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

January 30, 2018

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

Notice of Exempt Modification
1428 Monroe Turnpike, Monroe, CT
41 22 35.27 N
-73 11 11.55 W
Sprint #: CT23XC314_2.5

Dear Ms. Bachman:

Sprint currently maintains antennas at the 151-foot of the existing 159-foot Monopole at 1428 Monroe Turnpike in Monroe, CT. The tower is owned by SBA Infrastructure, LLC. The property is owned by Jim M. Kimball / Stone Castle Investments, LLC. Sprint now intends to add (3) newer technology cell antennas at the 151-foot level of the tower.

Please note: previous approval was given by the Siting Council on 7/25/14 under EM-SPRINT-085-140710. A Notification of Construction Not Complete was sent 12/3/15. Sprint now intends to resume construction. The proposed full scope of work is as follows:

Remove: N/A

Remove and Replace: N/A

Install:

- (3) RFS - APXVTM14-C-I20 – Panel Antennas
- (3) ALU TD-RRH8x20-25 RRHs
- (1) 1-1/4" Hybrid

Existing Equipment to Remain (Including entitlements):

- (3) RFS APXVSPP18-C-A20 – Panel Antennas
- (3) ALU 1900 MHz RRHs
- (3) ALU 800 MHz RRHs
- (3) ALU 800 MHz Filters
- (4) RFS ACU-A20-N RETs
- Low Profile Platform
- (3) 1-1/4" Hybrid

This facility was originally approved by the CT Siting Council under Docket 210. It granted approval for a monopole no taller than necessary to provide proposed telecommunication services, sufficient to accommodate the antennas of the carrier and other entities both public and private not to exceed a height of 160' above ground level. Appurtenances extending from the top of the tower were not to exceed 15' in height. RF reports were to be run with changes in emissions. Public and private entities were to be granted shared space for fair consideration. And, obsolete antennas were to be removed within 60 days. This modification complies with all conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Monroe's First Selectman, Steve Vavrek, and Planning and Zoning Administrator, William Agresta, as well as to the property owner, Jim M. Kimball/Stone Castle Investments, LLC. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

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

For the foregoing reasons, 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: Steve Vavrek, First Selectman / with attachments
Town of Monroe, 7 Fan Hill Road, Monroe, Connecticut 06468
William Agresta, Planning and Zoning Administrator / with attachments
Town of Monroe, 7 Fan Hill Road, Monroe, Connecticut 06468
Jim M. Kimball / Stone Castle Investments, LLC / with attachments
1428 Monroe Turnpike, Monroe, CT 06468

POWER DENSITY

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**151 feet**	Height (AGL):	**151 feet**	Height (AGL):	**151 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):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**1.46 %**	Antenna B1 MPE%	**1.46 %**	Antenna C1 MPE%	**1.46 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**151 feet**	Height (AGL):	**151 feet**	Height (AGL):	**151 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%	**1.06 %**	Antenna B2 MPE%	**1.06 %**	Antenna C2 MPE%	**1.06 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.52 %**
AT&T	0.79 %
T-Mobile	0.50 %
Verizon Wireless	3.77 %
Town of Monroe	0.38 %
Site Total MPE %:	**7.96 %**

SPRINT Sector A Total:	2.52 %
SPRINT Sector B Total:	2.52 %
SPRINT Sector C Total:	2.52 %
Site Total:	7.96 %

SPRINT _ Max Values per Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	151	0.75	850 MHz	567	0.14%
Sprint 850 MHz LTE	2	437.55	151	1.50	850 MHz	567	0.26%
Sprint 1900 MHz (PCS) CDMA	5	622.47	151	5.32	1900 MHz (PCS)	1000	0.53%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	151	5.32	1900 MHz (PCS)	1000	0.53%
Sprint 2500 MHz (BRS) LTE	8	778.09	151	10.64	2500 MHz (BRS)	1000	1.06%
						Total:	**2.52%**

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ORIGIN ID:BBFA (508) 614-0389
RICK WOODS
SBA NETWORK SERVICES INC
134 FLANDERS ROAD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 30JAN18
ACTWGT: 1.00 LB
CAD: 105843304/INET3980

BILL SENDER

TO **WILLIAM AGRESTA**
TOWN OF MONROE
PLANNING & ZONING ADMINISTRATOR
7 FAN HILL ROAD
MONROE CT 06468
(508) 251-0720 X 3804

REF: 10-56-92009-6089
INV:
PO:
DEPT:

552J1/122D/DCA5

J181118012601uv

FedEx Express

WED - 31 JAN 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7713 5594 5706**

EB BCCA

06468
CT-US **BDL**

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1428 MONROE TPKE

Location	1428 MONROE TPKE	**Map/Lot**	145/ 024/ 01/ /
Acct#	14502401	**Owner**	KIMBALL JILL M
Assessment	$425,700	**Appraisal**	$608,100
PID	16577	**Building Count**	1
Survey	3171	**Affordable**	

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$435,300	$172,800	$608,100
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$304,700	$121,000	$425,700

Owner of Record

Owner	KIMBALL JILL M	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	1428 MONROE TPKE MONROE, CT 06468	**Book & Page**	1904/0251
		Sale Date	12/29/2015

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
KIMBALL JILL M	$0		1904/0251	12/29/2015
STONE CASTLE INVESTMENTS LLC	$0	1	1789/ 323	07/13/2012
SISTERS OF THE HOLY FAMILY OF NAZARETH U	$0	2	1603/ 14	07/10/2009

Building Information

Building 1 : Section 1

Year Built: 1936
Living Area: 5,638

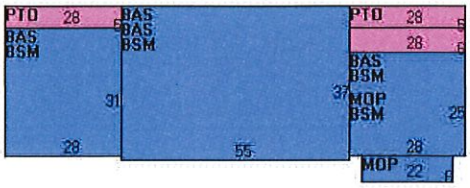
Building Attributes	
Field	**Description**
Style	Colonial
Model	Residential

Building Photo

Stories:	2
Occupancy	1
Exterior Wall 1	Stone
Heat Fuel	Oil
Heat Type:	Central A/C
AC Type:	Central AC
Total Bedrooms:	6
Total Bthrms:	4
Total Half Baths:	1
Total Rooms:	14
Fireplaces	5
Basement Gar.	0
Basement	Full
In Law Apt	0

(http://images.vgsi.com/photos/MonroeCTPhotos//\00\00\66/11.JPG)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	5,638	5,638
BSM	Basement	3,771	0
FBM	Finished Basement	2,035	0
MOP	Masonry Open Porch	300	0
PTO	Patio	280	0
		12,024	5,638

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	101
Description	Single Family
Zone	RF2
Neighborhood	

Land Line Valuation

Size (Acres)	7.21
Appraised Value	$172,800

Alt Land Approved No
Category

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$435,300	$173,300	$608,600
2009		$566,300	$1,188,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$304,700	$121,300	$426,000
2009		$396,410	$831,600

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: CT23XC314

Sisters of Holy Name/C.A.T.
1428 Monroe Turnpike
Monroe, CT 06468

October 30, 2017

EBI Project Number: 6217004754

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**7.96 %**

EBI Consulting
environmental | engineering | due diligence

October 30, 2017

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

Emissions Analysis for Site: **CT23XC314 – Sisters of Holy Name/C.A.T.**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **1428 Monroe Turnpike, Monroe, 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 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 **1428 Monroe Turnpike, Monroe, 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 20 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 **RFS APXVSPP18-C-A20 and the RFS APXVTM14-C-120** 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 **151 feet** above ground level (AGL) for **Sector A**, **151 feet** above ground level (AGL) for **Sector B** and **151 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:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**151 feet**	Height (AGL):	**151 feet**	Height (AGL):	**151 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):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**1.46 %**	Antenna B1 MPE%	**1.46 %**	Antenna C1 MPE%	**1.46 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**151 feet**	Height (AGL):	**151 feet**	Height (AGL):	**151 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%	**1.06 %**	Antenna B2 MPE%	**1.06 %**	Antenna C2 MPE%	**1.06 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.52 %**
AT&T	0.79 %
T-Mobile	0.50 %
Verizon Wireless	3.77 %
Town of Monroe	0.38 %
Site Total MPE %:	**7.96 %**

SPRINT Sector A Total:	2.52 %
SPRINT Sector B Total:	2.52 %
SPRINT Sector C Total:	2.52 %
Site Total:	7.96 %

SPRINT _ Max Values per Frequency Band / Technology Per Sector	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density ($\mu W/cm^2$)**	**Frequency (MHz)**	**Allowable MPE ($\mu W/cm^2$)**	**Calculated % MPE**
Sprint 850 MHz CDMA	1	437.55	151	0.75	850 MHz	567	0.14%
Sprint 850 MHz LTE	2	437.55	151	1.50	850 MHz	567	0.26%
Sprint 1900 MHz (PCS) CDMA	5	622.47	151	5.32	1900 MHz (PCS)	1000	0.53%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	151	5.32	1900 MHz (PCS)	1000	0.53%
Sprint 2500 MHz (BRS) LTE	8	778.09	151	10.64	2500 MHz (BRS)	1000	1.06%
						Total:	**2.52%**

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:	2.52 %
Sector B:	2.52 %
Sector C:	2.52 %
SPRINT Maximum Total (per sector):	2.52 %
Site Total:	7.96 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.96 %** 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.

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

Structural Analysis Report

Existing 159 ft Sabre Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13055-A

Customer Site Name: Monroe Turnpike

Carrier Name: Sprint Nextel

Carrier Site ID / Name: CT23XC314 / Monroe Turnpike

Site Location: 1428 Monroe Turnpike

Monroe, Connecticut

Fairfield County

Latitude: 41.376463

Longitude: -73.186541

Analysis Result:

Max Structural Usage: 79.6% [Pass]

Max Foundation Usage: 72.0% [Pass]

Report Prepared by: Matthew Baker

11/9/17

Introduction

The purpose of this report is to summarize the analysis results on the 159 ft Sabre Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Sabre Communications Corporation, Job No. 04-05018, dated May 23, 2003
Foundation Drawing	Sabre Communications Corporation, Job No. 04-05018, Drawing No. 04-05018-F1, dated May 23, 2003
Geotechnical Report	Geotechnical Report by Dr. Clarence Welti, P.E., P.C., dated April 25, 2003
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} = 120.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" 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 = 0.205, S_1 = 0.065

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 [1]	Owner
1	162.0	3	Powerwave 7770 - Panel	Low Profile Platform	(6) 1 5/8" (1) 7/8" (2) 3/4" DC	AT&T
2		3	Powerwave P65-16-XLH-RR - Panel			
3		6	Powerwave LGP21401 - TMA			
4		6	Ericsson RRUS-11 - RRU			
5		1	Raycap DC6-48-60-18-8F			
6		1	Decibel DB404-B - Omni		(1) 1/2" Fiber	Town
-	151.0	3	RFS APXVSPP18-C-A20 - Panel	Low Profile Platform	(3) 1-1/4" Fiber	Sprint
-		3	Alcatel Lucent 1900 MHz RRH			
-		3	Alcatel Lucent 800 MHz RRH			
-		3	Alcatel Lucent 800 MHz Filters			
-		4	RFS ACU-A20-N - RET			
14	142.5	12	EMS FR65-17-04DP - Panel	Low Profile Platform	(24) 1 1/4"	T-Mobile
15		6	Remec S20057A1			
16	131.0	2	Antel BXA-70063/6CF - Panel	Low Profile Platform	(12) 1 5/8" (1) 1 5/8" Hybriflex (1) 1/2"	Verizon
17		6	Antel LPA-80063/6CF - Panel			
18		3	Antel BXA-171063-12BF - Panel			
19		1	Antel BXA-70040/6CF - Panel			
20		3	Commscope HBXX-6517DS-A2M - Panel			
21		3	Alcatel Lucent RRH2x60-AWS - RRU			
22		6	RFS FD9R6004/2C-3L - Diplexer			
23		1	RFS DB-T1-6Z-8AB-0Z - Distribution Box			
24		1	Lucent GPS			
25	110.0	1	Sinclair SCL329-HL – Omni	(1) 4 ft. Standoff	(1) 7/8" [2]	Town
26	80.0	1	Sinclair SCL329-HL - Omni	(1) 4 ft. Standoff	(1) 7/8" [2]	
27	50.0	1	Decibel 26DB - GPS	(1) 4 ft. Standoff	(1) 1/2" [3]	Sprint

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
7	151.0	3	RFS - APXVSPP18-C-A20 - Panel	Low Profile Platform	(4) 1-1/4" Hybrid	Sprint Nextel
8		3	RFS - APXVTM14-C-I20 - Panel			
9		4	RFS - ACU-A20-N - RET			
10		3	Alcatel Lucent - 1900 MHz RRH			
11		3	Alcatel Lucent - 800 MHz RRH			
12		3	Alcatel Lucent - TD-RRH8x20-25 - RRH			
13		3	Alcatel Lucent - 800 MHz Filters			

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:	**72.6%**	**79.6%**	**58.5%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	3665.0	31.3	41.5
Analysis Reactions	3741.1	31.7	45.8
Factored Reactions*	4947.8	42.2	56.0
% of Design Reactions	75.6%	75.1%	81.8%

* 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 1.9502 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.

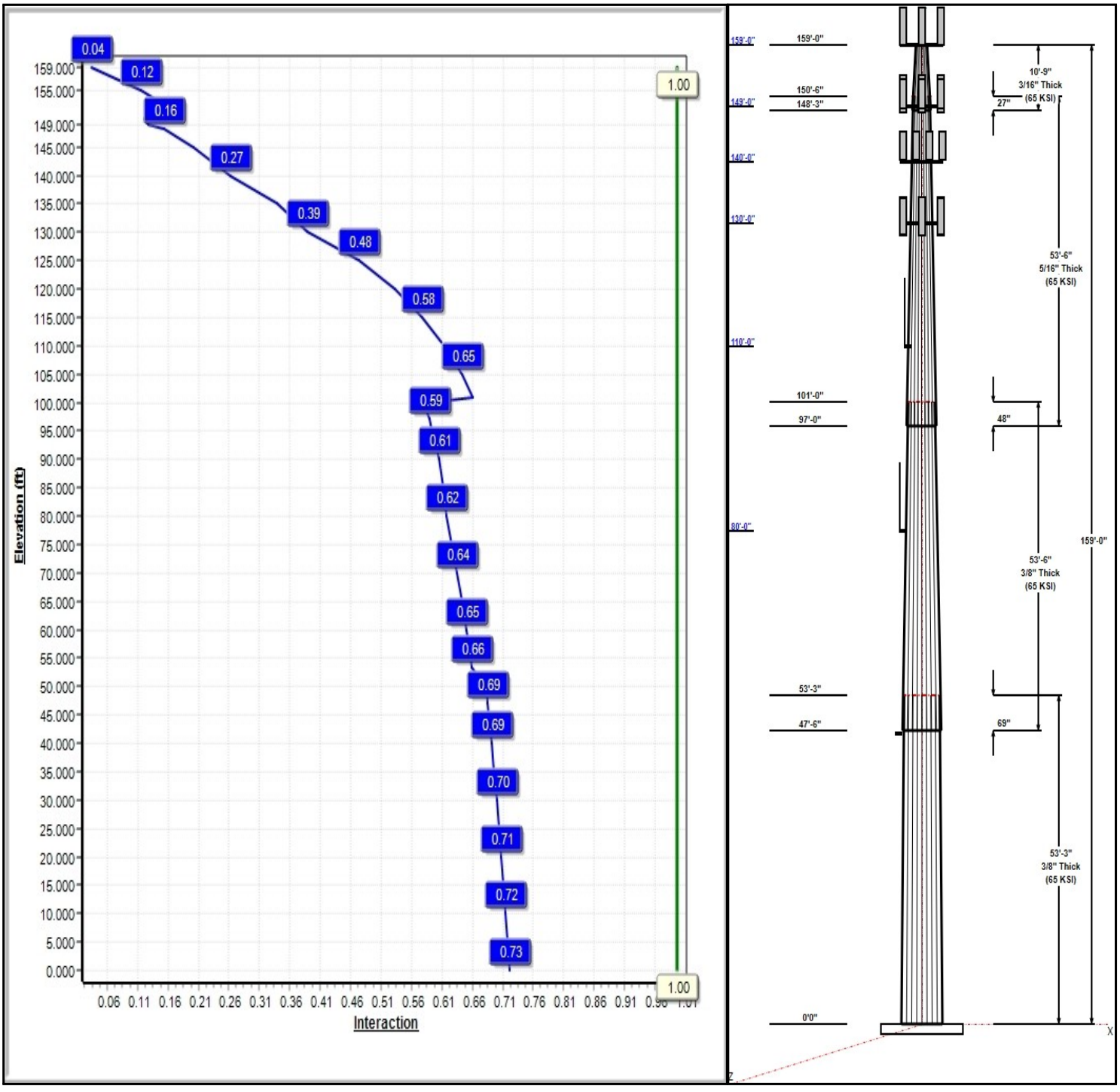
Usage Diagram - Max Ratio 72.57% at 0.0ft

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	25
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 93 mph Wind



Structure: CT13055-A-SBA

Type: Tapered
Site Name: Monroe Turnpike
Height: 159.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.28277

11/9/2017

Tower Engineering Solutions

Shaft Properties

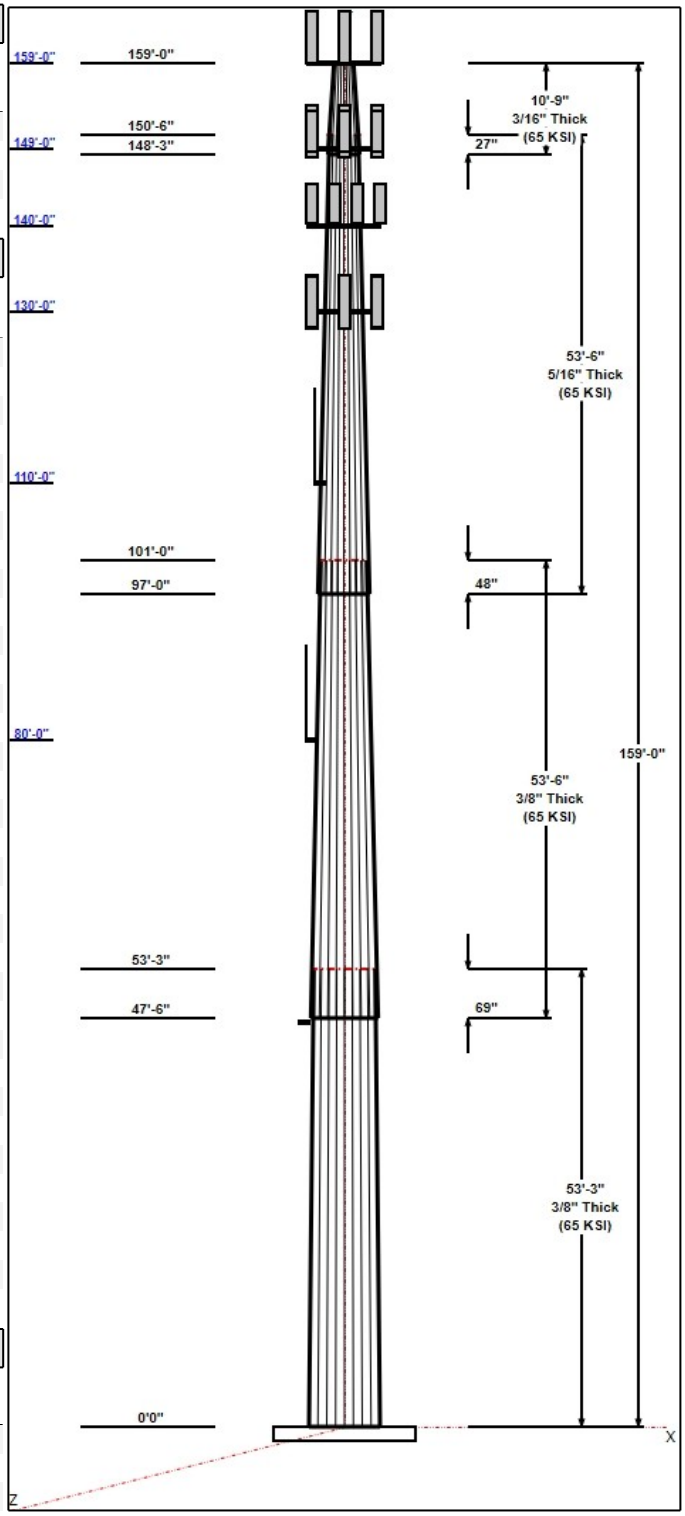
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	43.15	58.21	0.375		0.28277	65
2	53.50	30.40	45.53	0.375	Slip	0.28277	65
3	53.50	17.03	32.16	0.313	Slip	0.28277	65
4	10.75	15.00	18.04	0.188	Slip	0.28277	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
159.00	162.00	3	7770.00	AT&T
159.00	162.00	3	P65-16-XLH-RR	AT&T
159.00	162.00	6	LGP21401	AT&T
159.00	162.00	6	RRUS-11	AT&T
159.00	162.00	1	DC6-48-60-18-8F	AT&T
159.00	159.00	1	Low Profile Platform	AT&T
159.00	162.00	1	DB404-B	Town
149.00	151.00	3	RFS - APXVSPP18-C-A20	Sprint Nextel
149.00	151.00	3	Alcatel Lucent - 1900 MHz	Sprint Nextel
149.00	151.00	3	Alcatel Lucent - 800 MHz	Sprint Nextel
149.00	151.00	3	Alcatel Lucent - 800 MHz	Sprint Nextel
149.00	151.00	4	RFS - ACU-A20-N - RET	Sprint Nextel
149.00	149.00	1	Low Profile Platform	Sprint Nextel
149.00	151.00	3	RFS - APXVTM14-C-I20	Sprint Nextel
149.00	151.00	3	Alcatel Lucent -	Sprint Nextel
140.00	142.50	12	FR65-17-04DP	T-Mobile
140.00	142.50	6	S20057A1	T-Mobile
140.00	140.00	1	Low Profile Platform	T-Mobile
130.00	131.00	2	BXA-70063/6CF_	Verizon
130.00	131.00	6	LPA-80063/6CF	Verizon
130.00	131.00	3	BXA-171063-12BF-EDIN-X	Verizon
130.00	131.00	1	BXA-70040/6CF	Verizon
130.00	131.00	3	HBXX-6517DS-A2M	Verizon
130.00	131.00	3	RRH2X60-AWS	Verizon
130.00	131.00	6	FD9R6004/2C-3L 3.1#	Verizon
130.00	131.00	1	DB-T1-6Z-8AB-0Z	Verizon
130.00	131.00	1	Lucent GPS	Verizon
130.00	130.00	1	Low Profile Platform	Verizon
110.00	115.55	1	SCL329-HL	Town
110.00	110.00	1	4 ft Standoff	Town
80.00	80.00	1	4 ft Standoff	Town
80.00	85.55	1	SCL329-HL	Town
47.00	50.00	1	Decibel 26DB GPS	Sprint Nextel
47.00	47.00	1	4 ft Standoff	Sprint Nextel

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	159.00	Inside	1 5/8" Coax	AT&T
0.00	159.00	Inside	1/2" Fiber	AT&T
0.00	159.00	Inside	3/4" DC	AT&T
0.00	159.00	Inside	7/8" Coax	Town
0.00	149.00	Inside	1-1/4" Hybrid	Sprint Nextel
0.00	140.00	Inside	1 1/4" Coax	T-Mobile
0.00	130.00	Inside	1 5/8" Coax	Verizon
0.00	130.00	Inside	1 5/8" Hybriflex	Verizon



