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

July 16, 2018

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

Notice of Exempt Modification
175 Dickenson Road, Glastonbury, CT 05073
41 39 21.23 N
-72 31 23.72 W
Sprint #: CT33XC546_2.5

Dear Ms. Bachman:

Sprint currently maintains twelve (12) antennas at the 157-foot level of the existing 176' Monopole at 175 Dickenson Rd. The tower is owned by SBA Properties, Inc. The property is owned by Brian Bronzi and Randall Chapman. Sprint intends to replace (6) existing antennas with (6) newer technology antennas at the 157-foot level of the tower. The full proposed scope of work is as follows:

Remove: N/A

Remove and Replace:

- Remove:
  - (12) Decibel DB980H90E-M – Panel Antennas (6 actual – 6 entitlements only)
- Replace with:
  - (3) RFS APXVTM14-C-I20 – Panel Antennas
  - (3) Commscope NNVV-65B-R4 – Panel Antennas
- Remove:
  - (12) 1-5/8" lines
- Replace with:
  - (4) 1-1/4" lines

Install:

- (3) ALU 1900 Mhz RRUs
- (6) ALU 800 Mhz RRUs
- (3) ALU TD-RRH8x20-25 RRUs
- (1) Sitepro PRK 1245L
- (1) Sitepro HRK14-U
- (1) Sitepro PRK-SFS-H-L

Existing Equipment to Remain (including entitlements):

- (1) LP Platform
- (12) 1-5/8" lines

This facility was approved by the Town of Glastonbury's Zoning Board of Appeals at their Public Hearing dated 8/9/2000. Special Exception was given for a 180' monopole tower and installation and operation of antennas and associated equipment for wireless communication systems. The compound was to be 70' x 70' with room for 5 wireless arrays holding up to 12 panel antennas per array. This modification complies with the aforementioned 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 Richard J. Johnson, Town Manager for the Town of Glastonbury, Khara Dodds, Director of Land Use & Planning Services for the Town of Glastonbury, and property owners Brian Bronzi and Randall Chapman. (Separate notice is not being sent to the 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, Sprint respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T
508.366.2610 + F
203.446.7700 + C
kpelletier@sbasite.com

Attachments

cc: Richard J. Johnson, Town Manager–as elected official / with attachments
Glastonbury Town Hall, 2155 Main Street, Glastonbury, CT 06033
Khara Dodds, Director of Land Use & Planning Services–as representative for planning & zoning / with attachments
Glastonbury Town Hall, 2155 Main Street, Glastonbury, CT 06033
Brian Bronzi and Randall Chapman– as property owners / with attachments
Brian Bronzi/Randall Chapman: 21 South Buckboard Lane Marlborough, CT 06447

POWER DENSITY

Sprint Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**157 feet**	Height (AGL):	**157 feet**	Height (AGL):	**157 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.44 %**	Antenna B1 MPE%	**1.44 %**	Antenna C1 MPE%	**1.44 %**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**157 feet**	Height (AGL):	**157 feet**	Height (AGL):	**157 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**0.98 %**	Antenna B2 MPE%	**0.98 %**	Antenna C2 MPE%	**0.98 %**

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	**2.42 %**
Voicestream (T-Mobile)	0.23 %
MetroPCS	0.34 %
Verizon Wireless	3.13 %
AT&T	2.76 %
Site Total MPE %:	**8.88 %**

SPRINT Sector A Total:	2.42 %
SPRINT Sector B Total:	2.42 %
SPRINT Sector C Total:	2.42 %
Site Total:	8.88 %

SPRINT _ Frequency Band / Technology Max Power Values (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	157	0.59	850 MHz	567	0.11%
Sprint 850 MHz LTE	2	941.82	157	2.97	850 MHz	567	0.52%
Sprint 1900 MHz (PCS) CDMA	5	511.82	157	4.03	1900 MHz (PCS)	1000	0.40%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	157	4.03	1900 MHz (PCS)	1000	0.40%
Sprint 2500 MHz (BRS) LTE	8	778.09	157	9.81	2500 MHz (BRS)	1000	0.98%
						Total:	2.42%

After printing this label:
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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.

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175 DICKINSON RD

Location	175 DICKINSON RD	**M/B/L/U**	J12/ 1860/ N0003/ /
Acct#	18600175	**Owner**	CHAPMAN RANDALL S+
Assessment	$808,700	**Appraisal**	$1,155,200
PID	1492	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$1,155,200	$1,155,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$808,700	$808,700

Owner of Record

Owner CHAPMAN RANDALL S+
Co-Owner BRONZI BRIAN JOSEPH EST

Sale Price $0
Certificate
Book & Page 3379/0090
Sale Date 10/20/2016
Instrument 78

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CHAPMAN RANDALL S+	$0		3379/0090	78	10/20/2016
CHAPMAN RANDALL S+	$0		3057/0041	79	01/11/2013
CHAPMAN RANDALL S+	$0		3057/0039	79	01/11/2013
CHAPMAN RANDALL S+	$0		2684/0333	79	08/03/2009
CHAPMAN RANDALL S+	$0		2295/0261	78	02/02/2006

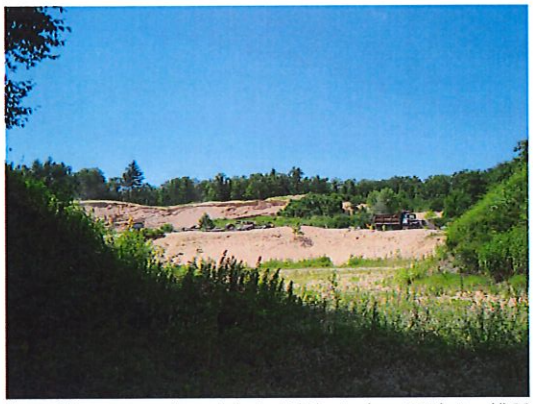
Building Information

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	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor/Cover 1	
Floor/Cover 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Rooms:	
Bath Qlty:	
Kitchen Qlty:	
Extra Kitchens	
Style Sub Class	
Bsmt Garages	
Fireplaces	



(http://images.vgsi.com/photos2/GlastonburyCTPhotos//\02\01\22/94.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	400
Description	Utility
Zone	RR

Land Line Valuation

Size (Acres)	30.35
Assessed Value	$808,700
Appraised Value	$1,155,200

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2016	$0	$1,098,900	$1,098,900
2015	$0	$1,098,900	$1,098,900
2014	$0	$1,098,900	$1,098,900

Assessment			
Valuation Year	Improvements	Land	Total
2016	$0	$769,300	$769,300
2015	$0	$769,300	$769,300
2014	$0	$769,300	$769,300

175 DICKINSON RD

Location	175 DICKINSON RD	**M/B/L/U**	J12/ 1860/ N0003/ TWR/
Acct#	J121860N0003	**Owner**	SBA PROPERTIES INC
Assessment	$578,000	**Appraisal**	$825,600
PID	106228	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$105,600	$720,000	$825,600
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$74,000	$504,000	$578,000

Owner of Record

Owner	SBA PROPERTIES INC	**Sale Price**	$0
Co-Owner	ATT TAX DEPT	**Certificate**	
		Book & Page	2303/0001
		Sale Date	02/28/2006

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
SBA PROPERTIES INC	$0		2303/0001	02/28/2006

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	

Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor/Cover 1	
Floor/Cover 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Rooms:	
Bath Qlty:	
Kitchen Qlty:	
Extra Kitchens	
Style Sub Class	
Bsmt Garages	
Fireplaces	

(http://images.vgsi.com/photos2/GlastonburyCTPhotos//default.j

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 350V
Description Cell Tower 00 MDL
Zone

Land Line Valuation

Size (Acres) 0
Assessed Value $504,000
Appraised Value $720,000

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD4	Cell Shed			200 S.F.	$37,500	1
SHD4	Cell Shed			360 S.F.	$67,500	1
PAT3	Patio-Concrete			160 S.F.	$300	1
PAT3	Patio-Concrete			168 S.F.	$300	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$105,500	$660,000	$765,500
2015	$105,500	$660,000	$765,500
2014	$105,500	$660,000	$765,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$73,900	$462,000	$535,900
2015	$73,900	$462,000	$535,900
2014	$73,900	$462,000	$535,900

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT33XC546

Glastonbury
175 Dickinson Road
Glastonbury, CT 06073

July 9, 2018

EBI Project Number: 6218004835

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.88 %

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

EBI Consulting
environmental | engineering | due diligence

July 9, 2018

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT33XC546 – Glastonbury**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **175 Dickinson Road, Glastonbury, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general 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.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **175 Dickinson Road, Glastonbury, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) 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 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 **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **157 feet** above ground level (AGL) for **Sector A**, **157 feet** above ground level (AGL) for **Sector B** and **157 feet** above ground level (AGL) for Sector C.

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.

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**157 feet**	Height (AGL):	**157 feet**	Height (AGL):	**157 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.44 %**	Antenna B1 MPE%	**1.44 %**	Antenna C1 MPE%	**1.44 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**157 feet**	Height (AGL):	**157 feet**	Height (AGL):	**157 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**0.98 %**	Antenna B2 MPE%	**0.98 %**	Antenna C2 MPE%	**0.98 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.42 %**
Voicestream (T-Mobile)	0.23 %
MetroPCS	0.34 %
Verizon Wireless	3.13 %
AT&T	2.76 %
Site Total MPE %:	**8.88 %**

SPRINT Sector A Total:	2.42 %
SPRINT Sector B Total:	2.42 %
SPRINT Sector C Total:	2.42 %
Site Total:	8.88 %

SPRINT _ Frequency Band / Technology Max Power Values (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	157	0.59	850 MHz	567	0.11%
Sprint 850 MHz LTE	2	941.82	157	2.97	850 MHz	567	0.52%
Sprint 1900 MHz (PCS) CDMA	5	511.82	157	4.03	1900 MHz (PCS)	1000	0.40%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	157	4.03	1900 MHz (PCS)	1000	0.40%
Sprint 2500 MHz (BRS) LTE	8	778.09	157	9.81	2500 MHz (BRS)	1000	0.98%
						Total:	2.42%

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 SPRINT 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:

SPRINT Sector	Power Density Value (%)
Sector A:	2.42 %
Sector B:	2.42 %
Sector C:	2.42 %
SPRINT Maximum Total (per sector):	2.42 %
Site Total:	8.88 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.88 %** 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
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 176 ft SUMMIT Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT02216-S

Customer Site Name: Glastonbury

Carrier Name: Sprint Nextel

Carrier Site ID / Name: CT33XC546 / S. Glastonbury

Site Location: 175 Dickenson Road

Glastonbury, Connecticut

Hartford County

Latitude: 41.655897

Longitude: -72.523255

6/5/18

Analysis Result:

Max Structural Usage: 73.4% [Pass]

Max Foundation Usage: 58.0% [Pass]

Additional Usage Caused by Mount Modification : +3.6%

Report Prepared By : Manoj Kandel

Introduction

The purpose of this report is to summarize the analysis results on the 176 ft SUMMIT Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Paul J. Ford and Company, Job #29200-887 dated June 19, 2000
Foundation Drawing	Paul J. Ford and Company, Job #29200-887 dated June 19, 2000
Geotechnical Report	FDH Engineering, Project #1204838EG1 dated August 13, 2012
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 mph (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 = 0.179, S_1 = 0.063

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	177.0	6	EMS RR90-17-02DP - Panel	(3) T-Arms	(12) 1 5/8"	T-Mobile
2		12	Allen FE15501P77/75 - MHA			
3	167.0	6	Andrew SBNHH-1D65B - Panel	(1) LP Platform	(6) 1 5/8" (2) 1 5/8" Hybrid	Verizon
4		2	RFS APL868013 - Panel			
5		4	Antel LPA-80063-4CF-EDIN-5 - Panel			
6		3	ALU RRH2X60-700			
7		3	ALU RRH2X60-AWS			
8		1	RFS DB-T16Z-8AB-0Z			
-	157.0	12	Decibel DB980H90E-M - Panel	(1) LP Platform	(12) 1 5/8"	Sprint Nextel
14	147.0	3	Kathrein 742 213 - Panel	Flush Mount	(6) 1 5/8"	Metro PCS
15	137.0	6	Powerwave 7770.00 - Panel	(1) LP Platform	(12) 1 5/8" (2) 3/4" DC (1) 1/2" (1) 3" conduit	AT&T
16		3	CCI HPA-65R-BUU-H6 - Panel			
17		6	Powerwave LGP21401 - TMA			
18		12	Powerwave 7020.00 RET			
19		3	Ericsson RRUS-11 - RRU			
20		3	Ericsson RRUS 32-B2 - RRU			
21		6	Powerwave LGP21903 - DP			
22		1	Raycap DC6-48-60-18-8F - SP			
23		3	Powerwave 1001940 Smart Bias T			

AT&T (2) 3/4" DC and (1) 1/2" fiber lines are within 3" flex conduit.

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
9	157.0	3	RFS APXVTM14-C-I20 - Panel	Low Profile Platform w/ Mount Reinforcement kit: (1) Sitepro PRK-1245L (1) Sitepro HRK14-U (1) Sitepro PRK-SFS-H-L	(4) 1-1/4" Fiber	Sprint Nextel
10		3	Commscope NNVV-65B-R4 - Panel			
11		3	ALU 1900 Mhz			
12		6	ALU 800 Mhz			
13		3	ALU TD-RRH8x20-25			

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:	**65.0%**	**59.2%**	**73.4%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	5100.0	38.0
Analysis Reactions	4687.8	36.8
Factored Reactions*	6885.0	51.3
% of Design Reactions	68.1%	71.7%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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 1.4917 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 64.99% at 49.0ft

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury	**Exposure:**	C	
Height:	176.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

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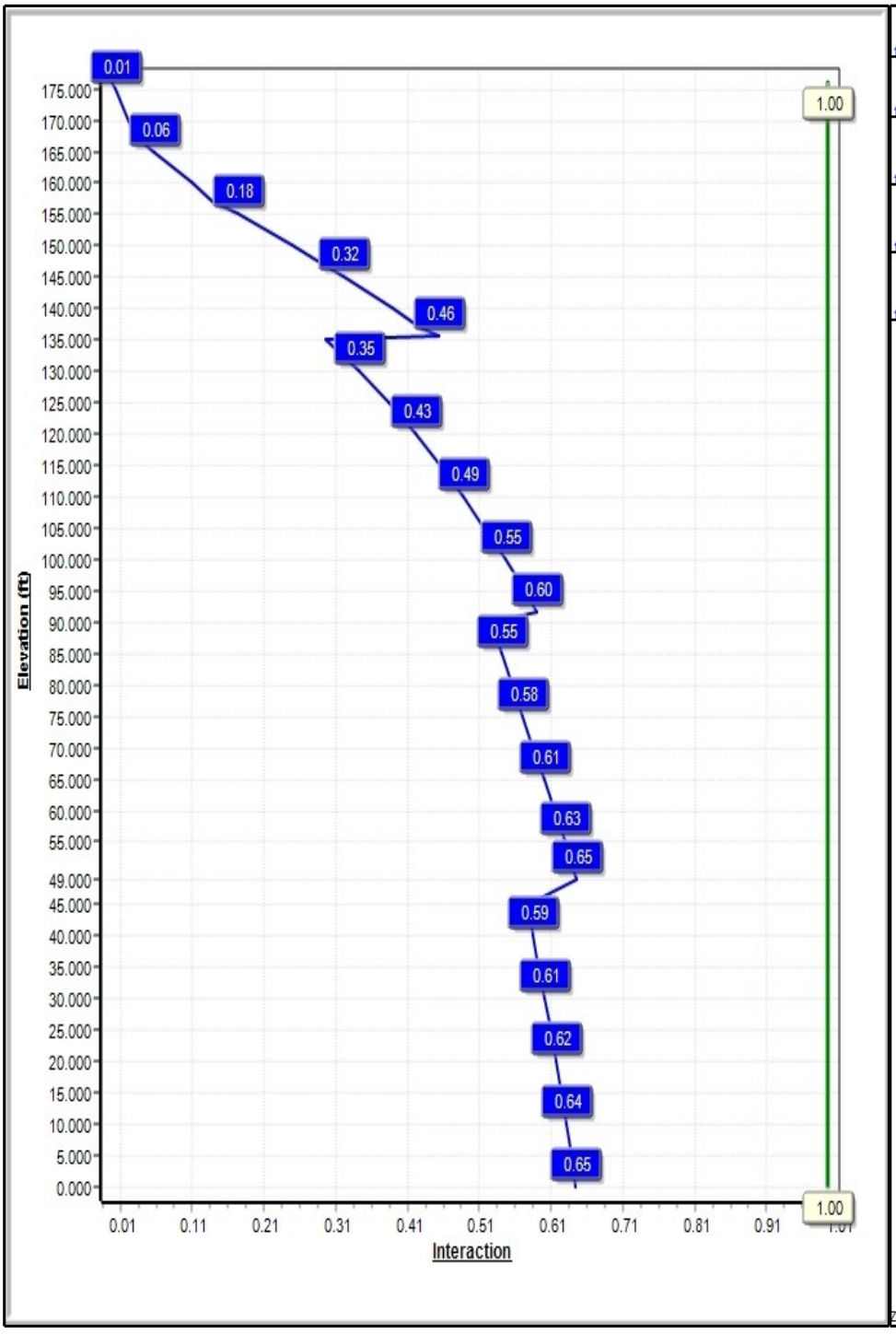
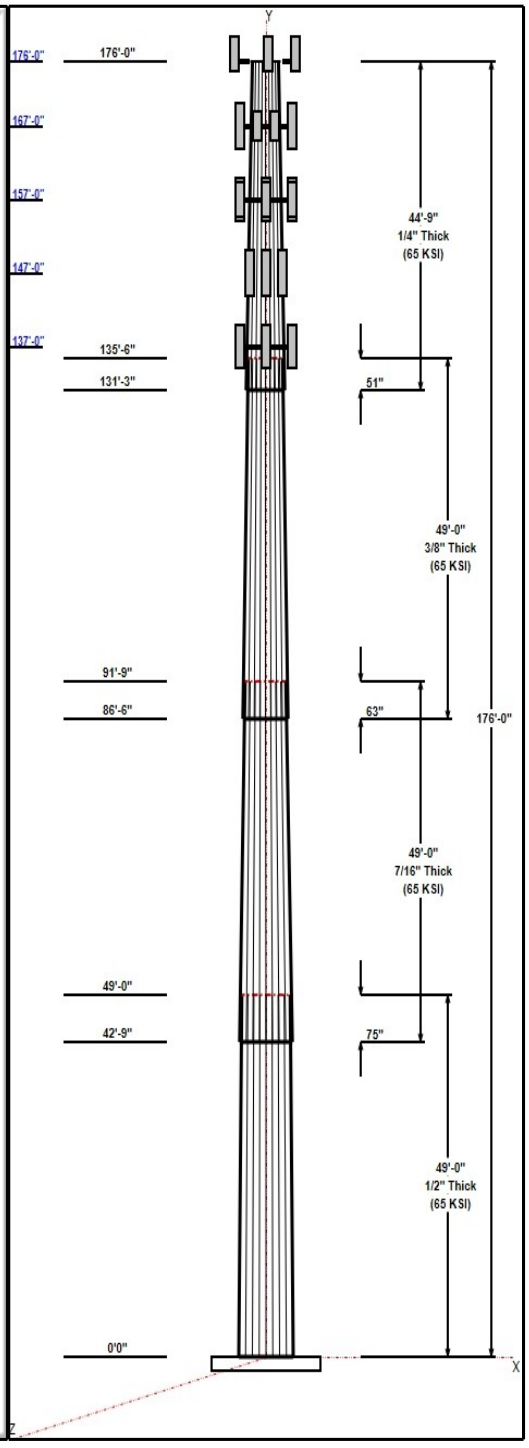
Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 97 mph Wind

Iterations: 26





Structure: CT02216-S-SBA

Type: Tapered
Site Name: Glastonbury
Height: 176.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.19702

6/5/2018

Tower Engineering Solutions

Shaft Properties

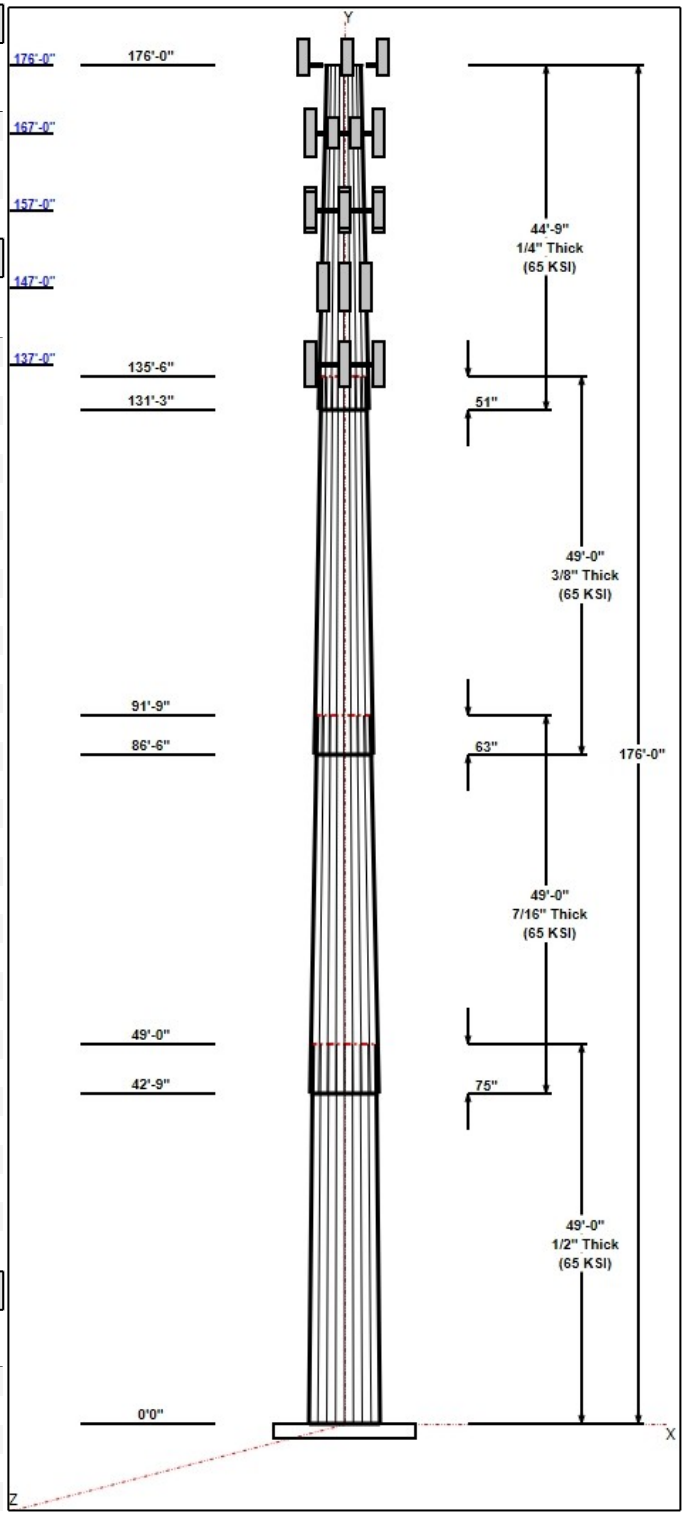
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	49.00	46.90	56.55	0.500		0.19702	65
2	49.00	39.35	49.00	0.438	Slip	0.19702	65
3	49.00	31.48	41.13	0.375	Slip	0.19702	65
4	44.75	24.00	32.82	0.250	Slip	0.19702	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
176.00	177.00	6	RR90-17-02DP	T-Mobile
176.00	177.00	12	MHA FE15501P77/75	T-Mobile
176.00	176.00	3	T-Arms	T-Mobile
176.00	179.50	1	Lightning Rod	
167.00	167.00	1	Low Profile	Verizon
167.00	167.00	3	RRH2X60-AWS	Verizon
167.00	167.00	3	RRH2X60-700	Verizon
167.00	167.00	6	SBNHH-1D65B	Verizon
167.00	167.00	4	LPA-80063-4CF-EDIN-5	Verizon
167.00	167.00	2	APL868013	Verizon
167.00	167.00	1	DB-T16Z-8AB-0Z	Verizon
157.00	157.00	1	Low Profile Platform	Sprint Nextel
157.00	157.00	3	RFS APXVTM14-C-I20	Sprint Nextel
157.00	157.00	3	Commscope	Sprint Nextel
157.00	157.00	1	Sitepro PRK-1245L	Sprint Nextel
157.00	157.00	1	Sitepro HRK14-U	Sprint Nextel
157.00	157.00	1	Sitepro PRK-SFS-H-L	Sprint Nextel
157.00	157.00	3	ALU 1900 Mhz	Sprint Nextel
157.00	157.00	6	ALU 800 Mhz	Sprint Nextel
157.00	157.00	3	ALU TD-RRH8x20-25	Sprint Nextel
147.00	147.00	1	Flush Mount	Metro PCS
147.00	147.00	3	742 213	Metro PCS
137.00	137.00	1	DC6-48-60-18-8F	AT&T
137.00	137.00	3	RRUS-11	AT&T
137.00	137.00	6	7770.00	AT&T
137.00	137.00	6	LGP21401	AT&T
137.00	137.00	6	LGP21903	AT&T
137.00	137.00	1	LP Platform-Round	AT&T
137.00	137.00	3	HPA-65R-BUU-H6	AT&T
137.00	137.00	12	7020	AT&T
137.00	137.00	3	RRUS 32-B2	AT&T
137.00	137.00	3	Smart Bias T 1001940	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	176.00	Inside	1 5/8" Coax	T-Mobile
0.00	176.00	Outside	Safety Cable	
0.00	176.00	Outside	Step bolts (ladder)	
0.00	167.00	Inside	1 5/8" Coax	Verizon
0.00	167.00	Inside	1 5/8" Hybrid	Verizon
0.00	157.00	Inside	1 1/4" Fiber	Sprint Nextel
0.00	147.00	Inside	1 5/8" Coax	Metro PCS
0.00	137.00	Inside	1 5/8" Coax	AT&T
0.00	137.00	Inside	1/2" Coax	AT&T
0.00	137.00	Inside	3" conduit	AT&T



0.00	137.00	Inside	3/4" DC	AT&T

Anchor Bolts

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

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	66.0	50.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	4687.8	36.8	61.6
0.9D + 1.6W 97 mph Wind	4627.6	36.7	46.2
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1475.7	11.2	102.2
1.2D + 1.0E	263.8	2.1	61.7
0.9D + 1.0E	260.3	2.1	46.3
1.0D + 1.0W 60 mph Wind	1113.3	8.8	51.4

Structure: CT02216-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Glastonbury
Height: 176.00 (ft)

6/5/2018

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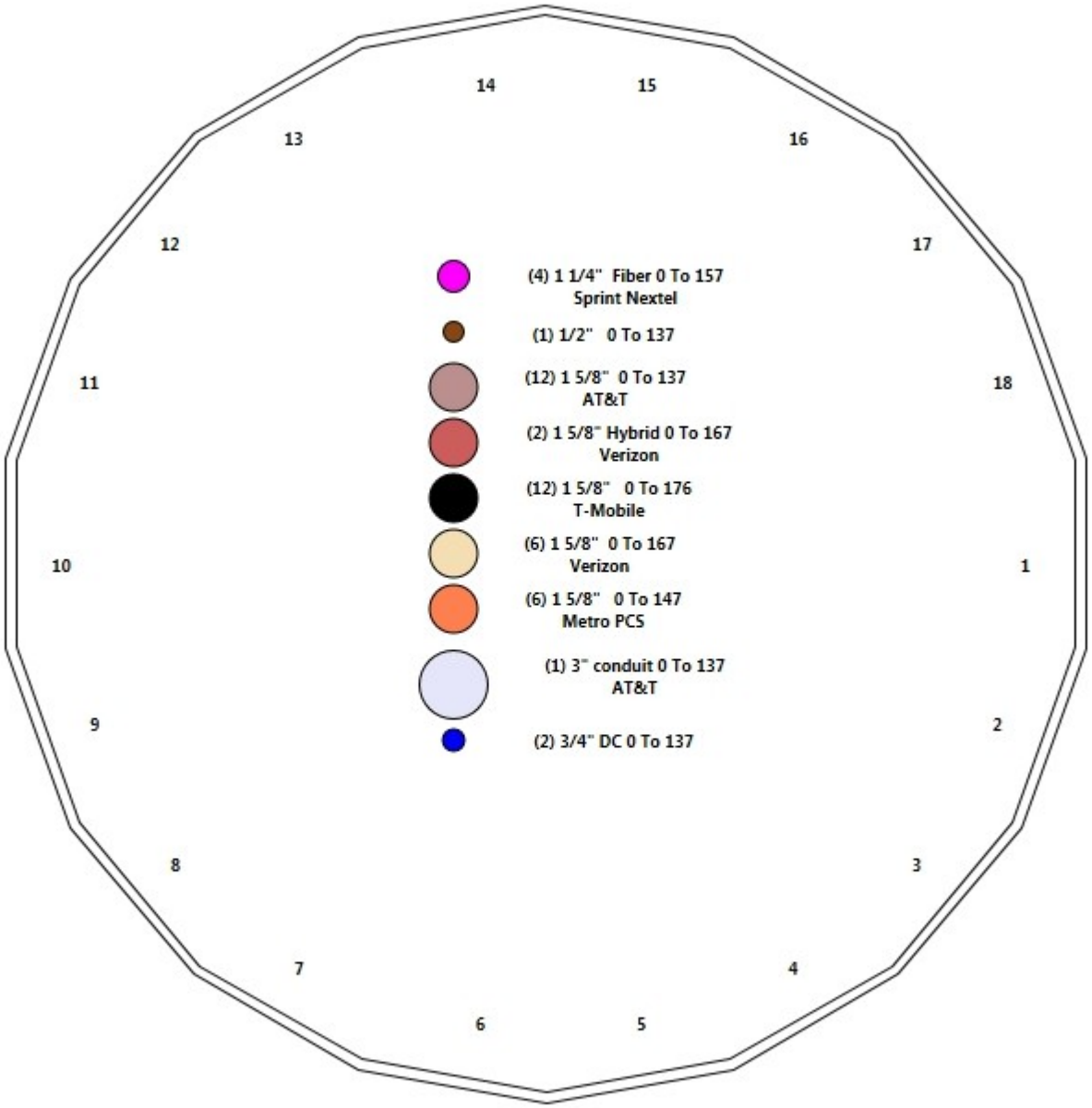

Shaft Properties

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	49.000	0.5000	65		0.00	13,554
2	18	49.000	0.4375	65	Slip	75.00	10,126
3	18	49.000	0.3750	65	Slip	63.00	7,131
4	18	44.750	0.2500	65	Slip	51.00	3,402
					Total Shaft Weight:		**34,213**

	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	56.55	0.00	88.95	35305.41	18.53	113.10	46.90	49.00	73.63	20024.4	15.13	93.79	0.197017
2	49.00	42.75	67.44	20095.24	18.34	112.01	39.35	91.75	54.03	10335.8	14.45	89.94	0.197017
3	41.13	86.50	48.51	10181.58	17.93	109.69	31.48	135.50	37.02	4525.14	13.39	83.94	0.197017
4	32.82	131.2	25.84	3462.57	21.74	131.27	24.00	176.00	18.84	1343.00	15.52	96.00	0.197017

Load Summary

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

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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	176.00	RR90-17-02DP	6	13.50	4.36	0.68	161.46	5.741	0.68	0.00	1.00
2	176.00	MHA FE15501P77/75	12	11.00	0.93	0.65	37.10	1.886	0.68	0.00	1.00
3	176.00	T-Arms	3	350.00	8.00	0.75	681.02	17.458	0.75	0.00	0.00
4	176.00	Lightning Rod	1	35.00	1.05	1.00	77.56	4.266	1.00	0.00	3.50
5	167.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	3264.05	45.803	1.00	0.00	0.00
6	167.00	RRH2X60-AWS	3	60.00	3.50	0.76	177.64	4.564	0.76	0.00	0.00
7	167.00	RRH2X60-700	3	60.00	3.50	0.76	177.64	4.564	0.76	0.00	0.00
8	167.00	SBNHH-1D65B	6	40.00	8.16	0.83	332.23	9.954	0.83	0.00	0.00
9	167.00	LPA-80063-4CF-EDIN-5	4	20.00	6.15	0.93	266.55	8.702	0.93	0.00	0.00
10	167.00	APL868013	2	6.30	2.86	0.93	163.90	4.061	0.93	0.00	0.00
11	167.00	DB-T16Z-8AB-0Z	1	18.90	4.80	1.00	224.85	6.005	1.00	0.00	0.00
12	157.00	Low Profile Platform	1	1500.00	22.00	1.00	3253.19	45.656	1.00	0.00	0.00
13	157.00	RFS APXVTM14-C-I20	3	56.20	6.34	0.77	286.02	7.864	0.77	0.00	0.00
14	157.00	Commscope NNVV-65B-R4	3	77.40	12.27	0.75	459.89	14.220	0.75	0.00	0.00
15	157.00	Sitepro PRK-1245L	1	464.91	9.50	1.00	899.62	22.824	1.00	0.00	0.00
16	157.00	Sitepro HRK14-U	1	302.36	8.13	1.00	782.98	18.773	1.00	0.00	0.00
17	157.00	Sitepro PRK-SFS-H-L	1	230.00	6.70	1.00	660.12	16.097	1.00	0.00	0.00
18	157.00	ALU 1900 Mhz	3	60.00	2.77	0.67	171.76	4.469	0.67	0.00	0.00
19	157.00	ALU 800 Mhz	6	53.00	2.49	0.67	152.06	4.022	0.67	0.00	0.00
20	157.00	ALU TD-RRH8x20-25	3	70.00	4.05	0.67	228.65	5.168	0.67	0.00	0.00
21	147.00	Flush Mount	1	350.00	5.00	1.00	740.14	9.645	1.00	0.00	0.00
22	147.00	742 213	3	22.00	5.12	0.72	188.69	6.882	0.72	0.00	0.00
23	137.00	DC6-48-60-18-8F	1	32.80	1.47	1.00	117.06	2.395	1.00	0.00	0.00
24	137.00	RRUS-11	3	55.00	4.42	0.68	173.86	6.401	0.68	0.00	0.00
25	137.00	7770.00	6	35.00	5.50	0.73	226.86	6.937	0.73	0.00	0.00
26	137.00	LGP21401	6	19.00	1.29	0.67	63.51	2.394	0.67	0.00	0.00
27	137.00	LGP21903	6	5.00	0.27	0.84	15.12	0.795	0.84	3.00	0.00
28	137.00	LP Platform-Round	1	1500.00	22.00	1.00	3229.47	45.336	1.00	0.00	0.00
29	137.00	HPA-65R-BUU-H6	3	51.00	9.66	0.85	396.24	11.499	0.85	0.00	0.00
30	137.00	7020	12	2.20	0.40	0.50	15.71	1.040	0.50	0.00	0.00
31	137.00	RRUS 32-B2	3	53.00	2.74	0.67	202.22	4.026	0.67	0.00	0.00
32	137.00	Smart Bias T 1001940	3	2.00	0.09	0.67	4.64	0.400	0.67	5.70	0.00
		Totals:	**112**	**9,927.77**			**30,429.16**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	176.00	(12) 1 5/8" Coax	0.00	Inside
0.00	176.00	(1) Safety Cable	0.38	Outside
0.00	176.00	(1) Step bolts (ladder)	0.63	Outside
0.00	167.00	(6) 1 5/8" Coax	0.00	Inside
0.00	167.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	157.00	(4) 1 1/4" Fiber	0.00	Inside
0.00	147.00	(6) 1 5/8" Coax	0.00	Inside
0.00	137.00	(12) 1 5/8" Coax	0.00	Inside
0.00	137.00	(1) 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	137.00	(1) 3" conduit			0.00	Inside					
0.00	137.00	(2) 3/4" DC			0.00	Inside					

Shaft Section Properties

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
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		0.5000	56.550	88.948	35305.4	18.53	113.10	79.6	1229.	0.0
5.00		0.5000	55.565	87.385	33476.4	18.18	111.13	80.0	1186.	1500.1
10.00		0.5000	54.580	85.822	31711.8	17.84	109.16	80.4	1144.	1473.5
15.00		0.5000	53.595	84.258	30010.2	17.49	107.19	80.8	1102.	1446.9
20.00		0.5000	52.610	82.695	28370.6	17.14	105.22	81.2	1062.	1420.3
25.00		0.5000	51.625	81.132	26791.9	16.79	103.25	81.6	1022.	1393.7
30.00		0.5000	50.639	79.569	25272.8	16.45	101.28	82.1	983.0	1367.1
35.00		0.5000	49.654	78.005	23812.3	16.10	99.31	82.5	944.6	1340.5
40.00		0.5000	48.669	76.442	22409.2	15.75	97.34	82.5	906.9	1313.9
42.75	Bot - Section 2	0.5000	48.128	75.582	21661.5	15.56	96.26	82.5	886.5	711.3
45.00		0.5000	47.684	74.879	21062.3	15.41	95.37	82.5	870.0	1089.9
49.00	Top - Section 1	0.4375	47.771	65.726	18605.1	17.84	109.19	0.0	0.0	1912.7
50.00		0.4375	47.574	65.453	18373.8	17.76	108.74	80.5	760.7	223.2
55.00		0.4375	46.589	64.085	17245.7	17.37	106.49	81.0	729.1	1102.0
60.00		0.4375	45.604	62.717	16164.8	16.97	104.24	81.4	698.2	1078.7
65.00		0.4375	44.619	61.349	15130.1	16.57	101.99	81.9	667.9	1055.4
70.00		0.4375	43.634	59.981	14140.4	16.18	99.73	82.4	638.3	1032.2
75.00		0.4375	42.649	58.613	13194.9	15.78	97.48	82.5	609.4	1008.9
80.00		0.4375	41.664	57.246	12292.5	15.38	95.23	82.5	581.1	985.6
85.00		0.4375	40.679	55.878	11432.2	14.98	92.98	82.5	553.5	962.3
86.50	Bot - Section 3	0.4375	40.383	55.467	11182.2	14.87	92.30	82.5	545.4	284.2
90.00		0.4375	39.693	54.510	10613.0	14.59	90.73	82.5	526.6	1227.8
91.75	Top - Section 2	0.3750	40.099	47.279	9425.9	17.44	106.93	0.0	0.0	605.9
95.00		0.3750	39.458	46.517	8977.4	17.14	105.22	81.2	448.1	518.7
100.00		0.3750	38.473	45.345	8315.6	16.68	102.60	81.8	425.7	781.5
105.00		0.3750	37.488	44.172	7687.1	16.22	99.97	82.3	403.9	761.5
110.00		0.3750	36.503	43.000	7091.1	15.75	97.34	82.5	382.6	741.6
115.00		0.3750	35.518	41.827	6526.7	15.29	94.71	82.5	361.9	721.6
120.00		0.3750	34.533	40.655	5993.1	14.83	92.09	82.5	341.8	701.7
125.00		0.3750	33.548	39.483	5489.4	14.36	89.46	82.5	322.3	681.7
130.00		0.3750	32.563	38.310	5014.7	13.90	86.83	82.5	303.3	661.8
131.25	Bot - Section 4	0.3750	32.317	38.017	4900.5	13.78	86.18	82.5	298.7	162.3
135.00		0.3750	31.578	37.138	4568.3	13.44	84.21	82.5	284.9	805.5
135.50	Top - Section 3	0.2500	31.979	25.176	3202.3	21.14	127.92	0.0	0.0	106.0
137.00		0.2500	31.684	24.942	3113.6	20.94	126.73	76.8	193.6	127.9
140.00		0.2500	31.093	24.473	2941.3	20.52	124.37	77.3	186.3	252.2
145.00		0.2500	30.108	23.691	2668.4	19.82	120.43	78.1	174.6	409.7
147.00		0.2500	29.713	23.378	2564.1	19.55	118.85	78.4	170.0	160.2
150.00		0.2500	29.122	22.909	2412.9	19.13	116.49	78.9	163.2	236.3
155.00		0.2500	28.137	22.128	2174.2	18.43	112.55	79.7	152.2	383.1
157.00		0.2500	27.743	21.815	2083.4	18.16	110.97	80.0	147.9	149.5
160.00		0.2500	27.152	21.346	1951.9	17.74	108.61	80.5	141.6	220.3
165.00		0.2500	26.167	20.565	1745.2	17.05	104.67	81.4	131.4	356.5
167.00		0.2500	25.773	20.252	1666.8	16.77	103.09	81.7	127.4	138.9
170.00		0.2500	25.182	19.783	1553.7	16.35	100.73	82.2	121.5	204.3
175.00		0.2500	24.197	19.001	1376.7	15.66	96.79	82.5	112.1	329.9
176.00		0.2500	24.000	18.845	1343.0	15.52	96.00	82.5	110.2	64.4
										34212.9

