	99.97
8	148.30	1900MHz RRH	3	9.902	16.734	0.75	8.55	132.00	0.000	3.700	143.07	0.00	529.37
9	148.30	800 MHz RRH	3	9.902	16.734	0.75	5.60	159.00	0.000	3.700	93.75	0.00	346.88
10	148.30	ACU-A20-N	4	9.902	16.734	0.75	0.42	4.00	0.000	3.700	7.03	0.00	26.00
11	148.30	Low Profile Platform	1	9.832	16.616	1.00	20.75	1200.00	0.000	0.000	344.79	0.00	0.00
12	148.30	APXVSPP18-C-A20	3	9.902	16.734	0.82	20.32	171.00	0.000	3.700	340.02	0.00	1258.07
13	148.30	APXVTM14-C-120	3	9.864	16.670	0.76	15.77	168.00	0.000	1.700	262.95	0.00	447.01
14	148.30	TD-RRH8x20-25	3	9.864	16.670	0.69	9.77	210.00	0.000	1.700	162.88	0.00	276.89
15	142.20	Low Profile Platform	1	9.715	16.418	1.00	20.75	1200.00	0.000	0.000	340.67	0.00	0.00
16	142.20	LGP13907	6	9.746	16.471	0.75	2.66	62.40	0.000	1.600	43.73	0.00	69.97
17	142.20	KRY 112 144/1	3	9.728	16.441	0.70	0.86	33.00	0.000	0.700	14.16	0.00	9.91
18	142.20	AIR 21 B4A B2P	3	9.728	16.441	0.83	16.32	271.20	0.000	0.700	268.40	0.00	187.88
19	142.20	AIR 21 B2A B4P	3	9.728	16.441	0.83	16.32	274.50	0.000	0.700	268.40	0.00	187.88
20	133.00	800 10121	3	9.531	16.107	0.79	12.92	138.90	0.000	0.000	208.05	0.00	0.00
21	133.00	800 10798	3	9.531	16.107	0.75	25.49	244.20	0.000	0.000	410.62	0.00	0.00
22	133.00	DC6-48-60-18-8F	2	9.531	16.107	1.00	8.64	65.60	0.000	0.000	139.17	0.00	0.00
23	133.00	DTMABP7819VG12A	3	9.531	16.107	0.68	2.32	57.00	0.000	0.000	37.35	0.00	0.00
24	133.00	Low Profile Platform	1	9.531	16.107	1.00	21.00	1350.00	0.000	0.000	338.25	0.00	0.00
25	133.00	RRUS 11	3	9.531	16.107	0.75	6.62	152.10	0.000	0.000	106.55	0.00	0.00
26	133.00	RRUS 12	3	9.531	16.107	0.70	7.78	174.00	0.000	0.000	125.35	0.00	0.00
27	133.00	RRUS 32	3	9.531	16.107	0.86	9.95	231.00	0.000	0.000	160.26	0.00	0.00
28	133.00	RRUS A2 Module	3	9.531	16.107	0.40	2.23	63.60	0.000	0.000	35.95	0.00	0.00
29	110.00	DB222	1	9.150	15.463	1.00	2.25	16.00	0.000	5.292	34.79	0.00	184.11
30	110.00	3 ft Standoff	1	9.028	15.257	1.00	1.00	40.00	0.000	0.000	15.26	0.00	0.00
31	40.00	GPS	1	6.762	11.427	1.00	1.00	10.00	0.000	0.000	11.43	0.00	0.00
						Totals:		**7,886.10**			**5,488.21**		

Total Applied Force Summary

Structure:	CT02049-S-SB	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		268.36	1540.67	0.00	0.00
10.00		263.85	1520.74	0.00	0.00
14.00		207.84	1447.24	0.00	0.00
15.00		51.51	359.82	0.00	0.00
16.00		51.33	359.02	0.00	0.00
16.25		12.98	138.55	0.00	0.00
20.00		193.33	1900.90	0.00	0.00
22.00		102.07	1004.64	0.00	0.00
25.00		151.76	934.88	0.00	0.00
30.00		249.33	1542.19	0.00	0.00
31.00		49.32	321.36	0.00	0.00
35.00		189.90	1093.85	0.00	0.00
40.00	(1) appurtenances	249.90	1359.38	0.00	0.00
45.00		241.71	1329.45	0.00	0.00
45.16		7.66	56.50	0.00	0.00
46.00		40.35	296.31	0.00	0.00
50.00		194.82	1097.03	0.00	0.00
55.00		249.59	2202.13	0.00	0.00
56.00		49.55	435.64	0.00	0.00
58.00		99.46	540.33	0.00	0.00
60.00		99.57	498.88	0.00	0.00
65.00		250.86	1233.26	0.00	0.00
70.00		250.64	1213.33	0.00	0.00
75.00		249.94	1193.40	0.00	0.00
78.00		148.89	706.48	0.00	0.00
80.00		98.82	467.00	0.00	0.00
85.00		247.24	1033.08	0.00	0.00
90.00		245.31	1016.48	0.00	0.00
95.00		243.04	999.87	0.00	0.00
95.58		28.30	181.84	0.00	0.00
100.00		209.53	1060.85	0.00	0.00
105.00		225.79	626.45	0.00	0.00
110.00	(2) appurtenances	272.51	665.84	0.00	184.11
115.00		218.87	590.63	0.00	0.00
120.00		215.04	474.24	0.00	0.00
125.00		210.97	460.96	0.00	0.00
130.00		206.69	447.67	0.00	0.00
133.00	(24) appurtenances	1683.15	2738.63	0.00	0.00
135.00		80.07	162.68	0.00	0.00
140.00		197.50	397.40	0.00	0.00
142.20	(16) appurtenances	1020.48	2011.75	0.00	455.64
145.00		97.77	207.48	0.00	0.00
148.30	(23) appurtenances	1446.35	2304.38	0.00	2984.19
150.00		32.84	108.60	0.00	0.00
155.00		66.19	218.26	0.00	0.00
160.00	(18) appurtenances	1615.13	1650.46	0.00	2724.90
	Totals:	**12,586.10**	**42,150.54**	**0.00**	**6,348.83**

Resulting Forces and Deflections

Structure: CT02049-S-SB
Site Name: Beacon Falls
Height: 160.00 (ft)
Base Elev: 0.000 (ft)

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

4/11/2016

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00

Iterations: 23

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-12.611	-42.143	0.000	0.000	0.000	-1369.364	0.000	0.000	0.000	0.000	0.000
5.00	-12.389	-40.588	0.000	0.000	0.000	-1306.311	-0.036	0.000	0.036	-0.067	0.000
10.00	-12.164	-39.055	0.000	0.000	0.000	-1244.367	-0.142	0.000	0.142	-0.134	0.000
14.00	-11.973	-37.601	0.000	0.000	0.000	-1195.712	-0.278	0.000	0.278	-0.188	0.000
15.00	-11.928	-37.239	0.000	0.000	0.000	-1183.739	-0.319	0.000	0.319	-0.200	0.000
16.00	-11.880	-36.879	0.000	0.000	0.000	-1171.811	-0.362	0.000	0.362	-0.211	0.000
16.25	-11.881	-36.736	0.000	0.000	0.000	-1168.841	-0.373	0.000	0.373	-0.214	0.000
20.00	-11.700	-34.829	0.000	0.000	0.000	-1124.290	-0.558	0.000	0.558	-0.255	0.000
22.00	-11.612	-33.818	0.000	0.000	0.000	-1100.890	-0.670	0.000	0.670	-0.281	0.000
25.00	-11.484	-32.874	0.000	0.000	0.000	-1066.055	-0.859	0.000	0.859	-0.319	0.000
30.00	-11.245	-31.327	0.000	0.000	0.000	-1008.637	-1.226	0.000	1.226	-0.380	0.000
31.00	-11.210	-31.000	0.000	0.000	0.000	-997.392	-1.307	0.000	1.307	-0.393	0.000
35.00	-11.042	-29.896	0.000	0.000	0.000	-952.554	-1.656	0.000	1.656	-0.439	0.000
40.00	-10.815	-28.526	0.000	0.000	0.000	-897.344	-2.153	0.000	2.153	-0.509	0.000
45.00	-10.578	-27.192	0.000	0.000	0.000	-843.268	-2.723	0.000	2.723	-0.578	0.000
45.16	-10.572	-27.135	0.000	0.000	0.000	-841.575	-2.742	0.000	2.742	-0.580	0.000
46.00	-10.540	-26.834	0.000	0.000	0.000	-832.694	-2.845	0.000	2.845	-0.589	0.000
50.00	-10.358	-25.730	0.000	0.000	0.000	-790.533	-3.356	0.000	3.356	-0.629	0.000
55.00	-10.099	-23.524	0.000	0.000	0.000	-738.745	-4.049	0.000	4.049	-0.694	0.000
56.00	-10.052	-23.086	0.000	0.000	0.000	-728.646	-4.196	0.000	4.196	-0.707	0.000
58.00	-9.956	-22.542	0.000	0.000	0.000	-708.543	-4.498	0.000	4.498	-0.733	0.000
60.00	-9.867	-22.037	0.000	0.000	0.000	-688.632	-4.811	0.000	4.811	-0.758	0.000
65.00	-9.623	-20.796	0.000	0.000	0.000	-639.296	-5.641	0.000	5.641	-0.825	0.000
70.00	-9.377	-19.576	0.000	0.000	0.000	-591.180	-6.540	0.000	6.540	-0.891	0.000
75.00	-9.124	-18.378	0.000	0.000	0.000	-544.296	-7.508	0.000	7.508	-0.955	0.000
78.00	-8.973	-17.669	0.000	0.000	0.000	-516.924	-8.121	0.000	8.121	-0.994	0.000
80.00	-8.880	-17.197	0.000	0.000	0.000	-498.977	-8.543	0.000	8.543	-1.020	0.000
85.00	-8.632	-16.159	0.000	0.000	0.000	-454.579	-9.645	0.000	9.645	-1.083	0.000
90.00	-8.385	-15.138	0.000	0.000	0.000	-411.419	-10.816	0.000	10.816	-1.151	0.000
95.00	-8.130	-14.138	0.000	0.000	0.000	-369.496	-12.057	0.000	12.057	-1.217	0.000
95.58	-8.106	-13.952	0.000	0.000	0.000	-364.781	-12.205	0.000	12.205	-1.225	0.000
100.00	-7.891	-12.885	0.000	0.000	0.000	-328.954	-13.365	0.000	13.365	-1.280	0.000
105.00	-7.672	-12.251	0.000	0.000	0.000	-289.499	-14.762	0.000	14.762	-1.383	0.000
110.00	-7.401	-11.581	0.000	0.000	0.000	-250.957	-16.261	0.000	16.261	-1.476	0.000
115.00	-7.183	-10.985	0.000	0.000	0.000	-213.953	-17.855	0.000	17.855	-1.564	0.000
120.00	-6.970	-10.507	0.000	0.000	0.000	-178.040	-19.538	0.000	19.538	-1.645	0.000
125.00	-6.761	-10.042	0.000	0.000	0.000	-143.188	-21.311	0.000	21.311	-1.737	0.000
130.00	-6.551	-9.594	0.000	0.000	0.000	-109.384	-23.175	0.000	23.175	-1.816	0.000
133.00	-4.784	-6.908	0.000	0.000	0.000	-89.732	-24.330	0.000	24.330	-1.858	0.000
135.00	-4.704	-6.745	0.000	0.000	0.000	-80.164	-25.114	0.000	25.114	-1.884	0.000
140.00	-4.497	-6.352	0.000	0.000	0.000	-56.645	-27.117	0.000	27.117	-1.937	0.000
142.20	-3.410	-4.375	0.000	0.000	0.000	-46.296	-28.014	0.000	28.014	-1.957	0.000
145.00	-3.307	-4.169	0.000	0.000	0.000	-36.746	-29.169	0.000	29.169	-1.979	0.000
148.30	-1.782	-1.916	0.000	0.000	0.000	-22.849	-30.544	0.000	30.544	-1.999	0.000
150.00	-1.746	-1.808	0.000	0.000	0.000	-19.819	-31.257	0.000	31.257	-2.007	0.000
155.00	-1.673	-1.592	0.000	0.000	0.000	-11.089	-33.369	0.000	33.369	-2.025	0.000
160.00	-1.615	0.000	0.000	0.000	0.000	-2.725	0.000	0.000	35.506	-2.051	0.000