0.00	130.00	Inside	1/2"	Coax	Verizon
0.00	110.00	Outside	7/8"	Coax	Town
0.00	80.00	Outside	7/8"	Coax	Town
0.00	47.00	Outside	1/2"	Coax	Sprint Nextel

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
14	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.2500	71.0	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	3741.1	31.7	45.8
0.9D + 1.6W 93 mph Wind	3697.2	31.7	34.4
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1166.6	9.9	71.2
1.2D + 1.0E	249.3	2.0	45.9
0.9D + 1.0E	246.2	2.0	34.4
1.0D + 1.0W 60 mph Wind	967.5	8.2	38.2

Structure: CT13055-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Monroe Turnpike
Height: 159.00 (ft)

11/9/2017

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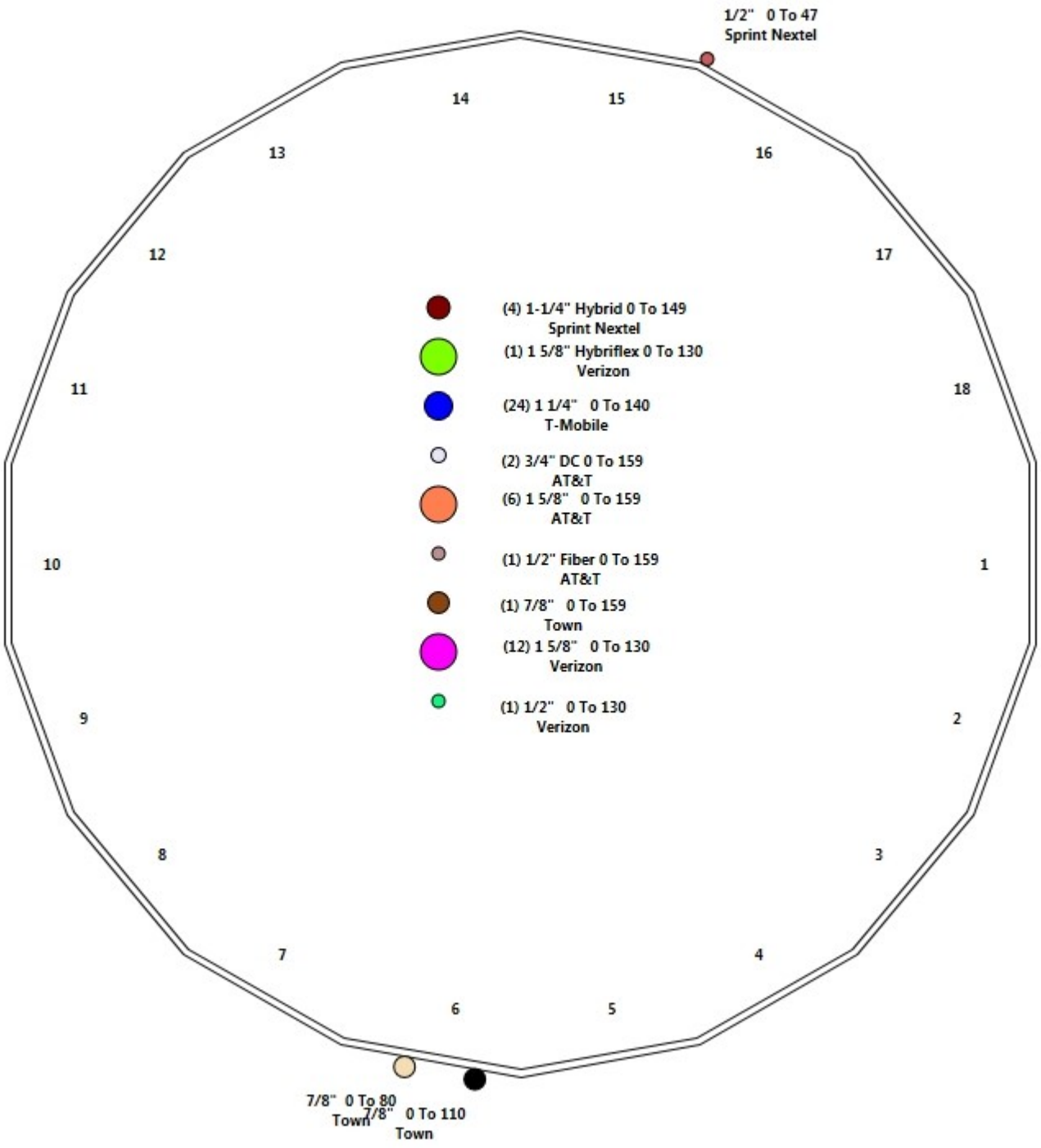


Shaft Properties

Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (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

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.3750	65		0.00	10,849
2	18	53.500	0.3750	65	Slip	69.00	8,145
3	18	53.500	0.3125	65	Slip	48.00	4,384
4	18	10.750	0.1875	65	Slip	27.00	356
					Total Shaft Weight:		**23,734**

	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	58.21	0.00	68.84	29090.28	25.96	155.23	43.15	53.25	50.91	11771.3	18.88	115.0	0.282767
2	45.53	47.50	53.74	13843.68	20.00	121.41	30.40	101.00	35.74	4070.49	12.88	81.07	0.282767
3	32.16	97.00	31.58	4046.51	16.73	102.90	17.03	150.50	16.58	585.32	8.20	54.49	0.282767
4	18.04	148.2	10.62	427.78	15.55	96.21	15.00	159.00	8.81	244.36	12.70	80.00	0.282767

Load Summary

Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (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

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	159.00	7770.00	3	77.00	5.79	0.77	332.84	7.270	0.80	0.00	3.00
2	159.00	P65-16-XLH-RR	3	102.00	8.53	0.79	367.43	10.417	0.81	0.00	3.00
3	159.00	LGP21401	6	14.10	1.29	0.50	39.25	2.131	0.50	0.00	3.00
4	159.00	RRUS-11	6	51.00	2.52	0.67	123.70	3.157	0.67	0.00	3.00
5	159.00	DC6-48-60-18-8F	1	31.80	0.92	1.00	93.99	1.361	1.00	0.00	3.00
6	159.00	Low Profile Platform	1	1200.00	35.00	1.00	2253.25	64.491	1.00	0.00	0.00
7	159.00	DB404-B	1	14.00	0.00	1.00	14.01	0.000	1.00	0.00	3.00
8	149.00	RFS - APXVSPP18-C-A20	3	106.00	8.42	0.83	373.25	10.288	0.85	0.00	2.00
9	149.00	Alcatel Lucent - 1900 MHz RRH	3	44.00	3.80	0.67	153.09	5.189	0.67	0.00	2.00
10	149.00	Alcatel Lucent - 800 MHz RRH	3	53.00	2.49	0.67	126.91	3.633	0.67	0.00	2.00
11	149.00	Alcatel Lucent - 800 MHz Filters	3	8.80	0.78	0.67	26.43	1.426	0.67	0.00	2.00
12	149.00	RFS - ACU-A20-N - RET	4	1.00	0.14	0.50	5.29	0.436	0.50	0.00	2.00
13	149.00	Low Profile Platform	1	1200.00	35.00	1.00	2246.43	64.300	1.00	0.00	0.00
14	149.00	RFS - APXVTM14-C-I20	3	56.00	6.34	0.78	182.62	7.450	0.81	0.00	2.00
15	149.00	Alcatel Lucent - TD-RRH8x20-25 -	3	70.00	4.05	0.67	167.67	5.463	0.67	0.00	2.00
16	140.00	FR65-17-04DP	12	18.00	4.36	0.78	115.82	5.339	0.83	0.00	2.50
17	140.00	S20057A1	6	11.00	0.82	0.50	29.75	1.513	0.50	0.00	2.50
18	140.00	Low Profile Platform	1	1200.00	25.00	1.00	2239.93	45.799	1.00	0.00	0.00
19	130.00	BXA-70063/6CF_	2	66.00	7.98	0.75	305.45	9.820	0.78	0.00	1.00
20	130.00	LPA-80063/6CF	6	76.00	10.01	0.95	412.45	11.946	0.95	0.00	1.00
21	130.00	BXA-171063-12BF-EDIN-X	3	64.00	5.13	0.88	246.07	6.906	0.90	0.00	1.00
22	130.00	BXA-70040/6CF	1	87.00	14.66	0.70	488.37	16.779	0.72	0.00	1.00
23	130.00	HBXX-6517DS-A2M	3	90.00	8.88	0.81	360.35	10.695	0.83	0.00	1.00
24	130.00	RRH2X60-AWS	3	55.00	3.50	0.67	133.88	4.278	0.67	0.00	1.00
25	130.00	FD9R6004/2C-3L 3.1#	6	3.10	0.36	0.50	11.01	0.797	0.50	0.00	1.00
26	130.00	DB-T1-6Z-8AB-0Z	1	18.90	4.80	0.71	160.23	5.660	0.76	0.00	1.00
27	130.00	Lucent GPS	1	0.50	0.12	1.00	7.06	0.323	1.00	0.00	1.00
28	130.00	Low Profile Platform	1	1200.00	25.00	1.00	2232.25	45.645	1.00	0.00	0.00
29	110.00	SCL329-HL	1	10.40	2.22	1.00	68.54	6.060	1.00	0.00	5.55
30	110.00	4 ft Standoff	1	53.32	3.50	1.00	157.14	11.249	1.00	0.00	0.00
31	80.00	4 ft Standoff	1	53.32	3.50	1.00	153.88	11.006	1.00	0.00	0.00
32	80.00	SCL329-HL	1	10.40	2.22	1.00	66.71	5.940	1.00	0.00	5.55
33	47.00	Decibel 26DB GPS	1	10.00	0.16	1.00	14.94	0.502	1.00	0.00	3.00
34	47.00	4 ft Standoff	1	53.32	3.50	1.00	148.67	10.617	1.00	0.00	0.00
		Totals:	**96**	**8,603.56**			**23,475.80**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
0.00	159.00	(6) 1 5/8" Coax	0.00	Inside
0.00	159.00	(1) 1/2" Fiber	0.00	Inside
0.00	159.00	(2) 3/4" DC	0.00	Inside
0.00	159.00	(1) 7/8" Coax	0.00	Inside
0.00	149.00	(4) 1-1/4" Hybrid	0.00	Inside
0.00	140.00	(24) 1 1/4" Coax	0.00	Inside
0.00	130.00	(12) 1 5/8" 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	130.00	(1) 1 5/8" Hybriflex			0.00	Inside					
0.00	130.00	(1) 1/2" Coax			0.00	Inside					
0.00	110.00	(1) 7/8" Coax			1.00	Outside					
0.00	80.00	(1) 7/8" Coax			0.00	Outside					
0.00	47.00	(1) 1/2" Coax			1.00	Outside					

Shaft Section Properties

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (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		0.3750	58.210	68.836	29090.3	25.96	155.23	70.9	984.3	0.0
5.00		0.3750	56.796	67.153	27008.6	25.30	151.46	71.6	936.6	1156.8
10.00		0.3750	55.382	65.470	25028.6	24.63	147.69	72.4	890.1	1128.2
15.00		0.3750	53.968	63.787	23147.9	23.97	143.92	73.2	844.8	1099.6
20.00		0.3750	52.555	62.105	21363.8	23.30	140.15	74.0	800.7	1071.0
25.00		0.3750	51.141	60.422	19673.9	22.64	136.38	74.8	757.7	1042.3
30.00		0.3750	49.727	58.739	18075.5	21.97	132.61	75.6	715.9	1013.7
35.00		0.3750	48.313	57.056	16566.1	21.31	128.84	76.3	675.4	985.1
40.00		0.3750	46.899	55.374	15143.1	20.64	125.06	77.1	636.0	956.4
45.00		0.3750	45.485	53.691	13804.1	19.98	121.29	77.9	597.7	927.8
47.00		0.3750	44.920	53.018	13291.4	19.71	119.79	78.2	582.8	363.1
47.50	Bot - Section 2	0.3750	44.779	52.849	13165.2	19.64	119.41	78.3	579.1	90.1
50.00		0.3750	44.072	52.008	12546.4	19.31	117.52	78.7	560.7	899.6
53.25	Top - Section 1	0.3750	43.903	51.807	12401.4	19.23	117.07	0.0	0.0	1148.1
55.00		0.3750	43.408	51.218	11983.2	19.00	115.75	79.1	543.7	306.7
60.00		0.3750	41.994	49.535	10840.5	18.34	111.98	79.8	508.4	857.1
65.00		0.3750	40.580	47.852	9772.8	17.67	108.21	80.6	474.3	828.5
70.00		0.3750	39.166	46.170	8777.7	17.01	104.44	81.4	441.4	799.8
75.00		0.3750	37.752	44.487	7852.4	16.34	100.67	82.2	409.7	771.2
80.00		0.3750	36.339	42.804	6994.6	15.68	96.90	82.5	379.1	742.6
85.00		0.3750	34.925	41.121	6201.7	15.01	93.13	82.5	349.8	713.9
90.00		0.3750	33.511	39.439	5471.1	14.35	89.36	82.5	321.6	685.3
95.00		0.3750	32.097	37.756	4800.2	13.68	85.59	82.5	294.6	656.7
97.00	Bot - Section 3	0.3750	31.532	37.083	4548.0	13.42	84.08	82.5	284.1	254.7
100.00		0.3750	30.683	36.073	4186.6	13.02	81.82	82.5	268.7	691.5
101.00	Top - Section 2	0.3125	31.026	30.462	3630.5	16.10	99.28	0.0	0.0	226.3
105.00		0.3125	29.894	29.341	3243.9	15.46	95.66	82.5	213.7	407.0
110.00		0.3125	28.481	27.938	2800.7	14.66	91.14	82.5	193.7	487.3
115.00		0.3125	27.067	26.536	2399.8	13.86	86.61	82.5	174.6	463.4
120.00		0.3125	25.653	25.134	2039.1	13.06	82.09	82.5	156.6	439.6
125.00		0.3125	24.239	23.731	1716.5	12.27	77.57	82.5	139.5	415.7
130.00		0.3125	22.825	22.329	1429.8	11.47	73.04	82.5	123.4	391.8
135.00		0.3125	21.411	20.927	1177.0	10.67	68.52	82.5	108.3	368.0
140.00		0.3125	19.998	19.524	955.9	9.87	63.99	82.5	94.1	344.1
145.00		0.3125	18.584	18.122	764.4	9.08	59.47	82.5	81.0	320.3
148.25	Bot - Section 4	0.3125	17.665	17.211	654.7	8.56	56.53	82.5	73.0	195.4
149.00		0.3125	17.453	17.000	631.0	8.44	55.85	82.5	71.2	70.6
150.00		0.3125	17.170	16.720	600.3	8.28	54.94	82.5	68.9	92.8
150.50	Top - Section 3	0.1875	17.404	10.245	383.7	14.96	92.82	0.0	0.0	45.8
155.00		0.1875	16.131	9.488	304.7	13.76	86.03	82.5	37.2	151.1
159.00		0.1875	15.000	8.815	244.4	12.70	80.00	82.5	32.1	124.6
										23733.6

Wind Loading - Shaft

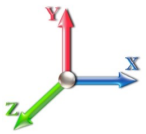
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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	17.879	19.67	422.34	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	412.08	0.650	0.000	5.00	24.329	15.81	497.6	0.0	1388.2
10.00		1.00	0.85	17.879	19.67	401.82	0.650	0.000	5.00	23.731	15.43	485.4	0.0	1353.9
15.00		1.00	0.85	17.879	19.67	391.56	0.650	0.000	5.00	23.133	15.04	473.2	0.0	1319.5
20.00		1.00	0.90	18.971	20.87	392.77	0.650	0.000	5.00	22.535	14.65	489.1	0.0	1285.1
25.00		1.00	0.95	19.883	21.87	391.29	0.650	0.000	5.00	21.936	14.26	499.0	0.0	1250.8
30.00		1.00	0.98	20.661	22.73	387.84	0.650	0.000	5.00	21.338	13.87	504.4	0.0	1216.4
35.00		1.00	1.01	21.343	23.48	382.98	0.650	0.000	5.00	20.740	13.48	506.4	0.0	1182.1
40.00		1.00	1.04	21.951	24.15	377.03	0.650	0.000	5.00	20.142	13.09	505.8	0.0	1147.7
45.00		1.00	1.07	22.502	24.75	370.23	0.650	0.000	5.00	19.544	12.70	503.1	0.0	1113.4
47.00	Appurtenance(s)	1.00	1.08	22.709	24.98	367.30	0.650	0.000	2.00	7.650	4.97	198.7	0.0	435.7
47.50	Bot - Section 2	1.00	1.08	22.760	25.04	366.56	0.650	0.000	0.50	1.898	1.23	49.4	0.0	108.1
50.00		1.00	1.09	23.007	25.31	362.72	0.650	0.000	2.50	9.557	6.21	251.5	0.0	1079.5
53.25	Top - Section 1	1.00	1.11	23.314	25.65	357.52	0.650	0.000	3.25	12.200	7.93	325.4	0.0	1377.7
55.00		1.00	1.12	23.473	25.82	360.86	0.650	0.000	1.75	6.465	4.20	173.6	0.0	368.1
60.00		1.00	1.14	23.907	26.30	352.32	0.650	0.000	5.00	18.067	11.74	494.1	0.0	1028.5
65.00		1.00	1.16	24.313	26.74	343.34	0.650	0.000	5.00	17.468	11.35	485.9	0.0	994.2
70.00		1.00	1.17	24.696	27.17	333.97	0.650	0.000	5.00	16.870	10.97	476.6	0.0	959.8
75.00		1.00	1.19	25.057	27.56	324.26	0.650	0.000	5.00	16.272	10.58	466.4	0.0	925.5
80.00	Appurtenance(s)	1.00	1.21	25.400	27.94	314.25	0.650	0.000	5.00	15.674	10.19	455.4	0.0	891.1
85.00		1.00	1.22	25.726	28.30	303.95	0.650	0.000	5.00	15.076	9.80	443.7	0.0	856.7
90.00		1.00	1.24	26.037	28.64	293.41	0.650	0.000	5.00	14.477	9.41	431.2	0.0	822.4
95.00		1.00	1.25	26.336	28.97	282.63	0.650	0.000	5.00	13.879	9.02	418.2	0.0	788.0
97.00	Bot - Section 3	1.00	1.26	26.451	29.10	278.26	0.650	0.000	2.00	5.384	3.50	162.9	0.0	305.6
100.00		1.00	1.27	26.621	29.28	271.65	0.650	0.000	3.00	8.055	5.24	245.3	0.0	829.8
101.00	Top - Section 2	1.00	1.27	26.677	29.35	269.42	0.650	0.000	1.00	2.637	1.71	80.5	0.0	271.6
105.00		1.00	1.28	26.896	29.59	266.03	0.650	0.000	4.00	10.310	6.70	317.2	0.0	488.4
110.00	Appurtenance(s)	1.00	1.29	27.161	29.88	254.69	0.650	0.000	5.00	12.349	8.03	383.7	0.0	584.7
115.00		1.00	1.30	27.416	30.16	243.18	0.650	0.000	5.00	11.751	7.64	368.6	0.0	556.1
120.00		1.00	1.32	27.663	30.43	231.51	0.650	0.000	5.00	11.153	7.25	352.9	0.0	527.5
125.00		1.00	1.33	27.902	30.69	219.69	0.650	0.000	5.00	10.555	6.86	336.9	0.0	498.8
130.00	Appurtenance(s)	1.00	1.34	28.133	30.95	207.74	0.650	0.000	5.00	9.956	6.47	320.4	0.0	470.2
135.00		1.00	1.35	28.358	31.19	195.64	0.650	0.000	5.00	9.358	6.08	303.6	0.0	441.6
140.00	Appurtenance(s)	1.00	1.36	28.576	31.43	183.43	0.650	0.000	5.00	8.760	5.69	286.4	0.0	412.9
145.00		1.00	1.37	28.788	31.67	171.09	0.650	0.000	5.00	8.162	5.31	268.8	0.0	384.3
148.25	Bot - Section 4	1.00	1.37	28.922	31.81	163.01	0.650	0.000	3.25	4.984	3.24	164.9	0.0	234.4
149.00	Appurtenance(s)	1.00	1.38	28.953	31.85	161.14	0.650	0.000	0.75	1.138	0.74	37.7	0.0	84.7
150.00		1.00	1.38	28.994	31.89	158.64	0.650	0.000	1.00	1.497	0.97	49.6	0.0	111.4
150.50	Top - Section 3	1.00	1.38	29.014	31.92	157.39	0.650	0.000	0.50	0.739	0.48	24.5	0.0	55.0
155.00		1.00	1.39	29.195	32.11	149.55	0.650	0.000	4.50	6.385	4.15	213.2	0.0	181.3
159.00	Appurtenance(s)	1.00	1.40	29.352	32.29	139.44	0.650	0.000	4.00	5.269	3.42	176.9	0.0	149.5
								Totals:	**159.00**			**13,228.3**		**28,480.3**