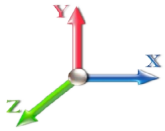
Wind Loading - Shaft

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	427.94	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	420.48	0.650	0.000	5.00	23.718	15.42	527.7	0.0	1800.1
10.00		1.00	0.85	19.450	21.40	413.03	0.650	0.000	5.00	23.301	15.15	518.5	0.0	1768.1
15.00		1.00	0.85	19.450	21.40	405.57	0.650	0.000	5.00	22.884	14.87	509.2	0.0	1736.2
20.00		1.00	0.90	20.638	22.70	410.09	0.650	0.000	5.00	22.467	14.60	530.4	0.0	1704.3
25.00		1.00	0.95	21.630	23.79	411.98	0.650	0.000	5.00	22.050	14.33	545.6	0.0	1672.4
30.00		1.00	0.98	22.477	24.72	411.95	0.650	0.000	5.00	21.634	14.06	556.3	0.0	1640.5
35.00		1.00	1.01	23.218	25.54	410.54	0.650	0.000	5.00	21.217	13.79	563.5	0.0	1608.6
40.00		1.00	1.04	23.880	26.27	408.09	0.650	0.000	5.00	20.800	13.52	568.2	0.0	1576.6
42.75	Bot - Section 2	1.00	1.06	24.217	26.64	406.38	0.650	0.000	2.75	11.262	7.32	312.0	0.0	853.6
45.00		1.00	1.07	24.479	26.93	404.82	0.650	0.000	2.25	9.288	6.04	260.1	0.0	1307.9
49.00	Top - Section 1	1.00	1.09	24.922	27.41	401.71	0.650	0.000	4.00	16.303	10.60	464.8	0.0	2295.3
50.00		1.00	1.09	25.029	27.53	408.39	0.650	0.000	1.00	4.034	2.62	115.5	0.0	267.8
55.00		1.00	1.12	25.536	28.09	403.97	0.650	0.000	5.00	19.920	12.95	581.9	0.0	1322.4
60.00		1.00	1.14	26.008	28.61	399.06	0.650	0.000	5.00	19.503	12.68	580.3	0.0	1294.4
65.00		1.00	1.16	26.450	29.09	393.75	0.650	0.000	5.00	19.086	12.41	577.5	0.0	1266.5
70.00		1.00	1.17	26.866	29.55	388.07	0.650	0.000	5.00	18.670	12.14	573.8	0.0	1238.6
75.00		1.00	1.19	27.259	29.98	382.07	0.650	0.000	5.00	18.253	11.86	569.2	0.0	1210.7
80.00		1.00	1.21	27.632	30.39	375.79	0.650	0.000	5.00	17.836	11.59	563.8	0.0	1182.7
85.00		1.00	1.22	27.987	30.79	369.25	0.650	0.000	5.00	17.419	11.32	557.7	0.0	1154.8
86.50	Bot - Section 3	1.00	1.23	28.090	30.90	367.25	0.650	0.000	1.50	5.145	3.34	165.3	0.0	341.0
90.00		1.00	1.24	28.325	31.16	362.49	0.650	0.000	3.50	12.080	7.85	391.4	0.0	1473.3
91.75	Top - Section 2	1.00	1.24	28.441	31.28	360.07	0.650	0.000	1.75	5.963	3.88	194.0	0.0	727.1
95.00		1.00	1.25	28.650	31.51	362.40	0.650	0.000	3.25	10.940	7.11	358.5	0.0	622.4
100.00		1.00	1.27	28.961	31.86	355.26	0.650	0.000	5.00	16.486	10.72	546.2	0.0	937.8
105.00		1.00	1.28	29.260	32.19	347.95	0.650	0.000	5.00	16.069	10.45	537.9	0.0	913.8
110.00		1.00	1.29	29.548	32.50	340.47	0.650	0.000	5.00	15.653	10.17	529.1	0.0	889.9
115.00		1.00	1.30	29.826	32.81	332.83	0.650	0.000	5.00	15.236	9.90	519.9	0.0	865.9
120.00		1.00	1.32	30.094	33.10	325.06	0.650	0.000	5.00	14.819	9.63	510.2	0.0	842.0
125.00		1.00	1.33	30.354	33.39	317.14	0.650	0.000	5.00	14.402	9.36	500.1	0.0	818.1
130.00		1.00	1.34	30.605	33.67	309.11	0.650	0.000	5.00	13.986	9.09	489.7	0.0	794.1
131.25	Bot - Section 4	1.00	1.34	30.667	33.73	307.08	0.650	0.000	1.25	3.431	2.23	120.4	0.0	194.8
135.00		1.00	1.35	30.850	33.93	300.95	0.650	0.000	3.75	10.296	6.69	363.4	0.0	966.6
135.50	Top - Section 3	1.00	1.35	30.874	33.96	300.13	0.650	0.000	0.50	1.355	0.88	47.9	0.0	127.2
137.00	Appurtenance(s)	1.00	1.35	30.945	34.04	302.42	0.650	0.000	1.50	4.040	2.63	143.0	0.0	153.5
140.00		1.00	1.36	31.087	34.20	297.46	0.650	0.000	3.00	7.968	5.18	283.4	0.0	302.7
145.00		1.00	1.37	31.317	34.45	289.10	0.650	0.000	5.00	12.947	8.42	463.8	0.0	491.7
147.00	Appurtenance(s)	1.00	1.37	31.408	34.55	285.73	0.650	0.000	2.00	5.062	3.29	181.9	0.0	192.2
150.00		1.00	1.38	31.541	34.70	280.64	0.650	0.000	3.00	7.468	4.85	269.5	0.0	283.5
155.00		1.00	1.39	31.760	34.94	272.09	0.650	0.000	5.00	12.113	7.87	440.1	0.0	459.8
157.00	Appurtenance(s)	1.00	1.39	31.846	35.03	268.64	0.650	0.000	2.00	4.729	3.07	172.3	0.0	179.4
160.00		1.00	1.40	31.973	35.17	263.44	0.650	0.000	3.00	6.968	4.53	254.9	0.0	264.4
165.00		1.00	1.41	32.181	35.40	254.71	0.650	0.000	5.00	11.280	7.33	415.3	0.0	427.8
167.00	Appurtenance(s)	1.00	1.41	32.262	35.49	251.19	0.650	0.000	2.00	4.395	2.86	162.2	0.0	166.7
170.00		1.00	1.42	32.384	35.62	245.89	0.650	0.000	3.00	6.468	4.20	239.6	0.0	245.2
175.00		1.00	1.42	32.582	35.84	236.99	0.650	0.000	5.00	10.446	6.79	389.4	0.0	395.9
176.00	Appurtenance(s)	1.00	1.43	32.621	35.88	235.20	0.650	0.000	1.00	2.039	1.33	76.1	0.0	77.3

Wind Loading - Shaft

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Totals:	**176.00**	**18,241.5**	**41,055.5**

Discrete Appurtenance Forces

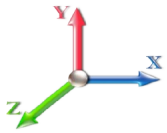
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	176.00	Lightning Rod	1	32.756	36.032	1.00	1.00	1.05	42.00	0.000	3.500	60.53	0.00	211.87
2	176.00	T-Arms	3	32.621	35.883	0.56	0.75	13.50	1260.00	0.000	0.000	775.07	0.00	0.00
3	176.00	MHA FE15501P77/75	12	32.660	35.926	0.65	1.00	7.25	158.40	0.000	1.000	416.97	0.00	416.97
4	176.00	RR90-17-02DP	6	32.660	35.926	0.68	1.00	17.79	97.20	0.000	1.000	1022.53	0.00	1022.53
5	167.00	DB-T16Z-8AB-0Z	1	32.262	35.489	1.00	1.00	4.80	22.68	0.000	0.000	272.55	0.00	0.00
6	167.00	Low Profile	1	32.262	35.489	1.00	1.00	22.00	1800.00	0.000	0.000	1249.20	0.00	0.00
7	167.00	RRH2X60-AWS	3	32.262	35.489	0.61	0.80	6.38	216.00	0.000	0.000	362.50	0.00	0.00
8	167.00	RRH2X60-700	3	32.262	35.489	0.61	0.80	6.38	216.00	0.000	0.000	362.50	0.00	0.00
9	167.00	SBNHH-1D65B	6	32.262	35.489	0.66	0.80	32.51	288.00	0.000	0.000	1845.95	0.00	0.00
10	167.00	LPA-80063-4CF-EDIN-5	4	32.262	35.489	0.74	0.80	18.30	96.00	0.000	0.000	1039.25	0.00	0.00
11	167.00	APL868013	2	32.262	35.489	0.84	0.90	4.79	15.12	0.000	0.000	271.85	0.00	0.00
12	157.00	Sitepro PRK-SFS-H-L	1	31.846	35.030	1.00	1.00	6.70	276.00	0.000	0.000	375.53	0.00	0.00
13	157.00	Sitepro HRK14-U	1	31.846	35.030	1.00	1.00	8.13	362.83	0.000	0.000	455.67	0.00	0.00
14	157.00	Sitepro PRK-1245L	1	31.846	35.030	1.00	1.00	9.50	557.89	0.000	0.000	532.46	0.00	0.00
15	157.00	Commscope	3	31.846	35.030	0.60	0.80	22.09	278.64	0.000	0.000	1237.89	0.00	0.00
16	157.00	RFS APXVTM14-C-I20	3	31.846	35.030	0.62	0.80	11.72	202.32	0.000	0.000	656.68	0.00	0.00
17	157.00	ALU TD-RRH8x20-25	3	31.846	35.030	0.54	0.80	6.51	252.00	0.000	0.000	365.01	0.00	0.00
18	157.00	ALU 1900 Mhz	3	31.846	35.030	0.54	0.80	4.45	216.00	0.000	0.000	249.65	0.00	0.00
19	157.00	Low Profile Platform	1	31.846	35.030	1.00	1.00	22.00	1800.00	0.000	0.000	1233.07	0.00	0.00
20	157.00	ALU 800 Mhz	6	31.846	35.030	0.54	0.80	8.01	381.60	0.000	0.000	448.83	0.00	0.00
21	147.00	742 213	3	31.408	34.548	0.58	0.80	8.85	79.20	0.000	0.000	489.06	0.00	0.00
22	147.00	Flush Mount	1	31.408	34.548	1.00	1.00	5.00	420.00	0.000	0.000	276.39	0.00	0.00
23	137.00	LGP21903	6	30.945	34.040	0.67	0.80	1.09	36.00	4.341	0.000	59.29	160.85	0.00
24	137.00	DC6-48-60-18-8F	1	30.945	34.040	1.00	1.00	1.47	39.36	0.000	0.000	80.06	0.00	0.00
25	137.00	RRUS-11	3	30.945	34.040	0.54	0.80	7.21	198.00	0.000	0.000	392.87	0.00	0.00
26	137.00	7770.00	6	30.945	34.040	0.58	0.80	19.27	252.00	0.000	0.000	1049.62	0.00	0.00
27	137.00	LGP21401	6	30.945	34.040	0.54	0.80	4.15	136.80	0.000	0.000	225.95	0.00	0.00
28	137.00	RRUS 32-B2	3	30.945	34.040	0.54	0.80	4.41	190.80	0.000	0.000	239.96	0.00	0.00
29	137.00	HPA-65R-BUU-H6	3	30.945	34.040	0.68	0.80	19.71	183.60	0.000	0.000	1073.28	0.00	0.00
30	137.00	7020	12	30.945	34.040	0.40	0.80	1.92	31.68	0.000	0.000	104.57	0.00	0.00
31	137.00	Smart Bias T 1001940	3	30.945	34.040	0.54	0.80	0.14	7.20	7.041	0.000	7.88	34.68	0.00
32	137.00	LP Platform-Round	1	30.945	34.040	1.00	1.00	22.00	1800.00	0.000	0.000	1198.20	0.00	0.00
							Totals:		**11,913.32**			**18,430.82**		

Total Applied Force Summary

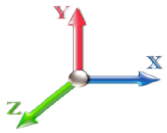
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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		527.74	2078.06	0.00	0.00
10.00		518.47	2046.15	0.00	0.00
15.00		509.20	2014.23	0.00	0.00
20.00		530.44	1982.31	0.00	0.00
25.00		545.64	1950.40	0.00	0.00
30.00		556.27	1918.48	0.00	0.00
35.00		563.55	1886.56	0.00	0.00
40.00		568.23	1854.65	0.00	0.00
42.75		312.01	1006.45	0.00	0.00
45.00		260.09	1433.02	0.00	0.00
49.00		464.81	2517.67	0.00	0.00
50.00		115.50	323.42	0.00	0.00
55.00		581.92	1600.36	0.00	0.00
60.00		580.28	1572.43	0.00	0.00
65.00		577.53	1544.51	0.00	0.00
70.00		573.80	1516.58	0.00	0.00
75.00		569.20	1488.65	0.00	0.00
80.00		563.81	1460.73	0.00	0.00
85.00		557.71	1432.80	0.00	0.00
86.50		165.32	424.39	0.00	0.00
90.00		391.45	1667.91	0.00	0.00
91.75		194.03	824.42	0.00	0.00
95.00		358.55	803.08	0.00	0.00
100.00		546.21	1215.76	0.00	0.00
105.00		537.90	1191.82	0.00	0.00
110.00		529.10	1167.88	0.00	0.00
115.00		519.85	1143.94	0.00	0.00
120.00		510.18	1120.01	0.00	0.00
125.00		500.12	1096.07	0.00	0.00
130.00		489.67	1072.13	0.00	0.00
131.25		120.38	264.29	0.00	0.00
135.00		363.37	1175.10	0.00	0.00
135.50		47.86	154.98	0.00	0.00
137.00	(44) attachments	4574.72	3112.33	195.53	0.00
140.00		283.37	414.67	0.00	0.00
145.00		463.84	678.35	0.00	0.00
147.00	(4) attachments	947.32	766.07	0.00	0.00
150.00		269.47	373.06	0.00	0.00
155.00		440.11	608.99	0.00	0.00
157.00	(22) attachments	5727.06	4566.41	0.00	0.00
160.00		254.86	344.40	0.00	0.00
165.00		415.26	561.24	0.00	0.00
167.00	(20) attachments	5566.01	2873.83	0.00	0.00
170.00		239.61	294.87	0.00	0.00
175.00		389.36	478.68	0.00	0.00
176.00	(22) attachments	2351.20	1651.42	0.00	1651.36

Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

Tower Engineering Solutions

Totals:	**36,672.36**	**61,673.58**	**195.53**	**1,651.36**

Linear Appurtenance Segment Forces (Factored)

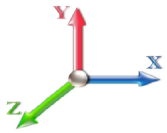
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	20.638	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	20.638	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	21.630	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	21.630	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	22.477	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	22.477	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	23.218	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	23.218	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	23.880	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	23.880	0.00	6.24
42.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.021	0.000	24.217	0.00	0.90
42.75	Step bolts (ladder)	Yes	2.75	0.000	0.63	0.14	0.00	0.021	0.000	24.217	0.00	3.43
45.00	Safety Cable	Yes	2.25	0.000	0.38	0.07	0.00	0.021	0.000	24.479	0.00	0.74
45.00	Step bolts (ladder)	Yes	2.25	0.000	0.63	0.12	0.00	0.021	0.000	24.479	0.00	2.81
49.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	24.922	0.00	1.31
49.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	24.922	0.00	4.99
50.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	25.029	0.00	0.33
50.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	25.029	0.00	1.25
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	25.536	0.00	1.64
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	25.536	0.00	6.24
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	26.008	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	26.008	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	26.450	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	26.450	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	26.866	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	26.866	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	27.259	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	27.259	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	27.632	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	27.632	0.00	6.24
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	27.987	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	27.987	0.00	6.24
86.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.025	0.000	28.090	0.00	0.49
86.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.025	0.000	28.090	0.00	1.87
90.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.025	0.000	28.325	0.00	1.15
90.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.025	0.000	28.325	0.00	4.37
91.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.025	0.000	28.441	0.00	0.57
91.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.025	0.000	28.441	0.00	2.18
95.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	28.650	0.00	1.06
95.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	28.650	0.00	4.06
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	28.961	0.00	1.64

Linear Appurtenance Segment Forces (Factored)

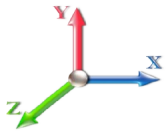
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	28.961	0.00	6.24
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	29.260	0.00	1.64
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	29.260	0.00	6.24
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	29.548	0.00	1.64
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	29.548	0.00	6.24
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	29.826	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	29.826	0.00	6.24
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	30.094	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	30.094	0.00	6.24
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	30.354	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	30.354	0.00	6.24
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	30.605	0.00	1.64
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	30.605	0.00	6.24
131.25	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	30.667	0.00	0.41
131.25	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	30.667	0.00	1.56
135.00	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	30.850	0.00	1.23
135.00	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	30.850	0.00	4.68
135.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.032	0.000	30.874	0.00	0.16
135.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.032	0.000	30.874	0.00	0.62
137.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.031	0.000	30.945	0.00	0.49
137.00	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.031	0.000	30.945	0.00	1.87
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	31.087	0.00	0.98
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	31.087	0.00	3.74
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	31.317	0.00	1.64
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	31.317	0.00	6.24
147.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.033	0.000	31.408	0.00	0.66
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.033	0.000	31.408	0.00	2.50
150.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	31.541	0.00	0.98
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	31.541	0.00	3.74
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	31.760	0.00	1.64
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	31.760	0.00	6.24
157.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.036	0.000	31.846	0.00	0.66
157.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.036	0.000	31.846	0.00	2.50
160.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.036	0.000	31.973	0.00	0.98
160.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.036	0.000	31.973	0.00	3.74
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	32.181	0.00	1.64
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	32.181	0.00	6.24
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.038	0.000	32.262	0.00	0.66
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.038	0.000	32.262	0.00	2.50
170.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	32.384	0.00	0.98
170.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	32.384	0.00	3.74
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.040	0.000	32.582	0.00	1.64
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.040	0.000	32.582	0.00	6.24
176.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.041	0.000	32.621	0.00	0.33
176.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.041	0.000	32.621	0.00	1.25
										Totals:	**0.0**	**277.3**

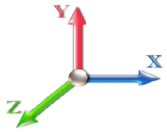
Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	-61.61	-36.77	-0.19	-4687.7	0.00	4687.78	6372.54	3186.27	14661.2	7341.49	0.00	0.000	0.000	0.648
5.00	-59.42	-36.44	-0.19	-4503.9	0.00	4503.92	6292.68	3146.34	14220.7	7120.95	0.10	-0.185	0.000	0.642
10.00	-57.26	-36.10	-0.19	-4321.7	0.00	4321.74	6211.66	3105.83	13784.2	6902.39	0.39	-0.373	0.000	0.635
15.00	-55.13	-35.75	-0.19	-4141.2	0.00	4141.27	6129.50	3064.75	13351.9	6685.89	0.89	-0.563	0.000	0.629
20.00	-53.03	-35.38	-0.19	-3962.5	0.00	3962.50	6046.18	3023.09	12923.8	6471.51	1.58	-0.755	0.000	0.621
25.00	-50.97	-34.98	-0.19	-3785.6	0.00	3785.60	5961.72	2980.86	12500.0	6259.33	2.47	-0.949	0.000	0.613
30.00	-48.94	-34.56	-0.19	-3610.7	0.00	3610.71	5876.11	2938.05	12080.8	6049.42	3.57	-1.145	0.000	0.605
35.00	-46.95	-34.12	-0.19	-3437.9	0.00	3437.92	5789.35	2894.67	11666.3	5841.84	4.88	-1.344	0.000	0.597
40.00	-45.02	-33.62	-0.19	-3267.3	0.00	3267.35	5679.25	2839.63	11212.8	5614.75	6.39	-1.544	0.000	0.590
42.75	-43.96	-33.36	-0.19	-3174.8	0.00	3174.88	5615.38	2807.69	10960.7	5488.51	7.31	-1.656	0.000	0.586
45.00	-42.46	-33.16	-0.19	-3099.8	0.00	3099.82	5563.11	2781.56	10756.6	5386.29	8.12	-1.749	0.000	0.583
49.00	-39.90	-32.68	-0.19	-2967.2	0.00	2967.20	4756.80	2378.40	9239.06	4626.40	9.65	-1.913	0.000	0.650
50.00	-39.51	-32.65	-0.19	-2934.5	0.00	2934.52	4742.51	2371.25	9172.60	4593.12	10.06	-1.955	0.000	0.647
55.00	-37.81	-32.15	-0.19	-2771.2	-0.01	2771.29	4670.33	2335.16	8842.49	4427.82	12.22	-2.176	0.000	0.634
60.00	-36.14	-31.65	-0.19	-2610.5	-0.01	2610.52	4597.00	2298.50	8516.13	4264.39	14.62	-2.398	0.000	0.620
65.00	-34.50	-31.14	-0.19	-2452.2	-0.01	2452.27	4522.52	2261.26	8193.68	4102.93	17.25	-2.620	0.000	0.606
70.00	-32.89	-30.62	-0.19	-2296.5	-0.01	2296.56	4446.89	2223.45	7875.26	3943.48	20.11	-2.844	0.000	0.590
75.00	-31.32	-30.10	-0.19	-2143.4	-0.01	2143.44	4354.69	2177.34	7534.33	3772.77	23.21	-3.067	0.000	0.576
80.00	-29.78	-29.57	-0.19	-1992.9	-0.01	1992.93	4253.06	2126.53	7185.02	3597.85	26.54	-3.290	0.000	0.561
85.00	-28.31	-29.00	-0.19	-1845.0	-0.01	1845.07	4151.43	2075.72	6843.99	3427.08	30.10	-3.512	0.000	0.545
86.50	-27.84	-28.87	-0.19	-1801.5	-0.01	1801.57	4120.95	2060.47	6743.30	3376.66	31.22	-3.580	0.000	0.540
90.00	-26.14	-28.42	-0.19	-1700.5	-0.01	1700.53	4049.81	2024.90	6511.26	3260.47	33.90	-3.736	0.000	0.528
91.75	-25.27	-28.22	-0.19	-1650.8	-0.01	1650.80	3441.70	1720.85	5608.94	2808.64	35.28	-3.815	0.000	0.595
95.00	-24.40	-27.89	-0.19	-1559.0	-0.01	1559.07	3401.05	1700.53	5452.51	2730.31	37.93	-3.958	0.000	0.578
100.00	-23.12	-27.36	-0.19	-1419.6	-0.01	1419.61	3337.56	1668.78	5214.58	2611.16	42.20	-4.194	0.000	0.551
105.00	-21.86	-26.82	-0.19	-1282.8	-0.01	1282.83	3272.92	1636.46	4980.08	2493.74	46.71	-4.425	0.000	0.521
110.00	-20.64	-26.28	-0.19	-1148.7	-0.01	1148.74	3194.68	1597.34	4730.71	2368.87	51.46	-4.650	0.000	0.492
115.00	-19.45	-25.74	-0.19	-1017.3	-0.01	1017.35	3107.57	1553.79	4474.96	2240.81	56.44	-4.868	0.000	0.461
120.00	-18.29	-25.20	-0.19	-888.67	-0.01	888.67	3020.47	1510.23	4226.32	2116.30	61.65	-5.075	0.000	0.426
125.00	-17.16	-24.66	-0.19	-762.69	-0.01	762.69	2933.36	1466.68	3984.78	1995.35	67.06	-5.271	-0.001	0.388
130.00	-16.09	-24.10	-0.19	-639.41	-0.01	639.41	2846.25	1423.13	3750.35	1877.96	72.68	-5.453	-0.001	0.346
131.25	-15.80	-23.98	-0.20	-609.29	-0.01	609.29	2824.47	1412.24	3692.86	1849.17	74.11	-5.497	-0.001	0.335
135.00	-14.64	-23.52	-0.20	-519.37	-0.01	519.37	2759.14	1379.57	3523.03	1764.13	78.47	-5.620	-0.001	0.300
135.50	-14.48	-23.46	-0.20	-507.61	-0.01	507.61	1734.08	867.04	2260.78	1132.07	79.06	-5.636	-0.001	0.457
137.00	-11.81	-18.62	0.00	-472.41	0.00	472.41	1723.43	861.72	2225.81	1114.56	80.84	-5.682	-0.001	0.431
140.00	-11.37	-18.33	0.00	-416.55	0.00	416.55	1701.83	850.91	2156.25	1079.73	84.44	-5.804	-0.001	0.393
145.00	-10.71	-17.82	0.00	-324.90	0.00	324.90	1664.90	832.45	2041.54	1022.29	90.61	-5.983	-0.001	0.325
147.00	-10.02	-16.81	0.00	-289.26	0.00	289.26	1649.80	824.90	1996.11	999.54	93.13	-6.049	-0.001	0.296
150.00	-9.65	-16.52	0.00	-238.82	0.00	238.82	1626.81	813.41	1928.48	965.67	96.95	-6.137	-0.001	0.254
155.00	-9.07	-16.03	0.00	-156.21	0.00	156.21	1587.58	793.79	1817.22	909.96	103.43	-6.253	-0.001	0.178
157.00	-5.15	-9.84	0.00	-124.15	0.00	124.15	1571.57	785.79	1773.24	887.94	106.05	-6.290	-0.001	0.143
160.00	-4.83	-9.56	0.00	-94.62	0.00	94.62	1547.20	773.60	1707.88	855.21	110.01	-6.335	-0.001	0.114
165.00	-4.31	-9.08	0.00	-46.84	0.00	46.84	1505.67	752.84	1600.62	801.50	116.67	-6.386	-0.001	0.061
167.00	-2.08	-3.23	0.00	-28.68	0.00	28.68	1488.74	744.37	1558.33	780.32	119.34	-6.399	-0.001	0.038
170.00	-1.81	-2.96	0.00	-18.98	0.00	18.98	1462.99	731.50	1495.57	748.90	123.36	-6.411	-0.001	0.027
175.00	-1.38	-2.52	0.00	-4.17	0.00	4.17	1411.70	705.85	1385.55	693.80	130.06	-6.421	-0.001	0.007
176.00	0.00	-2.35	0.00	-1.65	0.00	1.65	1400.09	700.04	1362.73	682.38	131.40	-6.422	-0.001	0.002

Calculated Forces

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

Wind Loading - Shaft

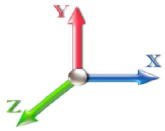
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	427.94	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	420.48	0.650	0.000	5.00	23.718	15.42	527.7	0.0	1350.0
10.00		1.00	0.85	19.450	21.40	413.03	0.650	0.000	5.00	23.301	15.15	518.5	0.0	1326.1
15.00		1.00	0.85	19.450	21.40	405.57	0.650	0.000	5.00	22.884	14.87	509.2	0.0	1302.2
20.00		1.00	0.90	20.638	22.70	410.09	0.650	0.000	5.00	22.467	14.60	530.4	0.0	1278.2
25.00		1.00	0.95	21.630	23.79	411.98	0.650	0.000	5.00	22.050	14.33	545.6	0.0	1254.3
30.00		1.00	0.98	22.477	24.72	411.95	0.650	0.000	5.00	21.634	14.06	556.3	0.0	1230.4
35.00		1.00	1.01	23.218	25.54	410.54	0.650	0.000	5.00	21.217	13.79	563.5	0.0	1206.4
40.00		1.00	1.04	23.880	26.27	408.09	0.650	0.000	5.00	20.800	13.52	568.2	0.0	1182.5
42.75	Bot - Section 2	1.00	1.06	24.217	26.64	406.38	0.650	0.000	2.75	11.262	7.32	312.0	0.0	640.2
45.00		1.00	1.07	24.479	26.93	404.82	0.650	0.000	2.25	9.288	6.04	260.1	0.0	980.9
49.00	Top - Section 1	1.00	1.09	24.922	27.41	401.71	0.650	0.000	4.00	16.303	10.60	464.8	0.0	1721.5
50.00		1.00	1.09	25.029	27.53	408.39	0.650	0.000	1.00	4.034	2.62	115.5	0.0	200.9
55.00		1.00	1.12	25.536	28.09	403.97	0.650	0.000	5.00	19.920	12.95	581.9	0.0	991.8
60.00		1.00	1.14	26.008	28.61	399.06	0.650	0.000	5.00	19.503	12.68	580.3	0.0	970.8
65.00		1.00	1.16	26.450	29.09	393.75	0.650	0.000	5.00	19.086	12.41	577.5	0.0	949.9
70.00		1.00	1.17	26.866	29.55	388.07	0.650	0.000	5.00	18.670	12.14	573.8	0.0	928.9
75.00		1.00	1.19	27.259	29.98	382.07	0.650	0.000	5.00	18.253	11.86	569.2	0.0	908.0
80.00		1.00	1.21	27.632	30.39	375.79	0.650	0.000	5.00	17.836	11.59	563.8	0.0	887.0
85.00		1.00	1.22	27.987	30.79	369.25	0.650	0.000	5.00	17.419	11.32	557.7	0.0	866.1
86.50	Bot - Section 3	1.00	1.23	28.090	30.90	367.25	0.650	0.000	1.50	5.145	3.34	165.3	0.0	255.7
90.00		1.00	1.24	28.325	31.16	362.49	0.650	0.000	3.50	12.080	7.85	391.4	0.0	1105.0
91.75	Top - Section 2	1.00	1.24	28.441	31.28	360.07	0.650	0.000	1.75	5.963	3.88	194.0	0.0	545.3
95.00		1.00	1.25	28.650	31.51	362.40	0.650	0.000	3.25	10.940	7.11	358.5	0.0	466.8
100.00		1.00	1.27	28.961	31.86	355.26	0.650	0.000	5.00	16.486	10.72	546.2	0.0	703.3
105.00		1.00	1.28	29.260	32.19	347.95	0.650	0.000	5.00	16.069	10.45	537.9	0.0	685.4
110.00		1.00	1.29	29.548	32.50	340.47	0.650	0.000	5.00	15.653	10.17	529.1	0.0	667.4
115.00		1.00	1.30	29.826	32.81	332.83	0.650	0.000	5.00	15.236	9.90	519.9	0.0	649.5
120.00		1.00	1.32	30.094	33.10	325.06	0.650	0.000	5.00	14.819	9.63	510.2	0.0	631.5
125.00		1.00	1.33	30.354	33.39	317.14	0.650	0.000	5.00	14.402	9.36	500.1	0.0	613.6
130.00		1.00	1.34	30.605	33.67	309.11	0.650	0.000	5.00	13.986	9.09	489.7	0.0	595.6
131.25	Bot - Section 4	1.00	1.34	30.667	33.73	307.08	0.650	0.000	1.25	3.431	2.23	120.4	0.0	146.1
135.00		1.00	1.35	30.850	33.93	300.95	0.650	0.000	3.75	10.296	6.69	363.4	0.0	724.9
135.50	Top - Section 3	1.00	1.35	30.874	33.96	300.13	0.650	0.000	0.50	1.355	0.88	47.9	0.0	95.4
137.00	Appurtenance(s)	1.00	1.35	30.945	34.04	302.42	0.650	0.000	1.50	4.040	2.63	143.0	0.0	115.1
140.00		1.00	1.36	31.087	34.20	297.46	0.650	0.000	3.00	7.968	5.18	283.4	0.0	227.0
145.00		1.00	1.37	31.317	34.45	289.10	0.650	0.000	5.00	12.947	8.42	463.8	0.0	368.8
147.00	Appurtenance(s)	1.00	1.37	31.408	34.55	285.73	0.650	0.000	2.00	5.062	3.29	181.9	0.0	144.2
150.00		1.00	1.38	31.541	34.70	280.64	0.650	0.000	3.00	7.468	4.85	269.5	0.0	212.6
155.00		1.00	1.39	31.760	34.94	272.09	0.650	0.000	5.00	12.113	7.87	440.1	0.0	344.8
157.00	Appurtenance(s)	1.00	1.39	31.846	35.03	268.64	0.650	0.000	2.00	4.729	3.07	172.3	0.0	134.6
160.00		1.00	1.40	31.973	35.17	263.44	0.650	0.000	3.00	6.968	4.53	254.9	0.0	198.3
165.00		1.00	1.41	32.181	35.40	254.71	0.650	0.000	5.00	11.280	7.33	415.3	0.0	320.9
167.00	Appurtenance(s)	1.00	1.41	32.262	35.49	251.19	0.650	0.000	2.00	4.395	2.86	162.2	0.0	125.0
170.00		1.00	1.42	32.384	35.62	245.89	0.650	0.000	3.00	6.468	4.20	239.6	0.0	183.9
175.00		1.00	1.42	32.582	35.84	236.99	0.650	0.000	5.00	10.446	6.79	389.4	0.0	296.9
176.00	Appurtenance(s)	1.00	1.43	32.621	35.88	235.20	0.650	0.000	1.00	2.039	1.33	76.1	0.0	58.0

Wind Loading - Shaft

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Totals:	**176.00**	**18,241.5**	**30,791.6**

Discrete Appurtenance Forces

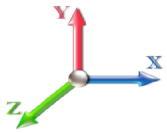
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	176.00	Lightning Rod	1	32.756	36.032	1.00	1.00	1.05	31.50	0.000	3.500	60.53	0.00	211.87
2	176.00	T-Arms	3	32.621	35.883	0.56	0.75	13.50	945.00	0.000	0.000	775.07	0.00	0.00
3	176.00	MHA FE15501P77/75	12	32.660	35.926	0.65	1.00	7.25	118.80	0.000	1.000	416.97	0.00	416.97
4	176.00	RR90-17-02DP	6	32.660	35.926	0.68	1.00	17.79	72.90	0.000	1.000	1022.53	0.00	1022.53
5	167.00	DB-T16Z-8AB-0Z	1	32.262	35.489	1.00	1.00	4.80	17.01	0.000	0.000	272.55	0.00	0.00
6	167.00	Low Profile	1	32.262	35.489	1.00	1.00	22.00	1350.00	0.000	0.000	1249.20	0.00	0.00
7	167.00	RRH2X60-AWS	3	32.262	35.489	0.61	0.80	6.38	162.00	0.000	0.000	362.50	0.00	0.00
8	167.00	RRH2X60-700	3	32.262	35.489	0.61	0.80	6.38	162.00	0.000	0.000	362.50	0.00	0.00
9	167.00	SBNHH-1D65B	6	32.262	35.489	0.66	0.80	32.51	216.00	0.000	0.000	1845.95	0.00	0.00
10	167.00	LPA-80063-4CF-EDIN-5	4	32.262	35.489	0.74	0.80	18.30	72.00	0.000	0.000	1039.25	0.00	0.00
11	167.00	APL868013	2	32.262	35.489	0.84	0.90	4.79	11.34	0.000	0.000	271.85	0.00	0.00
12	157.00	Sitepro PRK-SFS-H-L	1	31.846	35.030	1.00	1.00	6.70	207.00	0.000	0.000	375.53	0.00	0.00
13	157.00	Sitepro HRK14-U	1	31.846	35.030	1.00	1.00	8.13	272.12	0.000	0.000	455.67	0.00	0.00
14	157.00	Sitepro PRK-1245L	1	31.846	35.030	1.00	1.00	9.50	418.42	0.000	0.000	532.46	0.00	0.00
15	157.00	Commscope	3	31.846	35.030	0.60	0.80	22.09	208.98	0.000	0.000	1237.89	0.00	0.00
16	157.00	RFS APXVTM14-C-I20	3	31.846	35.030	0.62	0.80	11.72	151.74	0.000	0.000	656.68	0.00	0.00
17	157.00	ALU TD-RRH8x20-25	3	31.846	35.030	0.54	0.80	6.51	189.00	0.000	0.000	365.01	0.00	0.00
18	157.00	ALU 1900 Mhz	3	31.846	35.030	0.54	0.80	4.45	162.00	0.000	0.000	249.65	0.00	0.00
19	157.00	Low Profile Platform	1	31.846	35.030	1.00	1.00	22.00	1350.00	0.000	0.000	1233.07	0.00	0.00
20	157.00	ALU 800 Mhz	6	31.846	35.030	0.54	0.80	8.01	286.20	0.000	0.000	448.83	0.00	0.00
21	147.00	742 213	3	31.408	34.548	0.58	0.80	8.85	59.40	0.000	0.000	489.06	0.00	0.00
22	147.00	Flush Mount	1	31.408	34.548	1.00	1.00	5.00	315.00	0.000	0.000	276.39	0.00	0.00
23	137.00	LGP21903	6	30.945	34.040	0.67	0.80	1.09	27.00	4.341	0.000	59.29	160.85	0.00
24	137.00	DC6-48-60-18-8F	1	30.945	34.040	1.00	1.00	1.47	29.52	0.000	0.000	80.06	0.00	0.00
25	137.00	RRUS-11	3	30.945	34.040	0.54	0.80	7.21	148.50	0.000	0.000	392.87	0.00	0.00
26	137.00	7770.00	6	30.945	34.040	0.58	0.80	19.27	189.00	0.000	0.000	1049.62	0.00	0.00
27	137.00	LGP21401	6	30.945	34.040	0.54	0.80	4.15	102.60	0.000	0.000	225.95	0.00	0.00
28	137.00	RRUS 32-B2	3	30.945	34.040	0.54	0.80	4.41	143.10	0.000	0.000	239.96	0.00	0.00
29	137.00	HPA-65R-BUU-H6	3	30.945	34.040	0.68	0.80	19.71	137.70	0.000	0.000	1073.28	0.00	0.00
30	137.00	7020	12	30.945	34.040	0.40	0.80	1.92	23.76	0.000	0.000	104.57	0.00	0.00
31	137.00	Smart Bias T 1001940	3	30.945	34.040	0.54	0.80	0.14	5.40	7.041	0.000	7.88	34.68	0.00
32	137.00	LP Platform-Round	1	30.945	34.040	1.00	1.00	22.00	1350.00	0.000	0.000	1198.20	0.00	0.00
							Totals:		**8,934.99**			**18,430.82**		

