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

August 20, 2018

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

Notice of Exempt Modification
723 Farmington Ave, New Britain, CT 06053
N 41° 41' 54.56"
W 72° 47' 8.052"
T-Mobile Site #: CTHA105A_L700-4x2

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 88-foot level of the existing 119-foot Monopole Tower at 723 Farmington Avenue in New Britain, CT. The tower is owned by SBA Towers, LLC. The property is owned by Nest 88 Polish Falcons Alliance of America, Inc. T-Mobile proposes to replace (3) existing cell antennas with (3) newer technology antennas at the 88-foot level of the Tower. The full scope of proposed work is as follows

Remove:
- (1) 1-5/8" line
- (1) 1-5/8" fiber

Remove and Replace:
- Remove: (3) Commscope LNX-6515DS-A1M - Panel Antennas
  - Replace with: (3) RFS APXVAARR24_43-U-NA20 – Panel Antennas
- Remove: (3) Ericsson Double TMA 17/21 – TMAs
  - Replace with: (3) Ericsson KRY 112 144/2
- Remove: (3) Ericsson RRUS11 B12 – RRUs
  - Replace with: (3) Ericsson Radio 4449 B71 + B12
- Remove: (1) 1-5/8" hybrid
  - Replace with (3) 1-1/4" hybrid

Existing Equipment to Remain (including entitlements):
- (3) Ericsson AIR 21 B2A/B4P – Panel Antennas
- (3) Ericsson AIR 32 – Panel Antennas
- (3) T-Arms
- (11) 1-5/8" lines

This facility was originally approved by the Council under Docket 303 on June 28, 2005. Approval was given for a Monopole not to exceed 110' including antennas, which were to be installed using flush or t-arm mounting. An updated RF report was to be provided when changes were proposed. Public/private entities were to be allowed shared space for fair consideration and space was to be given for zero compensation to any City public safety services. The proposed modification complies with all conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the City's Mayor, Erin Stewart, Zoning Authority, The Municipal Development Group for the City of New Britain, and to the property owner, Nest 88 of the Polish Falcons Alliance of America, Inc. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

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

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

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T
508.366.2610 + F
kpelletier@sbasite.com
Attachments
cc: The Honorable Erin Stewart, Mayor of the City of New Britain–as elected official – w/attachments
City Hall Room 204, 27 West Main St., New Britain, CT 06051
New Britain Municipal Development–as representative for respective P&Z Dept. – w/attachments
City Hall Room 311, 27 West Main St., New Britain, CT 06051
Nest 88 Polish Falcons Alliance of America, Inc.—property owner – w/attachments
201 Washington Street, New Britain CT 06051-1827

POWER DENSITY

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32 KRD901146-1 B66A/B2A	Make / Model:	Ericsson AIR32 KRD901146-1 B66A/B2A	Make / Model:	Ericsson AIR32 KRD901146-1 B66A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	88 feet	Height (AGL):	88 feet	Height (AGL):	88 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A1 MPE%	**4.16**	Antenna B1 MPE%	**4.16**	Antenna C1 MPE%	**4.16**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 KRC118023-1 B2A/B4P	Make / Model:	Ericsson AIR21 KRC118023-1 B2A/B4P	Make / Model:	Ericsson AIR21 KRC118023-1 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	88 feet	Height (AGL):	88 feet	Height (AGL):	88 feet
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	2	Channel Count	2	Channel Count	2
Total TX Power(W):	55	Total TX Power(W):	55	Total TX Power(W):	55
ERP (W):	2,139.75	ERP (W):	2,139.75	ERP (W):	2,139.75
Antenna A2 MPE%	**1.14**	Antenna B2 MPE%	**1.14**	Antenna C2 MPE%	**1.14**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	dBd	Gain:	dBd	Gain:	dBd
Height (AGL):	88 feet	Height (AGL):	88 feet	Height (AGL):	88 feet
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	40	Total TX Power(W):	40	Total TX Power(W):	40
ERP (W):	865.09	ERP (W):	865.09	ERP (W):	865.09
Antenna A3 MPE%	**0.99**	Antenna B3 MPE%	**0.99**	Antenna C3 MPE%	**0.99**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**6.29 %**
Sprint	**0.03**
Clearwire	**0.17**
MetroPCS	**2.35**
AT&T	**6.32**
Verizon Wireless	**4.29**
Site Total MPE %:	**19.45 %**

T-Mobile Sector A Total:	6.29 %
T-Mobile Sector B Total:	6.29 %
T-Mobile Sector C Total:	6.29 %
Site Total:	19.45 %

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

723 FARMINGTON AVE

Location	723 FARMINGTON AVE	**Mblu**	C3A/ 1/ / /
Acct#	37500723	**Owner**	NEST 88 POLISH FALCONS ALLIANCE
Assessment	$540,260	**Appraisal**	$771,800
PID	597	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$208,000	$563,800	$771,800
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$145,600	$394,660	$540,260

Owner of Record

Owner	NEST 88 POLISH FALCONS ALLIANCE	**Sale Price**	$0
Co-Owner	OF AMERICA INC	**Certificate**	
Address	201 WASHINGTON ST NEW BRITAIN, CT 06051	**Book & Page**	1412/ 329
		Sale Date	05/30/2002

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
NEST 88 POLISH FALCONS ALLIANCE	$0		1412/ 329	05/30/2002
NEST 88 POLISH FALCONS ALLIANC	$0		474/ 342	12/22/1958
NEST 88 POLISH FALCONS	$0		327/ 77	06/14/1948
EDWARD SZCZEPANIK	$0		324/ 597	05/21/1948
SEBASTIANO & VINCENZA FORMICA	$0		305/ 273	10/09/1945

Building Information

Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	$0
Building Percent Good:	
Replacement Cost Less Depreciation:	$0

Building Photo

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Central Heat Sys	
AC Type	
Total Bedrooms	
Total Full Baths	
Total Half Baths	
Total Xtra Fixtrs	
Total Rooms	
Bath Style	
Kitchen Style	
Whirlpool Tub	
Fireplaces	
Rec Room Finish	
Rec Room Qual	
Bsmt Garages	
Bldg Nbhd	

(http://images.vgsi.com/photos/NewBritainCTPhotos//\00\01\94/92.jpg)

Building Layout

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	3531
Description	Fratnl Org Lnd
Zone	T
Neighborhood	103
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	32.08
Depth	
Assessed Value	$394,660
Appraised Value	$563,800

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN3	Fence-6' Chain			300 L.F.	$3,000	1
CB3	PreCastConcCel			100 S.F.	$23,100	1
CB3	PreCastConcCel			360 S.F.	$181,900	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	$208,000	$563,800	$771,800
2016	$208,000	$506,000	$714,000
2015	$208,000	$506,000	$714,000

Assessment			
Valuation Year	Improvements	Land	Total
2017	$145,600	$394,660	$540,260
2016	$145,600	$354,200	$499,800
2015	$145,600	$354,200	$499,800

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA105A

HA105/SBA Stanley_FT
723 Farmington Avenue
New Britain, CT 06053

August 13, 2018

EBI Project Number: 6218005519

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	19.45 %

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

EBI Consulting
environmental | engineering | due diligence

August 13, 2018

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

Emissions Analysis for Site: **CTHA105A – HA105/SBA Stanley_FT**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **723 Farmington Avenue, New Britain, 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 μW/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 population 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 population 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 (μW/cm^2). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 μW/cm^2 and 467 μW/cm^2 respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands is 1000 μW/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 **723 Farmington Avenue, New Britain, 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 for directional panel antennas, 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) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.

2) 1 UMTS channels (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 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.

5) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) 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.

7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

8) The antennas used in this modeling are the **Ericsson AIR32 KRD901146-1 B66A/B2A** & **Ericsson AIR21 KRC118023-1 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels, the **RFS APXVAARR24_43-U-NA20** for 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

9) The antenna mounting height centerline of the proposed antennas is **88 feet** above ground level (AGL).

10) 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.

11) All calculations were done with respect to uncontrolled / general population threshold limits.

EBI Consulting

environmental | engineering | due diligence

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR32 KRD901146-1 B66A/B2A	Make / Model:	Ericsson AIR32 KRD901146-1 B66A/B2A	Make / Model:	Ericsson AIR32 KRD901146-1 B66A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	88 feet	Height (AGL):	88 feet	Height (AGL):	88 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A1 MPE%	**4.16**	Antenna B1 MPE%	**4.16**	Antenna C1 MPE%	**4.16**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 KRC118023-1 B2A/B4P	Make / Model:	Ericsson AIR21 KRC118023-1 B2A/B4P	Make / Model:	Ericsson AIR21 KRC118023-1 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	88 feet	Height (AGL):	88 feet	Height (AGL):	88 feet
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	2	Channel Count	2	Channel Count	2
Total TX Power(W):	55	Total TX Power(W):	55	Total TX Power(W):	55
ERP (W):	2,139.75	ERP (W):	2,139.75	ERP (W):	2,139.75
Antenna A2 MPE%	**1.14**	Antenna B2 MPE%	**1.14**	Antenna C2 MPE%	**1.14**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	dBd	Gain:	dBd	Gain:	dBd
Height (AGL):	88 feet	Height (AGL):	88 feet	Height (AGL):	88 feet
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	40	Total TX Power(W):	40	Total TX Power(W):	40
ERP (W):	865.09	ERP (W):	865.09	ERP (W):	865.09
Antenna A3 MPE%	**0.99**	Antenna B3 MPE%	**0.99**	Antenna C3 MPE%	**0.99**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**6.29 %**
Sprint	**0.03**
Clearwire	**0.17**
MetroPCS	**2.35**
AT&T	**6.32**
Verizon Wireless	**4.29**
Site Total MPE %:	**19.45 %**

T-Mobile Sector A Total:	6.29 %
T-Mobile Sector B Total:	6.29 %
T-Mobile Sector C Total:	6.29 %
Site Total:	19.45 %

T-Mobile Max Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (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 PCS - 1900 MHz LTE	2	1,556.18	88	16.64	PCS - 1900 MHz	1000.00	1.66%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	88	24.96	AWS - 2100 MHz	1000.00	2.50%
T-Mobile PCS - 1900 MHz GSM	1	583.57	88	3.12	PCS - 1900 MHz	1000.00	0.31%
T-Mobile AWS - 2100 MHz UMTS	1	1,556.18	88	8.32	AWS - 2100 MHz	1000.00	0.83%
T-Mobile 700 MHz LTE	2	432.54	88	4.63	700 MHz	467.00	0.99%
						Total:	**6.29%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population 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 population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	6.29 %
Sector B:	6.29 %
Sector C:	6.29 %
T-Mobile Maximum MPE % (Per Sector):	6.29 %
Site Total:	19.45 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.45%** of the allowable FCC established general population 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.

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 119 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT08558-B

Customer Site Name: New Britain 3, CT

Carrier Name: T-Mobile

Carrier Site ID / Name: CTHA105A / HA105/SBA Stanley_FT

Site Location: 723 Farmington Ave

New Britain, Connecticut

Hartford County

Latitude: 41.698414

Longitude: -72.785944

8/2/18

Analysis Result:

Max Structural Usage: 84.0% [Pass]

Max Foundation Usage: 80.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Sushil Dhungana

Introduction

The purpose of this report is to summarize the analysis results on the 119 ft SABRE 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	Original Tower drawings by Sabre, Job# 06-08008, dated 08/1/2005
Foundation Drawing	Original Foundation drawings by Sabre, Job# 06-08008, dated 08/1/2005
Geotechnical Report	Geotechnical Report prepared by DR. Clarence Welti, dated 07/7/2005
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** 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.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} =125.0mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.192, S_1 = 0.055

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	118.0	3	Kathrein 800 10735V01 Panels	(3) T-Arms	(12) 1 5/8" (1) 1 5/8" Hybrid[1]	Verizon
2		3	Antel BXA-171063-12BF Panels			
3		3	Antel BXA-171063-8BF Panels			
4		3	Antel BXA-70063-6BF Panels			
5		1	RFS DB-T1-6Z-8AB-0Z Dist. Box			
6		6	RFS FD9R6004/2C-3L Diplexers			
7		3	ALU RRH2x40-AWS RRU's			
8	108.0	3	ALU 1900MHz RRU's	(3) T-Arms	(4) 1-1/4" Hybrid (3) 1/2" (6) 5/16"	Clearwire/ Sprint
9		3	ALU 800 MHz Filters			
10		3	ALU 800 MHz RRU's			
11		3	Kathrein 840 10054 Panels			
12		4	RFS ACU-A20-N RET's			
13		2	RFS APXVSPP18-C-A20 Panels			
14		3	RFS APXVTM14-C-120 Panels			
15		2	DragonwaveHorizon ODU Radios			
16		1	Powerwave P40-16-XLPP-RR-A Panels			
17		3	ALU TD-RRH8x20-25 RRU's			
18		2	Andrew VHLP2.5 Dishes			
19	98.0	3	Cci Antennas OPA-65R-LCUU-H6 - Panel	(3) Commscope T-Arms	(12) 1 5/8" (3) 3/4" DC (1) 3/8" Fiber	AT&T
20		6	Powerwave 7770 - Panel			
21		9	Powerwave LGP 21401 TMA			
22		6	Ericsson RRUS11			
23		3	Ericsson RRUS A2			
24		3	Ericsson RRU-12			
25		6	Powerwave LGP 13519 Diplexer			
26		1	Raycap DC6-48-60-18-8F			
-	88.0	3	Ericsson AIR 21 B2A/B4P - Panel	(3) T-Arms	(12) 1 5/8" (1) 1 5/8" Fiber (1) 1 5/8" Hybrid	T-Mobile
-		3	Commscope LNX-6515DS-A1M - Panel			
-		3	Ericsson AIR 32 - Panel			
-		3	Ericsson Double TMA 17/21 – TMA			
-		3	Ericcson RRUS11 B12 – RRU			
32	78.0	3	RFS APXV18-206517S-C Panels	(3) T-Arms	(6) 1-5/8"	Metro PCS[2]

[1]Verizon (1)1-5/8" Hybrid cable of Verizon is installed outside the pole shaft.

[2]Metro PCS is leased but not installed.

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
27	88.0	3	Ericsson AIR 21 B2A/B4P - Panel	(3) T-Arm	(11) 1 5/8" (3) 1-1/4" Hybrid	T-Mobile
28		3	Ericsson AIR32 KRD901146-1_B66A-Panel			
29		3	RFS APXVAARR24_43-U-NA20 - Panel			
30		3	Ericsson KRY 112 144/2			
31		3	Ericsson Radio 4449 B71 + B12			

See the attached coax layout for the line placement considered in the analysis.

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:	**84.0%**	**72.9%**	**66.3%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2428.1	27.3	60.4

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.0973 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G 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 and/or 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.

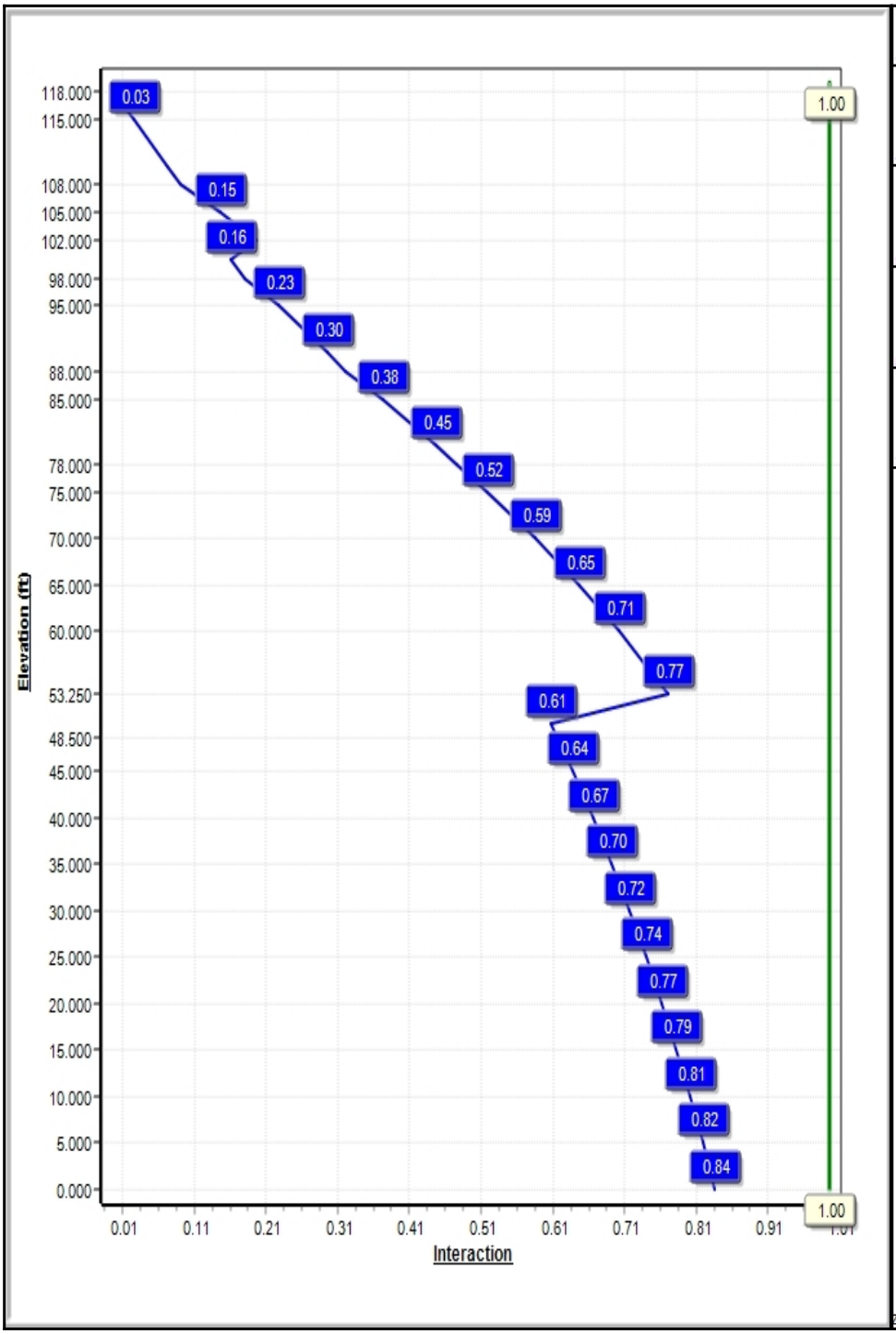
Usage Diagram - Max Ratio 84.02% at 0.0ft

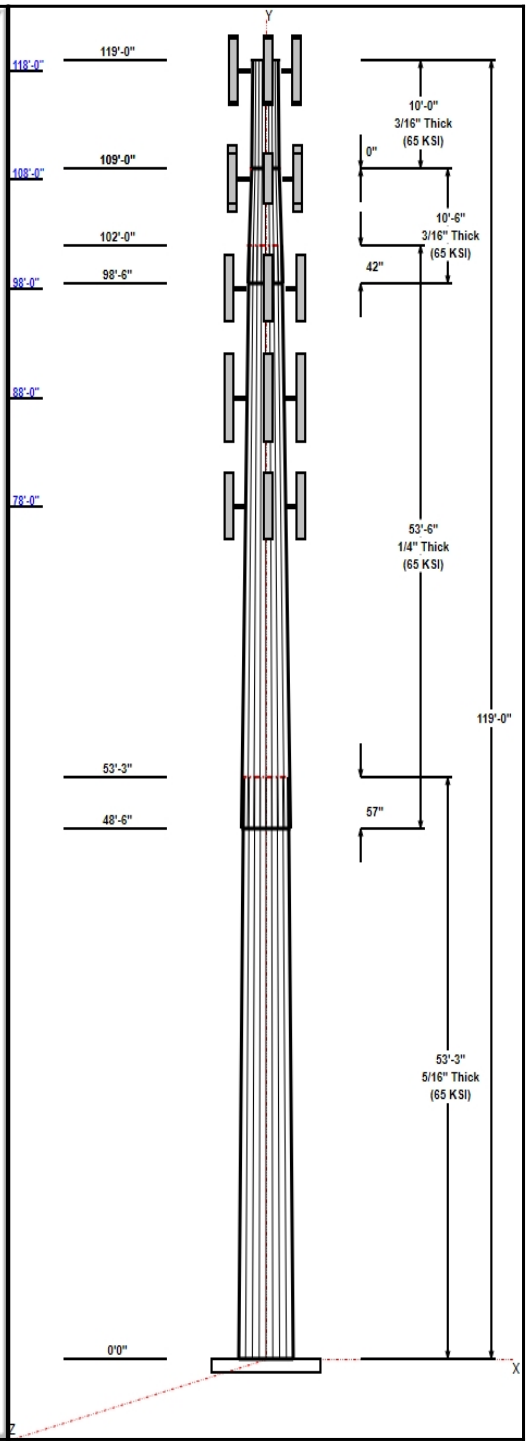
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	23
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 97 mph Wind





Structure: CT08558-B-SBA

Type: Tapered
Site Name: New Britain 3, CT
Height: 119.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.22164

8/2/2018

Tower Engineering Solutions

Shaft Properties

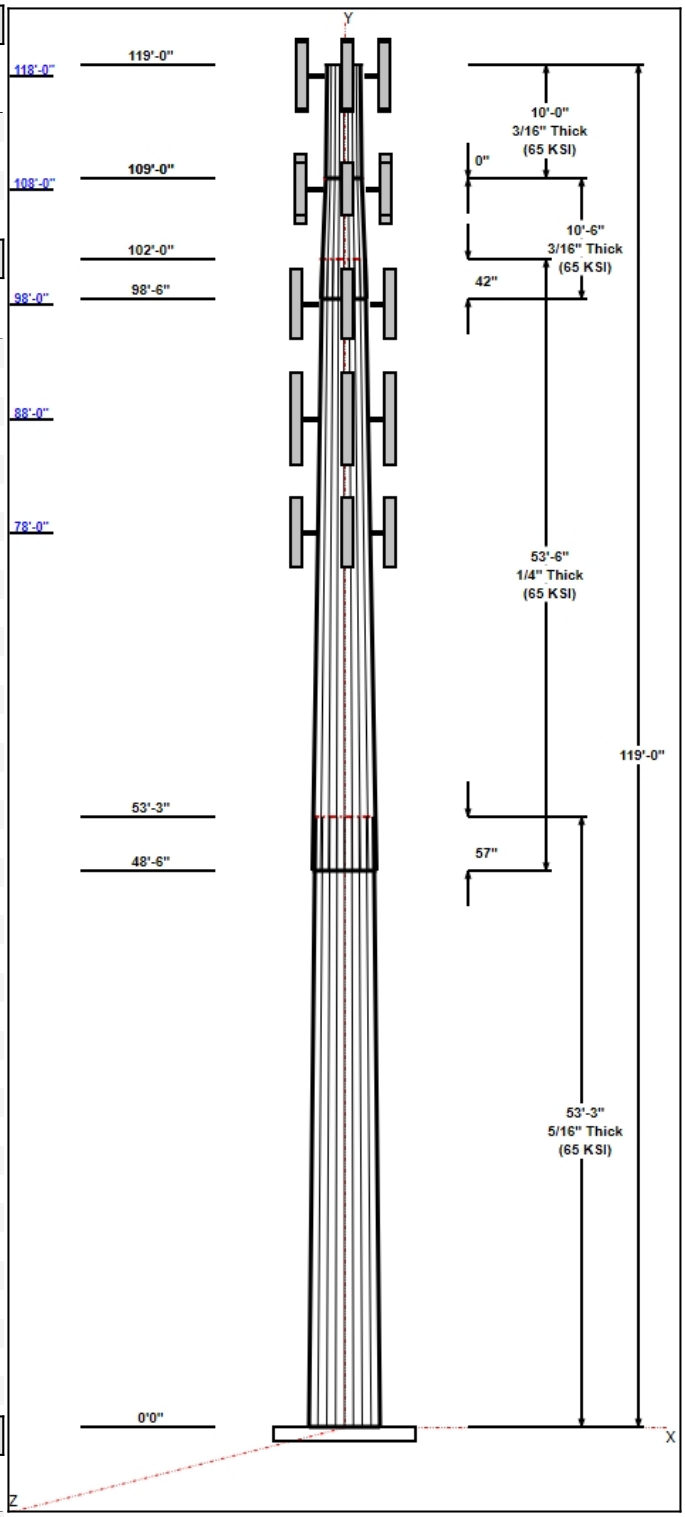
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	35.70	47.50	0.313		0.22164	65
2	53.50	25.39	37.25	0.250	Slip	0.22164	65
3	10.50	24.22	26.54	0.188	Slip	0.22164	65
4	10.00	22.00	24.22	0.188	Butt	0.22164	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
118.00	118.00	3	800 10735V01	Verizon
118.00	118.00	3	BXA-171063-12BF	Verizon
118.00	118.00	3	BXA-171063-8BF	Verizon
118.00	118.00	3	BXA-70063-6BF	Verizon
118.00	118.00	1	DB-T1-6Z-8AB-0Z	Verizon
118.00	118.00	6	RFS FD9R6004/2C-3L	Verizon
118.00	118.00	3	RRH2x40-AWS	Verizon
118.00	118.00	3	T-Arm	Verizon
108.00	108.00	3	1900MHz RRH	Clearwire
108.00	108.00	3	800 MHz Filters	Clearwire
108.00	108.00	3	800 MHz	Clearwire
108.00	108.00	3	840 10054	Clearwire
108.00	108.00	4	ACU-A20-N	Clearwire
108.00	108.00	2	APXVSPP18-C-A20	Clearwire
108.00	108.00	3	APXVTM14-C-120	Clearwire
108.00	108.00	2	Horizon	Clearwire
108.00	108.00	1	P40-16-XLPP-RR-A	Clearwire
108.00	108.00	3	TD-RRH8x20-25	Clearwire
108.00	108.00	2	VHLP2.5	Clearwire
108.00	108.00	3	T-Arm	Clearwire
98.00	98.00	3	OPA-65R-LCUU-H6	AT&T
98.00	98.00	6	7770	AT&T
98.00	98.00	9	LGP21401	AT&T
98.00	98.00	6	RRUS11	AT&T
98.00	98.00	3	RRUS A2	AT&T
98.00	98.00	3	RRU-12	AT&T
98.00	98.00	6	13519	AT&T
98.00	98.00	1	DC6-48-60-18-8F	AT&T
98.00	98.00	3	T-Arm	AT&T
88.00	88.00	3	AIR 21 B2A/B4P	T-Mobile
88.00	88.00	3	AIR32	T-Mobile
88.00	88.00	3	APXVAARR24_43-U-NA20	T-Mobile
88.00	88.00	3	KRY 112 144/2	T-Mobile
88.00	88.00	3	4449 B71 + B12	T-Mobile
88.00	88.00	3	T-Arm	T-Mobile
78.00	78.00	3	APXV18-206517S-C	Metro PCS
78.00	78.00	3	T-Arm	Metro PCS