Discrete Appurtenance Forces

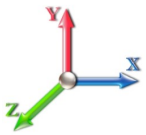
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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	159.00	Low Profile Platform	1	29.352	32.287	1.00	1.00	35.00	1440.00	0.000	0.000	1808.06	0.00	0.00
2	159.00	DC6-48-60-18-8F	1	29.467	32.414	1.00	1.00	0.92	38.16	0.000	3.000	47.71	0.00	143.14
3	159.00	RRUS-11	6	29.467	32.414	0.67	1.00	10.13	367.20	0.000	3.000	525.39	0.00	1576.16
4	159.00	LGP21401	6	29.467	32.414	0.50	1.00	3.87	101.52	0.000	3.000	200.71	0.00	602.12
5	159.00	P65-16-XLH-RR	3	29.467	32.414	0.79	1.00	20.19	367.20	0.000	3.000	1047.13	0.00	3141.39
6	159.00	7770.00	3	29.467	32.414	0.77	1.00	13.31	277.20	0.000	3.000	690.05	0.00	2070.16
7	159.00	DB404-B	1	29.467	32.414	1.00	1.00	0.00	16.80	0.000	3.000	0.00	0.00	0.00
8	149.00	Alcatel Lucent - 1900 MHz	3	29.034	31.938	0.54	0.80	6.11	158.40	0.000	2.000	312.24	0.00	624.49
9	149.00	Alcatel Lucent - 800 MHz	3	29.034	31.938	0.54	0.80	4.00	190.80	0.000	2.000	204.60	0.00	409.20
10	149.00	Alcatel Lucent - 800 MHz	3	29.034	31.938	0.54	0.80	1.25	31.68	0.000	2.000	64.09	0.00	128.18
11	149.00	RFS - APXVSPP18-C-A20	3	29.034	31.938	0.66	0.80	16.75	381.60	0.000	2.000	856.06	0.00	1712.11
12	149.00	RFS - APXVTM14-C-I20	3	29.034	31.938	0.63	0.80	11.93	201.60	0.000	2.000	609.59	0.00	1219.19
13	149.00	RFS - ACU-A20-N - RET	4	29.034	31.938	0.40	0.80	0.22	4.80	0.000	2.000	11.45	0.00	22.89
14	149.00	Low Profile Platform	1	28.953	31.848	1.00	1.00	35.00	1440.00	0.000	0.000	1783.50	0.00	0.00
15	149.00	Alcatel Lucent -	3	29.034	31.938	0.54	0.80	6.51	252.00	0.000	2.000	332.79	0.00	665.57
16	140.00	Low Profile Platform	1	28.576	31.433	1.00	1.00	25.00	1440.00	0.000	0.000	1257.33	0.00	0.00
17	140.00	S20057A1	6	28.682	31.551	0.40	0.80	1.97	79.20	0.000	2.500	99.35	0.00	248.37
18	140.00	FR65-17-04DP	12	28.682	31.551	0.62	0.80	32.65	259.20	0.000	2.500	1648.08	0.00	4120.21
19	130.00	HBXX-6517DS-A2M	3	28.179	30.997	0.65	0.80	17.20	324.00	0.000	1.000	852.97	0.00	852.97
20	130.00	BXA-70063/6CF_	2	28.179	30.997	0.60	0.80	9.55	158.40	0.000	1.000	473.65	0.00	473.65
21	130.00	LPA-80063/6CF	6	28.179	30.997	0.76	0.80	45.50	547.20	0.000	1.000	2256.62	0.00	2256.62
22	130.00	BXA-171063-12BF-EDIN-	3	28.179	30.997	0.70	0.80	10.80	230.40	0.000	1.000	535.50	0.00	535.50
23	130.00	BXA-70040/6CF	1	28.179	30.997	0.56	0.80	8.22	104.40	0.000	1.000	407.73	0.00	407.73
24	130.00	Low Profile Platform	1	28.133	30.947	1.00	1.00	25.00	1440.00	0.000	0.000	1237.86	0.00	0.00
25	130.00	RRH2X60-AWS	3	28.179	30.997	0.54	0.80	5.63	198.00	0.000	1.000	279.12	0.00	279.12
26	130.00	FD9R6004/2C-3L 3.1#	6	28.179	30.997	0.40	0.80	0.86	22.32	0.000	1.000	42.85	0.00	42.85
27	130.00	DB-T1-6Z-8AB-0Z	1	28.179	30.997	0.57	0.80	2.73	22.68	0.000	1.000	135.21	0.00	135.21
28	130.00	Lucent GPS	1	28.179	30.997	0.80	0.80	0.10	0.60	0.000	1.000	4.76	0.00	4.76
29	110.00	4 ft Standoff	1	27.161	29.877	1.00	1.00	3.50	63.98	0.000	0.000	167.31	0.00	0.00
30	110.00	SCL329-HL	1	27.444	30.188	1.00	1.00	2.22	12.48	0.000	5.550	107.23	0.00	595.12
31	80.00	SCL329-HL	1	25.761	28.337	1.00	1.00	2.22	12.48	0.000	5.550	100.65	0.00	558.63
32	80.00	4 ft Standoff	1	25.400	27.940	1.00	1.00	3.50	63.98	0.000	0.000	156.46	0.00	0.00
33	47.00	4 ft Standoff	1	22.709	24.980	1.00	1.00	3.50	63.98	0.000	0.000	139.89	0.00	0.00
34	47.00	Decibel 26DB GPS	1	23.007	25.308	1.00	1.00	0.16	12.00	0.000	3.000	6.48	0.00	19.44
							Totals:		**10,324.27**			**18,402.44**		

Total Applied Force Summary

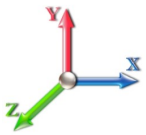
Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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		497.63	1642.11	0.00	0.00
10.00		485.39	1607.76	0.00	0.00
15.00		473.16	1573.40	0.00	0.00
20.00		489.06	1539.04	0.00	0.00
25.00		498.97	1504.69	0.00	0.00
30.00		504.36	1470.33	0.00	0.00
35.00		506.39	1435.97	0.00	0.00
40.00		505.80	1401.62	0.00	0.00
45.00		503.10	1367.26	0.00	0.00
47.00	(2) attachments	345.11	613.27	0.00	19.44
47.50		49.41	133.37	0.00	0.00
50.00		251.53	1206.00	0.00	0.00
53.25		325.39	1542.12	0.00	0.00
55.00		173.60	456.63	0.00	0.00
60.00		494.11	1281.46	0.00	0.00
65.00		485.87	1247.10	0.00	0.00
70.00		476.61	1212.74	0.00	0.00
75.00		466.44	1178.39	0.00	0.00
80.00	(2) attachments	712.55	1220.50	0.00	558.63
85.00		443.68	1106.56	0.00	0.00
90.00		431.24	1072.20	0.00	0.00
95.00		418.15	1037.84	0.00	0.00
97.00		162.93	405.52	0.00	0.00
100.00		245.33	979.72	0.00	0.00
101.00		80.49	321.54	0.00	0.00
105.00		317.23	688.24	0.00	0.00
110.00	(2) attachments	658.25	911.00	0.00	595.12
115.00		368.56	802.79	0.00	0.00
120.00		352.95	774.16	0.00	0.00
125.00		336.90	745.53	0.00	0.00
130.00	(27) attachments	6546.72	3764.90	0.00	4988.42
135.00		303.59	605.83	0.00	0.00
140.00	(19) attachments	3291.13	2355.59	0.00	4368.58
145.00		268.79	453.52	0.00	0.00
148.25		164.92	279.44	0.00	0.00
149.00	(23) attachments	4212.02	2755.99	0.00	4781.64
150.00		49.64	120.63	0.00	0.00
150.50		24.54	59.63	0.00	0.00
155.00		213.24	222.99	0.00	0.00
159.00	(21) attachments	4495.96	2794.61	0.00	7532.98
	Totals:	**31,630.73**	**45,891.96**	**0.00**	**22,844.80**

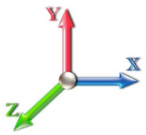
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (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	

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.030	0.000	17.879	0.00	3.12
5.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.030	0.000	17.879	0.00	3.12
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	17.879	0.00	0.96
10.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.031	0.000	17.879	0.00	3.12
10.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.031	0.000	17.879	0.00	3.12
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.031	0.000	17.879	0.00	0.96
15.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.032	0.000	17.879	0.00	3.12
15.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.032	0.000	17.879	0.00	3.12
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.032	0.000	17.879	0.00	0.96
20.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	18.971	0.00	3.12
20.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.033	0.000	18.971	0.00	3.12
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.033	0.000	18.971	0.00	0.96
25.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	19.883	0.00	3.12
25.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.033	0.000	19.883	0.00	3.12
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.033	0.000	19.883	0.00	0.96
30.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.034	0.000	20.661	0.00	3.12
30.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.034	0.000	20.661	0.00	3.12
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.034	0.000	20.661	0.00	0.96
35.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.035	0.000	21.343	0.00	3.12
35.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.035	0.000	21.343	0.00	3.12
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.035	0.000	21.343	0.00	0.96
40.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.036	0.000	21.951	0.00	3.12
40.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.036	0.000	21.951	0.00	3.12
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.036	0.000	21.951	0.00	0.96
45.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.038	0.000	22.502	0.00	3.12
45.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.038	0.000	22.502	0.00	3.12
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.038	0.000	22.502	0.00	0.96
47.00	7/8" Coax	Yes	2.00	0.000	1.11	0.19	0.00	0.038	0.000	22.709	0.00	1.25
47.00	7/8" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.038	0.000	22.709	0.00	1.25
47.00	1/2" Coax	Yes	2.00	0.000	0.65	0.11	0.00	0.038	0.000	22.709	0.00	0.38
47.50	7/8" Coax	Yes	0.50	0.000	1.11	0.05	0.00	0.024	0.000	22.760	0.00	0.31
47.50	7/8" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.024	0.000	22.760	0.00	0.31
50.00	7/8" Coax	Yes	2.50	0.000	1.11	0.23	0.00	0.025	0.000	23.007	0.00	1.56
50.00	7/8" Coax	Yes	2.50	0.000	0.00	0.00	0.00	0.025	0.000	23.007	0.00	1.56
53.25	7/8" Coax	Yes	3.25	0.000	1.11	0.30	0.00	0.025	0.000	23.314	0.00	2.03
53.25	7/8" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.025	0.000	23.314	0.00	2.03
55.00	7/8" Coax	Yes	1.75	0.000	1.11	0.16	0.00	0.025	0.000	23.473	0.00	1.09
55.00	7/8" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.025	0.000	23.473	0.00	1.09
60.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.026	0.000	23.907	0.00	3.12
60.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.026	0.000	23.907	0.00	3.12
65.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.026	0.000	24.313	0.00	3.12
65.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.026	0.000	24.313	0.00	3.12
70.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.027	0.000	24.696	0.00	3.12
70.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.027	0.000	24.696	0.00	3.12
75.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.028	0.000	25.057	0.00	3.12
75.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.028	0.000	25.057	0.00	3.12
80.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.030	0.000	25.400	0.00	3.12

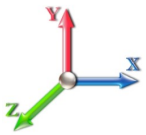
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (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	

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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)
80.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.030	0.000	25.400	0.00	3.12
85.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.031	0.000	25.726	0.00	3.12
90.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.032	0.000	26.037	0.00	3.12
95.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	26.336	0.00	3.12
97.00	7/8" Coax	Yes	2.00	0.000	1.11	0.19	0.00	0.034	0.000	26.451	0.00	1.25
100.00	7/8" Coax	Yes	3.00	0.000	1.11	0.28	0.00	0.035	0.000	26.621	0.00	1.87
101.00	7/8" Coax	Yes	1.00	0.000	1.11	0.09	0.00	0.036	0.000	26.677	0.00	0.62
105.00	7/8" Coax	Yes	4.00	0.000	1.11	0.37	0.00	0.036	0.000	26.896	0.00	2.50
110.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.037	0.000	27.161	0.00	3.12
									Totals:		**0.0**	**127.6**

Calculated Forces

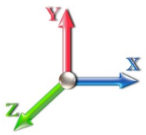
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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	-45.84	-31.70	0.00	-3741.0	0.00	3741.07	4390.37	2195.18	10447.7	5231.64	0.00	0.000	0.000	0.726
5.00	-44.10	-31.34	0.00	-3582.5	0.00	3582.55	4330.30	2165.15	10051.2	5033.11	0.10	-0.179	0.000	0.722
10.00	-42.39	-30.99	0.00	-3425.8	0.00	3425.84	4267.86	2133.93	9656.46	4835.41	0.38	-0.364	0.000	0.719
15.00	-40.72	-30.64	0.00	-3270.9	0.00	3270.90	4203.05	2101.52	9263.74	4638.76	0.87	-0.554	0.000	0.715
20.00	-39.08	-30.27	0.00	-3117.7	0.00	3117.70	4135.87	2067.94	8873.53	4443.36	1.55	-0.750	0.000	0.711
25.00	-37.48	-29.88	0.00	-2966.3	0.00	2966.35	4066.33	2033.16	8486.25	4249.43	2.45	-0.953	0.000	0.707
30.00	-35.91	-29.49	0.00	-2816.9	0.00	2816.93	3994.42	1997.21	8102.30	4057.17	3.56	-1.162	0.000	0.704
35.00	-34.37	-29.08	0.00	-2669.5	0.00	2669.50	3920.13	1960.07	7722.12	3866.80	4.89	-1.378	0.000	0.699
40.00	-32.87	-28.67	0.00	-2524.1	0.00	2524.10	3843.48	1921.74	7346.10	3678.51	6.45	-1.601	0.000	0.695
45.00	-31.44	-28.21	0.00	-2380.7	0.00	2380.77	3764.47	1882.23	6974.67	3492.52	8.25	-1.831	0.000	0.690
47.00	-30.81	-27.88	0.00	-2324.3	0.00	2324.32	3732.20	1866.10	6827.48	3418.81	9.04	-1.928	0.000	0.688
47.50	-30.64	-27.87	0.00	-2310.3	0.00	2310.38	3724.07	1862.03	6790.81	3400.45	9.24	-1.953	0.000	0.688
50.00	-29.38	-27.65	0.00	-2240.7	0.00	2240.71	3683.08	1841.54	6608.25	3309.03	10.30	-2.076	0.000	0.685
53.25	-27.79	-27.32	0.00	-2150.8	0.00	2150.87	3673.19	1836.60	6564.80	3287.28	11.77	-2.238	0.000	0.662
55.00	-27.26	-27.21	0.00	-2103.0	0.00	2103.05	3644.05	1822.03	6438.04	3223.81	12.61	-2.328	0.000	0.660
60.00	-25.89	-26.77	0.00	-1966.9	0.00	1966.99	3559.18	1779.59	6079.73	3044.38	15.17	-2.569	0.000	0.654
65.00	-24.55	-26.34	0.00	-1833.1	0.00	1833.12	3471.95	1735.97	5727.45	2867.98	18.00	-2.819	0.000	0.646
70.00	-23.24	-25.91	0.00	-1701.4	0.00	1701.43	3382.35	1691.17	5381.61	2694.80	21.08	-3.076	0.000	0.638
75.00	-21.97	-25.48	0.00	-1571.8	0.00	1571.89	3290.37	1645.19	5042.64	2525.07	24.45	-3.341	0.000	0.629
80.00	-20.68	-24.79	0.00	-1443.9	0.00	1443.94	3180.13	1590.07	4687.51	2347.24	28.09	-3.614	0.000	0.622
85.00	-19.48	-24.38	0.00	-1319.9	0.00	1319.97	3055.11	1527.56	4324.37	2165.40	32.02	-3.895	0.000	0.616
90.00	-18.32	-23.96	0.00	-1198.0	0.00	1198.09	2930.09	1465.05	3975.87	1990.89	36.26	-4.184	0.000	0.608
95.00	-17.23	-23.53	0.00	-1078.2	0.00	1078.27	2805.07	1402.54	3642.00	1823.71	40.79	-4.480	0.000	0.598
97.00	-16.78	-23.38	0.00	-1031.2	0.00	1031.20	2755.06	1377.53	3512.56	1758.89	42.70	-4.605	0.000	0.593
100.00	-15.77	-23.09	0.00	-961.05	0.00	961.05	2680.05	1340.03	3322.78	1663.86	45.65	-4.792	0.000	0.584
101.00	-15.39	-23.03	0.00	-937.96	0.00	937.96	2260.99	1130.50	2846.84	1425.54	46.66	-4.856	0.000	0.665
105.00	-14.61	-22.73	0.00	-845.85	0.00	845.85	2179.85	1089.93	2642.58	1323.26	50.83	-5.106	0.000	0.646
110.00	-13.64	-22.07	0.00	-731.61	0.00	731.61	2075.67	1037.84	2394.76	1199.16	56.36	-5.452	0.000	0.617
115.00	-12.74	-21.70	0.00	-621.25	0.00	621.25	1971.49	985.74	2159.14	1081.18	62.24	-5.795	0.000	0.582
120.00	-11.89	-21.34	0.00	-512.73	0.00	512.73	1867.30	933.65	1935.73	969.30	68.49	-6.131	0.000	0.536
125.00	-11.07	-20.98	0.00	-406.03	0.00	406.03	1763.12	881.56	1724.51	863.54	75.07	-6.452	0.000	0.477
130.00	-8.02	-14.09	0.00	-296.12	0.00	296.12	1658.94	829.47	1525.49	763.88	81.98	-6.745	0.000	0.393
135.00	-7.39	-13.74	0.00	-225.70	0.00	225.70	1554.75	777.38	1338.67	670.33	89.17	-7.005	0.000	0.342
140.00	-5.43	-10.21	0.00	-152.61	0.00	152.61	1450.57	725.28	1164.05	582.89	96.61	-7.236	0.000	0.266
145.00	-4.99	-9.89	0.00	-101.58	0.00	101.58	1346.38	673.19	1001.64	501.56	104.28	-7.425	0.000	0.206
148.25	-4.72	-9.70	0.00	-69.43	0.00	69.43	1278.66	639.33	902.61	451.97	109.36	-7.528	0.000	0.158
149.00	-2.54	-5.16	0.00	-57.37	0.00	57.37	1263.04	631.52	880.49	440.90	110.54	-7.550	0.000	0.132
150.00	-2.43	-5.10	0.00	-52.21	0.00	52.21	1242.20	621.10	851.42	426.34	112.12	-7.575	0.000	0.124
150.50	-2.37	-5.07	0.00	-49.66	0.00	49.66	761.18	380.59	536.85	268.82	112.91	-7.587	0.000	0.188
155.00	-2.17	-4.83	0.00	-26.85	0.00	26.85	704.92	352.46	460.03	230.36	120.08	-7.670	0.000	0.120
159.00	0.00	-4.50	0.00	-7.53	0.00	7.53	654.91	327.45	396.72	198.65	126.52	-7.734	0.000	0.038

Wind Loading - Shaft

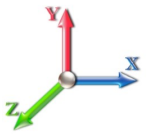
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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	17.879	19.67	422.34	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	412.08	0.650	0.000	5.00	24.329	15.81	497.6	0.0	1041.2
10.00		1.00	0.85	17.879	19.67	401.82	0.650	0.000	5.00	23.731	15.43	485.4	0.0	1015.4
15.00		1.00	0.85	17.879	19.67	391.56	0.650	0.000	5.00	23.133	15.04	473.2	0.0	989.6
20.00		1.00	0.90	18.971	20.87	392.77	0.650	0.000	5.00	22.535	14.65	489.1	0.0	963.9
25.00		1.00	0.95	19.883	21.87	391.29	0.650	0.000	5.00	21.936	14.26	499.0	0.0	938.1
30.00		1.00	0.98	20.661	22.73	387.84	0.650	0.000	5.00	21.338	13.87	504.4	0.0	912.3
35.00		1.00	1.01	21.343	23.48	382.98	0.650	0.000	5.00	20.740	13.48	506.4	0.0	886.6
40.00		1.00	1.04	21.951	24.15	377.03	0.650	0.000	5.00	20.142	13.09	505.8	0.0	860.8
45.00		1.00	1.07	22.502	24.75	370.23	0.650	0.000	5.00	19.544	12.70	503.1	0.0	835.0
47.00	Appurtenance(s)	1.00	1.08	22.709	24.98	367.30	0.650	0.000	2.00	7.650	4.97	198.7	0.0	326.8
47.50	Bot - Section 2	1.00	1.08	22.760	25.04	366.56	0.650	0.000	0.50	1.898	1.23	49.4	0.0	81.1
50.00		1.00	1.09	23.007	25.31	362.72	0.650	0.000	2.50	9.557	6.21	251.5	0.0	809.6
53.25	Top - Section 1	1.00	1.11	23.314	25.65	357.52	0.650	0.000	3.25	12.200	7.93	325.4	0.0	1033.3
55.00		1.00	1.12	23.473	25.82	360.86	0.650	0.000	1.75	6.465	4.20	173.6	0.0	276.1
60.00		1.00	1.14	23.907	26.30	352.32	0.650	0.000	5.00	18.067	11.74	494.1	0.0	771.4
65.00		1.00	1.16	24.313	26.74	343.34	0.650	0.000	5.00	17.468	11.35	485.9	0.0	745.6
70.00		1.00	1.17	24.696	27.17	333.97	0.650	0.000	5.00	16.870	10.97	476.6	0.0	719.9
75.00		1.00	1.19	25.057	27.56	324.26	0.650	0.000	5.00	16.272	10.58	466.4	0.0	694.1
80.00	Appurtenance(s)	1.00	1.21	25.400	27.94	314.25	0.650	0.000	5.00	15.674	10.19	455.4	0.0	668.3
85.00		1.00	1.22	25.726	28.30	303.95	0.650	0.000	5.00	15.076	9.80	443.7	0.0	642.6
90.00		1.00	1.24	26.037	28.64	293.41	0.650	0.000	5.00	14.477	9.41	431.2	0.0	616.8
95.00		1.00	1.25	26.336	28.97	282.63	0.650	0.000	5.00	13.879	9.02	418.2	0.0	591.0
97.00	Bot - Section 3	1.00	1.26	26.451	29.10	278.26	0.650	0.000	2.00	5.384	3.50	162.9	0.0	229.2
100.00		1.00	1.27	26.621	29.28	271.65	0.650	0.000	3.00	8.055	5.24	245.3	0.0	622.4
101.00	Top - Section 2	1.00	1.27	26.677	29.35	269.42	0.650	0.000	1.00	2.637	1.71	80.5	0.0	203.7
105.00		1.00	1.28	26.896	29.59	266.03	0.650	0.000	4.00	10.310	6.70	317.2	0.0	366.3
110.00	Appurtenance(s)	1.00	1.29	27.161	29.88	254.69	0.650	0.000	5.00	12.349	8.03	383.7	0.0	438.5
115.00		1.00	1.30	27.416	30.16	243.18	0.650	0.000	5.00	11.751	7.64	368.6	0.0	417.1
120.00		1.00	1.32	27.663	30.43	231.51	0.650	0.000	5.00	11.153	7.25	352.9	0.0	395.6
125.00		1.00	1.33	27.902	30.69	219.69	0.650	0.000	5.00	10.555	6.86	336.9	0.0	374.1
130.00	Appurtenance(s)	1.00	1.34	28.133	30.95	207.74	0.650	0.000	5.00	9.956	6.47	320.4	0.0	352.6
135.00		1.00	1.35	28.358	31.19	195.64	0.650	0.000	5.00	9.358	6.08	303.6	0.0	331.2
140.00	Appurtenance(s)	1.00	1.36	28.576	31.43	183.43	0.650	0.000	5.00	8.760	5.69	286.4	0.0	309.7
145.00		1.00	1.37	28.788	31.67	171.09	0.650	0.000	5.00	8.162	5.31	268.8	0.0	288.2
148.25	Bot - Section 4	1.00	1.37	28.922	31.81	163.01	0.650	0.000	3.25	4.984	3.24	164.9	0.0	175.8
149.00	Appurtenance(s)	1.00	1.38	28.953	31.85	161.14	0.650	0.000	0.75	1.138	0.74	37.7	0.0	63.5
150.00		1.00	1.38	28.994	31.89	158.64	0.650	0.000	1.00	1.497	0.97	49.6	0.0	83.5
150.50	Top - Section 3	1.00	1.38	29.014	31.92	157.39	0.650	0.000	0.50	0.739	0.48	24.5	0.0	41.2
155.00		1.00	1.39	29.195	32.11	149.55	0.650	0.000	4.50	6.385	4.15	213.2	0.0	136.0
159.00	Appurtenance(s)	1.00	1.40	29.352	32.29	139.44	0.650	0.000	4.00	5.269	3.42	176.9	0.0	112.1
								Totals:	**159.00**			**13,228.3**		**21,360.2**

