October 13, 2015

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

RE: Notice of Exempt Modification
651 Paddock Ave.
Meriden, CT 06450
N 41.51251
W 72.77917
T-Mobile Site #: CT11493A_L700

Members of the Siting Council:

On behalf of T-Mobile, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 651 Paddock Ave, Meriden, CT.

The 651 Paddock Avenue facility consists of a 119' Monopole Tower owned and operated by SBA Infrastructure, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located, Mayor Manuel A. Santos, as well as the property owner, First Assembly of God Church of Meriden, Inc.

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

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

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

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

2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound.

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

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

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

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

Thank you,

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

T-Mobile

Equipment Modification

651 Paddock Ave, Meriden, CT 06450
Site number CT11493A_L700

Tower Owner: SBA Infrastructure, LLC

Equipment Configuration: Monopole

Current and/or approved:

- (3) Ericsson AIR B2A B4P - Panel
- (3) Ericsson KRY 112 144 - TMA
- (12) 1-5/8" Lines
- (1) 1-5/8" Fiber

Final Configuration:

- (3) Ericsson AIR 21 B2A B4P - Panel
- (3) Ericsson AIR 21 B4A B12P - Panel
- (3) Ericsson KRY 112 144/1 - TMA
- (3) Ericsson S11B12 - RRU
- (12) 1-5/8" lines
- (1) 1-5/8" Fiber

Structural Information:

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

Power Density:

The anticipated Maximum Composite contributions from the T-Mobile facility are 3.15% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 15.41% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE%	
Carrier	MPE%
Max Per Sector - T-Mobile	**3.15 %**
Clearwire	2.00 %
Verizon Wireless	3.95 %
Site Total MPE %:	**15.41 %**

October 13, 2015

Manuel A. Santos, Mayor
City of Meriden
Meriden City Hall
142 East Main Street
Meriden, CT 06450

RE: Telecommunications Facility @ 651 Paddock Avenue, Meriden, CT

Dear Mayor Santos,

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

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

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

Thank you,

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

October 13, 2015

First Assembly of God Church of Meriden, Inc.
601 Paddock Avenue
Meriden, CT 06450

RE: Telecommunications Facility @ 651 Paddock Avenue, Meriden, CT

To Whom It May Concern:

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

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

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

T-Mobile Existing Facility

Site ID: CT11493A

CT493/ Optasite Meriden_FT
651 Paddock Avenue
Meriden, CT 06450

October 6, 2015

EBI Project Number: 6215005001

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	15.41 %

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

EBI Consulting
environmental | engineering | due diligence

October 6, 2015

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

Emissions Analysis for Site: **CT11493A – CT493/ Optasite Meriden_FT**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **651 Paddock Avenue, Meriden, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **651 Paddock Avenue, Meriden, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

1) 2 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

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

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

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

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

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

7) The antennas used in this modeling are the **Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Ericsson AIR21 B4A/B12P** for 2100 MHz (AWS) and 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B2A/B4P** has a maximum gain of **15.9 dBd** at its main lobe. The **Ericsson AIR21 B4A/B12P** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz and has a maximum gain of **13.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **117 feet** above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	117	Height (AGL):	117	Height (AGL):	117
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	# PCS Channels:	4
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	1.36	Antenna B1 MPE%	1.36	Antenna C1 MPE%	1.36
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B4A/B12P	Make / Model:	Ericsson AIR21 B4A/B12P	Make / Model:	Ericsson AIR21 B4A/B12P
Gain:	15.9 / 13.6 dBd	Gain:	15.9 / 13.6 dBd	Gain:	15.9 / 13.6 dBd
Height (AGL):	117	Height (AGL):	117	Height (AGL):	117
Frequency Bands	2100 MHz (AWS) / 700 MHz	Frequency Bands	2100 MHz (AWS) / 700 MHz	Frequency Bands	2100 MHz (AWS) / 700 MHz
Channel Count	3	Channel Count	3	Channel Count	3
Total TX Power:	150	Total TX Power:	150	Total TX Power:	150
ERP (W):	5,355.80	ERP (W):	5,355.80	ERP (W):	5,355.80
Antenna A2 MPE%	1.79	Antenna B2 MPE%	1.79	Antenna C2 MPE%	1.79

Site Composite MPE%	
Carrier	**MPE%**
Max Per Sector - T-Mobile	**3.15 %**
Clearwire	2.00 %
Verizon Wireless	3.95 %
Site Total MPE %:	**15.41 %**

T-Mobile Sector 1 Total:	3.15 %
T-Mobile Sector 2 Total:	3.15 %
T-Mobile Sector 3 Total:	3.15 %
Site Total:	15.41 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**2334.27**	**117**	**16.84**	**2100**	**1000**	**1.36 %**
T-Mobile 700 MHz LTE	**1**	**687.26**	**117**	**2.01**	**700**	**467**	**0.43 %**
T-Mobile 1900 MHz (PCS) GSM/UMTS	**2**	**1167.14**	**117**	**8.42**	**1900**	**1000**	**0.68 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**1167.14**	**117**	**8.42**	**2100**	**1000**	**0.68 %**
						Total:	**3.15%**

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Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector 1:	3.15 %
Sector 2:	3.15 %
Sector 3 :	3.15 %
T-Mobile Total:	9.46 %
Site Total:	15.41 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **15.41%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

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

Structural Analysis Report

Existing 119 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13069-A

Customer Site Name: Meriden

Carrier Name: T-Mobile

Carrier Site Number: CT11493A

Carrier Site Name: N/A

Site Location: 651 Paddock Avenue

Meriden, Connecticut

New Haven County

Latitude: 41.512750

Longitude: -72.779449

Analysis Result:

Max Structural Usage: 79.4% [Pass]

Max Foundation Usage: 93.0% [Pass]

Report Prepared By : Fabiaye Arinyedokiari

Introduction

The purpose of this report is to summarize the analysis results on the 119 ft Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Sabre, Job #08-10201 dated November 9, 2007
Foundation Drawing	Sabre, Job #08-10201 dated November 9, 2007
Geotechnical Report	Gemini Geotechnical Associates, Project #07099CT dated August 21, 2007
Modification Drawings	N/A

Analysis Criteria

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

Basic Wind Speed Used in the Analysis:	85 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
-	117.0	3	Ericsson AIR B2A B4P - Panel	(3) 7'x2.39" Pipe Mounts	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
-		3	Ericsson KRY 112 144 - TMA			
5	107.0	3	Antel BXA-70063-6CF - Panel	(3) Side Arm	(12) 1 5/8"	Verizon
6		3	Antel BXA-80063/6CF - Panel			
7		3	Antel BXA-171063/12CF - Panel			
8		6	RFS FD9R6004/2C-3L - Diplexers			
10	97.0	3	Argus LLPX310R	(3) Side Arm	(3) 1/2" (9) 5/16"	Clearwire
11		3	Samsung 2.5GHz RRH			
12		1	Andrew VHLP1-23 - Dish			
13		2	Andrew VHLP2-18 - Dish			

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
1	117.0	3	Ericsson AIR 21 B2A B4P - Panel	Standoff Mount (SitePro RDS-272)	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
2		3	Ericsson AIR 21 B4A B12P - Panel			
3		3	Ericsson KRY 112 144/1 - TMA			
4		3	Ericsson S11B12 - RRU			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**79.4%**	**73.1%**	**64.3%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	1627.5	19.1	26.6
Analysis Reactions	1146.9	13.9	16.3
% of Design Reactions	70.5%	72.7%	61.3%

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

Operational Condition (Rigidity):

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

Elevation (ft)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
117.0	Various - Panel	T-Mobile	0.000	1.080
97.0	Andrew VHLP1-23	Clearwire	0.000	1.041
	Andrew VHLP2-18			

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

Conclusions

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

Standard Conditions

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

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

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

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

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

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

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

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

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

Usage Diagram - Max Stress 79.4% at 0.0ft

Structure:	CT13069-A-SBA	**Code:**	EIA/TIA-222-F	9/29/2015
Site Name:	Meriden	**Exposure:**	C	
Height:	119.00 (ft)	**Gh:**	1.69	
Base Elev:	0.000 (ft)			Page: 1

Tower Engineering Solutions

Dead Load Factor:	1.00
Wind Load Factor:	1.00
48	Alllowable Stress
38	Resulting Stress

Load Case : 85 mph Wind with 0 in Ice

Iterations: 24

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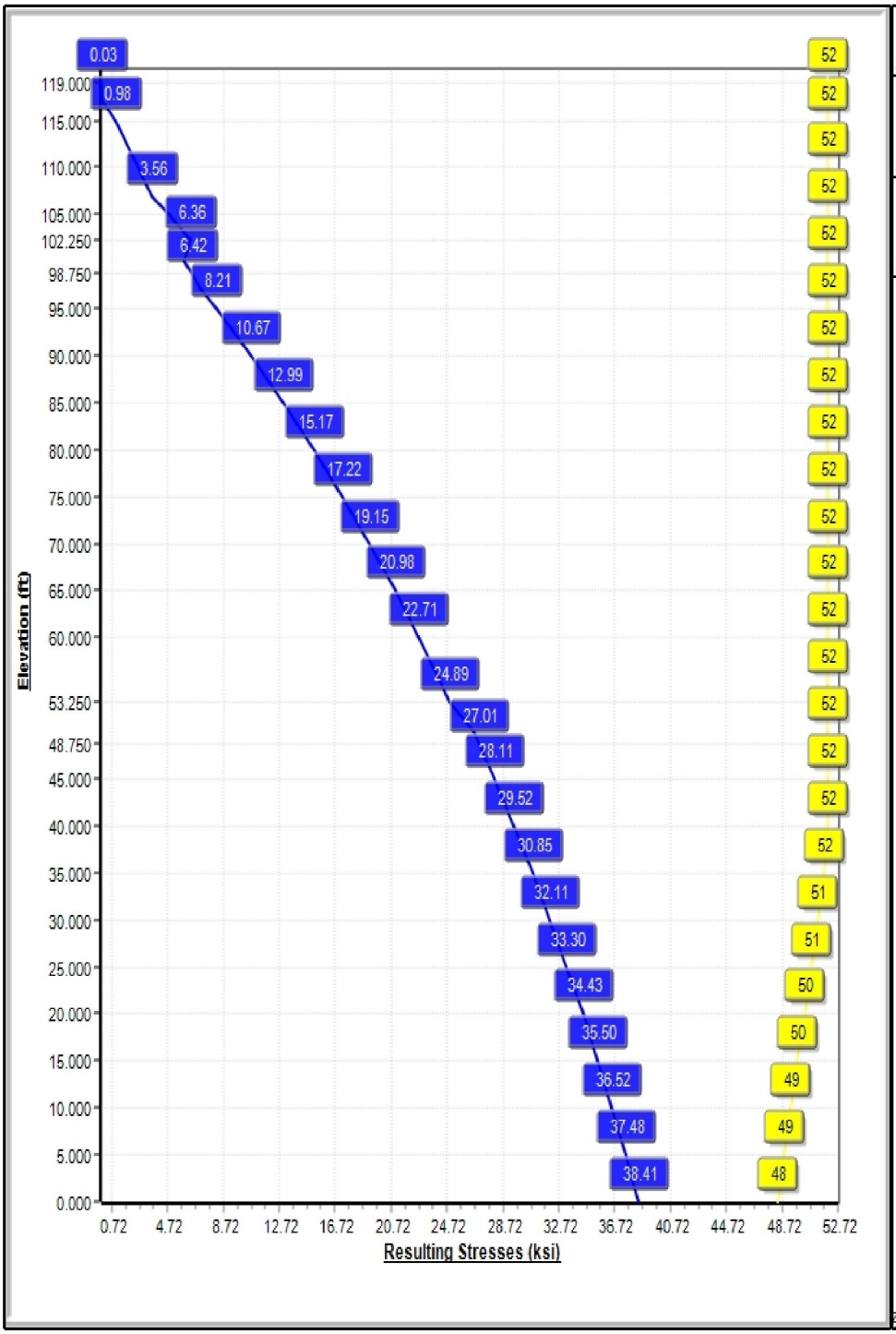
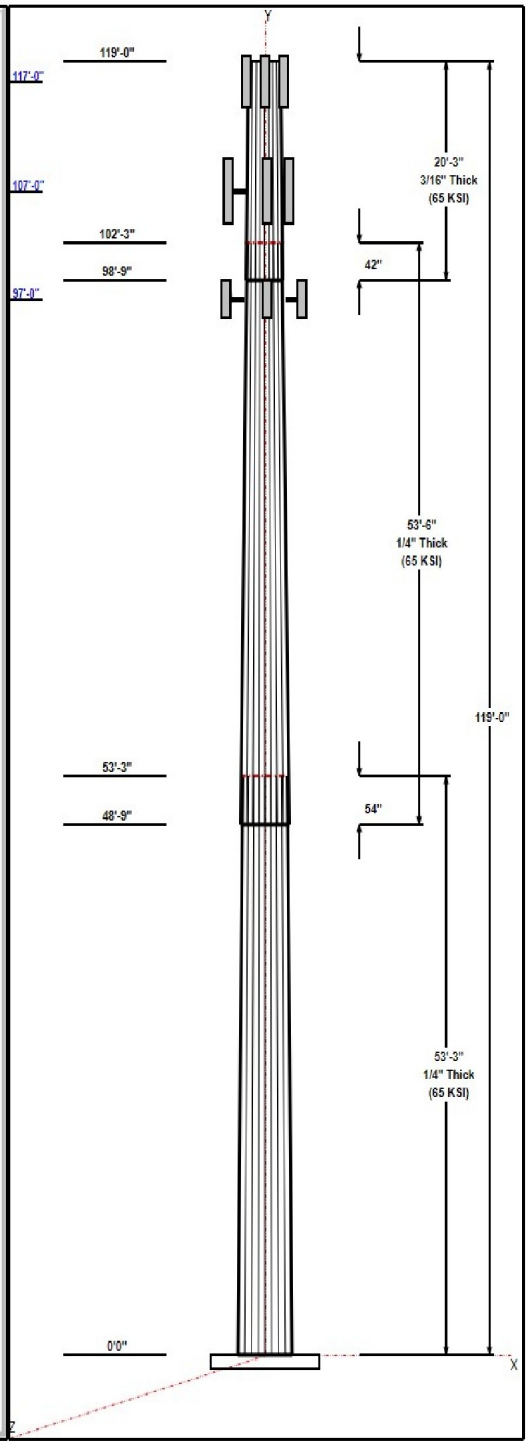