Total Applied Force Summary

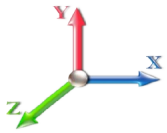
Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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		527.74	1558.55	0.00	0.00
10.00		518.47	1534.61	0.00	0.00
15.00		509.20	1510.67	0.00	0.00
20.00		530.44	1486.74	0.00	0.00
25.00		545.64	1462.80	0.00	0.00
30.00		556.27	1438.86	0.00	0.00
35.00		563.55	1414.92	0.00	0.00
40.00		568.23	1390.98	0.00	0.00
42.75		312.01	754.84	0.00	0.00
45.00		260.09	1074.77	0.00	0.00
49.00		464.81	1888.25	0.00	0.00
50.00		115.50	242.57	0.00	0.00
55.00		581.92	1200.27	0.00	0.00
60.00		580.28	1179.33	0.00	0.00
65.00		577.53	1158.38	0.00	0.00
70.00		573.80	1137.44	0.00	0.00
75.00		569.20	1116.49	0.00	0.00
80.00		563.81	1095.54	0.00	0.00
85.00		557.71	1074.60	0.00	0.00
86.50		165.32	318.30	0.00	0.00
90.00		391.45	1250.93	0.00	0.00
91.75		194.03	618.32	0.00	0.00
95.00		358.55	602.31	0.00	0.00
100.00		546.21	911.82	0.00	0.00
105.00		537.90	893.87	0.00	0.00
110.00		529.10	875.91	0.00	0.00
115.00		519.85	857.96	0.00	0.00
120.00		510.18	840.01	0.00	0.00
125.00		500.12	822.05	0.00	0.00
130.00		489.67	804.10	0.00	0.00
131.25		120.38	198.22	0.00	0.00
135.00		363.37	881.32	0.00	0.00
135.50		47.86	116.24	0.00	0.00
137.00	(44) attachments	4574.72	2334.24	195.53	0.00
140.00		283.37	311.00	0.00	0.00
145.00		463.84	508.76	0.00	0.00
147.00	(4) attachments	947.32	574.55	0.00	0.00
150.00		269.47	279.79	0.00	0.00
155.00		440.11	456.75	0.00	0.00
157.00	(22) attachments	5727.06	3424.81	0.00	0.00
160.00		254.86	258.30	0.00	0.00
165.00		415.26	420.93	0.00	0.00
167.00	(20) attachments	5566.01	2155.37	0.00	0.00
170.00		239.61	221.15	0.00	0.00
175.00		389.36	359.01	0.00	0.00
176.00	(22) attachments	2351.20	1238.57	0.00	1651.36

Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 22

Tower Engineering Solutions

Totals:	**36,672.36**	**46,255.18**	**195.53**	**1,651.36**

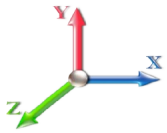
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	20.638	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	20.638	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	21.630	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	21.630	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	22.477	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	22.477	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	23.218	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	23.218	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	23.880	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	23.880	0.00	4.68
42.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.021	0.000	24.217	0.00	0.68
42.75	Step bolts (ladder)	Yes	2.75	0.000	0.63	0.14	0.00	0.021	0.000	24.217	0.00	2.57
45.00	Safety Cable	Yes	2.25	0.000	0.38	0.07	0.00	0.021	0.000	24.479	0.00	0.55
45.00	Step bolts (ladder)	Yes	2.25	0.000	0.63	0.12	0.00	0.021	0.000	24.479	0.00	2.11
49.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	24.922	0.00	0.98
49.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	24.922	0.00	3.74
50.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	25.029	0.00	0.25
50.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	25.029	0.00	0.94
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	25.536	0.00	1.23
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	25.536	0.00	4.68
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	26.008	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	26.008	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	26.450	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	26.450	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	26.866	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	26.866	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	27.259	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	27.259	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	27.632	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	27.632	0.00	4.68
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	27.987	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	27.987	0.00	4.68
86.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.025	0.000	28.090	0.00	0.37
86.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.025	0.000	28.090	0.00	1.40
90.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.025	0.000	28.325	0.00	0.86
90.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.025	0.000	28.325	0.00	3.28
91.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.025	0.000	28.441	0.00	0.43
91.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.025	0.000	28.441	0.00	1.64
95.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	28.650	0.00	0.80
95.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	28.650	0.00	3.04
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	28.961	0.00	1.23

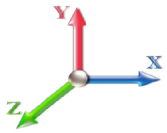
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	28.961	0.00	4.68
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	29.260	0.00	1.23
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	29.260	0.00	4.68
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	29.548	0.00	1.23
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	29.548	0.00	4.68
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	29.826	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	29.826	0.00	4.68
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	30.094	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	30.094	0.00	4.68
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	30.354	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	30.354	0.00	4.68
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	30.605	0.00	1.23
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	30.605	0.00	4.68
131.25	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	30.667	0.00	0.31
131.25	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	30.667	0.00	1.17
135.00	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	30.850	0.00	0.92
135.00	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	30.850	0.00	3.51
135.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.032	0.000	30.874	0.00	0.12
135.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.032	0.000	30.874	0.00	0.47
137.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.031	0.000	30.945	0.00	0.37
137.00	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.031	0.000	30.945	0.00	1.40
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	31.087	0.00	0.74
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	31.087	0.00	2.81
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	31.317	0.00	1.23
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	31.317	0.00	4.68
147.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.033	0.000	31.408	0.00	0.49
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.033	0.000	31.408	0.00	1.87
150.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	31.541	0.00	0.74
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	31.541	0.00	2.81
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	31.760	0.00	1.23
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	31.760	0.00	4.68
157.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.036	0.000	31.846	0.00	0.49
157.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.036	0.000	31.846	0.00	1.87
160.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.036	0.000	31.973	0.00	0.74
160.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.036	0.000	31.973	0.00	2.81
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	32.181	0.00	1.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	32.181	0.00	4.68
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.038	0.000	32.262	0.00	0.49
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.038	0.000	32.262	0.00	1.87
170.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	32.384	0.00	0.74
170.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	32.384	0.00	2.81
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.040	0.000	32.582	0.00	1.23
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.040	0.000	32.582	0.00	4.68
176.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.041	0.000	32.621	0.00	0.25
176.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.041	0.000	32.621	0.00	0.94
										Totals:	**0.0**	**208.0**

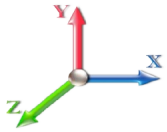
Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	-46.20	-36.75	-0.19	-4627.5	0.00	4627.55	6372.54	3186.27	14661.2	7341.49	0.00	0.000	0.000	0.638
5.00	-44.52	-36.36	-0.19	-4443.8	0.00	4443.82	6292.68	3146.34	14220.7	7120.95	0.10	-0.183	0.000	0.631
10.00	-42.87	-35.97	-0.19	-4262.0	0.00	4262.02	6211.66	3105.83	13784.2	6902.39	0.39	-0.368	0.000	0.625
15.00	-41.25	-35.59	-0.19	-4082.1	0.00	4082.16	6129.50	3064.75	13351.9	6685.89	0.87	-0.555	0.000	0.617
20.00	-39.65	-35.17	-0.19	-3904.2	0.00	3904.22	6046.18	3023.09	12923.8	6471.51	1.56	-0.744	0.000	0.610
25.00	-38.08	-34.73	-0.19	-3728.3	0.00	3728.36	5961.72	2980.86	12500.0	6259.33	2.44	-0.936	0.000	0.602
30.00	-36.54	-34.28	-0.19	-3554.6	0.00	3554.69	5876.11	2938.05	12080.8	6049.42	3.52	-1.129	0.000	0.594
35.00	-35.02	-33.80	-0.19	-3383.3	0.00	3383.32	5789.35	2894.67	11666.3	5841.84	4.81	-1.324	0.000	0.585
40.00	-33.55	-33.29	-0.19	-3214.3	0.00	3214.31	5679.25	2839.63	11212.8	5614.75	6.30	-1.521	0.000	0.579
42.75	-32.75	-33.01	-0.19	-3122.7	0.00	3122.77	5615.38	2807.69	10960.7	5488.51	7.21	-1.632	0.000	0.575
45.00	-31.61	-32.79	-0.19	-3048.4	0.00	3048.49	5563.11	2781.56	10756.6	5386.29	8.00	-1.723	0.000	0.572
49.00	-29.68	-32.32	-0.19	-2917.3	0.00	2917.32	4756.80	2378.40	9239.06	4626.40	9.51	-1.884	0.000	0.637
50.00	-29.37	-32.26	-0.19	-2885.0	0.00	2885.00	4742.51	2371.25	9172.60	4593.12	9.91	-1.925	0.000	0.634
55.00	-28.07	-31.75	-0.19	-2723.6	0.00	2723.68	4670.33	2335.16	8842.49	4427.82	12.05	-2.142	0.000	0.621
60.00	-26.79	-31.22	-0.19	-2564.9	0.00	2564.95	4597.00	2298.50	8516.13	4264.39	14.41	-2.361	0.000	0.607
65.00	-25.55	-30.69	-0.19	-2408.8	0.00	2408.84	4522.52	2261.26	8193.68	4102.93	17.00	-2.579	0.000	0.593
70.00	-24.32	-30.16	-0.19	-2255.3	-0.01	2255.37	4446.89	2223.45	7875.26	3943.48	19.81	-2.799	0.000	0.578
75.00	-23.12	-29.62	-0.19	-2104.5	-0.01	2104.57	4354.69	2177.34	7534.33	3772.77	22.86	-3.018	0.000	0.563
80.00	-21.95	-29.09	-0.19	-1956.4	-0.01	1956.46	4253.06	2126.53	7185.02	3597.85	26.14	-3.237	0.000	0.549
85.00	-20.84	-28.52	-0.19	-1811.0	-0.01	1811.03	4151.43	2075.72	6843.99	3427.08	29.64	-3.455	0.000	0.534
86.50	-20.47	-28.37	-0.19	-1768.2	-0.01	1768.26	4120.95	2060.47	6743.30	3376.66	30.74	-3.522	0.000	0.529
90.00	-19.20	-27.94	-0.19	-1668.9	-0.01	1668.95	4049.81	2024.90	6511.26	3260.47	33.38	-3.675	0.000	0.517
91.75	-18.54	-27.74	-0.19	-1620.0	-0.01	1620.06	3441.70	1720.85	5608.94	2808.64	34.74	-3.752	0.000	0.582
95.00	-17.87	-27.40	-0.19	-1529.8	-0.01	1529.89	3401.05	1700.53	5452.51	2730.31	37.34	-3.893	0.000	0.566
100.00	-16.89	-26.86	-0.19	-1392.8	-0.01	1392.88	3337.56	1668.78	5214.58	2611.16	41.54	-4.124	0.000	0.539
105.00	-15.94	-26.32	-0.19	-1258.5	-0.01	1258.56	3272.92	1636.46	4980.08	2493.74	45.98	-4.351	0.000	0.510
110.00	-15.01	-25.78	-0.19	-1126.9	-0.01	1126.95	3194.68	1597.34	4730.71	2368.87	50.65	-4.572	0.000	0.481
115.00	-14.10	-25.25	-0.19	-998.03	-0.01	998.03	3107.57	1553.79	4474.96	2240.81	55.55	-4.785	0.000	0.450
120.00	-13.22	-24.71	-0.19	-871.79	-0.01	871.79	3020.47	1510.23	4226.32	2116.30	60.66	-4.989	0.000	0.417
125.00	-12.37	-24.18	-0.19	-748.22	-0.01	748.22	2933.36	1466.68	3984.78	1995.35	65.99	-5.181	-0.001	0.379
130.00	-11.57	-23.64	-0.20	-627.31	-0.01	627.31	2846.25	1423.13	3750.35	1877.96	71.50	-5.359	-0.001	0.338
131.25	-11.35	-23.52	-0.20	-597.75	-0.01	597.75	2824.47	1412.24	3692.86	1849.17	72.91	-5.403	-0.001	0.328
135.00	-10.48	-23.09	-0.20	-509.55	-0.01	509.55	2759.14	1379.57	3523.03	1764.13	77.20	-5.523	-0.001	0.293
135.50	-10.36	-23.03	-0.20	-498.01	-0.01	498.01	1734.08	867.04	2260.78	1132.07	77.78	-5.539	-0.001	0.447
137.00	-8.45	-18.27	0.00	-463.45	0.00	463.45	1723.43	861.72	2225.81	1114.56	79.52	-5.584	-0.001	0.421
140.00	-8.12	-17.98	0.00	-408.65	0.00	408.65	1701.83	850.91	2156.25	1079.73	83.06	-5.704	-0.001	0.384
145.00	-7.63	-17.48	0.00	-318.77	0.00	318.77	1664.90	832.45	2041.54	1022.29	89.13	-5.880	-0.001	0.317
147.00	-7.13	-16.49	0.00	-283.81	0.00	283.81	1649.80	824.90	1996.11	999.54	91.60	-5.944	-0.001	0.289
150.00	-6.85	-16.20	0.00	-234.35	0.00	234.35	1626.81	813.41	1928.48	965.67	95.36	-6.030	-0.001	0.247
155.00	-6.43	-15.72	0.00	-153.34	0.00	153.34	1587.58	793.79	1817.22	909.96	101.73	-6.144	-0.001	0.173
157.00	-3.63	-9.67	0.00	-121.89	0.00	121.89	1571.57	785.79	1773.24	887.94	104.30	-6.180	-0.001	0.140
160.00	-3.39	-9.39	0.00	-92.90	0.00	92.90	1547.20	773.60	1707.88	855.21	108.19	-6.224	-0.001	0.111
165.00	-3.01	-8.93	0.00	-45.96	0.00	45.96	1505.67	752.84	1600.62	801.50	114.73	-6.275	-0.001	0.059
167.00	-1.48	-3.16	0.00	-28.11	0.00	28.11	1488.74	744.37	1558.33	780.32	117.36	-6.287	-0.001	0.037
170.00	-1.29	-2.90	0.00	-18.62	0.00	18.62	1462.99	731.50	1495.57	748.90	121.30	-6.299	-0.001	0.026
175.00	-0.97	-2.47	0.00	-4.12	0.00	4.12	1411.70	705.85	1385.55	693.80	127.90	-6.310	-0.001	0.007
176.00	0.00	-2.35	0.00	-1.65	0.00	1.65	1400.09	700.04	1362.73	682.38	129.21	-6.310	-0.001	0.002

Calculated Forces

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

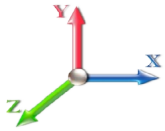
Wind Loading - Shaft

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

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	25.098	30.12	171.2	593.6	2393.6
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	24.780	29.74	169.0	626.5	2394.7
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	24.424	29.31	166.6	641.9	2378.1
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	5.00	24.053	28.86	174.1	649.5	2353.8
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	23.671	28.41	179.6	652.7	2325.1
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	23.285	27.94	183.6	652.9	2293.4
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	22.893	27.47	186.4	651.0	2259.5
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	22.499	27.00	188.4	647.5	2224.1
42.75	Bot - Section 2	1.00	1.06	6.434	7.08	0.00	1.200	2.052	2.75	12.203	14.64	103.6	354.8	1208.3
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	2.25	10.061	12.07	86.4	294.3	1602.2
49.00	Top - Section 1	1.00	1.09	6.622	7.28	0.00	1.200	2.081	4.00	17.690	21.23	154.6	519.7	2814.9
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	1.00	4.381	5.26	38.5	129.7	397.5
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	5.00	21.674	26.01	194.1	641.9	1964.2
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	21.273	25.53	194.0	634.6	1929.0
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	5.00	20.870	25.04	193.6	626.7	1893.2
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	5.00	20.466	24.56	192.8	618.3	1856.9
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	20.062	24.07	191.8	609.4	1820.0
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	5.00	19.657	23.59	190.5	600.0	1782.7
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	19.251	23.10	189.0	590.3	1745.1
86.50	Bot - Section 3	1.00	1.23	7.464	8.21	0.00	1.200	2.202	1.50	5.695	6.83	56.1	176.2	517.2
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	3.50	13.370	16.04	132.8	413.4	1886.7
91.75	Top - Section 2	1.00	1.24	7.557	8.31	0.00	1.200	2.215	1.75	6.610	7.93	65.9	205.4	932.6
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	3.25	12.144	14.57	122.0	377.1	999.5
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	5.00	18.348	22.02	186.4	569.5	1507.3
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	5.00	17.941	21.53	184.1	558.6	1472.4
110.00		1.00	1.29	7.851	8.64	0.00	1.200	2.256	5.00	17.533	21.04	181.7	547.4	1437.3
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	5.00	17.124	20.55	179.1	536.0	1402.0
120.00		1.00	1.32	7.996	8.80	0.00	1.200	2.276	5.00	16.715	20.06	176.4	524.4	1366.4
125.00		1.00	1.33	8.065	8.87	0.00	1.200	2.285	5.00	16.306	19.57	173.6	512.6	1330.7
130.00		1.00	1.34	8.132	8.95	0.00	1.200	2.294	5.00	15.897	19.08	170.6	500.6	1294.7
131.25	Bot - Section 4	1.00	1.34	8.148	8.96	0.00	1.200	2.296	1.25	3.910	4.69	42.1	124.4	319.2
135.00		1.00	1.35	8.197	9.02	0.00	1.200	2.303	3.75	11.735	14.08	127.0	371.7	1338.3
135.50	Top - Section 3	1.00	1.35	8.203	9.02	0.00	1.200	2.303	0.50	1.547	1.86	16.8	49.4	176.6
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	2.306	1.50	4.617	5.54	50.1	147.2	300.7
140.00		1.00	1.36	8.260	9.09	0.00	1.200	2.311	3.00	9.124	10.95	99.5	289.9	592.6
145.00		1.00	1.37	8.321	9.15	0.00	1.200	2.319	5.00	14.879	17.86	163.4	470.7	962.4
147.00	Appurtenance(s)	1.00	1.37	8.345	9.18	0.00	1.200	2.322	2.00	5.836	7.00	64.3	186.3	378.5
150.00		1.00	1.38	8.381	9.22	0.00	1.200	2.327	3.00	8.631	10.36	95.5	274.9	558.4
155.00		1.00	1.39	8.439	9.28	0.00	1.200	2.335	5.00	14.059	16.87	156.6	445.3	905.0
157.00	Appurtenance(s)	1.00	1.39	8.462	9.31	0.00	1.200	2.338	2.00	5.508	6.61	61.5	176.1	355.5
160.00		1.00	1.40	8.495	9.34	0.00	1.200	2.342	3.00	8.139	9.77	91.3	259.4	523.8
165.00		1.00	1.41	8.551	9.41	0.00	1.200	2.349	5.00	13.237	15.88	149.4	419.3	847.1
167.00	Appurtenance(s)	1.00	1.41	8.572	9.43	0.00	1.200	2.352	2.00	5.179	6.21	58.6	165.6	332.3
170.00		1.00	1.42	8.604	9.46	0.00	1.200	2.356	3.00	7.646	9.17	86.8	243.7	488.9
175.00		1.00	1.42	8.657	9.52	0.00	1.200	2.363	5.00	12.415	14.90	141.9	392.8	788.7
176.00	Appurtenance(s)	1.00	1.43	8.667	9.53	0.00	1.200	2.364	1.00	2.433	2.92	27.8	78.0	155.3

Wind Loading - Shaft

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Totals:	**176.00**	**6,209.3**	**60,806.5**

Discrete Appurtenance Forces

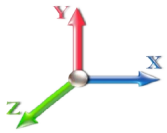
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

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 26

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	176.00	Lightning Rod	1	8.703	9.574	1.00	1.00	4.27	75.56	0.000	3.500	40.84	0.00	142.94
2	176.00	T-Arms	3	8.667	9.534	0.56	0.75	29.46	2043.07	0.000	0.000	280.88	0.00	0.00
3	176.00	MHA FE15501P77/75	12	8.678	9.546	0.68	1.00	15.39	405.63	0.000	1.000	146.91	0.00	146.91
4	176.00	RR90-17-02DP	6	8.678	9.546	0.68	1.00	23.42	984.94	0.000	1.000	223.60	0.00	223.60
5	167.00	DB-T16Z-8AB-0Z	1	8.572	9.429	1.00	1.00	6.01	228.63	0.000	0.000	56.63	0.00	0.00
6	167.00	Low Profile	1	8.572	9.429	1.00	1.00	45.80	3264.05	0.000	0.000	431.90	0.00	0.00
7	167.00	RRH2X60-AWS	3	8.572	9.429	0.61	0.80	8.32	508.62	0.000	0.000	78.49	0.00	0.00
8	167.00	RRH2X60-700	3	8.572	9.429	0.61	0.80	8.32	508.62	0.000	0.000	78.49	0.00	0.00
9	167.00	SBNHH-1D65B	6	8.572	9.429	0.66	0.80	39.66	2041.39	0.000	0.000	373.93	0.00	0.00
10	167.00	LPA-80063-4CF-EDIN-5	4	8.572	9.429	0.74	0.80	25.90	872.61	0.000	0.000	244.19	0.00	0.00
11	167.00	APL868013	2	8.572	9.429	0.84	0.90	6.80	330.32	0.000	0.000	64.10	0.00	0.00
12	157.00	Sitepro PRK-SFS-H-L	1	8.462	9.308	1.00	1.00	16.10	605.12	0.000	0.000	149.83	0.00	0.00
13	157.00	Sitepro HRK14-U	1	8.462	9.308	1.00	1.00	18.77	1145.81	0.000	0.000	174.73	0.00	0.00
14	157.00	Sitepro PRK-1245L	1	8.462	9.308	1.00	1.00	22.82	897.51	0.000	0.000	212.44	0.00	0.00
15	157.00	Commscope	3	8.462	9.308	0.60	0.80	25.60	1228.70	0.000	0.000	238.25	0.00	0.00
16	157.00	RFS APXVTM14-C-I20	3	8.462	9.308	0.62	0.80	14.53	891.79	0.000	0.000	135.26	0.00	0.00
17	157.00	ALU TD-RRH8x20-25	3	8.462	9.308	0.54	0.80	8.31	727.95	0.000	0.000	77.34	0.00	0.00
18	157.00	ALU 1900 Mhz	3	8.462	9.308	0.54	0.80	7.19	479.57	0.000	0.000	66.89	0.00	0.00
19	157.00	Low Profile Platform	1	8.462	9.308	1.00	1.00	45.66	3253.19	0.000	0.000	424.96	0.00	0.00
20	157.00	ALU 800 Mhz	6	8.462	9.308	0.54	0.80	12.93	849.39	0.000	0.000	120.39	0.00	0.00
21	147.00	742 213	3	8.345	9.180	0.58	0.80	11.89	579.25	0.000	0.000	109.17	0.00	0.00
22	147.00	Flush Mount	1	8.345	9.180	1.00	1.00	9.64	710.14	0.000	0.000	88.53	0.00	0.00
23	137.00	LGP21903	6	8.222	9.044	0.67	0.80	3.21	79.34	4.341	0.000	29.01	125.91	0.00
24	137.00	DC6-48-60-18-8F	1	8.222	9.044	1.00	1.00	2.39	106.92	0.000	0.000	21.66	0.00	0.00
25	137.00	RRUS-11	3	8.222	9.044	0.54	0.80	10.45	477.49	0.000	0.000	94.49	0.00	0.00
26	137.00	7770.00	6	8.222	9.044	0.58	0.80	24.31	1403.18	0.000	0.000	219.85	0.00	0.00
27	137.00	LGP21401	6	8.222	9.044	0.54	0.80	7.70	390.68	0.000	0.000	69.64	0.00	0.00
28	137.00	RRUS 32-B2	3	8.222	9.044	0.54	0.80	6.47	638.45	0.000	0.000	58.55	0.00	0.00
29	137.00	HPA-65R-BUU-H6	3	8.222	9.044	0.68	0.80	23.46	1219.31	0.000	0.000	212.17	0.00	0.00
30	137.00	7020	12	8.222	9.044	0.40	0.80	4.99	159.06	0.000	0.000	45.14	0.00	0.00
31	137.00	Smart Bias T 1001940	3	8.222	9.044	0.54	0.80	0.64	8.22	7.041	0.000	5.81	40.94	0.00
32	137.00	LP Platform-Round	1	8.222	9.044	1.00	1.00	45.34	3229.47	0.000	0.000	410.04	0.00	0.00
							Totals:		**30,343.99**			**4,984.10**		

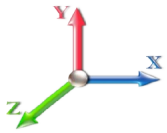
Total Applied Force Summary

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

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		171.21	2711.81	0.00	0.00
10.00		169.04	2718.28	0.00	0.00
15.00		166.62	2705.26	0.00	0.00
20.00		174.10	2683.64	0.00	0.00
25.00		179.58	2657.08	0.00	0.00
30.00		183.56	2627.23	0.00	0.00
35.00		186.43	2595.04	0.00	0.00
40.00		188.44	2561.07	0.00	0.00
42.75		103.65	1394.03	0.00	0.00
45.00		86.38	1754.45	0.00	0.00
49.00		154.63	3086.30	0.00	0.00
50.00		38.46	465.39	0.00	0.00
55.00		194.11	2304.75	0.00	0.00
60.00		194.04	2270.59	0.00	0.00
65.00		193.60	2235.73	0.00	0.00
70.00		192.85	2200.27	0.00	0.00
75.00		191.80	2164.26	0.00	0.00
80.00		190.50	2127.78	0.00	0.00
85.00		188.97	2090.88	0.00	0.00
86.50		56.11	620.99	0.00	0.00
90.00		132.82	2129.28	0.00	0.00
91.75		65.93	1053.94	0.00	0.00
95.00		122.02	1225.22	0.00	0.00
100.00		186.37	1855.22	0.00	0.00
105.00		184.11	1820.99	0.00	0.00
110.00		181.69	1786.50	0.00	0.00
115.00		179.13	1751.75	0.00	0.00
120.00		176.43	1716.76	0.00	0.00
125.00		173.60	1681.54	0.00	0.00
130.00		170.64	1646.13	0.00	0.00
131.25		42.05	407.07	0.00	0.00
135.00		126.97	1602.25	0.00	0.00
135.50		16.75	211.82	0.00	0.00
137.00	(44) attachments	1216.47	8118.45	166.85	0.00
140.00		99.47	749.29	0.00	0.00
145.00		163.43	1224.04	0.00	0.00
147.00	(4) attachments	261.99	1772.60	0.00	0.00
150.00		95.48	693.16	0.00	0.00
155.00		156.60	1130.17	0.00	0.00
157.00	(22) attachments	1661.60	10524.63	0.00	0.00
160.00		91.27	649.62	0.00	0.00
165.00		149.41	1057.31	0.00	0.00
167.00	(20) attachments	1386.33	8170.68	0.00	0.00
170.00		86.84	584.86	0.00	0.00
175.00		141.87	949.11	0.00	0.00
176.00	(22) attachments	720.07	3696.59	0.00	513.44

Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 31

Totals:	**11,193.42**	**102,183.77**	**166.85**	**513.44**

Linear Appurtenance Segment Forces (Factored)

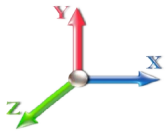
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

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 26

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	Safety Cable	Yes	5.00	0.000	0.38	1.54	0.00	0.018	0.000	5.168	0.00	20.86
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.64	0.00	0.018	0.000	5.168	0.00	27.18
10.00	Safety Cable	Yes	5.00	0.000	0.38	1.64	0.00	0.018	0.000	5.168	0.00	23.53
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.74	0.00	0.018	0.000	5.168	0.00	29.96
15.00	Safety Cable	Yes	5.00	0.000	0.38	1.70	0.00	0.018	0.000	5.168	0.00	25.26
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.80	0.00	0.018	0.000	5.168	0.00	31.77
20.00	Safety Cable	Yes	5.00	0.000	0.38	1.74	0.00	0.019	0.000	5.483	0.00	26.58
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.85	0.00	0.019	0.000	5.483	0.00	33.13
25.00	Safety Cable	Yes	5.00	0.000	0.38	1.78	0.00	0.019	0.000	5.747	0.00	27.65
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.88	0.00	0.019	0.000	5.747	0.00	34.25
30.00	Safety Cable	Yes	5.00	0.000	0.38	1.81	0.00	0.019	0.000	5.972	0.00	28.56
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.91	0.00	0.019	0.000	5.972	0.00	35.19
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.83	0.00	0.020	0.000	6.169	0.00	29.35
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.94	0.00	0.020	0.000	6.169	0.00	36.02
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.86	0.00	0.020	0.000	6.345	0.00	30.06
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.96	0.00	0.020	0.000	6.345	0.00	36.75
42.75	Safety Cable	Yes	2.75	0.000	0.38	1.03	0.00	0.021	0.000	6.434	0.00	16.73
42.75	Step bolts (ladder)	Yes	2.75	0.000	0.63	1.09	0.00	0.021	0.000	6.434	0.00	20.42
45.00	Safety Cable	Yes	2.25	0.000	0.38	0.84	0.00	0.021	0.000	6.504	0.00	13.82
45.00	Step bolts (ladder)	Yes	2.25	0.000	0.63	0.89	0.00	0.021	0.000	6.504	0.00	16.84
49.00	Safety Cable	Yes	4.00	0.000	0.38	1.51	0.00	0.021	0.000	6.622	0.00	24.94
49.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	1.60	0.00	0.021	0.000	6.622	0.00	30.32
50.00	Safety Cable	Yes	1.00	0.000	0.38	0.38	0.00	0.021	0.000	6.650	0.00	6.26
50.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.40	0.00	0.021	0.000	6.650	0.00	7.60
55.00	Safety Cable	Yes	5.00	0.000	0.38	1.91	0.00	0.021	0.000	6.785	0.00	31.83
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.02	0.00	0.021	0.000	6.785	0.00	38.58
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.93	0.00	0.022	0.000	6.910	0.00	32.33
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.03	0.00	0.022	0.000	6.910	0.00	39.10
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.94	0.00	0.022	0.000	7.028	0.00	32.80
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.05	0.00	0.022	0.000	7.028	0.00	39.59
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.96	0.00	0.023	0.000	7.138	0.00	33.24
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.06	0.00	0.023	0.000	7.138	0.00	40.04
75.00	Safety Cable	Yes	5.00	0.000	0.38	1.97	0.00	0.023	0.000	7.243	0.00	33.66
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.07	0.00	0.023	0.000	7.243	0.00	40.47
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.98	0.00	0.024	0.000	7.342	0.00	34.05
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.08	0.00	0.024	0.000	7.342	0.00	40.88
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.99	0.00	0.024	0.000	7.436	0.00	34.43
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.09	0.00	0.024	0.000	7.436	0.00	41.27
86.50	Safety Cable	Yes	1.50	0.000	0.38	0.60	0.00	0.025	0.000	7.464	0.00	10.36
86.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.63	0.00	0.025	0.000	7.464	0.00	12.42
90.00	Safety Cable	Yes	3.50	0.000	0.38	1.40	0.00	0.025	0.000	7.526	0.00	24.35
90.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	1.47	0.00	0.025	0.000	7.526	0.00	29.15
91.75	Safety Cable	Yes	1.75	0.000	0.38	0.70	0.00	0.025	0.000	7.557	0.00	12.22
91.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.74	0.00	0.025	0.000	7.557	0.00	14.62
95.00	Safety Cable	Yes	3.25	0.000	0.38	1.31	0.00	0.025	0.000	7.612	0.00	22.83
95.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	1.37	0.00	0.025	0.000	7.612	0.00	27.30
100.00	Safety Cable	Yes	5.00	0.000	0.38	2.02	0.00	0.026	0.000	7.695	0.00	35.46

Linear Appurtenance Segment Forces (Factored)

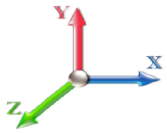
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

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 26

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)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.12	0.00	0.026	0.000	7.695	0.00	42.33
105.00	Safety Cable	Yes	5.00	0.000	0.38	2.03	0.00	0.026	0.000	7.774	0.00	35.77
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.13	0.00	0.026	0.000	7.774	0.00	42.66
110.00	Safety Cable	Yes	5.00	0.000	0.38	2.04	0.00	0.027	0.000	7.851	0.00	36.07
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.14	0.00	0.027	0.000	7.851	0.00	42.97
115.00	Safety Cable	Yes	5.00	0.000	0.38	2.05	0.00	0.028	0.000	7.925	0.00	36.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.15	0.00	0.028	0.000	7.925	0.00	43.28
120.00	Safety Cable	Yes	5.00	0.000	0.38	2.05	0.00	0.028	0.000	7.996	0.00	36.65
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.16	0.00	0.028	0.000	7.996	0.00	43.57
125.00	Safety Cable	Yes	5.00	0.000	0.38	2.06	0.00	0.029	0.000	8.065	0.00	36.92
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.17	0.00	0.029	0.000	8.065	0.00	43.85
130.00	Safety Cable	Yes	5.00	0.000	0.38	2.07	0.00	0.030	0.000	8.132	0.00	37.19
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.17	0.00	0.030	0.000	8.132	0.00	44.12
131.25	Safety Cable	Yes	1.25	0.000	0.38	0.52	0.00	0.031	0.000	8.148	0.00	9.31
131.25	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.54	0.00	0.031	0.000	8.148	0.00	11.05
135.00	Safety Cable	Yes	3.75	0.000	0.38	1.56	0.00	0.031	0.000	8.197	0.00	28.08
135.00	Step bolts (ladder)	Yes	3.75	0.000	0.63	1.64	0.00	0.031	0.000	8.197	0.00	33.29
135.50	Safety Cable	Yes	0.50	0.000	0.38	0.21	0.00	0.032	0.000	8.203	0.00	3.75
135.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.22	0.00	0.032	0.000	8.203	0.00	4.44
137.00	Safety Cable	Yes	1.50	0.000	0.38	0.62	0.00	0.031	0.000	8.222	0.00	11.26
137.00	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.66	0.00	0.031	0.000	8.222	0.00	13.35
140.00	Safety Cable	Yes	3.00	0.000	0.38	1.25	0.00	0.032	0.000	8.260	0.00	22.61
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.31	0.00	0.032	0.000	8.260	0.00	26.79
145.00	Safety Cable	Yes	5.00	0.000	0.38	2.09	0.00	0.033	0.000	8.321	0.00	37.93
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.20	0.00	0.033	0.000	8.321	0.00	44.89
147.00	Safety Cable	Yes	2.00	0.000	0.38	0.84	0.00	0.033	0.000	8.345	0.00	15.21
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.88	0.00	0.033	0.000	8.345	0.00	18.00
150.00	Safety Cable	Yes	3.00	0.000	0.38	1.26	0.00	0.034	0.000	8.381	0.00	22.90
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.32	0.00	0.034	0.000	8.381	0.00	27.08
155.00	Safety Cable	Yes	5.00	0.000	0.38	2.10	0.00	0.035	0.000	8.439	0.00	38.40
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.21	0.00	0.035	0.000	8.439	0.00	45.37
157.00	Safety Cable	Yes	2.00	0.000	0.38	0.84	0.00	0.036	0.000	8.462	0.00	15.39
157.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.88	0.00	0.036	0.000	8.462	0.00	18.19
160.00	Safety Cable	Yes	3.00	0.000	0.38	1.27	0.00	0.036	0.000	8.495	0.00	23.17
160.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.33	0.00	0.036	0.000	8.495	0.00	27.36
165.00	Safety Cable	Yes	5.00	0.000	0.38	2.12	0.00	0.037	0.000	8.551	0.00	38.84
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.22	0.00	0.037	0.000	8.551	0.00	45.83
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.85	0.00	0.038	0.000	8.572	0.00	15.57
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.89	0.00	0.038	0.000	8.572	0.00	18.37
170.00	Safety Cable	Yes	3.00	0.000	0.38	1.27	0.00	0.039	0.000	8.604	0.00	23.43
170.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.34	0.00	0.039	0.000	8.604	0.00	27.63
175.00	Safety Cable	Yes	5.00	0.000	0.38	2.13	0.00	0.040	0.000	8.657	0.00	39.26
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.23	0.00	0.040	0.000	8.657	0.00	46.26
176.00	Safety Cable	Yes	1.00	0.000	0.38	0.43	0.00	0.041	0.000	8.667	0.00	7.86
176.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.45	0.00	0.041	0.000	8.667	0.00	9.26
									Totals:		**0.0**	**2,605.9**

Calculated Forces

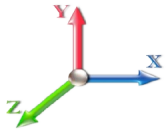
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 34	