Discrete Appurtenance Forces

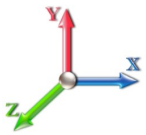
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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	159.00	Low Profile Platform	1	29.352	32.287	1.00	1.00	35.00	1080.00	0.000	0.000	1808.06	0.00	0.00
2	159.00	DC6-48-60-18-8F	1	29.467	32.414	1.00	1.00	0.92	28.62	0.000	3.000	47.71	0.00	143.14
3	159.00	RRUS-11	6	29.467	32.414	0.67	1.00	10.13	275.40	0.000	3.000	525.39	0.00	1576.16
4	159.00	LGP21401	6	29.467	32.414	0.50	1.00	3.87	76.14	0.000	3.000	200.71	0.00	602.12
5	159.00	P65-16-XLH-RR	3	29.467	32.414	0.79	1.00	20.19	275.40	0.000	3.000	1047.13	0.00	3141.39
6	159.00	7770.00	3	29.467	32.414	0.77	1.00	13.31	207.90	0.000	3.000	690.05	0.00	2070.16
7	159.00	DB404-B	1	29.467	32.414	1.00	1.00	0.00	12.60	0.000	3.000	0.00	0.00	0.00
8	149.00	Alcatel Lucent - 1900 MHz	3	29.034	31.938	0.54	0.80	6.11	118.80	0.000	2.000	312.24	0.00	624.49
9	149.00	Alcatel Lucent - 800 MHz	3	29.034	31.938	0.54	0.80	4.00	143.10	0.000	2.000	204.60	0.00	409.20
10	149.00	Alcatel Lucent - 800 MHz	3	29.034	31.938	0.54	0.80	1.25	23.76	0.000	2.000	64.09	0.00	128.18
11	149.00	RFS - APXVSPP18-C-A20	3	29.034	31.938	0.66	0.80	16.75	286.20	0.000	2.000	856.06	0.00	1712.11
12	149.00	RFS - APXVTM14-C-I20	3	29.034	31.938	0.63	0.80	11.93	151.20	0.000	2.000	609.59	0.00	1219.19
13	149.00	RFS - ACU-A20-N - RET	4	29.034	31.938	0.40	0.80	0.22	3.60	0.000	2.000	11.45	0.00	22.89
14	149.00	Low Profile Platform	1	28.953	31.848	1.00	1.00	35.00	1080.00	0.000	0.000	1783.50	0.00	0.00
15	149.00	Alcatel Lucent -	3	29.034	31.938	0.54	0.80	6.51	189.00	0.000	2.000	332.79	0.00	665.57
16	140.00	Low Profile Platform	1	28.576	31.433	1.00	1.00	25.00	1080.00	0.000	0.000	1257.33	0.00	0.00
17	140.00	S20057A1	6	28.682	31.551	0.40	0.80	1.97	59.40	0.000	2.500	99.35	0.00	248.37
18	140.00	FR65-17-04DP	12	28.682	31.551	0.62	0.80	32.65	194.40	0.000	2.500	1648.08	0.00	4120.21
19	130.00	HBXX-6517DS-A2M	3	28.179	30.997	0.65	0.80	17.20	243.00	0.000	1.000	852.97	0.00	852.97
20	130.00	BXA-70063/6CF_	2	28.179	30.997	0.60	0.80	9.55	118.80	0.000	1.000	473.65	0.00	473.65
21	130.00	LPA-80063/6CF	6	28.179	30.997	0.76	0.80	45.50	410.40	0.000	1.000	2256.62	0.00	2256.62
22	130.00	BXA-171063-12BF-EDIN-	3	28.179	30.997	0.70	0.80	10.80	172.80	0.000	1.000	535.50	0.00	535.50
23	130.00	BXA-70040/6CF	1	28.179	30.997	0.56	0.80	8.22	78.30	0.000	1.000	407.73	0.00	407.73
24	130.00	Low Profile Platform	1	28.133	30.947	1.00	1.00	25.00	1080.00	0.000	0.000	1237.86	0.00	0.00
25	130.00	RRH2X60-AWS	3	28.179	30.997	0.54	0.80	5.63	148.50	0.000	1.000	279.12	0.00	279.12
26	130.00	FD9R6004/2C-3L 3.1#	6	28.179	30.997	0.40	0.80	0.86	16.74	0.000	1.000	42.85	0.00	42.85
27	130.00	DB-T1-6Z-8AB-0Z	1	28.179	30.997	0.57	0.80	2.73	17.01	0.000	1.000	135.21	0.00	135.21
28	130.00	Lucent GPS	1	28.179	30.997	0.80	0.80	0.10	0.45	0.000	1.000	4.76	0.00	4.76
29	110.00	4 ft Standoff	1	27.161	29.877	1.00	1.00	3.50	47.99	0.000	0.000	167.31	0.00	0.00
30	110.00	SCL329-HL	1	27.444	30.188	1.00	1.00	2.22	9.36	0.000	5.550	107.23	0.00	595.12
31	80.00	SCL329-HL	1	25.761	28.337	1.00	1.00	2.22	9.36	0.000	5.550	100.65	0.00	558.63
32	80.00	4 ft Standoff	1	25.400	27.940	1.00	1.00	3.50	47.99	0.000	0.000	156.46	0.00	0.00
33	47.00	4 ft Standoff	1	22.709	24.980	1.00	1.00	3.50	47.99	0.000	0.000	139.89	0.00	0.00
34	47.00	Decibel 26DB GPS	1	23.007	25.308	1.00	1.00	0.16	9.00	0.000	3.000	6.48	0.00	19.44
							Totals:		**7,743.20**			**18,402.44**		

Total Applied Force Summary

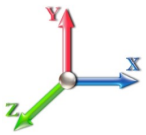
Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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		497.63	1231.58	0.00	0.00
10.00		485.39	1205.82	0.00	0.00
15.00		473.16	1180.05	0.00	0.00
20.00		489.06	1154.28	0.00	0.00
25.00		498.97	1128.52	0.00	0.00
30.00		504.36	1102.75	0.00	0.00
35.00		506.39	1076.98	0.00	0.00
40.00		505.80	1051.21	0.00	0.00
45.00		503.10	1025.45	0.00	0.00
47.00	(2) attachments	345.11	459.95	0.00	19.44
47.50		49.41	100.02	0.00	0.00
50.00		251.53	904.50	0.00	0.00
53.25		325.39	1156.59	0.00	0.00
55.00		173.60	342.47	0.00	0.00
60.00		494.11	961.09	0.00	0.00
65.00		485.87	935.33	0.00	0.00
70.00		476.61	909.56	0.00	0.00
75.00		466.44	883.79	0.00	0.00
80.00	(2) attachments	712.55	915.37	0.00	558.63
85.00		443.68	829.92	0.00	0.00
90.00		431.24	804.15	0.00	0.00
95.00		418.15	778.38	0.00	0.00
97.00		162.93	304.14	0.00	0.00
100.00		245.33	734.79	0.00	0.00
101.00		80.49	241.15	0.00	0.00
105.00		317.23	516.18	0.00	0.00
110.00	(2) attachments	658.25	683.25	0.00	595.12
115.00		368.56	602.09	0.00	0.00
120.00		352.95	580.62	0.00	0.00
125.00		336.90	559.14	0.00	0.00
130.00	(27) attachments	6546.72	2823.67	0.00	4988.42
135.00		303.59	454.37	0.00	0.00
140.00	(19) attachments	3291.13	1766.70	0.00	4368.58
145.00		268.79	340.14	0.00	0.00
148.25		164.92	209.58	0.00	0.00
149.00	(23) attachments	4212.02	2066.99	0.00	4781.64
150.00		49.64	90.47	0.00	0.00
150.50		24.54	44.72	0.00	0.00
155.00		213.24	167.24	0.00	0.00
159.00	(21) attachments	4495.96	2095.96	0.00	7532.98
	Totals:	**31,630.73**	**34,418.97**	**0.00**	**22,844.80**

Linear Appurtenance Segment Forces (Factored)

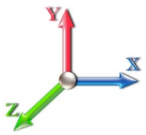
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.030	0.000	17.879	0.00	2.34
5.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.030	0.000	17.879	0.00	2.34
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	17.879	0.00	0.72
10.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.031	0.000	17.879	0.00	2.34
10.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.031	0.000	17.879	0.00	2.34
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.031	0.000	17.879	0.00	0.72
15.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.032	0.000	17.879	0.00	2.34
15.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.032	0.000	17.879	0.00	2.34
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.032	0.000	17.879	0.00	0.72
20.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	18.971	0.00	2.34
20.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.033	0.000	18.971	0.00	2.34
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.033	0.000	18.971	0.00	0.72
25.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	19.883	0.00	2.34
25.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.033	0.000	19.883	0.00	2.34
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.033	0.000	19.883	0.00	0.72
30.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.034	0.000	20.661	0.00	2.34
30.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.034	0.000	20.661	0.00	2.34
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.034	0.000	20.661	0.00	0.72
35.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.035	0.000	21.343	0.00	2.34
35.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.035	0.000	21.343	0.00	2.34
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.035	0.000	21.343	0.00	0.72
40.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.036	0.000	21.951	0.00	2.34
40.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.036	0.000	21.951	0.00	2.34
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.036	0.000	21.951	0.00	0.72
45.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.038	0.000	22.502	0.00	2.34
45.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.038	0.000	22.502	0.00	2.34
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.038	0.000	22.502	0.00	0.72
47.00	7/8" Coax	Yes	2.00	0.000	1.11	0.19	0.00	0.038	0.000	22.709	0.00	0.94
47.00	7/8" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.038	0.000	22.709	0.00	0.94
47.00	1/2" Coax	Yes	2.00	0.000	0.65	0.11	0.00	0.038	0.000	22.709	0.00	0.29
47.50	7/8" Coax	Yes	0.50	0.000	1.11	0.05	0.00	0.024	0.000	22.760	0.00	0.23
47.50	7/8" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.024	0.000	22.760	0.00	0.23
50.00	7/8" Coax	Yes	2.50	0.000	1.11	0.23	0.00	0.025	0.000	23.007	0.00	1.17
50.00	7/8" Coax	Yes	2.50	0.000	0.00	0.00	0.00	0.025	0.000	23.007	0.00	1.17
53.25	7/8" Coax	Yes	3.25	0.000	1.11	0.30	0.00	0.025	0.000	23.314	0.00	1.52
53.25	7/8" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.025	0.000	23.314	0.00	1.52
55.00	7/8" Coax	Yes	1.75	0.000	1.11	0.16	0.00	0.025	0.000	23.473	0.00	0.82
55.00	7/8" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.025	0.000	23.473	0.00	0.82
60.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.026	0.000	23.907	0.00	2.34
60.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.026	0.000	23.907	0.00	2.34
65.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.026	0.000	24.313	0.00	2.34
65.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.026	0.000	24.313	0.00	2.34
70.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.027	0.000	24.696	0.00	2.34
70.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.027	0.000	24.696	0.00	2.34
75.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.028	0.000	25.057	0.00	2.34
75.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.028	0.000	25.057	0.00	2.34
80.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.030	0.000	25.400	0.00	2.34

Linear Appurtenance Segment Forces (Factored)

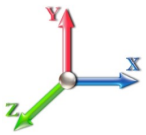
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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)
80.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.030	0.000	25.400	0.00	2.34
85.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.031	0.000	25.726	0.00	2.34
90.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.032	0.000	26.037	0.00	2.34
95.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	26.336	0.00	2.34
97.00	7/8" Coax	Yes	2.00	0.000	1.11	0.19	0.00	0.034	0.000	26.451	0.00	0.94
100.00	7/8" Coax	Yes	3.00	0.000	1.11	0.28	0.00	0.035	0.000	26.621	0.00	1.40
101.00	7/8" Coax	Yes	1.00	0.000	1.11	0.09	0.00	0.036	0.000	26.677	0.00	0.47
105.00	7/8" Coax	Yes	4.00	0.000	1.11	0.37	0.00	0.036	0.000	26.896	0.00	1.87
110.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.037	0.000	27.161	0.00	2.34
									Totals:		**0.0**	**95.7**

Calculated Forces

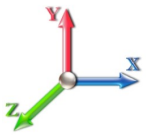
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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	-34.37	-31.68	0.00	-3697.1	0.00	3697.17	4390.37	2195.18	10447.7	5231.64	0.00	0.000	0.000	0.715
5.00	-33.04	-31.29	0.00	-3538.7	0.00	3538.75	4330.30	2165.15	10051.2	5033.11	0.10	-0.177	0.000	0.711
10.00	-31.74	-30.90	0.00	-3382.3	0.00	3382.31	4267.86	2133.93	9656.46	4835.41	0.38	-0.359	0.000	0.707
15.00	-30.46	-30.52	0.00	-3227.8	0.00	3227.81	4203.05	2101.52	9263.74	4638.76	0.86	-0.547	0.000	0.703
20.00	-29.21	-30.12	0.00	-3075.2	0.00	3075.21	4135.87	2067.94	8873.53	4443.36	1.53	-0.741	0.000	0.699
25.00	-27.98	-29.70	0.00	-2924.6	0.00	2924.63	4066.33	2033.16	8486.25	4249.43	2.42	-0.940	0.000	0.695
30.00	-26.78	-29.28	0.00	-2776.1	0.00	2776.12	3994.42	1997.21	8102.30	4057.17	3.51	-1.147	0.000	0.691
35.00	-25.61	-28.84	0.00	-2629.7	0.00	2629.75	3920.13	1960.07	7722.12	3866.80	4.83	-1.359	0.000	0.687
40.00	-24.46	-28.41	0.00	-2485.5	0.00	2485.54	3843.48	1921.74	7346.10	3678.51	6.37	-1.579	0.000	0.682
45.00	-23.37	-27.94	0.00	-2343.5	0.00	2343.51	3764.47	1882.23	6974.67	3492.52	8.14	-1.806	0.000	0.677
47.00	-22.89	-27.60	0.00	-2287.6	0.00	2287.62	3732.20	1866.10	6827.48	3418.81	8.92	-1.901	0.000	0.675
47.50	-22.76	-27.58	0.00	-2273.8	0.00	2273.82	3724.07	1862.03	6790.81	3400.45	9.12	-1.926	0.000	0.675
50.00	-21.80	-27.35	0.00	-2204.8	0.00	2204.88	3683.08	1841.54	6608.25	3309.03	10.16	-2.047	0.000	0.672
53.25	-20.60	-27.02	0.00	-2115.9	0.00	2115.99	3673.19	1836.60	6564.80	3287.28	11.61	-2.206	0.000	0.650
55.00	-20.18	-26.90	0.00	-2068.7	0.00	2068.70	3644.05	1822.03	6438.04	3223.81	12.44	-2.294	0.000	0.647
60.00	-19.13	-26.44	0.00	-1934.2	0.00	1934.22	3559.18	1779.59	6079.73	3044.38	14.97	-2.532	0.000	0.641
65.00	-18.11	-25.99	0.00	-1802.0	0.00	1802.01	3471.95	1735.97	5727.45	2867.98	17.75	-2.777	0.000	0.634
70.00	-17.11	-25.55	0.00	-1672.0	0.00	1672.05	3382.35	1691.17	5381.61	2694.80	20.79	-3.030	0.000	0.626
75.00	-16.14	-25.11	0.00	-1544.3	0.00	1544.31	3290.37	1645.19	5042.64	2525.07	24.10	-3.290	0.000	0.617
80.00	-15.15	-24.41	0.00	-1418.2	0.00	1418.22	3180.13	1590.07	4687.51	2347.24	27.69	-3.559	0.000	0.609
85.00	-14.23	-23.99	0.00	-1296.1	0.00	1296.15	3055.11	1527.56	4324.37	2165.40	31.56	-3.835	0.000	0.603
90.00	-13.34	-23.57	0.00	-1176.2	0.00	1176.21	2930.09	1465.05	3975.87	1990.89	35.73	-4.118	0.000	0.596
95.00	-12.51	-23.14	0.00	-1058.3	0.00	1058.36	2805.07	1402.54	3642.00	1823.71	40.20	-4.409	0.000	0.585
97.00	-12.16	-22.99	0.00	-1012.0	0.00	1012.09	2755.06	1377.53	3512.56	1758.89	42.07	-4.532	0.000	0.580
100.00	-11.40	-22.71	0.00	-943.13	0.00	943.13	2680.05	1340.03	3322.78	1663.86	44.97	-4.715	0.000	0.571
101.00	-11.11	-22.64	0.00	-920.42	0.00	920.42	2260.99	1130.50	2846.84	1425.54	45.96	-4.778	0.000	0.651
105.00	-10.50	-22.33	0.00	-829.88	0.00	829.88	2179.85	1089.93	2642.58	1323.26	50.07	-5.023	0.000	0.632
110.00	-9.76	-21.67	0.00	-717.63	0.00	717.63	2075.67	1037.84	2394.76	1199.16	55.51	-5.363	0.000	0.604
115.00	-9.07	-21.30	0.00	-609.28	0.00	609.28	1971.49	985.74	2159.14	1081.18	61.30	-5.699	0.000	0.569
120.00	-8.41	-20.94	0.00	-502.78	0.00	502.78	1867.30	933.65	1935.73	969.30	67.44	-6.029	0.000	0.524
125.00	-7.78	-20.58	0.00	-398.10	0.00	398.10	1763.12	881.56	1724.51	863.54	73.91	-6.343	0.000	0.466
130.00	-5.65	-13.79	0.00	-290.20	0.00	290.20	1658.94	829.47	1525.49	763.88	80.70	-6.631	0.000	0.384
135.00	-5.18	-13.45	0.00	-221.27	0.00	221.27	1554.75	777.38	1338.67	670.33	87.77	-6.885	0.000	0.334
140.00	-3.79	-9.98	0.00	-149.65	0.00	149.65	1450.57	725.28	1164.05	582.89	95.09	-7.112	0.000	0.260
145.00	-3.46	-9.68	0.00	-99.73	0.00	99.73	1346.38	673.19	1001.64	501.56	102.62	-7.297	0.000	0.202
148.25	-3.27	-9.50	0.00	-68.26	0.00	68.26	1278.66	639.33	902.61	451.97	107.62	-7.399	0.000	0.154
149.00	-1.76	-5.05	0.00	-56.35	0.00	56.35	1263.04	631.52	880.49	440.90	108.78	-7.420	0.000	0.129
150.00	-1.67	-4.99	0.00	-51.30	0.00	51.30	1242.20	621.10	851.42	426.34	110.33	-7.444	0.000	0.122
150.50	-1.63	-4.96	0.00	-48.80	0.00	48.80	761.18	380.59	536.85	268.82	111.11	-7.456	0.000	0.184
155.00	-1.48	-4.73	0.00	-26.47	0.00	26.47	704.92	352.46	460.03	230.36	118.16	-7.539	0.000	0.117
159.00	0.00	-4.50	0.00	-7.53	0.00	7.53	654.91	327.45	396.72	198.65	124.49	-7.602	0.000	0.038

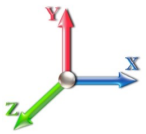
Wind Loading - Shaft

Structure: CT13055-A-SBA
Site Name: Monroe Turnpike
Height: 159.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1 **Topography:** 1

Code: EIA/TIA-222-G 11/9/2017
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

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 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	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	1.242	5.00	25.364	30.44	173.0	451.6	1839.8
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	24.840	29.81	169.5	472.9	1826.8
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	24.288	29.15	165.7	480.7	1800.2
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	23.724	28.47	171.7	482.4	1767.6
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	23.152	27.78	175.6	480.7	1731.5
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	22.576	27.09	178.0	476.6	1693.1
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	21.997	26.40	179.1	470.9	1653.0
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	21.416	25.70	179.4	463.8	1611.6
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	20.833	25.00	178.9	455.8	1569.2
47.00	Appurtenance(s)	1.00	1.08	6.564	7.22	0.00	1.200	1.554	2.00	8.168	9.80	70.8	180.9	616.7
47.50	Bot - Section 2	1.00	1.08	6.579	7.24	0.00	1.200	1.556	0.50	2.027	2.43	17.6	45.1	153.2
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	2.50	10.208	12.25	89.6	227.1	1306.7
53.25	Top - Section 1	1.00	1.11	6.739	7.41	0.00	1.200	1.574	3.25	13.052	15.66	116.1	291.3	1669.0
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	1.75	6.925	8.31	62.0	155.7	523.8
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	19.394	23.27	176.9	434.7	1463.2
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	18.806	22.57	174.5	424.1	1418.3
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	18.218	21.86	171.7	413.1	1372.9
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	17.629	21.15	168.5	401.6	1327.1
80.00	Appurtenance(s)	1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	17.039	20.45	165.1	389.8	1280.9
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	16.450	19.74	161.5	377.6	1234.4
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	15.859	19.03	157.6	365.2	1187.6
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	5.00	15.269	18.32	153.4	352.5	1140.5
97.00	Bot - Section 3	1.00	1.26	7.646	8.41	0.00	1.200	1.671	2.00	5.941	7.13	60.0	138.9	444.5
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	3.00	8.893	10.67	90.3	207.7	1037.5
101.00	Top - Section 2	1.00	1.27	7.711	8.48	0.00	1.200	1.678	1.00	2.917	3.50	29.7	68.7	340.3
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	4.00	11.433	13.72	117.3	266.4	754.8
110.00	Appurtenance(s)	1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	13.759	16.51	142.6	319.6	904.4
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	13.167	15.80	137.7	306.1	862.2
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	12.575	15.09	132.7	292.3	819.8
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	11.983	14.38	127.6	278.4	777.3
130.00	Appurtenance(s)	1.00	1.34	8.132	8.95	0.00	1.200	1.720	5.00	11.390	13.67	122.3	264.4	734.6
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	5.00	10.797	12.96	116.8	250.1	691.7
140.00	Appurtenance(s)	1.00	1.36	8.260	9.09	0.00	1.200	1.733	5.00	10.204	12.25	111.3	235.7	648.7
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	5.00	9.611	11.53	105.6	221.2	605.5
148.25	Bot - Section 4	1.00	1.37	8.360	9.20	0.00	1.200	1.743	3.25	5.929	7.11	65.4	137.6	372.1
149.00	Appurtenance(s)	1.00	1.38	8.369	9.21	0.00	1.200	1.744	0.75	1.356	1.63	15.0	32.0	116.8
150.00		1.00	1.38	8.381	9.22	0.00	1.200	1.745	1.00	1.787	2.14	19.8	42.1	153.5
150.50	Top - Section 3	1.00	1.38	8.387	9.23	0.00	1.200	1.746	0.50	0.885	1.06	9.8	20.9	75.9
155.00		1.00	1.39	8.439	9.28	0.00	1.200	1.751	4.50	7.698	9.24	85.7	176.3	357.6
159.00	Appurtenance(s)	1.00	1.40	8.484	9.33	0.00	1.200	1.755	4.00	6.439	7.73	72.1	147.2	296.7
								Totals:	**159.00**			**4,817.8**		**40,180.6**

Discrete Appurtenance Forces

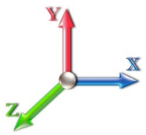
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