Structure: CT13069-A-SBA

Type: Tapered
Site Name: Meriden
Height: 119.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.16197

9/29/2015

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	34.63	43.26	0.250		0.16197	65
2	53.50	27.20	35.86	0.250	Slip	0.16197	65
3	20.25	24.86	28.14	0.188	Slip	0.16197	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
117.00	117.00	3	AIR 21 B2A B4P	T-Mobile
117.00	117.00	3	AIR 21 B4A B12P	T-Mobile
117.00	117.00	3	KRY 112 144/1	T-Mobile
117.00	117.00	3	S11B12	T-Mobile
117.00	117.00	3	Standoff Mount (RDS-272)	T-Mobile
107.00	107.00	1	(3) Side Arm	Verizon
107.00	107.00	3	BXA-171063/12CF	Verizon
107.00	107.00	3	BXA-70063-6CF	Verizon
107.00	107.00	3	BXA-80063/6CF	Verizon
107.00	107.00	6	FD9R6004/2C-3L	Verizon
97.00	97.00	3	2.5GHz RRH	Clearwire
97.00	97.00	3	LLPX310R	Clearwire
97.00	97.00	3	Side Arm	Clearwire
97.00	97.00	1	VHLP1-23	Clearwire
97.00	97.00	2	VHLP2-18	Clearwire

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	117.00	Inside	1 5/8" Coax	T-Mobile
0.00	117.00	Inside	1 5/8" Fiber	T-Mobile
0.00	107.00	Inside	1 5/8" Coax	Verizon
0.00	97.00	Inside	1/2" Coax	Clearwire
0.00	97.00	Inside	5/16" Coax	Clearwire

Anchor Bolts

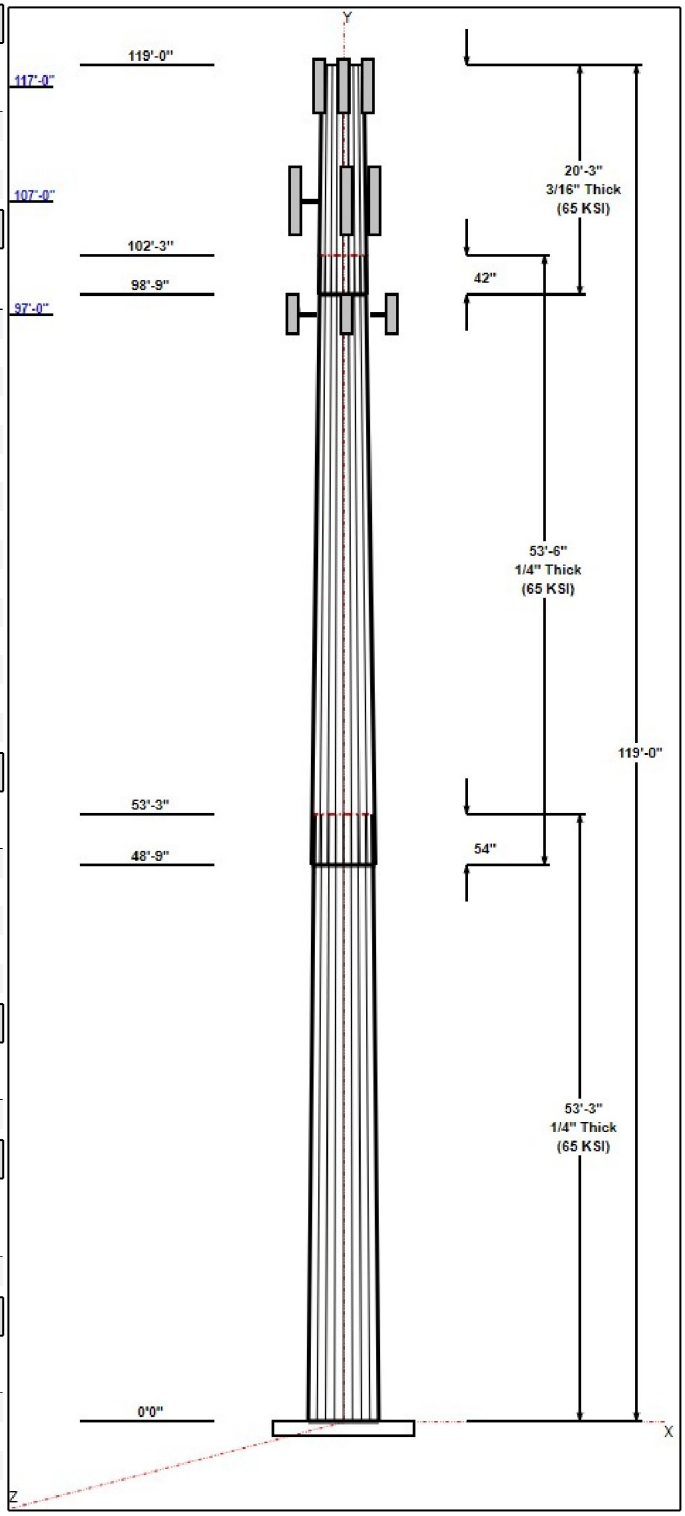
Qty	Specifications	Grade (ksi)	Arrangement
8	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.2500	47.0	60.0	Clipped

Reactions

Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	1147.0	13.9	16.3
73.61 mph Wind with 0.5" Ice	963.8	11.4	20.2
50 mph Wind with 0" Ice	397.0	4.8	16.4



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Structure: CT13069-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Meriden
Height: 119.00 (ft)

9/29/2015

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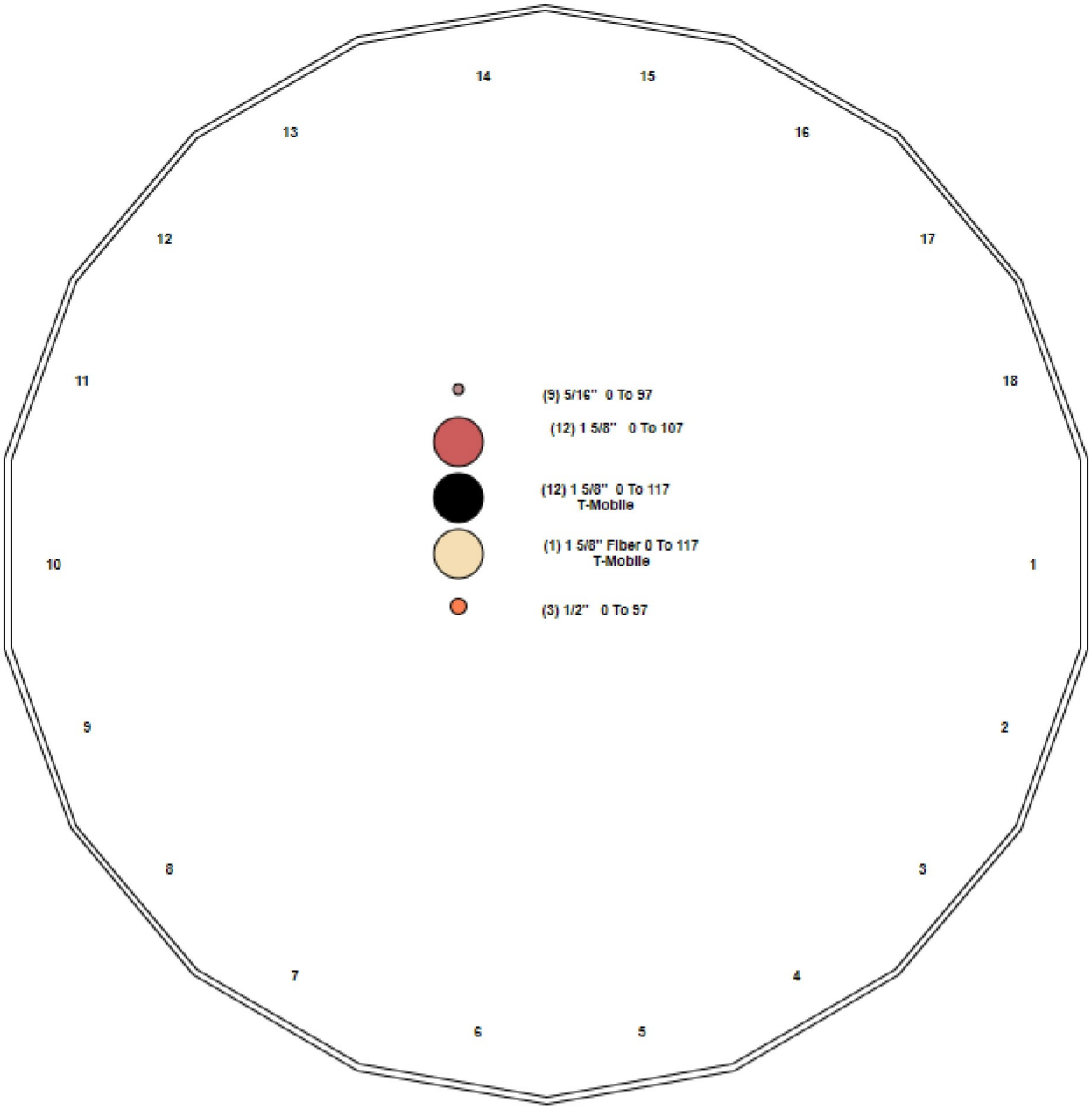

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Shaft Properties

Structure:	CT13069-A-SBA	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 4	

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.2500	65		0.00	5,564
2	18	53.500	0.2500	65	Slip	54.00	4,519
3	18	20.250	0.1875	65	Slip	42.00	1,079
					Total Shaft Weight:		**11,161**

	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	43.26	0.00	34.13	7976.14	29.10	173.0	34.63	53.25	27.28	4075.54	23.01	138.5	0.161975
2	35.86	48.75	28.26	4528.32	23.88	143.4	27.20	102.2	21.38	1961.86	17.77	108.7	0.161975
3	28.14	98.75	16.63	1642.13	25.05	150.0	24.86	119.0	14.68	1129.24	21.96	132.5	0.161975

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Loading Summary

Structure:	CT13069-A-SBA	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 5	

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	117.0	AIR 21 B2A B4P	3	91.50	6.58	0.83	129.20	6.970	0.83	0.00	0.00
2	117.0	AIR 21 B4A B12P	3	96.00	6.58	0.83	128.10	6.970	0.83	0.00	0.00
3	117.0	KRY 112 144/1	3	11.00	0.41	0.72	14.10	0.550	0.72	0.00	0.00
4	117.0	S11B12	3	51.00	3.31	0.71	67.10	3.520	0.71	0.00	0.00
5	117.0	Standoff Mount (RDS-272)	3	170.00	4.25	0.75	300.00	6.000	0.75	0.00	0.00
6	107.0	(3) Side Arm	1	120.00	4.50	1.00	150.00	6.000	1.00	0.00	0.00
7	107.0	BXA-171063/12CF	3	15.00	4.79	0.84	42.50	5.460	0.84	0.00	0.00
8	107.0	BXA-70063-6CF	3	17.00	7.73	0.73	59.50	8.540	0.73	0.00	0.00
9	107.0	BXA-80063/6CF	3	17.00	7.73	0.73	59.40	8.540	0.73	0.00	0.00
10	107.0	FD9R6004/2C-3L	6	3.10	0.36	0.62	5.40	0.500	0.62	0.00	0.00
11	97.00	2.5GHz RRH	3	33.00	1.82	0.73	44.90	2.090	0.73	0.00	0.00
12	97.00	LLPX310R	3	28.60	4.83	0.69	54.50	5.360	0.69	0.00	0.00
13	97.00	Side Arm	3	120.00	2.78	0.75	150.00	6.000	0.75	0.00	0.00
14	97.00	VHLP1-23	1	14.20	1.61	1.00	24.30	1.820	1.00	0.00	0.00
15	97.00	VHLP2-18	2	27.00	4.68	1.00	55.00	5.050	1.00	0.00	0.00
		Totals:	**43**	**2,157.10**			**3,464.60**				

Linear Appurtenances

			No Ice		Ice		
Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Weight (lb/ft)**	**CaAa (sf/ft)**	**Weight (lb/ft)**	**CaAa (sf/ft)**	**Exposed**
0.00	117.0	(12) 1 5/8" Coax	12.48	0.00	12.48	0.00	Inside
0.00	117.0	(1) 1 5/8" Fiber	1.10	0.00	1.10	0.00	Inside
0.00	107.0	(12) 1 5/8" Coax	12.48	0.00	12.48	0.00	Inside
0.00	97.00	(3) 1/2" Coax	0.48	0.00	0.48	0.00	Inside
0.00	97.00	(9) 5/16" Coax	0.72	0.00	0.72	0.00	Inside
		Totals:	**3,040.62**		**3,040.62**		

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Shaft Section Properties

Structure: CT13069-A-SBA
Site Name: Meriden
Height: 119.00 (ft)
Base Elev: 0.000 (ft)