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	118.00	Inside	1 5/8" Coax	Verizon
0.00	118.00	Outside	1 5/8" Hybrid	Verizon
0.00	108.00	Inside	1-1/4" Hybrid	Clearwire/Sprint
0.00	108.00	Inside	1/2" Coax	Clearwire/Sprint
0.00	108.00	Inside	5/16" Coax	Clearwire/Sprint



0.00	98.00	Inside	1 5/8" Coax	AT&T
0.00	98.00	Inside	3/4" DC	AT&T
0.00	98.00	Inside	3/8" Fiber	AT&T
0.00	88.00	Inside	1 5/8" Coax	T-Mobile
0.00	88.00	Inside	1-1/4" Hybrid	T-Mobile
0.00	78.00	Inside	1 5/8" Coax	Pocket

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	52.0	60.0	Clipped

Reactions

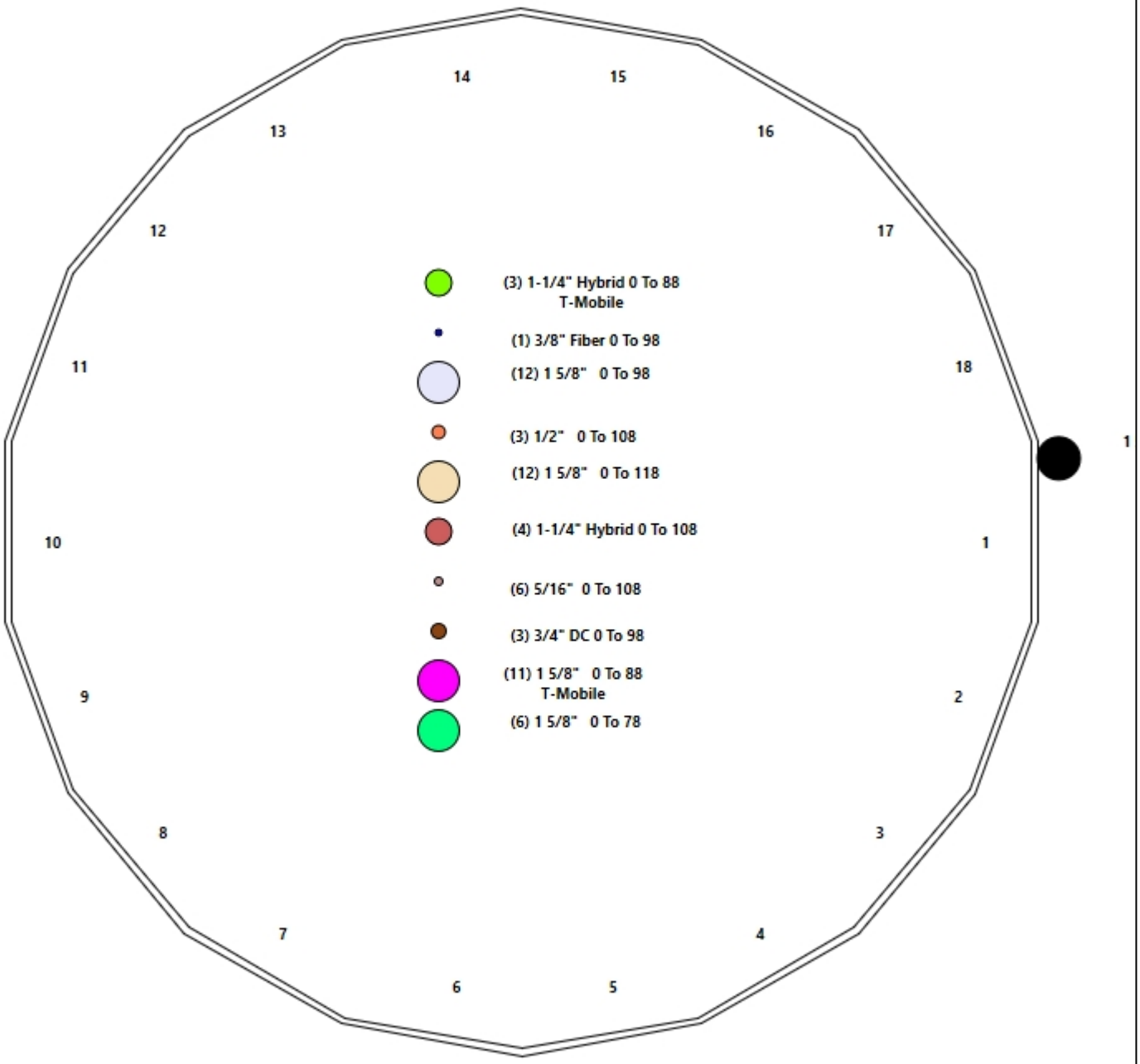
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	2428.1	27.3	33.0
0.9D + 1.6W 97 mph Wind	2405.7	27.3	24.7
1.2D + 1.0Di + 1.0Wi 50 mph Wind	713.5	7.9	60.4
1.2D + 1.0E	69.6	0.7	33.1
0.9D + 1.0E	68.9	0.7	24.8
1.0D + 1.0W 60 mph Wind	577.7	6.5	27.5

Structure: CT08558-B-SBA - Coax Line Placement

Type: Monopole
Site Name: New Britain 3, CT
Height: 119.00 (ft)

8/2/2018

Tower Engineering Solutions



Shaft Properties

Structure:	CT08558-B-SBA		**Code:**	EIA/TIA-222-G	8/2/2018
Site Name:	New Britain 3, CT		**Exposure:**	C	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.3125	65		0.00	7,420
2	18	53.500	0.2500	65	Slip	57.00	4,488
3	18	10.500	0.1875	65	Slip	42.00	536
4	18	10.000	0.1875	65	Flange	0.00	464
					Total Shaft Weight:		**12,908**

	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	47.50	0.00	46.80	13166.65	25.39	152.00	35.70	53.25	35.10	5552.15	18.73	114.2	0.221639
2	37.25	48.50	29.36	5078.18	24.86	149.00	25.39	102.00	19.95	1593.41	16.50	101.5	0.221639
3	26.54	98.50	15.68	1376.54	23.55	141.57	24.22	109.00	14.30	1043.15	21.36	129.1	0.221639
4	24.22	109.0	14.30	1043.15	21.36	129.15	22.00	119.00	12.98	780.30	19.28	117.3	0.221639

Load Summary

Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	118.00	800 10735V01	3	28.70	8.62	0.66	228.34	12.466	0.66	0.00	0.00
2	118.00	BXA-171063-12BF	3	15.00	4.74	0.84	138.58	7.798	0.84	0.00	0.00
3	118.00	BXA-171063-8BF	3	10.50	2.94	0.84	95.82	5.099	0.84	0.00	0.00
4	118.00	BXA-70063-6BF	3	17.00	7.57	0.70	201.47	11.168	0.70	0.00	0.00
5	118.00	DB-T1-6Z-8AB-0Z	1	18.90	4.80	0.71	216.23	5.960	0.71	0.00	0.00
6	118.00	RFS FD9R6004/2C-3L	6	3.10	0.36	1.00	13.55	0.937	1.00	0.00	0.00
7	118.00	RRH2x40-AWS	3	44.00	2.16	0.67	123.05	3.524	0.67	0.00	0.00
8	118.00	T-Arm	3	400.00	10.00	0.75	763.49	21.359	0.75	0.00	0.00
9	108.00	1900MHz RRH	3	44.00	3.80	0.67	184.85	5.593	0.67	0.00	0.00
10	108.00	800 MHz Filters	3	64.00	2.40	0.67	163.61	3.844	0.67	0.00	0.00
11	108.00	800 MHz	3	53.00	2.49	0.67	148.43	3.966	0.67	0.00	0.00
12	108.00	840 10054	3	35.00	4.59	0.61	143.73	6.748	0.61	0.00	0.00
13	108.00	ACU-A20-N	4	1.00	0.14	0.67	6.54	0.523	0.67	0.00	0.00
14	108.00	APXVSPP18-C-A20	2	57.00	8.02	0.83	280.02	11.625	0.83	0.00	0.00
15	108.00	APXVTM14-C-120	3	56.00	6.34	0.79	275.27	7.803	0.79	0.00	0.00
16	108.00	Horizon	2	10.60	0.43	1.00	39.67	1.090	1.00	0.00	0.00
17	108.00	P40-16-XLPP-RR-A	1	53.00	9.08	1.00	336.69	10.719	1.00	0.00	0.00
18	108.00	TD-RRH8x20-25	3	70.00	4.05	0.67	221.31	5.123	0.67	0.00	0.00
19	108.00	VHLP2.5	2	47.60	8.43	1.00	270.41	10.632	1.00	0.00	0.00
20	108.00	T-Arm	3	350.00	8.00	0.75	665.25	17.007	0.75	0.00	0.00
21	98.00	OPA-65R-LCUU-H6	3	80.00	9.66	0.79	390.45	11.434	0.79	0.00	0.00
22	98.00	7770	6	27.00	5.54	0.72	173.04	8.268	0.72	0.00	0.00
23	98.00	LGP21401	9	14.10	1.29	1.00	46.05	2.358	1.00	0.00	0.00
24	98.00	RRUS11	6	44.00	2.52	0.67	123.67	3.329	0.67	0.00	0.00
25	98.00	RRUS A2	3	22.00	1.54	0.67	83.47	2.232	0.67	0.00	0.00
26	98.00	RRU-12	3	50.70	2.52	0.67	171.95	3.373	0.67	0.00	0.00
27	98.00	13519	6	5.30	0.34	1.00	17.44	0.920	1.00	0.00	0.00
28	98.00	DC6-48-60-18-8F	1	31.80	0.92	1.00	110.80	1.480	1.00	0.00	0.00
29	98.00	T-Arm	3	350.00	8.00	0.75	662.20	16.920	0.75	0.00	0.00
30	88.00	AIR 21 B2A/B4P	3	91.00	6.09	0.86	315.55	7.501	0.86	0.00	0.00
31	88.00	AIR32 KRD901146-1_B66A	3	132.20	6.51	0.87	376.67	8.012	0.87	0.00	0.00
32	88.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	674.18	22.666	0.75	0.00	0.00
33	88.00	KRY 112 144/2	3	11.00	0.41	0.70	24.63	1.011	0.75	0.00	0.00
34	88.00	4449 B71 + B12	3	50.00	2.57	0.67	132.07	3.386	0.67	0.00	0.00
35	88.00	T-Arm	3	350.00	8.00	0.75	658.86	16.824	0.75	0.00	0.00
36	78.00	APXV18-206517S-C	3	26.40	5.17	0.74	142.36	8.136	0.74	0.00	0.00
37	78.00	T-Arm	3	350.00	8.00	0.75	655.15	16.719	0.75	0.00	0.00
		Totals:	**121**	**9,426.90**			**27,172.83**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	118.00	(12) 1 5/8" Coax	0.00	Inside
0.00	118.00	(1) 1 5/8" Hybrid	0.00	Outside
0.00	108.00	(4) 1-1/4" Hybrid	0.00	Inside
0.00	108.00	(3) 1/2" Coax	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	108.00	(6) 5/16" Coax			0.00	Inside					
0.00	98.00	(12) 1 5/8" Coax			0.00	Inside					
0.00	98.00	(3) 3/4" DC			0.00	Inside					
0.00	98.00	(1) 3/8" Fiber			0.00	Inside					
0.00	88.00	(11) 1 5/8" Coax			0.00	Inside					
0.00	88.00	(3) 1-1/4" Hybrid			0.00	Inside					
0.00	78.00	(6) 1 5/8" Coax			0.00	Inside					

Shaft Section Properties

Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3125	47.500	46.802	13166.7	25.39	152.00	71.5	546.0	0.0
5.00		0.3125	46.392	45.703	12260.6	24.77	148.45	72.3	520.5	786.9
10.00		0.3125	45.284	44.604	11397.1	24.14	144.91	73.0	495.7	768.2
15.00		0.3125	44.175	43.505	10575.2	23.52	141.36	73.7	471.5	749.5
20.00		0.3125	43.067	42.406	9793.7	22.89	137.82	74.5	447.9	730.8
25.00		0.3125	41.959	41.307	9051.7	22.26	134.27	75.2	424.9	712.1
30.00		0.3125	40.851	40.208	8348.2	21.64	130.72	75.9	402.5	693.4
35.00		0.3125	39.743	39.108	7682.1	21.01	127.18	76.7	380.7	674.7
40.00		0.3125	38.634	38.009	7052.4	20.39	123.63	77.4	359.5	656.0
45.00		0.3125	37.526	36.910	6458.1	19.76	120.08	78.2	339.0	637.3
48.50	Bot - Section 2	0.3125	36.751	36.141	6062.6	19.33	117.60	78.7	324.9	435.0
50.00		0.3125	36.418	35.811	5898.2	19.14	116.54	78.9	319.0	332.8
53.25	Top - Section 1	0.2500	36.198	28.524	4656.9	24.12	144.79	0.0	0.0	710.7
55.00		0.2500	35.810	28.216	4507.8	23.85	143.24	73.4	247.9	168.9
60.00		0.2500	34.702	27.336	4099.4	23.06	138.81	74.3	232.7	472.6
65.00		0.2500	33.593	26.457	3716.4	22.28	134.37	75.2	217.9	457.6
70.00		0.2500	32.485	25.578	3358.0	21.50	129.94	76.1	203.6	442.7
75.00		0.2500	31.377	24.698	3023.4	20.72	125.51	77.0	189.8	427.7
78.00		0.2500	30.712	24.171	2833.8	20.25	122.85	77.6	181.7	249.4
80.00		0.2500	30.269	23.819	2711.9	19.94	121.08	77.9	176.5	163.3
85.00		0.2500	29.161	22.940	2422.5	19.16	116.64	78.9	163.6	397.8
88.00		0.2500	28.496	22.412	2259.2	18.69	113.98	79.4	156.2	231.5
90.00		0.2500	28.053	22.061	2154.5	18.38	112.21	79.8	151.3	151.3
95.00		0.2500	26.944	21.181	1907.0	17.59	107.78	80.7	139.4	367.9
98.00		0.2500	26.279	20.654	1768.0	17.12	105.12	81.3	132.5	213.5
98.50	Bot - Section 3	0.2500	26.169	20.566	1745.5	17.05	104.67	81.4	131.4	35.1
100.00		0.2500	25.836	20.302	1679.2	16.81	103.34	81.6	128.0	183.8
102.00	Top - Section 2	0.1875	25.768	15.223	1258.5	22.82	137.43	0.0	0.0	241.5
105.00		0.1875	25.103	14.827	1162.9	22.20	133.88	75.3	91.2	153.4
108.00		0.1875	24.438	14.432	1072.3	21.57	130.34	76.0	86.4	149.3
109.00	Top - Section 3	0.1875	24.216	14.300	1043.1	21.36	129.15	76.3	84.8	48.9
109.00	Bot - Section 4	0.1875	24.216	14.300	1043.1	21.36	129.15	76.3	84.8	
110.00		0.1875	23.995	14.168	1014.5	21.15	127.97	76.5	83.3	48.4
115.00		0.1875	22.887	13.508	879.4	20.11	122.06	77.7	75.7	235.4
118.00		0.1875	22.222	13.113	804.3	19.49	118.52	78.5	71.3	135.9
119.00		0.1875	22.000	12.981	780.3	19.28	117.33	78.7	69.9	44.4
										12908.1

Wind Loading - Shaft

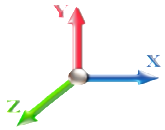
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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		1.00	0.85	19.450	21.40	359.45	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	351.07	0.650	0.000	5.00	19.863	12.91	442.0	0.0	944.3
10.00		1.00	0.85	19.450	21.40	342.68	0.650	0.000	5.00	19.394	12.61	431.5	0.0	921.9
15.00		1.00	0.85	19.450	21.40	334.29	0.650	0.000	5.00	18.925	12.30	421.1	0.0	899.4
20.00		1.00	0.90	20.638	22.70	335.71	0.650	0.000	5.00	18.456	12.00	435.7	0.0	877.0
25.00		1.00	0.95	21.630	23.79	334.84	0.650	0.000	5.00	17.987	11.69	445.1	0.0	854.6
30.00		1.00	0.98	22.477	24.72	332.32	0.650	0.000	5.00	17.518	11.39	450.4	0.0	832.1
35.00		1.00	1.01	23.218	25.54	328.59	0.650	0.000	5.00	17.049	11.08	452.9	0.0	809.7
40.00		1.00	1.04	23.880	26.27	323.95	0.650	0.000	5.00	16.580	10.78	453.0	0.0	787.2
45.00		1.00	1.07	24.479	26.93	318.58	0.650	0.000	5.00	16.112	10.47	451.2	0.0	764.8
48.50	Bot - Section 2	1.00	1.09	24.869	27.36	314.47	0.650	0.000	3.50	10.999	7.15	312.9	0.0	522.0
50.00		1.00	1.09	25.029	27.53	312.62	0.650	0.000	1.50	4.707	3.06	134.8	0.0	399.4
53.25	Top - Section 1	1.00	1.11	25.363	27.90	308.48	0.650	0.000	3.25	10.054	6.53	291.7	0.0	852.8
55.00		1.00	1.12	25.536	28.09	310.50	0.650	0.000	1.75	5.332	3.47	155.8	0.0	202.7
60.00		1.00	1.14	26.008	28.61	303.66	0.650	0.000	5.00	14.917	9.70	443.8	0.0	567.1
65.00		1.00	1.16	26.450	29.09	296.45	0.650	0.000	5.00	14.448	9.39	437.2	0.0	549.1
70.00		1.00	1.17	26.866	29.55	288.92	0.650	0.000	5.00	13.979	9.09	429.6	0.0	531.2
75.00		1.00	1.19	27.259	29.98	281.09	0.650	0.000	5.00	13.510	8.78	421.3	0.0	513.2
78.00	Appurtenance(s)	1.00	1.20	27.485	30.23	276.28	0.650	0.000	3.00	7.881	5.12	247.8	0.0	299.3
80.00		1.00	1.21	27.632	30.39	273.01	0.650	0.000	2.00	5.160	3.35	163.1	0.0	196.0
85.00		1.00	1.22	27.987	30.79	264.70	0.650	0.000	5.00	12.572	8.17	402.5	0.0	477.3
88.00	Appurtenance(s)	1.00	1.23	28.192	31.01	259.61	0.650	0.000	3.00	7.318	4.76	236.0	0.0	277.8
90.00		1.00	1.24	28.325	31.16	256.18	0.650	0.000	2.00	4.785	3.11	155.1	0.0	181.6
95.00		1.00	1.25	28.650	31.51	247.46	0.650	0.000	5.00	11.634	7.56	381.3	0.0	441.4
98.00	Appurtenance(s)	1.00	1.26	28.838	31.72	242.15	0.650	0.000	3.00	6.756	4.39	222.9	0.0	256.2
98.50	Bot - Section 3	1.00	1.26	28.869	31.76	241.26	0.650	0.000	0.50	1.110	0.72	36.6	0.0	42.1
100.00		1.00	1.27	28.961	31.86	238.57	0.650	0.000	1.50	3.348	2.18	110.9	0.0	220.6
102.00	Top - Section 2	1.00	1.27	29.082	31.99	234.97	0.650	0.000	2.00	4.398	2.86	146.3	0.0	289.8
105.00		1.00	1.28	29.260	32.19	232.99	0.650	0.000	3.00	6.457	4.20	216.1	0.0	184.1
108.00	Appurtenance(s)	1.00	1.29	29.434	32.38	227.50	0.650	0.000	3.00	6.288	4.09	211.7	0.0	179.2
109.00	Top - Section 3	1.00	1.29	29.491	32.44	225.65	0.650	0.000	1.00	2.059	1.34	69.5	0.0	58.7
110.00		1.00	1.29	29.548	32.50	223.80	0.650	0.000	1.00	2.040	1.33	69.0	0.0	58.1
115.00		1.00	1.30	29.826	32.81	214.47	0.650	0.000	5.00	9.918	6.45	338.4	0.0	282.5
118.00	Appurtenance(s)	1.00	1.31	29.988	32.99	208.80	0.650	0.000	3.00	5.726	3.72	196.4	0.0	163.1
119.00		1.00	1.31	30.041	33.05	206.90	0.650	0.000	1.00	1.871	1.22	64.3	0.0	53.3
								Totals:	**119.00**			**9,877.9**		**15,489.7**