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 26

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	-102.1	-11.25	-0.17	-1475.7	0.00	1475.70	6372.54	3186.27	14661.2	7341.49	0.00	0.000	0.000	0.217
5.00	-99.45	-11.18	-0.17	-1419.4	0.00	1419.47	6292.68	3146.34	14220.7	7120.95	0.03	-0.058	0.000	0.215
10.00	-96.73	-11.10	-0.17	-1363.5	0.00	1363.59	6211.66	3105.83	13784.2	6902.39	0.12	-0.117	0.000	0.213
15.00	-94.01	-11.03	-0.17	-1308.0	0.00	1308.08	6129.50	3064.75	13351.9	6685.89	0.28	-0.177	0.000	0.211
20.00	-91.31	-10.94	-0.17	-1252.9	0.00	1252.94	6046.18	3023.09	12923.8	6471.51	0.50	-0.238	0.000	0.209
25.00	-88.65	-10.85	-0.17	-1198.2	0.00	1198.23	5961.72	2980.86	12500.0	6259.33	0.78	-0.300	0.000	0.206
30.00	-86.01	-10.74	-0.17	-1144.0	0.00	1144.01	5876.11	2938.05	12080.8	6049.42	1.13	-0.362	0.000	0.204
35.00	-83.40	-10.63	-0.17	-1090.3	0.00	1090.31	5789.35	2894.67	11666.3	5841.84	1.54	-0.425	0.000	0.201
40.00	-80.83	-10.49	-0.17	-1037.1	0.00	1037.17	5679.25	2839.63	11212.8	5614.75	2.02	-0.488	0.000	0.199
42.75	-79.44	-10.42	-0.17	-1008.3	0.00	1008.32	5615.38	2807.69	10960.7	5488.51	2.31	-0.524	0.000	0.198
45.00	-77.67	-10.37	-0.17	-984.88	0.00	984.88	5563.11	2781.56	10756.6	5386.29	2.56	-0.553	0.000	0.197
49.00	-74.58	-10.23	-0.17	-943.40	0.00	943.40	4756.80	2378.40	9239.06	4626.40	3.05	-0.605	0.000	0.220
50.00	-74.11	-10.24	-0.17	-933.17	0.00	933.17	4742.51	2371.25	9172.60	4593.12	3.18	-0.619	0.000	0.219
55.00	-71.80	-10.11	-0.17	-881.98	0.00	881.98	4670.33	2335.16	8842.49	4427.82	3.86	-0.689	0.000	0.215
60.00	-69.52	-9.97	-0.17	-831.45	0.00	831.45	4597.00	2298.50	8516.13	4264.39	4.62	-0.760	0.000	0.210
65.00	-67.27	-9.83	-0.17	-781.61	0.00	781.61	4522.52	2261.26	8193.68	4102.93	5.46	-0.831	0.000	0.205
70.00	-65.06	-9.68	-0.17	-732.47	0.00	732.47	4446.89	2223.45	7875.26	3943.48	6.36	-0.902	0.000	0.200
75.00	-62.89	-9.53	-0.17	-684.05	0.00	684.05	4354.69	2177.34	7534.33	3772.77	7.35	-0.973	0.000	0.196
80.00	-60.75	-9.38	-0.17	-636.38	0.00	636.38	4253.06	2126.53	7185.02	3597.85	8.40	-1.044	0.000	0.191
85.00	-58.66	-9.20	-0.17	-589.47	0.00	589.47	4151.43	2075.72	6843.99	3427.08	9.54	-1.115	0.000	0.186
86.50	-58.03	-9.17	-0.17	-575.67	0.00	575.67	4120.95	2060.47	6743.30	3376.66	9.89	-1.137	0.000	0.185
90.00	-55.90	-9.03	-0.17	-543.59	0.00	543.59	4049.81	2024.90	6511.26	3260.47	10.74	-1.187	0.000	0.181
91.75	-54.84	-8.98	-0.17	-527.79	0.00	527.79	3441.70	1720.85	5608.94	2808.64	11.18	-1.212	0.000	0.204
95.00	-53.61	-8.88	-0.17	-498.62	0.00	498.62	3401.05	1700.53	5452.51	2730.31	12.02	-1.258	0.000	0.198
100.00	-51.75	-8.72	-0.17	-454.20	0.00	454.20	3337.56	1668.78	5214.58	2611.16	13.38	-1.333	0.000	0.189
105.00	-49.92	-8.56	-0.17	-410.59	0.00	410.59	3272.92	1636.46	4980.08	2493.74	14.82	-1.407	0.000	0.180
110.00	-48.13	-8.39	-0.17	-367.79	0.00	367.79	3194.68	1597.34	4730.71	2368.87	16.33	-1.479	0.000	0.170
115.00	-46.38	-8.22	-0.17	-325.83	0.00	325.83	3107.57	1553.79	4474.96	2240.81	17.92	-1.549	0.000	0.160
120.00	-44.66	-8.05	-0.17	-284.73	0.00	284.73	3020.47	1510.23	4226.32	2116.30	19.58	-1.615	0.000	0.149
125.00	-42.97	-7.87	-0.17	-244.48	0.00	244.48	2933.36	1466.68	3984.78	1995.35	21.30	-1.678	0.000	0.137
130.00	-41.33	-7.68	-0.17	-205.13	0.00	205.13	2846.25	1423.13	3750.35	1877.96	23.09	-1.736	0.000	0.124
131.25	-40.92	-7.64	-0.17	-195.53	0.00	195.53	2824.47	1412.24	3692.86	1849.17	23.55	-1.751	0.000	0.120
135.00	-39.32	-7.48	-0.17	-166.87	0.00	166.87	2759.14	1379.57	3523.03	1764.13	24.94	-1.790	-0.001	0.109
135.50	-39.10	-7.47	-0.17	-163.13	0.00	163.13	1734.08	867.04	2260.78	1132.07	25.13	-1.795	-0.001	0.167
137.00	-31.03	-6.01	0.00	-151.93	0.00	151.93	1723.43	861.72	2225.81	1114.56	25.69	-1.810	-0.001	0.154
140.00	-30.28	-5.91	0.00	-133.91	0.00	133.91	1701.83	850.91	2156.25	1079.73	26.84	-1.849	-0.001	0.142
145.00	-29.05	-5.73	0.00	-104.35	0.00	104.35	1664.90	832.45	2041.54	1022.29	28.81	-1.907	-0.001	0.120
147.00	-27.29	-5.42	0.00	-92.90	0.00	92.90	1649.80	824.90	1996.11	999.54	29.61	-1.928	-0.001	0.110
150.00	-26.60	-5.31	0.00	-76.64	0.00	76.64	1626.81	813.41	1928.48	965.67	30.84	-1.956	-0.001	0.096
155.00	-25.47	-5.13	0.00	-50.07	0.00	50.07	1587.58	793.79	1817.22	909.96	32.91	-1.993	-0.001	0.071
157.00	-15.01	-3.10	0.00	-39.81	0.00	39.81	1571.57	785.79	1773.24	887.94	33.74	-2.005	-0.001	0.054
160.00	-14.36	-2.99	0.00	-30.50	0.00	30.50	1547.20	773.60	1707.88	855.21	35.01	-2.020	-0.001	0.045
165.00	-13.31	-2.81	0.00	-15.53	0.00	15.53	1505.67	752.84	1600.62	801.50	37.13	-2.036	-0.001	0.028
167.00	-5.19	-1.13	0.00	-9.91	0.00	9.91	1488.74	744.37	1558.33	780.32	37.99	-2.041	-0.001	0.016
170.00	-4.61	-1.03	0.00	-6.50	0.00	6.50	1462.99	731.50	1495.57	748.90	39.27	-2.045	-0.001	0.012
175.00	-3.67	-0.85	0.00	-1.37	0.00	1.37	1411.70	705.85	1385.55	693.80	41.41	-2.048	-0.001	0.005
176.00	0.00	-0.72	0.00	-0.51	0.00	0.51	1400.09	700.04	1362.73	682.38	41.84	-2.049	-0.001	0.001

Calculated Forces

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 35

Seismic Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 36	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E					**Iterations**	23
Gust Response Factor	1.10			**Sds**	0.19	**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.30	**SA**	0.03	**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		1500.0	0.00	0.03	0.02	27.02	
10.00		1473.4	0.01	0.05	0.03	39.04	
15.00		1446.8	0.01	0.06	0.03	44.81	
20.00		1420.2	0.02	0.07	0.04	47.47	
25.00		1393.6	0.04	0.07	0.04	48.56	
30.00		1367.0	0.05	0.07	0.04	48.91	
35.00		1340.4	0.07	0.07	0.04	49.00	
40.00		1313.8	0.10	0.07	0.04	49.02	
42.75	Bot - Section 2	711.29	0.11	0.07	0.04	26.84	
45.00		1089.9	0.12	0.07	0.03	41.50	
49.00	Top - Section 1	1912.7	0.15	0.07	0.03	73.91	
50.00		223.19	0.15	0.07	0.03	8.65	
55.00		1101.9	0.18	0.06	0.03	43.15	
60.00		1078.7	0.22	0.06	0.02	42.01	
65.00		1055.4	0.26	0.05	0.02	39.76	
70.00		1032.1	0.30	0.05	0.01	35.91	
75.00		1008.8	0.34	0.03	0.01	29.97	
80.00		985.61	0.39	0.02	0.01	21.63	
85.00		962.33	0.44	0.00	0.01	11.04	
86.50	Bot - Section 3	284.16	0.46	0.00	0.01	2.24	
90.00		1227.7	0.49	-0.01	0.01	-1.25	
91.75	Top - Section 2	605.94	0.51	-0.02	0.01	-3.40	
95.00		518.65	0.55	-0.03	0.01	-7.28	
100.00		781.47	0.61	-0.06	0.02	-20.12	
105.00		761.52	0.67	-0.08	0.02	-26.40	
110.00		741.57	0.74	-0.10	0.04	-29.62	
115.00		721.62	0.81	-0.11	0.06	-29.83	
120.00		701.67	0.88	-0.12	0.08	-27.27	
125.00		681.73	0.95	-0.12	0.11	-22.26	
130.00		661.78	1.03	-0.10	0.15	-15.09	
131.25	Bot - Section 4	162.33	1.05	-0.09	0.16	-3.21	
135.00		805.50	1.11	-0.06	0.19	-7.56	
135.50	Top - Section 3	105.99	1.12	-0.06	0.20	-0.83	
137.00	Appurtenance(s)	2524.1	1.15	-0.04	0.22	-7.64	
140.00		252.22	1.20	0.00	0.25	1.91	
145.00		409.73	1.28	0.10	0.32	11.53	
147.00	Appurtenance(s)	576.17	1.32	0.15	0.35	21.53	
150.00		236.26	1.37	0.23	0.40	12.36	
155.00		383.13	1.47	0.42	0.50	30.71	
157.00	Appurtenance(s)	3755.6	1.50	0.51	0.55	346.85	
160.00		220.30	1.56	0.67	0.62	24.63	
165.00		356.53	1.66	0.98	0.76	52.49	
167.00	Appurtenance(s)	2350.3	1.70	1.13	0.82	381.95	
170.00		204.34	1.76	1.38	0.92	38.13	
175.00		329.93	1.87	1.87	1.10	75.88	

Seismic Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 37	

176.00	Appurtenance(s)		1362.3	1.89	1.98	1.14	325.79		
		Totals:	**44,140.7**				**1,852.4**	**Total Wind:**	**36,672.4**

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

Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 38	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Iterations 23

Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.30	**SA**	0.03			**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	-61.67	-2.06	0.00	-263.84	0.00	263.84	6372.54	3186.27	14661.2	7341.49		0.00	0.00	0.046
5.00	-59.59	-2.04	0.00	-253.54	0.00	253.54	6292.68	3146.34	14220.7	7120.95		0.01	-0.01	0.045
10.00	-57.55	-2.01	0.00	-243.33	0.00	243.33	6211.66	3105.83	13784.2	6902.39		0.02	-0.02	0.045
15.00	-55.53	-1.98	0.00	-233.27	0.00	233.27	6129.50	3064.75	13351.9	6685.89		0.05	-0.03	0.044
20.00	-53.55	-1.94	0.00	-223.38	0.00	223.38	6046.18	3023.09	12923.8	6471.51		0.09	-0.04	0.043
25.00	-51.60	-1.90	0.00	-213.68	0.00	213.68	5961.72	2980.86	12500.0	6259.33		0.14	-0.05	0.043
30.00	-49.68	-1.86	0.00	-204.18	0.00	204.18	5876.11	2938.05	12080.8	6049.42		0.20	-0.06	0.042
35.00	-47.79	-1.82	0.00	-194.89	0.00	194.89	5789.35	2894.67	11666.3	5841.84		0.27	-0.08	0.042
40.00	-45.94	-1.77	0.00	-185.81	0.00	185.81	5679.25	2839.63	11212.8	5614.75		0.36	-0.09	0.041
42.75	-44.93	-1.75	0.00	-180.94	0.00	180.94	5615.38	2807.69	10960.7	5488.51		0.41	-0.09	0.041
45.00	-43.50	-1.71	0.00	-177.01	0.00	177.01	5563.11	2781.56	10756.6	5386.29		0.46	-0.10	0.041
49.00	-40.98	-1.64	0.00	-170.17	0.00	170.17	4756.80	2378.40	9239.06	4626.40		0.54	-0.11	0.045
50.00	-40.66	-1.63	0.00	-168.54	0.00	168.54	4742.51	2371.25	9172.60	4593.12		0.57	-0.11	0.045
55.00	-39.06	-1.59	0.00	-160.38	0.00	160.38	4670.33	2335.16	8842.49	4427.82		0.69	-0.12	0.045
60.00	-37.49	-1.56	0.00	-152.41	0.00	152.41	4597.00	2298.50	8516.13	4264.39		0.83	-0.14	0.044
65.00	-35.94	-1.52	0.00	-144.63	0.00	144.63	4522.52	2261.26	8193.68	4102.93		0.98	-0.15	0.043
70.00	-34.42	-1.49	0.00	-137.03	0.00	137.03	4446.89	2223.45	7875.26	3943.48		1.14	-0.16	0.042
75.00	-32.94	-1.46	0.00	-129.58	0.00	129.58	4354.69	2177.34	7534.33	3772.77		1.32	-0.18	0.042
80.00	-31.47	-1.44	0.00	-122.27	0.00	122.27	4253.06	2126.53	7185.02	3597.85		1.51	-0.19	0.041
85.00	-30.04	-1.43	0.00	-115.05	0.00	115.05	4151.43	2075.72	6843.99	3427.08		1.71	-0.20	0.041
86.50	-29.62	-1.43	0.00	-112.90	0.00	112.90	4120.95	2060.47	6743.30	3376.66		1.78	-0.21	0.041
90.00	-27.95	-1.43	0.00	-107.89	0.00	107.89	4049.81	2024.90	6511.26	3260.47		1.93	-0.22	0.040
91.75	-27.12	-1.43	0.00	-105.38	0.00	105.38	3441.70	1720.85	5608.94	2808.64		2.02	-0.22	0.045
95.00	-26.32	-1.43	0.00	-100.74	0.00	100.74	3401.05	1700.53	5452.51	2730.31		2.17	-0.23	0.045
100.00	-25.10	-1.43	0.00	-93.57	0.00	93.57	3337.56	1668.78	5214.58	2611.16		2.42	-0.25	0.043
105.00	-23.91	-1.44	0.00	-86.40	0.00	86.40	3272.92	1636.46	4980.08	2493.74		2.69	-0.26	0.042
110.00	-22.74	-1.44	0.00	-79.23	0.00	79.23	3194.68	1597.34	4730.71	2368.87		2.97	-0.28	0.041
115.00	-21.60	-1.44	0.00	-72.05	0.00	72.05	3107.57	1553.79	4474.96	2240.81		3.27	-0.29	0.039
120.00	-20.48	-1.44	0.00	-64.87	0.00	64.87	3020.47	1510.23	4226.32	2116.30		3.58	-0.31	0.037
125.00	-19.38	-1.43	0.00	-57.69	0.00	57.69	2933.36	1466.68	3984.78	1995.35		3.91	-0.32	0.036
130.00	-18.31	-1.43	0.00	-50.52	0.00	50.52	2846.25	1423.13	3750.35	1877.96		4.26	-0.34	0.033
131.25	-18.05	-1.43	0.00	-48.73	0.00	48.73	2824.47	1412.24	3692.86	1849.17		4.35	-0.34	0.033
135.00	-16.87	-1.43	0.00	-43.36	0.00	43.36	2759.14	1379.57	3523.03	1764.13		4.62	-0.35	0.031
135.50	-16.72	-1.43	0.00	-42.65	0.00	42.65	1734.08	867.04	2260.78	1132.07		4.66	-0.35	0.047
137.00	-13.60	-1.41	0.00	-40.51	0.00	40.51	1723.43	861.72	2225.81	1114.56		4.77	-0.36	0.044
140.00	-13.19	-1.41	0.00	-36.28	0.00	36.28	1701.83	850.91	2156.25	1079.73		4.99	-0.37	0.041
145.00	-12.51	-1.39	0.00	-29.25	0.00	29.25	1664.90	832.45	2041.54	1022.29		5.39	-0.38	0.036
147.00	-11.74	-1.37	0.00	-26.46	0.00	26.46	1649.80	824.90	1996.11	999.54		5.55	-0.39	0.034
150.00	-11.37	-1.36	0.00	-22.35	0.00	22.35	1626.81	813.41	1928.48	965.67		5.79	-0.40	0.030
155.00	-10.76	-1.32	0.00	-15.57	0.00	15.57	1587.58	793.79	1817.22	909.96		6.21	-0.41	0.024
157.00	-6.20	-0.94	0.00	-12.93	0.00	12.93	1571.57	785.79	1773.24	887.94		6.38	-0.41	0.019
160.00	-5.85	-0.92	0.00	-10.10	0.00	10.10	1547.20	773.60	1707.88	855.21		6.64	-0.42	0.016
165.00	-5.29	-0.86	0.00	-5.52	0.00	5.52	1505.67	752.84	1600.62	801.50		7.08	-0.42	0.010
167.00	-2.42	-0.46	0.00	-3.80	0.00	3.80	1488.74	744.37	1558.33	780.32		7.26	-0.42	0.006
170.00	-2.13	-0.42	0.00	-2.42	0.00	2.42	1462.99	731.50	1495.57	748.90		7.53	-0.42	0.005
175.00	-1.65	-0.34	0.00	-0.34	0.00	0.34	1411.70	705.85	1385.55	693.80		7.97	-0.43	0.002
176.00	0.00	-0.33	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38		8.06	-0.43	0.000

Calculated Forces

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 39

Seismic Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 40	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E					**Iterations**	23
Gust Response Factor	1.10			**Sds**	0.19	**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.30	**SA**	0.03	**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		1500.0	0.00	0.03	0.02	27.02	
10.00		1473.4	0.01	0.05	0.03	39.04	
15.00		1446.8	0.01	0.06	0.03	44.81	
20.00		1420.2	0.02	0.07	0.04	47.47	
25.00		1393.6	0.04	0.07	0.04	48.56	
30.00		1367.0	0.05	0.07	0.04	48.91	
35.00		1340.4	0.07	0.07	0.04	49.00	
40.00		1313.8	0.10	0.07	0.04	49.02	
42.75	Bot - Section 2	711.29	0.11	0.07	0.04	26.84	
45.00		1089.9	0.12	0.07	0.03	41.50	
49.00	Top - Section 1	1912.7	0.15	0.07	0.03	73.91	
50.00		223.19	0.15	0.07	0.03	8.65	
55.00		1101.9	0.18	0.06	0.03	43.15	
60.00		1078.7	0.22	0.06	0.02	42.01	
65.00		1055.4	0.26	0.05	0.02	39.76	
70.00		1032.1	0.30	0.05	0.01	35.91	
75.00		1008.8	0.34	0.03	0.01	29.97	
80.00		985.61	0.39	0.02	0.01	21.63	
85.00		962.33	0.44	0.00	0.01	11.04	
86.50	Bot - Section 3	284.16	0.46	0.00	0.01	2.24	
90.00		1227.7	0.49	-0.01	0.01	-1.25	
91.75	Top - Section 2	605.94	0.51	-0.02	0.01	-3.40	
95.00		518.65	0.55	-0.03	0.01	-7.28	
100.00		781.47	0.61	-0.06	0.02	-20.12	
105.00		761.52	0.67	-0.08	0.02	-26.40	
110.00		741.57	0.74	-0.10	0.04	-29.62	
115.00		721.62	0.81	-0.11	0.06	-29.83	
120.00		701.67	0.88	-0.12	0.08	-27.27	
125.00		681.73	0.95	-0.12	0.11	-22.26	
130.00		661.78	1.03	-0.10	0.15	-15.09	
131.25	Bot - Section 4	162.33	1.05	-0.09	0.16	-3.21	
135.00		805.50	1.11	-0.06	0.19	-7.56	
135.50	Top - Section 3	105.99	1.12	-0.06	0.20	-0.83	
137.00	Appurtenance(s)	2524.1	1.15	-0.04	0.22	-7.64	
140.00		252.22	1.20	0.00	0.25	1.91	
145.00		409.73	1.28	0.10	0.32	11.53	
147.00	Appurtenance(s)	576.17	1.32	0.15	0.35	21.53	
150.00		236.26	1.37	0.23	0.40	12.36	
155.00		383.13	1.47	0.42	0.50	30.71	
157.00	Appurtenance(s)	3755.6	1.50	0.51	0.55	346.85	
160.00		220.30	1.56	0.67	0.62	24.63	
165.00		356.53	1.66	0.98	0.76	52.49	
167.00	Appurtenance(s)	2350.3	1.70	1.13	0.82	381.95	
170.00		204.34	1.76	1.38	0.92	38.13	
175.00		329.93	1.87	1.87	1.10	75.88	

Seismic Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 41	

176.00	Appurtenance(s)		1362.3	1.89	1.98	1.14	325.79		
		Totals:	**44,140.7**				**1,852.4**	**Total Wind:**	**36,672.4**

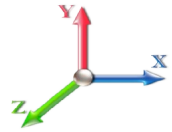
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 42	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	23		
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18		
Wind Load Factor	0.00	**Structure Frequency**	0.30	**SA**	0.03	**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	-46.25	-2.06	0.00	-260.26	0.00	260.26	6372.54	3186.27	14661.2	7341.49		0.00	0.00	0.043
5.00	-44.70	-2.04	0.00	-249.97	0.00	249.97	6292.68	3146.34	14220.7	7120.95		0.01	-0.01	0.042
10.00	-43.16	-2.01	0.00	-239.78	0.00	239.78	6211.66	3105.83	13784.2	6902.39		0.02	-0.02	0.042
15.00	-41.65	-1.97	0.00	-229.75	0.00	229.75	6129.50	3064.75	13351.9	6685.89		0.05	-0.03	0.041
20.00	-40.16	-1.93	0.00	-219.91	0.00	219.91	6046.18	3023.09	12923.8	6471.51		0.09	-0.04	0.041
25.00	-38.70	-1.89	0.00	-210.27	0.00	210.27	5961.72	2980.86	12500.0	6259.33		0.14	-0.05	0.040
30.00	-37.26	-1.84	0.00	-200.84	0.00	200.84	5876.11	2938.05	12080.8	6049.42		0.20	-0.06	0.040
35.00	-35.85	-1.80	0.00	-191.63	0.00	191.63	5789.35	2894.67	11666.3	5841.84		0.27	-0.07	0.039
40.00	-34.45	-1.75	0.00	-182.64	0.00	182.64	5679.25	2839.63	11212.8	5614.75		0.35	-0.09	0.039
42.75	-33.70	-1.73	0.00	-177.82	0.00	177.82	5615.38	2807.69	10960.7	5488.51		0.41	-0.09	0.038
45.00	-32.62	-1.69	0.00	-173.93	0.00	173.93	5563.11	2781.56	10756.6	5386.29		0.45	-0.10	0.038
49.00	-30.74	-1.61	0.00	-167.18	0.00	167.18	4756.80	2378.40	9239.06	4626.40		0.54	-0.11	0.043
50.00	-30.49	-1.61	0.00	-165.56	0.00	165.56	4742.51	2371.25	9172.60	4593.12		0.56	-0.11	0.042
55.00	-29.29	-1.57	0.00	-157.51	0.00	157.51	4670.33	2335.16	8842.49	4427.82		0.68	-0.12	0.042
60.00	-28.11	-1.53	0.00	-149.66	0.00	149.66	4597.00	2298.50	8516.13	4264.39		0.81	-0.13	0.041
65.00	-26.95	-1.50	0.00	-142.00	0.00	142.00	4522.52	2261.26	8193.68	4102.93		0.96	-0.15	0.041
70.00	-25.82	-1.46	0.00	-134.52	0.00	134.52	4446.89	2223.45	7875.26	3943.48		1.12	-0.16	0.040
75.00	-24.70	-1.44	0.00	-127.21	0.00	127.21	4354.69	2177.34	7534.33	3772.77		1.30	-0.17	0.039
80.00	-23.60	-1.42	0.00	-120.04	0.00	120.04	4253.06	2126.53	7185.02	3597.85		1.48	-0.19	0.039
85.00	-22.53	-1.40	0.00	-112.96	0.00	112.96	4151.43	2075.72	6843.99	3427.08		1.69	-0.20	0.038
86.50	-22.21	-1.40	0.00	-110.85	0.00	110.85	4120.95	2060.47	6743.30	3376.66		1.75	-0.20	0.038
90.00	-20.96	-1.40	0.00	-105.94	0.00	105.94	4049.81	2024.90	6511.26	3260.47		1.90	-0.21	0.038
91.75	-20.34	-1.40	0.00	-103.49	0.00	103.49	3441.70	1720.85	5608.94	2808.64		1.98	-0.22	0.043
95.00	-19.74	-1.40	0.00	-98.93	0.00	98.93	3401.05	1700.53	5452.51	2730.31		2.13	-0.23	0.042
100.00	-18.83	-1.41	0.00	-91.91	0.00	91.91	3337.56	1668.78	5214.58	2611.16		2.38	-0.24	0.041
105.00	-17.93	-1.41	0.00	-84.89	0.00	84.89	3272.92	1636.46	4980.08	2493.74		2.64	-0.26	0.040
110.00	-17.06	-1.41	0.00	-77.86	0.00	77.86	3194.68	1597.34	4730.71	2368.87		2.92	-0.27	0.038
115.00	-16.20	-1.41	0.00	-70.83	0.00	70.83	3107.57	1553.79	4474.96	2240.81		3.22	-0.29	0.037
120.00	-15.36	-1.41	0.00	-63.79	0.00	63.79	3020.47	1510.23	4226.32	2116.30		3.52	-0.30	0.035
125.00	-14.54	-1.41	0.00	-56.76	0.00	56.76	2933.36	1466.68	3984.78	1995.35		3.85	-0.32	0.033
130.00	-13.73	-1.40	0.00	-49.74	0.00	49.74	2846.25	1423.13	3750.35	1877.96		4.19	-0.33	0.031
131.25	-13.53	-1.40	0.00	-47.99	0.00	47.99	2824.47	1412.24	3692.86	1849.17		4.28	-0.33	0.031
135.00	-12.65	-1.40	0.00	-42.72	0.00	42.72	2759.14	1379.57	3523.03	1764.13		4.54	-0.34	0.029
135.50	-12.53	-1.40	0.00	-42.03	0.00	42.03	1734.08	867.04	2260.78	1132.07		4.58	-0.35	0.044
137.00	-10.20	-1.39	0.00	-39.93	0.00	39.93	1723.43	861.72	2225.81	1114.56		4.69	-0.35	0.042
140.00	-9.89	-1.38	0.00	-35.77	0.00	35.77	1701.83	850.91	2156.25	1079.73		4.91	-0.36	0.039
145.00	-9.38	-1.37	0.00	-28.84	0.00	28.84	1664.90	832.45	2041.54	1022.29		5.30	-0.38	0.034
147.00	-8.81	-1.35	0.00	-26.10	0.00	26.10	1649.80	824.90	1996.11	999.54		5.45	-0.38	0.031
150.00	-8.53	-1.33	0.00	-22.06	0.00	22.06	1626.81	813.41	1928.48	965.67		5.70	-0.39	0.028
155.00	-8.07	-1.30	0.00	-15.38	0.00	15.38	1587.58	793.79	1817.22	909.96		6.11	-0.40	0.022
157.00	-4.65	-0.93	0.00	-12.78	0.00	12.78	1571.57	785.79	1773.24	887.94		6.28	-0.40	0.017
160.00	-4.39	-0.91	0.00	-9.99	0.00	9.99	1547.20	773.60	1707.88	855.21		6.53	-0.41	0.015
165.00	-3.97	-0.85	0.00	-5.46	0.00	5.46	1505.67	752.84	1600.62	801.50		6.96	-0.41	0.009
167.00	-1.82	-0.45	0.00	-3.76	0.00	3.76	1488.74	744.37	1558.33	780.32		7.14	-0.42	0.006
170.00	-1.59	-0.41	0.00	-2.40	0.00	2.40	1462.99	731.50	1495.57	748.90		7.40	-0.42	0.004
175.00	-1.24	-0.33	0.00	-0.33	0.00	0.33	1411.70	705.85	1385.55	693.80		7.84	-0.42	0.001
176.00	0.00	-0.33	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38		7.93	-0.42	0.000

Calculated Forces

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 43

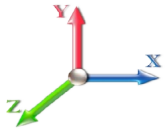
Wind Loading - Shaft

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 44	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	264.70	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	260.09	0.650	0.000	5.00	23.718	15.42	126.2	0.0	1500.1
10.00		1.00	0.85	7.442	8.19	255.48	0.650	0.000	5.00	23.301	15.15	124.0	0.0	1473.5
15.00		1.00	0.85	7.442	8.19	250.87	0.650	0.000	5.00	22.884	14.87	121.8	0.0	1446.9
20.00		1.00	0.90	7.896	8.69	253.66	0.650	0.000	5.00	22.467	14.60	126.8	0.0	1420.3
25.00		1.00	0.95	8.276	9.10	254.83	0.650	0.000	5.00	22.050	14.33	130.5	0.0	1393.7
30.00		1.00	0.98	8.600	9.46	254.81	0.650	0.000	5.00	21.634	14.06	133.0	0.0	1367.1
35.00		1.00	1.01	8.883	9.77	253.94	0.650	0.000	5.00	21.217	13.79	134.8	0.0	1340.5
40.00		1.00	1.04	9.137	10.05	252.43	0.650	0.000	5.00	20.800	13.52	135.9	0.0	1313.9
42.75	Bot - Section 2	1.00	1.06	9.266	10.19	251.37	0.650	0.000	2.75	11.262	7.32	74.6	0.0	711.3
45.00		1.00	1.07	9.366	10.30	250.40	0.650	0.000	2.25	9.288	6.04	62.2	0.0	1089.9
49.00	Top - Section 1	1.00	1.09	9.536	10.49	248.48	0.650	0.000	4.00	16.303	10.60	111.2	0.0	1912.7
50.00		1.00	1.09	9.576	10.53	252.61	0.650	0.000	1.00	4.034	2.62	27.6	0.0	223.2
55.00		1.00	1.12	9.770	10.75	249.88	0.650	0.000	5.00	19.920	12.95	139.2	0.0	1102.0
60.00		1.00	1.14	9.951	10.95	246.84	0.650	0.000	5.00	19.503	12.68	138.8	0.0	1078.7
65.00		1.00	1.16	10.120	11.13	243.55	0.650	0.000	5.00	19.086	12.41	138.1	0.0	1055.4
70.00		1.00	1.17	10.279	11.31	240.04	0.650	0.000	5.00	18.670	12.14	137.2	0.0	1032.2
75.00		1.00	1.19	10.430	11.47	236.33	0.650	0.000	5.00	18.253	11.86	136.1	0.0	1008.9
80.00		1.00	1.21	10.572	11.63	232.45	0.650	0.000	5.00	17.836	11.59	134.8	0.0	985.6
85.00		1.00	1.22	10.708	11.78	228.41	0.650	0.000	5.00	17.419	11.32	133.4	0.0	962.3
86.50	Bot - Section 3	1.00	1.23	10.748	11.82	227.16	0.650	0.000	1.50	5.145	3.34	39.5	0.0	284.2
90.00		1.00	1.24	10.838	11.92	224.22	0.650	0.000	3.50	12.080	7.85	93.6	0.0	1227.8
91.75	Top - Section 2	1.00	1.24	10.882	11.97	222.72	0.650	0.000	1.75	5.963	3.88	46.4	0.0	605.9
95.00		1.00	1.25	10.962	12.06	224.16	0.650	0.000	3.25	10.940	7.11	85.7	0.0	518.7
100.00		1.00	1.27	11.081	12.19	219.75	0.650	0.000	5.00	16.486	10.72	130.6	0.0	781.5
105.00		1.00	1.28	11.195	12.31	215.23	0.650	0.000	5.00	16.069	10.45	128.6	0.0	761.5
110.00		1.00	1.29	11.305	12.44	210.60	0.650	0.000	5.00	15.653	10.17	126.5	0.0	741.6
115.00		1.00	1.30	11.412	12.55	205.88	0.650	0.000	5.00	15.236	9.90	124.3	0.0	721.6
120.00		1.00	1.32	11.514	12.67	201.07	0.650	0.000	5.00	14.819	9.63	122.0	0.0	701.7
125.00		1.00	1.33	11.614	12.78	196.17	0.650	0.000	5.00	14.402	9.36	119.6	0.0	681.7
130.00		1.00	1.34	11.710	12.88	191.20	0.650	0.000	5.00	13.986	9.09	117.1	0.0	661.8
131.25	Bot - Section 4	1.00	1.34	11.734	12.91	189.94	0.650	0.000	1.25	3.431	2.23	28.8	0.0	162.3
135.00		1.00	1.35	11.803	12.98	186.15	0.650	0.000	3.75	10.296	6.69	86.9	0.0	805.5
135.50	Top - Section 3	1.00	1.35	11.813	12.99	185.64	0.650	0.000	0.50	1.355	0.88	11.4	0.0	106.0
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	187.07	0.650	0.000	1.50	4.040	2.63	34.2	0.0	127.9
140.00		1.00	1.36	11.894	13.08	184.00	0.650	0.000	3.00	7.968	5.18	67.8	0.0	252.2
145.00		1.00	1.37	11.982	13.18	178.83	0.650	0.000	5.00	12.947	8.42	110.9	0.0	409.7
147.00	Appurtenance(s)	1.00	1.37	12.017	13.22	176.74	0.650	0.000	2.00	5.062	3.29	43.5	0.0	160.2
150.00		1.00	1.38	12.068	13.27	173.59	0.650	0.000	3.00	7.468	4.85	64.4	0.0	236.3
155.00		1.00	1.39	12.152	13.37	168.30	0.650	0.000	5.00	12.113	7.87	105.2	0.0	383.1
157.00	Appurtenance(s)	1.00	1.39	12.185	13.40	166.17	0.650	0.000	2.00	4.729	3.07	41.2	0.0	149.5
160.00		1.00	1.40	12.233	13.46	162.95	0.650	0.000	3.00	6.968	4.53	60.9	0.0	220.3
165.00		1.00	1.41	12.313	13.54	157.55	0.650	0.000	5.00	11.280	7.33	99.3	0.0	356.5
167.00	Appurtenance(s)	1.00	1.41	12.344	13.58	155.38	0.650	0.000	2.00	4.395	2.86	38.8	0.0	138.9
170.00		1.00	1.42	12.390	13.63	152.10	0.650	0.000	3.00	6.468	4.20	57.3	0.0	204.3
175.00		1.00	1.42	12.466	13.71	146.59	0.650	0.000	5.00	10.446	6.79	93.1	0.0	329.9
176.00	Appurtenance(s)	1.00	1.43	12.481	13.73	145.49	0.650	0.000	1.00	2.039	1.33	18.2	0.0	64.4

Wind Loading - Shaft

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 45	

Totals:	**176.00**	**4,362.1**	**34,212.9**

Discrete Appurtenance Forces

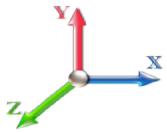
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 46	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

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	176.00	Lightning Rod	1	12.533	13.786	1.00	1.00	1.05	35.00	0.000	3.500	14.48	0.00	50.66
2	176.00	T-Arms	3	12.481	13.729	0.56	0.75	13.50	1050.00	0.000	0.000	185.35	0.00	0.00
3	176.00	MHA FE15501P77/75	12	12.496	13.746	0.65	1.00	7.25	132.00	0.000	1.000	99.71	0.00	99.71
4	176.00	RR90-17-02DP	6	12.496	13.746	0.68	1.00	17.79	81.00	0.000	1.000	244.52	0.00	244.52
5	167.00	DB-T16Z-8AB-0Z	1	12.344	13.578	1.00	1.00	4.80	18.90	0.000	0.000	65.18	0.00	0.00
6	167.00	Low Profile	1	12.344	13.578	1.00	1.00	22.00	1500.00	0.000	0.000	298.73	0.00	0.00
7	167.00	RRH2X60-AWS	3	12.344	13.578	0.61	0.80	6.38	180.00	0.000	0.000	86.68	0.00	0.00
8	167.00	RRH2X60-700	3	12.344	13.578	0.61	0.80	6.38	180.00	0.000	0.000	86.68	0.00	0.00
9	167.00	SBNHH-1D65B	6	12.344	13.578	0.66	0.80	32.51	240.00	0.000	0.000	441.43	0.00	0.00
10	167.00	LPA-80063-4CF-EDIN-5	4	12.344	13.578	0.74	0.80	18.30	80.00	0.000	0.000	248.52	0.00	0.00
11	167.00	APL868013	2	12.344	13.578	0.84	0.90	4.79	12.60	0.000	0.000	65.01	0.00	0.00
12	157.00	Sitepro PRK-SFS-H-L	1	12.185	13.403	1.00	1.00	6.70	230.00	0.000	0.000	89.80	0.00	0.00
13	157.00	Sitepro HRK14-U	1	12.185	13.403	1.00	1.00	8.13	302.36	0.000	0.000	108.97	0.00	0.00
14	157.00	Sitepro PRK-1245L	1	12.185	13.403	1.00	1.00	9.50	464.91	0.000	0.000	127.33	0.00	0.00
15	157.00	Commscope	3	12.185	13.403	0.60	0.80	22.09	232.20	0.000	0.000	296.02	0.00	0.00
16	157.00	RFS APXVTM14-C-I20	3	12.185	13.403	0.62	0.80	11.72	168.60	0.000	0.000	157.03	0.00	0.00
17	157.00	ALU TD-RRH8x20-25	3	12.185	13.403	0.54	0.80	6.51	210.00	0.000	0.000	87.29	0.00	0.00
18	157.00	ALU 1900 Mhz	3	12.185	13.403	0.54	0.80	4.45	180.00	0.000	0.000	59.70	0.00	0.00
19	157.00	Low Profile Platform	1	12.185	13.403	1.00	1.00	22.00	1500.00	0.000	0.000	294.87	0.00	0.00
20	157.00	ALU 800 Mhz	6	12.185	13.403	0.54	0.80	8.01	318.00	0.000	0.000	107.33	0.00	0.00
21	147.00	742 213	3	12.017	13.219	0.58	0.80	8.85	66.00	0.000	0.000	116.95	0.00	0.00
22	147.00	Flush Mount	1	12.017	13.219	1.00	1.00	5.00	350.00	0.000	0.000	66.09	0.00	0.00
23	137.00	LGP21903	6	11.840	13.024	0.67	0.80	1.09	30.00	4.341	0.000	14.18	61.54	0.00
24	137.00	DC6-48-60-18-8F	1	11.840	13.024	1.00	1.00	1.47	32.80	0.000	0.000	19.15	0.00	0.00
25	137.00	RRUS-11	3	11.840	13.024	0.54	0.80	7.21	165.00	0.000	0.000	93.95	0.00	0.00
26	137.00	7770.00	6	11.840	13.024	0.58	0.80	19.27	210.00	0.000	0.000	251.00	0.00	0.00
27	137.00	LGP21401	6	11.840	13.024	0.54	0.80	4.15	114.00	0.000	0.000	54.03	0.00	0.00
28	137.00	RRUS 32-B2	3	11.840	13.024	0.54	0.80	4.41	159.00	0.000	0.000	57.38	0.00	0.00
29	137.00	HPA-65R-BUU-H6	3	11.840	13.024	0.68	0.80	19.71	153.00	0.000	0.000	256.66	0.00	0.00
30	137.00	7020	12	11.840	13.024	0.40	0.80	1.92	26.40	0.000	0.000	25.01	0.00	0.00
31	137.00	Smart Bias T 1001940	3	11.840	13.024	0.54	0.80	0.14	6.00	7.041	0.000	1.88	13.27	0.00
32	137.00	LP Platform-Round	1	11.840	13.024	1.00	1.00	22.00	1500.00	0.000	0.000	286.53	0.00	0.00
							Totals:		**9,927.77**			**4,407.41**		