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

Dead Load Factor 1.20

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	159.00	Low Profile Platform	1	8.484	9.333	1.00	1.00	64.49	2193.25	0.000	0.000	601.86	0.00	0.00
2	159.00	DC6-48-60-18-8F	1	8.518	9.369	1.00	1.00	1.36	82.65	0.000	3.000	12.75	0.00	38.24
3	159.00	RRUS-11	6	8.518	9.369	0.67	1.00	12.69	707.37	0.000	3.000	118.91	0.00	356.72
4	159.00	LGP21401	6	8.518	9.369	0.50	1.00	6.39	209.80	0.000	3.000	59.89	0.00	179.66
5	159.00	P65-16-XLH-RR	3	8.518	9.369	0.81	1.00	25.44	1168.88	0.000	3.000	238.33	0.00	715.00
6	159.00	7770.00	3	8.518	9.369	0.80	1.00	17.38	277.20	0.000	3.000	162.86	0.00	488.58
7	159.00	DB404-B	1	8.518	9.369	1.00	1.00	0.00	30.81	0.000	3.000	0.00	0.00	0.00
8	149.00	Alcatel Lucent - 1900 MHz	3	8.392	9.232	0.54	0.80	8.34	392.07	0.000	2.000	77.03	0.00	154.06
9	149.00	Alcatel Lucent - 800 MHz	3	8.392	9.232	0.54	0.80	5.84	349.23	0.000	2.000	53.93	0.00	107.86
10	149.00	Alcatel Lucent - 800 MHz	3	8.392	9.232	0.54	0.80	2.29	69.57	0.000	2.000	21.17	0.00	42.35
11	149.00	RFS - APXVSPP18-C-A20	3	8.392	9.232	0.68	0.80	21.01	1181.84	0.000	2.000	193.98	0.00	387.95
12	149.00	RFS - APXVTM14-C-I20	3	8.392	9.232	0.65	0.80	14.47	473.75	0.000	2.000	133.54	0.00	267.08
13	149.00	RFS - ACU-A20-N - RET	4	8.392	9.232	0.40	0.80	0.70	16.77	0.000	2.000	6.45	0.00	12.90
14	149.00	Low Profile Platform	1	8.369	9.206	1.00	1.00	64.30	2186.43	0.000	0.000	591.93	0.00	0.00
15	149.00	Alcatel Lucent -	3	8.392	9.232	0.54	0.80	8.78	479.00	0.000	2.000	81.09	0.00	162.18
16	140.00	Low Profile Platform	1	8.260	9.086	1.00	1.00	45.80	2179.93	0.000	0.000	416.12	0.00	0.00
17	140.00	S20057A1	6	8.291	9.120	0.40	0.80	3.63	159.27	0.000	2.500	33.12	0.00	82.79
18	140.00	FR65-17-04DP	12	8.291	9.120	0.66	0.80	42.54	1433.05	0.000	2.500	387.93	0.00	969.83
19	130.00	HBXX-6517DS-A2M	3	8.145	8.960	0.66	0.80	21.30	1131.44	0.000	1.000	190.88	0.00	190.88
20	130.00	BXA-70063/6CF_	2	8.145	8.960	0.62	0.80	12.22	654.10	0.000	1.000	109.52	0.00	109.52
21	130.00	LPA-80063/6CF	6	8.145	8.960	0.76	0.80	54.53	3021.90	0.000	1.000	488.56	0.00	488.56
22	130.00	BXA-171063-12BF-EDIN-	3	8.145	8.960	0.72	0.80	14.85	842.02	0.000	1.000	133.05	0.00	133.05
23	130.00	BXA-70040/6CF	1	8.145	8.960	0.58	0.80	9.66	473.37	0.000	1.000	86.59	0.00	86.59
24	130.00	Low Profile Platform	1	8.132	8.945	1.00	1.00	45.65	2172.25	0.000	0.000	408.30	0.00	0.00
25	130.00	RRH2X60-AWS	3	8.145	8.960	0.54	0.80	6.88	374.33	0.000	1.000	61.63	0.00	61.63
26	130.00	FD9R6004/2C-3L 3.1#	6	8.145	8.960	0.40	0.80	1.91	55.99	0.000	1.000	17.14	0.00	17.14
27	130.00	DB-T1-6Z-8AB-0Z	1	8.145	8.960	0.61	0.80	3.44	164.01	0.000	1.000	30.83	0.00	30.83
28	130.00	Lucent GPS	1	8.145	8.960	0.80	0.80	0.26	5.36	0.000	1.000	2.31	0.00	2.31
29	110.00	4 ft Standoff	1	7.851	8.636	1.00	1.00	11.25	137.12	0.000	0.000	97.15	0.00	0.00
30	110.00	SCL329-HL	1	7.933	8.726	1.00	1.00	6.06	53.52	0.000	5.550	52.88	0.00	293.49
31	80.00	SCL329-HL	1	7.446	8.191	1.00	1.00	5.94	51.69	0.000	5.550	48.65	0.00	270.02
32	80.00	4 ft Standoff	1	7.342	8.076	1.00	1.00	11.01	133.87	0.000	0.000	88.89	0.00	0.00
33	47.00	4 ft Standoff	1	6.564	7.220	1.00	1.00	10.62	128.66	0.000	0.000	76.66	0.00	0.00
34	47.00	Decibel 26DB GPS	1	6.650	7.315	1.00	1.00	0.50	15.44	0.000	3.000	3.67	0.00	11.02
							Totals:		**23,005.94**			**5,087.59**		

Total Applied Force Summary

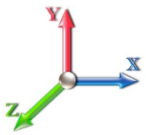
Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 23

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 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		173.03	2137.04	0.00	0.00
10.00		169.46	2129.23	0.00	0.00
15.00		165.69	2105.99	0.00	0.00
20.00		171.72	2075.92	0.00	0.00
25.00		175.64	2041.88	0.00	0.00
30.00		177.97	2005.19	0.00	0.00
35.00		179.13	1966.61	0.00	0.00
40.00		179.37	1926.59	0.00	0.00
45.00		178.87	1885.41	0.00	0.00
47.00	(2) attachments	151.11	887.44	0.00	11.02
47.50		17.60	182.92	0.00	0.00
50.00		89.61	1455.34	0.00	0.00
53.25		116.11	1862.60	0.00	0.00
55.00		62.02	628.09	0.00	0.00
60.00		176.90	1761.92	0.00	0.00
65.00		174.46	1717.58	0.00	0.00
70.00		171.66	1672.74	0.00	0.00
75.00		168.54	1627.47	0.00	0.00
80.00	(2) attachments	302.67	1767.37	0.00	270.02
85.00		161.46	1508.44	0.00	0.00
90.00		157.55	1461.89	0.00	0.00
95.00		153.42	1415.05	0.00	0.00
97.00		59.96	554.38	0.00	0.00
100.00		90.33	1202.35	0.00	0.00
101.00		29.69	395.23	0.00	0.00
105.00		117.32	974.72	0.00	0.00
110.00	(2) attachments	292.62	1370.11	0.00	293.49
115.00		137.74	1108.87	0.00	0.00
120.00		132.73	1066.50	0.00	0.00
125.00		127.57	1023.95	0.00	0.00
130.00	(27) attachments	1651.08	9876.02	0.00	1120.52
135.00		116.82	855.95	0.00	0.00
140.00	(19) attachments	948.42	4585.19	0.00	1052.61
145.00		105.57	674.75	0.00	0.00
148.25		65.42	417.06	0.00	0.00
149.00	(23) attachments	1174.10	5275.82	0.00	1134.37
150.00		19.77	162.77	0.00	0.00
150.50		9.80	80.55	0.00	0.00
155.00		85.75	399.32	0.00	0.00
159.00	(21) attachments	1266.70	5003.71	0.00	1778.20
	Totals:	**9,905.37**	**71,249.96**	**0.00**	**5,660.23**

Linear Appurtenance Segment Forces (Factored)

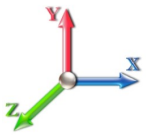
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

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 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	7/8" Coax	Yes	5.00	0.000	1.11	1.50	0.00	0.030	0.000	5.168	0.00	18.42
5.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.030	0.000	5.168	0.00	18.42
5.00	1/2" Coax	Yes	5.00	0.000	0.65	1.31	0.00	0.030	0.000	5.168	0.00	13.70
10.00	7/8" Coax	Yes	5.00	0.000	1.11	1.57	0.00	0.031	0.000	5.168	0.00	20.21
10.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.031	0.000	5.168	0.00	20.21
10.00	1/2" Coax	Yes	5.00	0.000	0.65	1.38	0.00	0.031	0.000	5.168	0.00	15.33
15.00	7/8" Coax	Yes	5.00	0.000	1.11	1.62	0.00	0.032	0.000	5.168	0.00	21.36
15.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.032	0.000	5.168	0.00	21.36
15.00	1/2" Coax	Yes	5.00	0.000	0.65	1.43	0.00	0.032	0.000	5.168	0.00	16.38
20.00	7/8" Coax	Yes	5.00	0.000	1.11	1.65	0.00	0.033	0.000	5.483	0.00	22.23
20.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.033	0.000	5.483	0.00	22.23
20.00	1/2" Coax	Yes	5.00	0.000	0.65	1.46	0.00	0.033	0.000	5.483	0.00	17.18
25.00	7/8" Coax	Yes	5.00	0.000	1.11	1.68	0.00	0.033	0.000	5.747	0.00	22.93
25.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.033	0.000	5.747	0.00	22.93
25.00	1/2" Coax	Yes	5.00	0.000	0.65	1.49	0.00	0.033	0.000	5.747	0.00	17.83
30.00	7/8" Coax	Yes	5.00	0.000	1.11	1.70	0.00	0.034	0.000	5.972	0.00	23.53
30.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.034	0.000	5.972	0.00	23.53
30.00	1/2" Coax	Yes	5.00	0.000	0.65	1.51	0.00	0.034	0.000	5.972	0.00	18.38
35.00	7/8" Coax	Yes	5.00	0.000	1.11	1.72	0.00	0.035	0.000	6.169	0.00	24.05
35.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.035	0.000	6.169	0.00	24.05
35.00	1/2" Coax	Yes	5.00	0.000	0.65	1.53	0.00	0.035	0.000	6.169	0.00	18.86
40.00	7/8" Coax	Yes	5.00	0.000	1.11	1.74	0.00	0.036	0.000	6.345	0.00	24.52
40.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.036	0.000	6.345	0.00	24.52
40.00	1/2" Coax	Yes	5.00	0.000	0.65	1.55	0.00	0.036	0.000	6.345	0.00	19.29
45.00	7/8" Coax	Yes	5.00	0.000	1.11	1.75	0.00	0.038	0.000	6.504	0.00	24.94
45.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.038	0.000	6.504	0.00	24.94
45.00	1/2" Coax	Yes	5.00	0.000	0.65	1.56	0.00	0.038	0.000	6.504	0.00	19.67
47.00	7/8" Coax	Yes	2.00	0.000	1.11	0.70	0.00	0.038	0.000	6.564	0.00	10.04
47.00	7/8" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.038	0.000	6.564	0.00	10.04
47.00	1/2" Coax	Yes	2.00	0.000	0.65	0.63	0.00	0.038	0.000	6.564	0.00	7.93
47.50	7/8" Coax	Yes	0.50	0.000	1.11	0.18	0.00	0.024	0.000	6.579	0.00	2.51
47.50	7/8" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.024	0.000	6.579	0.00	2.51
50.00	7/8" Coax	Yes	2.50	0.000	1.11	0.88	0.00	0.025	0.000	6.650	0.00	12.66
50.00	7/8" Coax	Yes	2.50	0.000	0.00	0.00	0.00	0.025	0.000	6.650	0.00	12.66
53.25	7/8" Coax	Yes	3.25	0.000	1.11	1.15	0.00	0.025	0.000	6.739	0.00	16.61
53.25	7/8" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.025	0.000	6.739	0.00	16.61
55.00	7/8" Coax	Yes	1.75	0.000	1.11	0.62	0.00	0.025	0.000	6.785	0.00	8.98
55.00	7/8" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.025	0.000	6.785	0.00	8.98
60.00	7/8" Coax	Yes	5.00	0.000	1.11	1.79	0.00	0.026	0.000	6.910	0.00	26.00
60.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.026	0.000	6.910	0.00	26.00
65.00	7/8" Coax	Yes	5.00	0.000	1.11	1.80	0.00	0.026	0.000	7.028	0.00	26.30
65.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.026	0.000	7.028	0.00	26.30
70.00	7/8" Coax	Yes	5.00	0.000	1.11	1.81	0.00	0.027	0.000	7.138	0.00	26.59
70.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.027	0.000	7.138	0.00	26.59
75.00	7/8" Coax	Yes	5.00	0.000	1.11	1.82	0.00	0.028	0.000	7.243	0.00	26.86
75.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.028	0.000	7.243	0.00	26.86
80.00	7/8" Coax	Yes	5.00	0.000	1.11	1.83	0.00	0.030	0.000	7.342	0.00	27.12

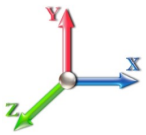
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (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: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

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)
80.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.030	0.000	7.342	0.00	27.12
85.00	7/8" Coax	Yes	5.00	0.000	1.11	1.84	0.00	0.031	0.000	7.436	0.00	27.36
90.00	7/8" Coax	Yes	5.00	0.000	1.11	1.84	0.00	0.032	0.000	7.526	0.00	27.59
95.00	7/8" Coax	Yes	5.00	0.000	1.11	1.85	0.00	0.033	0.000	7.612	0.00	27.81
97.00	7/8" Coax	Yes	2.00	0.000	1.11	0.74	0.00	0.034	0.000	7.646	0.00	11.16
100.00	7/8" Coax	Yes	3.00	0.000	1.11	1.12	0.00	0.035	0.000	7.695	0.00	16.81
101.00	7/8" Coax	Yes	1.00	0.000	1.11	0.37	0.00	0.036	0.000	7.711	0.00	5.61
105.00	7/8" Coax	Yes	4.00	0.000	1.11	1.49	0.00	0.036	0.000	7.774	0.00	22.58
110.00	7/8" Coax	Yes	5.00	0.000	1.11	1.87	0.00	0.037	0.000	7.851	0.00	28.42
										Totals:	**0.0**	**1,103.6**

Calculated Forces

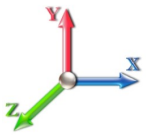
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

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 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	-71.24	-9.94	0.00	-1166.6	0.00	1166.63	4390.37	2195.18	10447.7	5231.64	0.00	0.000	0.000	0.239
5.00	-69.10	-9.83	0.00	-1116.9	0.00	1116.93	4330.30	2165.15	10051.2	5033.11	0.03	-0.056	0.000	0.238
10.00	-66.96	-9.73	0.00	-1067.7	0.00	1067.76	4267.86	2133.93	9656.46	4835.41	0.12	-0.113	0.000	0.237
15.00	-64.84	-9.63	0.00	-1019.1	0.00	1019.11	4203.05	2101.52	9263.74	4638.76	0.27	-0.173	0.000	0.235
20.00	-62.76	-9.52	0.00	-970.97	0.00	970.97	4135.87	2067.94	8873.53	4443.36	0.48	-0.234	0.000	0.234
25.00	-60.71	-9.40	0.00	-923.39	0.00	923.39	4066.33	2033.16	8486.25	4249.43	0.76	-0.297	0.000	0.232
30.00	-58.69	-9.28	0.00	-876.39	0.00	876.39	3994.42	1997.21	8102.30	4057.17	1.11	-0.362	0.000	0.231
35.00	-56.72	-9.15	0.00	-830.00	0.00	830.00	3920.13	1960.07	7722.12	3866.80	1.52	-0.429	0.000	0.229
40.00	-54.78	-9.03	0.00	-784.24	0.00	784.24	3843.48	1921.74	7346.10	3678.51	2.01	-0.498	0.000	0.227
45.00	-52.89	-8.88	0.00	-739.12	0.00	739.12	3764.47	1882.23	6974.67	3492.52	2.57	-0.570	0.000	0.226
47.00	-52.00	-8.73	0.00	-721.36	0.00	721.36	3732.20	1866.10	6827.48	3418.81	2.82	-0.600	0.000	0.225
47.50	-51.81	-8.73	0.00	-716.99	0.00	716.99	3724.07	1862.03	6790.81	3400.45	2.88	-0.608	0.000	0.225
50.00	-50.35	-8.67	0.00	-695.16	0.00	695.16	3683.08	1841.54	6608.25	3309.03	3.21	-0.646	0.000	0.224
53.25	-48.49	-8.56	0.00	-666.99	0.00	666.99	3673.19	1836.60	6564.80	3287.28	3.67	-0.696	0.000	0.216
55.00	-47.85	-8.54	0.00	-652.01	0.00	652.01	3644.05	1822.03	6438.04	3223.81	3.93	-0.724	0.000	0.215
60.00	-46.08	-8.40	0.00	-609.33	0.00	609.33	3559.18	1779.59	6079.73	3044.38	4.72	-0.799	0.000	0.213
65.00	-44.35	-8.26	0.00	-567.35	0.00	567.35	3471.95	1735.97	5727.45	2867.98	5.60	-0.876	0.000	0.211
70.00	-42.67	-8.12	0.00	-526.07	0.00	526.07	3382.35	1691.17	5381.61	2694.80	6.56	-0.956	0.000	0.208
75.00	-41.04	-7.98	0.00	-485.48	0.00	485.48	3290.37	1645.19	5042.64	2525.07	7.61	-1.038	0.000	0.205
80.00	-39.26	-7.70	0.00	-445.30	0.00	445.30	3180.13	1590.07	4687.51	2347.24	8.74	-1.122	0.000	0.202
85.00	-37.75	-7.57	0.00	-406.78	0.00	406.78	3055.11	1527.56	4324.37	2165.40	9.96	-1.209	0.000	0.200
90.00	-36.28	-7.44	0.00	-368.93	0.00	368.93	2930.09	1465.05	3975.87	1990.89	11.27	-1.298	0.000	0.198
95.00	-34.86	-7.29	0.00	-331.74	0.00	331.74	2805.07	1402.54	3642.00	1823.71	12.68	-1.389	0.000	0.194
97.00	-34.30	-7.25	0.00	-317.16	0.00	317.16	2755.06	1377.53	3512.56	1758.89	13.27	-1.427	0.000	0.193
100.00	-33.10	-7.15	0.00	-295.42	0.00	295.42	2680.05	1340.03	3322.78	1663.86	14.19	-1.485	0.000	0.190
101.00	-32.69	-7.13	0.00	-288.28	0.00	288.28	2260.99	1130.50	2846.84	1425.54	14.50	-1.504	0.000	0.217
105.00	-31.71	-7.04	0.00	-259.74	0.00	259.74	2179.85	1089.93	2642.58	1323.26	15.79	-1.581	0.000	0.211
110.00	-30.34	-6.77	0.00	-224.23	0.00	224.23	2075.67	1037.84	2394.76	1199.16	17.51	-1.687	0.000	0.202
115.00	-29.22	-6.65	0.00	-190.40	0.00	190.40	1971.49	985.74	2159.14	1081.18	19.33	-1.792	0.000	0.191
120.00	-28.15	-6.53	0.00	-157.16	0.00	157.16	1867.30	933.65	1935.73	969.30	21.26	-1.895	0.000	0.177
125.00	-27.12	-6.41	0.00	-124.51	0.00	124.51	1763.12	881.56	1724.51	863.54	23.30	-1.994	0.000	0.160
130.00	-17.30	-4.44	0.00	-91.32	0.00	91.32	1658.94	829.47	1525.49	763.88	25.44	-2.084	0.000	0.130
135.00	-16.45	-4.31	0.00	-69.13	0.00	69.13	1554.75	777.38	1338.67	670.33	27.67	-2.163	0.000	0.114
140.00	-11.90	-3.20	0.00	-46.53	0.00	46.53	1450.57	725.28	1164.05	582.89	29.97	-2.234	0.000	0.088
145.00	-11.22	-3.08	0.00	-30.53	0.00	30.53	1346.38	673.19	1001.64	501.56	32.34	-2.291	0.000	0.069
148.25	-10.81	-3.00	0.00	-20.53	0.00	20.53	1278.66	639.33	902.61	451.97	33.92	-2.322	0.000	0.054
149.00	-5.59	-1.61	0.00	-17.15	0.00	17.15	1263.04	631.52	880.49	440.90	34.28	-2.329	0.000	0.043
150.00	-5.42	-1.58	0.00	-15.54	0.00	15.54	1242.20	621.10	851.42	426.34	34.77	-2.336	0.000	0.041
150.50	-5.34	-1.57	0.00	-14.75	0.00	14.75	761.18	380.59	536.85	268.82	35.01	-2.339	0.000	0.062
155.00	-4.95	-1.47	0.00	-7.67	0.00	7.67	704.92	352.46	460.03	230.36	37.23	-2.364	0.000	0.040
159.00	0.00	-1.27	0.00	-1.78	0.00	1.78	654.91	327.45	396.72	198.65	39.22	-2.382	0.000	0.009

Seismic Segment Forces (Factored)

Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (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

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Load Case:	1.2D + 1.0E							**Iterations**	23
Gust Response Factor	1.10				**Sds**	0.22		**Ss**	0.20
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency**	0.36		**SA**	0.04	**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		1156.8	0.00	0.03	0.02	24.57	
10.00		1128.2	0.01	0.05	0.03	34.80	
15.00		1099.5	0.02	0.06	0.04	39.24	
20.00		1070.9	0.03	0.07	0.04	40.93	
25.00		1042.3	0.05	0.07	0.04	41.36	
30.00		1013.7	0.07	0.07	0.04	41.27	
35.00		985.07	0.09	0.07	0.04	41.03	
40.00		956.43	0.12	0.07	0.03	40.74	
45.00		927.80	0.15	0.07	0.03	40.30	
47.00	Appurtenance(s)	426.43	0.17	0.07	0.03	18.63	
47.50	Bot - Section 2	90.06	0.17	0.07	0.03	3.94	
50.00		899.61	0.19	0.06	0.02	39.48	
53.25	Top - Section 1	1148.0	0.21	0.06	0.02	50.22	
55.00		306.75	0.23	0.06	0.02	13.33	
60.00		857.10	0.27	0.05	0.02	35.53	
65.00		828.47	0.32	0.04	0.01	30.73	
70.00		799.84	0.37	0.03	0.01	23.64	
75.00		771.21	0.42	0.01	0.01	14.21	
80.00	Appurtenance(s)	806.30	0.48	-0.01	0.01	3.35	
85.00		713.95	0.54	-0.03	0.01	-8.25	
90.00		685.32	0.61	-0.05	0.02	-17.95	
95.00		656.69	0.67	-0.08	0.03	-24.57	
97.00	Bot - Section 3	254.66	0.70	-0.09	0.03	-10.34	
100.00		691.53	0.75	-0.10	0.04	-30.32	
101.00	Top - Section 2	226.31	0.76	-0.10	0.04	-10.07	
105.00		406.99	0.82	-0.12	0.06	-18.29	
110.00	Appurtenance(s)	550.99	0.90	-0.12	0.09	-22.42	
115.00		463.41	0.99	-0.11	0.13	-14.47	
120.00		439.55	1.08	-0.08	0.17	-7.33	
125.00		415.69	1.17	-0.02	0.23	1.22	
130.00	Appurtenance(s)	2931.8	1.26	0.07	0.30	80.83	
135.00		367.97	1.36	0.22	0.39	21.09	
140.00	Appurtenance(s)	1826.1	1.47	0.42	0.50	168.46	
145.00		320.26	1.57	0.69	0.63	42.43	
148.25	Bot - Section 4	195.37	1.64	0.92	0.73	31.56	
149.00	Appurtenance(s)	2288.0	1.66	0.98	0.75	385.64	
150.00		92.81	1.68	1.06	0.79	16.53	
150.50	Top - Section 3	45.83	1.69	1.10	0.80	8.39	
155.00		151.08	1.80	1.52	0.97	34.64	
159.00	Appurtenance(s)	2297.9	1.89	1.98	1.14	630.34	
	Totals:	**32,337.1**				**1,834.4**	**Total Wind:** **31,630.7**