Discrete Appurtenance Forces

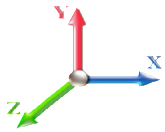
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	118.00	RRH2x40-AWS	3	29.988	32.986	0.60	0.90	3.91	158.40	0.000	0.000	206.23	0.00	0.00
2	118.00	RFS FD9R6004/2C-3L	6	29.988	32.986	0.90	0.90	1.94	22.32	0.000	0.000	102.60	0.00	0.00
3	118.00	DB-T1-6Z-8AB-0Z	1	29.988	32.986	0.64	0.90	3.07	22.68	0.000	0.000	161.88	0.00	0.00
4	118.00	BXA-70063-6BF	3	29.988	32.986	0.63	0.90	14.31	61.20	0.000	0.000	755.12	0.00	0.00
5	118.00	BXA-171063-8BF	3	29.988	32.986	0.76	0.90	6.67	37.80	0.000	0.000	351.92	0.00	0.00
6	118.00	BXA-171063-12BF	3	29.988	32.986	0.76	0.90	10.75	54.00	0.000	0.000	567.38	0.00	0.00
7	118.00	800 10735V01	3	29.988	32.986	0.59	0.90	15.36	103.32	0.000	0.000	810.72	0.00	0.00
8	118.00	T-Arm	3	29.988	32.986	0.56	0.75	16.88	1440.00	0.000	0.000	890.63	0.00	0.00
9	108.00	ACU-A20-N	4	29.434	32.377	0.54	0.80	0.30	4.80	0.000	0.000	15.55	0.00	0.00
10	108.00	APXVSPP18-C-A20	2	29.434	32.377	0.66	0.80	10.65	136.80	0.000	0.000	551.74	0.00	0.00
11	108.00	APXVTM14-C-120	3	29.434	32.377	0.63	0.80	12.02	201.60	0.000	0.000	622.71	0.00	0.00
12	108.00	840 10054	3	29.434	32.377	0.49	0.80	6.72	126.00	0.000	0.000	348.11	0.00	0.00
13	108.00	800 MHz	3	29.434	32.377	0.54	0.80	4.00	190.80	0.000	0.000	207.42	0.00	0.00
14	108.00	T-Arm	3	29.434	32.377	0.56	0.75	13.50	1260.00	0.000	0.000	699.35	0.00	0.00
15	108.00	Horizon	2	29.434	32.377	0.80	0.80	0.69	25.44	0.000	0.000	35.64	0.00	0.00
16	108.00	P40-16-XLPP-RR-A	1	29.434	32.377	0.80	0.80	7.26	63.60	0.000	0.000	376.30	0.00	0.00
17	108.00	TD-RRH8x20-25	3	29.434	32.377	0.54	0.80	6.51	252.00	0.000	0.000	337.37	0.00	0.00
18	108.00	VHLP2.5	2	29.434	32.377	1.00	1.00	16.86	114.24	0.000	0.000	873.41	0.00	0.00
19	108.00	800 MHz Filters	3	29.434	32.377	0.54	0.80	3.86	230.40	0.000	0.000	199.92	0.00	0.00
20	108.00	1900MHz RRH	3	29.434	32.377	0.54	0.80	6.11	158.40	0.000	0.000	316.54	0.00	0.00
21	98.00	RRUS A2	3	28.838	31.722	0.54	0.80	2.48	79.20	0.000	0.000	125.68	0.00	0.00
22	98.00	OPA-65R-LCUU-H6	3	28.838	31.722	0.63	0.80	18.32	288.00	0.000	0.000	929.59	0.00	0.00
23	98.00	LGP21401	9	28.838	31.722	0.80	0.80	9.29	152.28	0.000	0.000	471.41	0.00	0.00
24	98.00	RRUS11	6	28.838	31.722	0.54	0.80	8.10	316.80	0.000	0.000	411.33	0.00	0.00
25	98.00	7770	6	28.838	31.722	0.58	0.80	19.15	194.40	0.000	0.000	971.76	0.00	0.00
26	98.00	13519	6	28.838	31.722	0.80	0.80	1.63	38.16	0.000	0.000	82.83	0.00	0.00
27	98.00	DC6-48-60-18-8F	1	28.838	31.722	0.80	0.80	0.74	38.16	0.000	0.000	37.36	0.00	0.00
28	98.00	T-Arm	3	28.838	31.722	0.56	0.75	13.50	1260.00	0.000	0.000	685.19	0.00	0.00
29	98.00	RRU-12	3	28.838	31.722	0.54	0.80	4.05	182.52	0.000	0.000	205.67	0.00	0.00
30	88.00	APXVAARR24_43-U-NA2	3	28.192	31.011	0.56	0.80	34.00	460.80	0.000	0.000	1687.15	0.00	0.00
31	88.00	AIR 21 B2A/B4P	3	28.192	31.011	0.69	0.80	12.57	327.60	0.000	0.000	623.68	0.00	0.00
32	88.00	AIR32	3	28.192	31.011	0.70	0.80	13.59	475.92	0.000	0.000	674.44	0.00	0.00
33	88.00	4449 B71 + B12	3	28.192	31.011	0.54	0.80	4.13	180.00	0.000	0.000	205.05	0.00	0.00
34	88.00	KRY 112 144/2	3	28.192	31.011	0.56	0.80	0.69	39.60	0.000	0.000	34.18	0.00	0.00
35	88.00	T-Arm	3	28.192	31.011	0.56	0.75	13.50	1260.00	0.000	0.000	669.84	0.00	0.00
36	78.00	T-Arm	3	27.485	30.233	0.56	0.75	13.50	1260.00	0.000	0.000	653.04	0.00	0.00
37	78.00	APXV18-206517S-C	3	27.485	30.233	0.59	0.80	9.18	95.04	0.000	0.000	444.16	0.00	0.00
							Totals:		**11,312.28**			**17,342.88**		

Total Applied Force Summary

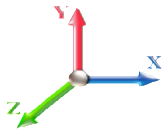
Structure:	CT08558-B-SBA		**Code:**	EIA/TIA-222-G	8/2/2018
Site Name:	New Britain 3, CT		**Exposure:**	C	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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		441.96	1260.16	0.00	0.00
10.00		431.53	1237.72	0.00	0.00
15.00		421.10	1215.27	0.00	0.00
20.00		435.73	1192.83	0.00	0.00
25.00		445.09	1170.39	0.00	0.00
30.00		450.45	1147.95	0.00	0.00
35.00		452.85	1125.51	0.00	0.00
40.00		452.96	1103.07	0.00	0.00
45.00		451.20	1080.63	0.00	0.00
48.50		312.92	743.09	0.00	0.00
50.00		134.78	494.12	0.00	0.00
53.25		291.71	1058.11	0.00	0.00
55.00		155.75	313.26	0.00	0.00
60.00		443.81	882.92	0.00	0.00
65.00		437.17	864.97	0.00	0.00
70.00		429.63	847.02	0.00	0.00
75.00		421.29	829.06	0.00	0.00
78.00	(6) attachments	1345.00	1843.86	0.00	0.00
80.00		163.12	307.31	0.00	0.00
85.00		402.52	755.72	0.00	0.00
88.00	(18) attachments	4130.36	3188.73	0.00	0.00
90.00		155.06	258.63	0.00	0.00
95.00		381.32	634.00	0.00	0.00
98.00	(40) attachments	4143.68	2921.30	0.00	0.00
98.50		36.64	53.09	0.00	0.00
100.00		110.92	253.66	0.00	0.00
102.00		146.33	333.81	0.00	0.00
105.00		216.13	250.14	0.00	0.00
108.00	(32) attachments	4795.78	3009.37	0.00	0.00
109.00		69.45	74.96	0.00	0.00
110.00		68.95	74.42	0.00	0.00
115.00		338.39	364.01	0.00	0.00
118.00	(25) attachments	4042.90	2111.66	0.00	0.00
119.00		64.30	53.27	0.00	0.00
	Totals:	**27,220.79**	**33,054.04**	**0.00**	**0.00**

Linear Appurtenance Segment Forces (Factored)

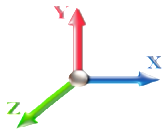
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.450	0.00	6.60
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.450	0.00	6.60
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.450	0.00	6.60
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	20.638	0.00	6.60
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.630	0.00	6.60
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	22.477	0.00	6.60
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.218	0.00	6.60
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.880	0.00	6.60
45.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.479	0.00	6.60
48.50	1 5/8" Hybrid	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	24.869	0.00	4.62
50.00	1 5/8" Hybrid	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	25.029	0.00	1.98
53.25	1 5/8" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	25.363	0.00	4.29
55.00	1 5/8" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	25.536	0.00	2.31
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.008	0.00	6.60
65.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.450	0.00	6.60
70.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.866	0.00	6.60
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.259	0.00	6.60
78.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.485	0.00	3.96
80.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.632	0.00	2.64
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.987	0.00	6.60
88.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	28.192	0.00	3.96
90.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.325	0.00	2.64
95.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.650	0.00	6.60
98.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	28.838	0.00	3.96
98.50	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.000	0.000	28.869	0.00	0.66
100.00	1 5/8" Hybrid	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	28.961	0.00	1.98
102.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	29.082	0.00	2.64
105.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	29.260	0.00	3.96
108.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	29.434	0.00	3.96
109.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	29.491	0.00	1.32
110.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	29.548	0.00	1.32
115.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.826	0.00	6.60
118.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	29.988	0.00	3.96
										Totals:	**0.0**	**155.8**

Calculated Forces

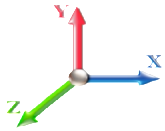
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.99	-27.30	0.00	-2428.1	0.00	2428.14	3013.27	1506.63	5849.73	2929.21	0.00	0.000	0.000	0.840
5.00	-31.61	-26.99	0.00	-2291.6	0.00	2291.67	2972.75	1486.38	5634.65	2821.52	0.14	-0.255	0.000	0.823
10.00	-30.26	-26.69	0.00	-2156.7	0.00	2156.72	2930.78	1465.39	5420.60	2714.33	0.54	-0.513	0.000	0.805
15.00	-28.93	-26.39	0.00	-2023.2	0.00	2023.27	2887.35	1443.68	5207.78	2607.76	1.22	-0.774	0.000	0.786
20.00	-27.62	-26.06	0.00	-1891.3	0.00	1891.34	2842.47	1421.24	4996.39	2501.91	2.17	-1.037	0.000	0.766
25.00	-26.34	-25.71	0.00	-1761.0	0.00	1761.04	2796.14	1398.07	4786.62	2396.87	3.40	-1.302	0.000	0.744
30.00	-25.09	-25.35	0.00	-1632.4	0.00	1632.47	2748.35	1374.17	4578.69	2292.75	4.91	-1.569	0.000	0.721
35.00	-23.86	-24.98	0.00	-1505.7	0.00	1505.71	2699.10	1349.55	4372.78	2189.64	6.70	-1.836	0.000	0.697
40.00	-22.66	-24.59	0.00	-1380.8	0.00	1380.83	2648.40	1324.20	4169.10	2087.65	8.76	-2.104	0.000	0.670
45.00	-21.50	-24.18	0.00	-1257.8	0.00	1257.86	2596.25	1298.12	3967.85	1986.88	11.11	-2.370	0.000	0.642
48.50	-20.71	-23.89	0.00	-1173.2	0.00	1173.22	2558.87	1279.44	3828.53	1917.11	12.92	-2.557	0.000	0.620
50.00	-20.17	-23.78	0.00	-1137.3	0.00	1137.39	2542.63	1271.32	3769.24	1887.42	13.74	-2.639	0.000	0.611
53.25	-19.08	-23.48	0.00	-1060.1	0.00	1060.12	1874.80	937.40	2771.76	1387.94	15.59	-2.811	0.000	0.775
55.00	-18.69	-23.37	0.00	-1019.0	0.00	1019.03	1862.74	931.37	2724.01	1364.03	16.64	-2.904	0.000	0.758
60.00	-17.71	-22.98	0.00	-902.17	0.00	902.17	1827.31	913.65	2588.34	1296.09	19.84	-3.207	0.000	0.706
65.00	-16.76	-22.57	0.00	-787.29	0.00	787.29	1790.42	895.21	2453.92	1228.78	23.36	-3.500	0.000	0.651
70.00	-15.84	-22.17	0.00	-674.43	0.00	674.43	1752.08	876.04	2320.96	1162.21	27.18	-3.780	0.000	0.590
75.00	-14.96	-21.74	0.00	-563.61	0.00	563.61	1712.28	856.14	2189.66	1096.46	31.28	-4.042	0.000	0.523
78.00	-13.18	-20.30	0.00	-498.38	0.00	498.38	1687.70	843.85	2111.76	1057.45	33.87	-4.192	0.000	0.480
80.00	-12.83	-20.15	0.00	-457.79	0.00	457.79	1671.02	835.51	2060.22	1031.64	35.64	-4.288	0.000	0.452
85.00	-12.05	-19.72	0.00	-357.06	0.00	357.06	1628.32	814.16	1932.84	967.86	40.25	-4.502	0.000	0.377
88.00	-9.18	-15.36	0.00	-297.90	0.00	297.90	1601.99	801.00	1857.49	930.12	43.11	-4.617	0.000	0.326
90.00	-8.90	-15.21	0.00	-267.17	0.00	267.17	1584.15	792.08	1807.72	905.20	45.06	-4.688	0.000	0.301
95.00	-8.27	-14.79	0.00	-191.14	0.00	191.14	1538.53	769.27	1685.06	843.78	50.05	-4.840	0.000	0.232
98.00	-5.71	-10.42	0.00	-146.77	0.00	146.77	1510.46	755.23	1612.73	807.56	53.12	-4.915	0.000	0.186
98.50	-5.65	-10.38	0.00	-141.56	0.00	141.56	1505.73	752.87	1600.77	801.57	53.63	-4.927	0.000	0.181
100.00	-5.40	-10.25	0.00	-126.00	0.00	126.00	1491.46	745.73	1565.06	783.69	55.18	-4.960	0.000	0.165
102.00	-5.07	-10.08	0.00	-105.50	0.00	105.50	1021.50	510.75	1074.26	537.93	57.27	-4.999	0.000	0.201
105.00	-4.84	-9.85	0.00	-75.26	0.00	75.26	1004.76	502.38	1028.99	515.26	60.42	-5.047	0.000	0.151
108.00	-2.26	-4.80	0.00	-45.72	0.00	45.72	987.50	493.75	984.13	492.79	63.60	-5.092	0.000	0.095
109.00	-2.19	-4.73	0.00	-40.92	0.00	40.92	981.63	490.81	969.27	485.35	64.67	-5.103	0.000	0.087
109.00	-2.19	-4.73	0.00	-40.92	0.00	40.92	981.63	490.81	969.27	485.35	64.67	-5.103	0.000	0.087
110.00	-2.12	-4.65	0.00	-36.19	0.00	36.19	975.70	487.85	954.46	477.94	65.74	-5.114	0.000	0.078
115.00	-1.79	-4.28	0.00	-12.92	0.00	12.92	945.18	472.59	881.23	441.27	71.11	-5.148	0.000	0.031
118.00	-0.05	-0.07	0.00	-0.07	0.00	0.07	926.18	463.09	838.01	419.63	74.34	-5.154	0.000	0.000
119.00	0.00	-0.06	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	75.42	-5.154	0.000	0.000

Wind Loading - Shaft

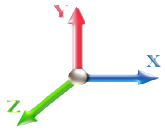
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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		1.00	0.85	19.450	21.40	359.45	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	351.07	0.650	0.000	5.00	19.863	12.91	442.0	0.0	708.2
10.00		1.00	0.85	19.450	21.40	342.68	0.650	0.000	5.00	19.394	12.61	431.5	0.0	691.4
15.00		1.00	0.85	19.450	21.40	334.29	0.650	0.000	5.00	18.925	12.30	421.1	0.0	674.6
20.00		1.00	0.90	20.638	22.70	335.71	0.650	0.000	5.00	18.456	12.00	435.7	0.0	657.8
25.00		1.00	0.95	21.630	23.79	334.84	0.650	0.000	5.00	17.987	11.69	445.1	0.0	640.9
30.00		1.00	0.98	22.477	24.72	332.32	0.650	0.000	5.00	17.518	11.39	450.4	0.0	624.1
35.00		1.00	1.01	23.218	25.54	328.59	0.650	0.000	5.00	17.049	11.08	452.9	0.0	607.3
40.00		1.00	1.04	23.880	26.27	323.95	0.650	0.000	5.00	16.580	10.78	453.0	0.0	590.4
45.00		1.00	1.07	24.479	26.93	318.58	0.650	0.000	5.00	16.112	10.47	451.2	0.0	573.6
48.50	Bot - Section 2	1.00	1.09	24.869	27.36	314.47	0.650	0.000	3.50	10.999	7.15	312.9	0.0	391.5
50.00		1.00	1.09	25.029	27.53	312.62	0.650	0.000	1.50	4.707	3.06	134.8	0.0	299.5
53.25	Top - Section 1	1.00	1.11	25.363	27.90	308.48	0.650	0.000	3.25	10.054	6.53	291.7	0.0	639.6
55.00		1.00	1.12	25.536	28.09	310.50	0.650	0.000	1.75	5.332	3.47	155.8	0.0	152.0
60.00		1.00	1.14	26.008	28.61	303.66	0.650	0.000	5.00	14.917	9.70	443.8	0.0	425.3
65.00		1.00	1.16	26.450	29.09	296.45	0.650	0.000	5.00	14.448	9.39	437.2	0.0	411.9
70.00		1.00	1.17	26.866	29.55	288.92	0.650	0.000	5.00	13.979	9.09	429.6	0.0	398.4
75.00		1.00	1.19	27.259	29.98	281.09	0.650	0.000	5.00	13.510	8.78	421.3	0.0	384.9
78.00	Appurtenance(s)	1.00	1.20	27.485	30.23	276.28	0.650	0.000	3.00	7.881	5.12	247.8	0.0	224.5
80.00		1.00	1.21	27.632	30.39	273.01	0.650	0.000	2.00	5.160	3.35	163.1	0.0	147.0
85.00		1.00	1.22	27.987	30.79	264.70	0.650	0.000	5.00	12.572	8.17	402.5	0.0	358.0
88.00	Appurtenance(s)	1.00	1.23	28.192	31.01	259.61	0.650	0.000	3.00	7.318	4.76	236.0	0.0	208.3
90.00		1.00	1.24	28.325	31.16	256.18	0.650	0.000	2.00	4.785	3.11	155.1	0.0	136.2
95.00		1.00	1.25	28.650	31.51	247.46	0.650	0.000	5.00	11.634	7.56	381.3	0.0	331.1
98.00	Appurtenance(s)	1.00	1.26	28.838	31.72	242.15	0.650	0.000	3.00	6.756	4.39	222.9	0.0	192.2
98.50	Bot - Section 3	1.00	1.26	28.869	31.76	241.26	0.650	0.000	0.50	1.110	0.72	36.6	0.0	31.6
100.00		1.00	1.27	28.961	31.86	238.57	0.650	0.000	1.50	3.348	2.18	110.9	0.0	165.5
102.00	Top - Section 2	1.00	1.27	29.082	31.99	234.97	0.650	0.000	2.00	4.398	2.86	146.3	0.0	217.3
105.00		1.00	1.28	29.260	32.19	232.99	0.650	0.000	3.00	6.457	4.20	216.1	0.0	138.0
108.00	Appurtenance(s)	1.00	1.29	29.434	32.38	227.50	0.650	0.000	3.00	6.288	4.09	211.7	0.0	134.4
109.00	Top - Section 3	1.00	1.29	29.491	32.44	225.65	0.650	0.000	1.00	2.059	1.34	69.5	0.0	44.0
110.00		1.00	1.29	29.548	32.50	223.80	0.650	0.000	1.00	2.040	1.33	69.0	0.0	43.6
115.00		1.00	1.30	29.826	32.81	214.47	0.650	0.000	5.00	9.918	6.45	338.4	0.0	211.9
118.00	Appurtenance(s)	1.00	1.31	29.988	32.99	208.80	0.650	0.000	3.00	5.726	3.72	196.4	0.0	122.3
119.00		1.00	1.31	30.041	33.05	206.90	0.650	0.000	1.00	1.871	1.22	64.3	0.0	40.0
								Totals:	**119.00**			**9,877.9**		**11,617.3**

Discrete Appurtenance Forces

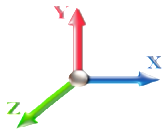
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	118.00	RRH2x40-AWS	3	29.988	32.986	0.60	0.90	3.91	118.80	0.000	0.000	206.23	0.00	0.00
2	118.00	RFS FD9R6004/2C-3L	6	29.988	32.986	0.90	0.90	1.94	16.74	0.000	0.000	102.60	0.00	0.00
3	118.00	DB-T1-6Z-8AB-0Z	1	29.988	32.986	0.64	0.90	3.07	17.01	0.000	0.000	161.88	0.00	0.00
4	118.00	BXA-70063-6BF	3	29.988	32.986	0.63	0.90	14.31	45.90	0.000	0.000	755.12	0.00	0.00
5	118.00	BXA-171063-8BF	3	29.988	32.986	0.76	0.90	6.67	28.35	0.000	0.000	351.92	0.00	0.00
6	118.00	BXA-171063-12BF	3	29.988	32.986	0.76	0.90	10.75	40.50	0.000	0.000	567.38	0.00	0.00
7	118.00	800 10735V01	3	29.988	32.986	0.59	0.90	15.36	77.49	0.000	0.000	810.72	0.00	0.00
8	118.00	T-Arm	3	29.988	32.986	0.56	0.75	16.88	1080.00	0.000	0.000	890.63	0.00	0.00
9	108.00	ACU-A20-N	4	29.434	32.377	0.54	0.80	0.30	3.60	0.000	0.000	15.55	0.00	0.00
10	108.00	APXVSPP18-C-A20	2	29.434	32.377	0.66	0.80	10.65	102.60	0.000	0.000	551.74	0.00	0.00
11	108.00	APXVTM14-C-120	3	29.434	32.377	0.63	0.80	12.02	151.20	0.000	0.000	622.71	0.00	0.00
12	108.00	840 10054	3	29.434	32.377	0.49	0.80	6.72	94.50	0.000	0.000	348.11	0.00	0.00
13	108.00	800 MHz	3	29.434	32.377	0.54	0.80	4.00	143.10	0.000	0.000	207.42	0.00	0.00
14	108.00	T-Arm	3	29.434	32.377	0.56	0.75	13.50	945.00	0.000	0.000	699.35	0.00	0.00
15	108.00	Horizon	2	29.434	32.377	0.80	0.80	0.69	19.08	0.000	0.000	35.64	0.00	0.00
16	108.00	P40-16-XLPP-RR-A	1	29.434	32.377	0.80	0.80	7.26	47.70	0.000	0.000	376.30	0.00	0.00
17	108.00	TD-RRH8x20-25	3	29.434	32.377	0.54	0.80	6.51	189.00	0.000	0.000	337.37	0.00	0.00
18	108.00	VHLP2.5	2	29.434	32.377	1.00	1.00	16.86	85.68	0.000	0.000	873.41	0.00	0.00
19	108.00	800 MHz Filters	3	29.434	32.377	0.54	0.80	3.86	172.80	0.000	0.000	199.92	0.00	0.00
20	108.00	1900MHz RRH	3	29.434	32.377	0.54	0.80	6.11	118.80	0.000	0.000	316.54	0.00	0.00
21	98.00	RRUS A2	3	28.838	31.722	0.54	0.80	2.48	59.40	0.000	0.000	125.68	0.00	0.00
22	98.00	OPA-65R-LCUU-H6	3	28.838	31.722	0.63	0.80	18.32	216.00	0.000	0.000	929.59	0.00	0.00
23	98.00	LGP21401	9	28.838	31.722	0.80	0.80	9.29	114.21	0.000	0.000	471.41	0.00	0.00
24	98.00	RRUS11	6	28.838	31.722	0.54	0.80	8.10	237.60	0.000	0.000	411.33	0.00	0.00
25	98.00	7770	6	28.838	31.722	0.58	0.80	19.15	145.80	0.000	0.000	971.76	0.00	0.00
26	98.00	13519	6	28.838	31.722	0.80	0.80	1.63	28.62	0.000	0.000	82.83	0.00	0.00
27	98.00	DC6-48-60-18-8F	1	28.838	31.722	0.80	0.80	0.74	28.62	0.000	0.000	37.36	0.00	0.00
28	98.00	T-Arm	3	28.838	31.722	0.56	0.75	13.50	945.00	0.000	0.000	685.19	0.00	0.00
29	98.00	RRU-12	3	28.838	31.722	0.54	0.80	4.05	136.89	0.000	0.000	205.67	0.00	0.00
30	88.00	APXVAARR24_43-U-NA2	3	28.192	31.011	0.56	0.80	34.00	345.60	0.000	0.000	1687.15	0.00	0.00
31	88.00	AIR 21 B2A/B4P	3	28.192	31.011	0.69	0.80	12.57	245.70	0.000	0.000	623.68	0.00	0.00
32	88.00	AIR32	3	28.192	31.011	0.70	0.80	13.59	356.94	0.000	0.000	674.44	0.00	0.00
33	88.00	4449 B71 + B12	3	28.192	31.011	0.54	0.80	4.13	135.00	0.000	0.000	205.05	0.00	0.00
34	88.00	KRY 112 144/2	3	28.192	31.011	0.56	0.80	0.69	29.70	0.000	0.000	34.18	0.00	0.00
35	88.00	T-Arm	3	28.192	31.011	0.56	0.75	13.50	945.00	0.000	0.000	669.84	0.00	0.00
36	78.00	T-Arm	3	27.485	30.233	0.56	0.75	13.50	945.00	0.000	0.000	653.04	0.00	0.00
37	78.00	APXV18-206517S-C	3	27.485	30.233	0.59	0.80	9.18	71.28	0.000	0.000	444.16	0.00	0.00
							Totals:		**8,484.21**			**17,342.88**		