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

9/29/2015

Tower Engineering Solutions

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.2500	43.260	34.127	7976.1	29.10	173.04	65	48	0.0
5.00		0.2500	42.450	33.485	7534.0	28.53	169.80	65	49	575.2
10.00		0.2500	41.640	32.842	7108.5	27.96	166.56	65	49	564.2
15.00		0.2500	40.830	32.199	6699.3	27.39	163.32	65	50	553.3
20.00		0.2500	40.021	31.557	6306.2	26.82	160.08	65	50	542.4
25.00		0.2500	39.211	30.914	5928.7	26.24	156.84	65	51	531.4
30.00		0.2500	38.401	30.272	5566.6	25.67	153.60	65	51	520.5
35.00		0.2500	37.591	29.629	5219.6	25.10	150.36	65	52	509.6
40.00		0.2500	36.781	28.986	4887.3	24.53	147.12	65	52	498.6
45.00		0.2500	35.971	28.344	4569.4	23.96	143.88	65	52	487.7
48.75	Bot - Section 2	0.2500	35.364	27.862	4340.3	23.53	141.45	65	52	358.6
50.00		0.2500	35.161	27.701	4265.6	23.39	140.65	65	52	238.0
53.25	Top - Section 1	0.2500	35.135	27.680	4255.9	23.37	140.54	65	52	612.5
55.00		0.2500	34.851	27.455	4153.0	23.17	139.41	65	52	164.2
60.00		0.2500	34.042	26.813	3868.2	22.60	136.17	65	52	461.7
65.00		0.2500	33.232	26.170	3596.7	22.03	132.93	65	52	450.7
70.00		0.2500	32.422	25.527	3338.2	21.46	129.69	65	52	439.8
75.00		0.2500	31.612	24.885	3092.4	20.89	126.45	65	52	428.9
80.00		0.2500	30.802	24.242	2858.9	20.31	123.21	65	52	417.9
85.00		0.2500	29.992	23.600	2637.6	19.74	119.97	65	52	407.0
90.00		0.2500	29.182	22.957	2427.9	19.17	116.73	65	52	396.1
95.00		0.2500	28.372	22.314	2229.7	18.60	113.49	65	52	385.1
97.00		0.2500	28.048	22.057	2153.5	18.37	112.19	65	52	151.0
98.75	Bot - Section 3	0.2500	27.765	21.832	2088.3	18.17	111.06	65	52	130.7
100.00		0.2500	27.563	21.672	2042.5	18.03	110.25	65	52	163.0
102.25	Top - Section 2	0.1875	27.573	16.297	1544.2	24.52	147.06	65	52	290.4
105.00		0.1875	27.128	16.032	1470.1	24.10	144.68	65	52	151.3
107.00		0.1875	26.804	15.839	1417.7	23.80	142.95	65	52	108.5
110.00		0.1875	26.318	15.550	1341.5	23.34	140.36	65	52	160.2
115.00		0.1875	25.508	15.068	1220.6	22.58	136.04	65	52	260.5
117.00		0.1875	25.184	14.875	1174.3	22.27	134.31	65	52	101.9
119.00		0.1875	24.860	14.683	1129.2	21.97	132.59	65	52	100.6
										11161.3

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Wind Loading - Shaft

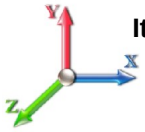
Structure:	CT13069-A-SBA	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 7	

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		0.00	1.00	18.496	31.26	306.43	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	300.69	0.650	0.000	5.00	17.856	11.61	362.8	0.0	575.2
10.00		0.00	1.00	18.496	31.26	294.95	0.650	0.000	5.00	17.519	11.39	355.9	0.0	564.2
15.00		0.00	1.00	18.496	31.26	289.22	0.650	0.000	5.00	17.181	11.17	349.1	0.0	553.3
20.00		0.00	1.00	18.496	31.26	283.48	0.650	0.000	5.00	16.844	10.95	342.2	0.0	542.4
25.00		0.00	1.00	18.496	31.26	277.74	0.650	0.000	5.00	16.506	10.73	335.4	0.0	531.4
30.00		0.00	1.00	18.496	31.26	272.01	0.650	0.000	5.00	16.169	10.51	328.5	0.0	520.5
35.00		0.00	1.02	18.810	31.79	268.52	0.650	0.000	5.00	15.832	10.29	327.1	0.0	509.6
40.00		0.00	1.06	19.541	33.02	267.79	0.650	0.000	5.00	15.494	10.07	332.6	0.0	498.6
45.00		0.00	1.09	20.210	34.15	266.34	0.650	0.000	5.00	15.157	9.85	336.5	0.0	487.7
48.75	Bot - Section 2	0.00	1.12	20.677	34.94	264.85	0.650	0.000	3.75	11.146	7.24	253.2	0.0	358.6
50.00		0.00	1.13	20.827	35.20	264.29	0.650	0.000	1.25	3.725	2.42	85.2	0.0	238.0
53.25	Top - Section 1	0.00	1.15	21.206	35.84	262.69	0.650	0.000	3.25	9.587	6.23	223.3	0.0	612.5
55.00		0.00	1.16	21.402	36.17	265.55	0.650	0.000	1.75	5.103	3.32	120.0	0.0	164.2
60.00		0.00	1.19	21.941	37.08	262.63	0.650	0.000	5.00	14.353	9.33	345.9	0.0	461.7
65.00		0.00	1.21	22.449	37.94	259.33	0.650	0.000	5.00	14.015	9.11	345.6	0.0	450.7
70.00		0.00	1.24	22.929	38.75	255.70	0.650	0.000	5.00	13.678	8.89	344.5	0.0	439.8
75.00		0.00	1.26	23.386	39.52	251.78	0.650	0.000	5.00	13.340	8.67	342.7	0.0	428.9
80.00		0.00	1.29	23.821	40.26	247.60	0.650	0.000	5.00	13.003	8.45	340.2	0.0	417.9
85.00		0.00	1.31	24.237	40.96	243.19	0.650	0.000	5.00	12.665	8.23	337.2	0.0	407.0
90.00		0.00	1.33	24.636	41.63	238.56	0.650	0.000	5.00	12.328	8.01	333.6	0.0	396.1
95.00		0.00	1.35	25.020	42.28	233.74	0.650	0.000	5.00	11.991	7.79	329.5	0.0	385.1
97.00	Appurtenance(s)	0.00	1.36	25.169	42.54	231.76	0.650	0.000	2.00	4.702	3.06	130.0	0.0	151.0
98.75	Bot - Section 3	0.00	1.37	25.298	42.75	230.01	0.650	0.000	1.75	4.070	2.65	113.1	0.0	130.7
100.00		0.00	1.37	25.389	42.91	228.74	0.650	0.000	1.25	2.921	1.90	81.5	0.0	163.0
102.25	Top - Section 2	0.00	1.38	25.551	43.18	226.43	0.650	0.000	2.25	5.204	3.38	146.1	0.0	290.4
105.00		0.00	1.39	25.745	43.51	226.70	0.650	0.000	2.75	6.268	4.07	177.3	0.0	151.3
107.00	Appurtenance(s)	0.00	1.40	25.885	43.74	224.60	0.650	0.000	2.00	4.494	2.92	127.8	0.0	108.5
110.00		0.00	1.41	26.090	44.09	221.40	0.650	0.000	3.00	6.640	4.32	190.3	0.0	160.2
115.00		0.00	1.43	26.423	44.66	215.96	0.650	0.000	5.00	10.797	7.02	313.4	0.0	260.5
117.00	Appurtenance(s)	0.00	1.44	26.554	44.88	213.74	0.650	0.000	2.00	4.224	2.75	123.2	0.0	101.9
119.00		0.00	1.44	26.683	45.09	211.50	0.650	0.000	2.00	4.170	2.71	122.2	0.0	100.6
								Totals:	**119.00**			**7,996.1**		**11,161.3**

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Discrete Appurtenance Forces

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 8	

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	117.00	Standoff Mount (RDS-272)	3	26.554	44.876	0.75	9.56	510.00	0.000	0.000	429.13	0.00	0.00
2	117.00	S11B12	3	26.554	44.876	0.71	7.05	153.00	0.000	0.000	316.39	0.00	0.00
3	117.00	KRY 112 144/1	3	26.554	44.876	0.72	0.89	33.00	0.000	0.000	39.74	0.00	0.00
4	117.00	AIR 21 B4A B12P	3	26.554	44.876	0.83	16.38	288.00	0.000	0.000	735.26	0.00	0.00
5	117.00	AIR 21 B2A B4P	3	26.554	44.876	0.83	16.38	274.50	0.000	0.000	735.26	0.00	0.00
6	107.00	FD9R6004/2C-3L	6	25.885	43.745	0.62	1.34	18.60	0.000	0.000	58.58	0.00	0.00
7	107.00	BXA-80063/6CF	3	25.885	43.745	0.73	16.93	51.00	0.000	0.000	740.54	0.00	0.00
8	107.00	BXA-70063-6CF	3	25.885	43.745	0.73	16.93	51.00	0.000	0.000	740.54	0.00	0.00
9	107.00	BXA-171063/12CF	3	25.885	43.745	0.84	12.07	45.00	0.000	0.000	528.04	0.00	0.00
10	107.00	(3) Side Arm	1	25.885	43.745	1.00	4.50	120.00	0.000	0.000	196.85	0.00	0.00
11	97.00	VHLP2-18	2	25.169	42.536	1.00	9.36	54.00	0.000	0.000	398.13	0.00	0.00
12	97.00	VHLP1-23	1	25.169	42.536	1.00	1.61	14.20	0.000	0.000	68.48	0.00	0.00
13	97.00	Side Arm	3	25.169	42.536	0.75	6.25	360.00	0.000	0.000	266.06	0.00	0.00
14	97.00	LLPX310R	3	25.169	42.536	0.69	10.00	85.80	0.000	0.000	425.28	0.00	0.00
15	97.00	2.5GHz RRH	3	25.169	42.536	0.73	3.99	99.00	0.000	0.000	169.54	0.00	0.00
						Totals:		**2,157.10**			**5,847.82**		

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Total Applied Force Summary

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 9	

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		362.80	711.47	0.00	0.00
10.00		355.95	700.54	0.00	0.00
15.00		349.09	689.60	0.00	0.00
20.00		342.23	678.67	0.00	0.00
25.00		335.38	667.74	0.00	0.00
30.00		328.52	656.80	0.00	0.00
35.00		327.12	645.87	0.00	0.00
40.00		332.60	634.94	0.00	0.00
45.00		336.49	624.00	0.00	0.00
48.75		253.17	460.83	0.00	0.00
50.00		85.23	272.10	0.00	0.00
53.25		223.32	701.06	0.00	0.00
55.00		119.98	211.87	0.00	0.00
60.00		345.93	597.95	0.00	0.00
65.00		345.61	587.02	0.00	0.00
70.00		344.51	576.09	0.00	0.00
75.00		342.70	565.15	0.00	0.00
80.00		340.25	554.22	0.00	0.00
85.00		337.21	543.29	0.00	0.00
90.00		333.63	532.35	0.00	0.00
95.00		329.55	521.42	0.00	0.00
97.00	(12) appurtenances	1457.48	818.51	0.00	0.00
98.75		113.10	176.28	0.00	0.00
100.00		81.46	195.60	0.00	0.00
102.25		146.07	349.06	0.00	0.00
105.00		177.26	222.93	0.00	0.00
107.00	(16) appurtenances	2392.35	446.17	0.00	0.00
110.00		190.31	200.96	0.00	0.00
115.00		313.39	328.37	0.00	0.00
117.00	(15) appurtenances	2378.99	1387.55	0.00	0.00
119.00		122.24	100.58	0.00	0.00
	Totals:	**13,843.91**	**16,358.97**	**0.00**	**0.00**

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Resulting Forces and Deflections

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (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)	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	-13.872	-16.334	0.000	0.000	0.000	-1146.9	0.000	0.000	0.000	0.000	0.000
5.00	-13.562	-15.577	0.000	0.000	0.000	-1077.6	-0.107	0.000	0.107	-0.198	0.000
10.00	-13.253	-14.833	0.000	0.000	0.000	-1009.7	-0.420	0.000	0.420	-0.395	0.000
15.00	-12.946	-14.102	0.000	0.000	0.000	-943.53	-0.940	0.000	0.940	-0.591	0.000
20.00	-12.641	-13.386	0.000	0.000	0.000	-878.79	-1.662	0.000	1.662	-0.784	0.000
25.00	-12.337	-12.682	0.000	0.000	0.000	-815.59	-2.587	0.000	2.587	-0.975	0.000
30.00	-12.036	-11.993	0.000	0.000	0.000	-753.90	-3.710	0.000	3.710	-1.164	0.000
35.00	-11.731	-11.317	0.000	0.000	0.000	-693.73	-5.028	0.000	5.028	-1.349	0.000
40.00	-11.416	-10.655	0.000	0.000	0.000	-635.07	-6.538	0.000	6.538	-1.530	0.000
45.00	-11.088	-10.011	0.000	0.000	0.000	-578.00	-8.235	0.000	8.235	-1.706	0.000
48.75	-10.835	-9.542	0.000	0.000	0.000	-536.42	-9.628	0.000	9.628	-1.836	0.000
50.00	-10.754	-9.258	0.000	0.000	0.000	-522.87	-10.115	0.000	10.115	-1.880	0.000
53.25	-10.519	-8.550	0.000	0.000	0.000	-487.92	-11.433	0.000	11.433	-1.989	0.000
55.00	-10.408	-8.323	0.000	0.000	0.000	-469.51	-12.173	0.000	12.173	-2.048	0.000
60.00	-10.060	-7.712	0.000	0.000	0.000	-417.48	-14.400	0.000	14.400	-2.200	0.000
65.00	-9.708	-7.116	0.000	0.000	0.000	-367.18	-16.782	0.000	16.782	-2.344	0.000
70.00	-9.355	-6.533	0.000	0.000	0.000	-318.64	-19.310	0.000	19.310	-2.480	0.000
75.00	-9.000	-5.965	0.000	0.000	0.000	-271.86	-21.975	0.000	21.975	-2.605	0.000
80.00	-8.645	-5.411	0.000	0.000	0.000	-226.86	-24.766	0.000	24.766	-2.720	0.000
85.00	-8.290	-4.871	0.000	0.000	0.000	-183.64	-27.670	0.000	27.670	-2.822	0.000
90.00	-7.936	-4.345	0.000	0.000	0.000	-142.19	-30.674	0.000	30.674	-2.910	0.000
95.00	-7.583	-3.835	0.000	0.000	0.000	-102.51	-33.761	0.000	33.761	-2.982	0.000
97.00	-6.086	-3.091	0.000	0.000	0.000	-87.353	-35.015	0.000	35.015	-3.006	0.000
98.75	-5.965	-2.920	0.000	0.000	0.000	-76.703	-36.120	0.000	36.120	-3.025	0.000
100.00	-5.874	-2.727	0.000	0.000	0.000	-69.247	-36.914	0.000	36.914	-3.038	0.000
102.25	-5.710	-2.384	0.000	0.000	0.000	-56.031	-38.350	0.000	38.350	-3.057	0.000
105.00	-5.522	-2.170	0.000	0.000	0.000	-40.328	-40.116	0.000	40.116	-3.076	0.000
107.00	-3.109	-1.852	0.000	0.000	0.000	-29.285	-41.408	0.000	41.408	-3.090	0.000
110.00	-2.909	-1.661	0.000	0.000	0.000	-19.957	-43.354	0.000	43.354	-3.105	0.000
115.00	-2.578	-1.350	0.000	0.000	0.000	-5.412	-46.612	0.000	46.612	-3.118	0.000
117.00	-0.127	-0.094	0.000	0.000	0.000	-0.255	-47.918	0.000	47.918	-3.119	0.000
119.00	-0.122	0.000	0.000	0.000	0.000	0.000	0.000	0.000	49.224	-3.119	0.000