Resulting Stresses

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)		f/Fb Stress Ratio
0.00	0.70	0.42	0.00	0.00	0.00	15.07	15.77	48.9		0.323
5.00	0.69	0.43	0.00	0.00	0.00	14.85	14.85	49.4		0.301
10.00	0.67	0.43	0.00	0.00	0.00	14.62	14.62	49.9		0.293
14.00	0.66	0.43	0.00	0.00	0.00	11.84	11.84	50.4		0.235
15.00	0.65	0.43	0.00	0.00	0.00	11.80	11.80	50.5		0.234
16.00	0.65	0.43	0.00	0.00	0.00	11.75	11.75	50.6		0.232
16.25	0.65	0.43	0.00	0.00	0.00	11.58	11.58	50.6		0.229
20.00	0.63	0.43	0.00	0.00	0.00	13.13	13.13	51.0		0.257
22.00	0.60	0.42	0.00	0.00	0.00	13.03	13.03	51.2		0.254
25.00	0.59	0.42	0.00	0.00	0.00	12.70	12.70	51.2		0.248
30.00	0.58	0.42	0.00	0.00	0.00	12.43	12.43	51.7		0.240
31.00	0.57	0.42	0.00	0.00	0.00	11.71	11.71	51.8		0.226
35.00	0.56	0.42	0.00	0.00	0.00	13.83	13.83	52.0		0.266
40.00	0.55	0.42	0.00	0.00	0.00	13.52	13.52	52.0		0.260
45.00	0.54	0.42	0.00	0.00	0.00	13.20	13.20	52.0		0.254
45.16	0.54	0.42	0.00	0.00	0.00	9.59	9.59	52.0		0.184
46.00	0.53	0.42	0.00	0.00	0.00	9.54	9.54	52.0		0.184
50.00	0.52	0.42	0.00	0.00	0.00	12.19	12.19	52.0		0.234
55.00	0.49	0.42	0.00	0.00	0.00	11.68	11.68	52.0		0.225
56.00	0.47	0.42	0.00	0.00	0.00	11.61	11.61	52.0		0.223
58.00	0.46	0.42	0.00	0.00	0.00	11.28	11.74	52.0		0.226
60.00	0.46	0.42	0.00	0.00	0.00	12.10	12.10	52.0		0.233
65.00	0.44	0.42	0.00	0.00	0.00	11.70	11.70	52.0		0.225
70.00	0.43	0.42	0.00	0.00	0.00	11.28	11.28	52.0		0.217
75.00	0.41	0.42	0.00	0.00	0.00	10.84	10.84	52.0		0.209
78.00	0.40	0.42	0.00	0.00	0.00	10.57	10.97	52.0		0.211
80.00	0.40	0.42	0.00	0.00	0.00	10.38	10.38	52.0		0.200
85.00	0.46	0.50	0.00	0.00	0.00	11.07	11.07	52.0		0.213
90.00	0.44	0.50	0.00	0.00	0.00	10.47	10.47	52.0		0.201
95.00	0.42	0.50	0.00	0.00	0.00	9.84	9.84	52.0		0.189
95.58	0.42	0.50	0.00	0.00	0.00	9.62	10.04	52.0		0.193
100.00	0.39	0.49	0.00	0.00	0.00	14.94	15.35	52.0		0.295
105.00	0.38	0.49	0.00	0.00	0.00	13.97	14.37	52.0		0.276
110.00	0.37	0.48	0.00	0.00	0.00	12.88	13.28	52.0		0.255
115.00	0.37	0.49	0.00	0.00	0.00	11.71	12.11	52.0		0.233
115.00	0.37	0.49	0.00	0.00	0.00	11.71	12.11	52.0		0.289
120.00	0.45	0.61	0.00	0.00	0.00	12.94	13.43	52.0		0.258
125.00	0.45	0.61	0.00	0.00	0.00	11.14	11.63	52.0		0.224
130.00	0.44	0.61	0.00	0.00	0.00	9.13	9.63	52.0		0.185
133.00	0.32	0.46	0.00	0.00	0.00	7.83	8.19	52.0		0.158
135.00	0.32	0.46	0.00	0.00	0.00	7.20	7.57	52.0		0.146
140.00	0.31	0.45	0.00	0.00	0.00	5.49	5.86	52.0		0.113
142.20	0.22	0.35	0.00	0.00	0.00	4.65	4.91	52.0		0.094
145.00	0.21	0.35	0.00	0.00	0.00	3.86	4.12	52.0		0.079
145.00	0.21	0.35	0.00	0.00	0.00	3.86	4.12	52.0		0.080
148.30	0.10	0.19	0.00	0.00	0.00	2.56	2.68	51.6	47.0	0.052
150.00	0.10	0.19	0.00	0.00	0.00	2.28	2.40	51.8	47.1	0.046

Resulting Stresses

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 27	

150.00	0.10	0.19	0.00	0.00	0.00	2.28	2.40	51.8	47.1	0.099
155.00	0.13	0.27	0.00	0.00	0.00	2.77	2.94	40.0	40.0	0.073
160.00	0.00	0.26	0.00	0.00	0.00	0.68	0.82	40.0	40.0	0.020

Final Analysis Summary

Structure:	CT02049-S-SBA	**Code:**	EIA/TIA-222-F	4/11/2016	
Site Name:	Beacon Falls	**Exposure:**	C		
Height:	160.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 28	

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
85 mph Wind with 0" Ice	36.4	0.00	42.10	0.00	0.00	3952.96
73.61 mph Wind with 0.5" Ice	30.0	0.00	49.08	0.00	0.00	3340.65
50 mph Wind with 0" Ice	12.6	0.00	42.15	0.00	0.00	1369.37

Max Stresses

Load Case	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.70	1.23	0.00	0.00	0.00	43.52	44.21	48.9	0.00	0.905
73.61 mph Wind with 0.5" Ice	0.81	1.01	0.00	0.00	0.00	36.78	37.59	48.9	0.00	0.769
50 mph Wind with 0" Ice	0.70	0.42	0.00	0.00	0.00	15.07	15.77	48.9	0.00	0.323

Additional Steel Summary

			Intermediate Connectors			Upper Termination			Lower Termination			Max Member			
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	V (kips)	Shear Allow (kips)	MQ/I (kips)	Num Reqd	Num Actual	MQ/I (kips)	Num Reqd	Num Actual	MQ/I (kips)	Ta (kips)	Pa (kips)	Ratio
0.0	16.3	(3) PLT-C10x30(1.5" Hole)	-310.5	-6.21	33.0	302.3	0		386.8	0		386.8	416.6	437.2	0.885
14.5	29.5	(3) LNP-LP6X100-G-20TT	237.2	5.69	22.5	212.8	10	10	201.9	2	10	279.6	260.0	257.3	0.886
16.3	31.0	(3) PLT-C10x15.3(1.5" Hole)	-256.5	-5.13	33.0	157.8	5	0	0.0	0		213.0	220.3	223.4	0.803
30.0	46.0	(3) PLT-6"X1-1/4"(1.25" Hole	297.4	5.35	33.0	205.3	7	0	252.8	2	8	302.0	316.7	355.4	0.836
45.2	58.0	(3) PLT-7" x 1.25"(1.25"Hole	-342.0	-4.10	33.0	283.3	0	0	240.7	1	13	312.6	383.3	430.8	0.710
58.0	78.0	(3) PLT-5.5"x1 1/4"(1.25"hol	-332.2	-5.98	33.0	209.2	0	0	0.0	0		238.9	283.3	325.8	0.733
78.0	95.6	(3) PLT-5.5"x1 1/4"(1.25"hol	-360.7	-6.49	33.0	194.5	6	0	209.2	0		219.3	283.3	325.8	0.673

Monopole Mat Foundation Design

			Date: 4/11/2016
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-F
Site Name:	Beacon Falls	**Structure Height (Ft.):**	160
Site Number:	CT02049-S-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:	20939	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