Total Applied Force Summary

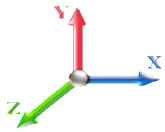
Structure:	CT08558-B-SBA		**Code:**	EIA/TIA-222-G	8/2/2018
Site Name:	New Britain 3, CT		**Exposure:**	C	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 16

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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		441.96	945.12	0.00	0.00
10.00		431.53	928.29	0.00	0.00
15.00		421.10	911.46	0.00	0.00
20.00		435.73	894.63	0.00	0.00
25.00		445.09	877.79	0.00	0.00
30.00		450.45	860.96	0.00	0.00
35.00		452.85	844.13	0.00	0.00
40.00		452.96	827.30	0.00	0.00
45.00		451.20	810.47	0.00	0.00
48.50		312.92	557.32	0.00	0.00
50.00		134.78	370.59	0.00	0.00
53.25		291.71	793.58	0.00	0.00
55.00		155.75	234.95	0.00	0.00
60.00		443.81	662.19	0.00	0.00
65.00		437.17	648.73	0.00	0.00
70.00		429.63	635.26	0.00	0.00
75.00		421.29	621.80	0.00	0.00
78.00	(6) attachments	1345.00	1382.90	0.00	0.00
80.00		163.12	230.49	0.00	0.00
85.00		402.52	566.79	0.00	0.00
88.00	(18) attachments	4130.36	2391.55	0.00	0.00
90.00		155.06	193.97	0.00	0.00
95.00		381.32	475.50	0.00	0.00
98.00	(40) attachments	4143.68	2190.98	0.00	0.00
98.50		36.64	39.82	0.00	0.00
100.00		110.92	190.24	0.00	0.00
102.00		146.33	250.36	0.00	0.00
105.00		216.13	187.60	0.00	0.00
108.00	(32) attachments	4795.78	2257.03	0.00	0.00
109.00		69.45	56.22	0.00	0.00
110.00		68.95	55.81	0.00	0.00
115.00		338.39	273.00	0.00	0.00
118.00	(25) attachments	4042.90	1583.75	0.00	0.00
119.00		64.30	39.96	0.00	0.00
	Totals:	**27,220.79**	**24,790.53**	**0.00**	**0.00**

Linear Appurtenance Segment Forces (Factored)

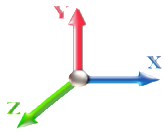
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.450	0.00	4.95
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.450	0.00	4.95
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.450	0.00	4.95
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	20.638	0.00	4.95
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.630	0.00	4.95
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	22.477	0.00	4.95
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.218	0.00	4.95
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.880	0.00	4.95
45.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.479	0.00	4.95
48.50	1 5/8" Hybrid	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	24.869	0.00	3.47
50.00	1 5/8" Hybrid	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	25.029	0.00	1.49
53.25	1 5/8" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	25.363	0.00	3.22
55.00	1 5/8" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	25.536	0.00	1.73
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.008	0.00	4.95
65.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.450	0.00	4.95
70.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.866	0.00	4.95
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.259	0.00	4.95
78.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.485	0.00	2.97
80.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.632	0.00	1.98
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.987	0.00	4.95
88.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	28.192	0.00	2.97
90.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.325	0.00	1.98
95.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.650	0.00	4.95
98.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	28.838	0.00	2.97
98.50	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.000	0.000	28.869	0.00	0.50
100.00	1 5/8" Hybrid	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	28.961	0.00	1.49
102.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	29.082	0.00	1.98
105.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	29.260	0.00	2.97
108.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	29.434	0.00	2.97
109.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	29.491	0.00	0.99
110.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	29.548	0.00	0.99
115.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.826	0.00	4.95
118.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	29.988	0.00	2.97
										Totals:	**0.0**	**116.8**

Calculated Forces

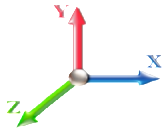
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-24.73	-27.28	0.00	-2405.6	0.00	2405.66	3013.27	1506.63	5849.73	2929.21	0.00	0.000	0.000	0.830
5.00	-23.67	-26.94	0.00	-2269.2	0.00	2269.28	2972.75	1486.38	5634.65	2821.52	0.14	-0.253	0.000	0.813
10.00	-22.62	-26.60	0.00	-2134.6	0.00	2134.60	2930.78	1465.39	5420.60	2714.33	0.54	-0.508	0.000	0.794
15.00	-21.60	-26.27	0.00	-2001.6	0.00	2001.60	2887.35	1443.68	5207.78	2607.76	1.21	-0.766	0.000	0.775
20.00	-20.59	-25.91	0.00	-1870.2	0.00	1870.26	2842.47	1421.24	4996.39	2501.91	2.15	-1.027	0.000	0.755
25.00	-19.60	-25.54	0.00	-1740.7	0.00	1740.70	2796.14	1398.07	4786.62	2396.87	3.37	-1.289	0.000	0.734
30.00	-18.64	-25.15	0.00	-1613.0	0.00	1613.01	2748.35	1374.17	4578.69	2292.75	4.86	-1.552	0.000	0.711
35.00	-17.69	-24.76	0.00	-1487.2	0.00	1487.24	2699.10	1349.55	4372.78	2189.64	6.63	-1.816	0.000	0.686
40.00	-16.77	-24.35	0.00	-1363.4	0.00	1363.45	2648.40	1324.20	4169.10	2087.65	8.67	-2.080	0.000	0.660
45.00	-15.89	-23.93	0.00	-1241.6	0.00	1241.68	2596.25	1298.12	3967.85	1986.88	10.99	-2.343	0.000	0.631
48.50	-15.29	-23.63	0.00	-1157.9	0.00	1157.91	2558.87	1279.44	3828.53	1917.11	12.78	-2.528	0.000	0.610
50.00	-14.87	-23.51	0.00	-1122.4	0.00	1122.46	2542.63	1271.32	3769.24	1887.42	13.59	-2.608	0.000	0.601
53.25	-14.04	-23.22	0.00	-1046.0	0.00	1046.04	1874.80	937.40	2771.76	1387.94	15.42	-2.778	0.000	0.762
55.00	-13.73	-23.10	0.00	-1005.4	0.00	1005.41	1862.74	931.37	2724.01	1364.03	16.46	-2.870	0.000	0.745
60.00	-12.98	-22.69	0.00	-889.91	0.00	889.91	1827.31	913.65	2588.34	1296.09	19.63	-3.169	0.000	0.694
65.00	-12.25	-22.27	0.00	-776.48	0.00	776.48	1790.42	895.21	2453.92	1228.78	23.10	-3.459	0.000	0.639
70.00	-11.54	-21.86	0.00	-665.11	0.00	665.11	1752.08	876.04	2320.96	1162.21	26.87	-3.734	0.000	0.579
75.00	-10.87	-21.44	0.00	-555.81	0.00	555.81	1712.28	856.14	2189.66	1096.46	30.92	-3.993	0.000	0.514
78.00	-9.55	-20.02	0.00	-491.50	0.00	491.50	1687.70	843.85	2111.76	1057.45	33.48	-4.141	0.000	0.471
80.00	-9.27	-19.86	0.00	-451.47	0.00	451.47	1671.02	835.51	2060.22	1031.64	35.23	-4.236	0.000	0.444
85.00	-8.68	-19.44	0.00	-352.16	0.00	352.16	1628.32	814.16	1932.84	967.86	39.78	-4.446	0.000	0.370
88.00	-6.60	-15.15	0.00	-293.83	0.00	293.83	1601.99	801.00	1857.49	930.12	42.61	-4.560	0.000	0.320
90.00	-6.39	-14.99	0.00	-263.54	0.00	263.54	1584.15	792.08	1807.72	905.20	44.54	-4.630	0.000	0.296
95.00	-5.92	-14.58	0.00	-188.59	0.00	188.59	1538.53	769.27	1685.06	843.78	49.46	-4.780	0.000	0.228
98.00	-4.08	-10.27	0.00	-144.85	0.00	144.85	1510.46	755.23	1612.73	807.56	52.49	-4.854	0.000	0.182
98.50	-4.04	-10.23	0.00	-139.71	0.00	139.71	1505.73	752.87	1600.77	801.57	53.00	-4.866	0.000	0.177
100.00	-3.85	-10.11	0.00	-124.36	0.00	124.36	1491.46	745.73	1565.06	783.69	54.53	-4.898	0.000	0.161
102.00	-3.61	-9.94	0.00	-104.14	0.00	104.14	1021.50	510.75	1074.26	537.93	56.59	-4.937	0.000	0.198
105.00	-3.43	-9.72	0.00	-74.31	0.00	74.31	1004.76	502.38	1028.99	515.26	59.70	-4.984	0.000	0.148
108.00	-1.60	-4.74	0.00	-45.16	0.00	45.16	987.50	493.75	984.13	492.79	62.85	-5.028	0.000	0.093
109.00	-1.55	-4.67	0.00	-40.42	0.00	40.42	981.63	490.81	969.27	485.35	63.90	-5.040	0.000	0.085
109.00	-1.55	-4.67	0.00	-40.42	0.00	40.42	981.63	490.81	969.27	485.35	63.90	-5.040	0.000	0.085
110.00	-1.50	-4.60	0.00	-35.75	0.00	35.75	975.70	487.85	954.46	477.94	64.96	-5.050	0.000	0.076
115.00	-1.25	-4.23	0.00	-12.77	0.00	12.77	945.18	472.59	881.23	441.27	70.26	-5.084	0.000	0.030
118.00	-0.03	-0.07	0.00	-0.07	0.00	0.07	926.18	463.09	838.01	419.63	73.45	-5.090	0.000	0.000
119.00	0.00	-0.06	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	74.52	-5.090	0.000	0.000

Wind Loading - Shaft

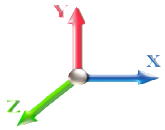
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

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		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.656	5.00	21.243	25.49	144.9	498.4	1442.7
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	20.873	25.05	142.4	523.1	1445.0
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	20.465	24.56	139.6	532.8	1432.2
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	5.00	20.041	24.05	145.1	535.7	1412.7
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	19.608	23.53	148.8	534.8	1389.4
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	19.169	23.00	151.1	531.4	1363.5
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	18.726	22.47	152.5	526.0	1335.7
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	18.279	21.94	153.1	519.3	1306.5
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	5.00	17.831	21.40	153.1	511.4	1276.2
48.50	Bot - Section 2	1.00	1.09	6.608	7.27	0.00	1.200	2.079	3.50	12.212	14.65	106.5	353.7	875.8
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	1.50	5.228	6.27	45.9	152.7	552.1
53.25	Top - Section 1	1.00	1.11	6.739	7.41	0.00	1.200	2.098	3.25	11.190	13.43	99.5	327.0	1179.8
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	1.75	5.945	7.13	53.2	174.9	377.6
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	16.686	20.02	152.2	489.5	1056.6
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	5.00	16.231	19.48	150.6	478.8	1028.0
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	5.00	15.776	18.93	148.6	467.6	998.8
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	15.319	18.38	146.5	456.0	969.2
78.00	Appurtenance(s)	1.00	1.20	7.303	8.03	0.00	1.200	2.180	3.00	8.971	10.76	86.5	269.3	568.6
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	2.00	5.889	7.07	57.1	177.6	373.5
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	14.404	17.29	141.4	431.6	908.9
88.00	Appurtenance(s)	1.00	1.23	7.491	8.24	0.00	1.200	2.206	3.00	8.421	10.11	83.3	254.4	532.2
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	2.00	5.522	6.63	54.9	167.5	349.1
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	5.00	13.487	16.18	135.5	405.9	847.3
98.00	Appurtenance(s)	1.00	1.26	7.662	8.43	0.00	1.200	2.230	3.00	7.871	9.44	79.6	238.8	495.0
98.50	Bot - Section 3	1.00	1.26	7.671	8.44	0.00	1.200	2.231	0.50	1.295	1.55	13.1	39.7	81.7
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	1.50	3.907	4.69	39.7	119.4	340.0
102.00	Top - Section 2	1.00	1.27	7.727	8.50	0.00	1.200	2.239	2.00	5.145	6.17	52.5	157.0	446.7
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	3.00	7.580	9.10	77.8	230.6	414.7
108.00	Appurtenance(s)	1.00	1.29	7.821	8.60	0.00	1.200	2.252	3.00	7.414	8.90	76.5	225.7	404.9
109.00	Top - Section 3	1.00	1.29	7.836	8.62	0.00	1.200	2.254	1.00	2.434	2.92	25.2	74.7	133.3
110.00		1.00	1.29	7.851	8.64	0.00	1.200	2.256	1.00	2.416	2.90	25.0	74.1	132.2
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	5.00	11.806	14.17	123.5	356.7	639.2
118.00	Appurtenance(s)	1.00	1.31	7.968	8.76	0.00	1.200	2.272	3.00	6.861	8.23	72.2	208.9	372.0
119.00		1.00	1.31	7.982	8.78	0.00	1.200	2.274	1.00	2.250	2.70	23.7	69.1	122.3
								Totals:	**119.00**			**3,400.9**		**26,603.8**

Discrete Appurtenance Forces

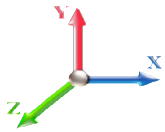
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	118.00	RRH2x40-AWS	3	7.968	8.765	0.60	0.90	6.38	343.34	0.000	0.000	55.88	0.00	0.00
2	118.00	RFS FD9R6004/2C-3L	6	7.968	8.765	0.90	0.90	5.06	71.21	0.000	0.000	44.35	0.00	0.00
3	118.00	DB-T1-6Z-8AB-0Z	1	7.968	8.765	0.64	0.90	3.81	220.01	0.000	0.000	33.38	0.00	0.00
4	118.00	BXA-70063-6BF	3	7.968	8.765	0.63	0.90	21.11	492.80	0.000	0.000	184.99	0.00	0.00
5	118.00	BXA-171063-8BF	3	7.968	8.765	0.76	0.90	11.56	237.36	0.000	0.000	101.35	0.00	0.00
6	118.00	BXA-171063-12BF	3	7.968	8.765	0.76	0.90	17.69	343.13	0.000	0.000	155.01	0.00	0.00
7	118.00	800 10735V01	3	7.968	8.765	0.59	0.90	22.21	572.95	0.000	0.000	194.70	0.00	0.00
8	118.00	T-Arm	3	7.968	8.765	0.56	0.75	36.04	2290.46	0.000	0.000	315.90	0.00	0.00
9	108.00	ACU-A20-N	4	7.821	8.603	0.54	0.80	1.12	21.77	0.000	0.000	9.64	0.00	0.00
10	108.00	APXVSPP18-C-A20	2	7.821	8.603	0.66	0.80	15.44	483.84	0.000	0.000	132.80	0.00	0.00
11	108.00	APXVTM14-C-120	3	7.821	8.603	0.63	0.80	14.79	859.41	0.000	0.000	127.28	0.00	0.00
12	108.00	840 10054	3	7.821	8.603	0.49	0.80	9.88	379.88	0.000	0.000	84.99	0.00	0.00
13	108.00	800 MHz	3	7.821	8.603	0.54	0.80	6.38	413.78	0.000	0.000	54.86	0.00	0.00
14	108.00	T-Arm	3	7.821	8.603	0.56	0.75	28.70	1995.74	0.000	0.000	246.89	0.00	0.00
15	108.00	Horizon	2	7.821	8.603	0.80	0.80	1.74	70.78	0.000	0.000	15.00	0.00	0.00
16	108.00	P40-16-XLPP-RR-A	1	7.821	8.603	0.80	0.80	8.57	347.29	0.000	0.000	73.77	0.00	0.00
17	108.00	TD-RRH8x20-25	3	7.821	8.603	0.54	0.80	8.24	705.92	0.000	0.000	70.86	0.00	0.00
18	108.00	VHLP2.5	2	7.821	8.603	1.00	1.00	21.26	461.07	0.000	0.000	182.93	0.00	0.00
19	108.00	800 MHz Filters	3	7.821	8.603	0.54	0.80	6.18	462.93	0.000	0.000	53.17	0.00	0.00
20	108.00	1900MHz RRH	3	7.821	8.603	0.54	0.80	8.99	487.34	0.000	0.000	77.38	0.00	0.00
21	98.00	RRUS A2	3	7.662	8.429	0.54	0.80	3.59	263.62	0.000	0.000	30.25	0.00	0.00
22	98.00	OPA-65R-LCUU-H6	3	7.662	8.429	0.63	0.80	21.68	1219.36	0.000	0.000	182.73	0.00	0.00
23	98.00	LGP21401	9	7.662	8.429	0.80	0.80	16.98	375.89	0.000	0.000	143.09	0.00	0.00
24	98.00	RRUS11	6	7.662	8.429	0.54	0.80	10.71	708.44	0.000	0.000	90.24	0.00	0.00
25	98.00	7770	6	7.662	8.429	0.58	0.80	28.57	874.46	0.000	0.000	240.83	0.00	0.00
26	98.00	13519	6	7.662	8.429	0.80	0.80	4.42	94.77	0.000	0.000	37.23	0.00	0.00
27	98.00	DC6-48-60-18-8F	1	7.662	8.429	0.80	0.80	1.18	99.46	0.000	0.000	9.98	0.00	0.00
28	98.00	T-Arm	3	7.662	8.429	0.56	0.75	28.55	1986.59	0.000	0.000	240.65	0.00	0.00
29	98.00	RRU-12	3	7.662	8.429	0.54	0.80	5.42	546.27	0.000	0.000	45.71	0.00	0.00
30	88.00	APXVAARR24_43-U-NA2	3	7.491	8.240	0.60	0.80	40.80	2099.33	0.000	0.000	336.16	0.00	0.00
31	88.00	AIR 21 B2A/B4P	3	7.491	8.240	0.69	0.80	15.48	1001.24	0.000	0.000	127.58	0.00	0.00
32	88.00	AIR32	3	7.491	8.240	0.70	0.80	16.73	1209.32	0.000	0.000	137.84	0.00	0.00
33	88.00	4449 B71 + B12	3	7.491	8.240	0.54	0.80	5.45	382.70	0.000	0.000	44.87	0.00	0.00
34	88.00	KRY 112 144/2	3	7.491	8.240	0.60	0.80	1.82	71.19	0.000	0.000	14.99	0.00	0.00
35	88.00	T-Arm	3	7.491	8.240	0.56	0.75	28.39	1976.57	0.000	0.000	233.94	0.00	0.00
36	78.00	T-Arm	3	7.303	8.033	0.56	0.75	28.21	1965.46	0.000	0.000	226.63	0.00	0.00
37	78.00	APXV18-206517S-C	3	7.303	8.033	0.59	0.80	14.45	363.12	0.000	0.000	116.07	0.00	0.00
							Totals:		**26,498.81**			**4,473.93**		

Total Applied Force Summary

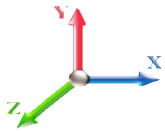
Structure:	CT08558-B-SBA		**Code:**	EIA/TIA-222-G	8/2/2018
Site Name:	New Britain 3, CT		**Exposure:**	C	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

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		144.91	1789.84	0.00	0.00
10.00		142.39	1795.56	0.00	0.00
15.00		139.61	1784.96	0.00	0.00
20.00		145.06	1767.15	0.00	0.00
25.00		148.75	1745.14	0.00	0.00
30.00		151.11	1720.36	0.00	0.00
35.00		152.49	1693.58	0.00	0.00
40.00		153.10	1665.27	0.00	0.00
45.00		153.09	1635.75	0.00	0.00
48.50		106.51	1127.79	0.00	0.00
50.00		45.89	660.19	0.00	0.00
53.25		99.54	1414.28	0.00	0.00
55.00		53.25	503.94	0.00	0.00
60.00		152.20	1418.19	0.00	0.00
65.00		150.57	1390.11	0.00	0.00
70.00		148.65	1361.49	0.00	0.00
75.00		146.46	1332.41	0.00	0.00
78.00	(6) attachments	429.18	3115.28	0.00	0.00
80.00		57.07	504.03	0.00	0.00
85.00		141.39	1235.59	0.00	0.00
88.00	(18) attachments	978.64	7468.69	0.00	0.00
90.00		54.86	445.67	0.00	0.00
95.00		135.52	1089.01	0.00	0.00
98.00	(40) attachments	1100.31	6809.05	0.00	0.00
98.50		13.12	97.69	0.00	0.00
100.00		39.68	387.88	0.00	0.00
102.00		52.47	510.69	0.00	0.00
105.00		77.78	510.71	0.00	0.00
108.00	(32) attachments	1206.11	7190.83	0.00	0.00
109.00		25.18	159.68	0.00	0.00
110.00		25.04	158.60	0.00	0.00
115.00		123.50	771.34	0.00	0.00
118.00	(25) attachments	1157.74	5022.64	0.00	0.00
119.00		23.71	122.35	0.00	0.00
	Totals:	**7,874.88**	**60,405.72**	**0.00**	**0.00**

Linear Appurtenance Segment Forces (Factored)

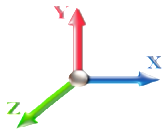
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	37.90
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	41.32
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	43.52
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.483	0.00	45.17
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.747	0.00	46.51
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.972	0.00	47.65
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	48.64
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.345	0.00	49.52
45.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.504	0.00	50.31
48.50	1 5/8" Hybrid	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	6.608	0.00	35.58
50.00	1 5/8" Hybrid	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	6.650	0.00	15.31
53.25	1 5/8" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	6.739	0.00	33.46
55.00	1 5/8" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	6.785	0.00	18.10
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.910	0.00	52.32
65.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.028	0.00	52.90
70.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	53.44
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.243	0.00	53.95
78.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.303	0.00	32.55
80.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.342	0.00	21.77
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.436	0.00	54.89
88.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.491	0.00	33.09
90.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.526	0.00	22.13
95.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.612	0.00	55.75
98.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.662	0.00	33.59
98.50	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.000	0.000	7.671	0.00	5.60
100.00	1 5/8" Hybrid	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	7.695	0.00	16.84
102.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.727	0.00	22.52
105.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.774	0.00	33.92
108.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.821	0.00	34.05
109.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	7.836	0.00	11.37
110.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	7.851	0.00	11.38
115.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.925	0.00	57.26
118.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.968	0.00	34.48
										Totals:	**0.0**	**1,206.8**