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Resulting Stresses

Structure:	CT13069-A-SBA	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (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

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	0.48	0.82	0.00	0.00	0.00	37.90	38.41	48.3	0.794
5.00	0.47	0.82	0.00	0.00	0.00	36.99	37.48	48.8	0.768
10.00	0.45	0.81	0.00	0.00	0.00	36.04	36.52	49.3	0.741
15.00	0.44	0.81	0.00	0.00	0.00	35.04	35.50	49.8	0.713
20.00	0.42	0.81	0.00	0.00	0.00	33.98	34.43	50.3	0.685
25.00	0.41	0.80	0.00	0.00	0.00	32.86	33.30	50.8	0.656
30.00	0.40	0.80	0.00	0.00	0.00	31.69	32.11	51.2	0.627
35.00	0.38	0.80	0.00	0.00	0.00	30.44	30.85	51.7	0.596
40.00	0.37	0.79	0.00	0.00	0.00	29.12	29.52	52.0	0.568
45.00	0.35	0.79	0.00	0.00	0.00	27.72	28.11	52.0	0.541
48.75	0.34	0.78	0.00	0.00	0.00	26.63	27.01	52.0	0.520
50.00	0.33	0.78	0.00	0.00	0.00	26.26	26.63	52.0	0.512
53.25	0.31	0.77	0.00	0.00	0.00	24.54	24.89	52.0	0.479
55.00	0.30	0.76	0.00	0.00	0.00	24.01	24.34	52.0	0.468
60.00	0.29	0.76	0.00	0.00	0.00	22.38	22.71	52.0	0.437
65.00	0.27	0.75	0.00	0.00	0.00	20.67	20.98	52.0	0.404
70.00	0.26	0.74	0.00	0.00	0.00	18.86	19.15	52.0	0.368
75.00	0.24	0.73	0.00	0.00	0.00	16.93	17.22	52.0	0.331
80.00	0.22	0.72	0.00	0.00	0.00	14.89	15.17	52.0	0.292
85.00	0.21	0.71	0.00	0.00	0.00	12.72	12.99	52.0	0.250
90.00	0.19	0.70	0.00	0.00	0.00	10.41	10.67	52.0	0.205
95.00	0.17	0.68	0.00	0.00	0.00	7.95	8.21	52.0	0.158
97.00	0.14	0.56	0.00	0.00	0.00	6.93	7.14	52.0	0.137
98.75	0.13	0.55	0.00	0.00	0.00	6.21	6.42	52.0	0.123
100.00	0.13	0.55	0.00	0.00	0.00	5.69	5.90	52.0	0.113
102.25	0.15	0.71	0.00	0.00	0.00	6.10	6.36	52.0	0.122
105.00	0.14	0.69	0.00	0.00	0.00	4.53	4.82	52.0	0.093
107.00	0.12	0.40	0.00	0.00	0.00	3.37	3.56	52.0	0.068
110.00	0.11	0.38	0.00	0.00	0.00	2.39	2.58	52.0	0.050
115.00	0.09	0.34	0.00	0.00	0.00	0.69	0.98	52.0	0.019
117.00	0.01	0.02	0.00	0.00	0.00	0.03	0.05	52.0	0.001
119.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	52.0	0.001

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Wind Loading - Shaft

Structure: CT13069-A-SBA
Site Name: Meriden
Height: 119.00 (ft)
Base Elev: 0.000 (ft)

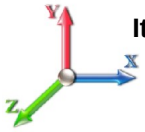
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

9/29/2015

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	265.36	0.650	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	260.40	0.650	0.500	5.00	18.273	11.88	278.4	132.5	707.7
10.00		0.00	1.00	13.871	23.44	255.43	0.650	0.500	5.00	17.935	11.66	273.3	130.0	694.3
15.00		0.00	1.00	13.871	23.44	250.46	0.650	0.500	5.00	17.598	11.44	268.2	127.5	680.8
20.00		0.00	1.00	13.871	23.44	245.49	0.650	0.500	5.00	17.261	11.22	263.0	125.0	667.4
25.00		0.00	1.00	13.871	23.44	240.52	0.650	0.500	5.00	16.923	11.00	257.9	122.5	654.0
30.00		0.00	1.00	13.871	23.44	235.56	0.650	0.500	5.00	16.586	10.78	252.7	120.0	640.5
35.00		0.00	1.02	14.106	23.84	232.54	0.650	0.500	5.00	16.248	10.56	251.8	117.5	627.1
40.00		0.00	1.06	14.655	24.77	231.91	0.650	0.500	5.00	15.911	10.34	256.1	115.0	613.7
45.00		0.00	1.09	15.156	25.61	230.65	0.650	0.500	5.00	15.573	10.12	259.3	112.5	600.2
48.75	Bot - Section 2	0.00	1.12	15.507	26.21	229.36	0.650	0.500	3.75	11.459	7.45	195.2	83.0	441.6
50.00		0.00	1.13	15.620	26.40	228.88	0.650	0.500	1.25	3.829	2.49	65.7	27.9	265.9
53.25	Top - Section 1	0.00	1.15	15.903	26.88	227.49	0.650	0.500	3.25	9.858	6.41	172.2	71.5	683.9
55.00		0.00	1.16	16.051	27.13	229.97	0.650	0.500	1.75	5.249	3.41	92.5	38.2	202.3
60.00		0.00	1.19	16.455	27.81	227.43	0.650	0.500	5.00	14.769	9.60	267.0	106.6	568.2
65.00		0.00	1.21	16.836	28.45	224.58	0.650	0.500	5.00	14.432	9.38	266.9	104.1	554.8
70.00		0.00	1.24	17.196	29.06	221.44	0.650	0.500	5.00	14.094	9.16	266.2	101.6	541.4
75.00		0.00	1.26	17.538	29.64	218.04	0.650	0.500	5.00	13.757	8.94	265.0	99.1	527.9
80.00		0.00	1.29	17.865	30.19	214.42	0.650	0.500	5.00	13.420	8.72	263.3	96.6	514.5
85.00		0.00	1.31	18.177	30.72	210.60	0.650	0.500	5.00	13.082	8.50	261.2	94.1	501.1
90.00		0.00	1.33	18.476	31.22	206.60	0.650	0.500	5.00	12.745	8.28	258.7	91.6	487.6
95.00		0.00	1.35	18.764	31.71	202.42	0.650	0.500	5.00	12.407	8.06	255.7	89.1	474.2
97.00	Appurtenance(s)	0.00	1.36	18.876	31.90	200.71	0.650	0.500	2.00	4.868	3.16	100.9	35.2	186.2
98.75	Bot - Section 3	0.00	1.37	18.972	32.06	199.18	0.650	0.500	1.75	4.216	2.74	87.9	30.5	161.2
100.00		0.00	1.37	19.041	32.18	198.09	0.650	0.500	1.25	3.025	1.97	63.3	21.9	185.0
102.25	Top - Section 2	0.00	1.38	19.162	32.38	196.09	0.650	0.500	2.25	5.392	3.50	113.5	39.0	329.4
105.00		0.00	1.39	19.308	32.63	196.33	0.650	0.500	2.75	6.497	4.22	137.8	46.9	198.2
107.00	Appurtenance(s)	0.00	1.40	19.412	32.81	194.51	0.650	0.500	2.00	4.661	3.03	99.4	33.7	142.2
110.00		0.00	1.41	19.566	33.07	191.74	0.650	0.500	3.00	6.890	4.48	148.1	49.7	209.9
115.00		0.00	1.43	19.816	33.49	187.02	0.650	0.500	5.00	11.214	7.29	244.1	80.3	340.7
117.00	Appurtenance(s)	0.00	1.44	19.914	33.65	185.10	0.650	0.500	2.00	4.391	2.85	96.1	31.7	133.6
119.00		0.00	1.44	20.011	33.82	183.16	0.650	0.500	2.00	4.337	2.82	95.3	31.3	131.9
								Totals:	**119.00**			**6,176.8**		**13,667.5**

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Discrete Appurtenance Forces

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	117.00	Standoff Mount (RDS-272)	3	19.914	33.655	0.75	13.50	900.00	0.000	0.000	454.34	0.00	0.00
2	117.00	S11B12	3	19.914	33.655	0.71	7.50	201.30	0.000	0.000	252.33	0.00	0.00
3	117.00	KRY 112 144/1	3	19.914	33.655	0.72	1.19	42.30	0.000	0.000	39.98	0.00	0.00
4	117.00	AIR 21 B4A B12P	3	19.914	33.655	0.83	17.36	384.30	0.000	0.000	584.09	0.00	0.00
5	117.00	AIR 21 B2A B4P	3	19.914	33.655	0.83	17.36	387.60	0.000	0.000	584.09	0.00	0.00
6	107.00	FD9R6004/2C-3L	6	19.412	32.807	0.62	1.86	32.40	0.000	0.000	61.02	0.00	0.00
7	107.00	BXA-80063/6CF	3	19.412	32.807	0.73	18.70	178.20	0.000	0.000	613.57	0.00	0.00
8	107.00	BXA-70063-6CF	3	19.412	32.807	0.73	18.70	178.50	0.000	0.000	613.57	0.00	0.00
9	107.00	BXA-171063/12CF	3	19.412	32.807	0.84	13.76	127.50	0.000	0.000	451.39	0.00	0.00
10	107.00	(3) Side Arm	1	19.412	32.807	1.00	6.00	150.00	0.000	0.000	196.84	0.00	0.00
11	97.00	VHLP2-18	2	18.876	31.900	1.00	10.10	110.00	0.000	0.000	322.19	0.00	0.00
12	97.00	VHLP1-23	1	18.876	31.900	1.00	1.82	24.30	0.000	0.000	58.06	0.00	0.00
13	97.00	Side Arm	3	18.876	31.900	0.75	13.50	450.00	0.000	0.000	430.65	0.00	0.00
14	97.00	LLPX310R	3	18.876	31.900	0.69	11.10	163.50	0.000	0.000	353.93	0.00	0.00
15	97.00	2.5GHz RRH	3	18.876	31.900	0.73	4.58	134.70	0.000	0.000	146.01	0.00	0.00
						Totals:		**3,464.60**			**5,162.08**		

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Total Applied Force Summary

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Iterations: 24

Dead Load Factor 1.00

Wind Load Factor 1.00

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		278.43	844.00	0.00	0.00
10.00		273.29	830.57	0.00	0.00
15.00		268.15	817.14	0.00	0.00
20.00		263.01	803.70	0.00	0.00
25.00		257.87	790.27	0.00	0.00
30.00		252.72	776.84	0.00	0.00
35.00		251.78	763.41	0.00	0.00
40.00		256.14	749.98	0.00	0.00
45.00		259.29	736.54	0.00	0.00
48.75		195.19	543.83	0.00	0.00
50.00		65.71	299.99	0.00	0.00
53.25		172.21	772.53	0.00	0.00
55.00		92.55	250.05	0.00	0.00
60.00		266.97	704.54	0.00	0.00
65.00		266.90	691.11	0.00	0.00
70.00		266.24	677.67	0.00	0.00
75.00		265.04	664.24	0.00	0.00
80.00		263.35	650.81	0.00	0.00
85.00		261.21	637.38	0.00	0.00
90.00		258.66	623.94	0.00	0.00
95.00		255.74	610.51	0.00	0.00
97.00	(12) appurtenances	1411.78	1123.24	0.00	0.00
98.75		87.86	206.81	0.00	0.00
100.00		63.27	217.53	0.00	0.00
102.25		113.49	388.04	0.00	0.00
105.00		137.80	269.82	0.00	0.00
107.00	(16) appurtenances	2035.79	860.87	0.00	0.00
110.00		148.09	250.61	0.00	0.00
115.00		244.10	408.62	0.00	0.00
117.00	(15) appurtenances	2010.90	2076.25	0.00	0.00
119.00		95.34	131.88	0.00	0.00
	Totals:	**11,338.87**	**20,172.73**	**0.00**	**0.00**

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Resulting Forces and Deflections

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Iterations: 24

Dead Load Factor 1.00

Wind Load Factor 1.00

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-11.368	-20.156	0.000	0.000	0.000	-963.80	0.000	0.000	0.000	0.000	0.000
5.00	-11.145	-19.280	0.000	0.000	0.000	-906.96	-0.090	0.000	0.090	-0.167	0.000
10.00	-10.921	-18.419	0.000	0.000	0.000	-851.24	-0.354	0.000	0.354	-0.333	0.000
15.00	-10.697	-17.573	0.000	0.000	0.000	-796.64	-0.791	0.000	0.791	-0.498	0.000
20.00	-10.474	-16.743	0.000	0.000	0.000	-743.15	-1.400	0.000	1.400	-0.661	0.000
25.00	-10.250	-15.927	0.000	0.000	0.000	-690.78	-2.179	0.000	2.179	-0.823	0.000
30.00	-10.027	-15.127	0.000	0.000	0.000	-639.53	-3.127	0.000	3.127	-0.982	0.000
35.00	-9.800	-14.342	0.000	0.000	0.000	-589.39	-4.240	0.000	4.240	-1.140	0.000
40.00	-9.564	-13.572	0.000	0.000	0.000	-540.39	-5.517	0.000	5.517	-1.293	0.000
45.00	-9.317	-12.821	0.000	0.000	0.000	-492.57	-6.952	0.000	6.952	-1.444	0.000
48.75	-9.123	-12.270	0.000	0.000	0.000	-457.63	-8.131	0.000	8.131	-1.555	0.000
50.00	-9.063	-11.962	0.000	0.000	0.000	-446.23	-8.543	0.000	8.543	-1.592	0.000
53.25	-8.883	-11.184	0.000	0.000	0.000	-416.78	-9.660	0.000	9.660	-1.685	0.000
55.00	-8.800	-10.922	0.000	0.000	0.000	-401.23	-10.287	0.000	10.287	-1.735	0.000
60.00	-8.534	-10.208	0.000	0.000	0.000	-357.23	-12.175	0.000	12.175	-1.865	0.000
65.00	-8.264	-9.509	0.000	0.000	0.000	-314.57	-14.195	0.000	14.195	-1.989	0.000
70.00	-7.991	-8.825	0.000	0.000	0.000	-273.25	-16.340	0.000	16.340	-2.105	0.000
75.00	-7.715	-8.158	0.000	0.000	0.000	-233.30	-18.603	0.000	18.603	-2.213	0.000
80.00	-7.439	-7.506	0.000	0.000	0.000	-194.72	-20.974	0.000	20.974	-2.311	0.000
85.00	-7.161	-6.870	0.000	0.000	0.000	-157.53	-23.443	0.000	23.443	-2.399	0.000
90.00	-6.884	-6.249	0.000	0.000	0.000	-121.72	-25.997	0.000	25.997	-2.474	0.000
95.00	-6.606	-5.646	0.000	0.000	0.000	-87.307	-28.622	0.000	28.622	-2.535	0.000
97.00	-5.147	-4.585	0.000	0.000	0.000	-74.096	-29.689	0.000	29.689	-2.556	0.000
98.75	-5.051	-4.381	0.000	0.000	0.000	-65.089	-30.628	0.000	30.628	-2.572	0.000
100.00	-4.979	-4.165	0.000	0.000	0.000	-58.776	-31.303	0.000	31.303	-2.583	0.000
102.25	-4.849	-3.781	0.000	0.000	0.000	-47.574	-32.524	0.000	32.524	-2.599	0.000
105.00	-4.700	-3.517	0.000	0.000	0.000	-34.239	-34.026	0.000	34.026	-2.616	0.000
107.00	-2.627	-2.749	0.000	0.000	0.000	-24.840	-35.125	0.000	35.125	-2.627	0.000
110.00	-2.469	-2.505	0.000	0.000	0.000	-16.958	-36.779	0.000	36.779	-2.640	0.000
115.00	-2.206	-2.108	0.000	0.000	0.000	-4.615	-39.551	0.000	39.551	-2.651	0.000
117.00	-0.101	-0.127	0.000	0.000	0.000	-0.203	-40.661	0.000	40.661	-2.652	0.000
119.00	-0.095	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.772	-2.652	0.000