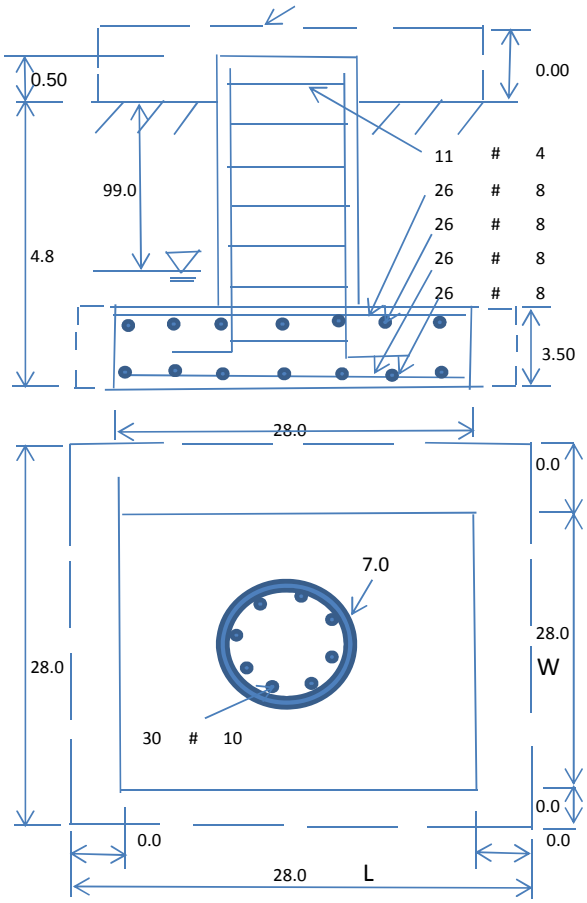
Analysis or Design? Analysis

Base Reactions (Unfactored)

Axial Load (Kips):	49.1	Shear Force (Kips):	36.4
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3952.9
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	4.8
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.50
Length of Pad (ft.):	28	Width of Pad (ft.):	28
Final Length of pad (ft)	28.0	Final width of pad (ft):	28.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	10	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	30	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
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):	26	Qty. of Rebar in Pad (W):	26	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Allowable Net Soil Bearing (psf):	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.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	931.89	Total Dry Soil Weight (Kips):	107.17
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	107.17	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2811.35	Total Dry Concrete Weight (Kips):	421.70
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	421.70	Total Vertical Load on Base (Kips):	577.97

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2115	<	Allowable Soil Bearing (psf): 3000	0.71	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	5394.4	>	Applied Momont (kips-ft): 4144	0.77	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.95	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):	1.27	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	6439.6 >	Design Factored Moment (Mu, Kips-F	5221.6	0.81	OK!
Calculated Shear Capacity (Kips):	724.1 >	Design Factored Shear (Kips):	47.3	0.07	OK!
Calculated Tension Capacity (Tn, Kips):	2057.4 >	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7297.9 >	Design Factored Axial Load (Pu Kips):	63.8	0.01	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.82 OK!	Check Tie Spacing (Design/Required):		0.5	OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:					
One-Way Design Shear Capacity (L-Direction, Kips):	1062.8 >	One-Way Factored Shear (L-D. Kips):	293.7	0.28	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1062.8 >	One-Way Factored Shear (W-D., Kips)	293.7	0.28	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1237.3 >	One-Way Factored Shear (C-C, Kips):	486.5	0.39	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0016 OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0016		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3492.1 >	Moment at Bottom (L-Direct. K-Ft):	823.8	0.24	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3492.1 >	Moment at Bottom (W-Direct. K-Ft):	823.8	0.24	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	4918.4 >	Moment at Bottom (C-C Dir. K-Ft):	1165.0	0.24	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0016 OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0016		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	3492.1 >	Moment at the top (L-Dir Kips-Ft):	946.1	0.27	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	3492.1 >	Moment at the top (W-Dir Kips-Ft):	946.1	0.27	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	4918.4 >	Moment at the top (C-C Direc. K-Ft):	963.9	0.20	OK!

PROJECT INFORMATION

SCOPE OF WORK:

- AT&T ANTENNAS: (1) NEW LTE ANTENNA PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW LTE ANTENNAS; (1) GSM/UMTS ANTENNAS TO REMAIN (1 PER SECTOR)
- AT&T RRUs: (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (2) EXISTING RRUS PER SECTOR TO REMAIN, FOR A TOTAL OF (6) EXISTING RRUs.

SITE ADDRESS:	10 TERESA ROAD BEACON FALLS, CT 06403
LATITUDE:	41.4556919 41° 27' 20.49084"N
LONGITUDE:	−73.0397989 73° 02' 23.27604"W
USID:	24518
TOWER OWNER:	SBA PROPERTIES, LLC. 5900 BROKEN SOUND PARKWAY, NW BOCA RATON, FL 33487−2797
PHONE:	561−226−9523
TYPE OF SITE:	MONOPOLE / OUTDOOR EQUIPMENT
MONOPOLE HEIGHT:	186'−0"±
RAD CENTER:	163'−0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

at&t MOBILITY

FA CODE: 10070922
SITE NUMBER: CT5416
SITE NAME: BEACON FALLS NE

PROJECT TEAM

CLIENT REPRESENTATIVE

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD
BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617−639−4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:

COMPANY: VERTICAL DEVELOPMENT, LLC
ADDRESS: 20 COMMERCIAL STREET
BRANFORD, CT 06405
CONTACT: PAUL SAGRISTANO
PHONE: 917−841−0247
EMAIL: psagristano@verticaldevelopmentllc.com

ZONING:

COMPANY: VERTICAL DEVELOPMENT, LLC
ADDRESS: 20 COMMERCIAL STREET
BRANFORD, CT 06405
CONTACT: PAUL SAGRISTANO
PHONE: 917−841−0247
EMAIL: psagristano@verticaldevelopmentllc.com

ENGINEERING:

COMPANY: COM−EX CONSULTANTS, LLC
ADDRESS: 115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862−209−4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:

COMPANY: AT&T MOBILITY − NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD
SUITE 550 13 & 14
FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508−596−7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD
BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484−683−1750
EMAIL: gdorman@empiretelecomm.com

DRAWING INDEX

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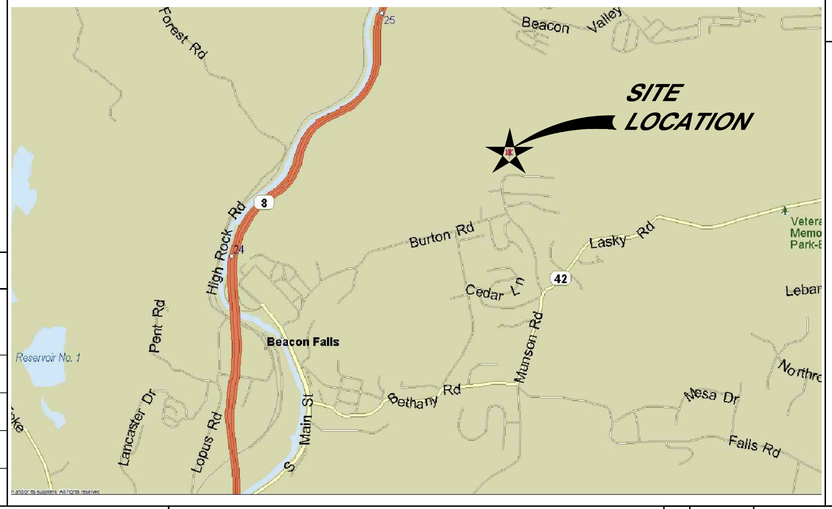
VICINITY MAP

1. DEPART 550 COCHITUATE RD, TOWN OF FRAMINGHAM, MA 01701 [550 COCHITUATE RD, TOWN OF FRAMINGHAM, MA 01701] ON SR−30 [COCHITUATE RD] (WEST) 2. BEAR LEFT (SOUTH) ONTO SR−126 [CONCORD ST]TURN LEFT (SOUTH) ONTO CONCORD ST 3. TURN RIGHT (WEST) ONTO SR−9 [WORCESTER RD]MERGE ONTO SR−30 [SR−9] 4. KEEP STRAIGHT ONTO SR−9 [WORCESTER RD]TURN RIGHT ONTO RAMP KEEP LEFT TO STAY ON RAMP *TOLL ROAD* 5. MERGE ONTO I−90 [MASS PIKE] 6. AT EXIT 9, TAKE RAMP (RIGHT) ONTO I−84 ENTERING CONNECTICUT 7. AT EXIT 57, TAKE RAMP (LEFT) ONTO SR−15ROAD NAME CHANGES TO US−5 [SR−15] 8. AT EXIT 86, TAKE RAMP (RIGHT) ONTO I−91 AT EXIT 18, TAKE RAMP (RIGHT) ONTO I−691AT EXIT 1, TAKE RAMP (LEFT) ONTO I−84. 9. AT EXIT 19, TAKE RAMP (LEFT) ONTO SR−8 10. AT EXIT 24, TURN RIGHT ONTO RAMP TURN RIGHT (SOUTH−EAST) ONTO N MAIN ST, TURN LEFT (NORTH−EAST) ONTO BURTON RD. 11 TURN LEFT (NORTH) ONTO RICE LNROAD NAME CHANGES TO RICE LANE EXT TURN LEFT (NORTH) ONTO LOCAL ROAD(S) ARRIVE 41.45569°N 73.03980°W.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

CONNECTICUT ONE CALL SYSTEM, INC. STOP · CALL BEFORE YOU DIG! 1-800-922-4455

CONNECTICUT LAW REQUIRES
TWO WORKING DAYS NOTICE PRIOR TO
ANY EARTH MOVING ACTIVITIES BY
CALLING 800−922−4455 OR DIAL 811

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MOUNTAIN LAKES, NJ 07046
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SITE NUMBER: CT5416
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1	05/04/16	REVISED PER MODS	KCD	NDB	NDB
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SCALE: AS SHOWN | DESIGNED BY: KD | DRAWN BY: PAV