Calculated Forces

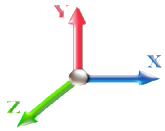
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-60.40	-7.91	0.00	-713.54	0.00	713.54	3013.27	1506.63	5849.73	2929.21	0.00	0.000	0.000	0.264
5.00	-58.60	-7.85	0.00	-673.97	0.00	673.97	2972.75	1486.38	5634.65	2821.52	0.04	-0.075	0.000	0.259
10.00	-56.79	-7.78	0.00	-634.74	0.00	634.74	2930.78	1465.39	5420.60	2714.33	0.16	-0.151	0.000	0.253
15.00	-55.00	-7.70	0.00	-595.86	0.00	595.86	2887.35	1443.68	5207.78	2607.76	0.36	-0.228	0.000	0.248
20.00	-53.22	-7.62	0.00	-557.34	0.00	557.34	2842.47	1421.24	4996.39	2501.91	0.64	-0.305	0.000	0.242
25.00	-51.47	-7.53	0.00	-519.23	0.00	519.23	2796.14	1398.07	4786.62	2396.87	1.00	-0.383	0.000	0.235
30.00	-49.74	-7.44	0.00	-481.55	0.00	481.55	2748.35	1374.17	4578.69	2292.75	1.44	-0.462	0.000	0.228
35.00	-48.04	-7.34	0.00	-444.36	0.00	444.36	2699.10	1349.55	4372.78	2189.64	1.97	-0.541	0.000	0.221
40.00	-46.36	-7.23	0.00	-407.67	0.00	407.67	2648.40	1324.20	4169.10	2087.65	2.58	-0.620	0.000	0.213
45.00	-44.72	-7.11	0.00	-371.51	0.00	371.51	2596.25	1298.12	3967.85	1986.88	3.27	-0.698	0.000	0.204
48.50	-43.59	-7.02	0.00	-346.62	0.00	346.62	2558.87	1279.44	3828.53	1917.11	3.81	-0.754	0.000	0.198
50.00	-42.93	-6.99	0.00	-336.09	0.00	336.09	2542.63	1271.32	3769.24	1887.42	4.05	-0.778	0.000	0.195
53.25	-41.51	-6.90	0.00	-313.36	0.00	313.36	1874.80	937.40	2771.76	1387.94	4.59	-0.829	0.000	0.248
55.00	-41.00	-6.89	0.00	-301.28	0.00	301.28	1862.74	931.37	2724.01	1364.03	4.90	-0.856	0.000	0.243
60.00	-39.57	-6.77	0.00	-266.85	0.00	266.85	1827.31	913.65	2588.34	1296.09	5.85	-0.946	0.000	0.228
65.00	-38.18	-6.65	0.00	-232.99	0.00	232.99	1790.42	895.21	2453.92	1228.78	6.89	-1.033	0.000	0.211
70.00	-36.81	-6.53	0.00	-199.72	0.00	199.72	1752.08	876.04	2320.96	1162.21	8.01	-1.115	0.000	0.193
75.00	-35.47	-6.40	0.00	-167.07	0.00	167.07	1712.28	856.14	2189.66	1096.46	9.22	-1.193	0.000	0.173
78.00	-32.36	-5.92	0.00	-147.88	0.00	147.88	1687.70	843.85	2111.76	1057.45	9.99	-1.238	0.000	0.159
80.00	-31.86	-5.88	0.00	-136.04	0.00	136.04	1671.02	835.51	2060.22	1031.64	10.51	-1.266	0.000	0.151
85.00	-30.62	-5.74	0.00	-106.65	0.00	106.65	1628.32	814.16	1932.84	967.86	11.87	-1.330	0.000	0.129
88.00	-23.17	-4.59	0.00	-89.44	0.00	89.44	1601.99	801.00	1857.49	930.12	12.72	-1.364	0.000	0.111
90.00	-22.73	-4.54	0.00	-80.26	0.00	80.26	1584.15	792.08	1807.72	905.20	13.30	-1.386	0.000	0.103
95.00	-21.64	-4.39	0.00	-57.55	0.00	57.55	1538.53	769.27	1685.06	843.78	14.77	-1.431	0.000	0.082
98.00	-14.86	-3.12	0.00	-44.38	0.00	44.38	1510.46	755.23	1612.73	807.56	15.68	-1.454	0.000	0.065
98.50	-14.76	-3.11	0.00	-42.82	0.00	42.82	1505.73	752.87	1600.77	801.57	15.83	-1.457	0.000	0.063
100.00	-14.37	-3.06	0.00	-38.16	0.00	38.16	1491.46	745.73	1565.06	783.69	16.29	-1.467	0.000	0.058
102.00	-13.86	-3.00	0.00	-32.03	0.00	32.03	1021.50	510.75	1074.26	537.93	16.91	-1.479	0.000	0.073
105.00	-13.35	-2.91	0.00	-23.03	0.00	23.03	1004.76	502.38	1028.99	515.26	17.85	-1.494	0.000	0.058
108.00	-6.20	-1.52	0.00	-14.30	0.00	14.30	987.50	493.75	984.13	492.79	18.79	-1.508	0.000	0.035
109.00	-6.04	-1.49	0.00	-12.78	0.00	12.78	981.63	490.81	969.27	485.35	19.11	-1.511	0.000	0.032
109.00	-6.04	-1.49	0.00	-12.78	0.00	12.78	981.63	490.81	969.27	485.35	19.11	-1.511	0.000	0.032
110.00	-5.88	-1.46	0.00	-11.29	0.00	11.29	975.70	487.85	954.46	477.94	19.42	-1.515	0.000	0.030
115.00	-5.11	-1.32	0.00	-3.98	0.00	3.98	945.18	472.59	881.23	441.27	21.02	-1.525	0.000	0.014
118.00	-0.12	-0.03	0.00	-0.03	0.00	0.03	926.18	463.09	838.01	419.63	21.97	-1.527	0.000	0.000
119.00	0.00	-0.02	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	22.29	-1.527	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT08558-B-SBA		**Code:**	EIA/TIA-222-G	8/2/2018
Site Name:	New Britain 3, CT		**Exposure:**	C	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 24

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	20
Gust Response Factor	1.10				**Sds**	0.13		**Ss**	0.19
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.04		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.42		**SA**	0.02	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		786.94	0.00	0.04	0.02	13.74	
10.00		768.24	0.01	0.06	0.03	17.56	
15.00		749.54	0.03	0.07	0.04	18.72	
20.00		730.84	0.05	0.07	0.04	19.00	
25.00		712.14	0.08	0.07	0.04	19.09	
30.00		693.44	0.12	0.07	0.03	19.22	
35.00		674.74	0.16	0.07	0.03	19.29	
40.00		656.04	0.21	0.06	0.02	18.96	
45.00		637.33	0.27	0.05	0.01	17.61	
48.50	Bot - Section 2	435.01	0.31	0.04	0.01	10.84	
50.00		332.81	0.33	0.04	0.01	7.68	
53.25	Top - Section 1	710.69	0.38	0.02	0.01	12.42	
55.00		168.94	0.40	0.02	0.01	2.27	
60.00		472.58	0.48	-0.01	0.01	-0.62	
65.00		457.62	0.56	-0.04	0.01	-7.76	
70.00		442.66	0.65	-0.07	0.02	-12.45	
75.00		427.70	0.75	-0.10	0.04	-14.03	
78.00	Appurtenance(s)	1378.6	0.81	-0.11	0.06	-45.01	
80.00		163.30	0.85	-0.12	0.07	-5.13	
85.00		397.78	0.96	-0.12	0.11	-9.77	
88.00	Appurtenance(s)	2518.0	1.03	-0.10	0.15	-45.32	
90.00		151.33	1.08	-0.08	0.18	-1.91	
95.00		367.85	1.20	0.01	0.26	1.58	
98.00	Appurtenance(s)	2338.1	1.28	0.10	0.32	39.48	
98.50	Bot - Section 3	35.06	1.29	0.11	0.33	0.67	
100.00		183.85	1.33	0.17	0.37	4.84	
102.00	Top - Section 2	241.47	1.39	0.26	0.42	8.83	
105.00		153.38	1.47	0.43	0.51	8.22	
108.00	Appurtenance(s)	2452.7	1.56	0.65	0.61	177.85	
109.00	Top - Section 3	48.88	1.59	0.73	0.65	3.87	
110.00		48.43	1.61	0.83	0.69	4.18	
115.00		235.44	1.77	1.38	0.92	29.33	
118.00	Appurtenance(s)	1718.9	1.86	1.82	1.08	258.44	
119.00		44.39	1.89	1.98	1.14	7.08	
	Totals:	**22,335.0**				**598.8**	**Total Wind:** **27,220.8**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	20
Gust Response Factor	1.10			**Sds**	0.13			**Ss**	0.19
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.04			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.42	**SA**	0.02	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.05	-0.74	0.00	-69.57	0.00	69.57	3013.27	1506.63	5849.73	2929.21		0.00	0.00	0.035
5.00	-31.79	-0.73	0.00	-65.86	0.00	65.86	2972.75	1486.38	5634.65	2821.52		0.00	-0.01	0.034
10.00	-30.56	-0.72	0.00	-62.20	0.00	62.20	2930.78	1465.39	5420.60	2714.33		0.02	-0.01	0.033
15.00	-29.34	-0.70	0.00	-58.61	0.00	58.61	2887.35	1443.68	5207.78	2607.76		0.04	-0.02	0.033
20.00	-28.15	-0.69	0.00	-55.09	0.00	55.09	2842.47	1421.24	4996.39	2501.91		0.06	-0.03	0.032
25.00	-26.98	-0.67	0.00	-51.66	0.00	51.66	2796.14	1398.07	4786.62	2396.87		0.10	-0.04	0.031
30.00	-25.83	-0.65	0.00	-48.30	0.00	48.30	2748.35	1374.17	4578.69	2292.75		0.14	-0.05	0.030
35.00	-24.70	-0.64	0.00	-45.03	0.00	45.03	2699.10	1349.55	4372.78	2189.64		0.19	-0.05	0.030
40.00	-23.60	-0.62	0.00	-41.84	0.00	41.84	2648.40	1324.20	4169.10	2087.65		0.25	-0.06	0.029
45.00	-22.52	-0.60	0.00	-38.74	0.00	38.74	2596.25	1298.12	3967.85	1986.88		0.32	-0.07	0.028
48.50	-21.78	-0.59	0.00	-36.62	0.00	36.62	2558.87	1279.44	3828.53	1917.11		0.38	-0.08	0.028
50.00	-21.28	-0.59	0.00	-35.73	0.00	35.73	2542.63	1271.32	3769.24	1887.42		0.40	-0.08	0.027
53.25	-20.22	-0.58	0.00	-33.82	0.00	33.82	1874.80	937.40	2771.76	1387.94		0.46	-0.08	0.035
55.00	-19.91	-0.58	0.00	-32.81	0.00	32.81	1862.74	931.37	2724.01	1364.03		0.49	-0.09	0.035
60.00	-19.03	-0.58	0.00	-29.94	0.00	29.94	1827.31	913.65	2588.34	1296.09		0.58	-0.10	0.034
65.00	-18.16	-0.58	0.00	-27.05	0.00	27.05	1790.42	895.21	2453.92	1228.78		0.69	-0.11	0.032
70.00	-17.32	-0.58	0.00	-24.16	0.00	24.16	1752.08	876.04	2320.96	1162.21		0.81	-0.12	0.031
75.00	-16.49	-0.58	0.00	-21.26	0.00	21.26	1712.28	856.14	2189.66	1096.46		0.93	-0.13	0.029
78.00	-14.64	-0.58	0.00	-19.52	0.00	19.52	1687.70	843.85	2111.76	1057.45		1.01	-0.13	0.027
80.00	-14.34	-0.58	0.00	-18.37	0.00	18.37	1671.02	835.51	2060.22	1031.64		1.07	-0.14	0.026
85.00	-13.58	-0.58	0.00	-15.47	0.00	15.47	1628.32	814.16	1932.84	967.86		1.22	-0.14	0.024
88.00	-10.39	-0.57	0.00	-13.74	0.00	13.74	1601.99	801.00	1857.49	930.12		1.31	-0.15	0.021
90.00	-10.13	-0.57	0.00	-12.60	0.00	12.60	1584.15	792.08	1807.72	905.20		1.37	-0.15	0.020
95.00	-9.50	-0.57	0.00	-9.74	0.00	9.74	1538.53	769.27	1685.06	843.78		1.53	-0.16	0.018
98.00	-6.58	-0.52	0.00	-8.04	0.00	8.04	1510.46	755.23	1612.73	807.56		1.64	-0.16	0.014
98.50	-6.52	-0.52	0.00	-7.78	0.00	7.78	1505.73	752.87	1600.77	801.57		1.65	-0.16	0.014
100.00	-6.27	-0.52	0.00	-6.99	0.00	6.99	1491.46	745.73	1565.06	783.69		1.71	-0.17	0.013
102.00	-5.94	-0.51	0.00	-5.96	0.00	5.96	1021.50	510.75	1074.26	537.93		1.78	-0.17	0.017
105.00	-5.69	-0.50	0.00	-4.44	0.00	4.44	1004.76	502.38	1028.99	515.26		1.88	-0.17	0.014
108.00	-2.68	-0.31	0.00	-2.95	0.00	2.95	987.50	493.75	984.13	492.79		1.99	-0.17	0.009
109.00	-2.60	-0.31	0.00	-2.64	0.00	2.64	981.63	490.81	969.27	485.35		2.03	-0.17	0.008
109.00	-2.60	-0.31	0.00	-2.64	0.00	2.64	981.63	490.81	969.27	485.35		2.03	-0.17	0.008
110.00	-2.53	-0.30	0.00	-2.34	0.00	2.34	975.70	487.85	954.46	477.94		2.06	-0.18	0.007
115.00	-2.16	-0.27	0.00	-0.82	0.00	0.82	945.18	472.59	881.23	441.27		2.25	-0.18	0.004
118.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	926.18	463.09	838.01	419.63		2.36	-0.18	0.000
119.00	0.00	-0.01	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48		2.40	-0.18	0.000

Seismic Segment Forces (Factored)

Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E							**Iterations**	20
Gust Response Factor	1.10				**Sds**	0.13		**Ss**	0.19
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.04		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.42		**SA**	0.02	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		786.94	0.00	0.04	0.02	13.74	
10.00		768.24	0.01	0.06	0.03	17.56	
15.00		749.54	0.03	0.07	0.04	18.72	
20.00		730.84	0.05	0.07	0.04	19.00	
25.00		712.14	0.08	0.07	0.04	19.09	
30.00		693.44	0.12	0.07	0.03	19.22	
35.00		674.74	0.16	0.07	0.03	19.29	
40.00		656.04	0.21	0.06	0.02	18.96	
45.00		637.33	0.27	0.05	0.01	17.61	
48.50	Bot - Section 2	435.01	0.31	0.04	0.01	10.84	
50.00		332.81	0.33	0.04	0.01	7.68	
53.25	Top - Section 1	710.69	0.38	0.02	0.01	12.42	
55.00		168.94	0.40	0.02	0.01	2.27	
60.00		472.58	0.48	-0.01	0.01	-0.62	
65.00		457.62	0.56	-0.04	0.01	-7.76	
70.00		442.66	0.65	-0.07	0.02	-12.45	
75.00		427.70	0.75	-0.10	0.04	-14.03	
78.00	Appurtenance(s)	1378.6	0.81	-0.11	0.06	-45.01	
80.00		163.30	0.85	-0.12	0.07	-5.13	
85.00		397.78	0.96	-0.12	0.11	-9.77	
88.00	Appurtenance(s)	2518.0	1.03	-0.10	0.15	-45.32	
90.00		151.33	1.08	-0.08	0.18	-1.91	
95.00		367.85	1.20	0.01	0.26	1.58	
98.00	Appurtenance(s)	2338.1	1.28	0.10	0.32	39.48	
98.50	Bot - Section 3	35.06	1.29	0.11	0.33	0.67	
100.00		183.85	1.33	0.17	0.37	4.84	
102.00	Top - Section 2	241.47	1.39	0.26	0.42	8.83	
105.00		153.38	1.47	0.43	0.51	8.22	
108.00	Appurtenance(s)	2452.7	1.56	0.65	0.61	177.85	
109.00	Top - Section 3	48.88	1.59	0.73	0.65	3.87	
110.00		48.43	1.61	0.83	0.69	4.18	
115.00		235.44	1.77	1.38	0.92	29.33	
118.00	Appurtenance(s)	1718.9	1.86	1.82	1.08	258.44	
119.00		44.39	1.89	1.98	1.14	7.08	
	Totals:	**22,335.0**				**598.8**	**Total Wind:** **27,220.8**

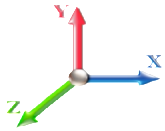
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.13			**Iterations**	20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.04			**Ss**	0.19
Wind Load Factor	0.00	**Structure Frequency**	0.42	**SA**	0.02			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-24.79	-0.74	0.00	-68.88	0.00	68.88	3013.27	1506.63	5849.73	2929.21		0.00	0.00	0.032
5.00	-23.85	-0.73	0.00	-65.17	0.00	65.17	2972.75	1486.38	5634.65	2821.52		0.00	-0.01	0.031
10.00	-22.92	-0.72	0.00	-61.52	0.00	61.52	2930.78	1465.39	5420.60	2714.33		0.02	-0.01	0.030
15.00	-22.01	-0.70	0.00	-57.95	0.00	57.95	2887.35	1443.68	5207.78	2607.76		0.03	-0.02	0.030
20.00	-21.11	-0.68	0.00	-54.45	0.00	54.45	2842.47	1421.24	4996.39	2501.91		0.06	-0.03	0.029
25.00	-20.23	-0.67	0.00	-51.03	0.00	51.03	2796.14	1398.07	4786.62	2396.87		0.10	-0.04	0.029
30.00	-19.37	-0.65	0.00	-47.70	0.00	47.70	2748.35	1374.17	4578.69	2292.75		0.14	-0.05	0.028
35.00	-18.53	-0.63	0.00	-44.46	0.00	44.46	2699.10	1349.55	4372.78	2189.64		0.19	-0.05	0.027
40.00	-17.70	-0.61	0.00	-41.30	0.00	41.30	2648.40	1324.20	4169.10	2087.65		0.25	-0.06	0.026
45.00	-16.89	-0.60	0.00	-38.23	0.00	38.23	2596.25	1298.12	3967.85	1986.88		0.32	-0.07	0.026
48.50	-16.33	-0.59	0.00	-36.14	0.00	36.14	2558.87	1279.44	3828.53	1917.11		0.37	-0.07	0.025
50.00	-15.96	-0.58	0.00	-35.26	0.00	35.26	2542.63	1271.32	3769.24	1887.42		0.40	-0.08	0.025
53.25	-15.17	-0.57	0.00	-33.38	0.00	33.38	1874.80	937.40	2771.76	1387.94		0.45	-0.08	0.032
55.00	-14.93	-0.57	0.00	-32.38	0.00	32.38	1862.74	931.37	2724.01	1364.03		0.48	-0.09	0.032
60.00	-14.27	-0.57	0.00	-29.55	0.00	29.55	1827.31	913.65	2588.34	1296.09		0.58	-0.10	0.031
65.00	-13.62	-0.57	0.00	-26.71	0.00	26.71	1790.42	895.21	2453.92	1228.78		0.68	-0.10	0.029
70.00	-12.99	-0.57	0.00	-23.86	0.00	23.86	1752.08	876.04	2320.96	1162.21		0.80	-0.11	0.028
75.00	-12.36	-0.57	0.00	-21.01	0.00	21.01	1712.28	856.14	2189.66	1096.46		0.92	-0.12	0.026
78.00	-10.98	-0.57	0.00	-19.30	0.00	19.30	1687.70	843.85	2111.76	1057.45		1.00	-0.13	0.025
80.00	-10.75	-0.57	0.00	-18.16	0.00	18.16	1671.02	835.51	2060.22	1031.64		1.06	-0.13	0.024
85.00	-10.18	-0.57	0.00	-15.31	0.00	15.31	1628.32	814.16	1932.84	967.86		1.20	-0.14	0.022
88.00	-7.79	-0.56	0.00	-13.60	0.00	13.60	1601.99	801.00	1857.49	930.12		1.29	-0.15	0.019
90.00	-7.60	-0.56	0.00	-12.48	0.00	12.48	1584.15	792.08	1807.72	905.20		1.35	-0.15	0.019
95.00	-7.12	-0.56	0.00	-9.66	0.00	9.66	1538.53	769.27	1685.06	843.78		1.52	-0.16	0.016
98.00	-4.93	-0.52	0.00	-7.97	0.00	7.97	1510.46	755.23	1612.73	807.56		1.62	-0.16	0.013
98.50	-4.89	-0.52	0.00	-7.71	0.00	7.71	1505.73	752.87	1600.77	801.57		1.63	-0.16	0.013
100.00	-4.70	-0.51	0.00	-6.94	0.00	6.94	1491.46	745.73	1565.06	783.69		1.69	-0.16	0.012
102.00	-4.45	-0.50	0.00	-5.92	0.00	5.92	1021.50	510.75	1074.26	537.93		1.75	-0.17	0.015
105.00	-4.26	-0.49	0.00	-4.41	0.00	4.41	1004.76	502.38	1028.99	515.26		1.86	-0.17	0.013
108.00	-2.01	-0.31	0.00	-2.93	0.00	2.93	987.50	493.75	984.13	492.79		1.97	-0.17	0.008
109.00	-1.95	-0.30	0.00	-2.62	0.00	2.62	981.63	490.81	969.27	485.35		2.00	-0.17	0.007
109.00	-1.95	-0.30	0.00	-2.62	0.00	2.62	981.63	490.81	969.27	485.35		2.00	-0.17	0.007
110.00	-1.90	-0.30	0.00	-2.32	0.00	2.32	975.70	487.85	954.46	477.94		2.04	-0.17	0.007
115.00	-1.62	-0.27	0.00	-0.82	0.00	0.82	945.18	472.59	881.23	441.27		2.22	-0.18	0.004
118.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	926.18	463.09	838.01	419.63		2.33	-0.18	0.000
119.00	0.00	-0.01	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48		2.37	-0.18	0.000

Wind Loading - Shaft

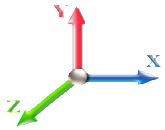
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	222.34	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	217.15	0.650	0.000	5.00	19.863	12.91	105.7	0.0	786.9
10.00		1.00	0.85	7.442	8.19	211.97	0.650	0.000	5.00	19.394	12.61	103.2	0.0	768.2
15.00		1.00	0.85	7.442	8.19	206.78	0.650	0.000	5.00	18.925	12.30	100.7	0.0	749.5
20.00		1.00	0.90	7.896	8.69	207.65	0.650	0.000	5.00	18.456	12.00	104.2	0.0	730.8
25.00		1.00	0.95	8.276	9.10	207.12	0.650	0.000	5.00	17.987	11.69	106.4	0.0	712.1
30.00		1.00	0.98	8.600	9.46	205.56	0.650	0.000	5.00	17.518	11.39	107.7	0.0	693.4
35.00		1.00	1.01	8.883	9.77	203.25	0.650	0.000	5.00	17.049	11.08	108.3	0.0	674.7
40.00		1.00	1.04	9.137	10.05	200.38	0.650	0.000	5.00	16.580	10.78	108.3	0.0	656.0
45.00		1.00	1.07	9.366	10.30	197.06	0.650	0.000	5.00	16.112	10.47	107.9	0.0	637.3
48.50	Bot - Section 2	1.00	1.09	9.515	10.47	194.52	0.650	0.000	3.50	10.999	7.15	74.8	0.0	435.0
50.00		1.00	1.09	9.576	10.53	193.37	0.650	0.000	1.50	4.707	3.06	32.2	0.0	332.8
53.25	Top - Section 1	1.00	1.11	9.704	10.67	190.81	0.650	0.000	3.25	10.054	6.53	69.8	0.0	710.7
55.00		1.00	1.12	9.770	10.75	192.06	0.650	0.000	1.75	5.332	3.47	37.2	0.0	168.9
60.00		1.00	1.14	9.951	10.95	187.83	0.650	0.000	5.00	14.917	9.70	106.1	0.0	472.6
65.00		1.00	1.16	10.120	11.13	183.37	0.650	0.000	5.00	14.448	9.39	104.5	0.0	457.6
70.00		1.00	1.17	10.279	11.31	178.71	0.650	0.000	5.00	13.979	9.09	102.7	0.0	442.7
75.00		1.00	1.19	10.430	11.47	173.87	0.650	0.000	5.00	13.510	8.78	100.7	0.0	427.7
78.00	Appurtenance(s)	1.00	1.20	10.516	11.57	170.89	0.650	0.000	3.00	7.881	5.12	59.3	0.0	249.4
80.00		1.00	1.21	10.572	11.63	168.88	0.650	0.000	2.00	5.160	3.35	39.0	0.0	163.3
85.00		1.00	1.22	10.708	11.78	163.73	0.650	0.000	5.00	12.572	8.17	96.3	0.0	397.8
88.00	Appurtenance(s)	1.00	1.23	10.787	11.87	160.59	0.650	0.000	3.00	7.318	4.76	56.4	0.0	231.5
90.00		1.00	1.24	10.838	11.92	158.46	0.650	0.000	2.00	4.785	3.11	37.1	0.0	151.3
95.00		1.00	1.25	10.962	12.06	153.07	0.650	0.000	5.00	11.634	7.56	91.2	0.0	367.9
98.00	Appurtenance(s)	1.00	1.26	11.034	12.14	149.78	0.650	0.000	3.00	6.756	4.39	53.3	0.0	213.5
98.50	Bot - Section 3	1.00	1.26	11.046	12.15	149.23	0.650	0.000	0.50	1.110	0.72	8.8	0.0	35.1
100.00		1.00	1.27	11.081	12.19	147.57	0.650	0.000	1.50	3.348	2.18	26.5	0.0	183.8
102.00	Top - Section 2	1.00	1.27	11.127	12.24	145.34	0.650	0.000	2.00	4.398	2.86	35.0	0.0	241.5
105.00		1.00	1.28	11.195	12.31	144.12	0.650	0.000	3.00	6.457	4.20	51.7	0.0	153.4
108.00	Appurtenance(s)	1.00	1.29	11.262	12.39	140.72	0.650	0.000	3.00	6.288	4.09	50.6	0.0	149.3
109.00	Top - Section 3	1.00	1.29	11.284	12.41	139.58	0.650	0.000	1.00	2.059	1.34	16.6	0.0	48.9
110.00		1.00	1.29	11.305	12.44	138.43	0.650	0.000	1.00	2.040	1.33	16.5	0.0	48.4
115.00		1.00	1.30	11.412	12.55	132.66	0.650	0.000	5.00	9.918	6.45	80.9	0.0	235.4
118.00	Appurtenance(s)	1.00	1.31	11.474	12.62	129.16	0.650	0.000	3.00	5.726	3.72	47.0	0.0	135.9
119.00		1.00	1.31	11.494	12.64	127.98	0.650	0.000	1.00	1.871	1.22	15.4	0.0	44.4
								Totals:	**119.00**			**2,362.1**		**12,908.1**