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Resulting Stresses

Structure:	CT13069-A-SBA	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (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: 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	0.59	0.67	0.00	0.00	0.00	31.85	32.46	48.3	0.671
5.00	0.58	0.67	0.00	0.00	0.00	31.13	31.73	48.8	0.650
10.00	0.56	0.67	0.00	0.00	0.00	30.38	30.96	49.3	0.628
15.00	0.55	0.67	0.00	0.00	0.00	29.58	30.15	49.8	0.605
20.00	0.53	0.67	0.00	0.00	0.00	28.73	29.29	50.3	0.583
25.00	0.52	0.67	0.00	0.00	0.00	27.83	28.37	50.8	0.559
30.00	0.50	0.67	0.00	0.00	0.00	26.88	27.40	51.2	0.535
35.00	0.48	0.67	0.00	0.00	0.00	25.86	26.37	51.7	0.510
40.00	0.47	0.67	0.00	0.00	0.00	24.78	25.27	52.0	0.486
45.00	0.45	0.66	0.00	0.00	0.00	23.62	24.10	52.0	0.464
48.75	0.44	0.66	0.00	0.00	0.00	22.72	23.19	52.0	0.446
50.00	0.43	0.66	0.00	0.00	0.00	22.41	22.87	52.0	0.440
53.25	0.40	0.65	0.00	0.00	0.00	20.96	21.40	52.0	0.412
55.00	0.40	0.65	0.00	0.00	0.00	20.51	20.94	52.0	0.403
60.00	0.38	0.64	0.00	0.00	0.00	19.15	19.57	52.0	0.376
65.00	0.36	0.64	0.00	0.00	0.00	17.71	18.10	52.0	0.348
70.00	0.35	0.63	0.00	0.00	0.00	16.17	16.55	52.0	0.318
75.00	0.33	0.62	0.00	0.00	0.00	14.53	14.90	52.0	0.287
80.00	0.31	0.62	0.00	0.00	0.00	12.78	13.14	52.0	0.253
85.00	0.29	0.61	0.00	0.00	0.00	10.91	11.25	52.0	0.217
90.00	0.27	0.60	0.00	0.00	0.00	8.91	9.25	52.0	0.178
95.00	0.25	0.60	0.00	0.00	0.00	6.77	7.10	52.0	0.137
97.00	0.21	0.47	0.00	0.00	0.00	5.88	6.14	52.0	0.118
98.75	0.20	0.47	0.00	0.00	0.00	5.27	5.53	52.0	0.106
100.00	0.19	0.46	0.00	0.00	0.00	4.83	5.09	52.0	0.098
102.25	0.23	0.60	0.00	0.00	0.00	5.18	5.51	52.0	0.106
105.00	0.22	0.59	0.00	0.00	0.00	3.85	4.20	52.0	0.081
107.00	0.17	0.33	0.00	0.00	0.00	2.86	3.09	52.0	0.059
110.00	0.16	0.32	0.00	0.00	0.00	2.03	2.26	52.0	0.043
115.00	0.14	0.30	0.00	0.00	0.00	0.59	0.89	52.0	0.017
117.00	0.01	0.01	0.00	0.00	0.00	0.03	0.04	52.0	0.001
119.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	52.0	0.000

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Wind Loading - Shaft

Structure: CT13069-A-SBA
Site Name: Meriden
Height: 119.00 (ft)
Base Elev: 0.000 (ft)

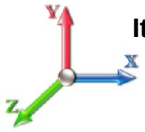
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

9/29/2015

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	180.25	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	176.88	0.650	0.000	5.00	17.856	11.61	125.5	0.0	575.2
10.00		0.00	1.00	6.400	10.82	173.50	0.650	0.000	5.00	17.519	11.39	123.2	0.0	564.2
15.00		0.00	1.00	6.400	10.82	170.13	0.650	0.000	5.00	17.181	11.17	120.8	0.0	553.3
20.00		0.00	1.00	6.400	10.82	166.75	0.650	0.000	5.00	16.844	10.95	118.4	0.0	542.4
25.00		0.00	1.00	6.400	10.82	163.38	0.650	0.000	5.00	16.506	10.73	116.0	0.0	531.4
30.00		0.00	1.00	6.400	10.82	160.00	0.650	0.000	5.00	16.169	10.51	113.7	0.0	520.5
35.00		0.00	1.02	6.509	11.00	157.95	0.650	0.000	5.00	15.832	10.29	113.2	0.0	509.6
40.00		0.00	1.06	6.762	11.43	157.52	0.650	0.000	5.00	15.494	10.07	115.1	0.0	498.6
45.00		0.00	1.09	6.993	11.82	156.67	0.650	0.000	5.00	15.157	9.85	116.4	0.0	487.7
48.75	Bot - Section 2	0.00	1.12	7.155	12.09	155.80	0.650	0.000	3.75	11.146	7.24	87.6	0.0	358.6
50.00		0.00	1.13	7.207	12.18	155.47	0.650	0.000	1.25	3.725	2.42	29.5	0.0	238.0
53.25	Top - Section 1	0.00	1.15	7.338	12.40	154.52	0.650	0.000	3.25	9.587	6.23	77.3	0.0	612.5
55.00		0.00	1.16	7.406	12.52	156.21	0.650	0.000	1.75	5.103	3.32	41.5	0.0	164.2
60.00		0.00	1.19	7.592	12.83	154.49	0.650	0.000	5.00	14.353	9.33	119.7	0.0	461.7
65.00		0.00	1.21	7.768	13.13	152.54	0.650	0.000	5.00	14.015	9.11	119.6	0.0	450.7
70.00		0.00	1.24	7.934	13.41	150.41	0.650	0.000	5.00	13.678	8.89	119.2	0.0	439.8
75.00		0.00	1.26	8.092	13.68	148.11	0.650	0.000	5.00	13.340	8.67	118.6	0.0	428.9
80.00		0.00	1.29	8.242	13.93	145.65	0.650	0.000	5.00	13.003	8.45	117.7	0.0	417.9
85.00		0.00	1.31	8.387	14.17	143.05	0.650	0.000	5.00	12.665	8.23	116.7	0.0	407.0
90.00		0.00	1.33	8.525	14.41	140.33	0.650	0.000	5.00	12.328	8.01	115.4	0.0	396.1
95.00		0.00	1.35	8.657	14.63	137.49	0.650	0.000	5.00	11.991	7.79	114.0	0.0	385.1
97.00	Appurtenance(s)	0.00	1.36	8.709	14.72	136.33	0.650	0.000	2.00	4.702	3.06	45.0	0.0	151.0
98.75	Bot - Section 3	0.00	1.37	8.754	14.79	135.30	0.650	0.000	1.75	4.070	2.65	39.1	0.0	130.7
100.00		0.00	1.37	8.785	14.85	134.55	0.650	0.000	1.25	2.921	1.90	28.2	0.0	163.0
102.25	Top - Section 2	0.00	1.38	8.841	14.94	133.20	0.650	0.000	2.25	5.204	3.38	50.5	0.0	290.4
105.00		0.00	1.39	8.908	15.06	133.36	0.650	0.000	2.75	6.268	4.07	61.3	0.0	151.3
107.00	Appurtenance(s)	0.00	1.40	8.957	15.14	132.12	0.650	0.000	2.00	4.494	2.92	44.2	0.0	108.5
110.00		0.00	1.41	9.028	15.26	130.24	0.650	0.000	3.00	6.640	4.32	65.8	0.0	160.2
115.00		0.00	1.43	9.143	15.45	127.03	0.650	0.000	5.00	10.797	7.02	108.4	0.0	260.5
117.00	Appurtenance(s)	0.00	1.44	9.188	15.53	125.73	0.650	0.000	2.00	4.224	2.75	42.6	0.0	101.9
119.00		0.00	1.44	9.233	15.60	124.41	0.650	0.000	2.00	4.170	2.71	42.3	0.0	100.6
								Totals:	**119.00**			**2,766.8**		**11,161.3**

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Discrete Appurtenance Forces

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 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	117.00	Standoff Mount (RDS-272)	3	9.188	15.528	0.75	9.56	510.00	0.000	0.000	148.49	0.00	0.00
2	117.00	S11B12	3	9.188	15.528	0.71	7.05	153.00	0.000	0.000	109.48	0.00	0.00
3	117.00	KRY 112 144/1	3	9.188	15.528	0.72	0.89	33.00	0.000	0.000	13.75	0.00	0.00
4	117.00	AIR 21 B4A B12P	3	9.188	15.528	0.83	16.38	288.00	0.000	0.000	254.41	0.00	0.00
5	117.00	AIR 21 B2A B4P	3	9.188	15.528	0.83	16.38	274.50	0.000	0.000	254.41	0.00	0.00
6	107.00	FD9R6004/2C-3L	6	8.957	15.137	0.62	1.34	18.60	0.000	0.000	20.27	0.00	0.00
7	107.00	BXA-80063/6CF	3	8.957	15.137	0.73	16.93	51.00	0.000	0.000	256.24	0.00	0.00
8	107.00	BXA-70063-6CF	3	8.957	15.137	0.73	16.93	51.00	0.000	0.000	256.24	0.00	0.00
9	107.00	BXA-171063/12CF	3	8.957	15.137	0.84	12.07	45.00	0.000	0.000	182.71	0.00	0.00
10	107.00	(3) Side Arm	1	8.957	15.137	1.00	4.50	120.00	0.000	0.000	68.11	0.00	0.00
11	97.00	VHLP2-18	2	8.709	14.718	1.00	9.36	54.00	0.000	0.000	137.76	0.00	0.00
12	97.00	VHLP1-23	1	8.709	14.718	1.00	1.61	14.20	0.000	0.000	23.70	0.00	0.00
13	97.00	Side Arm	3	8.709	14.718	0.75	6.25	360.00	0.000	0.000	92.06	0.00	0.00
14	97.00	LLPX310R	3	8.709	14.718	0.69	10.00	85.80	0.000	0.000	147.15	0.00	0.00
15	97.00	2.5GHz RRH	3	8.709	14.718	0.73	3.99	99.00	0.000	0.000	58.66	0.00	0.00
						Totals:		**2,157.10**			**2,023.47**		

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Total Applied Force Summary

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

Elev (ft)	Description	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		125.54	711.47	0.00	0.00
10.00		123.16	700.54	0.00	0.00
15.00		120.79	689.60	0.00	0.00
20.00		118.42	678.67	0.00	0.00
25.00		116.05	667.74	0.00	0.00
30.00		113.67	656.80	0.00	0.00
35.00		113.19	645.87	0.00	0.00
40.00		115.08	634.94	0.00	0.00
45.00		116.43	624.00	0.00	0.00
48.75		87.60	460.83	0.00	0.00
50.00		29.49	272.10	0.00	0.00
53.25		77.27	701.06	0.00	0.00
55.00		41.51	211.87	0.00	0.00
60.00		119.70	597.95	0.00	0.00
65.00		119.59	587.02	0.00	0.00
70.00		119.21	576.09	0.00	0.00
75.00		118.58	565.15	0.00	0.00
80.00		117.73	554.22	0.00	0.00
85.00		116.68	543.29	0.00	0.00
90.00		115.44	532.35	0.00	0.00
95.00		114.03	521.42	0.00	0.00
97.00	(12) appurtenances	504.32	818.51	0.00	0.00
98.75		39.13	176.28	0.00	0.00
100.00		28.19	195.60	0.00	0.00
102.25		50.54	349.06	0.00	0.00
105.00		61.34	222.93	0.00	0.00
107.00	(16) appurtenances	827.80	446.17	0.00	0.00
110.00		65.85	200.96	0.00	0.00
115.00		108.44	328.37	0.00	0.00
117.00	(15) appurtenances	823.18	1387.55	0.00	0.00
119.00		42.30	100.58	0.00	0.00
	Totals:	**4,790.28**	**16,358.97**	**0.00**	**0.00**

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Resulting Forces and Deflections