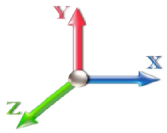
Total Applied Force Summary

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 47	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		126.20	1731.72	0.00	0.00
10.00		123.98	1705.12	0.00	0.00
15.00		121.77	1678.53	0.00	0.00
20.00		126.84	1651.93	0.00	0.00
25.00		130.48	1625.33	0.00	0.00
30.00		133.02	1598.73	0.00	0.00
35.00		134.76	1572.14	0.00	0.00
40.00		135.88	1545.54	0.00	0.00
42.75		74.61	838.71	0.00	0.00
45.00		62.20	1194.18	0.00	0.00
49.00		111.15	2098.06	0.00	0.00
50.00		27.62	269.52	0.00	0.00
55.00		139.16	1333.63	0.00	0.00
60.00		138.76	1310.36	0.00	0.00
65.00		138.11	1287.09	0.00	0.00
70.00		137.21	1263.82	0.00	0.00
75.00		136.11	1240.54	0.00	0.00
80.00		134.83	1217.27	0.00	0.00
85.00		133.37	1194.00	0.00	0.00
86.50		39.53	353.66	0.00	0.00
90.00		93.61	1389.92	0.00	0.00
91.75		46.40	687.02	0.00	0.00
95.00		85.74	669.23	0.00	0.00
100.00		130.62	1013.13	0.00	0.00
105.00		128.63	993.18	0.00	0.00
110.00		126.53	973.24	0.00	0.00
115.00		124.31	953.29	0.00	0.00
120.00		122.00	933.34	0.00	0.00
125.00		119.59	913.39	0.00	0.00
130.00		117.10	893.44	0.00	0.00
131.25		28.79	220.24	0.00	0.00
135.00		86.89	979.25	0.00	0.00
135.50		11.45	129.15	0.00	0.00
137.00	(44) attachments	1093.96	2593.60	74.81	0.00
140.00		67.76	345.56	0.00	0.00
145.00		110.92	565.29	0.00	0.00
147.00	(4) attachments	226.54	638.39	0.00	0.00
150.00		64.44	310.88	0.00	0.00
155.00		105.25	507.49	0.00	0.00
157.00	(22) attachments	1369.53	3805.34	0.00	0.00
160.00		60.95	287.00	0.00	0.00
165.00		99.30	467.70	0.00	0.00
167.00	(20) attachments	1331.02	2394.86	0.00	0.00
170.00		57.30	245.72	0.00	0.00
175.00		93.11	398.90	0.00	0.00
176.00	(22) attachments	562.25	1376.18	0.00	394.90

Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 48

Tower Engineering Solutions

Totals:	**8,769.56**	**51,394.65**	**74.81**	**394.90**

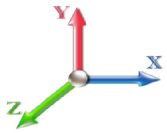
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 49	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

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	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	7.442	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	7.442	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	7.442	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	7.442	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	7.442	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	7.442	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	7.896	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	7.896	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	8.276	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	8.276	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	8.600	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	8.600	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	8.883	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	8.883	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	9.137	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	9.137	0.00	5.20
42.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.021	0.000	9.266	0.00	0.75
42.75	Step bolts (ladder)	Yes	2.75	0.000	0.63	0.14	0.00	0.021	0.000	9.266	0.00	2.86
45.00	Safety Cable	Yes	2.25	0.000	0.38	0.07	0.00	0.021	0.000	9.366	0.00	0.61
45.00	Step bolts (ladder)	Yes	2.25	0.000	0.63	0.12	0.00	0.021	0.000	9.366	0.00	2.34
49.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	9.536	0.00	1.09
49.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	9.536	0.00	4.16
50.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	9.576	0.00	0.27
50.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	9.576	0.00	1.04
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	9.770	0.00	1.37
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	9.770	0.00	5.20
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	9.951	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	9.951	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	10.120	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	10.120	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	10.279	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	10.279	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	10.430	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	10.430	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	10.572	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	10.572	0.00	5.20
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	10.708	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	10.708	0.00	5.20
86.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.025	0.000	10.748	0.00	0.41
86.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.025	0.000	10.748	0.00	1.56
90.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.025	0.000	10.838	0.00	0.96
90.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.025	0.000	10.838	0.00	3.64
91.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.025	0.000	10.882	0.00	0.48
91.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.025	0.000	10.882	0.00	1.82
95.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	10.962	0.00	0.89
95.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	10.962	0.00	3.38
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	11.081	0.00	1.37

Linear Appurtenance Segment Forces (Factored)

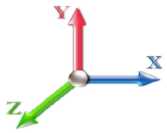
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 50	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

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)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	11.081	0.00	5.20
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	11.195	0.00	1.37
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	11.195	0.00	5.20
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	11.305	0.00	1.37
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	11.305	0.00	5.20
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	11.412	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	11.412	0.00	5.20
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	11.514	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	11.514	0.00	5.20
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	11.614	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	11.614	0.00	5.20
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	11.710	0.00	1.37
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	11.710	0.00	5.20
131.25	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	11.734	0.00	0.34
131.25	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	11.734	0.00	1.30
135.00	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	11.803	0.00	1.02
135.00	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	11.803	0.00	3.90
135.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.032	0.000	11.813	0.00	0.14
135.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.032	0.000	11.813	0.00	0.52
137.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.031	0.000	11.840	0.00	0.41
137.00	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.031	0.000	11.840	0.00	1.56
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	11.894	0.00	0.82
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	11.894	0.00	3.12
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	11.982	0.00	1.37
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	11.982	0.00	5.20
147.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.033	0.000	12.017	0.00	0.55
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.033	0.000	12.017	0.00	2.08
150.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	12.068	0.00	0.82
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	12.068	0.00	3.12
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	12.152	0.00	1.37
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	12.152	0.00	5.20
157.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.036	0.000	12.185	0.00	0.55
157.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.036	0.000	12.185	0.00	2.08
160.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.036	0.000	12.233	0.00	0.82
160.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.036	0.000	12.233	0.00	3.12
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	12.313	0.00	1.37
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	12.313	0.00	5.20
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.038	0.000	12.344	0.00	0.55
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.038	0.000	12.344	0.00	2.08
170.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	12.390	0.00	0.82
170.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	12.390	0.00	3.12
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.040	0.000	12.466	0.00	1.37
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.040	0.000	12.466	0.00	5.20
176.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.041	0.000	12.481	0.00	0.27
176.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.041	0.000	12.481	0.00	1.04
										Totals:	**0.0**	**231.1**

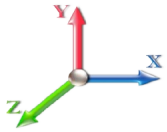
Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 51	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

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	-51.39	-8.79	-0.07	-1113.2	0.00	1113.27	6372.54	3186.27	14661.2	7341.49	0.00	0.000	0.000	0.160
5.00	-49.65	-8.70	-0.07	-1069.3	0.00	1069.33	6292.68	3146.34	14220.7	7120.95	0.02	-0.044	0.000	0.158
10.00	-47.94	-8.61	-0.07	-1025.8	0.00	1025.83	6211.66	3105.83	13784.2	6902.39	0.09	-0.088	0.000	0.156
15.00	-46.26	-8.52	-0.07	-982.77	0.00	982.77	6129.50	3064.75	13351.9	6685.89	0.21	-0.134	0.000	0.155
20.00	-44.60	-8.43	-0.07	-940.15	0.00	940.15	6046.18	3023.09	12923.8	6471.51	0.37	-0.179	0.000	0.153
25.00	-42.97	-8.33	-0.07	-898.01	0.00	898.01	5961.72	2980.86	12500.0	6259.33	0.59	-0.225	0.000	0.151
30.00	-41.36	-8.22	-0.07	-856.38	0.00	856.38	5876.11	2938.05	12080.8	6049.42	0.85	-0.272	0.000	0.149
35.00	-39.78	-8.11	-0.07	-815.28	0.00	815.28	5789.35	2894.67	11666.3	5841.84	1.16	-0.319	0.000	0.146
40.00	-38.23	-7.99	-0.07	-774.72	0.00	774.72	5679.25	2839.63	11212.8	5614.75	1.52	-0.366	0.000	0.145
42.75	-37.39	-7.93	-0.07	-752.75	0.00	752.75	5615.38	2807.69	10960.7	5488.51	1.74	-0.393	0.000	0.144
45.00	-36.19	-7.87	-0.07	-734.92	0.00	734.92	5563.11	2781.56	10756.6	5386.29	1.93	-0.415	0.000	0.143
49.00	-34.09	-7.76	-0.07	-703.42	0.00	703.42	4756.80	2378.40	9239.06	4626.40	2.29	-0.454	0.000	0.159
50.00	-33.82	-7.75	-0.07	-695.66	0.00	695.66	4742.51	2371.25	9172.60	4593.12	2.39	-0.464	0.000	0.159
55.00	-32.48	-7.63	-0.07	-656.91	0.00	656.91	4670.33	2335.16	8842.49	4427.82	2.90	-0.516	0.000	0.155
60.00	-31.16	-7.51	-0.07	-618.76	0.00	618.76	4597.00	2298.50	8516.13	4264.39	3.47	-0.569	0.000	0.152
65.00	-29.87	-7.38	-0.07	-581.23	0.00	581.23	4522.52	2261.26	8193.68	4102.93	4.09	-0.622	0.000	0.148
70.00	-28.60	-7.26	-0.07	-544.31	0.00	544.31	4446.89	2223.45	7875.26	3943.48	4.77	-0.674	0.000	0.144
75.00	-27.36	-7.13	-0.07	-508.02	0.00	508.02	4354.69	2177.34	7534.33	3772.77	5.51	-0.727	0.000	0.141
80.00	-26.14	-7.01	-0.07	-472.36	0.00	472.36	4253.06	2126.53	7185.02	3597.85	6.30	-0.780	0.000	0.137
85.00	-24.94	-6.87	-0.07	-437.34	0.00	437.34	4151.43	2075.72	6843.99	3427.08	7.14	-0.833	0.000	0.134
86.50	-24.58	-6.84	-0.07	-427.03	0.00	427.03	4120.95	2060.47	6743.30	3376.66	7.41	-0.849	0.000	0.132
90.00	-23.19	-6.73	-0.07	-403.10	0.00	403.10	4049.81	2024.90	6511.26	3260.47	8.04	-0.886	0.000	0.129
91.75	-22.50	-6.69	-0.07	-391.32	0.00	391.32	3441.70	1720.85	5608.94	2808.64	8.37	-0.905	0.000	0.146
95.00	-21.83	-6.61	-0.07	-369.59	0.00	369.59	3401.05	1700.53	5452.51	2730.31	9.00	-0.939	0.000	0.142
100.00	-20.81	-6.48	-0.07	-336.55	0.00	336.55	3337.56	1668.78	5214.58	2611.16	10.01	-0.995	0.000	0.135
105.00	-19.82	-6.35	-0.07	-304.15	0.00	304.15	3272.92	1636.46	4980.08	2493.74	11.08	-1.049	0.000	0.128
110.00	-18.84	-6.22	-0.07	-272.39	0.00	272.39	3194.68	1597.34	4730.71	2368.87	12.21	-1.103	0.000	0.121
115.00	-17.88	-6.10	-0.07	-241.27	0.00	241.27	3107.57	1553.79	4474.96	2240.81	13.39	-1.154	0.000	0.113
120.00	-16.95	-5.97	-0.07	-210.78	0.00	210.78	3020.47	1510.23	4226.32	2116.30	14.63	-1.203	0.000	0.105
125.00	-16.03	-5.84	-0.07	-180.93	0.00	180.93	2933.36	1466.68	3984.78	1995.35	15.92	-1.250	0.000	0.096
130.00	-15.14	-5.71	-0.07	-151.72	0.00	151.72	2846.25	1423.13	3750.35	1877.96	17.25	-1.293	0.000	0.086
131.25	-14.92	-5.69	-0.07	-144.57	0.00	144.57	2824.47	1412.24	3692.86	1849.17	17.59	-1.304	0.000	0.083
135.00	-13.94	-5.58	-0.07	-123.25	0.00	123.25	2759.14	1379.57	3523.03	1764.13	18.62	-1.333	0.000	0.075
135.50	-13.81	-5.57	-0.07	-120.46	0.00	120.46	1734.08	867.04	2260.78	1132.07	18.76	-1.337	0.000	0.114
137.00	-11.24	-4.42	0.00	-112.11	0.00	112.11	1723.43	861.72	2225.81	1114.56	19.19	-1.347	0.000	0.107
140.00	-10.89	-4.35	0.00	-98.86	0.00	98.86	1701.83	850.91	2156.25	1079.73	20.04	-1.376	0.000	0.098
145.00	-10.33	-4.23	0.00	-77.13	0.00	77.13	1664.90	832.45	2041.54	1022.29	21.51	-1.419	0.000	0.082
147.00	-9.70	-3.99	0.00	-68.67	0.00	68.67	1649.80	824.90	1996.11	999.54	22.11	-1.435	0.000	0.075
150.00	-9.39	-3.92	0.00	-56.70	0.00	56.70	1626.81	813.41	1928.48	965.67	23.01	-1.455	0.000	0.065
155.00	-8.88	-3.81	0.00	-37.10	0.00	37.10	1587.58	793.79	1817.22	909.96	24.55	-1.483	0.000	0.046
157.00	-5.11	-2.34	0.00	-29.49	0.00	29.49	1571.57	785.79	1773.24	887.94	25.18	-1.492	0.000	0.036
160.00	-4.83	-2.27	0.00	-22.48	0.00	22.48	1547.20	773.60	1707.88	855.21	26.12	-1.502	0.000	0.029
165.00	-4.36	-2.16	0.00	-11.12	0.00	11.12	1505.67	752.84	1600.62	801.50	27.70	-1.515	0.000	0.017
167.00	-2.00	-0.77	0.00	-6.80	0.00	6.80	1488.74	744.37	1558.33	780.32	28.33	-1.518	0.000	0.010
170.00	-1.76	-0.70	0.00	-4.50	0.00	4.50	1462.99	731.50	1495.57	748.90	29.29	-1.520	0.000	0.007
175.00	-1.36	-0.60	0.00	-0.99	0.00	0.99	1411.70	705.85	1385.55	693.80	30.88	-1.523	0.000	0.002
176.00	0.00	-0.56	0.00	-0.39	0.00	0.39	1400.09	700.04	1362.73	682.38	31.20	-1.523	0.000	0.001

Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 52	

Final Analysis Summary

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	6/5/2018	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 53	

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	36.8	0.00	61.61	0.00	0.19	4687.78
0.9D + 1.6W 97 mph Wind	36.7	0.00	46.20	0.00	0.19	4627.55
1.2D + 1.0Di + 1.0Wi 50 mph Wind	11.2	0.00	102.18	0.00	0.17	1475.70
1.2D + 1.0E	2.1	0.00	61.67	0.00	0.00	263.84
0.9D + 1.0E	2.1	0.00	46.25	0.00	0.00	260.26
1.0D + 1.0W 60 mph Wind	8.8	0.00	51.39	0.00	0.07	1113.27

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	-39.90	-32.68	-0.19	-2967.2	0.00	-2967.2	4756.80	2378.4	9239.06	4626.40	49.00	0.650
0.9D + 1.6W 97 mph Wind	-46.20	-36.75	-0.19	-4627.5	0.00	-4627.5	6372.54	3186.2	14661.2	7341.49	0.00	0.638
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-74.58	-10.23	-0.17	-943.40	0.00	-943.40	4756.80	2378.4	9239.06	4626.40	49.00	0.220
1.2D + 1.0E	-16.72	-1.43	0.00	-42.65	0.00	-42.65	1734.08	867.04	2260.78	1132.07	135.50	0.047
0.9D + 1.0E	-12.53	-1.40	0.00	-42.03	0.00	-42.03	1734.08	867.04	2260.78	1132.07	135.50	0.044
1.0D + 1.0W 60 mph Wind	-51.39	-8.79	-0.07	-1113.2	0.00	-1113.2	6372.54	3186.2	14661.2	7341.49	0.00	0.160

Base Plate Summary

Structure:	CT02216-S-SB		**Code:**	EIA/TIA-222-G	6/5/2018
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 54

Tower Engineering Solutions

Reactions	
Original Design	
Moment (kip-ft):	5100.00
Axial (kip):	47.00
Shear (kip):	38.00
Analysis	
Moment (kip-ft):	4687.78
Axial (kip):	102.18
Shear (kip):	36.77
Moment Design %:	91.92

Base Plate	
Yield (ksi):	50.00
Width (in):	66.00
Style:	Clipped
Polygon Sides:	0.00
Clip Length (in):	16.00
Effective Len (in):	7.55
Moment (kip-in):	561.55
Allow Stress (ksi):	67.50
Applied Stress (ksi):	0.00
Stress Ratio:	0.73

Anchor Bolts	
Bolt Circle:	64.00
Number Bolts:	24.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Clustered
Cluster Dist (in):	6.00
Start Angle (deg):	45.00
Compression	
Force (kip):	150.75
Allowable (kip):	260.00
Ratio:	0.59
Tension	
Force (kip):	142.24
Allowable (kip):	260.00
Ratio:	0.56

Pier Foundation Design For Monopole

				Date
				6/5/2018
	Customer Name:	**Sprint Nextel**	**EIA/TIA Standard:**	EIA-222-G
	Site Name:		**Structure Height (Ft.):**	176
	Site Number:	CT02216-S-SBA	**Engineer Name:**	M. Kandel
	Engr. Number:	53994	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Acceptable overstress (5.0%

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	61.6	Shear Force (Kips):	36.8
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4687.8

Foundation Geometries:

Mods required -Yes/No ?:	No			ft.
Diameter of Pier (ft.):	8.0	Depth of Base B. G. S. :	28.0	ft.
Pier Height A. G. (ft.):	0.50			

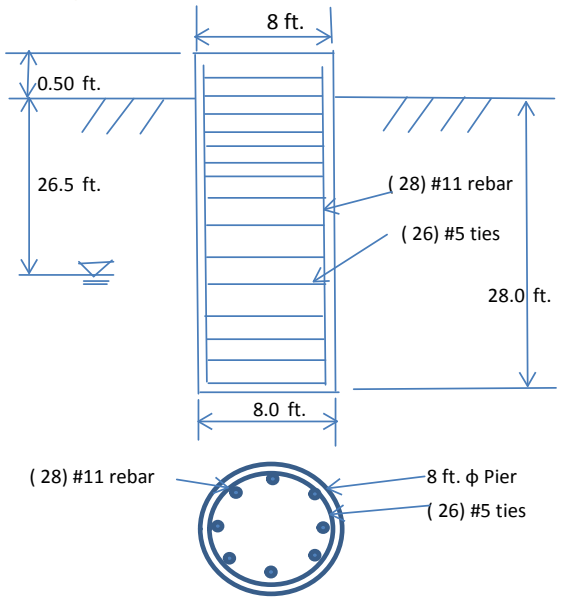
Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40	ksi
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	28	Tie Spacing:	18.0	in.
Concrete Cover (in.):	4	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	26.5	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)

Skin Frictions are to be obtained from: Soil Report



Monopole Pier Foundation

Depth of Layers (ft) Top	Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types					
0.0	4.0	100	0	0		0	Sand					
4.0	9.0	120	33	0		0	Sand					
9.0	19.0	120	34	0		0	Sand					
19.0	26.5	125	36	0		0	Sand					
26.5	29.0	125	36	0		19800	Sand					
29.0	34.0											

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.):	13308	Dry Soil Weight from Conical Failure:	1576	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	18	Buoyant Soil Weight from Conical Failure (Ki	0	Kips
Total Dry Concrete Volume (cu. Ft.):	1357	Total Dry Concrete Weight:	203.6	Kips
Total Buoyant Concrete Volume (cu. Ft.):	75.4	Total Buoyant Concrete Weight:	6.60	Kips
Total Effective Concrete Weight (Kips):	210.2	Total Effective Soil Weight:	1575.4	Kips
Total Effective Vertical Load on Base (Kips):	115.2			

Check Soil Capacities:

					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	12885.7	>	Design Factored Momont (kips-ft):	5427	0.42	OK!
Factor of Safety of Passive Soil Resistance against Moment:	2.37	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):	1.56		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	8441.6	>	Design Factored Moment (Mu, K-Ft):	4866.6	0.58	OK!
Calculated Shear Capacity (Kips):	1471.3	>	Design Factored Shear (Kips):	405.9	0.28	OK!
Calculated Tension Capacity (Tn, Kips):	2358.7	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12720	>	Design Factored Axial Load (Pu Kips):	61.6	0.00	OK!
Moment & Axial Strength Combination:	0.58	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.006	Reinforcement Ratio is satisfied per ACI				

Antenna Mount Structural Analysis

Source: SBA Date: 12.14.2017

SBA Site:	CT02216-S Glastonbury
Sprint Site Number:	CT33XC546
Project:	Sprint DO Macro Upgrade
Prepared For:	Sprint
Mount Description:	(1) Platform
Site Location:	175 Dickenson Rd, Glastonbury, CT Hartford County 41.655897°, -72.523255°
Design Codes:	ANSI/TIA-222-G IBC 2012 w/ 2016 CT Building Code
Analysis Load Case:	Sprint Final Configuration
Analysis Result:	**Adequate @ 63%** - Once Augmented See Conclusion

Revision 0
March 28, 2018

CT33XC546-PASSING-MOUNT-STRUCTURAL-ANALYSIS-03-28-18

1.0 Introduction

An antenna mount structural analysis has been performed on Sprint's existing mount assembly located at the CT02216-S Glastonbury communications site in Hartford County, CT considering the final equipment loading configuration listed in Section 3.0.

2.0 Analysis Criteria

An elastic three-dimensional model of the mount structure has been analyzed pursuant to the following criteria:

- IBC 2012 – International Building Code.
- ANSI/TIA-222-G – Structural Standard for Antenna Supporting Structures and Antennas.
- AISC – Steel Construction Manual.
- ANSI/AWS D1.1 – Structural Welding Code.

Wind w/o ice = 126 mph (3-sec gust Ultimate Wind Speed) Wind w/o ice = 97 mph (3-sec gust Equivalent per TIA-222-G Tower Code)	
Wind with ice = 50 mph (3-sec gust, 1" Ice) Exposure Category B	Topographic Category 1 Structure Class II

The following documents were provided:

- Mount and Tower Record Documents
  SBA
- Tower Structural Analysis
  TES, 2/8/18.
- RF Design
  Sprint DOMU Project

The results of the analysis are illustrated in Section 4.0. If any of the existing or proposed conditions reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

3.0 Appurtenance Information

Table 3.1 – Sprint Final Configuration[1]

COR	(Quantity) Appurtenance Make/Model	Mount Description
157.0'±	(3) RFS APXVTM14-ALU-I20	*(1) Platform*
	(3) COMMSCOPE NNVV-65B-R4	
	(6) ALU 800MHz RRH	
	(3) ALU 1900MHz RRH	
	(3) ALU 2500MHz RRH	

1. *Refer to antenna installation Construction Drawings (by others, when applicable) for additional information regarding final antenna and equipment orientations.*
2. *Panel antennas to be installed in Positions 1 and 3 (as close to the center of face near existing standoff as possible. RRH units to be installed on dual swivel brackets behind panel antennas in Positions 1 and 3.*

4.0 Analysis Results

Table 4.1 – Existing Mount Capacity

Load Case	Governing Mount Component[1]	% Capacity[2]	Result
Final Sprint Configuration	Angle Rail	>200%	**Inadequate[3]**

1. *Refer to the Calculations & Software Output portion of this report for mount component and structural information.*
2. *Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.3. 105% is an acceptable allowable stress percentage for mount components.*
3. *Structural augments to the existing mount structure are required to obtain a mount structure capable of supporting the currently proposed final loading configuration in Table 3.1.*

Table 4.2 – Augmented Mount Capacity

Load Case	Governing Mount Component[1]	% Capacity[2]	Result
Final Sprint Configuration	Collar	63%	**Adequate Once Augmented[3]**

1. *Refer to the Calculations & Software Output portion of this report for mount component and structural information.*
2. *Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.3. 105% is an acceptable allowable stress percentage for mount components.*
3. *Refer to GeoStructural Mount Augmentation Drawings and Section 5.0 for information regarding required mount augments.*

Table 4.3 – Structural Component Material Strengths

Structural Component	Nominal Strength/Material[1]
Pipe	F_y = 35 ksi (A53, Gr. B)
Tube	F_y = 46 ksi (A500, Gr. B)
Structural Shapes (L, C, W, etc.), Plate / Bar	F_y = 36 ksi (A36)
Uni-Strut	F_y = 33 ksi (A570, Gr. 33)
Connection Bolts	A325
Stainless Steel Bolts	18-8 Stainless, Grade 316/304 F_y = 74 ksi (Yield) & F_u = 29 ksi (Tension)
U-Bolts / Threaded Rod	SAE J429 Grade 2 (Substitution: ASTM A449) F_y = 57 ksi (Yield) & F_u = 74 ksi (Tension)
Welds	E70XX Electrodes

1. *Strengths listed were assumed for this analysis and are based upon ASTM, AISC, RCSC, AWS and ACI preferred specification values. Values and materials are consistent with industry standards. Material strengths were taken from original design documents when available.*

5.0 Conclusion & Recommendations

Based on Sprint's final equipment loading configuration, the existing mount assembly does not have sufficient capacity to support the loading considered in this analysis pursuant to the listed standards. Structural augments (reinforcements) will be required and are briefly summarized below:

- Install Platform Reinforcement Kit; located 4' below the existing collar mount and attaching to the middle of the existing back-to-back angle platform member at the platform corners.
  - Sitepro1 PRK-1245L, (1) total.
- Install Handrail Kit; located 3.0' above the existing platform rail and attaching to the mount pipes.
  - Sitepro1 HRK14-U, (1) total. Attach all mount pipes to new handrail with kit-provided cross-over plates. (6) new Pipe2.0STD x 9' tall mount pipes will be required to span between the existing rail and new top and bottom rails.
- Install V-Brace Kit; located 2.5' below the existing platform rail and attaching to the new bottom handrail kit.
  - Sitepro1 PRK-SFS-H-L, (1) total. Attach kit ring mount in kit to monopole shaft.
    - If the PRK-SFS-H-L kit is not available, provide (6) total L2-1/2x2-1/2x3/16 x ~8' long replacement angles, field-cut and drill to suit.
  - Pipe2.0STD x 14.0' Horizontal Rail, (3) total. Attach SFS-H-L kit angles to new horizontal bottom rail.
  - Pipe2.0STD x ~4' long corner braces, (3) total. Attach to new horizontal bottom rail w/ Sitepro1 PUCK brackets, (6) total.
  - Sitepro1 SCX1-K, (6) total. Attach all mount pipes to new horizontal bottom rail.
- Panel antennas to be installed in Positions 1 and 3 (as close to the center of face near existing standoff as possible. RRH units to be installed on dual swivel brackets behind panel antennas in Positions 1 and 3.

Once the recommended augments are successfully implemented, the augmented mount assembly has sufficient capacity to support the loading considered in this analysis pursuant to the listed standards.

Augmentation Requirements:

- **In order to obtain a mount structure capable of supporting the currently proposed final loading configuration, upgrade augments must be installed in accordance with GeoStructural's *Mount Augmentation Drawings*.**
- **Antennas and equipment shall be installed centered vertically on the mount front face rails. If this assumption is incorrect, the results of this analysis will be affected.**

This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If any of the existing or proposed conditions (appurtenance loading, member sizes, etc.) reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

Prepared by:

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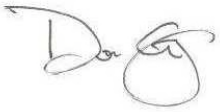
Reviewed and Approved by:



Don George, PE, SE, MLSE
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don.george@geostructural.com

6.0 Standard Conditions

- All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study to verify existing conditions and the results of this analysis are based solely on the information provided. It has been assumed that the tower, antenna support structure and foundation have been constructed according to the provided existing drawings, previous structural analysis reports, mapping documents, etc.

- The default Structure Classification is Class II in accordance with ANSI/TIA-222-G §A.2.2 & §A.15.3 and has been assumed for this analysis. The owner shall verify this classification conforms with original or desired reliability criteria.

- This analysis assumes that the structure has been properly installed and maintained in accordance with ANSI/TIA-222-G §15.5 and that no physical deterioration has occurred in any of the components of the structure. Damaged, missing, or rusted members were not considered.

- This analysis verifies the adequacy of the main components of the structure. Not all connections, welds, bolts, plates, etc. were individually detailed and analyzed. Where not specifically analyzed, the existing connection plates, welds, bolts, etc. were assumed adequate to develop the full capacity of the main structural members.

- No consideration has been made for unusual or extreme wind events, rime/in-cloud ice loadings, harmonic or nodal vibration, vortex shedding or other similar conditions.

- It is the owner's responsibility to determine the appropriate design wind speed and amount of ice accumulation beyond code minimum values that should be considered in the analysis.

- This analysis report does not constitute a maintenance and condition assessment. No certifications regarding maintenance and condition are expressed or implied. If desired, GeoStructural can provide these services under a subsequent contract.

- This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If desired, GeoStructural can provide these services under a subsequent contract.

7.0 Calculations & Software Output

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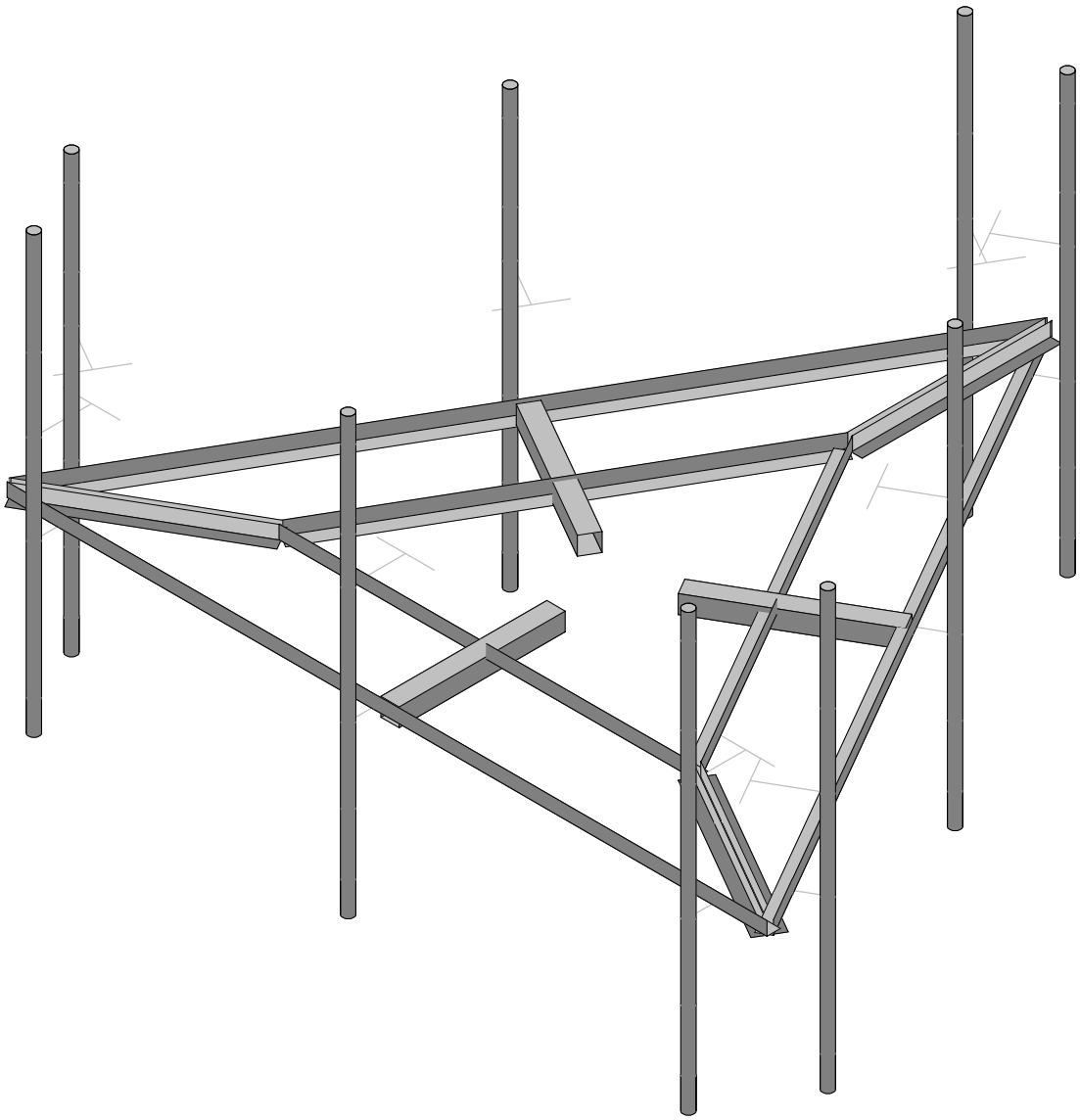

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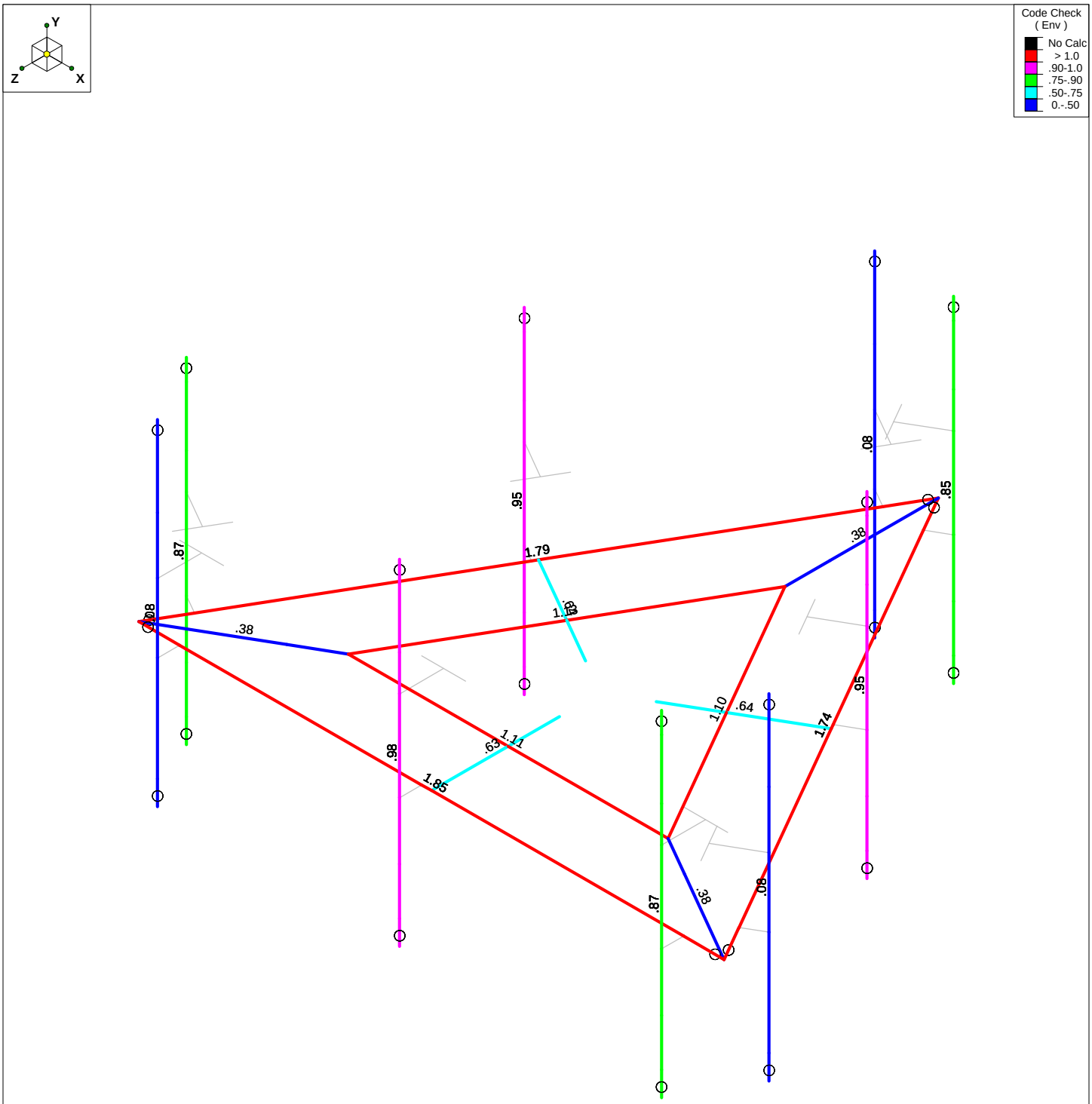

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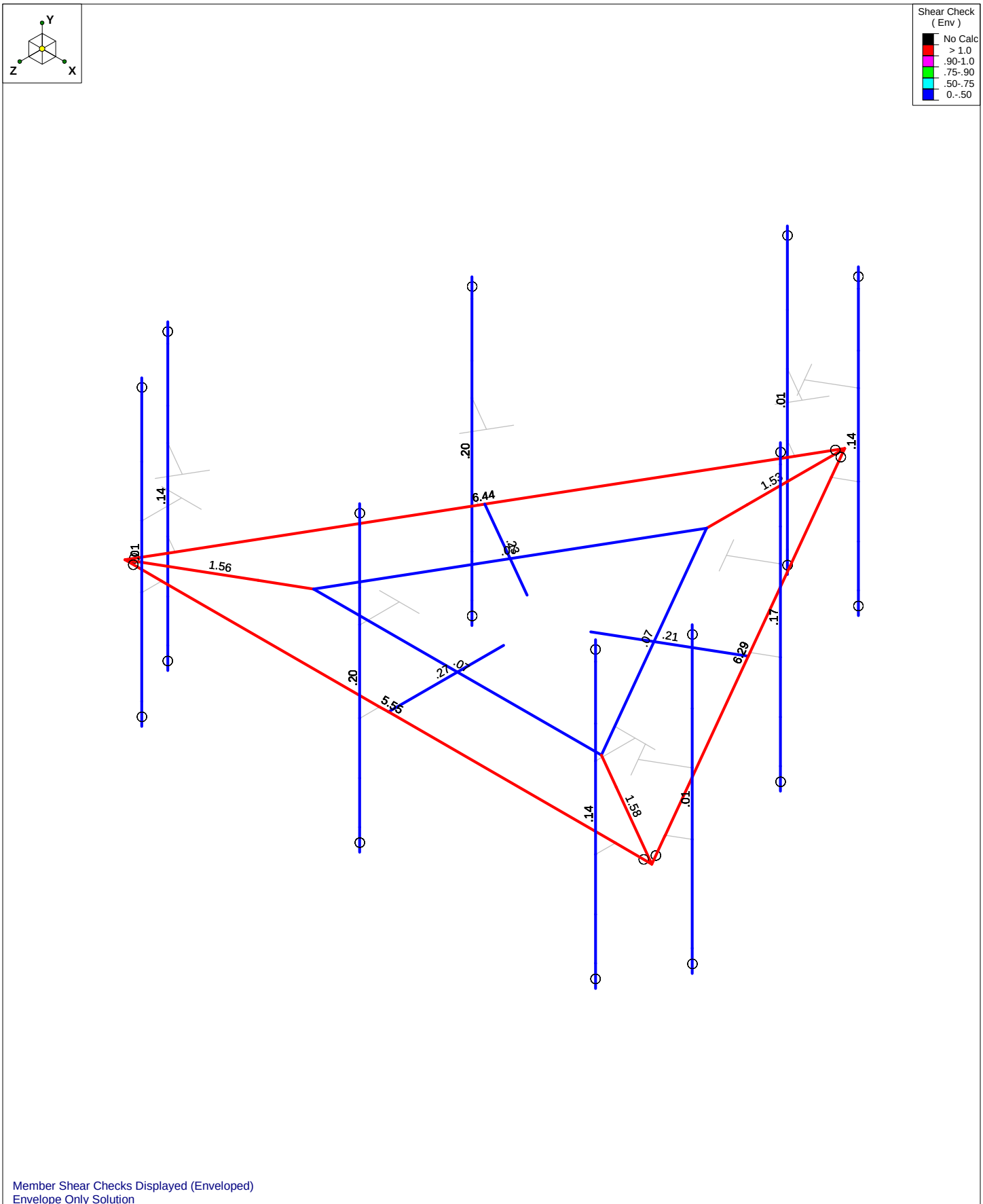