Discrete Appurtenance Forces

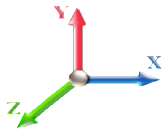
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	118.00	RRH2x40-AWS	3	11.474	12.621	0.60	0.90	3.91	132.00	0.000	0.000	49.32	0.00	0.00
2	118.00	RFS FD9R6004/2C-3L	6	11.474	12.621	0.90	0.90	1.94	18.60	0.000	0.000	24.54	0.00	0.00
3	118.00	DB-T1-6Z-8AB-0Z	1	11.474	12.621	0.64	0.90	3.07	18.90	0.000	0.000	38.71	0.00	0.00
4	118.00	BXA-70063-6BF	3	11.474	12.621	0.63	0.90	14.31	51.00	0.000	0.000	180.57	0.00	0.00
5	118.00	BXA-171063-8BF	3	11.474	12.621	0.76	0.90	6.67	31.50	0.000	0.000	84.16	0.00	0.00
6	118.00	BXA-171063-12BF	3	11.474	12.621	0.76	0.90	10.75	45.00	0.000	0.000	135.68	0.00	0.00
7	118.00	800 10735V01	3	11.474	12.621	0.59	0.90	15.36	86.10	0.000	0.000	193.87	0.00	0.00
8	118.00	T-Arm	3	11.474	12.621	0.56	0.75	16.88	1200.00	0.000	0.000	212.98	0.00	0.00
9	108.00	ACU-A20-N	4	11.262	12.388	0.54	0.80	0.30	4.00	0.000	0.000	3.72	0.00	0.00
10	108.00	APXVSPP18-C-A20	2	11.262	12.388	0.66	0.80	10.65	114.00	0.000	0.000	131.94	0.00	0.00
11	108.00	APXVTM14-C-120	3	11.262	12.388	0.63	0.80	12.02	168.00	0.000	0.000	148.91	0.00	0.00
12	108.00	840 10054	3	11.262	12.388	0.49	0.80	6.72	105.00	0.000	0.000	83.24	0.00	0.00
13	108.00	800 MHz	3	11.262	12.388	0.54	0.80	4.00	159.00	0.000	0.000	49.60	0.00	0.00
14	108.00	T-Arm	3	11.262	12.388	0.56	0.75	13.50	1050.00	0.000	0.000	167.24	0.00	0.00
15	108.00	Horizon	2	11.262	12.388	0.80	0.80	0.69	21.20	0.000	0.000	8.52	0.00	0.00
16	108.00	P40-16-XLPP-RR-A	1	11.262	12.388	0.80	0.80	7.26	53.00	0.000	0.000	89.99	0.00	0.00
17	108.00	TD-RRH8x20-25	3	11.262	12.388	0.54	0.80	6.51	210.00	0.000	0.000	80.68	0.00	0.00
18	108.00	VHLP2.5	2	11.262	12.388	1.00	1.00	16.86	95.20	0.000	0.000	208.86	0.00	0.00
19	108.00	800 MHz Filters	3	11.262	12.388	0.54	0.80	3.86	192.00	0.000	0.000	47.81	0.00	0.00
20	108.00	1900MHz RRH	3	11.262	12.388	0.54	0.80	6.11	132.00	0.000	0.000	75.70	0.00	0.00
21	98.00	RRUS A2	3	11.034	12.137	0.54	0.80	2.48	66.00	0.000	0.000	30.06	0.00	0.00
22	98.00	OPA-65R-LCUU-H6	3	11.034	12.137	0.63	0.80	18.32	240.00	0.000	0.000	222.30	0.00	0.00
23	98.00	LGP21401	9	11.034	12.137	0.80	0.80	9.29	126.90	0.000	0.000	112.73	0.00	0.00
24	98.00	RRUS11	6	11.034	12.137	0.54	0.80	8.10	264.00	0.000	0.000	98.36	0.00	0.00
25	98.00	7770	6	11.034	12.137	0.58	0.80	19.15	162.00	0.000	0.000	232.38	0.00	0.00
26	98.00	13519	6	11.034	12.137	0.80	0.80	1.63	31.80	0.000	0.000	19.81	0.00	0.00
27	98.00	DC6-48-60-18-8F	1	11.034	12.137	0.80	0.80	0.74	31.80	0.000	0.000	8.93	0.00	0.00
28	98.00	T-Arm	3	11.034	12.137	0.56	0.75	13.50	1050.00	0.000	0.000	163.85	0.00	0.00
29	98.00	RRU-12	3	11.034	12.137	0.54	0.80	4.05	152.10	0.000	0.000	49.18	0.00	0.00
30	88.00	APXVAARR24_43-U-NA2	3	10.787	11.865	0.56	0.80	34.00	384.00	0.000	0.000	403.45	0.00	0.00
31	88.00	AIR 21 B2A/B4P	3	10.787	11.865	0.69	0.80	12.57	273.00	0.000	0.000	149.14	0.00	0.00
32	88.00	AIR32	3	10.787	11.865	0.70	0.80	13.59	396.60	0.000	0.000	161.28	0.00	0.00
33	88.00	4449 B71 + B12	3	10.787	11.865	0.54	0.80	4.13	150.00	0.000	0.000	49.03	0.00	0.00
34	88.00	KRY 112 144/2	3	10.787	11.865	0.56	0.80	0.69	33.00	0.000	0.000	8.17	0.00	0.00
35	88.00	T-Arm	3	10.787	11.865	0.56	0.75	13.50	1050.00	0.000	0.000	160.18	0.00	0.00
36	78.00	T-Arm	3	10.516	11.568	0.56	0.75	13.50	1050.00	0.000	0.000	156.16	0.00	0.00
37	78.00	APXV18-206517S-C	3	10.516	11.568	0.59	0.80	9.18	79.20	0.000	0.000	106.21	0.00	0.00
							Totals:		**9,426.90**			**4,147.25**		

Total Applied Force Summary

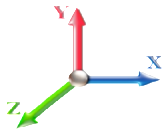
Structure:	CT08558-B-SBA		**Code:**	EIA/TIA-222-G	8/2/2018
Site Name:	New Britain 3, CT		**Exposure:**	C	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 30

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		105.69	1050.13	0.00	0.00
10.00		103.19	1031.43	0.00	0.00
15.00		100.70	1012.73	0.00	0.00
20.00		104.20	994.03	0.00	0.00
25.00		106.44	975.33	0.00	0.00
30.00		107.72	956.63	0.00	0.00
35.00		108.29	937.93	0.00	0.00
40.00		108.32	919.23	0.00	0.00
45.00		107.90	900.52	0.00	0.00
48.50		74.83	619.24	0.00	0.00
50.00		32.23	411.76	0.00	0.00
53.25		69.76	881.76	0.00	0.00
55.00		37.25	261.05	0.00	0.00
60.00		106.13	735.77	0.00	0.00
65.00		104.54	720.81	0.00	0.00
70.00		102.74	705.85	0.00	0.00
75.00		100.75	690.89	0.00	0.00
78.00	(6) attachments	321.63	1536.55	0.00	0.00
80.00		39.01	256.10	0.00	0.00
85.00		96.26	629.77	0.00	0.00
88.00	(18) attachments	987.70	2657.28	0.00	0.00
90.00		37.08	215.52	0.00	0.00
95.00		91.19	528.33	0.00	0.00
98.00	(40) attachments	990.89	2434.42	0.00	0.00
98.50		8.76	44.24	0.00	0.00
100.00		26.53	211.38	0.00	0.00
102.00		34.99	278.18	0.00	0.00
105.00		51.68	208.45	0.00	0.00
108.00	(32) attachments	1146.83	2507.81	0.00	0.00
109.00		16.61	62.46	0.00	0.00
110.00		16.49	62.01	0.00	0.00
115.00		80.92	303.34	0.00	0.00
118.00	(25) attachments	966.79	1759.72	0.00	0.00
119.00		15.38	44.39	0.00	0.00
	Totals:	**6,509.38**	**27,545.04**	**0.00**	**0.00**

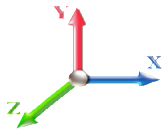
Linear Appurtenance Segment Forces (Factored)

Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.50
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.50
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.50
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.896	0.00	5.50
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.276	0.00	5.50
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.600	0.00	5.50
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.883	0.00	5.50
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.137	0.00	5.50
45.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.366	0.00	5.50
48.50	1 5/8" Hybrid	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	9.515	0.00	3.85
50.00	1 5/8" Hybrid	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	9.576	0.00	1.65
53.25	1 5/8" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	9.704	0.00	3.58
55.00	1 5/8" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	9.770	0.00	1.93
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.951	0.00	5.50
65.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.120	0.00	5.50
70.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.279	0.00	5.50
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.430	0.00	5.50
78.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	10.516	0.00	3.30
80.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	10.572	0.00	2.20
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	5.50
88.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	10.787	0.00	3.30
90.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	10.838	0.00	2.20
95.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.962	0.00	5.50
98.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.034	0.00	3.30
98.50	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.000	0.000	11.046	0.00	0.55
100.00	1 5/8" Hybrid	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	11.081	0.00	1.65
102.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.127	0.00	2.20
105.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.195	0.00	3.30
108.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.262	0.00	3.30
109.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	11.284	0.00	1.10
110.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	11.305	0.00	1.10
115.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.412	0.00	5.50
118.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.474	0.00	3.30
										Totals:	**0.0**	**129.8**

Calculated Forces

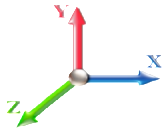
Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-27.54	-6.52	0.00	-577.72	0.00	577.72	3013.27	1506.63	5849.73	2929.21	0.00	0.000	0.000	0.206
5.00	-26.48	-6.45	0.00	-545.10	0.00	545.10	2972.75	1486.38	5634.65	2821.52	0.03	-0.061	0.000	0.202
10.00	-25.45	-6.37	0.00	-512.88	0.00	512.88	2930.78	1465.39	5420.60	2714.33	0.13	-0.122	0.000	0.198
15.00	-24.43	-6.29	0.00	-481.04	0.00	481.04	2887.35	1443.68	5207.78	2607.76	0.29	-0.184	0.000	0.193
20.00	-23.43	-6.21	0.00	-449.58	0.00	449.58	2842.47	1421.24	4996.39	2501.91	0.52	-0.247	0.000	0.188
25.00	-22.45	-6.12	0.00	-418.54	0.00	418.54	2796.14	1398.07	4786.62	2396.87	0.81	-0.310	0.000	0.183
30.00	-21.48	-6.03	0.00	-387.93	0.00	387.93	2748.35	1374.17	4578.69	2292.75	1.17	-0.373	0.000	0.177
35.00	-20.54	-5.94	0.00	-357.77	0.00	357.77	2699.10	1349.55	4372.78	2189.64	1.59	-0.437	0.000	0.171
40.00	-19.61	-5.85	0.00	-328.06	0.00	328.06	2648.40	1324.20	4169.10	2087.65	2.08	-0.500	0.000	0.165
45.00	-18.71	-5.75	0.00	-298.83	0.00	298.83	2596.25	1298.12	3967.85	1986.88	2.64	-0.563	0.000	0.158
48.50	-18.09	-5.68	0.00	-278.71	0.00	278.71	2558.87	1279.44	3828.53	1917.11	3.07	-0.608	0.000	0.152
50.00	-17.67	-5.65	0.00	-270.20	0.00	270.20	2542.63	1271.32	3769.24	1887.42	3.27	-0.627	0.000	0.150
53.25	-16.79	-5.58	0.00	-251.84	0.00	251.84	1874.80	937.40	2771.76	1387.94	3.71	-0.668	0.000	0.190
55.00	-16.52	-5.55	0.00	-242.08	0.00	242.08	1862.74	931.37	2724.01	1364.03	3.96	-0.690	0.000	0.186
60.00	-15.78	-5.46	0.00	-214.31	0.00	214.31	1827.31	913.65	2588.34	1296.09	4.72	-0.762	0.000	0.174
65.00	-15.06	-5.36	0.00	-187.03	0.00	187.03	1790.42	895.21	2453.92	1228.78	5.56	-0.832	0.000	0.161
70.00	-14.35	-5.26	0.00	-160.23	0.00	160.23	1752.08	876.04	2320.96	1162.21	6.46	-0.898	0.000	0.146
75.00	-13.65	-5.16	0.00	-133.92	0.00	133.92	1712.28	856.14	2189.66	1096.46	7.44	-0.961	0.000	0.130
78.00	-12.12	-4.82	0.00	-118.44	0.00	118.44	1687.70	843.85	2111.76	1057.45	8.05	-0.996	0.000	0.119
80.00	-11.86	-4.78	0.00	-108.80	0.00	108.80	1671.02	835.51	2060.22	1031.64	8.48	-1.019	0.000	0.113
85.00	-11.23	-4.68	0.00	-84.87	0.00	84.87	1628.32	814.16	1932.84	967.86	9.57	-1.070	0.000	0.095
88.00	-8.59	-3.65	0.00	-70.82	0.00	70.82	1601.99	801.00	1857.49	930.12	10.25	-1.097	0.000	0.082
90.00	-8.37	-3.61	0.00	-63.52	0.00	63.52	1584.15	792.08	1807.72	905.20	10.72	-1.114	0.000	0.075
95.00	-7.85	-3.51	0.00	-45.46	0.00	45.46	1538.53	769.27	1685.06	843.78	11.90	-1.150	0.000	0.059
98.00	-5.43	-2.48	0.00	-34.91	0.00	34.91	1510.46	755.23	1612.73	807.56	12.63	-1.168	0.000	0.047
98.50	-5.39	-2.47	0.00	-33.67	0.00	33.67	1505.73	752.87	1600.77	801.57	12.76	-1.171	0.000	0.046
100.00	-5.18	-2.44	0.00	-29.97	0.00	29.97	1491.46	745.73	1565.06	783.69	13.12	-1.179	0.000	0.042
102.00	-4.90	-2.40	0.00	-25.10	0.00	25.10	1021.50	510.75	1074.26	537.93	13.62	-1.188	0.000	0.051
105.00	-4.69	-2.34	0.00	-17.91	0.00	17.91	1004.76	502.38	1028.99	515.26	14.37	-1.200	0.000	0.039
108.00	-2.21	-1.14	0.00	-10.88	0.00	10.88	987.50	493.75	984.13	492.79	15.13	-1.210	0.000	0.024
109.00	-2.15	-1.13	0.00	-9.74	0.00	9.74	981.63	490.81	969.27	485.35	15.38	-1.213	0.000	0.022
109.00	-2.15	-1.13	0.00	-9.74	0.00	9.74	981.63	490.81	969.27	485.35	15.38	-1.213	0.000	0.022
110.00	-2.08	-1.11	0.00	-8.62	0.00	8.62	975.70	487.85	954.46	477.94	15.64	-1.215	0.000	0.020
115.00	-1.78	-1.02	0.00	-3.08	0.00	3.08	945.18	472.59	881.23	441.27	16.91	-1.224	0.000	0.009
118.00	-0.04	-0.02	0.00	-0.02	0.00	0.02	926.18	463.09	838.01	419.63	17.68	-1.225	0.000	0.000
119.00	0.00	-0.02	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	17.94	-1.225	0.000	0.000

Final Analysis Summary

Structure:	CT08558-B-SBA	**Code:**	EIA/TIA-222-G	8/2/2018	
Site Name:	New Britain 3, CT	**Exposure:**	C		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	27.3	0.00	32.99	0.00	0.00	2428.14
0.9D + 1.6W 97 mph Wind	27.3	0.00	24.73	0.00	0.00	2405.66
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.9	0.00	60.40	0.00	0.00	713.54
1.2D + 1.0E	0.7	0.00	33.05	0.00	0.00	69.57
0.9D + 1.0E	0.7	0.00	24.79	0.00	0.00	68.88
1.0D + 1.0W 60 mph Wind	6.5	0.00	27.54	0.00	0.00	577.72

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-32.99	-27.30	0.00	-2428.1	0.00	-2428.1	3013.27	1506.6	5849.73	2929.21	0.00	0.840
0.9D + 1.6W 97 mph Wind	-24.73	-27.28	0.00	-2405.6	0.00	-2405.6	3013.27	1506.6	5849.73	2929.21	0.00	0.830
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-60.40	-7.91	0.00	-713.54	0.00	-713.54	3013.27	1506.6	5849.73	2929.21	0.00	0.264
1.2D + 1.0E	-20.22	-0.58	0.00	-33.82	0.00	-33.82	1874.80	937.40	2771.76	1387.94	53.25	0.035
0.9D + 1.0E	-15.17	-0.57	0.00	-33.38	0.00	-33.38	1874.80	937.40	2771.76	1387.94	53.25	0.032
1.0D + 1.0W 60 mph Wind	-27.54	-6.52	0.00	-577.72	0.00	-577.72	3013.27	1506.6	5849.73	2929.21	0.00	0.206

Pier Foundation Design For Monopole

			Date: 8/2/2018
Customer Name:	**T-Mobile**	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	119
Site Number:	CT08558-B-SBA	**Engineer Name:**	J. Chen
Engr. Number:	58013	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Acceptable overstress (5.0%

Base Reactions (Factored):

Axial Load (Kips):	60.4	Shear Force (Kips):	27.3
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2428.1

Foundation Geometries:

Mods required -Yes/No ?:	No			ft.
Diameter of Pier (ft.):	6.0	Depth of Base B. G. S. :	24.0	ft.
Pier Height A. G. (ft.):	1.00			

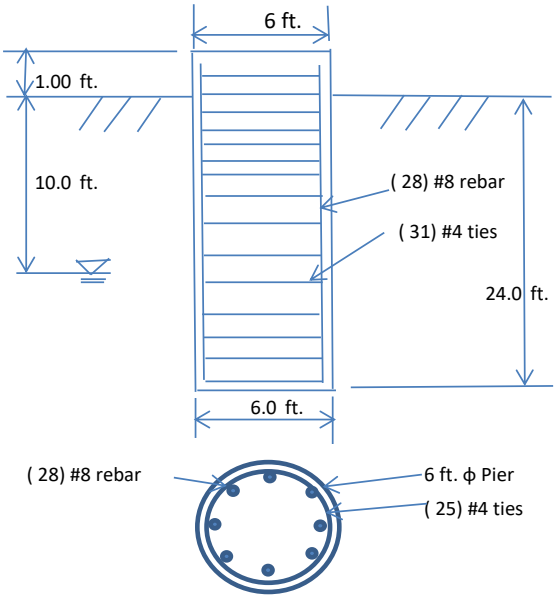
Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	60	ksi
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	28	Tie Spacing:	12.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	10.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)

Skin Frictions are to be obtained from: Soil Report



Monopole Pier Foundation

Depth of Layers (ft) Top	Depth of Layers (ft) Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types
0.0	2.0	135	0	0	0	0	Sand
2.0	10.0	135	34	0	0	0	Sand
10.0	25.0	137	34	0	0	0	Sand
25.0	30.0	137	34	0	0	0	Sand

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

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75	
Total Dry Soil Volume from Conical Failure (cu. Ft.):	5907	Dry Soil Weight from Conical Failure:	797	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	2024	Buoyant Soil Weight from Conical Failure (Ki	194	Kips
Total Dry Concrete Volume (cu. Ft.):	311	Total Dry Concrete Weight:	46.7	Kips
Total Buoyant Concrete Volume (cu. Ft.):	395.8	Total Buoyant Concrete Weight:	34.68	Kips
Total Effective Concrete Weight (Kips):	81.3	Total Effective Soil Weight:	991.0	Kips
Total Effective Vertical Load on Base (Kips):	65.7			

Check Soil Capacities:

					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	6318.8	>	Design Factored Momont (kips-ft):	2881	0.46	OK!
Factor of Safety of Passive Soil Resistance against Moment:	2.19	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:	1.00	

Reinforcing Concrete Pier:

					Usage	
Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	3165	>	Design Factored Moment (Mu, K-Ft):	2543.8	0.80	OK!
Calculated Shear Capacity (Kips):	785.5	>	Design Factored Shear (Kips):	271.3	0.35	OK!
Calculated Tension Capacity (Tn, Kips):	1194.5	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7159	>	Design Factored Axial Load (Pu Kips):	60.4	0.01	OK!
Moment & Axial Strength Combination(Tu/Tn+Mu/Mn):	0.81	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI				

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

Antenna Mount Analysis Report

Existing 119-Ft Sabre Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT08558-B-SBA

Customer Site Name: New Britain 3, CT

Carrier Name: T-Mobile

Carrier Site ID / Name: CTHA105A

Site Location: 723 Farmington Ave

New Britain, Connecticut

Hartford County

Latitude: 41.698414

Longitude: -72.785944

7/10/18

Analysis Result:

Max Structural Usage: 94.0% [Pass]

Report Prepared By: Saroj Dangol

Introduction

The purpose of this report is to summarize the analysis results on the (3) T-Arms at 88.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount mapping by SGS Towers dated 06/26/2018
Antenna Loading	SBA Application #: 88670, v1 dated 06/18/2018
Modification Drawings	N/A

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 125 mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 97 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G
Exposure Category: B
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

The site is a Risk Category II structure per table 1604.5 of the 2012 IBC. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

Mount Information

(3) T-Arms at 88.00' elevation at azimuths 30/150/270

Final Antenna Configuration

3 Ericsson AIR 21 B2A/B4P
3 Ericsson AIR32 KRD901146-1_B66A (Octa)
3 RFS APXVAARR24_43-U-NA20 (Octa)
3 Ericsson KRY 112 144/2
3 Ericsson Radio 4449 B71 + B12

Any proposed antennas not currently installed should be mounted such that the centers of the antennas do not exceed 0.5 ft vertically from the center of the T-Arms.

In addition to the proposed equipment loading, a 500 lb serviceability load was also considered in this analysis in accordance with TIA requirements.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 94.0%, which occurs in the mount pipe. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

1. Mount Photos
2. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.

2. The analysis is based on the presumption that the antenna mount 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. The mount analysis is not a condition assessment of the mount.

4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.

5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

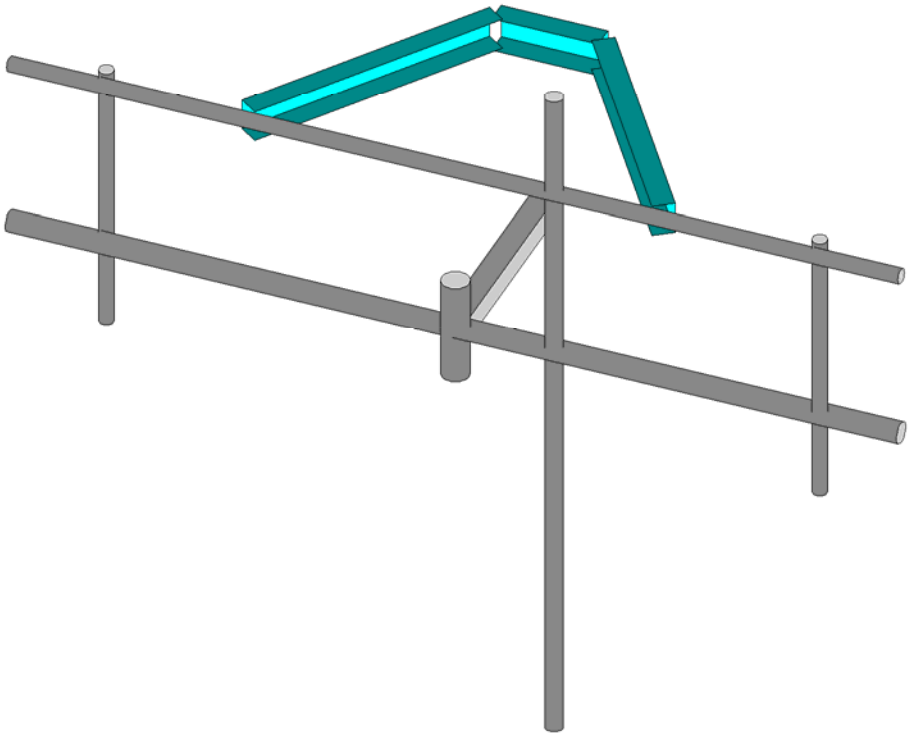
7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.