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT PROFESSIONAL ENGINEER

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15200−EMP	T−1	1

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE–SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471–000–3PS–EG00–0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON–METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV–G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').
14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   - CONTRACTOR – EMPIRE TELECOM
   - SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   - OWNER – AT&T MOBILITY
   - OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR (EMPIRE TELECOM).
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR
9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741–000–3APS–A00Z–00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
19. SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA–101 2009 WITH LOCAL & COUNTY AMENDMENTS
20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
   - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA–222–G–1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR–1503, COAXIAL CABLE CONNECTIONS
21. FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.
22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
23. INFORMATION SHOWN ON THIS SET OF DRAWINGS TAKEN FROM PLANS PREPARED BY HUDSON DESIGN GROUP FOR AT&T DATED 3/30/11. CONTRACTOR TO NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5416
SITE NAME: BEACON FALLS NE
10 TERESA ROAD
BEACON FALLS, CT 06403
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/04/16	REVISED PER MODS	KCD	NDB	NDB
0	1/12/16	ISSUED AS FINAL	PV	NDB	NDB

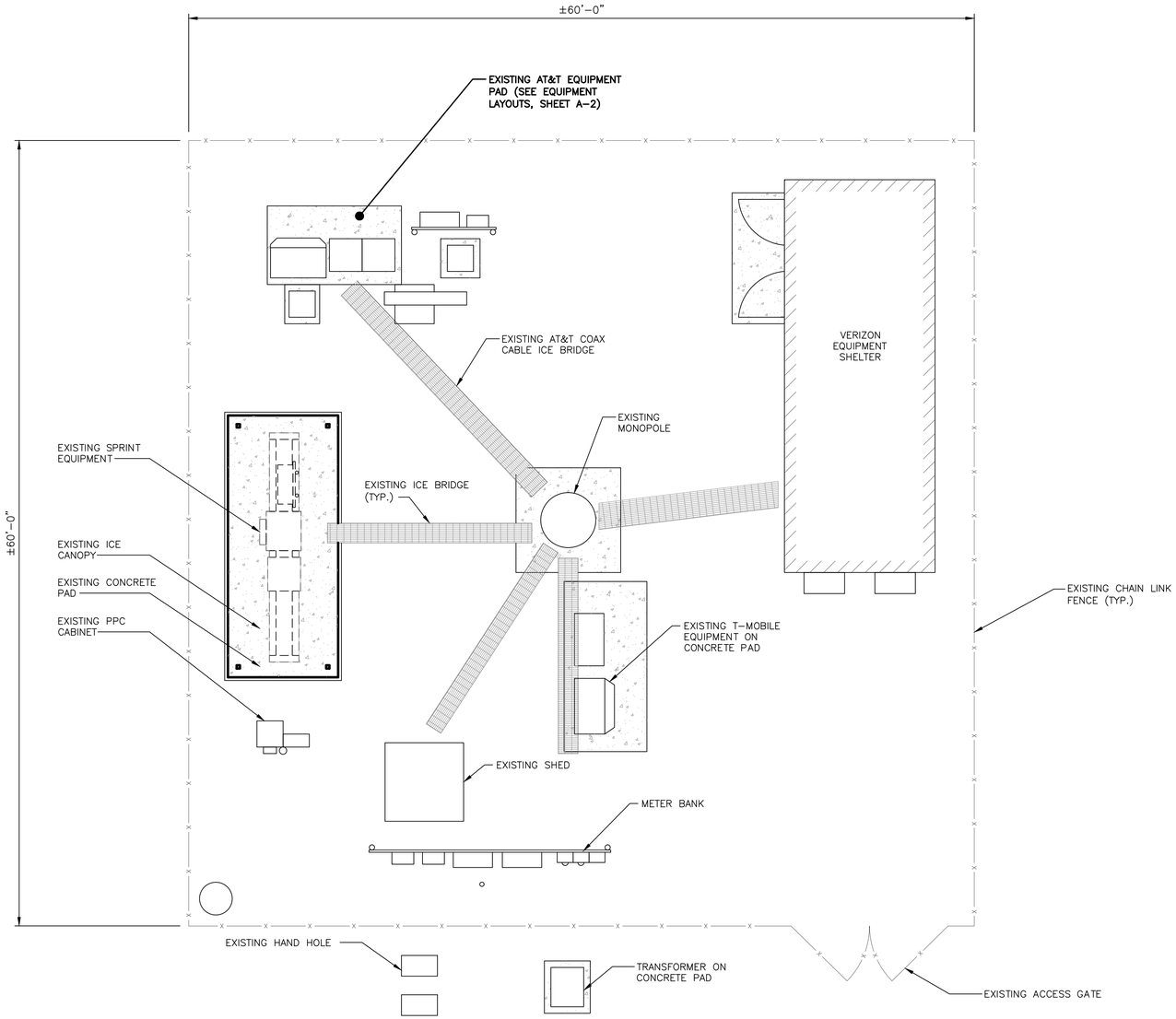
SCALE: AS SHOWN | DESIGNED BY: KD | DRAWN BY: PAV

SEAL: STATE OF CONNECTICUT, NICHOLAS D. BARILE, PROFESSIONAL ENGINEER, CT LIC. No. 28643

AT&T

DRAWING TITLE: GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15200–EMP	GN–1	1



NORTH

CONTRACTOR IS RESPONSIBLE FOR INSURING TOWER MODIFICATIONS BY TOWER ENGINEERING SOLUTIONS MODIFICATION DESSIGN DATED 04/13/16 OR LATEST, IS COMPLETED PRIOR TO ANY PROPOSED AT&T INSTALLATION

COMPOUND LAYOUT

SCALE: 3/16" = 1'-0"

GRAPHIC SCALE

4 0 2 4 8 16

(IN FEET)
3/16 Inch = 1 Foot

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MOUNTAIN LAKES, NJ 07046
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0	1/12/16	ISSUED AS FINAL	PV	NDB	NDB

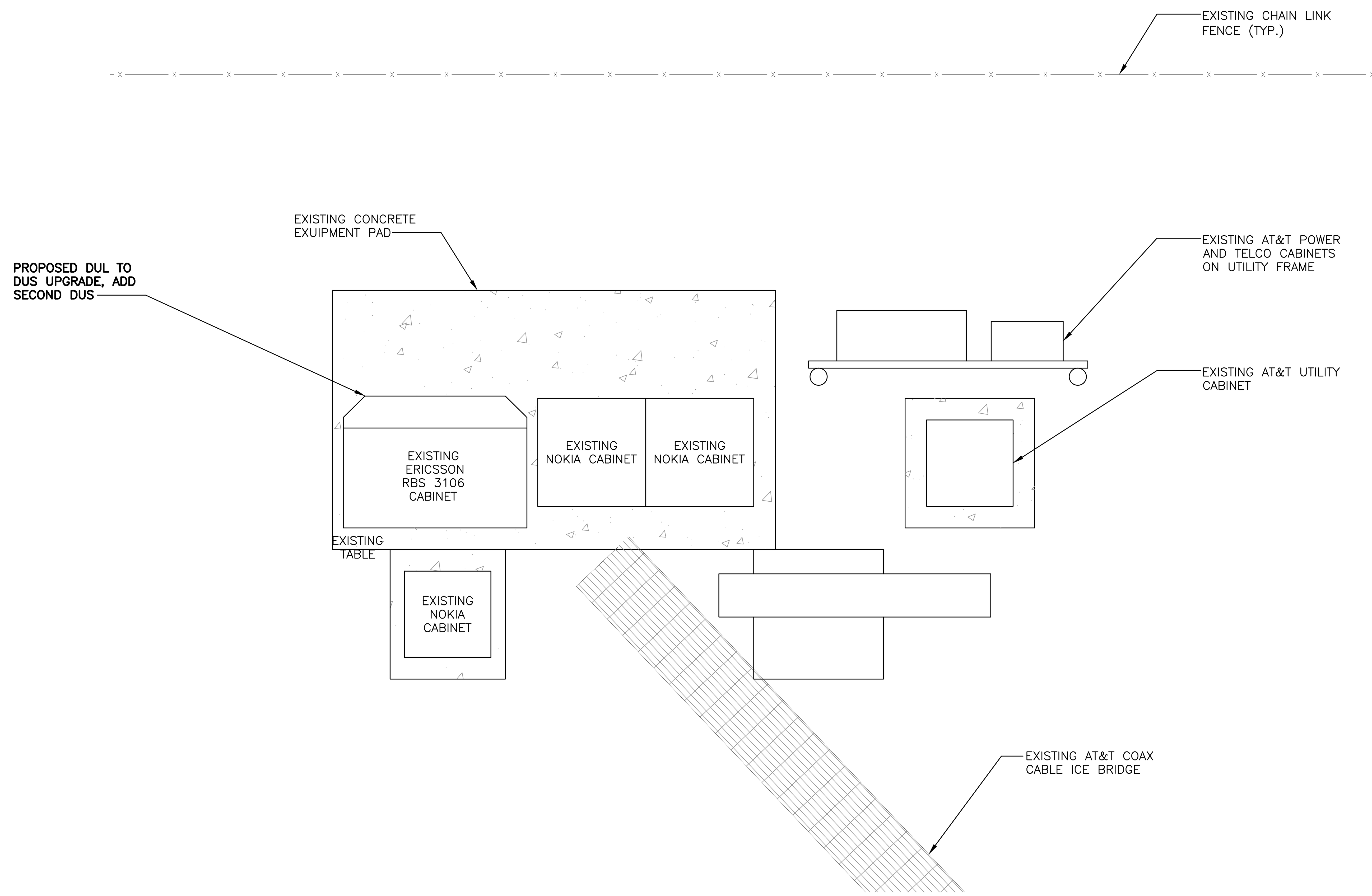
SCALE: AS SHOWN | DESIGNED BY: KD | DRAWN BY: PAV

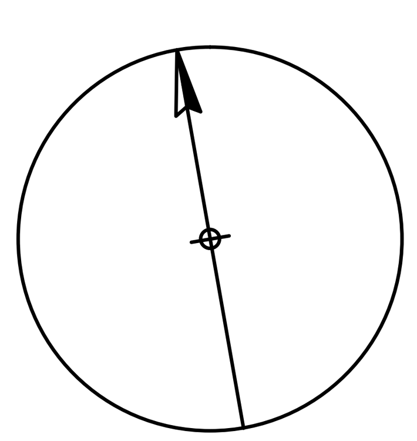
SEAL: STATE OF CONNECTICUT NICHOLAS D. BARD LICENSED PROFESSIONAL ENGINEER 28643 — NICHOLAS D. BARD PROFESSIONAL ENGINEER CT LICENSE NO. 28643