Structure:	CT13069-A-SB	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

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	-4.800	-16.356	0.000	0.000	0.000	-397.02	0.000	0.000	0.000	0.000	0.000
5.00	-4.692	-15.639	0.000	0.000	0.000	-373.02	-0.037	0.000	0.037	-0.069	0.000
10.00	-4.586	-14.933	0.000	0.000	0.000	-349.56	-0.146	0.000	0.146	-0.137	0.000
15.00	-4.479	-14.239	0.000	0.000	0.000	-326.63	-0.325	0.000	0.325	-0.205	0.000
20.00	-4.374	-13.556	0.000	0.000	0.000	-304.24	-0.576	0.000	0.576	-0.272	0.000
25.00	-4.269	-12.884	0.000	0.000	0.000	-282.37	-0.895	0.000	0.895	-0.338	0.000
30.00	-4.165	-12.223	0.000	0.000	0.000	-261.02	-1.284	0.000	1.284	-0.403	0.000
35.00	-4.060	-11.573	0.000	0.000	0.000	-240.20	-1.741	0.000	1.741	-0.467	0.000
40.00	-3.951	-10.935	0.000	0.000	0.000	-219.90	-2.264	0.000	2.264	-0.530	0.000
45.00	-3.838	-10.309	0.000	0.000	0.000	-200.15	-2.851	0.000	2.851	-0.591	0.000
48.75	-3.751	-9.847	0.000	0.000	0.000	-185.75	-3.333	0.000	3.333	-0.636	0.000
50.00	-3.722	-9.574	0.000	0.000	0.000	-181.07	-3.502	0.000	3.502	-0.651	0.000
53.25	-3.641	-8.872	0.000	0.000	0.000	-168.97	-3.958	0.000	3.958	-0.689	0.000
55.00	-3.603	-8.658	0.000	0.000	0.000	-162.59	-4.215	0.000	4.215	-0.709	0.000
60.00	-3.483	-8.058	0.000	0.000	0.000	-144.58	-4.986	0.000	4.986	-0.762	0.000
65.00	-3.362	-7.470	0.000	0.000	0.000	-127.17	-5.811	0.000	5.811	-0.812	0.000
70.00	-3.239	-6.893	0.000	0.000	0.000	-110.36	-6.686	0.000	6.686	-0.859	0.000
75.00	-3.117	-6.328	0.000	0.000	0.000	-94.167	-7.609	0.000	7.609	-0.902	0.000
80.00	-2.994	-5.774	0.000	0.000	0.000	-78.583	-8.576	0.000	8.576	-0.942	0.000
85.00	-2.871	-5.231	0.000	0.000	0.000	-63.614	-9.582	0.000	9.582	-0.977	0.000
90.00	-2.749	-4.699	0.000	0.000	0.000	-49.258	-10.622	0.000	10.622	-1.008	0.000
95.00	-2.627	-4.179	0.000	0.000	0.000	-35.514	-11.692	0.000	11.692	-1.033	0.000
97.00	-2.108	-3.370	0.000	0.000	0.000	-30.261	-12.126	0.000	12.126	-1.041	0.000
98.75	-2.066	-3.194	0.000	0.000	0.000	-26.571	-12.509	0.000	12.509	-1.047	0.000
100.00	-2.035	-2.999	0.000	0.000	0.000	-23.989	-12.784	0.000	12.784	-1.052	0.000
102.25	-1.978	-2.650	0.000	0.000	0.000	-19.411	-13.281	0.000	13.281	-1.059	0.000
105.00	-1.913	-2.428	0.000	0.000	0.000	-13.971	-13.893	0.000	13.893	-1.065	0.000
107.00	-1.077	-1.998	0.000	0.000	0.000	-10.145	-14.341	0.000	14.341	-1.070	0.000
110.00	-1.008	-1.798	0.000	0.000	0.000	-6.914	-15.015	0.000	15.015	-1.075	0.000
115.00	-0.893	-1.472	0.000	0.000	0.000	-1.875	-16.144	0.000	16.144	-1.080	0.000
117.00	-0.044	-0.100	0.000	0.000	0.000	-0.088	-16.596	0.000	16.596	-1.080	0.000
119.00	-0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.049	-1.080	0.000

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Resulting Stresses

Structure:	CT13069-A-SBA	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 23

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	0.48	0.28	0.00	0.00	0.00	13.12	13.61	48.3	0.281
5.00	0.47	0.28	0.00	0.00	0.00	12.81	13.28	48.8	0.272
10.00	0.45	0.28	0.00	0.00	0.00	12.48	12.94	49.3	0.262
15.00	0.44	0.28	0.00	0.00	0.00	12.13	12.58	49.8	0.253
20.00	0.43	0.28	0.00	0.00	0.00	11.76	12.20	50.3	0.243
25.00	0.42	0.28	0.00	0.00	0.00	11.38	11.80	50.8	0.233
30.00	0.40	0.28	0.00	0.00	0.00	10.97	11.38	51.2	0.222
35.00	0.39	0.28	0.00	0.00	0.00	10.54	10.94	51.7	0.211
40.00	0.38	0.27	0.00	0.00	0.00	10.08	10.47	52.0	0.201
45.00	0.36	0.27	0.00	0.00	0.00	9.60	9.97	52.0	0.192
48.75	0.35	0.27	0.00	0.00	0.00	9.22	9.59	52.0	0.184
50.00	0.35	0.27	0.00	0.00	0.00	9.09	9.45	52.0	0.182
53.25	0.32	0.27	0.00	0.00	0.00	8.50	8.83	52.0	0.170
55.00	0.32	0.26	0.00	0.00	0.00	8.31	8.64	52.0	0.166
60.00	0.30	0.26	0.00	0.00	0.00	7.75	8.07	52.0	0.155
65.00	0.29	0.26	0.00	0.00	0.00	7.16	7.46	52.0	0.143
70.00	0.27	0.26	0.00	0.00	0.00	6.53	6.82	52.0	0.131
75.00	0.25	0.25	0.00	0.00	0.00	5.86	6.13	52.0	0.118
80.00	0.24	0.25	0.00	0.00	0.00	5.16	5.41	52.0	0.104
85.00	0.22	0.25	0.00	0.00	0.00	4.41	4.65	52.0	0.089
90.00	0.20	0.24	0.00	0.00	0.00	3.61	3.83	52.0	0.074
95.00	0.19	0.24	0.00	0.00	0.00	2.75	2.97	52.0	0.057
97.00	0.15	0.19	0.00	0.00	0.00	2.40	2.58	52.0	0.050
98.75	0.15	0.19	0.00	0.00	0.00	2.15	2.32	52.0	0.045
100.00	0.14	0.19	0.00	0.00	0.00	1.97	2.14	52.0	0.041
102.25	0.16	0.24	0.00	0.00	0.00	2.11	2.31	52.0	0.045
105.00	0.15	0.24	0.00	0.00	0.00	1.57	1.77	52.0	0.034
107.00	0.13	0.14	0.00	0.00	0.00	1.17	1.32	52.0	0.025
110.00	0.12	0.13	0.00	0.00	0.00	0.83	0.97	52.0	0.019
115.00	0.10	0.12	0.00	0.00	0.00	0.24	0.39	52.0	0.008
117.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02	52.0	0.000
119.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	52.0	0.000

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Final Analysis Summary

Structure:	CT13069-A-SBA	**Code:**	EIA/TIA-222-F	9/29/2015	
Site Name:	Meriden	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 22	

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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	t MZ (ft-kips)
85 mph Wind with 0" Ice	13.9	0.00	16.33	0.00	0.00	1146.97
73.61 mph Wind with 0.5" Ice	11.4	0.00	20.16	0.00	0.00	963.81
50 mph Wind with 0" Ice	4.8	0.00	16.36	0.00	0.00	397.03

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	0.48	0.82	0.00	0.00	0.00	37.90	38.41	48.3	0.00	0.794
73.61 mph Wind with 0.5" Ice	0.59	0.67	0.00	0.00	0.00	31.85	32.46	48.3	0.00	0.671
50 mph Wind with 0" Ice	0.48	0.28	0.00	0.00	0.00	13.12	13.61	48.3	0.00	0.281

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Monopole Mat Foundation Design

			Date: 9/29/2015
Customer Name:	T-Mobile	**EIA/TIA Standard:**	EIA-222-F
Site Name:	Meriden	**Structure Height (Ft.):**	119
Site Number:	CT13069-A-SBA	**Engineer Name:**	F. Arinyedokia
Engr. Number:	17790	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

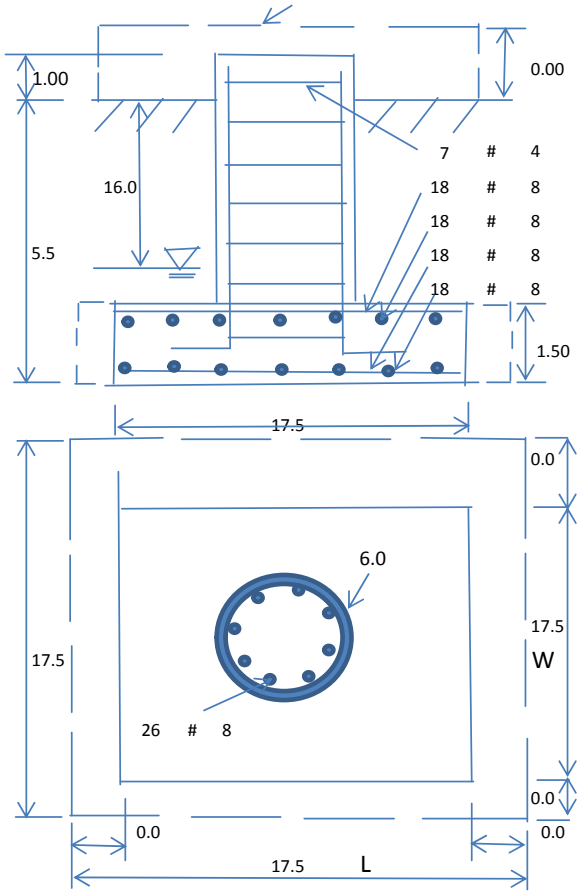
Analysis or Design? Analysis

Base Reactions (Unfactored)

Axial Load (Kips):	16.3	Shear Force (Kips):	13.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	1146.9
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	1.50
Length of Pad (ft.):	17.5	Width of Pad (ft.):	17.5
Final Length of pad (ft)	17.5	Final width of pad (ft):	17.5
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	26	Tie Spacing (in):	12.0	
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):	18	Qty. of Rebar in Pad (W):	18	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	18	Qty. of Rebar in Pad (W):	18	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	16.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Allowable Net Soil Bearing (psf):	12000	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.):	1111.90	Total Dry Soil Weight (Kips):	122.31
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	122.31	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	600.75	Total Dry Concrete Weight (Kips):	90.11
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	90.11	Total Vertical Load on Base (Kips):	228.74

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2835	<	Allowable Soil Bearing (psf):	12000	0.24	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	1334.3	>	Applied Momont (kips-ft):	1237	0.93	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.62	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):	0.79	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	2994.3 >	Design Factored Moment (Mu, Kips-F	1216.4	0.41	OK!
Calculated Shear Capacity (Kips):	501.5 >	Design Factored Shear (Kips):	18.1	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	1109.2 >	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7162.1 >	Design Factored Axial Load (Pu Kips):	21.2	0.00	OK!
Moment & Axial Strength Combination:	0.41 OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:					
One-Way Design Shear Capacity (L-Direction, Kips):	288.9 >	One-Way Factored Shear (L-D. Kips):	143.2	0.50	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	288.9 >	One-Way Factored Shear (W-D., Kips)	143.2	0.50	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	309.5 >	One-Way Factored Shear (C-C, Kips):	204.9	0.66	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0047 OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0047		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	889.6 >	Moment at Bottom (L-Direct. K-Ft):	250.2	0.28	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	889.6 >	Moment at Bottom (W-Direct. K-Ft):	250.2	0.28	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	1240.8 >	Moment at Bottom (C-C Dir. K-Ft):	353.8	0.29	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0047 OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0047		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	889.6 >	Moment at the top (L-Dir Kips-Ft):	59.1	0.07	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	889.6 >	Moment at the top (W-Dir Kips-Ft):	59.1	0.07	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	1240.8 >	Moment at the top (C-C Direc. K-Ft):	220.1	0.18	OK!

SITE NAME: OPTASITE MERIDEN_FT

651 PADDOCK AVE.
MERIDEN, CT 06450
NEW HAVEN COUNTY

SITE NUMBER: CT11493A

SITE CONFIG: 702Cc

PAINTING NOTE:
ALL EQUIPMENT MOUNTED TO MONOPOLE SHALL BE PAINTED (BROWN) TO MATCH THE COLOR OF THE MONOPOLE INCLUDING ANTENNAS, RRH'S, ALL BRACKETS & PIPES.

PROJECT NOTES

GENERAL NOTES:

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T–MOBILE. 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.

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.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T–MOBILE NORTHEAST LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL STRUCTURAL NOTES:

TOWER OWNER SHALL PROVIDE GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING ANTENNA SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE–BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.

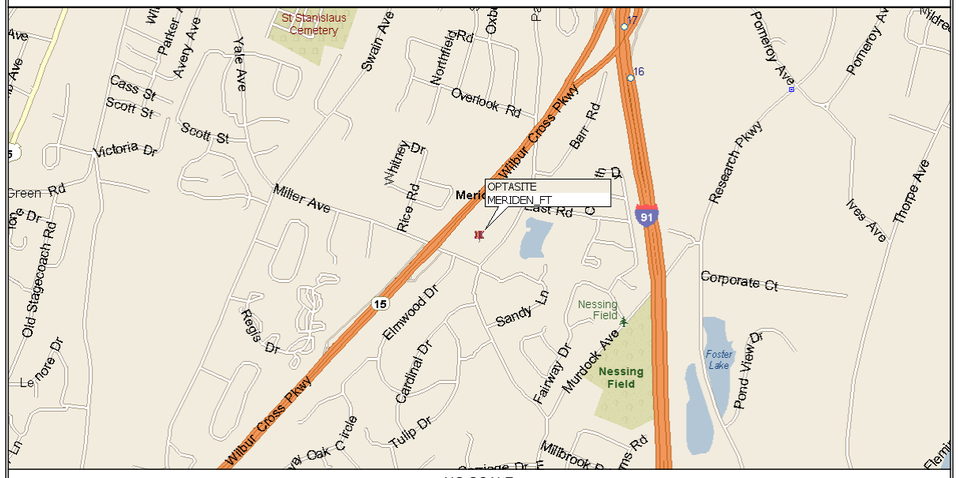
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND HAS DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOAD. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY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

B+T GROUP ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTIONS ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES.