8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.

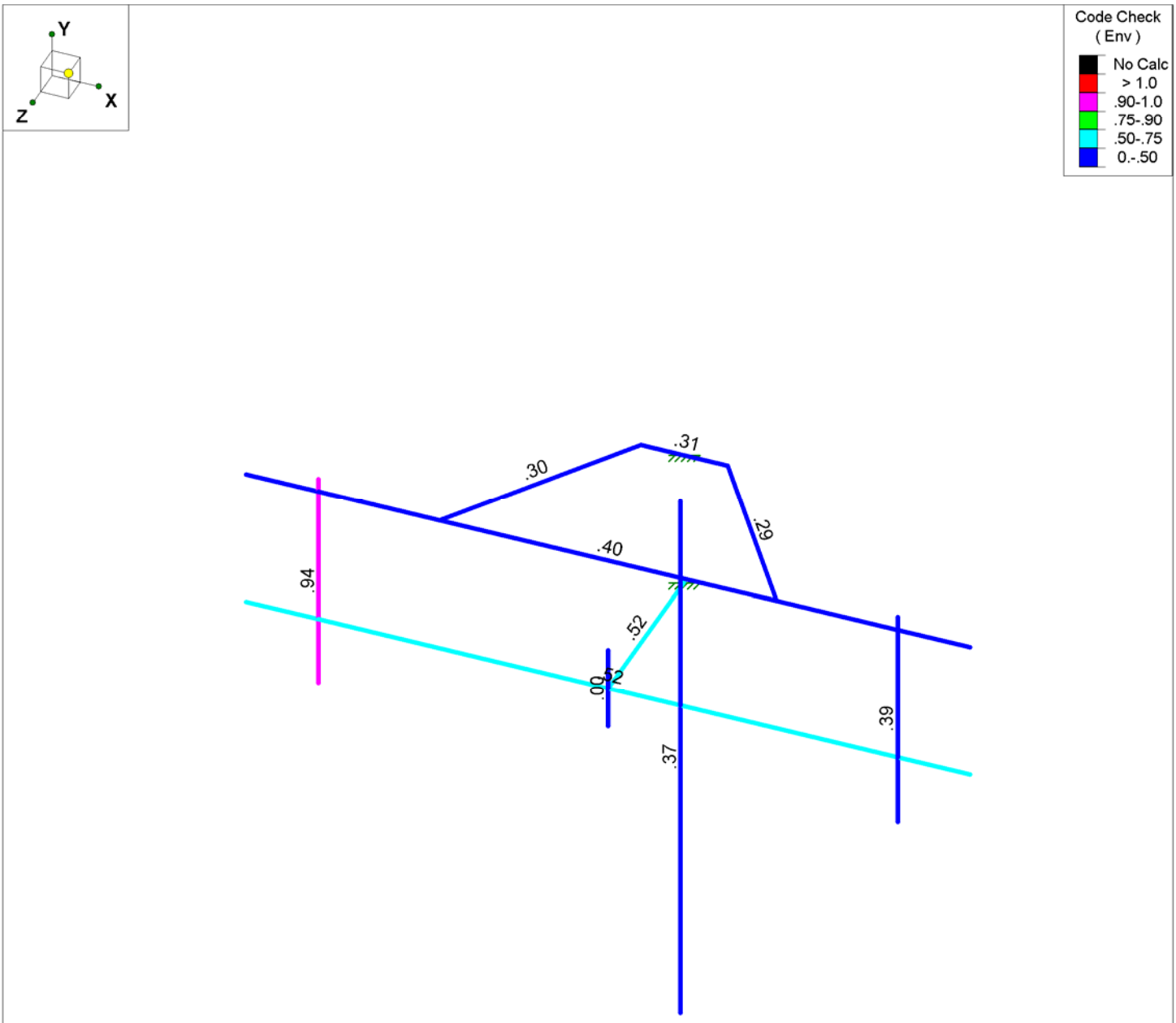
9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.


06/26/2018 15:06


06/26/2018 15:21



Tower Engineering Solutio...	CT08558-B-SBA_MT-Z_Loads Only_Sector A	SK - 1
		July 10, 2018 at 2:34 PM
TES Project No. 55109		CT08558-B-SBA_55109_RISA_LO.r...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT08558-B-SBA_MT-Z_Loads Only_Sector A	SK - 2
		July 10, 2018 at 2:35 PM
TES Project No. 55109		CT08558-B-SBA_55109_RISA_LO.r...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					8			
2	Antenna Di	None					8			
3	Antenna W Front	None					8			
4	Antenna Wi Front	None					8			
5	Antenna W Side	None					8			
6	Antenna Wi Side	None					8			
7	Service L1	None					1			
8	Service L2	None					1			
9	Structure D	None		-1						
10	Structure Di	None						10		
11	Structure W Front	None						10		
12	Structure Wi Front	None						10		
13	Structure W Side	None						10		
14	Structure Wi Side	None						10		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..
1	1.2D+1.6W (Front)	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6												
2	1.2D+1.6W (Back)	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6												
3	1.2D+1.6W (Left)	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6												
4	1.2D+1.6W (Right)	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6												
5	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1								
6	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1								
7	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1								
8	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1								
9	1.2D+1.5L1+.16W (...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16										
10	1.2D+1.5L2+.16W (...	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16										
11	1.4D		Y		1	1.4	9	1.4																

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	0	3.166667	0	
3	N3	-6.25	0	3.166667	0	
4	N4	6.25	0	3.166667	0	
5	NP1	-5	2.75	3.166667	0	
6	NP2	-5	-1.25	3.166667	0	
7	NP3	1.25	4	3.166667	0	
8	NP4	1.25	-6	3.166667	0	
9	NP5	5	2.75	3.166667	0	
10	NP6	5	-1.25	3.166667	0	
11	N11	0	.75	3.166667	0	
12	N12	0	-.75	3.166667	0	
13	N13	-6.25	2.5	3.166667	0	
14	N14	6.25	2.5	3.166667	0	
15	N15	-5	0	3.166667	0	
16	N16	1.25	0	3.166667	0	
17	N17	5	0	3.166667	0	
18	N21	0	2.5	0	0	
19	N19	.75	2.5	0	0	
20	N21A	-.75	2.5	0	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
21	N21B	-5	2.5	3.166667	0	
22	N22	1.25	2.5	3.166667	0	
23	N23	5	2.5	3.166667	0	
24	N24	-2.910833	2.5	3.166667	0	
25	N25	2.910833	2.5	3.166667	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	xxxxx	HSS16x0.438	Beam	None	A572 Gr.50	Typical	19.9	606	606	1210

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1	6CU4x1875	Beam	CU	A570 Gr.33	Typical	2.483	4.143	14.81	.029
2	CF2	5.5CU3.75x...	Beam	CU	A570 Gr.33	Typical	2.296	3.362	11.487	.027

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	PIPE_3.0	12.5			Lbyy						Gravity
2	M2	HSS4x4x4	3.167			Lbyy						Gravity
3	MP1A	PIPE_2.0	4			Lbyy						Gravity
4	MP2A	PIPE_2.5	10			Lbyy						Lateral
5	MP3A	PIPE_2.0	4			Lbyy						Gravity
6	M6	PIPE_4.0	1.5			Lbyy						Lateral
7	M7	PIPE_2.0	12.5			Lbyy						Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp ...	L-torque...	Kyy	Kzz	Cm-...	Cm-...	Cb	R	a[ft]	y sw...	z sw...
1	M8	CF1	1.5			Lbyy											
2	M9	CF2	3.834			Lbyy											
3	M10	CF2	3.834			Lbyy											

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	967.711	4	2573.884	7	1265.545	1	-1.39	2	2.51	4	.658	8
2		min	-905.817	9	762.144	1	-891.543	2	-7.218	5	-1.914	3	-1.617	9
3	N21	max	905.817	9	350.757	8	734.614	1	-.01	2	1.765	9	.026	8
4		min	-619.781	3	72.828	2	-1108.616	2	-.052	5	-1.591	3	-.165	9
5	Totals:	max	1244.805	4	2919.363	5	2000.159	1						
6		min	-1244.805	3	893.304	2	-2000.159	2						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
1	N1	max	0	9	0	1	0	2	0	5	0	3	0	9
2		min	0	4	0	7	0	1	0	2	0	4	0	8
3	N2	max	.05	3	-.022	2	0	2	6.455e-03	5	1.949e-03	3	5.164e-03	9
4		min	-.06	4	-.179	5	0	1	2.348e-04	2	-2.057e-03	4	-2.102e-03	8
5	N3	max	.05	3	-.066	2	.121	2	5.479e-03	5	2.61e-03	2	1.451e-02	9
6		min	-.06	4	-1.035	9	-.156	1	-1.241e-03	2	-3.094e-03	1	3.123e-04	4

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
7	N4	max	.05	3	.154	9	.267	2	5.264e-03	1	5.793e-03	1	3.337e-03	9
8		min	-.06	4	-.573	8	-.354	1	-4.019e-03	2	-4.379e-03	2	-5.213e-03	8
9	NP1	max	.079	3	-.056	2	.122	3	4.625e-03	5	3.248e-03	2	3.356e-03	9
10		min	-.099	9	-.821	9	-.096	9	-3.013e-04	2	-2.633e-03	1	-2.763e-03	5
11	NP2	max	.241	9	-.058	2	.108	2	5.468e-03	5	2.602e-03	2	1.348e-02	9
12		min	-.061	4	-.821	9	-.18	1	-2.041e-03	2	-3.087e-03	1	-2.276e-04	4
13	NP3	max	.111	3	-.032	2	.085	2	3.928e-03	2	2.42e-03	7	5.049e-03	9
14		min	-.178	9	-.245	5	-.069	1	-3.74e-03	1	-6.479e-04	9	-2.163e-03	3
15	NP4	max	.302	9	-.04	9	.76	2	1.394e-02	1	3.502e-03	1	4.22e-03	3
16		min	-.519	4	-.234	5	-.925	1	-1.175e-02	2	-2.643e-03	2	-7.32e-03	4
17	NP5	max	.08	3	.103	9	.1	9	3.292e-03	9	5.615e-03	1	3.818e-03	9
18		min	-.098	9	-.497	5	-.13	1	-2.624e-03	2	-4.739e-03	2	-2.982e-03	8
19	NP6	max	.088	9	.104	9	.271	2	5.979e-03	1	5.786e-03	1	3.34e-03	9
20		min	-.107	8	-.495	8	-.354	1	-4.89e-03	2	-4.372e-03	2	-5.322e-03	8
21	N11	max	.053	3	-.022	2	.058	5	6.455e-03	5	1.949e-03	3	5.164e-03	9
22		min	-.05	4	-.179	5	.002	2	2.359e-04	2	-2.057e-03	4	-2.102e-03	8
23	N12	max	.084	9	-.022	2	-.002	2	6.455e-03	5	1.949e-03	3	5.164e-03	9
24		min	-.069	4	-.179	5	-.058	5	2.337e-04	2	-2.057e-03	4	-2.103e-03	8
25	N13	max	.076	3	-.044	2	.154	3	4.664e-03	5	3.278e-03	2	3.369e-03	9
26		min	-.089	9	-.871	9	-.122	9	-3.196e-04	2	-2.663e-03	1	-2.71e-03	5
27	N14	max	.077	3	.161	9	.165	2	3.311e-03	9	5.644e-03	1	3.805e-03	9
28		min	-.086	9	-.542	8	-.224	1	-2.64e-03	2	-4.768e-03	2	-3.04e-03	8
29	N15	max	.05	3	-.057	2	.094	3	5.479e-03	5	2.602e-03	2	1.349e-02	9
30		min	-.06	4	-.821	9	-.122	4	-1.241e-03	2	-3.087e-03	1	3.075e-04	4
31	N16	max	.05	3	-.041	2	.032	2	4.809e-03	1	3.502e-03	1	3.672e-03	9
32		min	-.06	4	-.237	5	-.039	1	-2.608e-03	2	-2.643e-03	2	-4.846e-03	8
33	N17	max	.05	3	.104	9	.202	2	5.264e-03	1	5.786e-03	1	3.342e-03	9
34		min	-.06	4	-.495	5	-.267	1	-4.019e-03	2	-4.372e-03	2	-5.199e-03	8
35	N21	max	0	3	0	2	0	2	0	5	0	3	0	9
36		min	0	9	0	8	0	1	0	2	0	9	0	8
37	N19	max	0	6	0	9	.004	9	9.181e-03	5	6.708e-04	3	1.352e-06	9
38		min	0	9	0	8	-.003	3	-7.407e-04	9	-8.465e-04	9	-2.201e-05	8
39	N21A	max	0	1	0	2	.003	3	1.559e-02	9	7.21e-04	3	2.497e-05	9
40		min	0	9	0	9	-.003	9	1.501e-03	2	-7.667e-04	9	4.077e-06	2
41	N21B	max	.076	3	-.056	2	.119	3	4.664e-03	5	3.249e-03	2	3.356e-03	9
42		min	-.089	9	-.821	9	-.098	9	-3.196e-04	2	-2.633e-03	1	-2.763e-03	5
43	N22	max	.077	3	-.034	2	.038	9	2.076e-03	2	2.448e-03	7	5.047e-03	9
44		min	-.087	9	-.244	5	-.013	1	-1.797e-03	1	-6.482e-04	9	-1.819e-03	7
45	N23	max	.077	3	.104	9	.093	2	3.311e-03	9	5.615e-03	1	3.818e-03	9
46		min	-.086	9	-.497	5	-.139	1	-2.64e-03	2	-4.739e-03	2	-2.986e-03	8
47	N24	max	.076	3	-.056	2	.055	3	6.337e-03	5	2.437e-03	3	1.344e-02	9
48		min	-.088	9	-.59	9	-.063	9	1.016e-03	2	-2.688e-03	9	-8.253e-05	4
49	N25	max	.077	3	.028	9	.063	9	3.702e-03	5	2.559e-03	3	2.938e-03	9
50		min	-.087	9	-.346	5	-.055	3	1.349e-04	2	-2.407e-03	9	-7.733e-03	8

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Mom...	LC	z-z Mom...	LC
1	M1	1	max	0	1	0	1	0	1	0	1	0	1	0	1
2			min	0	1	-750	9	0	1	0	1	0	1	0	1
3		2	max	979.02	9	-127.217	3	153.782	2	.07	1	.313	2	.507	9
4			min	-21.407	4	-701.107	9	-219.972	9	-.249	9	-.329	1	.026	1
5		3	max	1031.118	8	1869.911	7	1000.002	1	1.002	2	1.122	2	2.739	9
6			min	280.158	3	-727.521	9	-670.694	2	-.48	1	-1.769	1	.553	3
7		4	max	497.247	8	418.224	7	200.811	1	.2	6	.257	2	.127	3
8			min	-28.96	3	90.769	4	-127.822	2	-.063	9	-.342	1	-.056	4

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Mom...	LC	z-z Mom...	LC
9		5	max	0	1	0	1	0	1	0	1	0	1	0	1
10			min	0	1	0	1	0	1	0	1	0	1	0	1
11	M2	1	max	1265.545	1	2576.631	7	906.251	9	.658	8	2.51	4	7.218	5
12			min	-891.543	2	764.878	1	-968.045	4	-1.617	9	-1.914	3	1.39	2
13		2	max	1265.545	1	2548.054	7	906.251	9	.658	8	1.752	4	5.191	5
14			min	-891.543	2	753.161	1	-947.793	4	-1.617	9	-1.427	3	.745	2
15		3	max	1265.545	1	2519.477	7	906.251	9	.658	8	1.01	4	3.187	5
16			min	-891.543	2	741.444	1	-927.541	4	-1.617	9	-.956	3	.11	2
17		4	max	1265.545	1	2490.899	7	906.251	9	.658	8	.406	2	1.206	5
18			min	-891.543	2	729.728	1	-907.289	4	-1.617	9	-.626	1	-.516	2
19		5	max	1265.545	1	2462.322	7	906.251	9	.658	8	.974	9	.549	1
20			min	-891.543	2	718.011	1	-887.037	4	-1.617	9	-.826	5	-1.134	6
21	MP1A	1	max	167.174	6	82.65	4	116.681	1	.008	3	.017	7	0	1
22			min	54.9	2	-82.755	3	-116.827	2	-.008	4	.005	9	0	1
23		2	max	191.213	8	-88.678	4	199.726	9	-.01	4	.055	1	.039	8
24			min	-154.399	9	-979.663	9	2.937	4	-.076	7	-.1	9	.001	3
25		3	max	207.726	8	-79.564	4	200.637	9	-.01	4	.1	9	1.001	9
26			min	-150.234	9	-979.663	9	2.937	4	-.076	7	-.031	2	.101	4
27		4	max	-59.065	2	91.745	3	125.854	2	.008	4	.116	1	.087	3
28			min	-183.686	5	-91.805	4	-125.685	1	-.008	3	-.127	2	-.087	4
29		5	max	-54.9	2	82.631	3	116.74	2	.008	4	-.005	9	0	4
30			min	-167.174	5	-82.692	4	-116.571	1	-.008	3	-.017	8	0	3
31	MP2A	1	max	338.71	6	167.591	4	388.527	1	.02	3	.041	5	0	1
32			min	59.4	4	-167.677	3	-388.542	2	-.02	4	.007	2	0	1
33		2	max	721.972	8	451.567	8	449.581	5	.195	1	.541	1	.064	3
34			min	141.011	10	-58.434	9	1.906	2	-.243	2	-.425	2	-.186	8
35		3	max	-92.271	9	222.552	3	442.986	2	0	9	.912	1	.472	3
36			min	-440.056	5	-222.399	4	-442.878	1	0	8	-.912	2	-.471	4
37		4	max	-16.435	9	27.418	3	27.08	2	0	9	.033	1	.034	3
38			min	-50.673	5	-27.265	4	-26.972	1	0	8	-.033	2	-.034	4
39		5	max	0	2	1.351	8	1.425	5	0	9	0	9	0	3
40			min	0	5	-.181	9	-.5	2	0	8	0	5	0	4
41	MP3A	1	max	200.81	6	90.323	4	124.642	1	.009	3	.02	6	0	1
42			min	79.32	2	-90.49	3	-124.693	2	-.009	4	.008	3	0	1
43		2	max	75.781	3	462.049	8	124.766	6	.04	6	.095	1	.122	8
44			min	-41.496	4	94.685	3	-56.664	9	.004	3	-.101	2	.012	3
45		3	max	107.697	7	469.278	8	118.133	6	.04	6	.11	5	-.075	3
46			min	-24.131	4	79.602	3	-54.966	9	.004	3	-.035	2	-.344	8
47		4	max	-83.485	9	99.618	3	133.637	2	.009	4	.121	1	.095	3
48			min	-217.322	5	-99.32	4	-133.541	1	-.009	3	-.137	2	-.095	4
49		5	max	-79.32	9	90.505	3	124.524	2	.009	4	-.008	10	0	4
50			min	-200.81	5	-90.207	4	-124.428	1	-.009	3	-.02	7	0	3
51	M6	1	max	0	1	.023	9	-.001	2	0	1	0	1	0	1
52			min	0	1	-.024	8	-.073	5	0	1	0	1	0	1
53		2	max	11.311	5	6.47	4	6.46	1	0	1	.001	1	.001	3
54			min	4.532	10	-6.477	3	-6.476	2	0	1	-.001	2	-.001	4
55		3	max	9.065	3	12.946	4	12.935	1	0	1	.005	1	.005	3
56			min	-22.621	5	-12.952	3	-12.952	2	0	1	-.005	2	-.005	4
57		4	max	-4.532	10	6.477	3	6.476	2	0	1	.001	1	.001	3
58			min	-11.311	5	-6.47	4	-6.46	1	0	1	-.001	2	-.001	4
59		5	max	0	1	.024	8	.073	5	0	1	0	1	0	1
60			min	0	1	-.023	9	.001	2	0	1	0	1	0	1
61	M7	1	max	0	1	0	1	0	1	0	1	0	1	0	1
62			min	0	1	0	1	0	1	0	1	0	1	0	1
63		2	max	-78.314	3	3.68	4	186.684	2	.014	1	.304	2	-.042	4
64			min	-979.02	9	-217.47	9	-141.98	1	-.237	9	-.288	1	-.309	9
65		3	max	201.553	2	-3.985	4	-4.013	4	.143	5	-.022	1	.299	9

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k...	LC	y-y Mom...	LC	z-z Mom...	LC
66			min	-576.32	5	-119.711	9	-112.648	7	-.025	2	-.106	7	-.003	4
67		4	max	-118.929	4	239.198	8	163.885	1	.129	2	.405	2	.036	9
68			min	-457.849	7	20.434	3	-236.811	2	-.092	9	-.32	1	-.046	7
69		5	max	0	1	0	1	0	1	0	1	0	1	0	1
70			min	0	1	0	1	0	1	0	1	0	1	0	1
71	M8	1	max	389.239	9	161.537	8	722.255	2	.002	9	.943	9	.004	9
72			min	-507.431	6	-6.585	9	-458.257	1	-.028	5	-.781	3	-.025	5
73		2	max	389.239	9	174.348	8	736.644	2	.002	9	.958	9	.006	9
74			min	-507.431	6	-2.783	9	-472.647	1	-.028	5	-.759	3	-.088	8
75		3	max	396.856	1	187.158	8	751.034	2	.048	9	.972	9	-.03	2
76			min	-516.578	9	-158.26	9	-487.036	1	-.028	5	-.68	1	-.159	9
77		4	max	396.856	1	-35.489	2	233.191	1	.048	9	.816	3	-.016	2
78			min	-516.578	9	-154.457	9	-343.077	2	.005	2	-.867	9	-.101	9
79		5	max	396.856	1	-31.686	2	218.801	1	.048	9	.777	3	-.004	2
80			min	-516.578	9	-150.655	9	-328.687	2	.005	2	-.942	9	-.044	9
81	M9	1	max	404.473	1	-31.168	2	312.905	9	0	4	.777	3	-.006	2
82			min	-456.381	9	-144.78	9	-275.32	3	-.009	9	-.942	9	-.064	9
83		2	max	388.778	1	-22.184	2	311.834	9	0	4	.524	3	.088	8
84			min	-457.95	9	-135.795	9	-252.319	3	-.009	9	-.643	9	.02	2
85		3	max	373.082	1	-13.199	2	310.763	9	0	4	.294	3	.196	9
86			min	-459.52	9	-126.811	9	-229.317	3	-.009	9	-.345	9	.037	2
87		4	max	357.387	1	-4.215	2	309.692	9	0	4	.12	2	.314	9
88			min	-461.089	9	-117.826	9	-236.991	1	-.009	9	-.108	1	.045	2
89		5	max	341.691	1	4.77	2	308.621	9	0	4	.249	9	.422	9
90			min	-462.659	9	-108.842	9	-247.702	1	-.009	9	-.34	1	.045	2
91	M10	1	max	510.346	1	157.29	8	261.142	3	.005	8	.943	9	.037	5
92			min	-882.203	2	-6.695	9	-344.4	9	-.002	9	-.781	3	-.004	9
93		2	max	494.65	1	126.927	8	238.14	3	.005	8	.613	9	.007	9
94			min	-866.507	2	-15.68	9	-345.471	9	-.002	9	-.542	3	-.099	8
95		3	max	478.954	1	96.564	8	215.138	3	.005	8	.281	9	.026	9
96			min	-850.812	2	-24.664	9	-346.542	9	-.002	9	-.358	7	-.206	8
97		4	max	463.259	1	66.201	8	192.137	3	.005	8	.051	2	.054	9
98			min	-835.116	2	-33.649	9	-347.613	9	-.002	9	-.252	5	-.284	8
99		5	max	447.563	1	35.837	8	169.135	3	.005	8	.097	2	.09	9
100			min	-819.421	2	-42.634	9	-348.684	9	-.002	9	-.385	9	-.333	8

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shea...	Loc...	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn...	Cb	Eqn
1	MP1A	PIPE_2.0	.940	2.75	9	.129	2.75		9	26521....	32130	1.872	1.872	2.579	H1-1b
2	M1	PIPE_3.0	.522	6.25	9	.291	6.25		6	28250....	65205	5.749	5.749	1.759	H1-1b
3	M2	HSS4x4x4	.522	0	8	.157	0	y	9	13378...	139518	16.181	16.181	1.848	H1-1b
4	M7	PIPE_2.0	.395	1.302	9	.172	3.255		9	6295.4...	32130	1.872	1.872	2.195	H1-1b
5	MP3A	PIPE_2.0	.389	2.75	8	.074	2.75		8	26521....	32130	1.872	1.872	2.458	H1-1b
6	MP2A	PIPE_2.5	.371	4.063	2	.086	3.958		2	22373....	50715	3.596	3.596	4.141	H1-1b
7	M6	PIPE_4.0	.001	.75	3	.000	.75		3	92571....	93240	10.631	10.631	1.562	H1-1b

Envelope AISI S100-10: LRFD Cold Formed Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shea...	Loc[ft]	Dir	LC	phi*Pn...	phi*Tn...	phi*Mn...	phi*Mn...	Cb	Cmyy	Cmzz	Eqn
1	M8	6CU4x...	.312	.75	9	.172	.75	y	9	60613....	73752....	3.726	10.577	1.47	.85	.85	C3.3....
2	M9	5.5CU3...	.303	0	9	.048	0	z	9	50931....	68184....	3.248	10.338	1.763	.85	.85	C5.1....
3	M10	5.5CU3...	.295	0	9	.030	0	y	8	50931....	68184....	3.248	9.224	2.21	.85	.85	C5.2....