AT&T

DRAWING TITLE: COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15200-EMP	A-1	1





PROPOSED EQUIPMENT LAYOUT

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

(IN FEET)
1/2 Inch = 1 Foot

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

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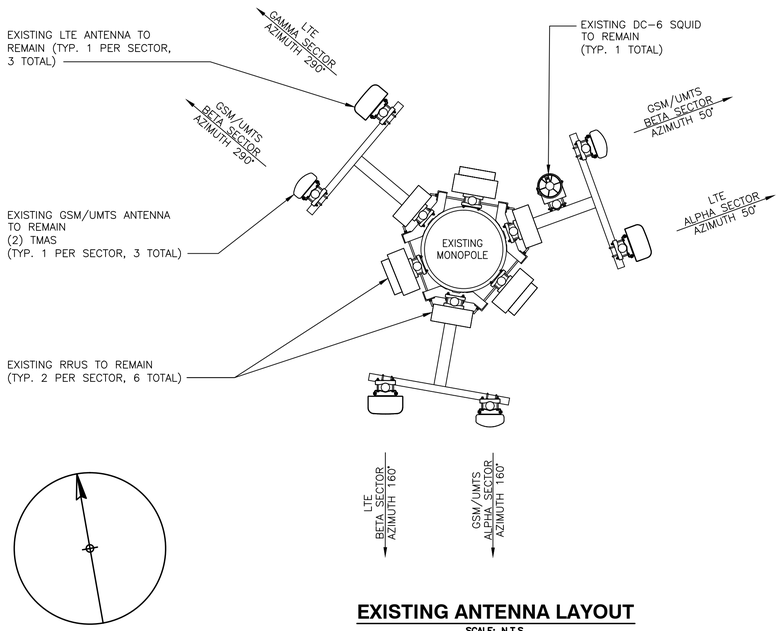
SCALE: AS SHOWN | DESIGNED BY: KD | DRAWN BY: PAV

SEAL:

AT&T

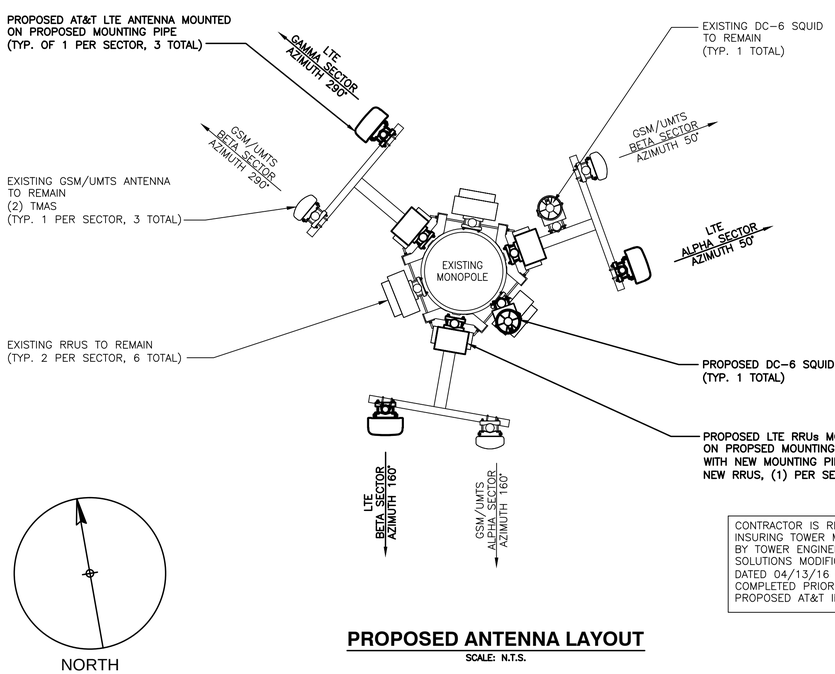
DRAWING TITLE:
EQUIPMENT LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15200-EMP	A-2	1



EXISTING ANTENNA LAYOUT

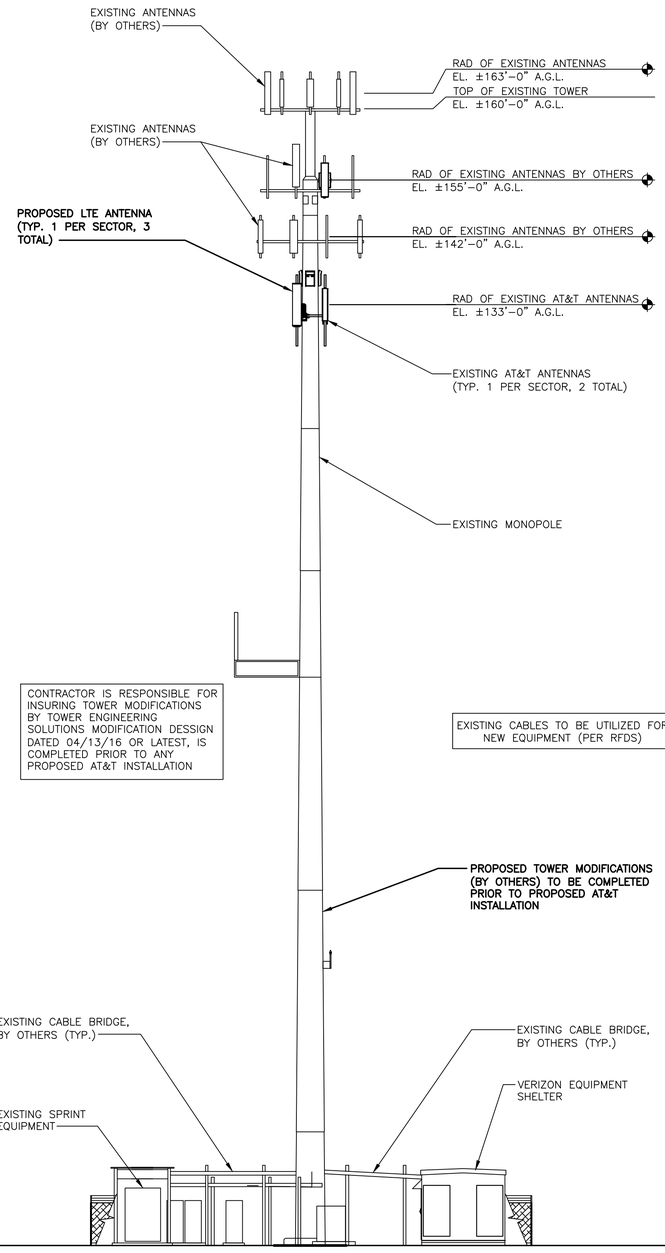
SCALE: N.T.S.



CONTRACTOR IS RESPONSIBLE FOR INSURING TOWER MODIFICATIONS BY TOWER ENGINEERING SOLUTIONS MODIFICATION DESSIGN DATED 04/13/16 OR LATEST, IS COMPLETED PRIOR TO ANY PROPOSED AT&T INSTALLATION

PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



TOWER ELEVATION

SCALE: NTS

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

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5416
SITE NAME: BEACON FALLS NE

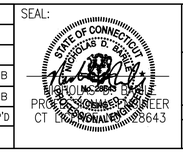
10 TERESA ROAD
BEACON FALLS, CT 06403
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/04/16	REVISED PER MODS	KCD	NDB	NDB
0	1/12/16	ISSUED AS FINAL	PV	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: KD | DRAWN BY: PAV

SEAL:

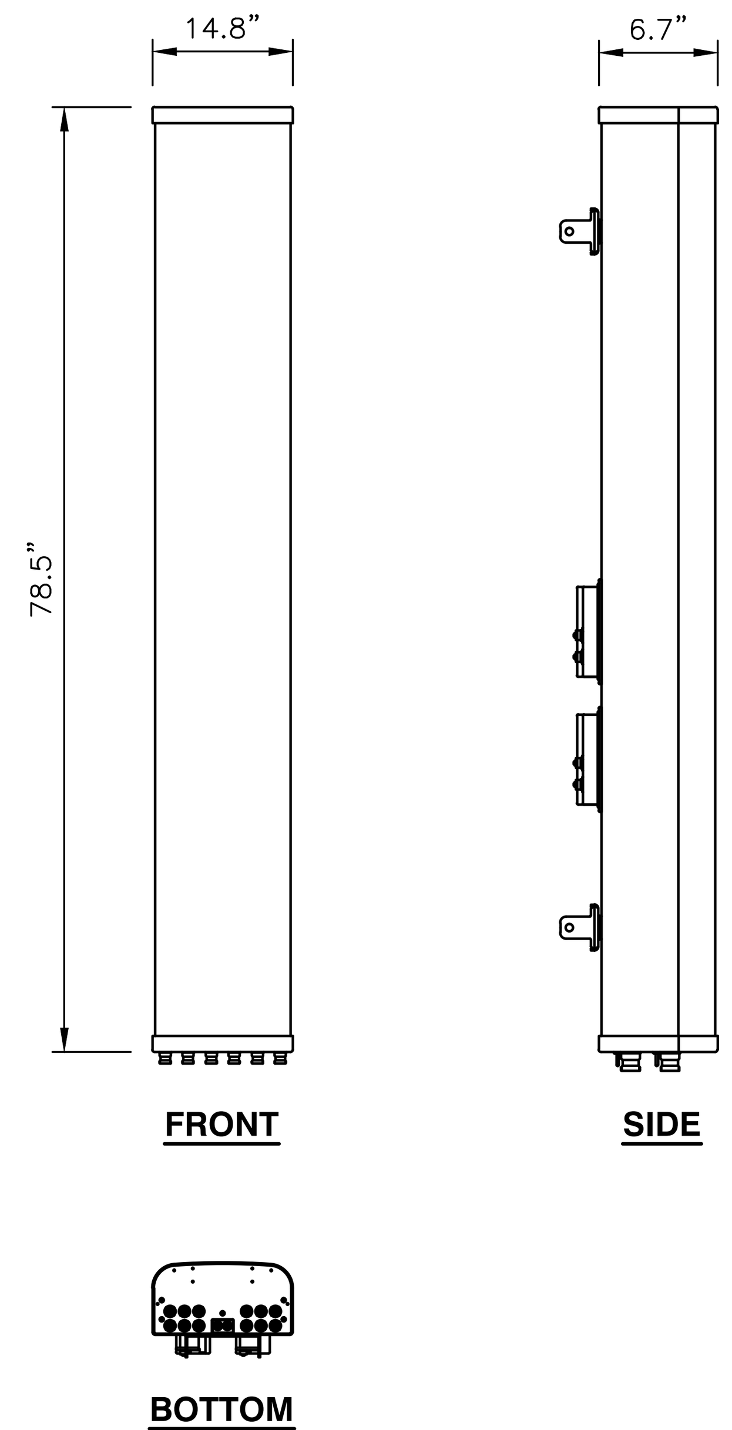


PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

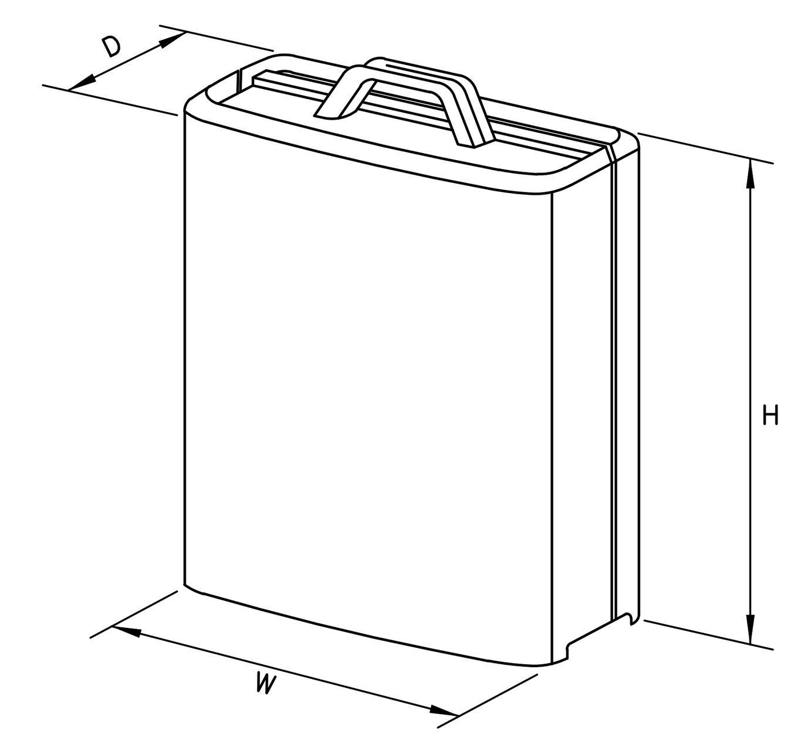
DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATION

JOB NUMBER	DRAWING NUMBER	REV
15200-EMP	A-3	1



KATHREIN LTE ANTENNA DETAIL

SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
*RRUS–11	19.69" x 16.97" x 7.17"	50.7 LBS
*RRUS–12	20.4" x 18.5" x 7.5"	58 LBS
RRUS–32	29.9" x 13.3" x 9.5"	77 LBS

*DENOTES EXISTING.

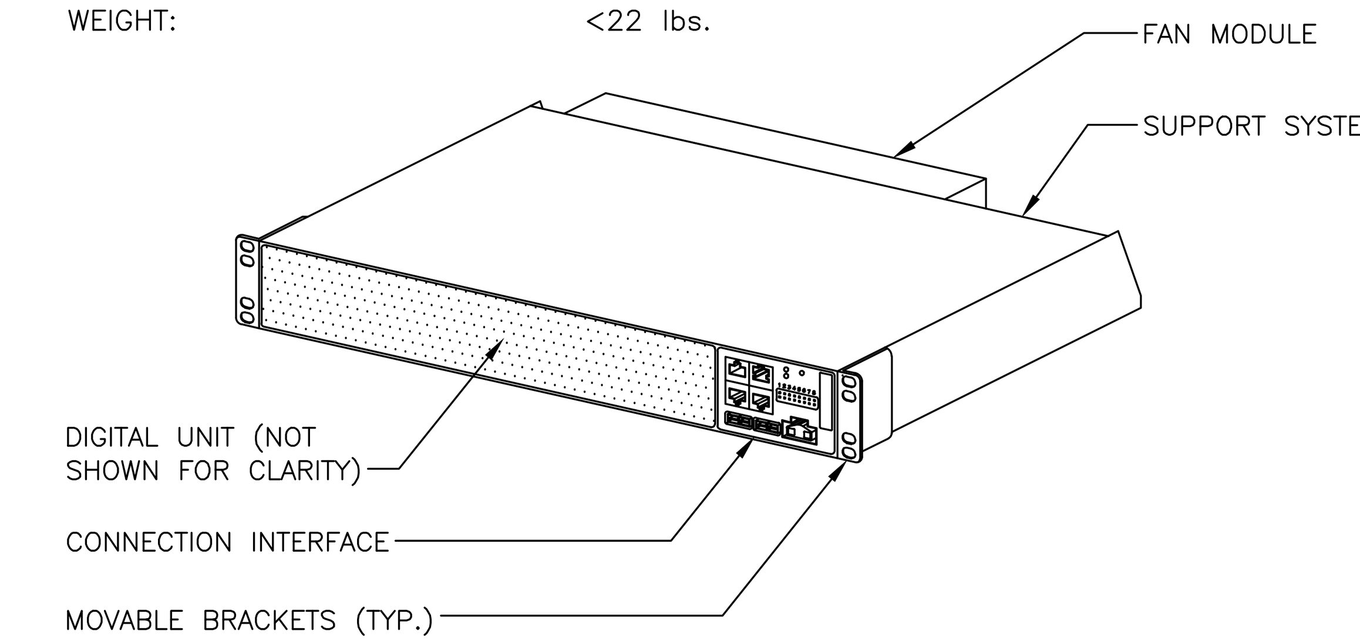
RRU DETAIL

SCALE: N.T.S.

ERICSSON RBS–6601

DIMENSIONS, WxDxH: 2.6"H x 13.77"D x 19"W

WEIGHT: <22 lbs.



RBS DETAIL

SCALE: N.T.S.

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

CONTRACTOR IS RESPONSIBLE FOR INSURING TOWER MODIFICATIONS BY TOWER ENGINEERING SOLUTIONS MODIFICATION DESSIGN DATED 04/13/16 OR LATEST, IS COMPLETED PRIOR TO ANY PROPOSED AT&T INSTALLATION

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	KATHREIN	800–10121	54.5"x10.3"x9"
	A2	–	–	–
	A3	–	–	–
	A4	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
BETA	B1	KATHREIN	800–10121	54.5"x10.3"x9"
	B2	–	–	–
	B3	–	–	–
	B4	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
GAMMA	G1	KATHREIN	800–10121	54.5"x10.3"x9"
	G2	–	–	–
	G3	–	–	–
	G4	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	KATHREIN	800–10121	54.5"x10.3"x9"
	A2	–	–	–
	A3	–	–	–
	A4	KATHREIN	800 10798	72"X14.8"X7.4"
BETA	B1	KATHREIN	800–10121	54.5"x10.3"x9"
	B2	–	–	–
	B3	–	–	–
	B4	KATHREIN	800 10798	72"X14.8"X7.4"
GAMMA	G1	KATHREIN	800–10121	54.5"x10.3"x9"
	G2	–	–	–
	G3	–	–	–
	G4	KATHREIN	800 10798	72"X14.8"X7.4"

FINAL RRH SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS–11	19.7"x16.9"x7.2"	–	–
	ERICSSON	RRUS–12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS–32	29.9"x13.3"x9.5"	–	–
BETA	ERICSSON	RRUS–11	19.7"x16.9"x7.2"	–	–
	ERICSSON	RRUS–12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS–32	29.9"x13.3"x9.5"	–	–
GAMMA	ERICSSON	RRUS–11	19.7"x16.9"x7.2"	–	–
	ERICSSON	RRUS–12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS–32	29.9"x13.3"x9.5"	–	–

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
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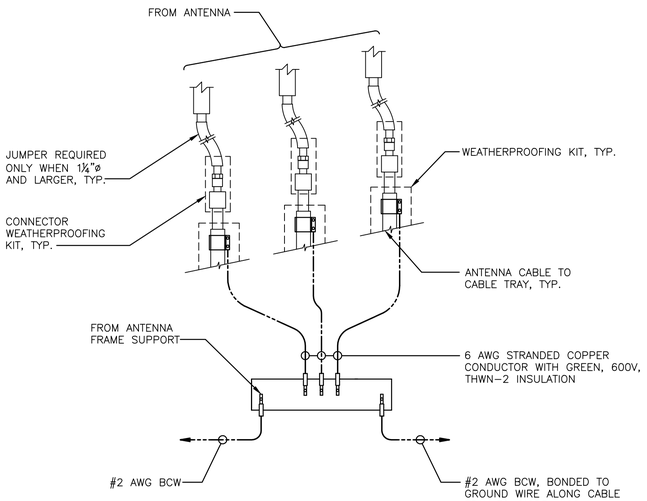
SCALE: AS SHOWN | DESIGNED BY: KD | DRAWN BY: PAV

SEAL:
PROFESSIONAL ENGINEER
CT ... 18643

AT&T

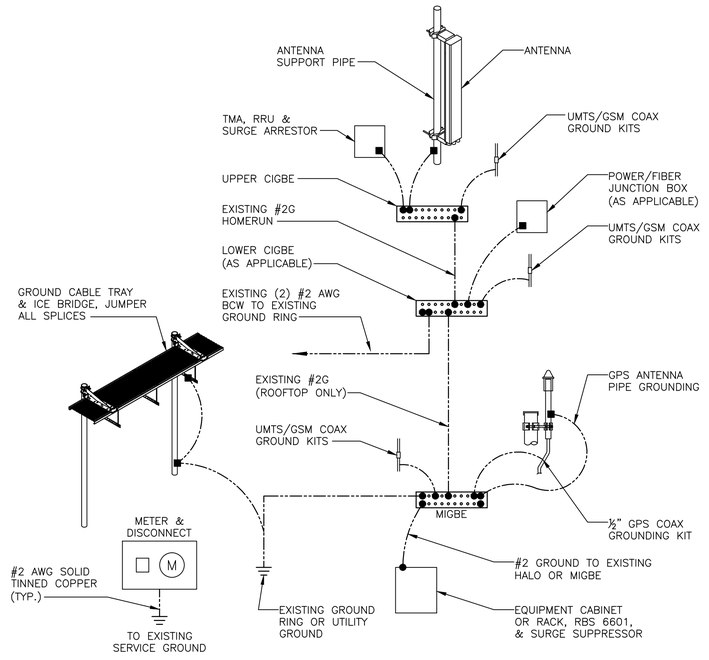
DRAWING TITLE: DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15200–EMP	A–4	1