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS	LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS NOT PERMITTED	DIPLEXERS:	UNRESTRICTED
SECTOR B:	ACCESS NOT PERMITTED	RADIO CABINETS:	UNRESTRICTED
SECTOR C:	ACCESS NOT PERMITTED	PPC DISCONNECT:	UNRESTRICTED
RRH:	ACCESS NOT PERMITTED	MAIN CIRCUIT D/C:	UNRESTRICTED
TMA:	ACCESS NOT PERMITTED	NIU/T DEMARC:	UNRESTRICTED
GPS/LMU:	CAUTION: OSHA APPROVED PORTABLE 8' STEP–LADDER REQUIRED	OTHER/SPECIAL:	NONE

LOCATION MAP



NO SCALE

APPROVALS

TITLE	SIGNATURE	DATE
PROJECT MANAGER:		
CONSTRUCTION:		
RF ENGINEERING:		
ZONING/SITE ACQ.:		
OPERATIONS:		
TOWER OWNER:		

ACCEPTANCE DOES NOT CONSTITUTE APPROVAL OF DESIGN, CALCULATIONS, ANALYSIS, TEST METHODS OF MATERIALS DEVELOPED OR SELECTED BY THE SUBCONTRACTOR AND DOES NOT RELIEVE SUBCONTRACTOR FROM FULL COMPLIANCE WITH CONTRACTUAL OBLIGATIONS.

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T–MOBILE EQUIPMENT MODERNIZATION
ZONING JURISDICTION: (TOWN OF MERIDEN)	BASED ON INFORMATION PROVIDED BY T–MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A) AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE–EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).
SITE ADDRESS:	651 PADDOCK AVE. MERIDEN, CT 06450
LATITUDE:	41.51251° N
LONGITUDE:	72.77917° W
JURISDICTION:	NATIONAL, STATE & LOCAL CODES & ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
TOWER OWNER:	SBA INFRASTRUCTURE, LLC
SBA SITE ID:	CT13069–A
SBA SITE NAME:	MERIDEN
SBA REGIONAL SITE MANAGER:	STEPHEN ROTH (860) 539–4920 sroth@sbasite.com

DRAWING INDEX

SHEET #	SHEET DESCRIPTION	REV. #
T–1	TITLE SHEET	0
GN–1	GENERAL NOTES	0
C–1	COMPOUND AND ELEVATION PLAN	0
C–2	EXISTING AND PROPOSED ANTENNA PLANS	0
C–3	DETAILS	0
E–1	GROUNDING DETAILS AND NOTES	0

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www.btgrp.com

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

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

CT11493A

OPTASITE MERIDEN_FT

651 PADDOCK AVE.
MERIDEN, CT 06450

PROJECT NO:	101025.001
CHECKED BY:	RCM

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	9/23/15	MDW	CONSTRUCTION

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

9/23/15
STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:	REVISION:
T-1	0

101025_CT13069–A_Meriden_CT11493A.dwg – Sheet:T–1 – User: mwesel – Sep 23, 2015 – 2:48pm

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 TELECORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATION OR ADVERSE FINDING TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GE'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 & 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.

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 BUS 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 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 SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDED FITTINGS OR BY BINDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20' OR MORE OF 1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BAR TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   - CONTRACTOR: SBA COMMUNICATIONS CORP.
   - SUBCONTRACTOR: GENERAL CONTRACTOR (CONSTRUCTION)
   - OWNER: T-MOBILE

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.

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. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIAL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALL AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY, SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. 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.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF 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.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. 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) UNLESS NOTED OTHERWISE, PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WETHER 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.

16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."

17. 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.

18. 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 SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW, USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, AL 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 ADVISED TO BE WORN TO ALERT IF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
    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.
    - BUILDING CODE: IBC 2009
    - ELECTRICAL CODE: NEC 2014

    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; ASD, FOURTEENTH EDITION

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G;
    STRUCTURAL STANDARDS FOR STEEL

    ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES;
    REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHOD 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.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	GC	GENERAL CONTRACTOR	REF.	REFERENCE
AWG	AMERICAN WIRE GAUGE	MAX.	MAXIMUM	REQ.	REQUIRED
BCW	BARE COPPER WIRE	MGB	MASTER GROUND BAR	RF	RADIO FREQUENCY
BTS	BASE TRANSCEIVER STATION	MIN.	MINIMUM	T.B.D.	TO BE DETERMINED
(E)	EXISTING	(N)	PROPOSED	T.B.R.	TO BE REMOVED
EG	EQUIPMENT GROUND	N.T.S.	NOT TO SCALE	T.B.R.R.	TO BE REMOVED AND REPLACED
EGR	EQUIPMENT GROUND RING	RE:	REFERENCE	(TYP)	TYPICAL

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OPTASITE MERIDEN_FT

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MERIDEN, CT 06450

PROJECT NO:	101025.001
CHECKED BY:	RCM

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	9/23/15	MDW	CONSTRUCTION

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

9/23/15

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

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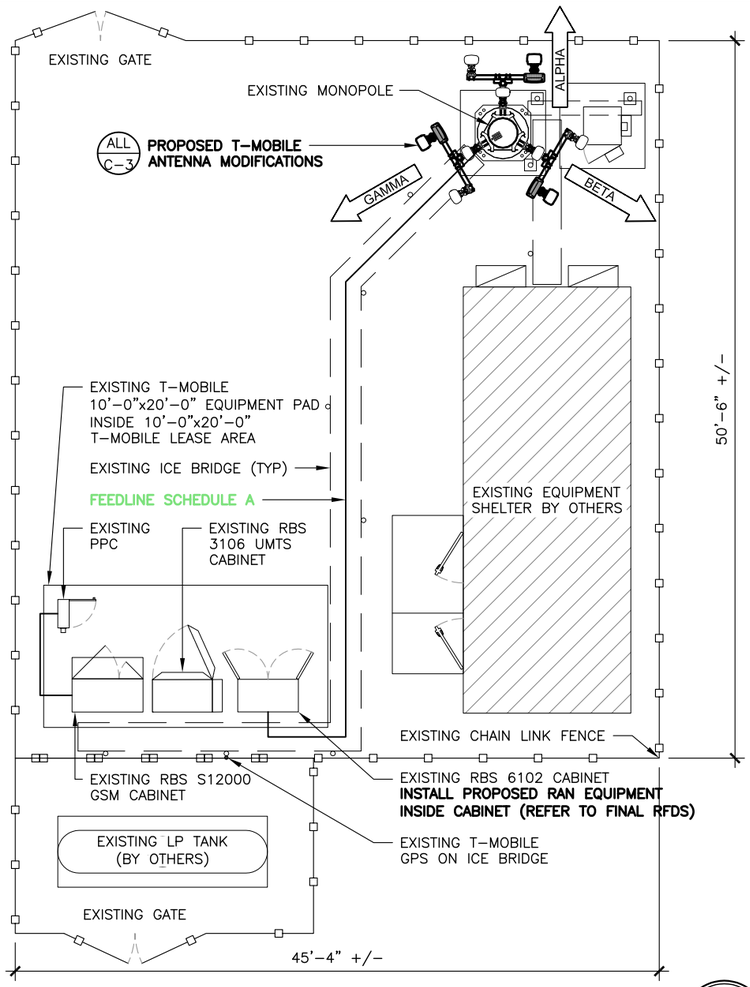
SHEET NUMBER:	REVISION:
GN-1	0

101025_CT13069-A_Meriden_CT11493A.dwg – Sheet:GN-1 – User: mwesel – Sep 23, 2015 – 2:48pm

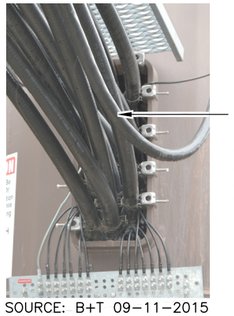


1 OVERALL SITE PLAN

SCALE: 11x17 SCALE: 3/32"=1'-0" 22x34 SCALE: 3/16"=1'-0"

0' 5' 10' 15' 25'

N



EXISTING (12) LINES OF 1 5/8" COAX AND (1) 1 1/4" HYBRID FIBER TO 117' TO REMAIN. **(REFER TO SBA PROVIDED STRUCTURAL ANALYSIS FOR SPECIAL CABLE INSTALLATION REQUIREMENTS, BUNDLING, SHIELDING, MOUNTING AND RELOCATION OF EXISTING CABLES)**

SOURCE: B+T 09-11-2015

2A FEEDLINE PHOTO DETAIL @ TOWER BASE

SCALE: N.T.S.

STRUCTURAL NOTES:

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

ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:

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

PAINTING NOTE:

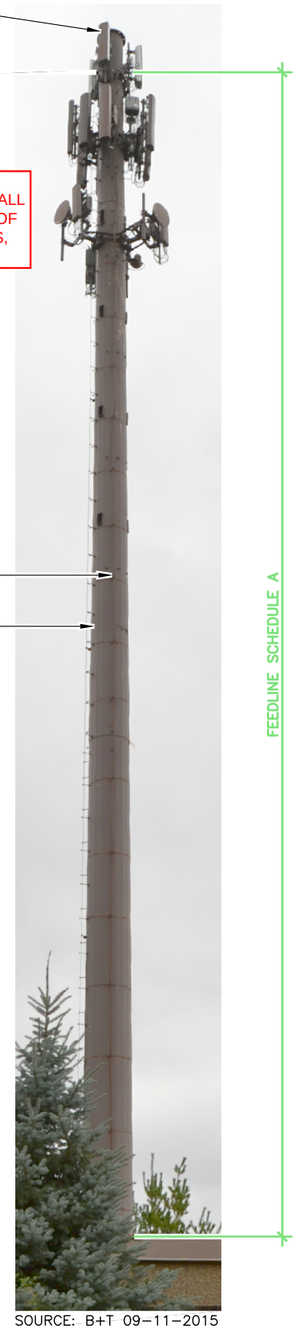
ALL EQUIPMENT MOUNTED TO MONOPOLE SHALL BE PAINTED (BROWN) TO MATCH THE COLOR OF THE MONOPOLE INCLUDING ANTENNAS, RRH'S, ALL BRACKETS & PIPES.

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING TO REMAIN: (12) 1 5/8" COAX & (1) 1 1/4" HYBRID FIBER TO T-MOBILE RAD @ 117'	INSIDE POLE
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER		

SOURCE: B+T 09-11-2015

2B EQUIPMENT PHOTO DETAIL

SCALE: N.T.S.



SOURCE: B+T 09-11-2015

3 ELEVATION PHOTO DETAIL

SCALE: N.T.S.

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

9/23/15
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C-1	0

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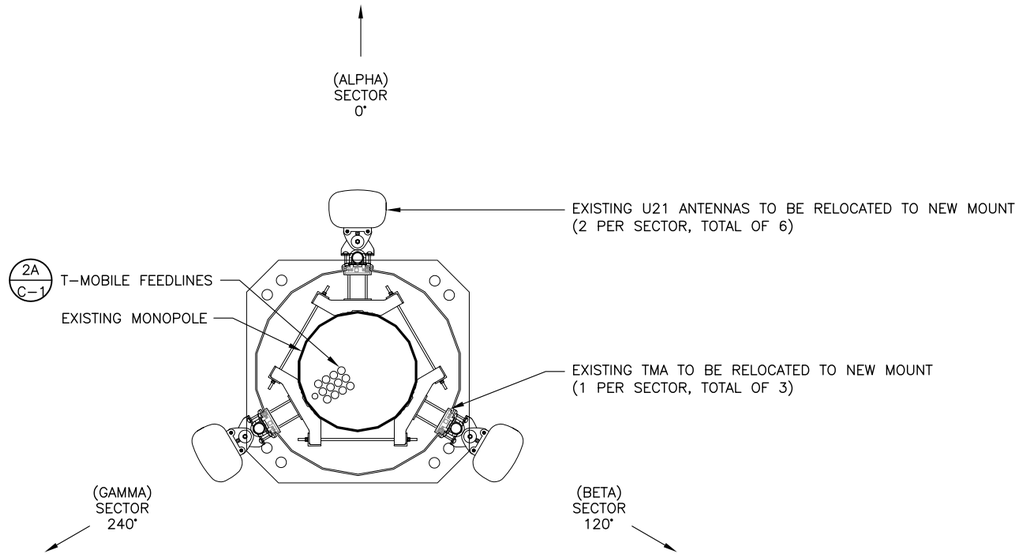
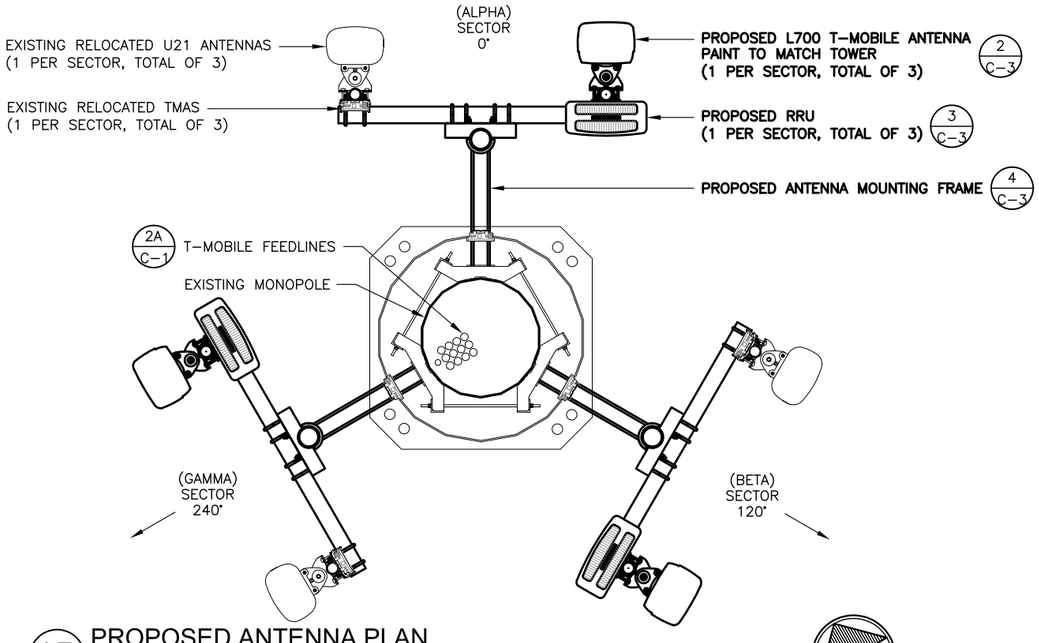


1A EXISTING ANTENNA PLAN

SCALE: 0' 1' 3' 6'

11x17 SCALE: 3/8"=1'-0"
22x34 SCALE: 3/4"=1'-0"