PROJECT INFORMATION

SITE INFORMATION:

LATITUDE:	41.69849 N
LONGITUDE:	72.78582 W
GROUND ELEVATION	319.0'± AMSL (PER GOOGLE EARTH)
STRUCTURE HEIGHT	119.0'± AGL (TYPE: MONOPOLE)
ZONING JURISDICTION	TWO FAMILY (T)
ZONING DISTRICT/OCCUPANCY	CITY OF NEW BRITAIN, CT

APPLICANT:

T–MOBILE
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

PROPERTY OWNER:

NEST 88 POLISH FALCONS ALLIANCE OF AMERICA INC.
201 WASHINGTON STREET
NEW BRITAIN,CT 06053

TOWER OWNER:

SBA TOWERS, LLC.
8501 CONGRESS AVENUE
BOCA RATON, FL 33487

SBA SITE ID: CT08558–B SBA SITE NAME: NEW BRITAIN 3, CT

SBA CONTACT:

STEPHEN ROTH
SRoth@sbasite.com
(860)539–4920

VICINITY MAP

N.T.S.

CODE COMPLIANCE

1. BUILDING CODE: IBC 2012 WITH 2016 CT STATE BUILDING CODE AMENDMENTS
2. TIA–EIA–222–G
3. NFPA 70 2014 – NATIONAL ELECTRIC CODE

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).

SPECIAL CONSTRUCTION NOTE (SBA:PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE T–MOBILE RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA–PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

SOURCE: HDG 05–25–2018

FEEDLINE SCHEDULE

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	INSTALL: (1) 1–5/8" 6X12 HCS HYBRID CABLE EXISTING TO BE REMOVED: (6) INACTIVE 1–5/8" COAX EXISTING TO REMAIN: (6) 7/8" COAX EXISTING TO REMAIN: (1) 1–1/4" HCS HYBRID CABLE EXISTING TO REMAIN: (1) 7/8" HCS HYBRID CABLE	MOUNTED INSIDE MONOPOLE

NOTE:
EXISTING T–MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS, RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

TOWER ELEVATION PHOTO DETAIL 1 / A–1
SCALE: N.T.S

SITE NAME: HA105/SBA STANLEY_FT

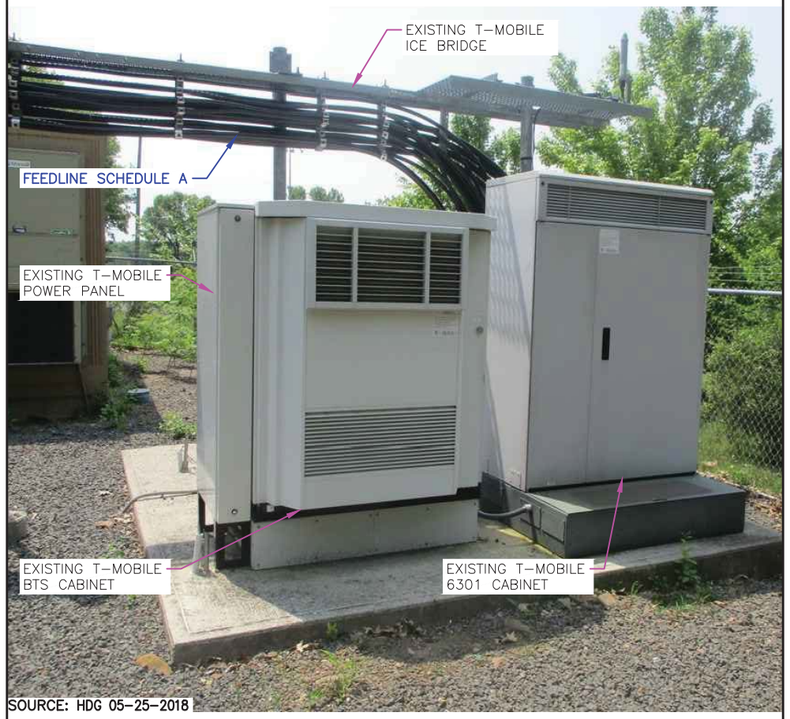
723 FARMINGTON AVENUE
NEW BRITAIN, CT 06053

T-MOBILE SITE NUMBER: CTHA105A

RF DESIGN GUIDELINE: 67D92DB

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
SECTOR B: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
SECTOR C: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
GPS/LMU:	CAUTION: OSHA–APPROVED PORTABLE 10' STEP–LADDER REQUIRED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE



SOURCE: HDG 05–25–2018

EQUIPMENT PHOTO DETAIL 2 / A–1
SCALE: N.T.S

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

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
TEL: (508) 251-0720
FAX: (508) 251-1755

Hudson Design Engineering PLLC
29 HAMM ROAD
HUDSON, NY 12534
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 27551
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: JC

APPROVED BY: DJC

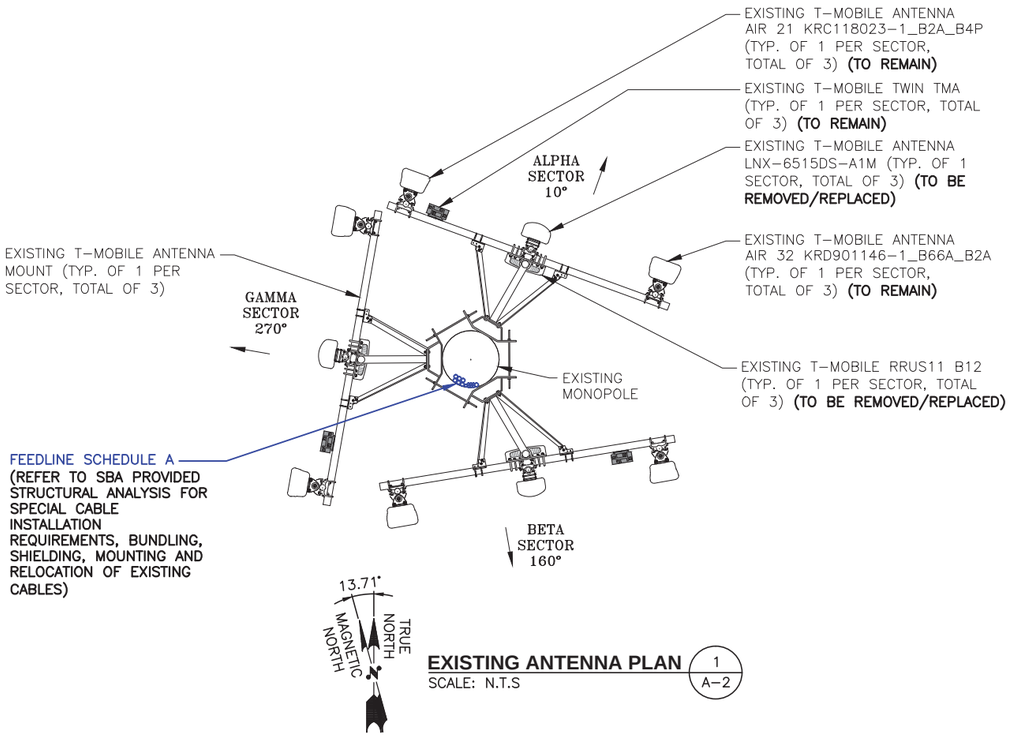
SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/09/18	ISSUED FOR CONSTRUCTION	JR
0	07/19/18	ISSUED FOR REVIEW	AM

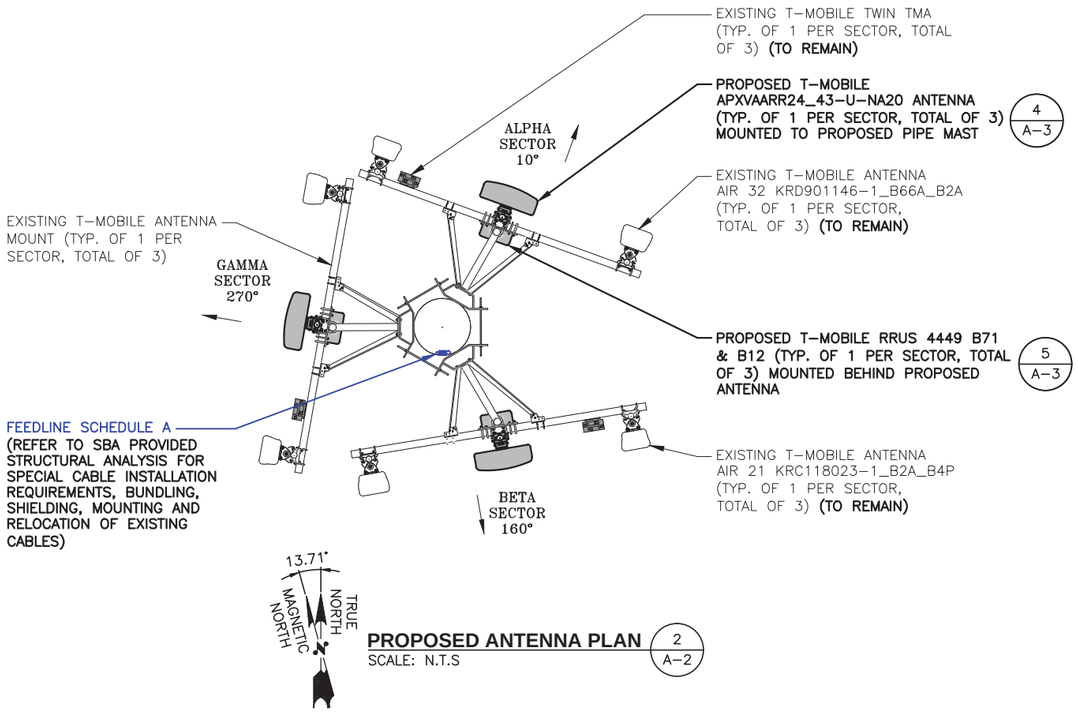
SITE NUMBER:
CTHA105A
SITE NAME:
HA105/SBA STANLEY_FT
SITE ADDRESS:
723 FARMINGTON AVENUE
NEW BRITAIN, CT 06053
HARTFORD COUNTY

SHEET TITLE
TITLE SHEET, ELEVATION & EQUIPMENT PHOTO DETAIL

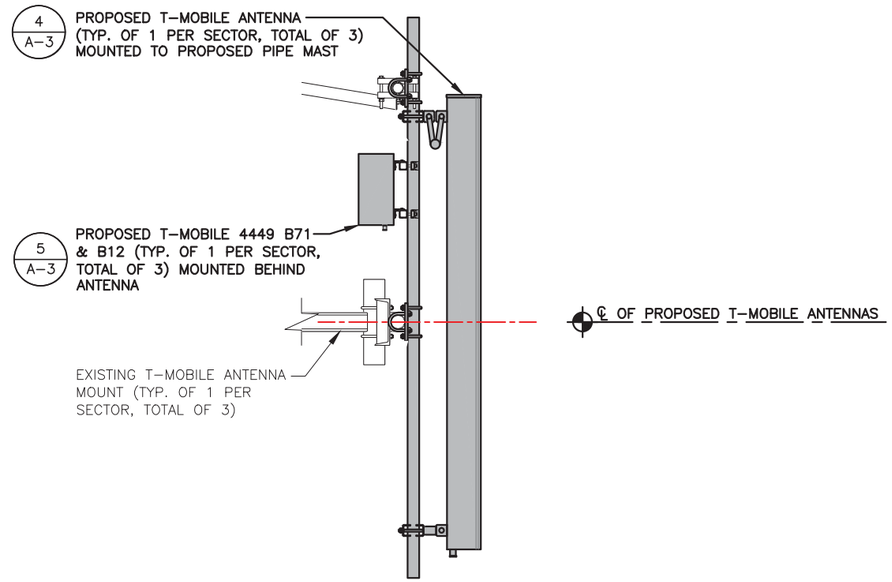
SHEET NUMBER
A-1



EXISTING ANTENNA PLAN (1 / A-2)
SCALE: N.T.S

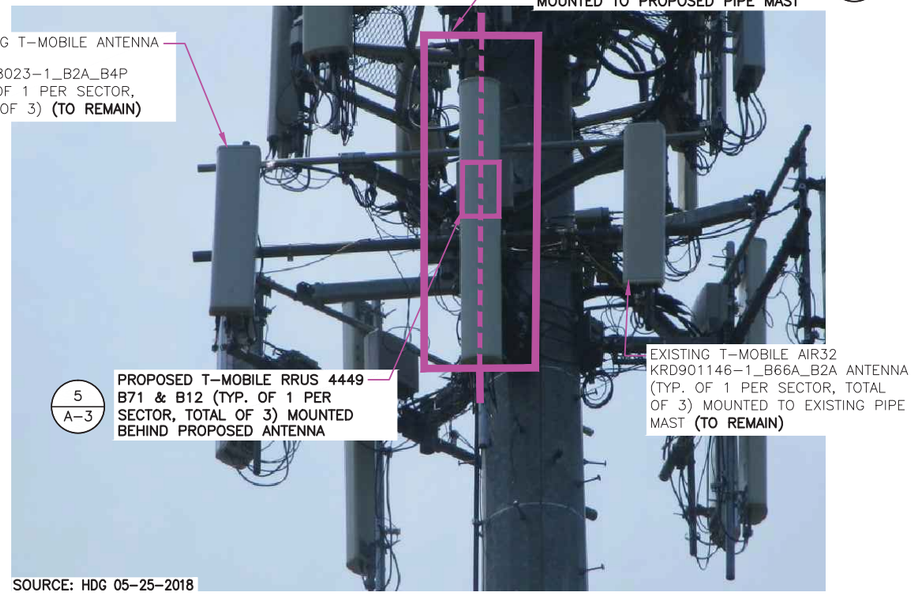


PROPOSED ANTENNA PLAN (2 / A-2)
SCALE: N.T.S



ANTENNA & RRUS MOUNTING ELEVATION (3 / A-2)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



SOURCE: HDG 05-25-2018

ANTENNA & RRUS MOUNT PHOTO DETAIL (4 / A-2)
SCALE: N.T.S

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

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
TEL: (508) 251-0720
FAX: (508) 251-1755

Hudson Design Engineering PLLC
29 HAMM ROAD
HUDSON, NY 12534
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 27855
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: JC

APPROVED BY: DJC

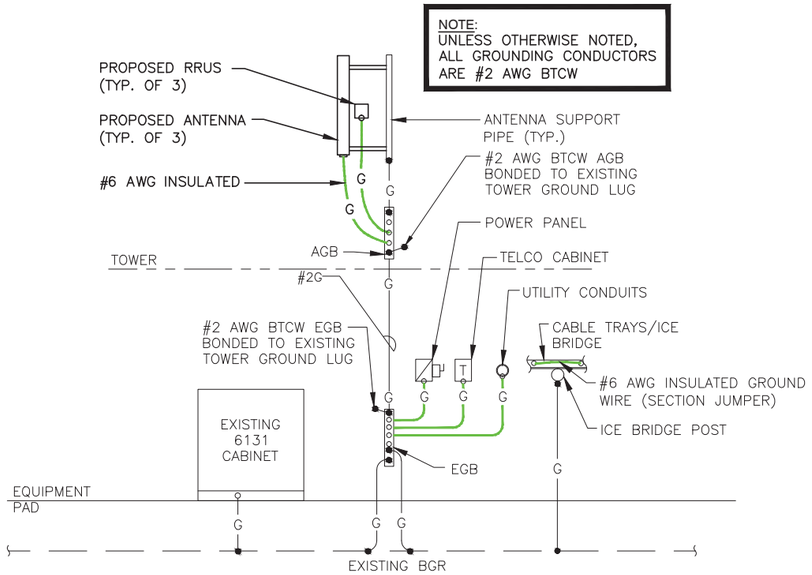
SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/09/18	ISSUED FOR CONSTRUCTION	JR
0	07/19/18	ISSUED FOR REVIEW	AM

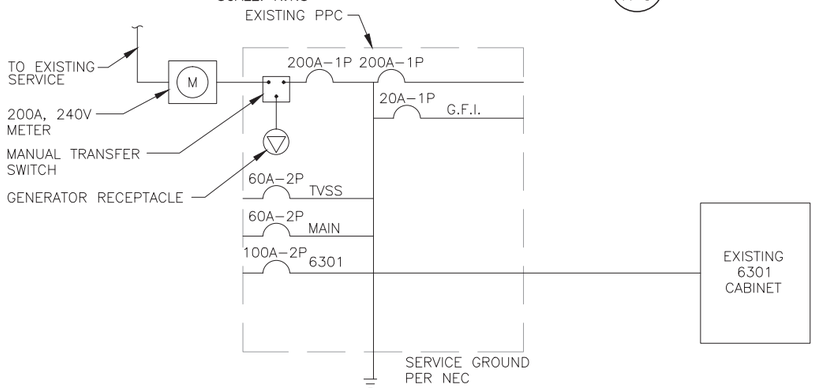
SITE NUMBER:
CTHA105A
SITE NAME:
HA105/SBA STANLEY_FT
SITE ADDRESS:
723 FARMINGTON AVENUE
NEW BRITAIN, CT 06053
HARTFORD COUNTY

SHEET TITLE
TOWER ELEVATIONS, ANTENNA PLAN, & DETAIL

SHEET NUMBER
A-2



TYPICAL GROUNDING RISER DIAGRAM (1 / A–3)
SCALE: N.T.S



ONE LINE POWER DIAGRAM (2 / A–3)
SCALE: N.T.S

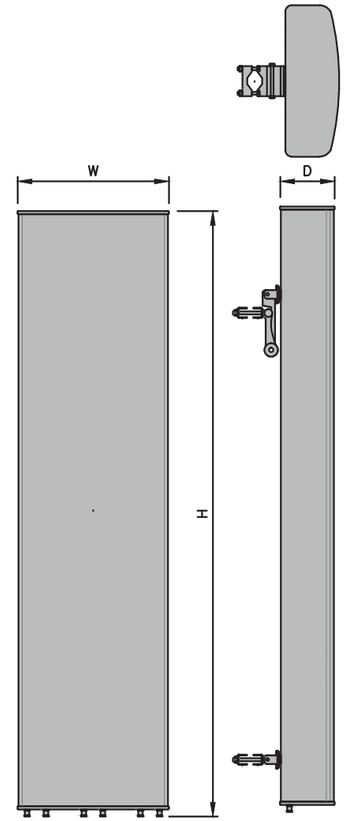

SOURCE: HDG 05–25–2018


SOURCE: HDG 05–25–2018

SOURCE: HDG 05–25–2018

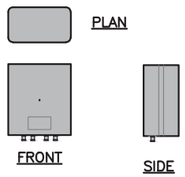
PHOTO DETAIL: PPC PANEL (3 / A–3)
SCALE: N.T.S

L600 ANTENNA DIMENSIONS	
MODEL #	APXVAARR24_43–U–NA20 (OCTA)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24"
DEPTH	8.7"
WEIGHT	128 LBS



L600 ANTENNA DETAIL (4 / A–3)
SCALE: N.T.S

RRUS DIMENSIONS	
MODEL #	RRUS 4449 B71 & B12
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.1"
DEPTH	9.2"
WEIGHT	74 LBS



PROPOSED RRUS DETAIL (5 / A–3)
SCALE: N.T.S

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

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
TEL: (508) 251-0720
FAX: (508) 251-1755

Hudson Design Engineering PLLC
29 HAMM ROAD
HUDSON, NY 12534
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT · DEREK J. CREASER · 16,275 · LICENSED PROFESSIONAL ENGINEER

CHECKED BY: JC

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/09/18	ISSUED FOR CONSTRUCTION	JR
0	07/19/18	ISSUED FOR REVIEW	AM

SITE NUMBER:
CTHA105A
SITE NAME:
HA105/SBA STANLEY_FT
SITE ADDRESS:
723 FARMINGTON AVENUE
NEW BRITAIN, CT 06053
HARTFORD COUNTY

SHEET TITLE
CONSTRUCTION DETAILS & ONE–LINE DIAGRAMS

SHEET NUMBER
A-3

FINAL ANTENNA SCHEDULE

SECTOR	BAND	ANTENNA MODEL	ANTENNA RAD	AZIMUTH	RADIOS	CABLE FEED LINES
ALPHA	G1900/U2100	AIR21 KRC118023-1_B2A_B4P	88'-0"±	10°		(E) (2) 7/8" COAX
	L700/L600	APXVAARR24_43-U-NA20	88'-0"±	10°	(P) (1) 4449 B71&B12	(P) (1) 6X12 SHARED HYBRID CABLE TRUNKS (E) (2) HYBRID CABLES
	L2100/L1900	AIR 32 KRD901146-1_B66A_B2A	88'-0"±	10°		
BETA	G1900/U2100	AIR21 KRC118023-1_B2A_B4P	88'-0"±	160°		(E) (2) 7/8" COAX
	L700/L600	APXVAARR24_43-U-NA20	88'-0"±	160	(P) (1) 4449 B71&B12	(P) (1) 6X12 SHARED HYBRID CABLE TRUNKS (E) (2) HYBRID CABLES
	L2100/L1900	AIR 32 KRD901146-1_B66A_B2A	88'-0"±	160		
GAMMA	G1900/U2100	AIR21 KRC118023-1_B2A_B4P	88'-0"±	270°		(E) (2) 7/8" COAX
	L700/L600	APXVAARR24_43-U-NA20	88'-0"±	270°	(P) (1) 4449 B71&B12	(P) (1) 6X12 SHARED HYBRID CABLE TRUNKS (E) (2) HYBRID CABLES
	L2100/L1900	AIR 32 KRD901146-1_B66A_B2A	88'-0"±	270°		
(P) (1) 6X12 HYBRID CABLE TRUNKS SERVES ANTENNAS ON ALL SECTORS (ALPHA, BETA & GAMMA)						

FINAL ANTENNA CONFIGURATION TABLE (1 / A-4)
SCALE: N.T.S

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

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
TEL: (508) 251-0720
FAX: (508) 251-1755

Hudson Design Engineering PLLC
29 HAMM ROAD
HUDSON, NY 12534
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 29551
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: JC

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/09/18	ISSUED FOR CONSTRUCTION	JR
0	07/19/18	ISSUED FOR REVIEW	AM

SITE NUMBER:
CTHA105A
SITE NAME:
HA105/SBA
STANLEY_FT
SITE ADDRESS:
723 FARMINGTON AVENUE
NEW BRITAIN, CT 06053
HARTFORD COUNTY

SHEET TITLE
ANTENNA
SCHEDULE

SHEET NUMBER
A-4