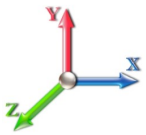
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (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	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.22	**Iterations**	23		
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.20		
Wind Load Factor	0.00	**Structure Frequency**	0.36	**SA**	0.04	**S1**	0.07	**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	-45.89	-2.00	0.00	-249.32	0.00	249.32	4390.37	2195.18	10447.7	5231.64		0.00	0.00	0.058
5.00	-44.25	-1.99	0.00	-239.30	0.00	239.30	4330.30	2165.15	10051.2	5033.11		0.01	-0.01	0.058
10.00	-42.64	-1.96	0.00	-229.37	0.00	229.37	4267.86	2133.93	9656.46	4835.41		0.03	-0.02	0.057
15.00	-41.07	-1.93	0.00	-219.56	0.00	219.56	4203.05	2101.52	9263.74	4638.76		0.06	-0.04	0.057
20.00	-39.53	-1.90	0.00	-209.91	0.00	209.91	4135.87	2067.94	8873.53	4443.36		0.10	-0.05	0.057
25.00	-38.02	-1.86	0.00	-200.42	0.00	200.42	4066.33	2033.16	8486.25	4249.43		0.16	-0.06	0.057
30.00	-36.55	-1.83	0.00	-191.10	0.00	191.10	3994.42	1997.21	8102.30	4057.17		0.24	-0.08	0.056
35.00	-35.12	-1.80	0.00	-181.95	0.00	181.95	3920.13	1960.07	7722.12	3866.80		0.33	-0.09	0.056
40.00	-33.71	-1.76	0.00	-172.97	0.00	172.97	3843.48	1921.74	7346.10	3678.51		0.43	-0.11	0.056
45.00	-32.35	-1.73	0.00	-164.16	0.00	164.16	3764.47	1882.23	6974.67	3492.52		0.55	-0.12	0.056
47.00	-31.73	-1.71	0.00	-160.71	0.00	160.71	3732.20	1866.10	6827.48	3418.81		0.61	-0.13	0.056
47.50	-31.60	-1.71	0.00	-159.85	0.00	159.85	3724.07	1862.03	6790.81	3400.45		0.62	-0.13	0.055
50.00	-30.39	-1.67	0.00	-155.59	0.00	155.59	3683.08	1841.54	6608.25	3309.03		0.69	-0.14	0.055
53.25	-28.85	-1.62	0.00	-150.16	0.00	150.16	3673.19	1836.60	6564.80	3287.28		0.79	-0.15	0.054
55.00	-28.39	-1.61	0.00	-147.33	0.00	147.33	3644.05	1822.03	6438.04	3223.81		0.85	-0.16	0.053
60.00	-27.11	-1.58	0.00	-139.27	0.00	139.27	3559.18	1779.59	6079.73	3044.38		1.02	-0.18	0.053
65.00	-25.86	-1.55	0.00	-131.38	0.00	131.38	3471.95	1735.97	5727.45	2867.98		1.22	-0.19	0.053
70.00	-24.65	-1.53	0.00	-123.61	0.00	123.61	3382.35	1691.17	5381.61	2694.80		1.43	-0.21	0.053
75.00	-23.47	-1.52	0.00	-115.94	0.00	115.94	3290.37	1645.19	5042.64	2525.07		1.66	-0.23	0.053
80.00	-22.25	-1.52	0.00	-108.33	0.00	108.33	3180.13	1590.07	4687.51	2347.24		1.91	-0.25	0.053
85.00	-21.14	-1.53	0.00	-100.72	0.00	100.72	3055.11	1527.56	4324.37	2165.40		2.19	-0.27	0.053
90.00	-20.07	-1.53	0.00	-93.09	0.00	93.09	2930.09	1465.05	3975.87	1990.89		2.49	-0.29	0.054
95.00	-19.03	-1.53	0.00	-85.45	0.00	85.45	2805.07	1402.54	3642.00	1823.71		2.81	-0.32	0.054
97.00	-18.63	-1.53	0.00	-82.40	0.00	82.40	2755.06	1377.53	3512.56	1758.89		2.94	-0.33	0.054
100.00	-17.65	-1.53	0.00	-77.81	0.00	77.81	2680.05	1340.03	3322.78	1663.86		3.15	-0.34	0.053
101.00	-17.33	-1.53	0.00	-76.28	0.00	76.28	2260.99	1130.50	2846.84	1425.54		3.23	-0.35	0.061
105.00	-16.64	-1.53	0.00	-70.16	0.00	70.16	2179.85	1089.93	2642.58	1323.26		3.53	-0.37	0.061
110.00	-15.72	-1.53	0.00	-62.50	0.00	62.50	2075.67	1037.84	2394.76	1199.16		3.93	-0.40	0.060
115.00	-14.92	-1.54	0.00	-54.83	0.00	54.83	1971.49	985.74	2159.14	1081.18		4.36	-0.43	0.058
120.00	-14.15	-1.54	0.00	-47.15	0.00	47.15	1867.30	933.65	1935.73	969.30		4.83	-0.46	0.056
125.00	-13.40	-1.54	0.00	-39.46	0.00	39.46	1763.12	881.56	1724.51	863.54		5.32	-0.49	0.053
130.00	-9.64	-1.43	0.00	-31.78	0.00	31.78	1658.94	829.47	1525.49	763.88		5.85	-0.52	0.047
135.00	-9.03	-1.41	0.00	-24.64	0.00	24.64	1554.75	777.38	1338.67	670.33		6.41	-0.55	0.043
140.00	-6.67	-1.22	0.00	-17.61	0.00	17.61	1450.57	725.28	1164.05	582.89		6.99	-0.57	0.035
145.00	-6.22	-1.17	0.00	-11.52	0.00	11.52	1346.38	673.19	1001.64	501.56		7.60	-0.59	0.028
148.25	-5.94	-1.14	0.00	-7.71	0.00	7.71	1278.66	639.33	902.61	451.97		8.01	-0.60	0.022
149.00	-3.19	-0.72	0.00	-6.86	0.00	6.86	1263.04	631.52	880.49	440.90		8.11	-0.61	0.018
150.00	-3.07	-0.71	0.00	-6.13	0.00	6.13	1242.20	621.10	851.42	426.34		8.23	-0.61	0.017
150.50	-3.01	-0.70	0.00	-5.78	0.00	5.78	761.18	380.59	536.85	268.82		8.30	-0.61	0.025
155.00	-2.79	-0.66	0.00	-2.64	0.00	2.64	704.92	352.46	460.03	230.36		8.88	-0.62	0.015
159.00	0.00	-0.63	0.00	0.00	0.00	0.00	654.91	327.45	396.72	198.65		9.40	-0.63	0.000

Seismic Segment Forces (Factored)

Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (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:	0.9D + 1.0E							**Iterations**	23
Gust Response Factor	1.10				**Sds**	0.22		**Ss**	0.20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency**	0.36		**SA**	0.04	**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		1156.8	0.00	0.03	0.02	24.57	
10.00		1128.2	0.01	0.05	0.03	34.80	
15.00		1099.5	0.02	0.06	0.04	39.24	
20.00		1070.9	0.03	0.07	0.04	40.93	
25.00		1042.3	0.05	0.07	0.04	41.36	
30.00		1013.7	0.07	0.07	0.04	41.27	
35.00		985.07	0.09	0.07	0.04	41.03	
40.00		956.43	0.12	0.07	0.03	40.74	
45.00		927.80	0.15	0.07	0.03	40.30	
47.00	Appurtenance(s)	426.43	0.17	0.07	0.03	18.63	
47.50	Bot - Section 2	90.06	0.17	0.07	0.03	3.94	
50.00		899.61	0.19	0.06	0.02	39.48	
53.25	Top - Section 1	1148.0	0.21	0.06	0.02	50.22	
55.00		306.75	0.23	0.06	0.02	13.33	
60.00		857.10	0.27	0.05	0.02	35.53	
65.00		828.47	0.32	0.04	0.01	30.73	
70.00		799.84	0.37	0.03	0.01	23.64	
75.00		771.21	0.42	0.01	0.01	14.21	
80.00	Appurtenance(s)	806.30	0.48	-0.01	0.01	3.35	
85.00		713.95	0.54	-0.03	0.01	-8.25	
90.00		685.32	0.61	-0.05	0.02	-17.95	
95.00		656.69	0.67	-0.08	0.03	-24.57	
97.00	Bot - Section 3	254.66	0.70	-0.09	0.03	-10.34	
100.00		691.53	0.75	-0.10	0.04	-30.32	
101.00	Top - Section 2	226.31	0.76	-0.10	0.04	-10.07	
105.00		406.99	0.82	-0.12	0.06	-18.29	
110.00	Appurtenance(s)	550.99	0.90	-0.12	0.09	-22.42	
115.00		463.41	0.99	-0.11	0.13	-14.47	
120.00		439.55	1.08	-0.08	0.17	-7.33	
125.00		415.69	1.17	-0.02	0.23	1.22	
130.00	Appurtenance(s)	2931.8	1.26	0.07	0.30	80.83	
135.00		367.97	1.36	0.22	0.39	21.09	
140.00	Appurtenance(s)	1826.1	1.47	0.42	0.50	168.46	
145.00		320.26	1.57	0.69	0.63	42.43	
148.25	Bot - Section 4	195.37	1.64	0.92	0.73	31.56	
149.00	Appurtenance(s)	2288.0	1.66	0.98	0.75	385.64	
150.00		92.81	1.68	1.06	0.79	16.53	
150.50	Top - Section 3	45.83	1.69	1.10	0.80	8.39	
155.00		151.08	1.80	1.52	0.97	34.64	
159.00	Appurtenance(s)	2297.9	1.89	1.98	1.14	630.34	
	Totals:	**32,337.1**				**1,834.4**	**Total Wind:** **31,630.7**

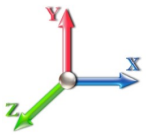
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (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	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.22	**Iterations**	23		
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.20		
Wind Load Factor	0.00	**Structure Frequency**	0.36	**SA**	0.04	**S1**	0.07	**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	-34.42	-2.00	0.00	-246.16	0.00	246.16	4390.37	2195.18	10447.7	5231.64		0.00	0.00	0.055
5.00	-33.19	-1.98	0.00	-236.15	0.00	236.15	4330.30	2165.15	10051.2	5033.11		0.01	-0.01	0.055
10.00	-31.98	-1.96	0.00	-226.23	0.00	226.23	4267.86	2133.93	9656.46	4835.41		0.03	-0.02	0.054
15.00	-30.80	-1.92	0.00	-216.45	0.00	216.45	4203.05	2101.52	9263.74	4638.76		0.06	-0.04	0.054
20.00	-29.65	-1.89	0.00	-206.84	0.00	206.84	4135.87	2067.94	8873.53	4443.36		0.10	-0.05	0.054
25.00	-28.52	-1.85	0.00	-197.40	0.00	197.40	4066.33	2033.16	8486.25	4249.43		0.16	-0.06	0.053
30.00	-27.41	-1.82	0.00	-188.15	0.00	188.15	3994.42	1997.21	8102.30	4057.17		0.23	-0.08	0.053
35.00	-26.34	-1.78	0.00	-179.07	0.00	179.07	3920.13	1960.07	7722.12	3866.80		0.32	-0.09	0.053
40.00	-25.28	-1.74	0.00	-170.16	0.00	170.16	3843.48	1921.74	7346.10	3678.51		0.43	-0.11	0.053
45.00	-24.26	-1.71	0.00	-161.44	0.00	161.44	3764.47	1882.23	6974.67	3492.52		0.55	-0.12	0.053
47.00	-23.80	-1.69	0.00	-158.03	0.00	158.03	3732.20	1866.10	6827.48	3418.81		0.60	-0.13	0.053
47.50	-23.70	-1.69	0.00	-157.19	0.00	157.19	3724.07	1862.03	6790.81	3400.45		0.61	-0.13	0.053
50.00	-22.79	-1.65	0.00	-152.97	0.00	152.97	3683.08	1841.54	6608.25	3309.03		0.68	-0.14	0.052
53.25	-21.64	-1.60	0.00	-147.61	0.00	147.61	3673.19	1836.60	6564.80	3287.28		0.78	-0.15	0.051
55.00	-21.29	-1.59	0.00	-144.81	0.00	144.81	3644.05	1822.03	6438.04	3223.81		0.84	-0.16	0.051
60.00	-20.33	-1.56	0.00	-136.87	0.00	136.87	3559.18	1779.59	6079.73	3044.38		1.01	-0.17	0.051
65.00	-19.40	-1.53	0.00	-129.08	0.00	129.08	3471.95	1735.97	5727.45	2867.98		1.20	-0.19	0.051
70.00	-18.49	-1.51	0.00	-121.43	0.00	121.43	3382.35	1691.17	5381.61	2694.80		1.41	-0.21	0.051
75.00	-17.60	-1.50	0.00	-113.89	0.00	113.89	3290.37	1645.19	5042.64	2525.07		1.64	-0.23	0.050
80.00	-16.69	-1.50	0.00	-106.41	0.00	106.41	3180.13	1590.07	4687.51	2347.24		1.89	-0.25	0.051
85.00	-15.86	-1.50	0.00	-98.93	0.00	98.93	3055.11	1527.56	4324.37	2165.40		2.16	-0.27	0.051
90.00	-15.05	-1.50	0.00	-91.44	0.00	91.44	2930.09	1465.05	3975.87	1990.89		2.45	-0.29	0.051
95.00	-14.27	-1.50	0.00	-83.94	0.00	83.94	2805.07	1402.54	3642.00	1823.71		2.76	-0.31	0.051
97.00	-13.97	-1.50	0.00	-80.94	0.00	80.94	2755.06	1377.53	3512.56	1758.89		2.90	-0.32	0.051
100.00	-13.23	-1.50	0.00	-76.44	0.00	76.44	2680.05	1340.03	3322.78	1663.86		3.11	-0.34	0.051
101.00	-12.99	-1.50	0.00	-74.94	0.00	74.94	2260.99	1130.50	2846.84	1425.54		3.18	-0.34	0.058
105.00	-12.48	-1.50	0.00	-68.94	0.00	68.94	2179.85	1089.93	2642.58	1323.26		3.47	-0.36	0.058
110.00	-11.79	-1.50	0.00	-61.42	0.00	61.42	2075.67	1037.84	2394.76	1199.16		3.87	-0.39	0.057
115.00	-11.19	-1.51	0.00	-53.90	0.00	53.90	1971.49	985.74	2159.14	1081.18		4.29	-0.42	0.056
120.00	-10.61	-1.51	0.00	-46.37	0.00	46.37	1867.30	933.65	1935.73	969.30		4.75	-0.45	0.054
125.00	-10.05	-1.51	0.00	-38.84	0.00	38.84	1763.12	881.56	1724.51	863.54		5.24	-0.48	0.051
130.00	-7.22	-1.40	0.00	-31.30	0.00	31.30	1658.94	829.47	1525.49	763.88		5.76	-0.51	0.045
135.00	-6.77	-1.38	0.00	-24.28	0.00	24.28	1554.75	777.38	1338.67	670.33		6.30	-0.54	0.041
140.00	-5.00	-1.20	0.00	-17.37	0.00	17.37	1450.57	725.28	1164.05	582.89		6.88	-0.56	0.033
145.00	-4.66	-1.15	0.00	-11.37	0.00	11.37	1346.38	673.19	1001.64	501.56		7.48	-0.58	0.026
148.25	-4.45	-1.12	0.00	-7.62	0.00	7.62	1278.66	639.33	902.61	451.97		7.88	-0.59	0.020
149.00	-2.39	-0.71	0.00	-6.77	0.00	6.77	1263.04	631.52	880.49	440.90		7.98	-0.60	0.017
150.00	-2.30	-0.70	0.00	-6.06	0.00	6.06	1242.20	621.10	851.42	426.34		8.10	-0.60	0.016
150.50	-2.26	-0.69	0.00	-5.71	0.00	5.71	761.18	380.59	536.85	268.82		8.16	-0.60	0.024
155.00	-2.09	-0.65	0.00	-2.61	0.00	2.61	704.92	352.46	460.03	230.36		8.74	-0.61	0.014
159.00	0.00	-0.63	0.00	0.00	0.00	0.00	654.91	327.45	396.72	198.65		9.25	-0.62	0.000

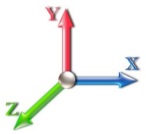
Wind Loading - Shaft

Structure: CT13055-A-SBA
Site Name: Monroe Turnpike
Height: 159.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1 **Topography:** 1

Code: EIA/TIA-222-G 11/9/2017
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	272.47	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	265.86	0.650	0.000	5.00	24.329	15.81	129.5	0.0	1156.8
10.00		1.00	0.85	7.442	8.19	259.24	0.650	0.000	5.00	23.731	15.43	126.3	0.0	1128.2
15.00		1.00	0.85	7.442	8.19	252.62	0.650	0.000	5.00	23.133	15.04	123.1	0.0	1099.6
20.00		1.00	0.90	7.896	8.69	253.40	0.650	0.000	5.00	22.535	14.65	127.2	0.0	1071.0
25.00		1.00	0.95	8.276	9.10	252.44	0.650	0.000	5.00	21.936	14.26	129.8	0.0	1042.3
30.00		1.00	0.98	8.600	9.46	250.22	0.650	0.000	5.00	21.338	13.87	131.2	0.0	1013.7
35.00		1.00	1.01	8.883	9.77	247.08	0.650	0.000	5.00	20.740	13.48	131.7	0.0	985.1
40.00		1.00	1.04	9.137	10.05	243.25	0.650	0.000	5.00	20.142	13.09	131.6	0.0	956.4
45.00		1.00	1.07	9.366	10.30	238.86	0.650	0.000	5.00	19.544	12.70	130.9	0.0	927.8
47.00	Appurtenance(s)	1.00	1.08	9.452	10.40	236.97	0.650	0.000	2.00	7.650	4.97	51.7	0.0	363.1
47.50	Bot - Section 2	1.00	1.08	9.473	10.42	236.49	0.650	0.000	0.50	1.898	1.23	12.9	0.0	90.1
50.00		1.00	1.09	9.576	10.53	234.01	0.650	0.000	2.50	9.557	6.21	65.4	0.0	899.6
53.25	Top - Section 1	1.00	1.11	9.704	10.67	230.66	0.650	0.000	3.25	12.200	7.93	84.6	0.0	1148.1
55.00		1.00	1.12	9.770	10.75	232.81	0.650	0.000	1.75	6.465	4.20	45.2	0.0	306.7
60.00		1.00	1.14	9.951	10.95	227.30	0.650	0.000	5.00	18.067	11.74	128.5	0.0	857.1
65.00		1.00	1.16	10.120	11.13	221.51	0.650	0.000	5.00	17.468	11.35	126.4	0.0	828.5
70.00		1.00	1.17	10.279	11.31	215.47	0.650	0.000	5.00	16.870	10.97	124.0	0.0	799.8
75.00		1.00	1.19	10.430	11.47	209.20	0.650	0.000	5.00	16.272	10.58	121.3	0.0	771.2
80.00	Appurtenance(s)	1.00	1.21	10.572	11.63	202.74	0.650	0.000	5.00	15.674	10.19	118.5	0.0	742.6
85.00		1.00	1.22	10.708	11.78	196.10	0.650	0.000	5.00	15.076	9.80	115.4	0.0	713.9
90.00		1.00	1.24	10.838	11.92	189.30	0.650	0.000	5.00	14.477	9.41	112.2	0.0	685.3
95.00		1.00	1.25	10.962	12.06	182.34	0.650	0.000	5.00	13.879	9.02	108.8	0.0	656.7
97.00	Bot - Section 3	1.00	1.26	11.010	12.11	179.52	0.650	0.000	2.00	5.384	3.50	42.4	0.0	254.7
100.00		1.00	1.27	11.081	12.19	175.26	0.650	0.000	3.00	8.055	5.24	63.8	0.0	691.5
101.00	Top - Section 2	1.00	1.27	11.104	12.21	173.82	0.650	0.000	1.00	2.637	1.71	20.9	0.0	226.3
105.00		1.00	1.28	11.195	12.31	171.63	0.650	0.000	4.00	10.310	6.70	82.5	0.0	407.0
110.00	Appurtenance(s)	1.00	1.29	11.305	12.44	164.31	0.650	0.000	5.00	12.349	8.03	99.8	0.0	487.3
115.00		1.00	1.30	11.412	12.55	156.89	0.650	0.000	5.00	11.751	7.64	95.9	0.0	463.4
120.00		1.00	1.32	11.514	12.67	149.36	0.650	0.000	5.00	11.153	7.25	91.8	0.0	439.6
125.00		1.00	1.33	11.614	12.78	141.74	0.650	0.000	5.00	10.555	6.86	87.6	0.0	415.7
130.00	Appurtenance(s)	1.00	1.34	11.710	12.88	134.02	0.650	0.000	5.00	9.956	6.47	83.4	0.0	391.8
135.00		1.00	1.35	11.803	12.98	126.22	0.650	0.000	5.00	9.358	6.08	79.0	0.0	368.0
140.00	Appurtenance(s)	1.00	1.36	11.894	13.08	118.34	0.650	0.000	5.00	8.760	5.69	74.5	0.0	344.1
145.00		1.00	1.37	11.982	13.18	110.38	0.650	0.000	5.00	8.162	5.31	69.9	0.0	320.3
148.25	Bot - Section 4	1.00	1.37	12.038	13.24	105.17	0.650	0.000	3.25	4.984	3.24	42.9	0.0	195.4
149.00	Appurtenance(s)	1.00	1.38	12.051	13.26	103.96	0.650	0.000	0.75	1.138	0.74	9.8	0.0	70.6
150.00		1.00	1.38	12.068	13.27	102.35	0.650	0.000	1.00	1.497	0.97	12.9	0.0	92.8
150.50	Top - Section 3	1.00	1.38	12.077	13.28	101.54	0.650	0.000	0.50	0.739	0.48	6.4	0.0	45.8
155.00		1.00	1.39	12.152	13.37	96.49	0.650	0.000	4.50	6.385	4.15	55.5	0.0	151.1
159.00	Appurtenance(s)	1.00	1.40	12.217	13.44	89.96	0.650	0.000	4.00	5.269	3.42	46.0	0.0	124.6
								Totals:	**159.00**			**3,441.3**		**23,733.6**