N

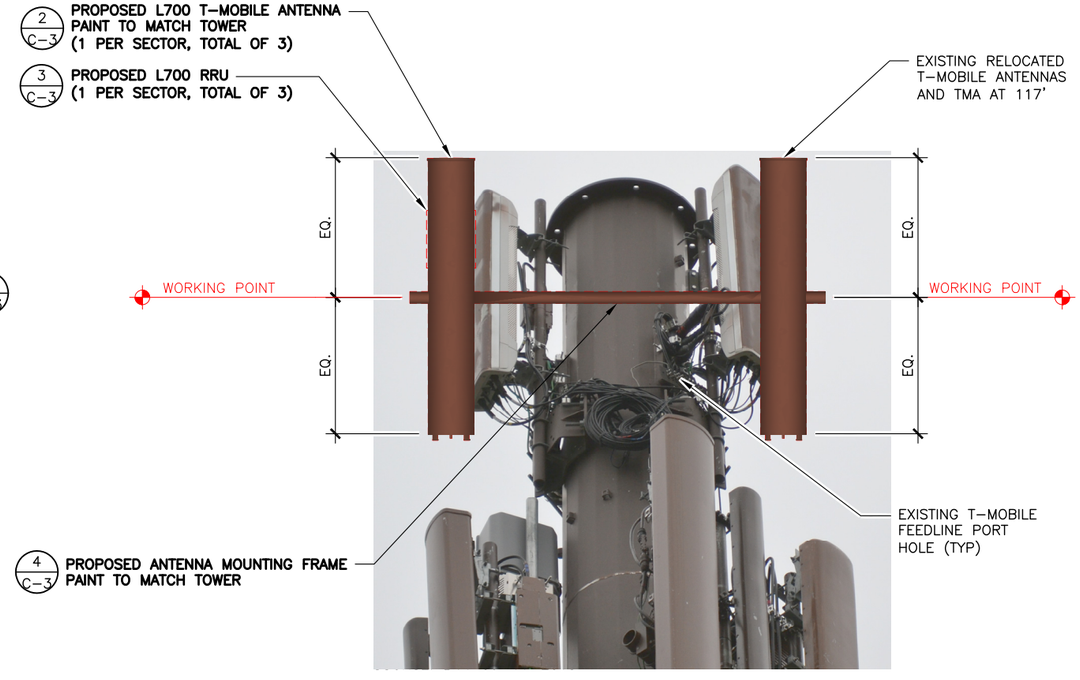


1B PROPOSED ANTENNA PLAN

SCALE: 0' 1' 3' 6'

11x17 SCALE: 3/8"=1'-0"
22x34 SCALE: 3/4"=1'-0"

N



2 ANTENNA MOUNT PHOTO DETAIL

SCALE: N.T.S.

STRUCTURAL NOTES:

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

SPECIAL WORK NOTE:

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

ANTENNA INSTALLATION SPECIAL WORK NOTE:

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

PAINTING NOTE:

ALL EQUIPMENT MOUNTED TO MONOPOLE SHALL BE PAINTED (BROWN) TO MATCH THE COLOR OF THE MONOPOLE INCLUDING ANTENNAS, RRH'S, ALL BRACKETS & PIPES.

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C-2	0

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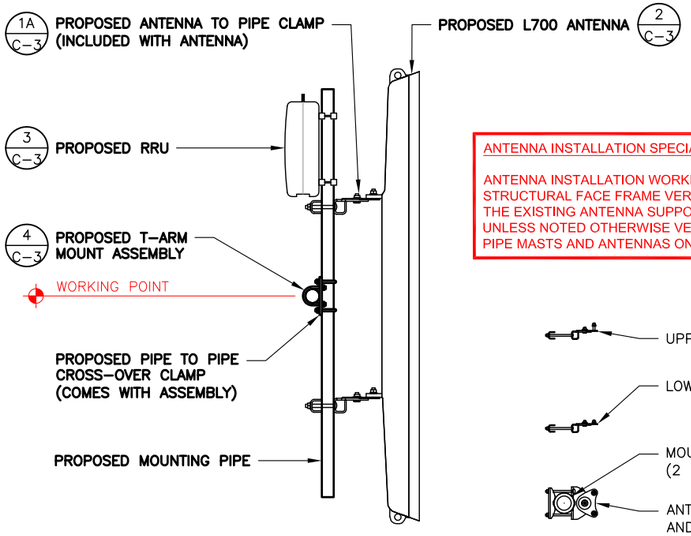

ANTENNA INSTALLATION SPECIAL WORK NOTE:

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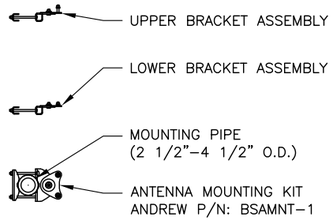
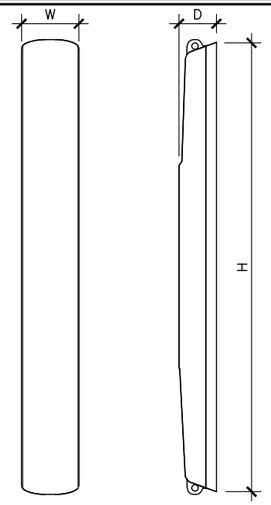
1 PROPOSED L700 ANTENNA & RRU MOUNTING DETAIL
SCALE: N.T.S.

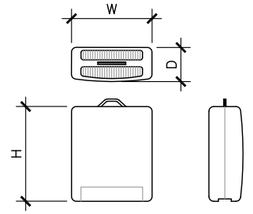


1A L700 ANTENNA MOUNTING BRACKET
SCALE: N.T.S.



L700 ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR 21 B4A/B12P-B5P (KRC 118 048/1)
WIDTH	12.1"
DEPTH	8.7"
HEIGHT	96.0"
WEIGHT	126.0 LBS

2 L700 ANTENNA DETAIL
SCALE: N.T.S.



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

3 REMOTE RADIO UNIT (RRU)
SCALE: N.T.S.

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PAINTING NOTE:
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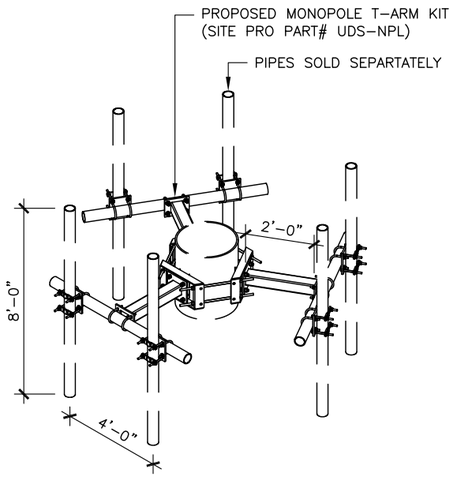

4 PROPOSED T-ARM MOUNT KIT
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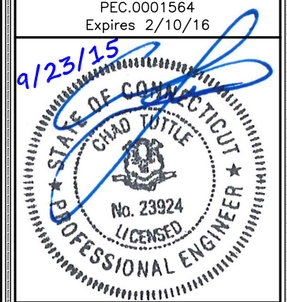

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SHEET NUMBER: C-3
REVISION: 0

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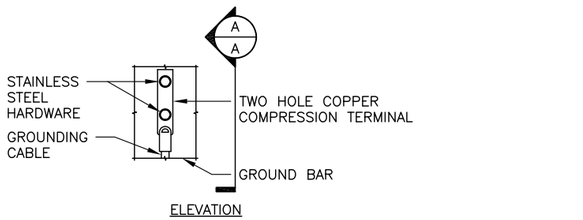
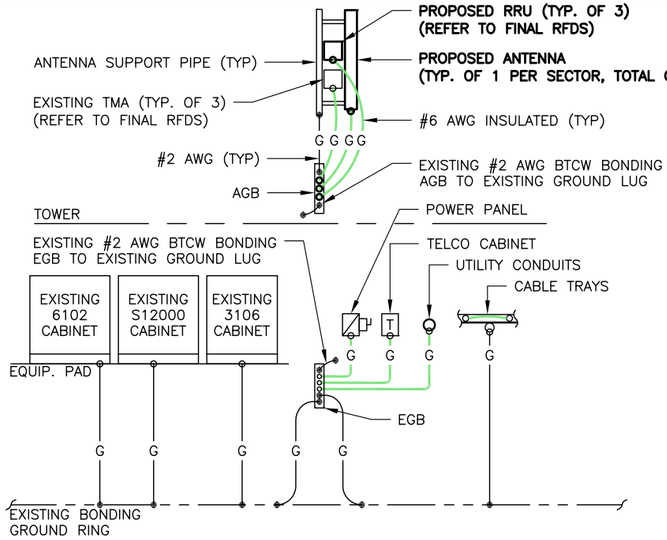
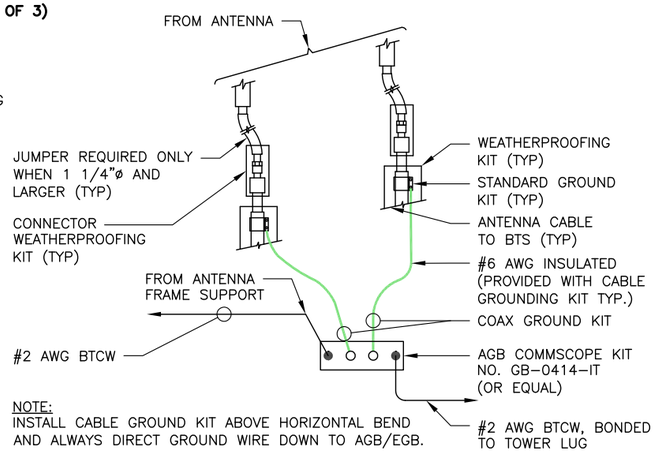


NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

1 TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.

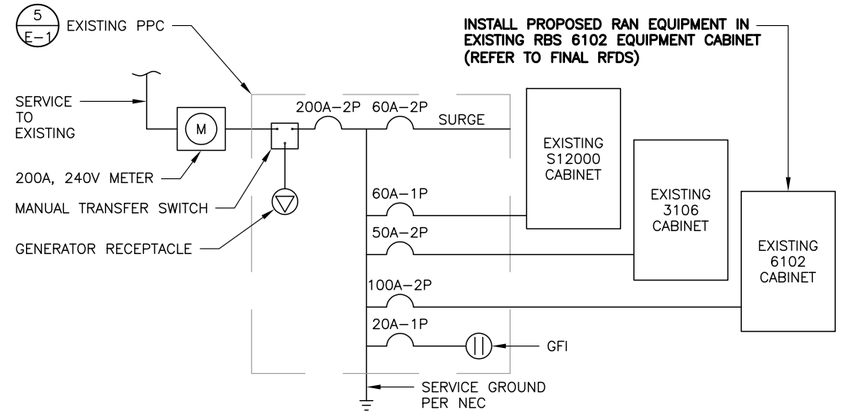


2 TYPICAL GROUNDING RISER DIAGRAM
SCALE: N.T.S.

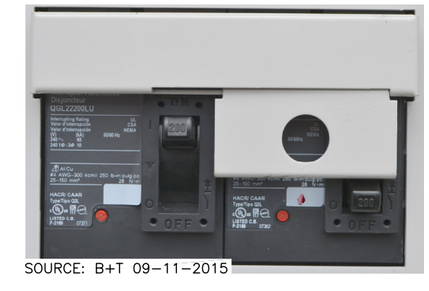


NOTE:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB.

3 TOWER TOP CABLE GROUNDING DETAIL
SCALE: N.T.S.



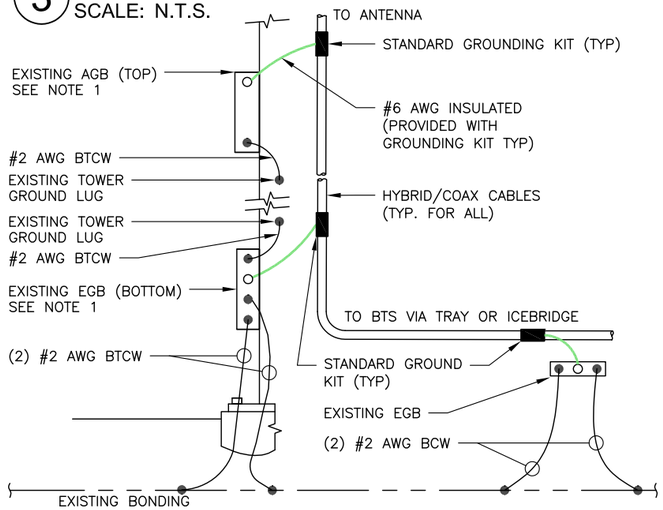
4 ONE-LINE POWER DIAGRAM
SCALE: N.T.S.



SOURCE: B+T 09-11-2015

SOURCE: B+T 09-11-2015

5 PHOTO DETAIL: PPC PANEL
SCALE: N.T.S.



NOTE:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER. ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

6 TOWER BOTTOM CABLE GROUNDING DETAIL
SCALE: N.T.S.

ELECTRICAL LEGEND

A	AMPERE
BTCW	BARE TINNED (SOLID) COPPER WIRE
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
KWH	KILOWATT – HOUR
PPC	POWER PROTECTION CABINET
V	VOLT
	5/8"x8' COPPER CLAD STAINLESS STEEL GROUND ROD
	GROUND
	EXOTHERMIC CONNECTION (CAD WELD) MECHANICAL CONNECTION
AGB/EGB	ANTENNA GROUND BAR/EQUIPMENT GROUND BAR
MGB	MASTER GROUND BAR
G	GROUND COPPER WIRE, SIZED AS NOTED
	EXPOSED WIRING, SIZE AS NOTED
	INSULATED WIRING, SIZE AS NOTED
	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

ELECTRICAL & GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
14. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

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CT11493A

OPTASITE MERIDEN_FT

651 PADDOCK AVE.
MERIDEN, CT 06450

PROJECT NO:	101025.001
CHECKED BY:	RCM

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	9/23/15	MDW	CONSTRUCTION

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

9/23/15

STATE OF CONNECTICUT ★ CHAD TUTTLE ★ No. 23924 LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:	REVISION:
E-1	0

101025_CT13069-A_Meriden_CT11493A.dwg – Sheet:E-1 – User: mwesel – Sep 23, 2015 – 2:48pm