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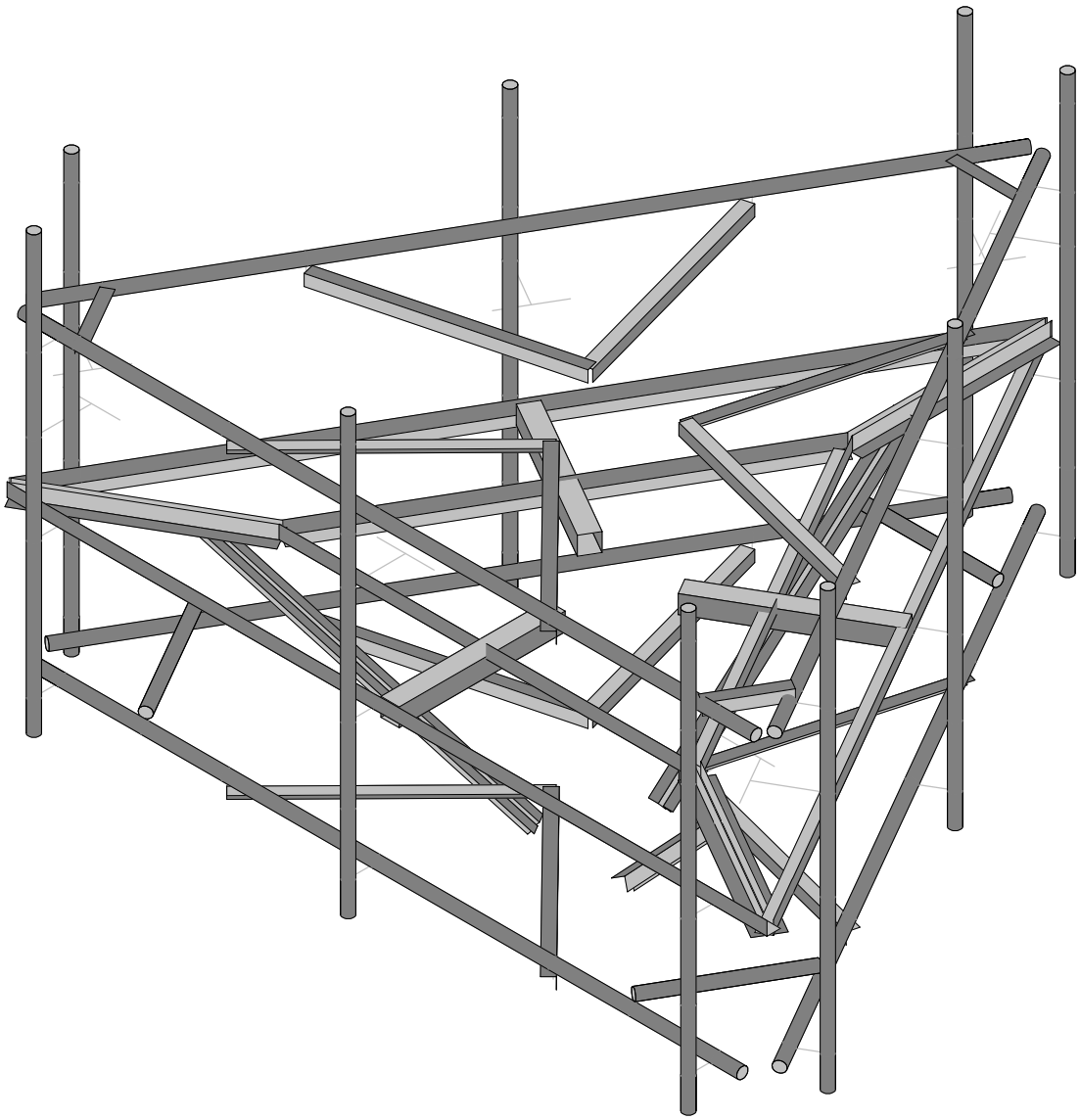

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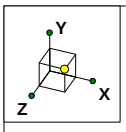

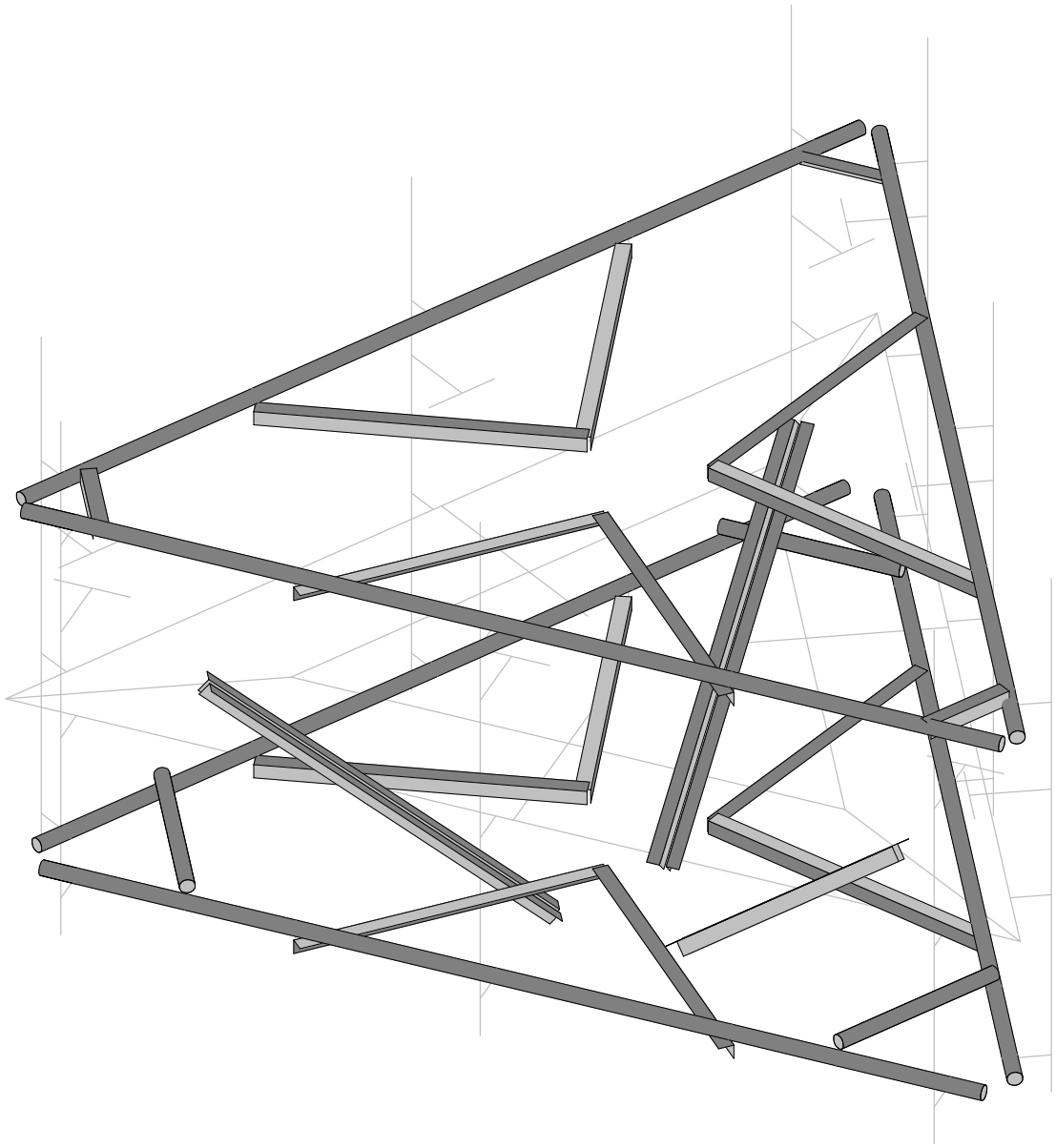

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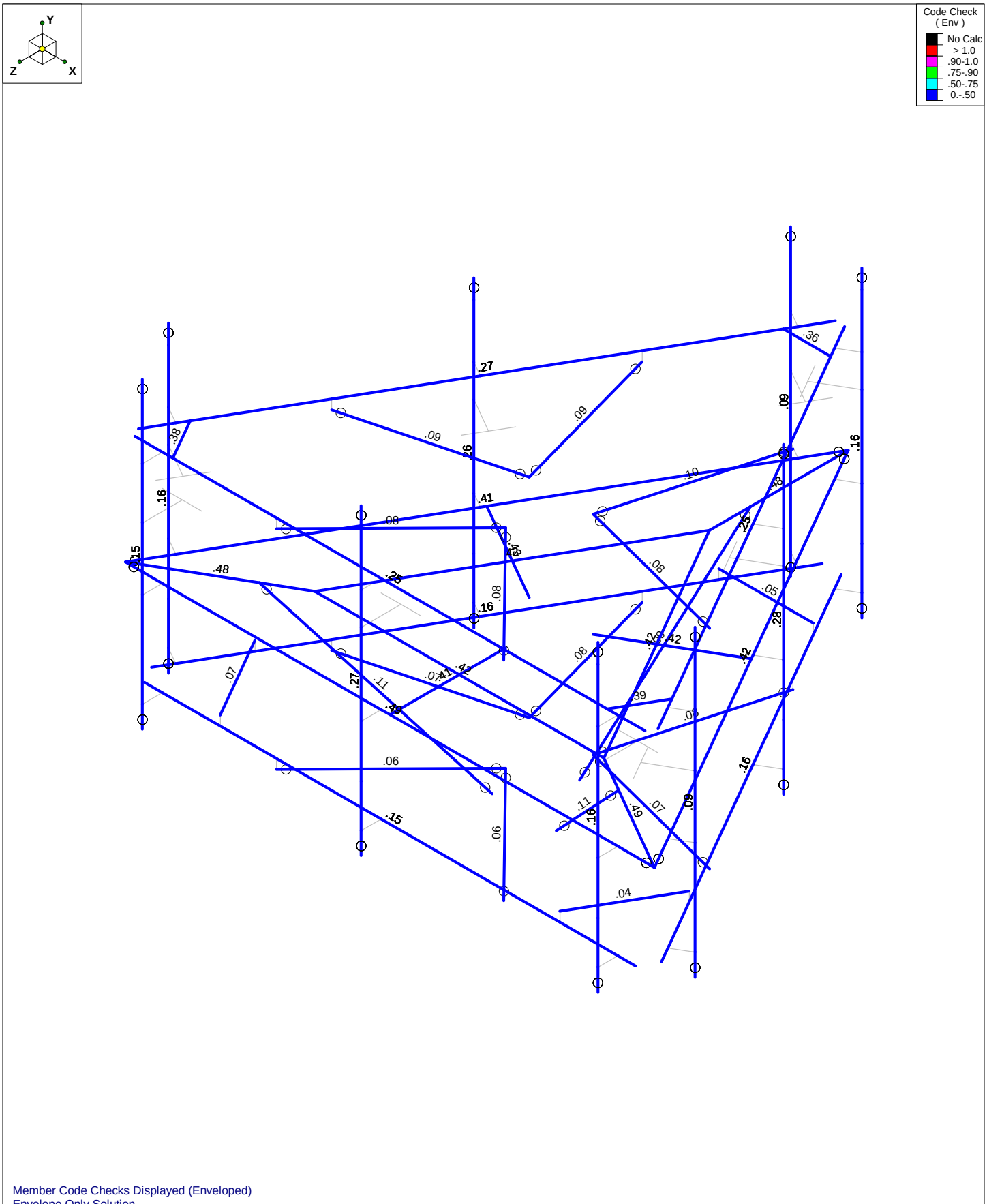

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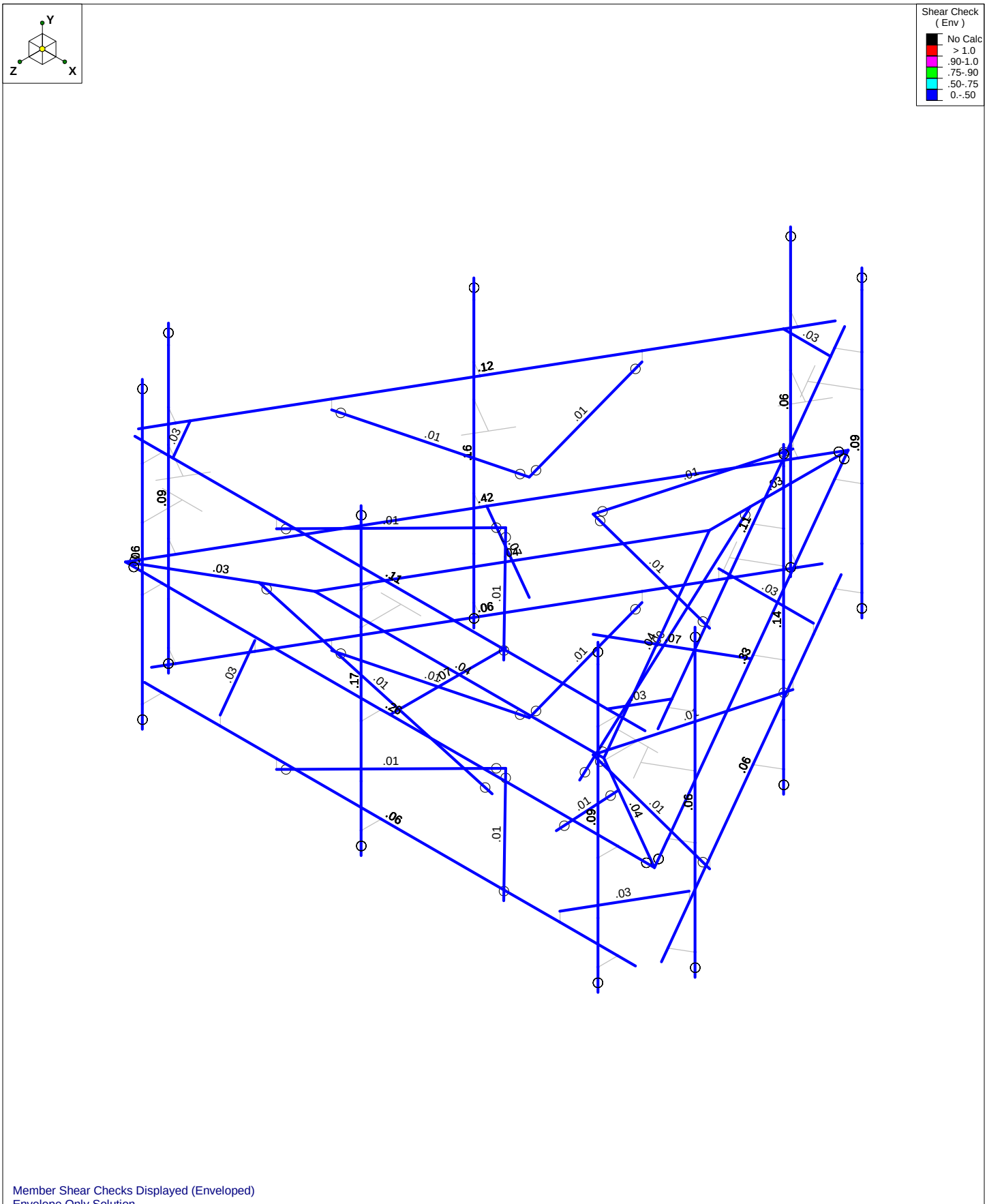

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Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	D	DL		-1		25		6		
2	Di	SL				25		54		
3	Lm [500]	LL				1				
4	Lv [250]	LL				2				
5	Woz	WL				25		48		
6	Wox	WL				25		48		
7	Wiz	WL				25		48		
8	Wix	WL				25		48		
9	Ez	EL				25				
10	Ex	EL				25				

Load Combination Design

	Description	ASIF	CD	Service	Hot Rol...	Cold Form...	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
1	1) 1.4D				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
32	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
33	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
34	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
35	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
36	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
37	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
38	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
39	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
40	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
41	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Load Combination Design (Continued)

	Description	ASIF	CD	Service	Hot Rol...	Cold Form...	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
42	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
43	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
44	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
45	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
46	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
47	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
48	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
49	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
50	6) 1.2D+1.5Lv				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
51	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
52	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
53	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
54	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
55	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
56	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
57	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
58	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
59	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
60	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
61	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
62	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
63	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
64	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
66	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
67	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
68	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
69	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
70	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
71	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
72	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
73	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
74	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N25	max	.579	5	.095	32	1.078	2	.001	2	0	1	0	17
2		min	-.56	23	.009	63	-1.044	20	0	20	0	1	0	11
3	N30	max	.89	5	.095	36	.685	25	0	23	0	1	0	24
4		min	-.868	23	.009	67	-.701	7	0	5	0	1	-.001	6
5	N35	max	.966	17	.095	28	.613	15	0	17	0	1	.001	34
6		min	-.993	11	.009	71	-.627	9	0	11	0	1	0	16
7	N42	max	1.108	16	1.323	33	1.862	3	2.514	36	1.971	22	4.28	34
8		min	-1.412	10	.3	63	-1.678	21	.533	69	-1.981	4	.91	66
9	N40	max	1.357	6	1.35	36	1.741	13	2.481	27	1.851	24	-.929	71
10		min	-1.048	24	.306	68	-1.572	19	.518	69	-1.86	6	-4.345	26
11	N44	max	1.286	5	1.33	37	.381	14	-1.071	64	.693	5	.06	23
12		min	-1.281	23	.302	66	-.736	8	-4.986	33	-.687	23	-.082	5
13	N128	max	.054	17	2.043	26	-.403	69	0	1	0	23	0	5
14		min	-.054	23	.372	69	-2.181	26	0	1	0	5	0	23
15	N130	max	-.346	73	2.032	30	1.088	29	0	5	0	23	0	23
16		min	-1.876	30	.368	73	.199	22	0	23	0	5	0	5
17	N132	max	1.908	33	2.064	34	1.105	35	0	23	0	23	0	23
18		min	.354	65	.377	65	.205	65	0	5	0	5	0	5
19	N147	max	.12	17	.065	32	.477	2	0	27	0	1	0	50

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
20		min	-.148	11	.009	69	-.308	20	0	74	0	1	0	41
21	N152	max	.365	5	.065	36	.16	25	0	15	0	1	0	70
22		min	-.223	23	.009	72	-.257	7	0	33	0	1	0	27
23	N157	max	.255	17	.065	28	.14	15	0	25	0	1	0	37
24		min	-.416	11	.009	64	-.215	9	0	43	0	1	0	68
25	Totals:	max	6.544	5	10.501	34	6.441	14						
26		min	-6.544	23	2.279	64	-6.441	8						

Envelope Member Section Deflections Service

Member	Sec	x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y' Ratio	LC	(n) L/z' Ratio	LC
No Data to Print ...													

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M58	LL3x3x4x0	.492	1.067	34	.035	1.105	y	33	79.399	93.312	6.48	4.911	1...	H1-1b
2	M64_1	L3x3x4	.487	6.982	29	.259	6.982	z	32	32.733	46.656	1.688	2.278	1	H2-1
3	M57	LL3x3x4x0	.484	1.067	26	.034	1.105	y	36	79.399	93.312	6.48	4.911	1...	H1-1b
4	M59	LL3x3x4x0	.481	1.067	29	.034	1.105	y	28	79.399	93.312	6.48	4.911	1...	H1-1b
5	M52	HSS4x4x3	.426	0	30	.070	1.241	z	31	102.875	106.812	12.662	12.662	3...	H1-1b
6	M61	L3x3x4	.424	7.627	34	.041	7.627	z	34	13.292	46.656	1.688	3.516	2...	H2-1
7	M53	HSS4x4x3	.423	0	27	.070	1.241	z	27	102.875	106.812	12.662	12.662	3...	H1-1b
8	M62	L3x3x4	.422	0	34	.041	0	z	34	13.292	46.656	1.688	3.509	2...	H2-1
9	M65	L3x3x4	.419	6.983	27	.329	6.983	z	34	32.733	46.656	1.688	2.278	1	H2-1
10	M63	L3x3x4	.415	0	27	.041	0	z	27	13.292	46.656	1.688	3.513	2...	H2-1
11	M66	L3x3x4	.412	6.983	31	.417	6.983	z	30	32.733	46.656	1.688	2.278	1	H2-1
12	M60	HSS4x4x3	.410	0	29	.071	1.241	z	29	102.875	106.812	12.662	12.662	1.8	H1-1b
13	M50	L2.5x2.5x3	.386	0	3	.032	1.25	z	8	27.293	29.192	.873	1.972	1...	H2-1
14	M49A	L2.5x2.5x3	.384	0	11	.033	1.25	z	4	27.293	29.192	.873	1.972	1...	H2-1
15	M51A	L2.5x2.5x3	.357	0	7	.031	1.25	y	5	27.293	29.192	.873	1.972	1...	H2-1
16	M108	PIPE_2.0	.285	3	36	.143	6		8	14.916	32.13	1.872	1.872	1...	H1-1b
17	M28	PIPE_2.0	.269	5.167	26	.170	6		5	14.916	32.13	1.872	1.872	1...	H1-1b
18	M48	PIPE_2.0	.268	9.678	11	.118	12.4...		5	17.855	32.13	1.872	1.872	1	H1-1b
19	M118	PIPE_2.0	.259	5.167	35	.163	6		7	14.916	32.13	1.872	1.872	1...	H1-1b
20	M41A	PIPE_2.0	.253	9.678	3	.110	9.818		3	17.855	32.13	1.872	1.872	1	H1-1b
21	M47	PIPE_2.0	.247	3.787	5	.108	3.647		5	17.855	32.13	1.872	1.872	1	H1-1b
22	M62B_1	PIPE_2.0	.164	6.618	29	.057	9.589		36	17.855	32.13	1.872	1.872	1	H1-1b
23	M62B	PIPE_2.0	.163	3.083	29	.090	6		11	14.916	32.13	1.872	1.872	1...	H1-1b
24	M54	PIPE_2.0	.162	3.083	26	.092	3.083		10	14.916	32.13	1.872	1.872	1...	H1-1b
25	M70	PIPE_2.0	.160	6	5	.090	6		3	14.916	32.13	1.872	1.872	2...	H1-1b
26	M61B	PIPE_2.0	.160	6.618	27	.055	9.589		32	17.855	32.13	1.872	1.872	1	H1-1b
27	M57A_1	PIPE_2.0	.147	6.347	34	.058	3.376		49	17.855	32.13	1.872	1.872	1	H1-1b
28	M57C	PIPE_2.0	.145	3.083	48	.060	3.083		6	14.916	32.13	1.872	1.872	1...	H1-1b
29	M106	LL2.5x2.5x...	.109	3.01	17	.007	6.021	y	10	36.392	58.32	3.954	1.593	1...	H1-1b
30	M105	LL2.5x2.5x...	.108	3.01	5	.007	0	y	5	36.392	58.32	3.954	2.55	1...	H1-1b
31	M80	L2.5x2.5x3	.097	2.185	18	.012	4.282	y	30	15.939	29.192	.873	1.724	1...	H2-1
32	M75A	PIPE_2.0	.094	3.083	28	.061	3.083		10	14.916	32.13	1.872	1.872	1...	H1-1b
33	M93	PIPE_2.0	.094	3.083	33	.057	3.083		2	14.916	32.13	1.872	1.872	1...	H1-1b
34	M82	L2.5x2.5x3	.094	2.185	22	.013	4.282	z	33	15.939	29.192	.873	1.724	1...	H2-1
35	M84	L2.5x2.5x3	.088	2.141	13	.013	0	y	35	15.939	29.192	.873	1.724	1...	H2-1
36	M104	LL2.5x2.5x...	.087	3.01	27	.004	6.021	y	27	36.392	58.32	3.954	2.55	1...	H1-1b
37	M78	L2.5x2.5x3	.083	2.141	3	.013	0	z	29	15.939	29.192	.873	1.724	1...	H2-1
38	M74	L2.5x2.5x3	.078	2.185	14	.013	0	z	37	15.939	29.192	.873	1.724	1...	H2-1
39	M76	L2.5x2.5x3	.077	2.185	14	.013	0	y	27	15.939	29.192	.873	1.724	1...	H2-1
40	M80_1	L2.5x2.5x3	.077	2.141	5	.008	4.282	y	27	15.939	29.192	.873	1.724	1...	H2-1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
41	M82_1	L2.5x2.5x3	.076	2.141	11	.008	0	z	37	15.939	29.192	.873	1.724	1...	H2-1
42	M84_1	L2.5x2.5x3	.075	2.141	2	.008	0	y	31	15.939	29.192	.873	1.724	1...	H2-1
43	M78_1	L2.5x2.5x3	.073	2.141	2	.008	0	z	33	15.939	29.192	.873	1.724	1...	H2-1
44	M70_1	PIPE_2.0	.071	2.5	44	.028	2.5		3	29.81	32.13	1.872	1.872	1...	H1-1b
45	M74_1	L2.5x2.5x3	.061	2.141	3	.008	0	z	29	15.939	29.192	.873	1.724	1...	H2-1
46	M76_1	L2.5x2.5x3	.060	2.141	13	.008	0	y	35	15.939	29.192	.873	1.724	1...	H2-1
47	M72_1	PIPE_2.0	.049	0	34	.034	2.5		11	29.81	32.13	1.872	1.872	1...	H1-1b
48	M71_1	PIPE_2.0	.044	0	28	.028	2.5		7	29.81	32.13	1.872	1.872	1...	H1-1b

SPECIAL CONSTRUCTION NOTE:
SPRINT WORK IS CONTINGENT UPON ALL SPECIAL WORK NOTES ON SHEET A-2

Sprint®

SITE NAME: GLASTONBURY
SITE NUMBER: CT33XC546
AUGMENT ID: CT33XC546Q17.2
SITE ADDRESS: 175 DICKINSON ROAD
GLASTONBURY, CT 06073
JURISDICTION: GLASTONBURY/CT SITING COUNCIL
SITE TYPE: EXISTING 176' MONOPOLE
PROGRAM: DO MACRO UPGRADE EQUIPMENT DEPLOYMENT

PROJECT INFORMATION

SITE INFORMATION

LATTITUDE: (PER SBA RECORD)	41° 39' 21.23" N (41.6559°)
LONGITUDE: (PER SBA RECORD)	72° 31' 23.72" W (-72.5233°)
GROUND ELEVATION:	477'± AMSL (PER GOOGLE EARTH)
STRUCTURE HEIGHT:	176'± AGL (FROM RECORD STRUCTURAL)
STRUCTURE TYPE:	MONOPOLE
ZONING JURISDICTION	GLASTONBURY/CT SITING COUNCIL
ZONING DISTRICT/ OCCUPANCY:	RURAL RESIDENCE
COUNTY:	HARTFORD

APPLICANT

SPRINT
1 INTERNATIONAL BLVD. SUITE 800
MAHWAH, NJ 07495

PROPERTY OWNER:

N/F CHAPMAN RANDALL S+
& BRONZI KARRIE-LYNNE
PO BOX 7
TROY, ME 04987

TOWER OWNER:

SBA PROPERTIES, LLC
8051 CONGRESS AVENUE
BOCA RATON, FL 33487
(561) 995-7670

SBA SITE ID:	CT02216-S
SBA SITE NAME:	GLASTONBURY

SBA CONTACT:

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

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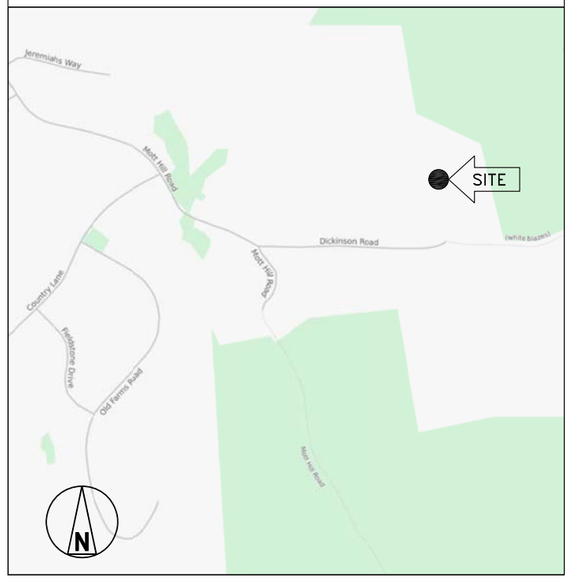
LOCATION MAP N.T.S.

AREA MAP N.T.S.



SCOPE OF WORK

1. REMOVE AND REPLACE (6) EXISTING SPRINT ANTENNAS AND ANTENNA MOUNTING PIPE MASTS.
2. FURNISH AND INSTALL ANTENNA MOUNT STRUCTURAL AUGMENTS PER ANTENNA MOUNT STRUCTURAL ANALYSIS (BY OTHERS) AND ANTENNA MOUNT CONSTRUCTION MODIFICATION DRAWINGS (BY OTHERS).
3. INSTALL (6) NEW SPRINT 800 MHz RRHS.
4. RELOCATE (3) EXISTING SPRINT 1900 MHz RRHS FROM GROUND LEVEL TO THE ANTENNA LEVEL.
5. INSTALL (3) NEW SPRINT 2500 MHz RRHS.

GENERAL NOTES

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
   - ADA COMPLIANCE NOT REQUIRED.
   - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. THIS DRAWING IS CONTINGENT ON THE COMPLETION OF A GLOBAL STRUCTURAL ANALYSIS OF THE TOWER AND AND MOUNT ANALYSIS TO BE COMPLETED BY THE TOWER OWNER, SBA PRIOR TO CONSTRUCTION. SEE SPECIAL CONSTRUCTION NOTES ON A-2 AND S-1 HEREIN.
4. ALL AUGMENTS AS DEPICTED ON THE MOUNT AUGMENTATION PLANS FOR THIS SITE BY GEOSTRUCTURAL DATED 04/16/2018 (REV0) SHALL BE COMPLETED PRIOR TO ANTENNA INSTALLATION.

DRAWING INDEX

SHEET NO.	SHEET DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
SP-1	OUTLINE SPECIFICATIONS	1
SP-2	OUTLINE SPECIFICATIONS	1
SP-3	OUTLINE SPECIFICATIONS	1
A-1	COMPOUND PLAN	1
A-2	ELEVATION AND ANTENNA PLANS	1
A-3	TOWER EQUIPMENT DETAILS	1
A-4	EQUIPMENT DETAILS	1
S-1	ANTENNA AND RRH MOUNTING DETAILS	1
E-1	ELECTRICAL AND GROUNDING DETAILS	1
RF-1	RF DATA SHEET	1
RF-2	PLUMBING DIAGRAM AND RAN WIRING	1

CODE COMPLIANCE

1. 2016 CONNECTICUT STATE BUILDING CODE WITH AMENDMENTS. (IBC 2012 BASED)
2. 2014 NATIONAL ELECTRICAL CODE WITH AMENDMENTS
3. TIA-EIA-222-G

BASED ON INFORMATION PROVIDED BY SPRINT, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED 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).

APPROVALS

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

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

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1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
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SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581 TEL: (508) 251-0720

ProTerra DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413)320-4918

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: 5/2 JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/25/18	CONSTRUCTION REVISED	PN
0	04/04/18	ISSUED FOR CONSTRUCTION	PN

SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY
SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 - SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR–78–CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
2. GR–1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
3. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
4. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
5. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
6. AMERICAN CONCRETE INSTITUTE (ACI)
7. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
8. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
9. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
10. PORTLAND CEMENT ASSOCIATION (PCA)
11. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
12. BRICK INDUSTRY ASSOCIATION (BIA)
13. AMERICAN WELDING SOCIETY (AWS)
14. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
15. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
16. DOOR AND HARDWARE INSTITUTE (DHI)
17. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
18. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: SPRINT CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.
G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON–SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS–BUILT" DRAWINGS.
B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.
C . DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

A. TOP HAT
B. HOW TO INSTALL A NEW CABINET
C. BASE BAND UNIT IN EXISTING UNIT
D. INSTALLATION OF BATTERIES
E. INSTALLATION OF HYBRID CABLE
F. INSTALLATION OF RRH'S
G. CABLING
H. TS–0200 REV 4 – ANTENNA LINE ACCEPTANCE STANDARDS
I. SPRINT CELL SITE ENGINEERING NOTICE – EN 2012–001, REV 1.
J. COMMISSIONING MOPS
K. SPRINT CELL SITE ENGINEERING NOTICE – EN–2013–002
L. SPRINT ENGINEERING LETTER – EL–0504
M. SPRINT ENGINEERING LETTER – EL–0568
N. SPRINT TECHNICAL SPECIFICATION – TS–0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

A. CONTRACTOR WILL UTILIZE ITS BEST EFFORTS TO WORK WITH SPRINT ELECTRONIC PROJECT MANAGEMENT SYSTEMS. CONTRACTOR UNDERSTANDS THAT SUFFICIENT INTERNET ACCESS, EQUIVALENT TO "BROADBAND" OR BETTER, IS REQUIRED TO TIMELY AND EFFECTIVELY UTILIZE SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS AND AGREES TO MAINTAIN APPROPRIATE CONNECTIONS FOR CONTRACTOR'S STAFF AND OFFICES THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD–PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY–FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF–LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 - CELL SITE CONSTRUCTION

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED:

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE–GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H–FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND–OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

CONTINUE SHEET SP-2

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

SBA
SBA COMMUNICATIONS CORP.
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STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: 5/25/18 JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/25/18	CONSTRUCTION REVISED	PN
0	04/04/18	ISSUED FOR CONSTRUCTION	PN

SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY
SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP–1

CONTINUED FROM SP-1:

SECTION 01 400 - SUBMITTALS, TESTS, AND INSPECTIONS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.
1. CONCRETE MIX–DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN.

C. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. COAX SWEEPS AND FIBER TESTS PER SPRINT TS–0200 CURRENT VERSION ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE–FOR–THE–PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;
1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS–BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS–BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPS

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPS

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY: WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
1. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
2. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS:

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE– AND POST–CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)
7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN–ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

F. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.
1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;
1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING––TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
5. ROOF TOPS: PRE–CONSTRUCTION AND POST–CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. FINISHED UTILITIES: CLOSE–UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE–UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE–UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 500 - PROJECT REPORTING

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:
1. SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION––FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL–BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL–BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING–TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING –TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

SECTION 07 500 - ROOF CUTTING, PATCHING AND REPAIR

SUMMARY:
THIS SECTION SPECIFIES CUTTING AND PATCHING EXISTING ROOFING SYSTEMS WHERE CONDUIT OR CABLES EXIT THE BUILDING ONTO THE ROOF OR BUILDING–MOUNTED ANTENNAS, AND AS REQUIRED FOR WATERTIGHT PERFORMANCE. ROOFTOP ENTRY OPENINGS IN MEMBRANE ROOFTOPS SHALL BE CONSTRUCTED TO COMPLY WITH LANDLORD, ANY EXISTING WARRANTY, AND LOCAL JURISDICTIONAL STANDARDS.

1.4 SUBMITTALS:

A. PRE–CONSTRUCTION ROOF PHOTOS: COMPLETE A ROOF INSPECTION PRIOR TO THE INSTALLATION OF SPRINT EQUIPMENT ON ANY ROOFTOP BUILD. AT A MINIMUM INSPECT AND PHOTOGRAPH (MINIMUM 3 EA.) ALL AREAS IMPACTED BY THE ADDITION OF THE SPRINT EQUIPMENT.

B. PROVIDE SIMILAR PHOTOGRAPHS SHOWING ROOF CONDITIONS AFTER CONSTRUCTION (MINIMUM 3 EA.)

C. ROOF INSPECTION PHOTOGRAPHS SHOULD BE UPLOADED WITH CLOSEOUT PHOTOGRAPHS.

SECTION 09 900 - PAINTING

QUALITY ASSURANCE:

A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. COMPLY WITH ALL ENVIRONMENTAL REGULATIONS FOR VOLATILE ORGANIC COMPOUNDS.

CONTINUE SHEET SP-3

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

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

ProTerra
DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413)320–4918

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: 5/25/18 JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/25/18	CONSTRUCTION REVISED	PN
0	04/04/18	ISSUED FOR CONSTRUCTION	PN

SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY
SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP–2

CONTINUED FROM SP-2:

MATERIALS:

A. MANUFACTURERS: BENJAMIN MOORE, ICI DEVOE COATINGS, PPG, SHERWIN WILLIAMS OR APPROVED EQUAL. PROVIDE PREMIUM GRADE, PROFESSIONAL-QUALITY PRODUCTS FOR COATING SYSTEMS.

PAINT SCHEDULE:

A. EXTERIOR ANTENNAE AND ANTENNA MOUNTING HARDWARE: ONE COAT OF PRIMER AND TWO FINISH COATS. PAINT FOR ANTENNAE SHALL BE NON-METALLIC BASED AND CONTAIN NO METALLIC PARTICLES. PROVIDE COLORS AND PATTERNS AS REQUIRED TO MASK APPEARANCE OF ANTENNAE ON ADJACENT BUILDING SURFACES AND AS ACCEPTABLE TO THE OWNER. REFER TO ANTENNA MANUFACTURER'S INSTRUCTIONS WHENEVER POSSIBLE.

B. ROOF TOP CONSTRUCTION: TOUCH UP – PREPARE SURFACES TO BE REPAIRED. FOLLOW INDUSTRY STANDARDS AND REQUIREMENTS OF OWNER TO MATCH EXISTING COATING AND FINISH.

PAINTING APPLICATION:

1. INSPECT SURFACES, REPORT UNSATISFACTORY CONDITIONS IN WRITING; BEGINNING WORK MEANS ACCEPTANCE OF SUBSTRATE.
2. COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR PREPARATION, PRIMING AND COATING WORK. COORDINATE WITH WORK OF OTHER SECTIONS.
3. MATCH APPROVED MOCK-UPS FOR COLOR, TEXTURE, AND PATTERN. RE-COAT OR REMOVE AND REPLACE WORK WHICH DOES NOT MATCH OR SHOWS LOSS OF ADHESION.
4. CLEAN UP, TOUCH UP AND PROTECT WORK.