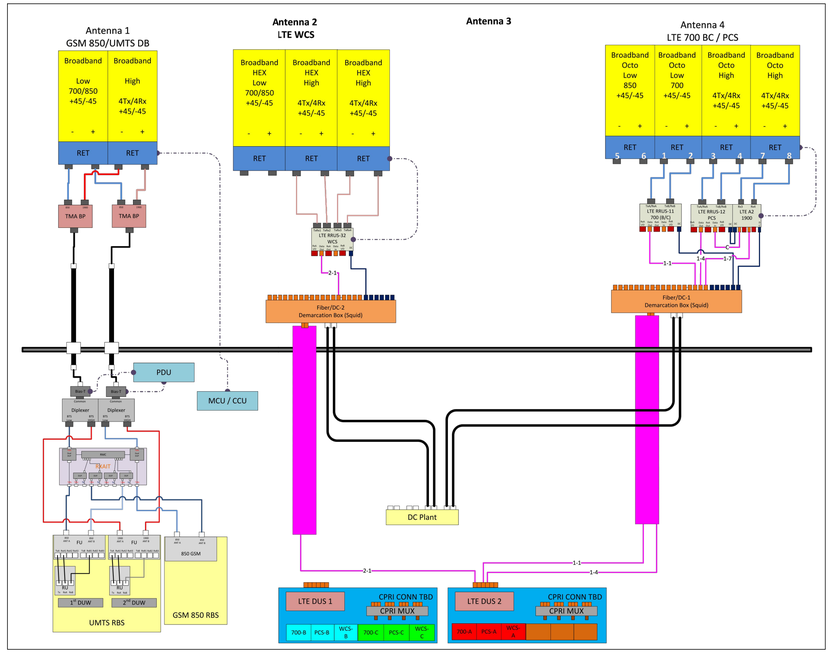
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



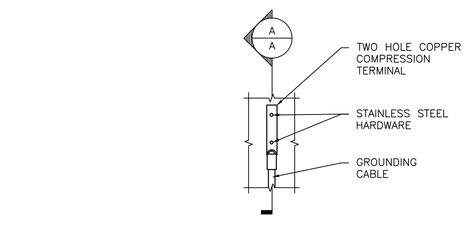
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

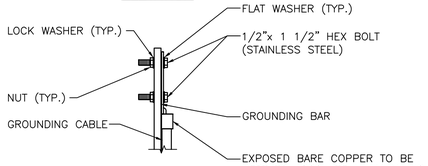


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



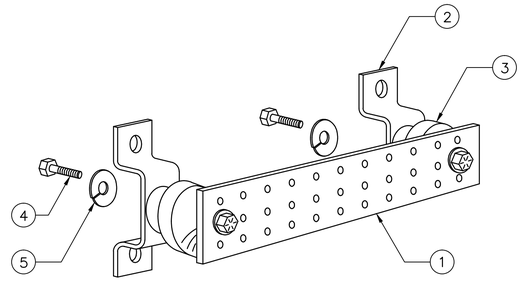
SECTION "A–A"

NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- –48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
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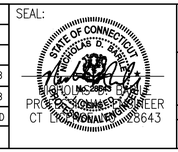
SCALE: AS SHOWN | DESIGNED BY: KD | DRAWN BY: PAV

SEAL:



AT&T

DRAWING TITLE:
GROUNDING, ONE–LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15200–EMP	G–1	1

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 160' NUDD CORP. MONOPOLE

PROPOSED CARRIER: AT&T

SBA SITE: CT02049-S / BEACON FALLS

COORDINATES (LATITUDE: 41.45569°, LONGITUDE: -73.03987°)

CONSTRUCTION CLASS

TES HAS DETERMINED THIS AS A CLASS **I** CONSTRUCTION PROJECT PER TIA-1019-A.

COMPLETE FABRICATION DRAWINGS FOR ALL MATERIALS REQUIRED FOR THIS PROJECT ARE AVAILABLE FROM TOWER ENGINEERING SOLUTIONS (TES). PLEASE CONTACT TES FOR MORE INFORMATION.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	0
A-2	REINFORCEMENT ASSEMBLY P6X100-G-20TT (12 SIDE 3 PIECES ON FLAT #1, 5, AND 9)	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. **20921**, DATED **03/03/16**.

TES
Tower Engineering Solutions
8445 FREEPORT PARKWAY, SUITE 375
IRVING, TX 75063
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO: 20939

CUSTOMER SITE NO: CT02049-S

CUSTOMER SITE NAME: BEACON FALLS

60 RICE LANE
BEACON FALLS, CT 06403

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED
PROFESSIONAL ENGINEER
4/13/16

DRAWN BY: CHLE | CHECKED BY: JT/KMM

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	04/13/16

SHEET TITLE: TITLE SHEET

SHEET NUMBER: T-1 | REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE						
3	3	P6X100-G-20TT	6" x 1.00" Flat Bar, 20 ft. Long, Standard, Termination at both ends	20'-0"	A-2	P6X100-G-20TT	408.3	1224.9	Galvanized
81	86	HB16-2	Lindapter 5/8" Type HB Hollo-Bolt (HCF)	---		---	---	---	Galvanized
			Following Items are Non-standard Parts						
3	3	SHIM-1	PL 3/8" X 4" X 2'-9" A572-65	---	---	F-1	14.24	42.72	Galvanized
			TOTAL WEIGHT (LBS) =					**1267.6**	

ALL LPXXXX and RLPXXXX PARTS ARE PATENT PENDING AND ARE ALL AVAILABLE FROM METROSITE, LLC.

180 IND PARK BLVD COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

TES
Tower Engineering Solutions
8445 FREEPORT PARKWAY, SUITE 375
IRVING, TX 75063
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
20939

CUSTOMER SITE NO:
CT02049-S

CUSTOMER SITE NAME:
BEACON FALLS
60 RICE LANE
BEACON FALLS, CT 06403

DRAWN BY: CHLE | CHECKED BY: JT/KMM

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	04/13/16

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-F, TIA-1019-A, AND 2005 CONNECTICUT STATE BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER TIA-1019-A, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATES OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING CHART SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2012/ 2005 CONNECTICUT STATE BUILDING CODES SECTION 1705 - TABLE 1705.2.2 FOR STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING [a,b]

BOLT LENGTH[c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICATION ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS 12d , THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 390 FT-LBS.

Tower Engineering Solutions
8445 FREEPORT PARKWAY, SUITE 375
IRVING, TX 75063
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TES JOB NO: 20939

CUSTOMER SITE NO: CT02049-S

CUSTOMER SITE NAME: BEACON FALLS
60 RICE LANE
BEACON FALLS, CT 06403

DRAWN BY: CHLE | CHECKED BY: JT/KMM

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	04/13/16

SHEET TITLE: GENERAL NOTES

SHEET NUMBER: GN-1 | REV #: 0

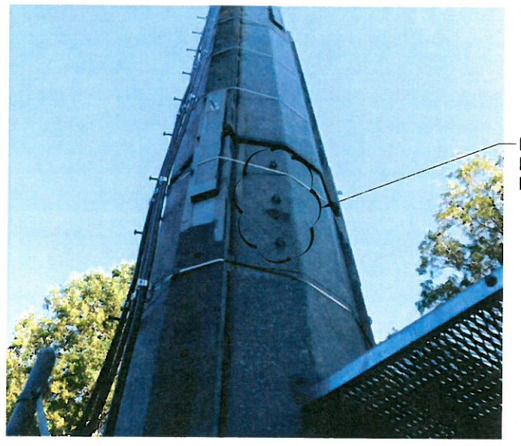
NOTE:

1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.

FIELD WELD NOTES:

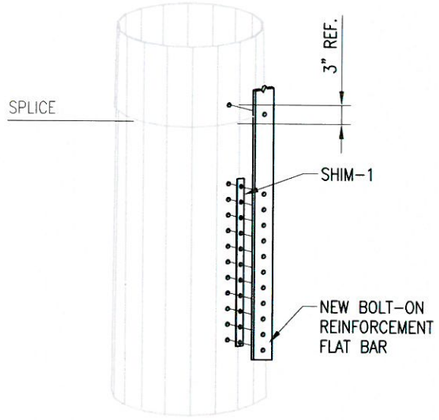
FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. REFER TO GN-1 SHEET FOR ADDITIONAL CONSTRUCTION INSTRUCTION AND REQUIREMENT.
11. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.