Discrete Appurtenance Forces

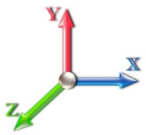
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	159.00	Low Profile Platform	1	12.217	13.439	1.00	1.00	35.00	1200.00	0.000	0.000	470.36	0.00	0.00
2	159.00	DC6-48-60-18-8F	1	12.265	13.492	1.00	1.00	0.92	31.80	0.000	3.000	12.41	0.00	37.24
3	159.00	RRUS-11	6	12.265	13.492	0.67	1.00	10.13	306.00	0.000	3.000	136.68	0.00	410.03
4	159.00	LGP21401	6	12.265	13.492	0.50	1.00	3.87	84.60	0.000	3.000	52.21	0.00	156.64
5	159.00	P65-16-XLH-RR	3	12.265	13.492	0.79	1.00	20.19	306.00	0.000	3.000	272.41	0.00	817.22
6	159.00	7770.00	3	12.265	13.492	0.77	1.00	13.31	231.00	0.000	3.000	179.51	0.00	538.54
7	159.00	DB404-B	1	12.265	13.492	1.00	1.00	0.00	14.00	0.000	3.000	0.00	0.00	0.00
8	149.00	Alcatel Lucent - 1900 MHz	3	12.085	13.294	0.54	0.80	6.11	132.00	0.000	2.000	81.23	0.00	162.46
9	149.00	Alcatel Lucent - 800 MHz	3	12.085	13.294	0.54	0.80	4.00	159.00	0.000	2.000	53.23	0.00	106.45
10	149.00	Alcatel Lucent - 800 MHz	3	12.085	13.294	0.54	0.80	1.25	26.40	0.000	2.000	16.67	0.00	33.35
11	149.00	RFS - APXVSPP18-C-A20	3	12.085	13.294	0.66	0.80	16.75	318.00	0.000	2.000	222.70	0.00	445.40
12	149.00	RFS - APXVTM14-C-I20	3	12.085	13.294	0.63	0.80	11.93	168.00	0.000	2.000	158.58	0.00	317.17
13	149.00	RFS - ACU-A20-N - RET	4	12.085	13.294	0.40	0.80	0.22	4.00	0.000	2.000	2.98	0.00	5.96
14	149.00	Low Profile Platform	1	12.051	13.256	1.00	1.00	35.00	1200.00	0.000	0.000	463.97	0.00	0.00
15	149.00	Alcatel Lucent -	3	12.085	13.294	0.54	0.80	6.51	210.00	0.000	2.000	86.57	0.00	173.15
16	140.00	Low Profile Platform	1	11.894	13.084	1.00	1.00	25.00	1200.00	0.000	0.000	327.09	0.00	0.00
17	140.00	S20057A1	6	11.939	13.132	0.40	0.80	1.97	66.00	0.000	2.500	25.84	0.00	64.61
18	140.00	FR65-17-04DP	12	11.939	13.132	0.62	0.80	32.65	216.00	0.000	2.500	428.74	0.00	1071.86
19	130.00	HBXX-6517DS-A2M	3	11.729	12.902	0.65	0.80	17.20	270.00	0.000	1.000	221.90	0.00	221.90
20	130.00	BXA-70063/6CF_	2	11.729	12.902	0.60	0.80	9.55	132.00	0.000	1.000	123.22	0.00	123.22
21	130.00	LPA-80063/6CF	6	11.729	12.902	0.76	0.80	45.50	456.00	0.000	1.000	587.05	0.00	587.05
22	130.00	BXA-171063-12BF-EDIN-	3	11.729	12.902	0.70	0.80	10.80	192.00	0.000	1.000	139.31	0.00	139.31
23	130.00	BXA-70040/6CF	1	11.729	12.902	0.56	0.80	8.22	87.00	0.000	1.000	106.07	0.00	106.07
24	130.00	Low Profile Platform	1	11.710	12.881	1.00	1.00	25.00	1200.00	0.000	0.000	322.03	0.00	0.00
25	130.00	RRH2X60-AWS	3	11.729	12.902	0.54	0.80	5.63	165.00	0.000	1.000	72.61	0.00	72.61
26	130.00	FD9R6004/2C-3L 3.1#	6	11.729	12.902	0.40	0.80	0.86	18.60	0.000	1.000	11.15	0.00	11.15
27	130.00	DB-T1-6Z-8AB-0Z	1	11.729	12.902	0.57	0.80	2.73	18.90	0.000	1.000	35.18	0.00	35.18
28	130.00	Lucent GPS	1	11.729	12.902	0.80	0.80	0.10	0.50	0.000	1.000	1.24	0.00	1.24
29	110.00	4 ft Standoff	1	11.305	12.436	1.00	1.00	3.50	53.32	0.000	0.000	43.53	0.00	0.00
30	110.00	SCL329-HL	1	11.423	12.565	1.00	1.00	2.22	10.40	0.000	5.550	27.90	0.00	154.82
31	80.00	SCL329-HL	1	10.723	11.795	1.00	1.00	2.22	10.40	0.000	5.550	26.18	0.00	145.32
32	80.00	4 ft Standoff	1	10.572	11.629	1.00	1.00	3.50	53.32	0.000	0.000	40.70	0.00	0.00
33	47.00	4 ft Standoff	1	9.452	10.398	1.00	1.00	3.50	53.32	0.000	0.000	36.39	0.00	0.00
34	47.00	Decibel 26DB GPS	1	9.576	10.534	1.00	1.00	0.16	10.00	0.000	3.000	1.69	0.00	5.06
							Totals:		**8,603.56**			**4,787.32**		

Total Applied Force Summary

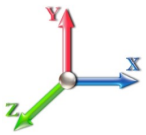
Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 33

TES Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		129.46	1368.43	0.00	0.00
10.00		126.27	1339.80	0.00	0.00
15.00		123.09	1311.17	0.00	0.00
20.00		127.23	1282.54	0.00	0.00
25.00		129.81	1253.91	0.00	0.00
30.00		131.21	1225.28	0.00	0.00
35.00		131.73	1196.65	0.00	0.00
40.00		131.58	1168.01	0.00	0.00
45.00		130.88	1139.38	0.00	0.00
47.00	(2) attachments	89.78	511.06	0.00	5.06
47.50		12.85	111.14	0.00	0.00
50.00		65.43	1005.00	0.00	0.00
53.25		84.65	1285.10	0.00	0.00
55.00		45.16	380.52	0.00	0.00
60.00		128.54	1067.88	0.00	0.00
65.00		126.40	1039.25	0.00	0.00
70.00		123.99	1010.62	0.00	0.00
75.00		121.34	981.99	0.00	0.00
80.00	(2) attachments	185.37	1017.08	0.00	145.32
85.00		115.42	922.13	0.00	0.00
90.00		112.18	893.50	0.00	0.00
95.00		108.78	864.87	0.00	0.00
97.00		42.38	337.93	0.00	0.00
100.00		63.82	816.44	0.00	0.00
101.00		20.94	267.95	0.00	0.00
105.00		82.53	573.54	0.00	0.00
110.00	(2) attachments	171.24	759.17	0.00	154.82
115.00		95.88	668.99	0.00	0.00
120.00		91.82	645.13	0.00	0.00
125.00		87.64	621.27	0.00	0.00
130.00	(27) attachments	1703.10	3137.41	0.00	1297.72
135.00		78.98	504.85	0.00	0.00
140.00	(19) attachments	856.17	1963.00	0.00	1136.47
145.00		69.92	377.94	0.00	0.00
148.25		42.90	232.87	0.00	0.00
149.00	(23) attachments	1095.74	2296.66	0.00	1243.92
150.00		12.91	100.53	0.00	0.00
150.50		6.38	49.69	0.00	0.00
155.00		55.47	185.82	0.00	0.00
159.00	(21) attachments	1169.60	2328.84	0.00	1959.67
	Totals:	**8,228.60**	**38,243.30**	**0.00**	**5,942.98**

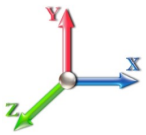
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (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	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.030	0.000	7.442	0.00	2.60
5.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.030	0.000	7.442	0.00	2.60
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	7.442	0.00	0.80
10.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.031	0.000	7.442	0.00	2.60
10.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.031	0.000	7.442	0.00	2.60
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.031	0.000	7.442	0.00	0.80
15.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.032	0.000	7.442	0.00	2.60
15.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.032	0.000	7.442	0.00	2.60
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.032	0.000	7.442	0.00	0.80
20.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	7.896	0.00	2.60
20.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.033	0.000	7.896	0.00	2.60
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.033	0.000	7.896	0.00	0.80
25.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	8.276	0.00	2.60
25.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.033	0.000	8.276	0.00	2.60
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.033	0.000	8.276	0.00	0.80
30.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.034	0.000	8.600	0.00	2.60
30.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.034	0.000	8.600	0.00	2.60
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.034	0.000	8.600	0.00	0.80
35.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.035	0.000	8.883	0.00	2.60
35.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.035	0.000	8.883	0.00	2.60
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.035	0.000	8.883	0.00	0.80
40.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.036	0.000	9.137	0.00	2.60
40.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.036	0.000	9.137	0.00	2.60
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.036	0.000	9.137	0.00	0.80
45.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.038	0.000	9.366	0.00	2.60
45.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.038	0.000	9.366	0.00	2.60
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.038	0.000	9.366	0.00	0.80
47.00	7/8" Coax	Yes	2.00	0.000	1.11	0.19	0.00	0.038	0.000	9.452	0.00	1.04
47.00	7/8" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.038	0.000	9.452	0.00	1.04
47.00	1/2" Coax	Yes	2.00	0.000	0.65	0.11	0.00	0.038	0.000	9.452	0.00	0.32
47.50	7/8" Coax	Yes	0.50	0.000	1.11	0.05	0.00	0.024	0.000	9.473	0.00	0.26
47.50	7/8" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.024	0.000	9.473	0.00	0.26
50.00	7/8" Coax	Yes	2.50	0.000	1.11	0.23	0.00	0.025	0.000	9.576	0.00	1.30
50.00	7/8" Coax	Yes	2.50	0.000	0.00	0.00	0.00	0.025	0.000	9.576	0.00	1.30
53.25	7/8" Coax	Yes	3.25	0.000	1.11	0.30	0.00	0.025	0.000	9.704	0.00	1.69
53.25	7/8" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.025	0.000	9.704	0.00	1.69
55.00	7/8" Coax	Yes	1.75	0.000	1.11	0.16	0.00	0.025	0.000	9.770	0.00	0.91
55.00	7/8" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.025	0.000	9.770	0.00	0.91
60.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.026	0.000	9.951	0.00	2.60
60.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.026	0.000	9.951	0.00	2.60
65.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.026	0.000	10.120	0.00	2.60
65.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.026	0.000	10.120	0.00	2.60
70.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.027	0.000	10.279	0.00	2.60
70.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.027	0.000	10.279	0.00	2.60
75.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.028	0.000	10.430	0.00	2.60
75.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.028	0.000	10.430	0.00	2.60
80.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.030	0.000	10.572	0.00	2.60

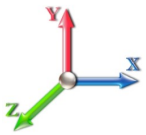
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (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	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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)
80.00	7/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.030	0.000	10.572	0.00	2.60
85.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.031	0.000	10.708	0.00	2.60
90.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.032	0.000	10.838	0.00	2.60
95.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.033	0.000	10.962	0.00	2.60
97.00	7/8" Coax	Yes	2.00	0.000	1.11	0.19	0.00	0.034	0.000	11.010	0.00	1.04
100.00	7/8" Coax	Yes	3.00	0.000	1.11	0.28	0.00	0.035	0.000	11.081	0.00	1.56
101.00	7/8" Coax	Yes	1.00	0.000	1.11	0.09	0.00	0.036	0.000	11.104	0.00	0.52
105.00	7/8" Coax	Yes	4.00	0.000	1.11	0.37	0.00	0.036	0.000	11.195	0.00	2.08
110.00	7/8" Coax	Yes	5.00	0.000	1.11	0.46	0.00	0.037	0.000	11.305	0.00	2.60
										Totals:	**0.0**	**106.3**

Calculated Forces

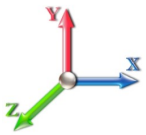
Structure:	CT13055-A-SBA	**Code:**	EIA/TIA-222-G	11/9/2017	
Site Name:	Monroe Turnpike	**Exposure:**	C		
Height:	159.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 36	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	-38.24	-8.24	0.00	-967.48	0.00	967.48	4390.37	2195.18	10447.7	5231.64	0.00	0.000	0.000	0.194
5.00	-36.86	-8.14	0.00	-926.26	0.00	926.26	4330.30	2165.15	10051.2	5033.11	0.02	-0.046	0.000	0.193
10.00	-35.52	-8.05	0.00	-885.54	0.00	885.54	4267.86	2133.93	9656.46	4835.41	0.10	-0.094	0.000	0.191
15.00	-34.20	-7.95	0.00	-845.31	0.00	845.31	4203.05	2101.52	9263.74	4638.76	0.22	-0.143	0.000	0.190
20.00	-32.91	-7.85	0.00	-805.56	0.00	805.56	4135.87	2067.94	8873.53	4443.36	0.40	-0.194	0.000	0.189
25.00	-31.65	-7.74	0.00	-766.32	0.00	766.32	4066.33	2033.16	8486.25	4249.43	0.63	-0.246	0.000	0.188
30.00	-30.42	-7.64	0.00	-727.60	0.00	727.60	3994.42	1997.21	8102.30	4057.17	0.92	-0.300	0.000	0.187
35.00	-29.22	-7.53	0.00	-689.43	0.00	689.43	3920.13	1960.07	7722.12	3866.80	1.26	-0.356	0.000	0.186
40.00	-28.04	-7.42	0.00	-651.80	0.00	651.80	3843.48	1921.74	7346.10	3678.51	1.67	-0.414	0.000	0.185
45.00	-26.90	-7.30	0.00	-614.72	0.00	614.72	3764.47	1882.23	6974.67	3492.52	2.13	-0.473	0.000	0.183
47.00	-26.38	-7.21	0.00	-600.13	0.00	600.13	3732.20	1866.10	6827.48	3418.81	2.34	-0.498	0.000	0.183
47.50	-26.27	-7.20	0.00	-596.52	0.00	596.52	3724.07	1862.03	6790.81	3400.45	2.39	-0.505	0.000	0.182
50.00	-25.26	-7.14	0.00	-578.52	0.00	578.52	3683.08	1841.54	6608.25	3309.03	2.66	-0.536	0.000	0.182
53.25	-23.97	-7.06	0.00	-555.30	0.00	555.30	3673.19	1836.60	6564.80	3287.28	3.04	-0.578	0.000	0.175
55.00	-23.59	-7.03	0.00	-542.94	0.00	542.94	3644.05	1822.03	6438.04	3223.81	3.26	-0.601	0.000	0.175
60.00	-22.52	-6.91	0.00	-507.79	0.00	507.79	3559.18	1779.59	6079.73	3044.38	3.92	-0.664	0.000	0.173
65.00	-21.47	-6.80	0.00	-473.22	0.00	473.22	3471.95	1735.97	5727.45	2867.98	4.65	-0.728	0.000	0.171
70.00	-20.45	-6.69	0.00	-439.22	0.00	439.22	3382.35	1691.17	5381.61	2694.80	5.45	-0.794	0.000	0.169
75.00	-19.46	-6.57	0.00	-405.78	0.00	405.78	3290.37	1645.19	5042.64	2525.07	6.32	-0.863	0.000	0.167
80.00	-18.44	-6.40	0.00	-372.77	0.00	372.77	3180.13	1590.07	4687.51	2347.24	7.26	-0.933	0.000	0.165
85.00	-17.51	-6.29	0.00	-340.78	0.00	340.78	3055.11	1527.56	4324.37	2165.40	8.28	-1.006	0.000	0.163
90.00	-16.62	-6.18	0.00	-309.34	0.00	309.34	2930.09	1465.05	3975.87	1990.89	9.37	-1.081	0.000	0.161
95.00	-15.75	-6.07	0.00	-278.44	0.00	278.44	2805.07	1402.54	3642.00	1823.71	10.54	-1.157	0.000	0.158
97.00	-15.41	-6.03	0.00	-266.29	0.00	266.29	2755.06	1377.53	3512.56	1758.89	11.03	-1.189	0.000	0.157
100.00	-14.59	-5.96	0.00	-248.20	0.00	248.20	2680.05	1340.03	3322.78	1663.86	11.80	-1.238	0.000	0.155
101.00	-14.32	-5.94	0.00	-242.24	0.00	242.24	2260.99	1130.50	2846.84	1425.54	12.06	-1.254	0.000	0.176
105.00	-13.74	-5.87	0.00	-218.47	0.00	218.47	2179.85	1089.93	2642.58	1323.26	13.14	-1.319	0.000	0.171
110.00	-12.97	-5.70	0.00	-188.98	0.00	188.98	2075.67	1037.84	2394.76	1199.16	14.57	-1.408	0.000	0.164
115.00	-12.30	-5.60	0.00	-160.50	0.00	160.50	1971.49	985.74	2159.14	1081.18	16.09	-1.497	0.000	0.155
120.00	-11.65	-5.51	0.00	-132.48	0.00	132.48	1867.30	933.65	1935.73	969.30	17.70	-1.584	0.000	0.143
125.00	-11.02	-5.42	0.00	-104.93	0.00	104.93	1763.12	881.56	1724.51	863.54	19.41	-1.666	0.000	0.128
130.00	-7.93	-3.64	0.00	-76.52	0.00	76.52	1658.94	829.47	1525.49	763.88	21.19	-1.742	0.000	0.105
135.00	-7.43	-3.55	0.00	-58.34	0.00	58.34	1554.75	777.38	1338.67	670.33	23.06	-1.809	0.000	0.092
140.00	-5.49	-2.64	0.00	-39.46	0.00	39.46	1450.57	725.28	1164.05	582.89	24.98	-1.869	0.000	0.071
145.00	-5.11	-2.56	0.00	-26.28	0.00	26.28	1346.38	673.19	1001.64	501.56	26.97	-1.918	0.000	0.056
148.25	-4.88	-2.51	0.00	-17.97	0.00	17.97	1278.66	639.33	902.61	451.97	28.28	-1.945	0.000	0.044
149.00	-2.62	-1.33	0.00	-14.85	0.00	14.85	1263.04	631.52	880.49	440.90	28.59	-1.950	0.000	0.036
150.00	-2.52	-1.32	0.00	-13.52	0.00	13.52	1242.20	621.10	851.42	426.34	29.00	-1.957	0.000	0.034
150.50	-2.47	-1.31	0.00	-12.86	0.00	12.86	761.18	380.59	536.85	268.82	29.20	-1.960	0.000	0.051
155.00	-2.29	-1.25	0.00	-6.96	0.00	6.96	704.92	352.46	460.03	230.36	31.06	-1.981	0.000	0.033
159.00	0.00	-1.17	0.00	-1.96	0.00	1.96	654.91	327.45	396.72	198.65	32.73	-1.998	0.000	0.010

Final Analysis Summary

Structure:	CT13055-A-SBA		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (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

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 93 mph Wind	31.7	0.00	45.84	0.00	0.00	3741.07
0.9D + 1.6W 93 mph Wind	31.7	0.00	34.37	0.00	0.00	3697.17
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.9	0.00	71.24	0.00	0.00	1166.63
1.2D + 1.0E	2.0	0.00	45.89	0.00	0.00	249.32
0.9D + 1.0E	2.0	0.00	34.42	0.00	0.00	246.16
1.0D + 1.0W 60 mph Wind	8.2	0.00	38.24	0.00	0.00	967.48

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 93 mph Wind	-45.84	-31.70	0.00	-3741.0	0.00	-3741.0	4390.37	2195.1	10447.7	5231.64	0.00	0.726
0.9D + 1.6W 93 mph Wind	-34.37	-31.68	0.00	-3697.1	0.00	-3697.1	4390.37	2195.1	10447.7	5231.64	0.00	0.715
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-71.24	-9.94	0.00	-1166.6	0.00	-1166.6	4390.37	2195.1	10447.7	5231.64	0.00	0.239
1.2D + 1.0E	-17.33	-1.53	0.00	-76.28	0.00	-76.28	2260.99	1130.5	2846.84	1425.54	101.00	0.061
0.9D + 1.0E	-12.99	-1.50	0.00	-74.94	0.00	-74.94	2260.99	1130.5	2846.84	1425.54	101.00	0.058
1.0D + 1.0W 60 mph Wind	-38.24	-8.24	0.00	-967.48	0.00	-967.48	4390.37	2195.1	10447.7	5231.64	0.00	0.194

Base Plate Summary

Structure:	CT13055-A-SB		**Code:**	EIA/TIA-222-G	11/9/2017
Site Name:	Monroe Turnpike		**Exposure:**	C	
Height:	159.00 (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

Reactions

Original Design

Moment (kip-ft):	3665.00
Axial (kip):	41.45
Shear (kip):	31.29

Analysis

Moment (kip-ft):	3741.07
Axial (kip):	71.24
Shear (kip):	31.70
Moment Design %:	102.08

Base Plate

Yield (ksi):	60.00
Width (in):	71.00
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	17.18
Moment (kip-in):	687.22
Allow Stress (ksi):	81.00
Applied Stress (ksi):	-1.88661806164581
Stress Ratio:	0.59

Anchor Bolts

Bolt Circle:	65.00
Number Bolts:	14.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00

Compression

Force (kip):	202.42
Allowable (kip):	260.00
Ratio:	0.80

Tension

Force (kip):	192.24
Allowable (kip):	260.00
Ratio:	0.76

Monopole Mat Foundation Design

				Date
				11/9/2017
Customer Name:	Sprint Nextel	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	159
Site Number:	CT13055-A-SBA	**Engineer Name:**	K. Wyant
Engr. Number:	43125	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

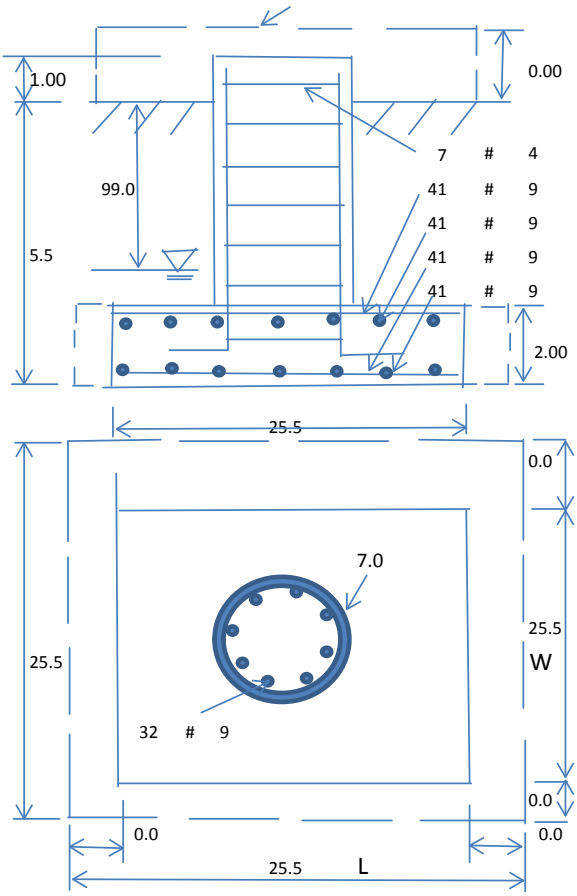
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	45.8	Shear Force (Kips):	31.7
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3741.1
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.00
Length of Pad (ft.):	25.5	Width of Pad (ft.):	25.5
Final Length of pad (ft)	25.5	Final width of pad (ft):	25.5
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	32	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	41	Qty. of Rebar in Pad (W):	41	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	41	Qty. of Rebar in Pad (W):	41	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	12000	Ultimate Skin Friction:		Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	2141.18	Total Dry Soil Weight (Kips):	246.24
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	246.24	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1473.68	Total Dry Concrete Weight (Kips):	221.05
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	221.05	Total Vertical Load on Base (Kips):	513.13

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2633	<	Allowable Factored Soil Bearing (psf): 9000	0.29	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	5946.6	>	Design Factored Momont (kips-ft): 3947	0.66	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.51	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			
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	5377.0	>	Design Factored Moment (Mu, Kips-Ft	3883.7	0.72	OK!
Calculated Shear Capacity (Kips):	660.1	>	Design Factored Shear (Kips):	31.7	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	1728.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9741.3	>	Design Factored Axial Load (Pu Kips):	45.8	0.00	OK!
Moment & Axial Strength Combination:	0.72	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.006	Reinforcement Ratio is satisfied per ACI				
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	593.3	>	One-Way Factored Shear (L-D. Kips):	250.6	0.42	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	593.3	>	One-Way Factored Shear (W-D., Kips)	250.6	0.42	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	676.2	>	One-Way Factored Shear (C-C, Kips):	262.4	0.39	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0066	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0066		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3552.6	>	Moment at Bottom (L-Direct. K-Ft):	945.6	0.27	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3552.6	>	Moment at Bottom (W-Direct. K-Ft):	945.6	0.27	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	4949.8	>	Moment at Bottom (C-C Dir. K-Ft):	1337.3	0.27	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0066	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0066		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	3552.6	>	Moment at the top (L-Dir Kips-Ft):	224.2	0.06	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	3552.6	>	Moment at the top (W-Dir Kips-Ft):	224.2	0.06	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	4949.8	>	Moment at the top (C-C Direc. K-Ft):	476.9	0.10	OK!