TOUCHUP PAINTING:

1. GALVANIZING DAMAGE AND ALL BOLTS AND NUTS SHALL BE TOUCHED UP AFTER TOWER ERECTION WITH "GALVANOX," "DRY GALV," OR "ZINC-IT."
2. FIELD TOUCHUP PAINT SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. ALL METAL COMPONENTS SHALL BE HANDLED WITH CARE TO PREVENT DAMAGE TO THE COMPONENTS, THEIR PRESERVATIVE TREATMENT, OR THEIR PROTECTIVE COATINGS.

SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO HEADS AND CABLE INSTALLATION

SUMMARY:
THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRH'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRH'S:
THE NUMBER AND TYPE OF ANTENNAS AND RRH'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

HYBRID CABLE:
HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

JUMPERS AND CONNECTORS:
FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRH'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRH'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE. DO NOT USE SUPERFLEX OUTDOORS. JUMPERS SHALL BE FACTORY FABRICATED IN APPROPRIATE LENGTHS WITH A MAXIMUM OF 4 FEET EXCESS PER JUMPER AND HAVE CONNECTORS AT EACH END, MANUFACTURED BY SUPPLIER. IF JUMPERS ARE FIELD FABRICATED, FOLLOW MANUFACTURER'S REQUIREMENTS FOR INSTALLATION OF CONNECTORS

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:
INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

ANTENNA INSTALLATION:
THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.

A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.

B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

HYBRID CABLES INSTALLATION:

A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.

C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.

1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'-0" OC USING NON-MAGNETIC STAINLESS STEEL CLIPS.
2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBTS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
   a. FIBER: SUPPORT FIBER BUNDLES USING ½" VELCRO STRAPS OF THE REQUIRED LENGTH @ 18" OC. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
   b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
4. CABLE INSTALLATION:
   a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
   b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.
   c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURES RECOMMENDED MAXIMUM BEND RADIUS.
5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED PER SPRINT TS 0200 CURRENT VERSION.
7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE-EN 2012-001, REV 1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.

B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.

1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.
2. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF-AMALGAMATING TAPE.
3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 11 800 – INSTALLATION OF MULTIMODAL BASE STATIONS (MMBTS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBTS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS

DC CIRCUIT BREAKER LABELING

A. LABEL CIRCUIT BREAKERS ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE – EN 2012-001, REV 1.

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE TRANSCIEVER STATIONS (MMBTS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBTS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS

SUPPORTING DEVICES:

A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:
1. ALLIED TUBE AND CONDUIT
2. B-LINE SYSTEM
3. UNISTRUT DIVERSIFIED PRODUCTS
4. THOMAS & BETTS

B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:
1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL.
7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

SUPPORTING DEVICES:

A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.

B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.

C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:

D. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.

E. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.

B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

CONDUIT:

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR ENCASED RUNS IN CONCRETE. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED – SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.

B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.

C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.

D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.

E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRE BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.

F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

HUBS AND BOXES:

A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.

B. CABLE TERMINATION FITTINGS FOR CONDUIT
1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL.
2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO – CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.

C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.

D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKETED COVERS. OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE-HINDS FORM 8 OR EQUAL.

E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM

A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM AS INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS AS INDICATED.

B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO OX.

C. STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:

A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

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

ProTerra DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413)320-4918

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

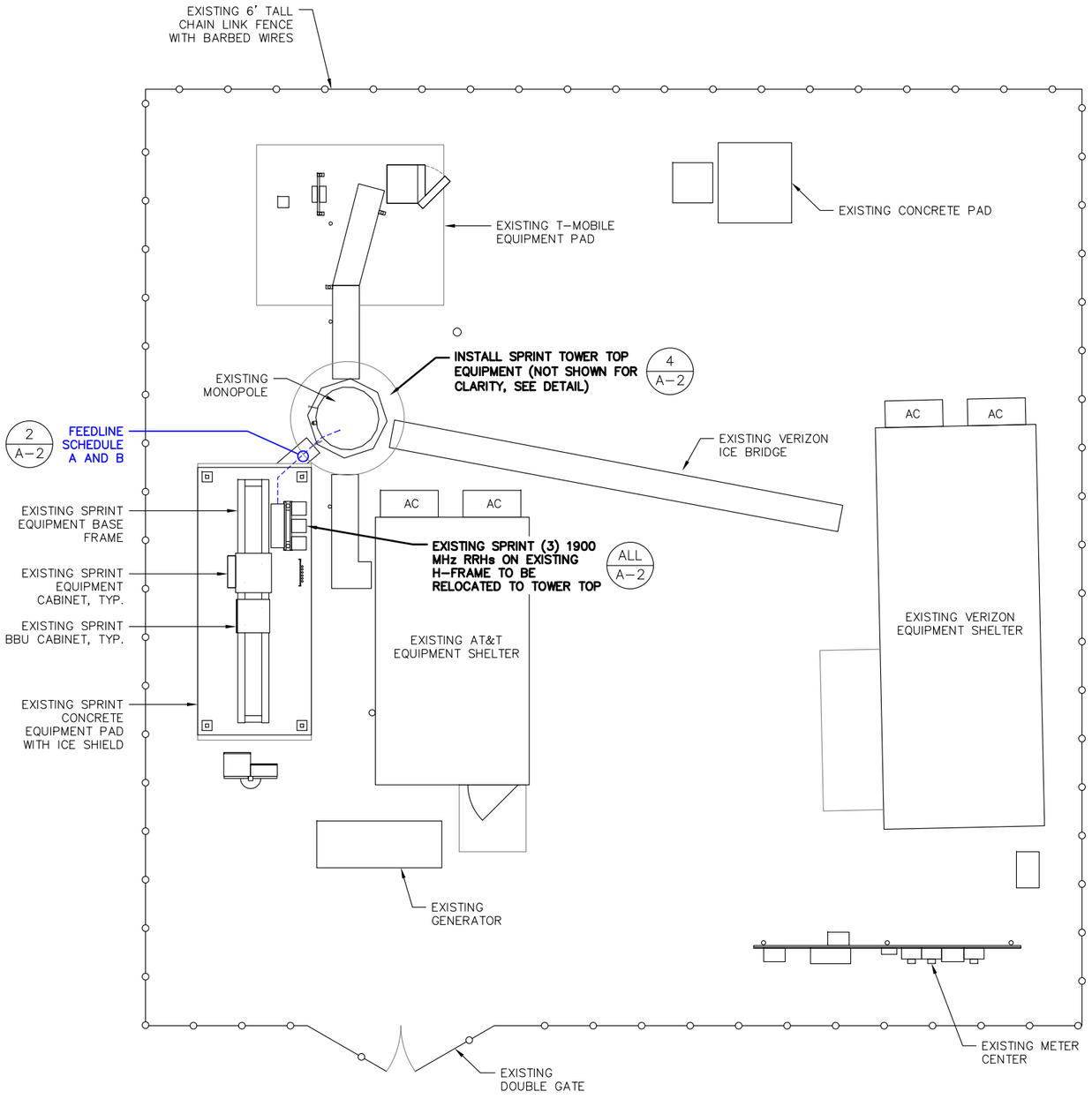
REV.	DATE	DESCRIPTION	BY
1	05/25/18	CONSTRUCTION REVISED	PN
0	04/04/18	ISSUED FOR CONSTRUCTION	PN

SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY

SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-3



COMPOUND PLAN

1 / A-1

SCALE: 1"=10' (11"x17")
1"=5' (22"x34")

10 5 0 10

1 / A-4 EXISTING SPRINT MMBTS CABINET **INSTALL RAN EQUIPMENT IN EXISTING CABINET**

EXISTING SPRINT BBU CABINET

2 / A-2 FEEDLINE SCHEDULE A AND B

EXISTING SPRINT TELCO CABINET

EXISTING SPRINT PPC

IMAGE SOURCE: PROTERRA 03/29/2018
(VIEW FROM NORTHWEST)

EXISTING SPRINT FIBER DISTRIBUTION BOX ON H-FRAME

EXISTING SPRINT (3) 1900 MHZ RRHS ON EXISTING H-FRAME TO BE RELOCATED TO TOWER TOP

1 / A-4 EXISTING SPRINT MMBTS CABINET **INSTALL RAN EQUIPMENT IN EXISTING CABINET**

EXISTING SPRINT ICE BRIDGE

2 / A-2 FEEDLINE SCHEDULE A AND B

EXISTING SPRINT ICE SHIELD

IMAGE SOURCE: PROTERRA 03/29/2018
(VIEW FROM SOUTHEAST)

EQUIPMENT PLAN PHOTO DETAIL

2 / A-1

SCALE: N.T.S.

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
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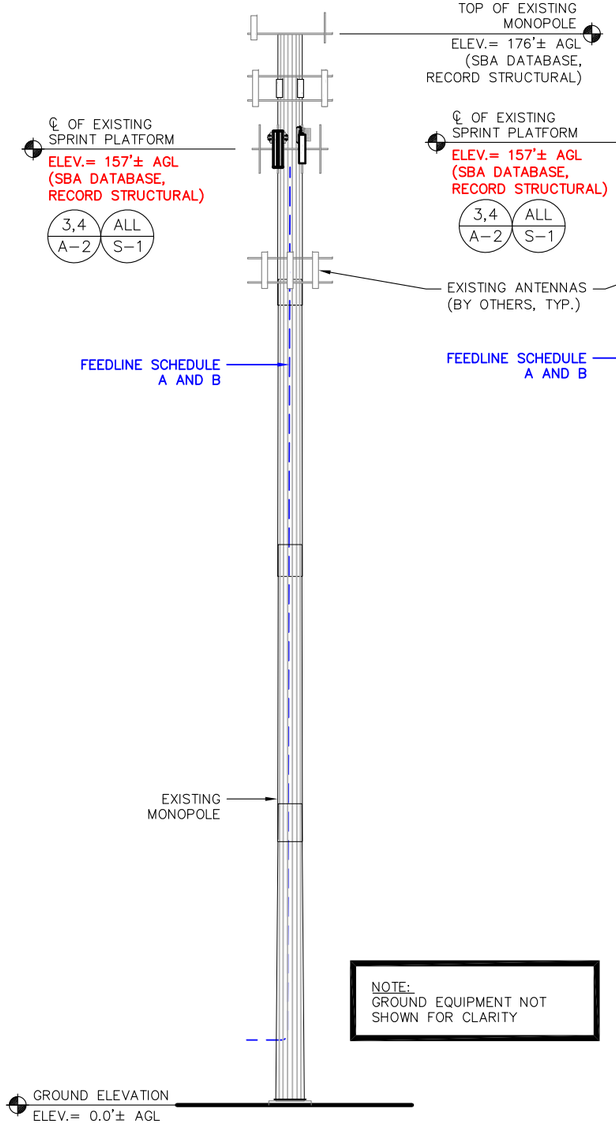
SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A-1



NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION

1 A–2

SCALE: 1"=25' (11"x17")
1"=12.5' (22"x34")

25 12.5 0 25

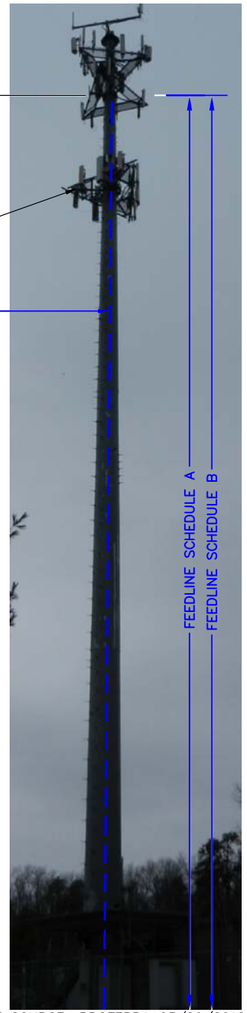


IMAGE SOURCE: PROTERRA 03/29/2018

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING TO BE REMOVED: (6) 1⅝" COAX TO 157' RAD	UP INSIDE MONOPOLE TO RAD
B	PROPOSED: (4) HYBRID TO 157' RAD;	UP INSIDE MONOPOLE TO RAD

NOTE:
EXISTING SPRINT EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER

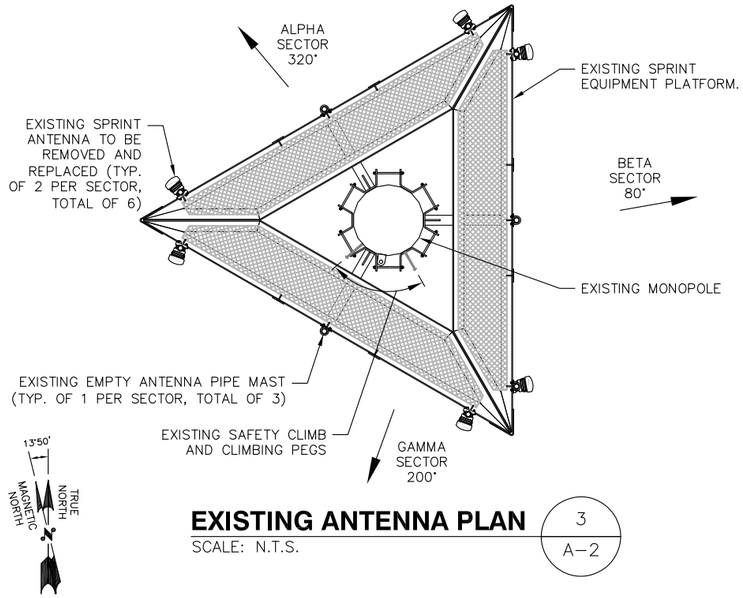
TOWER ELEVATION PHOTO DETAIL

2 A–2

SCALE: N.T.S.

SPECIAL PRE–CONSTRUCTION WORK NOTE (SBA–PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER–MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA–PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

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 SPRINT RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA–PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY GEOSTRUCTURAL DATED 03/28/18).



EXISTING ANTENNA PLAN

3 A–2

SCALE: N.T.S.

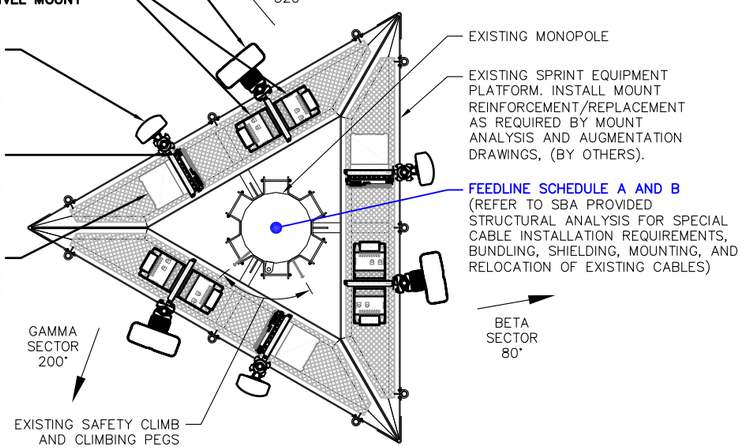
ALL S–1 / 2 A–3 — REMOVE AND REPLACE EXISTING SPRINT ANTENNA: INSTALL SPRINT ANTENNA (NNVV–65BR4), (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED PIPE MAST

ALL S–1 / 3 A–3 — INSTALL SPRINT RRH (800MHZ 2X50), (TYP. OF 2 PER SECTOR, TOTAL OF 6) MOUNTED TO PROPOSED DUAL SWIVEL MOUNT

ALL S–1 / 1 A–3 — REMOVE AND REPLACE EXISTING SPRINT ANTENNA: INSTALL SPRINT ANTENNA (APXVTM14–ALU–I20), (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED PIPE MAST

ALL S–1 / 5 A–3 — INSTALL SPRINT RRH (TD–RRH8X20–25), (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED DUAL SWIVEL MOUNT

ALL S–1 / 4 A–3 — REMOVE AND RELOCATE EXISTING SPRINT RRH (1900 4X45 65MHZ) (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED DUAL SWIVEL MOUNT



PROPOSED ANTENNA PLAN

4 A–2

SCALE: N.T.S.

SPECIAL INSTALLATION NOTE:
JUMPERS FROM RRHs TO ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY DISCREPANCY

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

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SBA COMMUNICATIONS CORP.
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CHECKED BY: 5/25/18 JMM/TEJ

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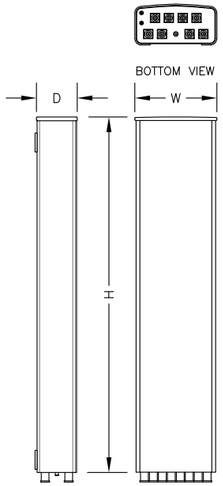
CT33XC546
SITE NAME:
GLASTONBURY
SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

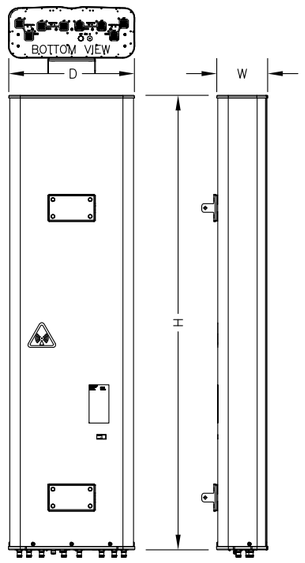
SHEET TITLE
ELEVATION AND ANTENNA PLANS

SHEET NUMBER
A–2



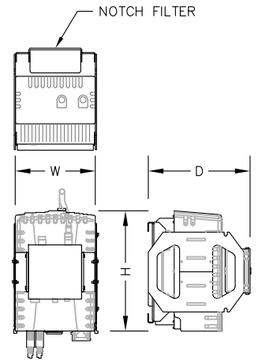
ANTENNA SPECIFICATIONS	
MANUF.	RFS
MODEL #	APXVTM14-ALU-I20
HEIGHT	56.3"
WIDTH	12.6"
DEPTH	6.3"
WEIGHT	56.2± LBS.

2.5 GHz ANTENNA DETAIL (1 / A-3)
SCALE: N.T.S.



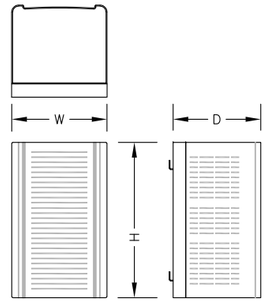
ANTENNA SPECIFICATIONS	
MANUF.	COMMSCOPE
MODEL #	NNVV-65B-R4
HEIGHT	72.0"
WIDTH	19.6"
DEPTH	7.8"
WEIGHT	77.4± LBS.

800 MHZ/1900 MHZ ANTENNA DETAIL (2 / A-3)
SCALE: N.T.S.



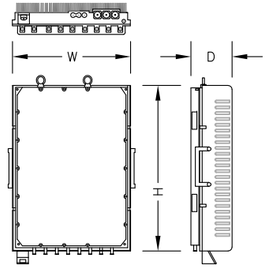
800 MHZ RRH SPECIFICATIONS	
MANUF.	NOKIA (ALU)
MODEL #	800MHZ 2X50W
HEIGHT	16"
WIDTH	13"
DEPTH	13.7" (INCLUDING FILTER)
WEIGHT	69.1± LBS (INCLUDING FILTER)

800 MHz RRH DETAIL (3 / A-3)
SCALE: N.T.S.



1900 MHZ RRH SPECIFICATIONS	
MANUF.	NOKIA (ALU)
MODEL #	1900 4X45 65MHZ
HEIGHT	25"
WIDTH	11.1"
DEPTH	11.4"
WEIGHT	60± LBS

EXISTING 1900 MHz RRH DETAIL (4 / A-3)
SCALE: N.T.S.



2.5 GHZ RRH SPECIFICATIONS	
MANUF.	NOKIA (ALU)
MODEL #	TD-RRH8X20-25
HEIGHT	26.1"
WIDTH	18.6"
DEPTH	6.7"
WEIGHT	70± LBS

2.5 GHz RRH DETAIL (5 / A-3)
SCALE: N.T.S.

MAJOR RF EQUIPMENT LIST

(GC SHALL FURNISH AND INSTALL ALL OTHER MATERIALS AND EQUIPMENT NOT SUPPLIED BY SPRINT)

DESCRIPTION	QUANTITY	UNITS	MAKE/MODEL/MATERIAL	PROVIDED BY
ANTENNA	3	EA	RFS APXVTM14-ALU-i20	SPRINT
ANTENNA	3	EA	COMMSCOPE NNVV-65B-R4	SPRINT
2500 RRH	3	EA	NOKIA (ALU) TD-RRH8x20-25	SPRINT
1900 RRH (RELOCATE EXISTING)	3	EA	NOKIA (ALU) 1900 4X45 65MHZ	SPRINT (EXISTING)
800 RRH	6	EA	NOKIA (ALU) 800MHz 2x50W	SPRINT
FIBER	4 @ 220'± FROM FIBER CABINET	LINEAR FEET LISTED [INCLUDES (2) 10' COILS]	1-1/4" HYBRIFLEX	SPRINT

SPRINT-PROVIDED EQUIPMENT SCHEDULE (6 / A-3)
SCALE: N.T.S.

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

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WESTBOROUGH, MA 01581 TEL: (508) 251-0720

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STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
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CHECKED BY: 5/25/18 JMM/TEJ

APPROVED BY: JMM/TEJ

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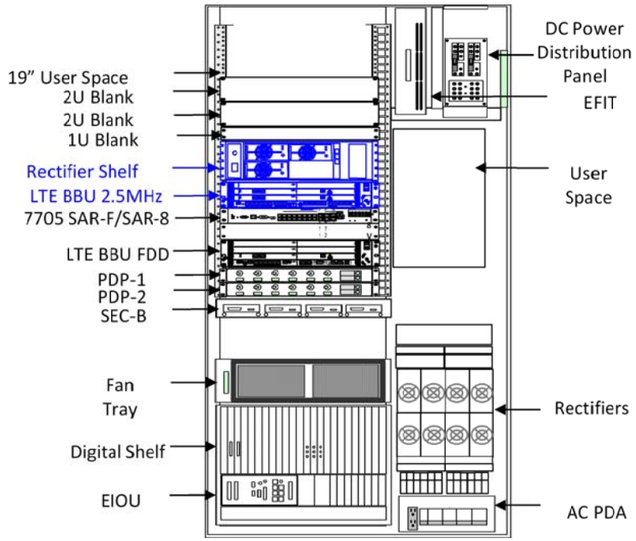
CT33XC546
SITE NAME:
GLASTONBURY
SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
TOWER EQUIPMENT DETAILS

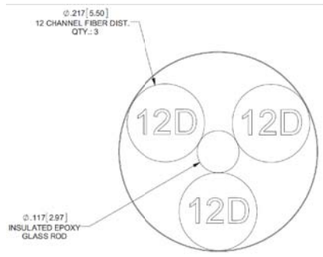
SHEET NUMBER
A-3



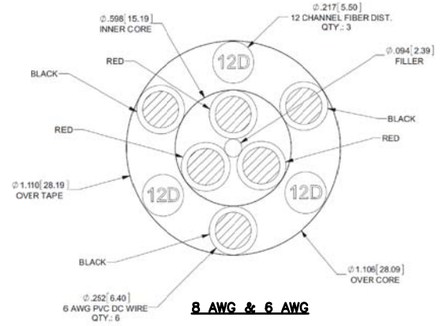
EXISTING MMBTS OUTDOOR CABINET WITH 2.5 EQUIPMENT

SCALE: N.T.S.

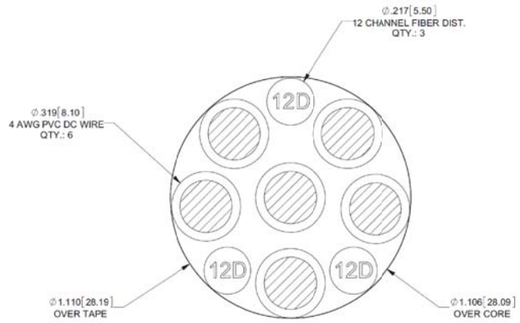
1 / A-4



FIBER ONLY



8 AWG & 6 AWG



4 AWG

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE

MANUF: RFS

	CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
	FIBER ONLY	VARIES	USE NV HYBRIFLEX	7/8"
	HYBRIFLEX	<200'	8 AWG	1-1/4"
(*)	HYBRIFLEX	225-300'	6 AWG	1-1/4"
	HYBRIFLEX	325-375'	4 AWG	1-1/4"

RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	**Hybrid cable** MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
(*)	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CM OF ANY DISCREPANCY	
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CM OF ANY DISCREPANCY	
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
(*)	MN: HBF058-13U1M3-15F1	15 ft
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CM OF ANY DISCREPANCY	
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CM OF ANY DISCREPANCY	

2.5 HYBRID CABLE X-SECTION AND DATA

SCALE: N.T.S.

2 / A-4

* NOTE: SPRINT CM TO CONFIRM HYBRID RISER CABLE AND HYBRID JUMPER CABLE MODEL NUMBERS BEFORE PREPARING BOM.

Sprint

1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

SBA

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ProTerra DESIGN GROUP, LLC

4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413)320-4918

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/25/18	CONSTRUCTION REVISED	PN
0	04/04/18	ISSUED FOR CONSTRUCTION	PN

SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY

SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

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 SPRINT RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY GEOSTRUCTURAL DATED 03/28/18).

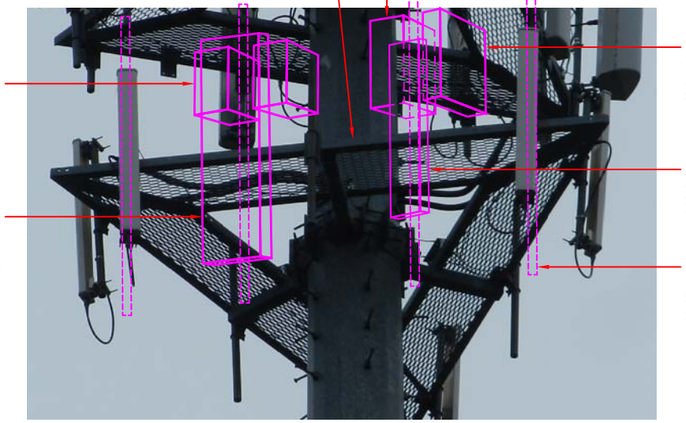
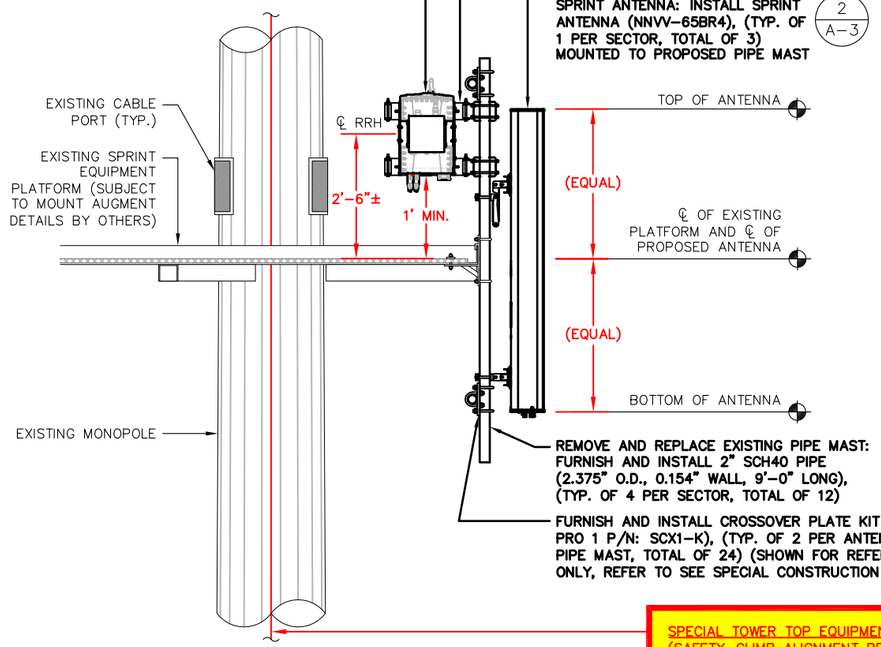


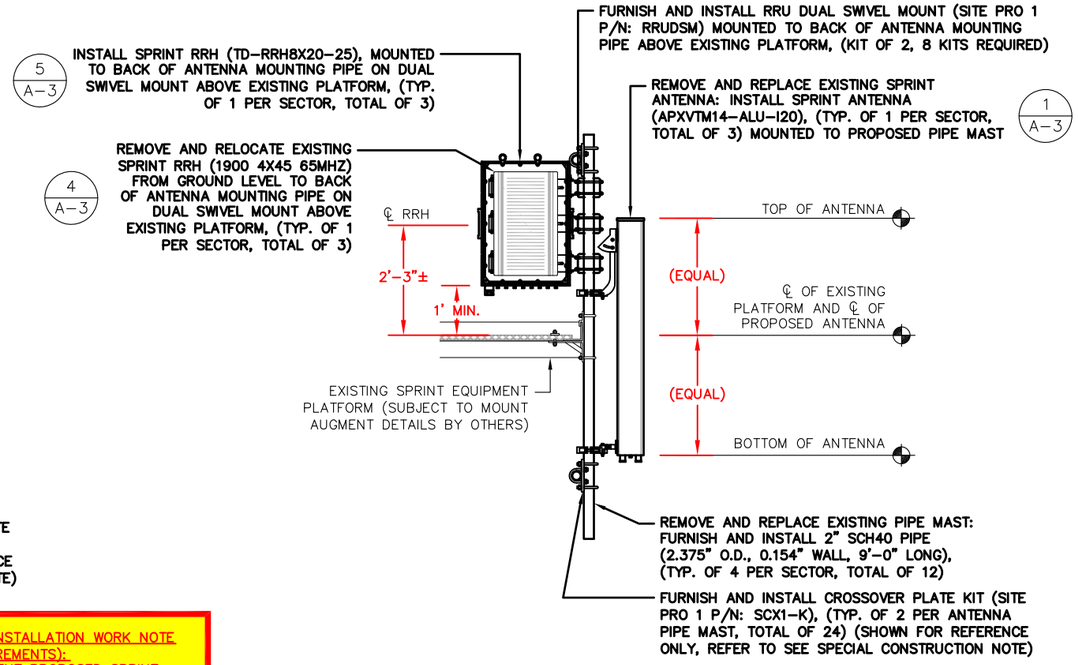
IMAGE SOURCE: PROTERRA 03/29/2018

ANTENNA AND RRH MOUNT PHOTO DETAIL
SCALE: N.T.S.
1 S-1



PROPOSED 800/1900 MHZ ANTENNA AND 800 MHZ RRH MOUNTING DETAIL
SCALE: N.T.S.
2 S-1

SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
GENERAL CONTRACTOR SHALL ORIENT PROPOSED SPRINT COLLAR-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED COLLAR-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.



PROPOSED 2500 MHZ ANTENNA, 1900 & 2500 MHZ RRH MOUNTING DETAIL
SCALE: N.T.S.
3 S-1

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
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STATE OF CONNECTICUT
THOMAS E. JOHNSON
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LICENSED PROFESSIONAL ENGINEER

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APPROVED BY: JMM/TEJ

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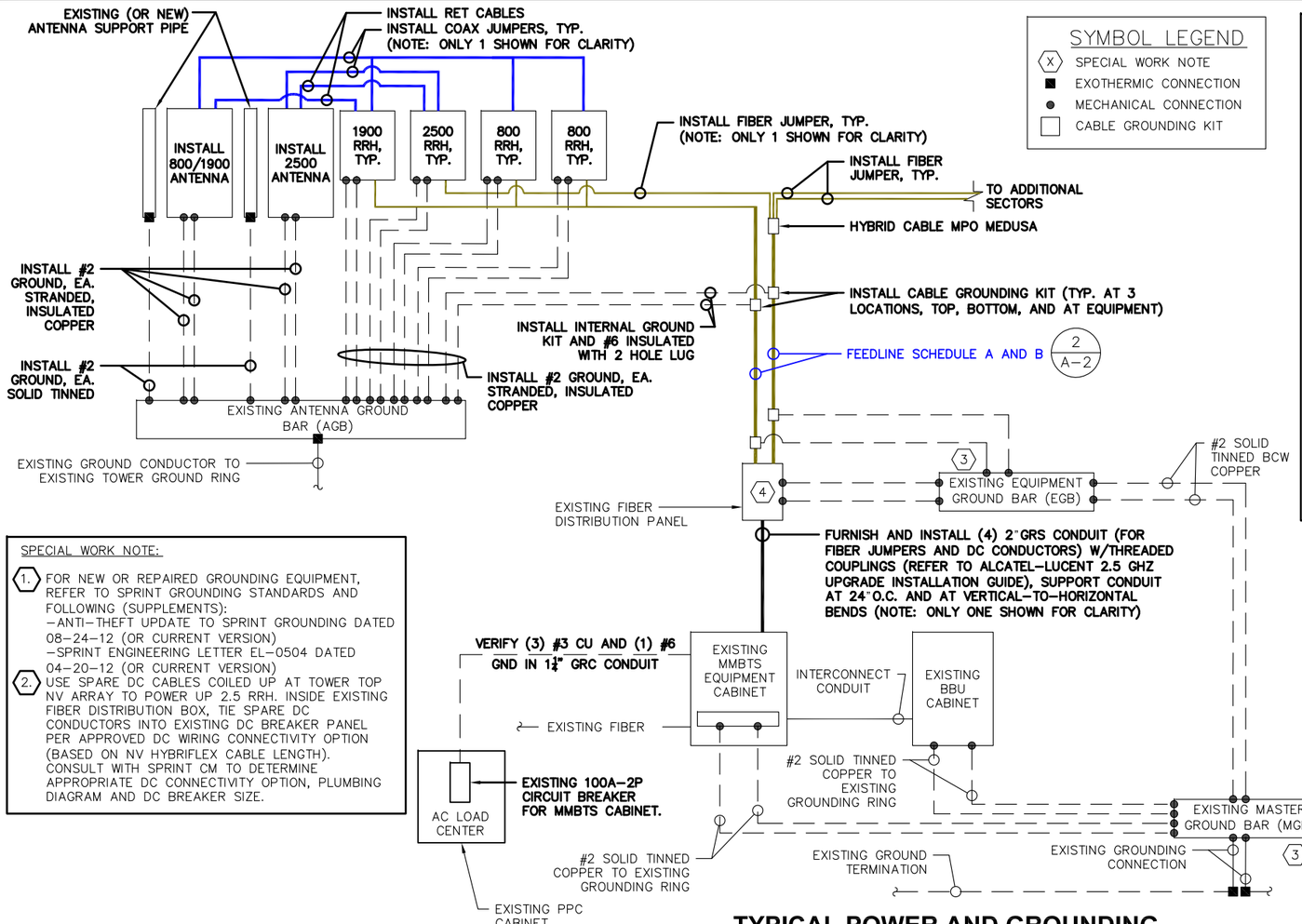
SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY
SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
ANTENNA AND RRH MOUNTING DETAILS

SHEET NUMBER
S-1



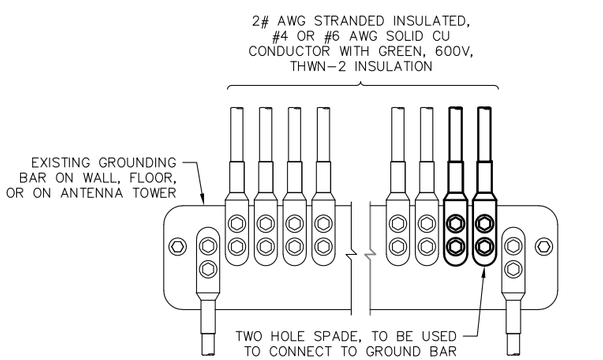
TYPICAL POWER AND GROUNDING ONE LINE DIAGRAMS

1 / E-1

SCALE: N.T.S.

SPECIAL WORK NOTE:

1. FOR NEW OR REPAIRED GROUNDING EQUIPMENT, REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
   -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
   -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)
2. USE SPARE DC CABLES COILED UP AT TOWER TOP NV ARRAY TO POWER UP 2.5 RRH. INSIDE EXISTING FIBER DISTRIBUTION BOX, TIE SPARE DC CONDUCTORS INTO EXISTING DC BREAKER PANEL PER APPROVED DC WIRING CONNECTIVITY OPTION (BASED ON NV HYBRIFLEX CABLE LENGTH). CONSULT WITH SPRINT CM TO DETERMINE APPROPRIATE DC CONNECTIVITY OPTION, PLUMBING DIAGRAM AND DC BREAKER SIZE.

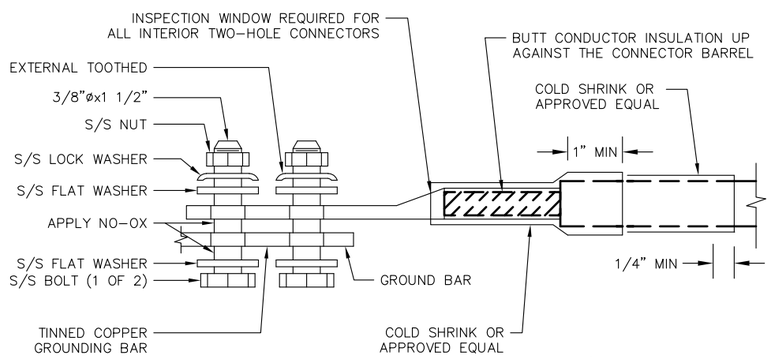


1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

2 / E-1

SCALE: N.T.S.



TWO HOLE LUG

3 / E-1

SCALE: N.T.S.

ELECTRICAL NOTES

1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2) THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND SPRINT CONSTRUCTION MANAGER.
3) ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.
4) ALL METAL CONDUITS SHALL BE PROVIDED WITH GROUNDING BUSHINGS.
5) GENERAL CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.
6) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
7) THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIALS DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
8) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
9) ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
10) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
11) ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
12) RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
13) RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
14) FIBER OPTIC CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 770-OPTICAL FIBER CABLES AND RACEWAYS.
15) COMMUNICATIONS CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 800-COMMUNICATIONS SYSTEMS.

PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES:

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
    -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
    -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)

SYMBOL LEGEND

- (X) SPECIAL WORK NOTE
- ■ EXOTHERMIC CONNECTION
- ● MECHANICAL CONNECTION
- □ CABLE GROUNDING KIT

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STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER
FOR SCHEMATIC ONLY

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/25/18	CONSTRUCTION REVISED	PN
0	04/04/18	ISSUED FOR CONSTRUCTION	PN

SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY

SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
ELECTRICAL AND GROUNDING DETAILS

SHEET NUMBER
E-1

SprintVision

RF Design Sheet

Site Identification	
Cascade	CT33XC546
SMS Schedule ID	12323264
SMS Schedule Name	DO Macro Upgrade
PID	
RRU OEM	ALU
Switch OEM	Alcatel Lucent
RFDS Issue Date	2017-08-15 00:00:00.0
RFDS Revision Date	2017-09-07 13:00:29.0
RFDS Revision	1

Filter Analysis Complete	YES
RFDS - Issue Date	08/15/2017
Design Status	Complete
Project Description	DO Macro Upgrade - Add 800MHz (3G + 4G), 1900 MHz (4G

Battery Backup Cabinet Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	

Junction Box Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Junction Boxes needed at site	

BTS #2 Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Needed at site	

Contact Information	
Engineer Email	Bill.M.Hastings@sprint.com
Sprint Badged RF Engineer	Bill Hastings
RF Engineer Email	Bill.M.Hastings@sprint.com
RF Engineer Phone	978-590-9701
RF Manager	Jonathan Hul
RF Manager Email	Jonathan.B.Hull@Sprint.com
RF Manager Phone	617-233-2929

Carrier Count	
2500 LTE	3
1900 LTE	1
1900 EVDO	
1900 Voice	1
800 LTE	1
800 Voice	1

UE Relay Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
UE Relay Azimuth	
Manufacturer	
UE Relay CL Height (meters)	

ALU Top Hat Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Top Hat Quantity	

Power Protection Cabinet Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Power Protection Cabinet	

Location Details	
Latitude	41.65590833
Longitude	-72.52328611
Market	Northern Connecticut
Region	Northeast
City	Glastonbury
State	CT
Zip Code	CT/06073
County	Hartford

2500MHz	3
1900MHz	3
800MHz	3

GPS Antenna Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
GPS Antenna needed at site	

Repeater Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	

Growth Cabinet Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	

BTS #1 Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Number of BTS #1	

Band: 2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	APXVTM14-ALU-I20	APXVTM14-ALU-I20	APXVTM14-ALU-I20			
Weight (lbs)	56.2	56.2	56.2	N/A	N/A	N/A
Dimensions	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	N/A	N/A	N/A
Manufacturer	RFS	RFS	RFS	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	2.5 Jumper 8	2.5 Jumper 8	2.5 Jumper 8	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	320	80	200	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	156.9553856	156.9553856	156.9553856	N/A	N/A	N/A
Antenna 1 Electrical DT	2	2	2	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A

Band: 1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	NNVV-65B-R4	NNVV-65B-R4	NNVV-65B-R4			
Weight (lbs)	84.7	84.7	84.7	N/A	N/A	N/A
Dimensions	72 x 19.6 x 7.8	72 x 19.6 x 7.8	72 x 19.6 x 7.8	N/A	N/A	N/A
Manufacturer	CommScope	CommScope	CommScope	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	800/1900 Jumper 4	800/1900 Jumper 4	800/1900 Jumper 4	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	320	80	200	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	156.9553856	156.9553856	156.9553856	N/A	N/A	N/A
Antenna 1 Electrical DT	3	3	3	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A

Band: 800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	Antenna assigned on a different band	Antenna assigned on a different band	Antenna assigned on a different band			
Weight (lbs)	0	0	0	N/A	N/A	N/A
Dimensions	0 x 0 x 0	0 x 0 x 0	0 x 0 x 0	N/A	N/A	N/A
Manufacturer	-	-	-	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	800/1900 Jumper 4	800/1900 Jumper 4	800/1900 Jumper 4	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	320	80	200	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	156.9553856	156.9553856	156.9553856	N/A	N/A	N/A
Antenna 1 Electrical DT	5	5	5	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

NOTE: RFDS PROVIDED BY SPRINT DATED 09/07/2017. EXCERPTS TAKEN DEPICT RELEVANT RF DESIGN INFORMATION. A&E VENDOR SCOPE OF WORK LIMITED TO DESIGN OF MECHANICAL/STRUCUTRAL EQUIPMENT ATTACHMENTS.

SPRINT CONSTRUCTION STANDARDS:

GENERAL CONTRACTOR SHALL ADHERE TO THE FOLLOWING SPRINT CONSTRUCTION STANDARDS.

- CONSTRUCTION STANDARDS: INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES – CURRENT VERSION, INCLUDING EXHIBITS A–M.
- CONSTRUCTION SPECIFICATIONS: CONSTRUCTION STANDARDS EXHIBIT A – STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES (CURRENT VERSION).
- GROUNDING STANDARDS: EXTERIOR GROUNDING SYSTEM DESIGN. GROUNDING STANDARDS (SUPPLEMENT): ANTI–THEFT UPDATE TO SPRINT GROUNDING 082412 AND SPRINT ENGINEERING LETTER EL–0504 DATED 04.20.12.
- WEATHER PROOFING STANDARDS: EXCERPT FROM CONSTRUCTION STANDARDS EXHIBIT A, SECTION 3.6 WEATHERPROOFING CONNECTORS AND GROUND KITS.
- COLOR CODING: SPRINT NEXTEL ANT AND LINE COLOR CODING PER SPRINT TS–0200 CURRENT VERSION.
- GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT IN RFDS, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING SPRINT–PROVIDED CONTACT INFORMATION FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE ANTENNA AT SAME CL HEIGHT AS PLAN AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS–BUILT DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
- AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5G. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
- GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION.
- GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS–BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS–BUILT SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL.
  HTTP://WWW.3ZTELECOM.COM/ANTENNA–ALIGNMENT–TOOL/.

Band: 2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	TD-RRH8x20-25	TD-RRH8x20-25	TD-RRH8x20-25	N/A	N/A	N/A
Weight (lbs)	76.2	76.2	76.2	N/A	N/A	N/A
Dimensions	26 x 18.6 x 6.7	26 x 18.6 x 6.7	26 x 18.6 x 6.7	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	1	1	1	0	0	0
Trunk Cable 1						
Model Number	Hybriflex	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	1	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	1.54	N/A	N/A	N/A	N/A	N/A
Manufacturer	ALU	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1 Qty						

Band: 1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	RRH-4x45-1900	RRH-4x45-1900	RRH-4x45-1900	N/A	N/A	N/A
Weight (lbs)	69.5	69.5	69.5	N/A	N/A	N/A
Dimensions	25 x 12 x 12	25 x 12 x 12	25 x 12 x 12	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	1	1	1	0	0	0
Trunk Cable 1						
Model Number	1900 Hybrid_ALU	1900 Hybrid_ALU	1900 Hybrid_ALU	N/A	N/A	N/A
Weight (Lbs.)	1.1	1.1	1.1	N/A	N/A	N/A
Dimensions (In.)	1.25	1.25	1.25	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Trunk Cable 1 Qty						

Band: 800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	RRH-2x50-800	RRH-2x50-800	RRH-2x50-800	N/A	N/A	N/A
Weight (lbs)	69.1	69.1	69.1	N/A	N/A	N/A
Dimensions	16 x 13 x 10	16 x 13 x 10	16 x 13 x 10	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	2	2	2	0	0	0

RF DATA SHEET

SCALE: N.T.S.

1
RF–1

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

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

ProTerra DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413)320–4918

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/25/18	CONSTRUCTION REVISED	PN
0	04/04/18	ISSUED FOR CONSTRUCTION	PN

SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY
SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

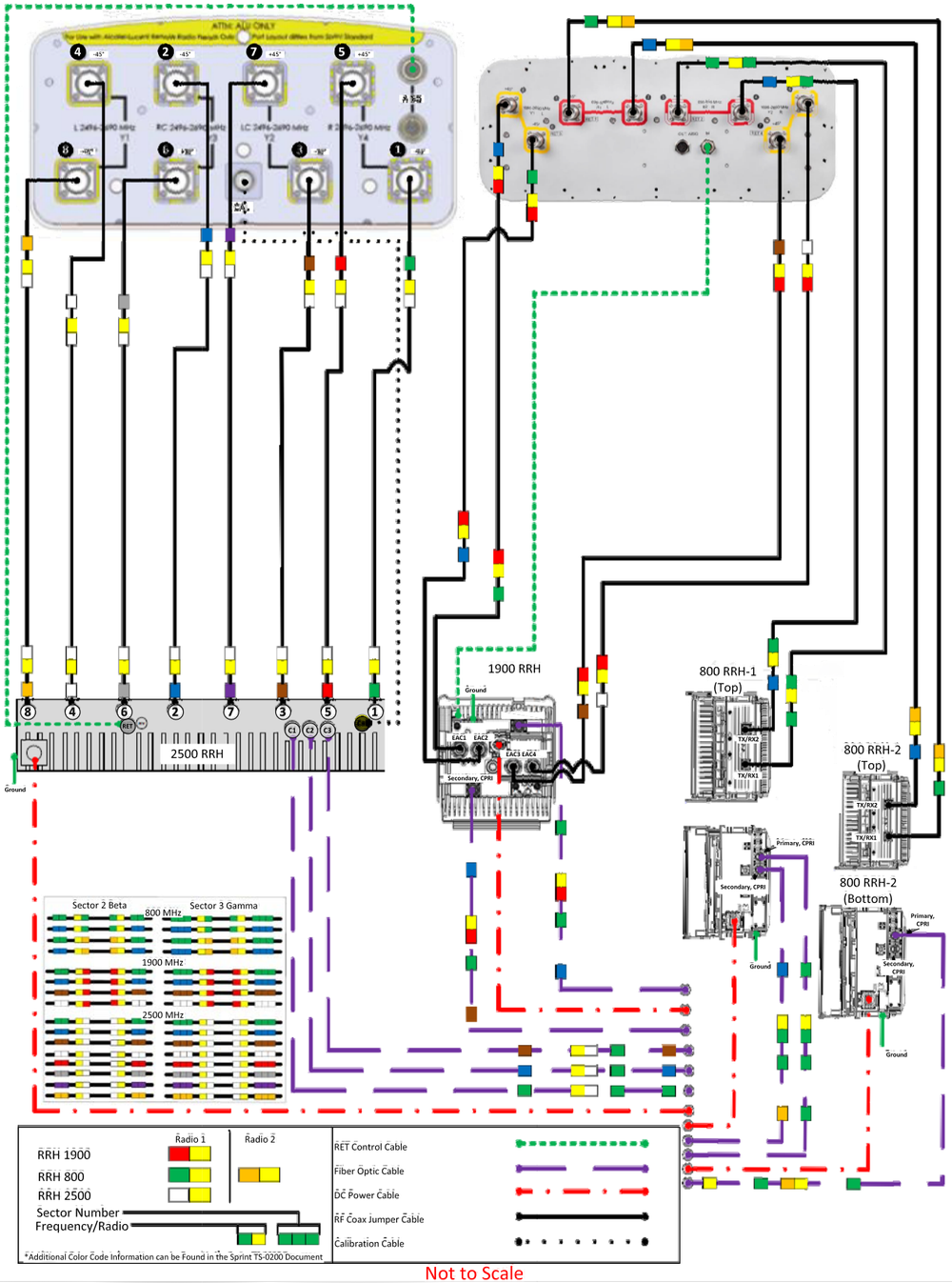
SHEET TITLE
RF DATA SHEET

SHEET NUMBER
RF–1

Prepared By	Revision Date	Revision Number
Mark Elliott	March 13, 2018	R1
Approved By	**Approval Date**	
RAN Hardware & Antenna Teams	Final-Macro Generated	

Sprint

ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



Not to Scale

Prepared By	Creation Date	Revision Number
Mark Elliott	February 13, 2016	R-1
Approved By	**Approval Date**	
RAN Hardware & Antenna Teams	February 23, 2017	

Nokia-A Tri-Band Fiber Connections
(Nokia-A Two-800, One-1900, & One-2500 RRH)

Sprint

Nokia-A Site Upgrade: Adding 2500 and Second 800 RRH

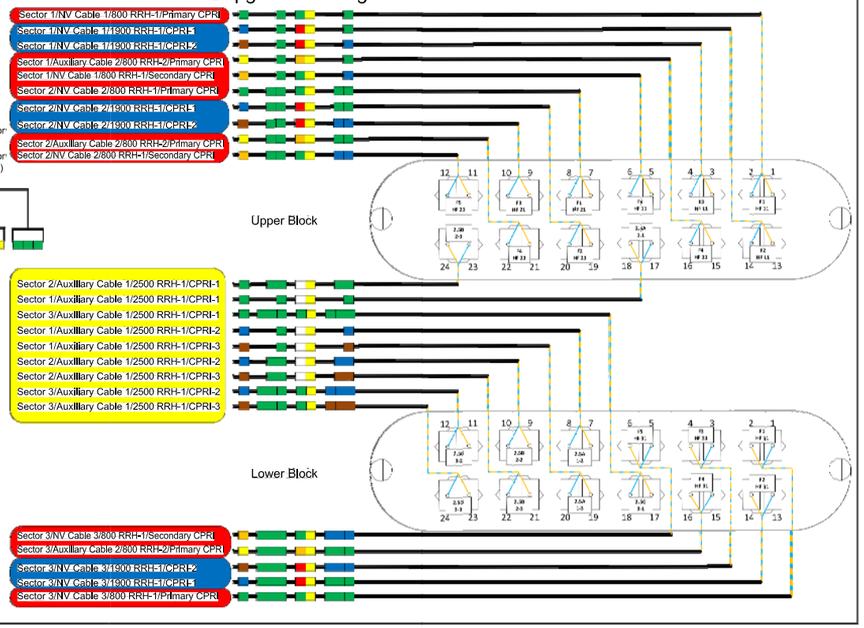
Existing Cable(s)

NV Cable 1 – Provides power and fiber for the first 800 and 1900 RRHs of Sector 1
NV Cable 2 – Provides power and fiber for the first 800 and 1900 RRHs of Sector 2
NV Cable 3 – Provides power and fiber for the first 800 and 1900 RRHs of Sector 3

New Cable(s)

Auxiliary Cable 1 – Provides power and fiber for all 2500 RRHs (All Three Sectors)
Auxiliary Cable 2 – Provides power and fiber for all of the Second 800 RRHs (All Three Sectors)

Sector Number
Frequency/Radio
Fiber Cable Number
Fiber Pair Cable Number



Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Gray	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Gray	Gray	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Gray	Gray	Gray
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

Frequency/Radio	Indicator	ID
800 #1	Yellow	Green
800 #2	Yellow	Orange
1900 #1	Yellow	Red
1900 #2	Yellow	Brown
1900 #3	Yellow	Blue
1900 #4	Yellow	Grey
2500 #1	Yellow	White
2500 #2	Yellow	Purple

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STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: 5/25/18 JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/25/18	CONSTRUCTION REVISED	PN
0	04/04/18	ISSUED FOR CONSTRUCTION	PN

SITE NUMBER:
CT33XC546
SITE NAME:
GLASTONBURY

SITE ADDRESS:
175 DICKINSON ROAD
GLASTONBURY, CT 06073

SHEET TITLE
PLUMBING DIAGRAM AND RAN WIRING

SHEET NUMBER
RF–2

CT33XC546

DO MACRO EQUIPMENT DEPLOYMENT

MOUNT AUGMENTATION @ 157'

MONOPOLE TOWER

GLASTONBURY, CT
HARTFORD COUNTY

SITE INFORMATION

STRUCTURE TYPE:	MONOPOLE
MOUNT TYPE:	PLATFORM
LATITUDE:	41.655897 (NAD 83)
LONGITUDE:	-72.523255 (NAD 83)
CITY, STATE:	GLASTONBURY, CT
COUNTY:	HARTFORD
SBA SITE:	CT02216-S Glastonbury

COORDINATES ARE FOR NAVIGATIONAL PURPOSES ONLY, NOT TO 1A ACCURACY.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE LABOR & MATERIALS FOR THE DISCREPANCIES.

CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

BUILDING CODE AND DESIGN STANDARD: 2012 IBC / TIA-222-G / 2016 CT

RIGGING PLAN REQUIRED

THIS SET OF PLANS DOES "NOT" CONSTITUTE A RIGGING PLAN.

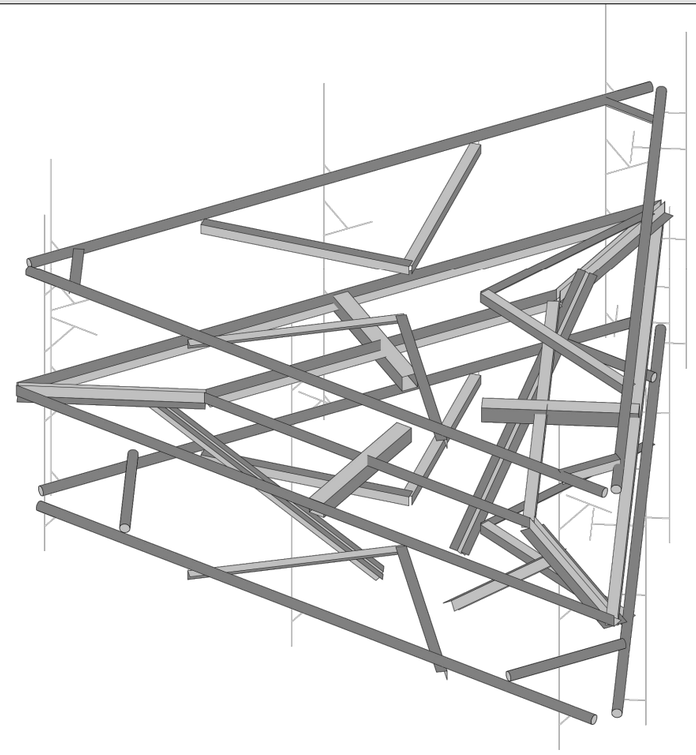
A PROPER RIGGING PLAN SHALL BE PERFORMED BY A LICENSED PROFESSIONAL ENGINEER PRIOR TO PROCEEDING ON ANY AUGMENTATIONS SHOWN HEREIN.

GENERAL DESIGN NOTES

1. THIS PLAN HAS BEEN DESIGNED UTILIZING THE CORRESPONDING MOUNT STRUCTURAL ANALYSIS.
2. THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222, ASCE 7, AWS, ACI, AND AISC. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE-MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
3. ALL STRUCTURE INFORMATION OBTAINED IN THE FORM OF FROM INFORMATION PROVIDED BY THE CLIENT. CONTRACTOR SHALL OBTAIN AND BECOME FAMILIAR WITH THE REFERENCED DOCUMENTS. CONTRACTOR SHALL ISSUE A REQUEST FOR INFORMATION (RFI) IN THE EVENT ANY DISCREPANCIES ARE DISCOVERED BETWEEN THESE DOCUMENTS AND THE AS-BUILT CONDITIONS IN THE FIELD IN A SITE VISIT THAT SHALL BE PERFORMED PRIOR TO STARTING FABRICATION OR CONSTRUCTION.
4. ALL MATERIALS UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS.
5. ALL PRODUCT OR MATERIAL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER SUITABLE TO DETERMINE IF SUBSTITUTE IS ACCEPTABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
6. PROVIDE STRUCTURAL STEEL SHOP DRAWING(S) TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION (ONLY IF SPECIFICALLY REQUESTED BY ENGINEER).
7. UNLESS NOTED OTHERWISE, ALL NEW MEMBERS AND REINFORCING SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
8. ANY CONTRACTOR-CAUSED DAMAGE TO PROPERTY OF THE LAND OWNER, PROPERTY OF THE STRUCTURE OWNER, PROPERTY OF THE CUSTOMER, SITE FENCING OR GATES, ANY AND ALL UTILITY AND/OR SERVICE LINES, SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT THE SOLE COST OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED BY THE CONTRACTOR OR SUBCONTRACTOR AS APPROVED BY THE ENGINEER OF RECORD AND LAND OWNER. DAMAGE TO EQUIPMENT OR PROPERTY OF ANY KIND BELONGING TO OTHER COMPANIES (BESIDES THE INDICATED CUSTOMER) SHALL BE ADDRESSED BY THE CONTRACTOR WITH THE COMPANIES THAT OWN THE DAMAGED ITEMS.

SHEET INDEX

MOUNT AUGMENTATION CONFIGURATION



AUGMENTATION SCOPE

AUGMENT ALL SECTORS OF CARRIER'S EXISTING MOUNT INSTALLATION AS REQUIRED (UNLESS NOTED OTHERWISE)

Sprint
1 INTERNATIONAL BLVD., SUITE 800
MAHWAH, NJ 07495
P: 800.357.7641

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134 FLANDERS RD., SUITE 125
WESTBOROUGH, MA 01581
P: 508.251.0720

GEOSTRUCTURAL
PO BOX 2621, BOISE, ID 83701
P: 530.539.4787
E: CONTACT@GEOSTRUCTURAL.COM
WWW.GEOSTRUCTURAL.COM

REVISIONS:

0	04/16/18	ISSUE FOR CONSTRUCTION	JAD

CHECKED BY: DWG

STATE OF CONNECTICUT
GREGORY DURGIN
No. 32155
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION:

MOUNT AUGMENTATION

CT33XC546

GLASTONBURY, CT

LATITUDE: 41.655897
LONGITUDE: -72.523255

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

S1

CONTRACTOR NOTES

1. PRIOR TO BEGINNING CONSTRUCTION, ALL CONTRACTORS AND SUBCONTRACTORS MUST ACKNOWLEDGE IN WRITING TO TOWER OWNER THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW STRUCTURE OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND STRUCTURE/TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED AUGMENTATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGEMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR STRUCTURE OWNER ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM ANY SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO THE STRUCTURE OWNER.
2. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE AUGMENTATIONS, THE ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
3. THE CONTRACTOR SHALL SOLICIT AND HIRE THE SERVICES OF A QUALIFIED AUGMENTATION INSPECTOR PRIOR TO BEGINNING CONSTRUCTION. THE AUGMENTATION INSPECTOR MAY BE AN EMPLOYEE OF THE CONTRACTOR'S FIRM, HOWEVER THE INSPECTOR'S ONLY DUTIES SHALL BE INSPECTION, TESTING, AND REPORT CREATION AS REQUIRED ON THE "AUGMENTATION INSPECTION NOTES" SHEET.
4. THE CONTRACTOR SHALL NOTIFY THE TOWER OWNER OF THE PLANNED CONSTRUCTION & INSPECTION SCHEDULE, AS WELL AS ANY CHANGES TO THE SCHEDULE, WITHIN TWO BUSINESS DAYS OF THE COMPLETION OF THE SCHEDULE OR SCHEDULE REVISION BOTH PRIOR TO BEGINNING CONSTRUCTION AND DURING CONSTRUCTION AS THE SCHEDULE CHANGES. THE STRUCTURE OWNER WHEN THE WORK HAS BEEN COMPLETED WITHIN 2 BUSINESS DAYS OF THE COMPLETION OF THE WORK AND ASSOCIATED AUGMENTATION INSPECTIONS & TESTING (WHEN APPLICABLE).
5. IT IS ASSUMED THAT ANY STRUCTURAL AUGMENTATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE STRUCTURE OWNER AND ENGINEER INCLUDING BUT NOT LIMITED TO TOWER CLIMBER AND RESCUE CLIMBER CERTIFICATIONS, ET CETERA.
6. THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
7. CONTRACTOR SHALL WORK WITHIN THE LIMITS OF THE STRUCTURE OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS

1. THE STRUCTURAL DRAWINGS ILLUSTRATE THE COMPLETED STRUCTURE WITH ALL ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED.
2. THE CONTRACTOR SHALL PROVIDE SHORING AND BRACING AS REQUIRED DURING CONSTRUCTION TO ENSURE STABILITY. DESIGN AND SEQUENCING OF CONSTRUCTION SHORING AND BRACING IS OUTSIDE THE SCOPE OF THIS WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, GUYING, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.

BOLTS

1. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED GALVANIZED HIGH STRENGTH ASTM A325 OR A490 BOLTS WITH THREADS EXCLUDED FROM SHEAR PLANE.
2. FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES, WITH BOLT HEADS FACING DOWN WHERE APPLICABLE.
3. ALL BOLTS AT EVERY CONNECTION SHALL BE INSTALLED SNUG-TIGHT UNTIL THE SECTION IS FULLY COMPACTED AND ALL PLIES ARE JOINED, AND THEN TIGHTENED FURTHER BY AISC - "TURN OF THE NUT" METHOD. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
4. BOLT LENGTHS UP TO AND INCLUDING 4 DIAMETERS SHALL BE TENSIONED 1/3 TURN BEYOND SNUG-TIGHT. BOLT LENGTHS OVER 4 DIAMETERS SHALL BE 1½ TURNS BEYOND SNUG-TIGHT.
5. ALL BOLTED CONNECTIONS SHALL USE LOCK WASHERS.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC STEEL CONSTRUCTION MANUAL AND SECTION 4 OF THE TIA CODE.
2. PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING MINIMUM GRADES UNLESS OTHERWISE NOTED:
   - CHANNELS & ANGLES ..... ASTM A36, (Fy = 36 KSI)
   - PLATES ..... ASTM A36, (Fy = 36 KSI)
   - PIPES ..... ASTM A53 GR.B, (Fy = 35 KSI)
   - HSS ROUND ..... ASTM A500 GR.B, (Fy = 42 KSI)
   - HSS RECTANGULAR ..... ASTM A500 GR.B, (Fy = 46 KSI)
   - STRUCTURAL BOLTS ..... ASTM A325
   - U-BOLTS ..... ASTM A307 GR.A
   - NUTS FOR BOLTS ..... ASTM A563 (THREADING TO MATCH BOLT)
   - WASHERS FOR BOLTS ..... ASTM F436
   - SEE TABLE 5-1 OF THE TIA CODE FOR ADDITIONAL SHAPES AND STANDARDS THAT ARE NOT LISTED ABOVE.
3. NON PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS PER THE TIA CODE:
   - THE CARBON EQUIVALENT OF STEEL SHALL NOT EXCEED 0.65 PER SECTION 5.4.2 OF THE TIA CODE
   - ELONGATION OF STEEL SHALL NOT BE LESS THAN 18%
   - TEST REPORTS SHALL BE IN ACCORDANCE WITH ASTM A6 OR A568
   - TOLERANCES SHALL BE IN ACCORDANCE WITH ASTM A6
4. FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH AND COLD GALVANIZED.
5. ALL WELDING WORK SHALL CONFORM TO THE AWS D1.1 STRUCTURAL WELDING CODE. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS ONLY. WELDING ELECTRODES SHALL BE E70XX.
6. ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO AISC SPECS AND CODES, LATEST EDITION.
7. UPON REQUEST, THE CONTRACTOR SHALL SUBMIT DETAILED, ENGINEERED, COORDINATED AND CHECKED SHOP DRAWINGS FOR ALL STRUCTURAL STEEL TO THE ENGINEER OF RECORD TO REVIEW FOR COMPLIANCE WITH DESIGN INTENT PRIOR TO THE START OF FABRICATION AND/OR ERECTION.
8. TORCH-CUTTING OF ANY KIND SHALL NOT BE PERMITTED.
9. ALL BOLT HOLES SHALL BE STANDARD SIZE BOLT HOLES PER AISC 360, UNLESS OTHERWISE NOTED. ALL HOLES SHALL BE SHOP DRILLED OR SUB-PUNCHED AND REAMED. BURNING OF HOLES IS NOT PERMITTED. WHERE SLOTTED OR OVERSIZE HOLES ARE SPECIFIED ON THE DRAWINGS, EXTRA-THICK ASTM F436 PLATE WASHERS SHALL BE USED (3/16" MINIMUM THICKNESS) WITH A DIAMETER SUITABLE TO COVER THE EXTENTS OF THE SLOT OR HOLE. BOLTS SHALL BE HEAVY-HEX WHERE AVAILABLE IN THE SIZE AND GRADE SPECIFIED, OTHERWISE BOLTS SHALL BE HEX HEAD CAP SCREWS.
10. ALL STEEL HARDWARE, INCLUDING ADHESIVE OR EMBEDDED ANCHOR BOLTS AND THEIR ACCESSORIES, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 (EXCEPT BOLTS SMALLER THAN ½" SHALL CONFORM TO FE/ZN 3 AT PER ASTM F1941 WHERE HOT-DIP GALVANIZED BOLTS ARE NOT AVAILABLE). ALL STEEL MEMBERS, INCLUDING WELDMENTS, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 PROCEDURES WITH A ZINC RICH PAINT (SUCH AS ZINC GALVILITE) FOR GALVANIZING DAMAGED BY HANDLING, TRANSPORTING, CUTTING, WELDING, OR BOLTING. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED. CALL OUT HOLES REQUIRED FOR HOT-DIP GALVANIZING ON SHOP DRAWINGS.
11. MEMBERS SHALL BE SHOP-FABRICATED AND WELDED TO THE EXTENT PRACTICABLE IN ORDER TO REDUCE FIELD INSTALLATION COSTS.

CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	CONSTRUCTION INSPECTIONS
	THIRD-PARTY CERTIFIED WELD INSPECTION (INCLUDING IBC SPECIAL INSPECTIONS)
√	GALVANIZING REPAIR MATERIAL PREPARATION, INSPECTION, & PAINT APPLICATION
√	PRIME CONTRACTOR'S AS-BUILT DOCUMENTS (SIGNED & DATED)
√	FABRICATION INSPECTION
√	MATERIAL TEST REPORT(S) / MILL CERTIFICATE(S)
√	PACKING SLIPS FOR STRUCTURAL MATERIALS

NOMINAL HOLE DIMENSIONS

BOLT Ø	STANDARD HOLE Ø
1/2"Ø	9/16"Ø
5/8"Ø	11/16"Ø
3/4"Ø	13/16"Ø
7/8"Ø	15/16"Ø
1"Ø	1 1/16"Ø

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REVISIONS:

0	04/16/18	ISSUE FOR CONSTRUCTION	JAD

CHECKED BY: DWG

SITE INFORMATION:

MOUNT AUGMENTATION

CT33XC546

GLASTONBURY, CT

LATITUDE: 41.655897
LONGITUDE: -72.523255

SHEET TITLE:

NOTES AND SPECIFICATIONS

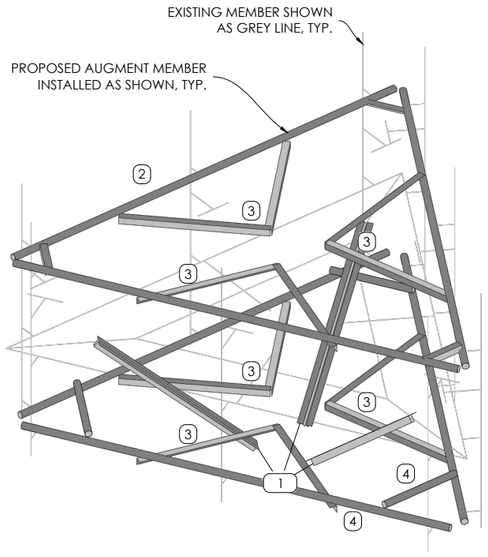
SHEET NUMBER:

S2

NEW MOUNT AUGMENTATIONS

1	PLATFORM REINFORCEMENT KIT SITEPRO1 PART# PRK-1245L. ATTACH PRK COLLAR TO MONOPOLE SHAFT ~4.0' BELOW EXISTING STANDOFF CENTERLINE AND DOUBLE ANGLE KICKER BRACKET TO BACK-TO-BACK ANGLES AT PLATFORM CORNERS AS SHOWN PER MANUF. SPECS. [(1) KIT TOTAL]
2	HANDRAIL KIT COMPONENTS SITEPRO1 PART# HRK12-U OR HRK14-U. ATTACH TO MOUNT PIPES ~3.0' ABOVE EXISTING STANDOFF CENTERLINE. VERIFY MOUNT FACE WIDTH IN FIELD PRIOR TO ORDERING. [(1) KIT TOTAL]
3	HANDRAIL KIT COMPONENTS - V-BRACE KIT SITEPRO1 PART# PRK-SFS-H-L. ATTACH COLLAR MOUNT TO MONOPOLE SHAFT ~2.5' BELOW AND ~3.0' ABOVE EXISTING STANDOFF CENTERLINE. NOTE: IF THE PRK-SFS-H-L KIT IS NOT AVAILABLE, PROVIDE (12) TOTAL L2½x2½x3/16 x ~8' LONG REPLACEMENT ANGLES, FIELD-CUT AND DRILL TO SUIT. [(2) KITS TOTAL]
4	HANDRAIL KIT COMPONENTS - BOTTOM FACE RAIL ▪ PIPE2.0STD X 14.0' HORIZ. RAIL, [(3) TOTAL]. ATTACH SFS-H-L KIT ANGLES TO NEW HORIZ. RAIL. ▪ PIPE2.0STD X ~4' LONG CORNER BRACE, [(3) TOTAL]. ATTACH TO NEW HORIZ. RAIL W/ (6) SITEPRO1 PART# PUCK BRACKETS. ▪ PIPE2.0STD x 8.0' MOUNT PIPES, [(9) TOTAL] W/ SITEPRO1 SCX**x**-K, [(9) TOTAL] CROSS-OVER PLATES. ATTACH ALL MOUNT PIPES TO EXISTING AND NEW HORIZ. RAILS. ▪ 1/2"Ø OR 5/8"Ø U-BOLTS, (18) TOTAL. ATTACH ALL MOUNT PIPES TO EXISTING BOTTOM RAIL W/ (2) U-BOLTS.
5	· PANEL ANTENNAS TO BE INSTALLED IN POSITIONS 1 AND 3 (AS CLOSE TO THE CENTER OF FACE NEAR EXISTING STANDOFF AS POSSIBLE. RRH UNITS TO BE INSTALLED ON DUAL SWIVEL BRACKETS BEHIND PANEL ANTENNAS IN POSITIONS 1 AND 3.
AUGMENTATIONS SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF ANY NEW EQUIPMENT.	

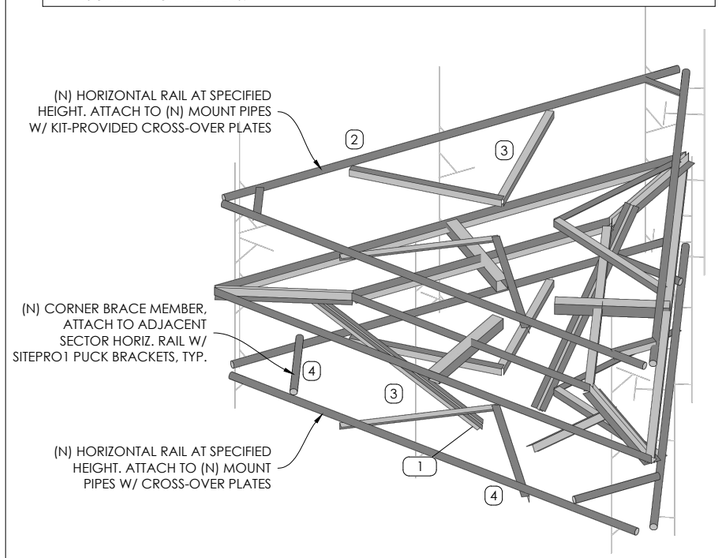
PLATFORM @ 157' AUGMENTATION



MOUNT AUGMENTATION ISOLATION
SCALE: N.T.S.

CONSTRUCTION NOTES

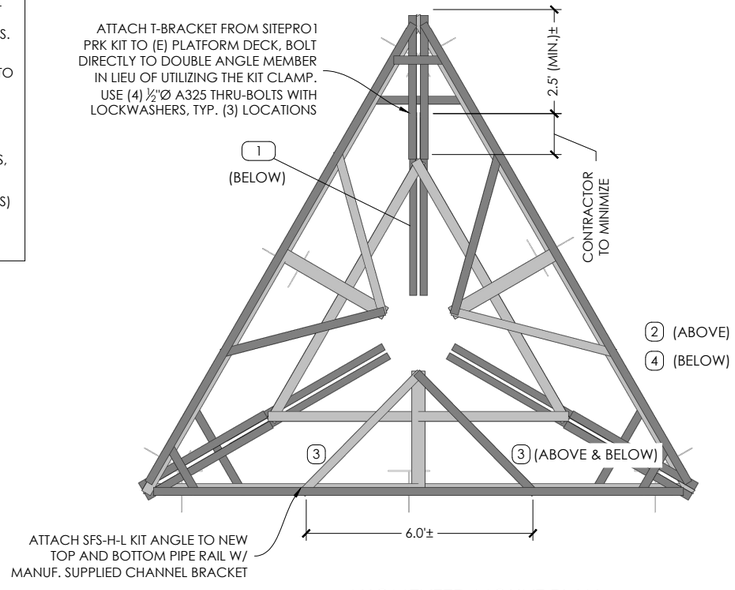
1. SCOPE OF WORK MUST BE COMPLETED AT WIND SPEEDS < 20 MPH.
2. ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHOULD FIELD-VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK. FIELD CUT MEMBERS AS REQUIRED.
3. CONTRACTOR TO COORDINATE THE TEMPORARY REMOVAL/RELOCATION/REPLACEMENT OF ELEMENTS (E.G. COAX, CLIPS, TMAs, ETC.) CONNECTED TO, OR IN THE DIRECT PATH, OF NEW AUGMENTATION MEMBERS.



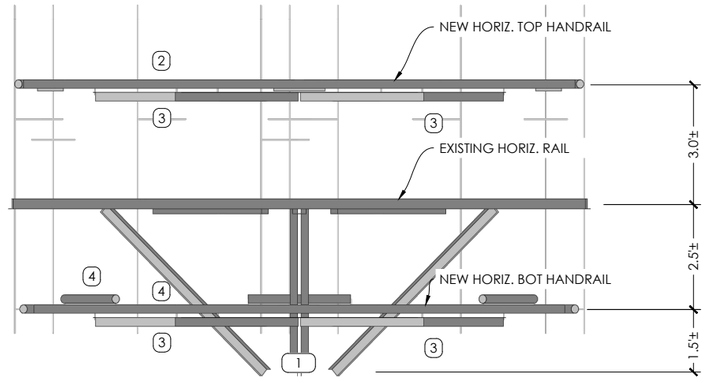
AUGMENTED MOUNT ISOMETRIC
SCALE: N.T.S.

INSTALLATION NOTES

1. AUGMENT MEMBER(S) MAY NEED TO BE FIELD-CUT TO LENGTH TO ACCOMMODATE THIS INSTALLATION. CONTRACTOR TO CUT AND DRILL TO SUIT AS REQUIRED AND APPLY (2) COATS OF COLD-GALV. COMPOUND TO CUT MEMBER ENDS.
2. CONTRACTOR TO CHECK ALL EXISTING MEMBER CONNECTION BOLTS, PARTICULARLY STANDOFF TO TOWER BOLTS, FOR PROPER INSTALLATION AND TIGHTNESS.
3. COORDINATE PLACEMENT OF NEW AUGMENT MEMBERS WITH EXISTING TOWER AND CLIMBING FACILITY ELEMENTS (E.G. STEP PEGS, COAX PORTS, ETC.)
4. REFER TO CONSTRUCTION DRAWINGS (BY OTHERS) AND MOUNT STRUCTURAL ANALYSIS FOR APPROVED INSTALLATION LOCATIONS AND QUANTITIES OF APPURTENANCES.



AUGMENTED MOUNT PLAN
SCALE: N.T.S.



AUGMENTED MOUNT FRONT ELEVATION
SCALE: N.T.S.

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REVISIONS:

0	04/16/18	ISSUE FOR CONSTRUCTION	JAD

CHECKED BY: DWG

STATE OF CONNECTICUT
GREGORY DURGIN
No. 32155
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION:

MOUNT AUGMENTATION

CT33XC546

GLASTONBURY, CT

LATITUDE: 41.655897
LONGITUDE: -72.523255

SHEET TITLE:

AUGMENTATIONS, SECTIONS & DETAILS

SHEET NUMBER:

S3