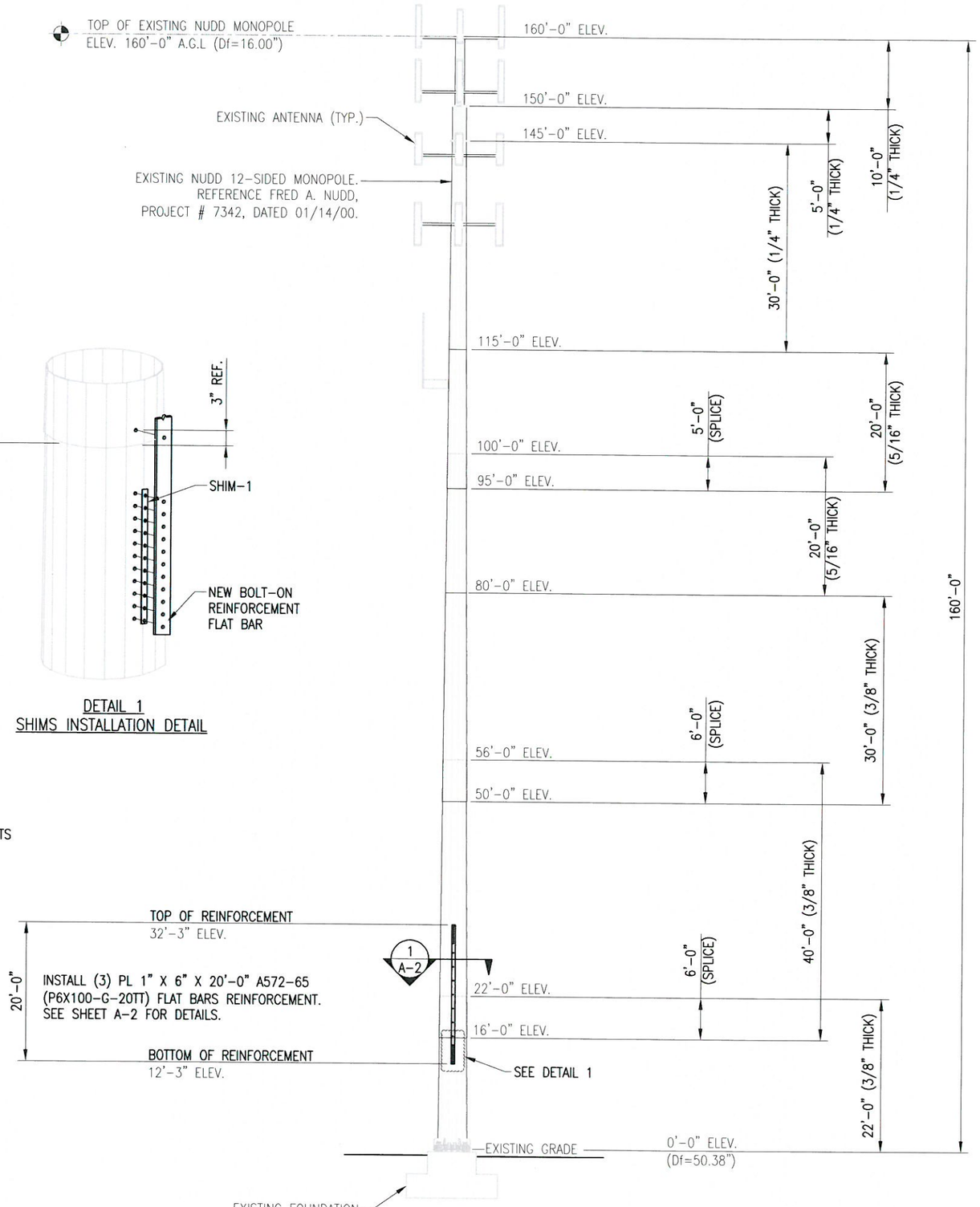


PHOTO

REMOVE STEP BOLT BRACKETS BEFORE INSTALLING NEW REINFORCEMENT FLAT BAR



DETAIL 1
SHIMS INSTALLATION DETAIL



ELEVATION

Tower Engineering Solutions
8445 FREEPORT PARKWAY, SUITE 375
IRVING, TX 75063
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
20939

CUSTOMER SITE NO:
CT02049-S

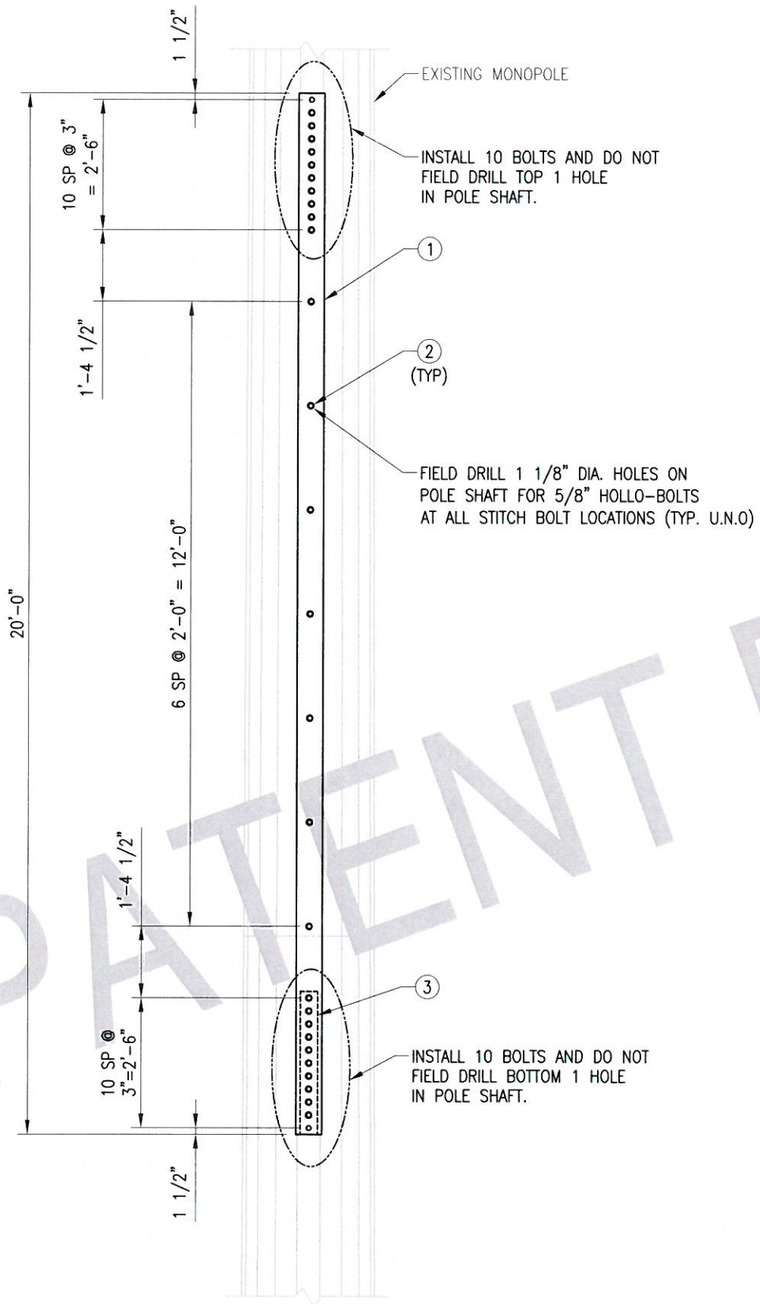
CUSTOMER SITE NAME:
BEACON FALLS
60 RICE LANE
BEACON FALLS, CT 06403

DRAWN BY: CHLE | CHECKED BY: JT/KMM

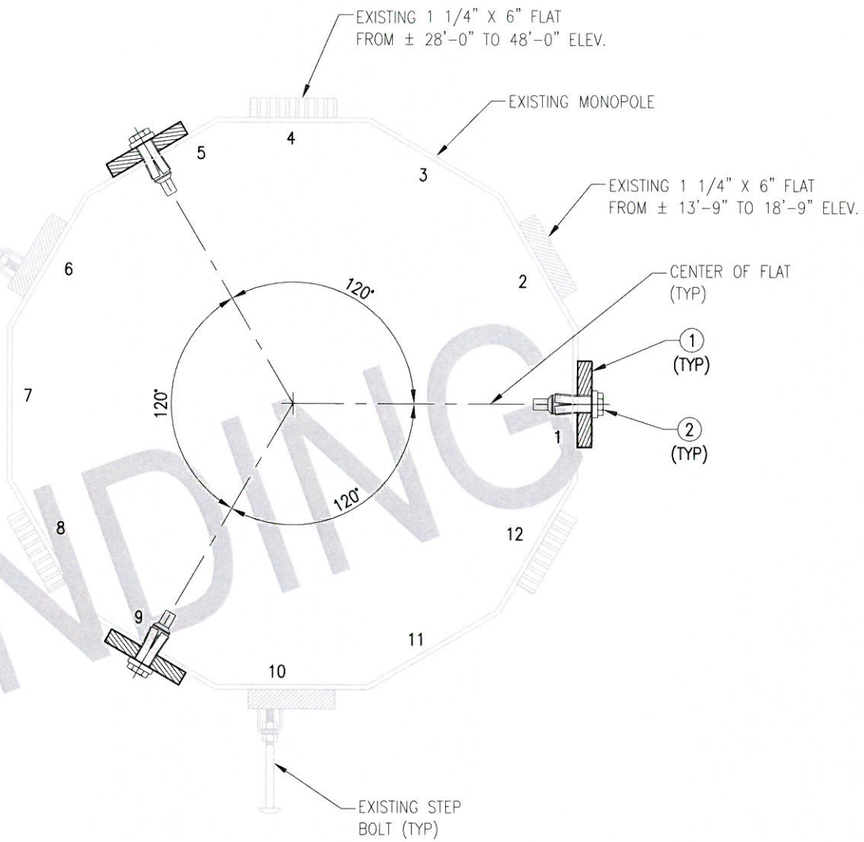
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	04/13/16

SHEET TITLE:
TOWER PROFILE

SHEET NUMBER: A-1
REV #: 0



ELEVATION VIEW
REFER TO PLAN VIEW



1/A-2 PLAN VIEW

NOTES:
1. REFER TO SHEET A-1 FOR FLAT BAR ELEVATION.
2. REFER TO SHEET A-1 FOR SHIM IF REQUIRED.
3. INSTALLATION TORQUE FOR HOLLO-BOLTS: M16 HOLLO-BOLTS: 140 FT-LBS.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	3	P6X100-G-20TT	PL 1" X 6" X 20'-0" A572-65
2	81	HB16-2	LINDAPTER TYPE HB HOLLO-BOLT (HDG)
3	3	SHIM-1	PL 3/8" X 4" X 2'-9" A572-65

TES
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60 RICE LANE
BEACON FALLS, CT 06403

DRAWN BY: CHLE | CHECKED BY: JT/KMM

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	04/13/16

SHEET TITLE:
REINFORCEMENT ASSEMBLY
P6X100-G-20TT
(12 SIDE 3 PIECES ON FLAT # 1, 5 AND 9)

SHEET NUMBER: A-2
REV #: 0