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS.
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT.
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.
* SBA COMMUNICATIONS CORPORATION SHALL PROVIDE WRITTEN ACCEPTANCE/APPROVAL FOR THE COMPLETION OF ALL TOWER/FOUNDATION STRUCTURAL MODIFICATIONS INCLUDING (AS NECESSARY) CONTROLLED CONSTRUCTION INSPECTIONS, SHOP-DRAWING APPROVALS, MATERIALS TEST RESULTS, AND FINAL ENGINEER'S AFFIDAVIT.

Sprint

NOTE:

OWNER AND TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS-BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

NOTE:
THESE PLANS ARE BASED ON INFORMATION OBTAINED SITE VISIT ON APRIL 01, 2014. THE SPRINT CONTRACTOR IS RESPONSIBLE TO VERIFYING ALL ITEMS AND NOTIFYING THE ENGINEER OF RECORD AND DISCREPANCIES.

PROJECT: DO MACRO EQUIPMENT DEPLOYMENT

SITE NAME: SISTERS OF HOLY NAME/C.A.T.

SITE CASCADE: CT23XC314-B

MARKET: SOUTHERN CONNECTICUT

SBA SITE ID: CT13055-A/MONROE TURNPIKE

SITE ADDRESS: 1428 MONROE TURNPIKE
MONROE, CT 06468

SITE TYPE: 159' MONOPOLE

SITE INFORMATION

PROPERTY OWNER:
SISTERS OF THE HOLY
FAMILY OF NAZARETH
310 NORTH RIVER ROAD
DES PLAINES, IL 60016

TOWER OWNER:
SBA INFRASTRUCTURE, LLC.
8051 CONGRESS AVENUE
BOCA RATON, FL 33487
PHONE: (561)995-7670

SBA REGIONAL SITE MANAGER:
STEPHEN ROTH
PHONE: 860-539-4920
SRoth@sbasite.com

LATITUDE (NAD83):
GOOGLE EARTH 2-C CONFIRMATION
41°22'35.27" N
41.375833°

LONGITUDE (NAD83):
GOOGLE EARTH 2-C CONFIRMATION
-73°11'11.56" W
-73.186389°

COUNTY:
FAIRFIELD

ZONING DISTRICT:
RD - RESIDENTIAL & FARMING D

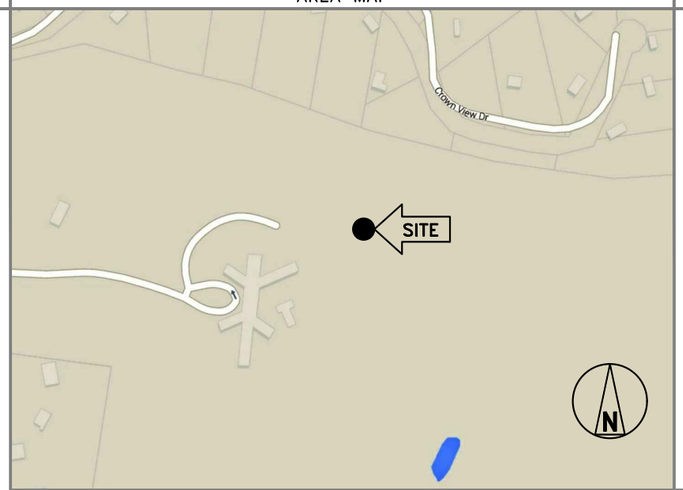
POWER COMPANY:
NORTHEAST UTILITIES SERVICE COMPANY

AAV PROVIDER:
VERIZON

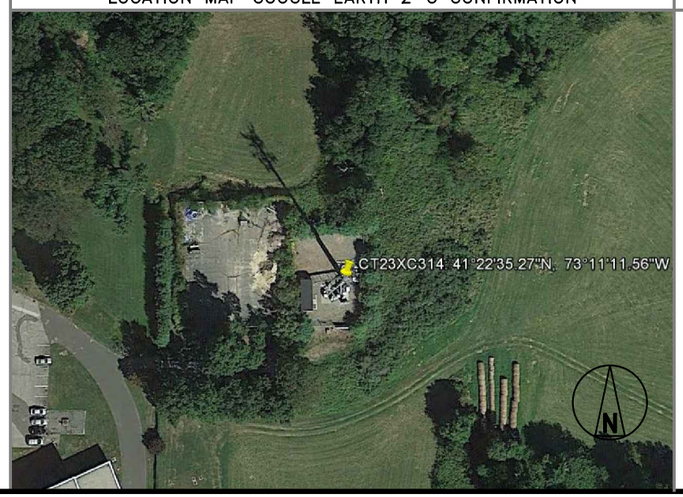
SPRINT CONSTRUCTION MANAGER:
GARY WOOD
PHONE: 860-940-9168
gary.wood@sprint.com

EQUIPMENT SUPPLIER:
ALCATEL-LUCENT
600 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974

AREA MAP



LOCATION MAP GOOGLE EARTH 2-C CONFIRMATION



PROJECT DESCRIPTION

SPRINT EQUIPMENT MODIFICATIONS REQUIRED TO SUPPORT MODERNIZATION OF AN EXISTING WIRELESS COMMUNICATIONS FACILITY AND UTILIZATION OF FCC BROADBAND SPECTRUM LICENSE FOR 2.5GHz FREQUENCY, INCLUDING INSTALLATION OF:

EQUIPMENT PLATFORM RAN EQUIPMENT, CONSISTING OF:
* INSTALL NEW GROWTH CABINET WITH, 2.5 RADIO ACCESS NETWORK (RAN) EQUIPMENT & (2) BATTERY STRINGS

ROOF-TOP EQUIPMENT, INCLUDING INSTALLATION OF:
* (3) PANEL ANTENNAS
* (3) REMOTE RADIO HEADS (RRH)
* (3) HYBRID CABLE (AND ASSOCIATED FIBER, DC POWER, COAXIAL CABLE JUMPERS AND ANTENNA REMOTE ELECTRICAL-TILT (RET) CABLE

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDE BY SPRINT REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AND 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, ADMINISTRATIVE REVIEW).

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. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.

BUILDING CODE: IBC 2012 W/ 2016 CT STATE BUILDING CODE AMENDMENTS
ELECTRICAL CODE: 2014 NATIONAL ELECTRICAL CODE
STRUCTURAL CODE: (TIA) 222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

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DRAWING INDEX

SHEET NO:	SHEET TITLE	REV	CHK	BY
T-1	TITLE SHEET	2	BB	DJM
SP-1	OUTLINE SPECIFICATIONS	2	BB	DJM
SP-2	OUTLINE SPECIFICATIONS	2	BB	DJM
SP-3	OUTLINE SPECIFICATIONS	2	BB	DJM
A-1	COMPOUND PLAN	2	BB	DJM
A-2	ELEVATION AND ANTENNA PLANS	2	BB	DJM
A-3	RF DATA SHEET	2	BB	DJM
A-4	RAN WIRING DIAGRAM	2	BB	DJM
A-5	EQUIPMENT DETAILS	2	BB	DJM
A-6	EQUIPMENT DETAILS	2	BB	DJM
S-1	STRUCTURAL DETAILS	2	BB	DJM
E-1	ONE LINE DIAGRAM	2	BB	DJM
E-2	GROUNDING DETAILS AND NOTES	2	BB	DJM

APPROVALS

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.

SPRINT: _____ DATE: _____

CONSTRUCTION MANAGER: _____ DATE: _____

LEASING/ SITE ACQUISITION: _____ DATE: _____

RF ENGINEER: _____ DATE: _____

LANDLORD/ TOWER OWNER: _____ DATE: _____

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
FAX: (508) 251-1755

HDG HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 21651
LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	01/26/18	ISSUED FOR CONSTRUCTION	DJM
1	05/21/14	ISSUED FOR CONSTRUCTION	SF
0	05/09/14	ISSUED FOR CONSTRUCTION	SF

SITE NUMBER:
CT23XC314-B

SITE NAME:
SISTERS OF HOLY NAME/C.A.T.
SITE ADDRESS:
1428 MONROE TURNPIKE
MONROE, CT 06468

SHEET TITLE
TITLE SHEET
(DO MACRO)

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. SPRINT TS–0200 (CURRENT VERSION) – 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

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 21651
LICENSED
PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	01/26/18	ISSUED FOR CONSTRUCTION	DJM
1	05/21/14	ISSUED FOR CONSTRUCTION	SF
0	05/09/14	ISSUED FOR CONSTRUCTION	SF

SITE NUMBER:
CT23XC314–B

SITE NAME:
SISTERS OF HOLY NAME/C.A.T.
SITE ADDRESS:
1428 MONROE TURNPIKE
MONROE, CT 06468

SHEET TITLE
OUTLINE SPECIFICATIONS
(DO MACRO)

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 TEL: (508) 251-0720
WESTBOROUGH, MA 01581 FAX: (508) 251-1755

HDG
HUDSON
Design Group LLC
45 BEECHWOOD DRIVE TEL: (978) 557-5553
N. ANDOVER, MA 01845 FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 24951
LICENSED
PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	01/26/18	ISSUED FOR CONSTRUCTION	DJM
1	05/21/14	ISSUED FOR CONSTRUCTION	SF
0	05/09/14	ISSUED FOR CONSTRUCTION	SF

SITE NUMBER:
CT23XC314–B

SITE NAME:
SISTERS OF HOLY NAME/C.A.T.
SITE ADDRESS:
1428 MONROE TURNPIKE
MONROE, CT 06468

SHEET TITLE
OUTLINE SPECIFICATIONS
(DO MACRO)

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 IN TS 0200 REV 4.
   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.

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 29651
LICENSED
PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

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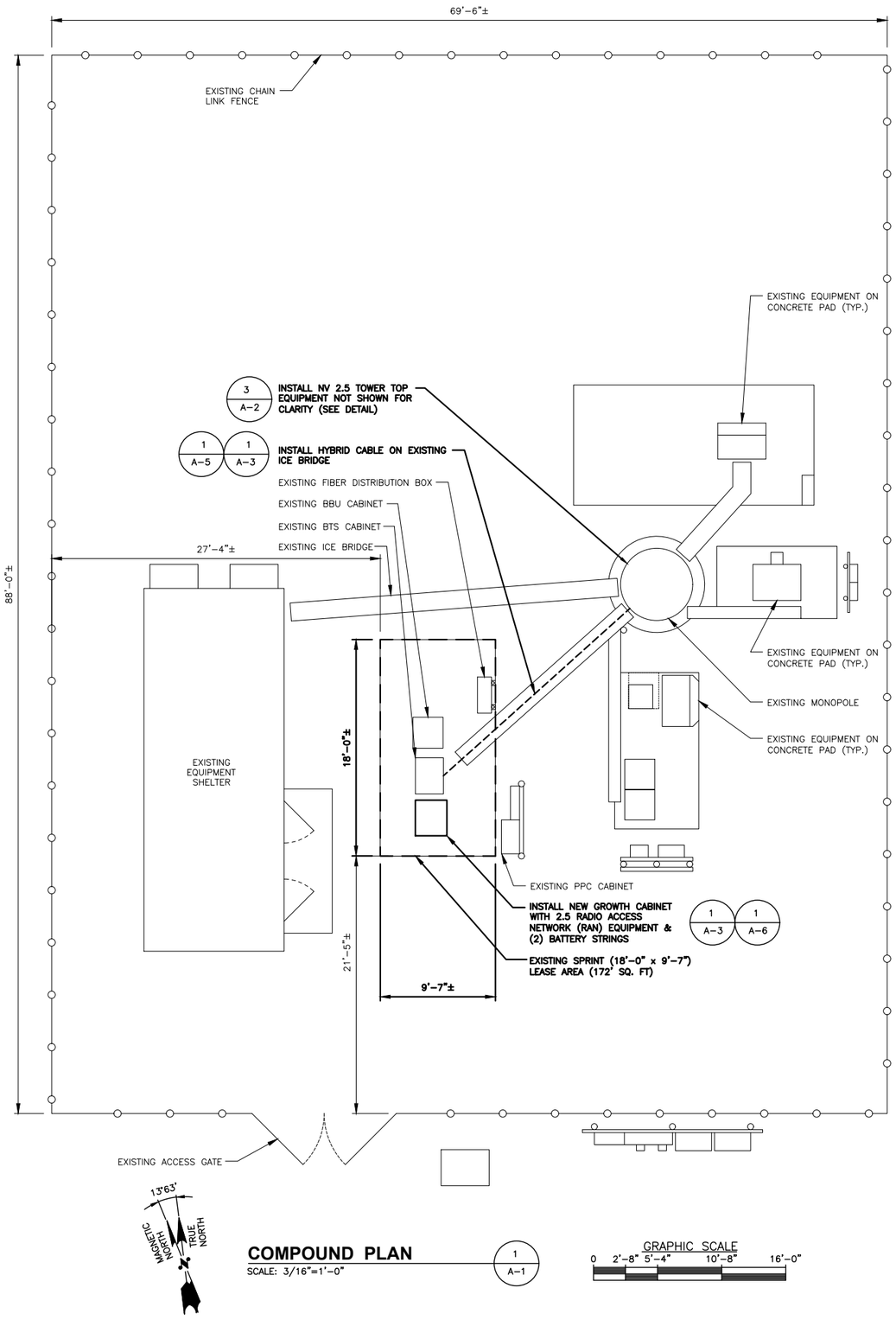
0	05/09/14	ISSUED FOR CONSTRUCTION	SF

SITE NUMBER:
CT23XC314-B

SITE NAME:
SISTERS OF HOLY NAME/C.A.T.
SITE ADDRESS:
1428 MONROE TURNPIKE
MONROE, CT 06468

SHEET TITLE
OUTLINE SPECIFICATIONS
(DO MACRO)

SHEET NUMBER
SP-3



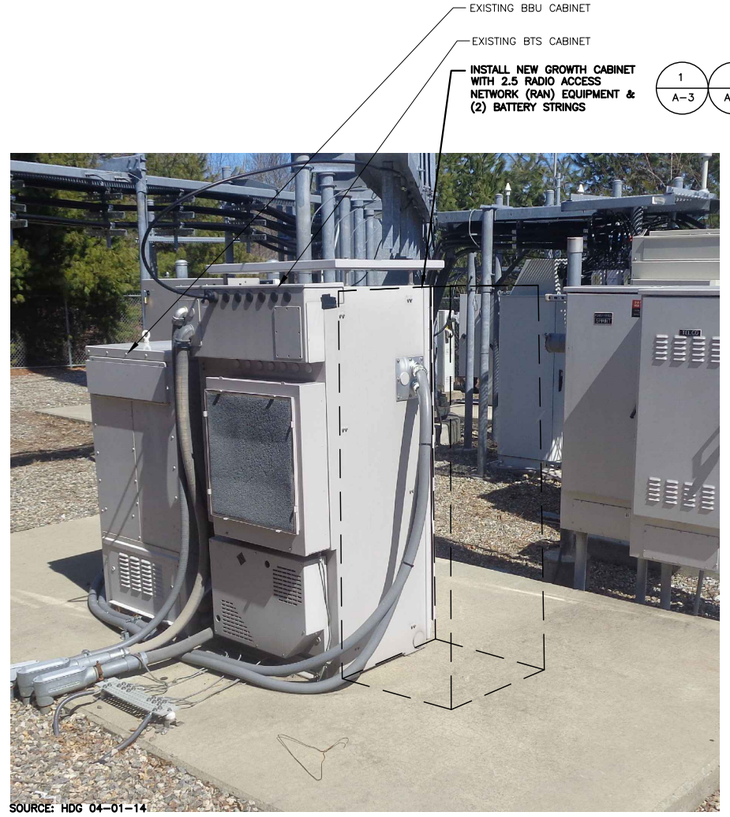
COMPOUND PLAN

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

1 A-1

GRAPHIC SCALE

0 2'-8" 5'-4" 10'-8" 16'-0"



SOURCE: HDG 04-01-14

RAN EQUIPMENT PHOTO DETAIL

SCALE: N.T.S.

2 A-1

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 25951
LICENSED PROFESSIONAL ENGINEER

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MONROE, CT 06468

SHEET TITLE

COMPOUND PLAN

(DO MACRO)

SHEET NUMBER

A-1

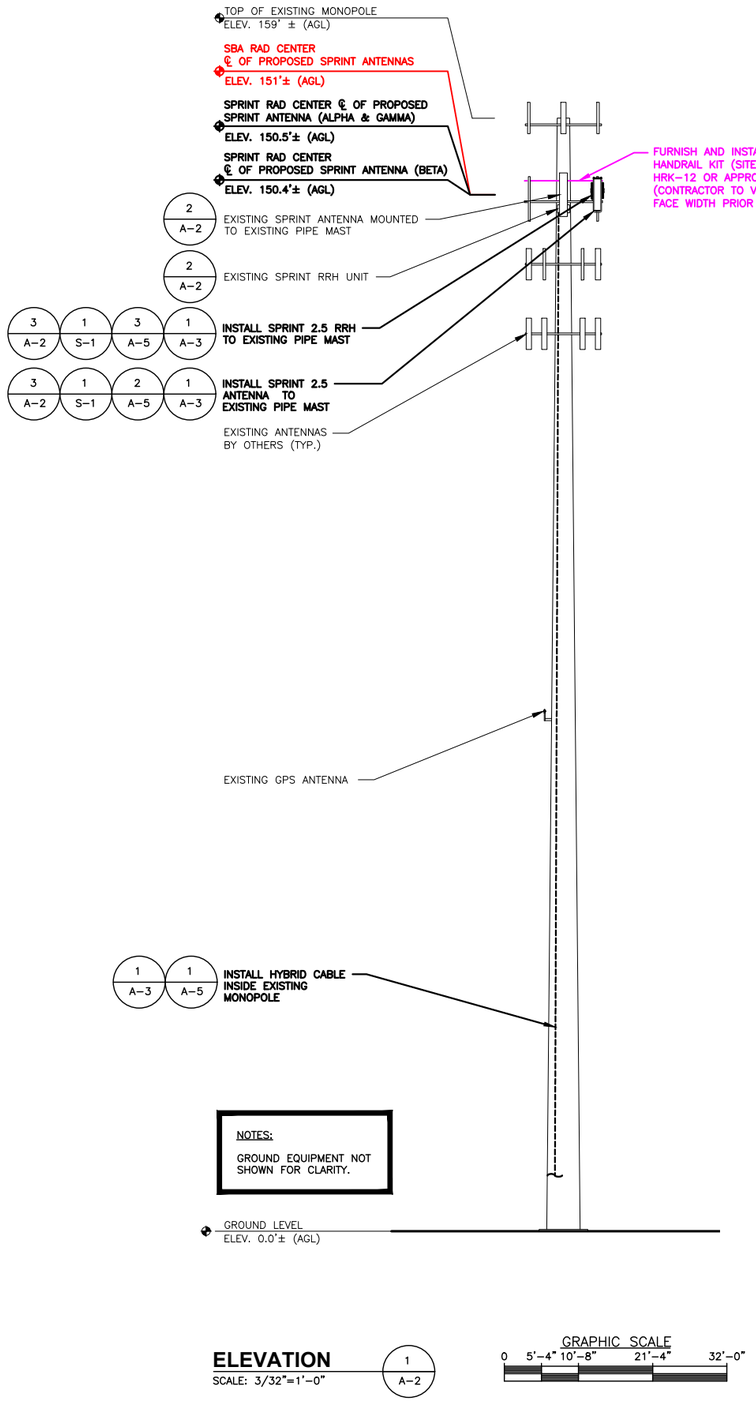
SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
- COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS.
- COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT.
- GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.
- SBA COMMUNICATIONS CORPORATION SHALL PROVIDE WRITTEN ACCEPTANCE/APPROVAL FOR THE COMPLETION OF ALL TOWER/FOUNDATION STRUCTURAL MODIFICATIONS INCLUDING (AS NECESSARY) CONTROLLED CONSTRUCTION INSPECTIONS, SHOP-DRAWING APPROVALS, MATERIALS TEST RESULTS, AND FINAL ENGINEER'S AFFIDAVIT.

NOTE:
EXISTING AZIMUTHS FROM EXISTING FINAL CD DATED 06/08/12

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO MOUNT ANALYSIS PROVIDED BY HDG DATED 1/18/2018 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

NOTE:
SPRINT RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED COLLOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE SPRINT NV 2.5 RFDS.

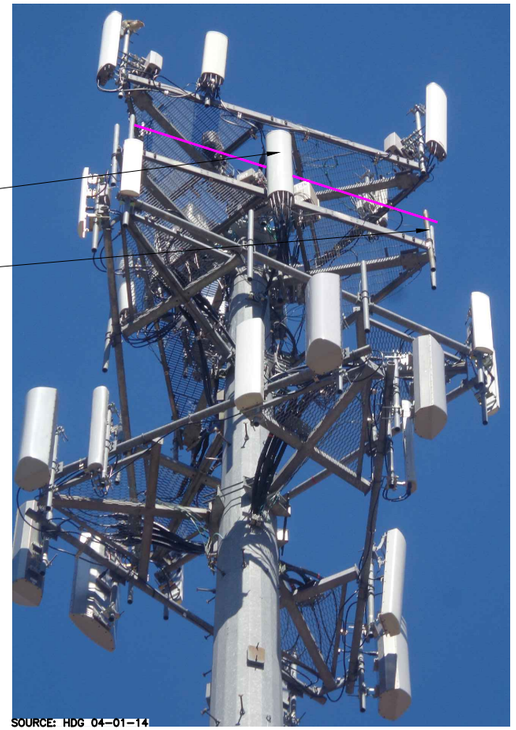
SPECIAL CONSTRUCTION NOTE:
THE SPRINT NETWORK VISION 2.5 GHz TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTENCE/APPROVAL BY SBA COMMUNICATIONS CORP.



NOTES:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

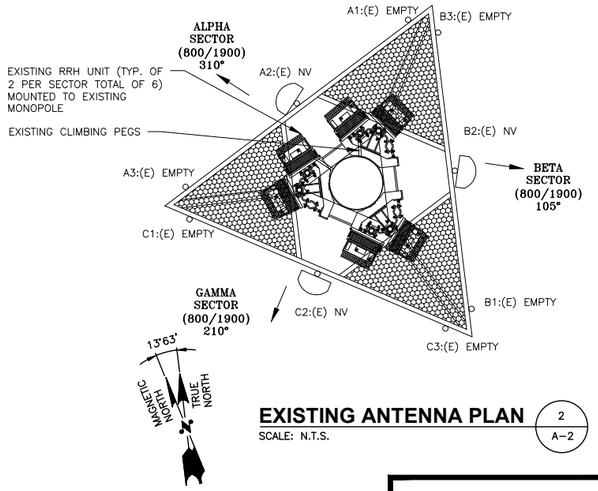
ELEVATION
SCALE: 3/32"=1'-0" (1 / A-2)

GRAPHIC SCALE
0 5'-4" 10'-8" 21'-4" 32'-0"



SOURCE: HDG 04-01-14

ELEVATION PHOTO DETAIL
SCALE: N.T.S.

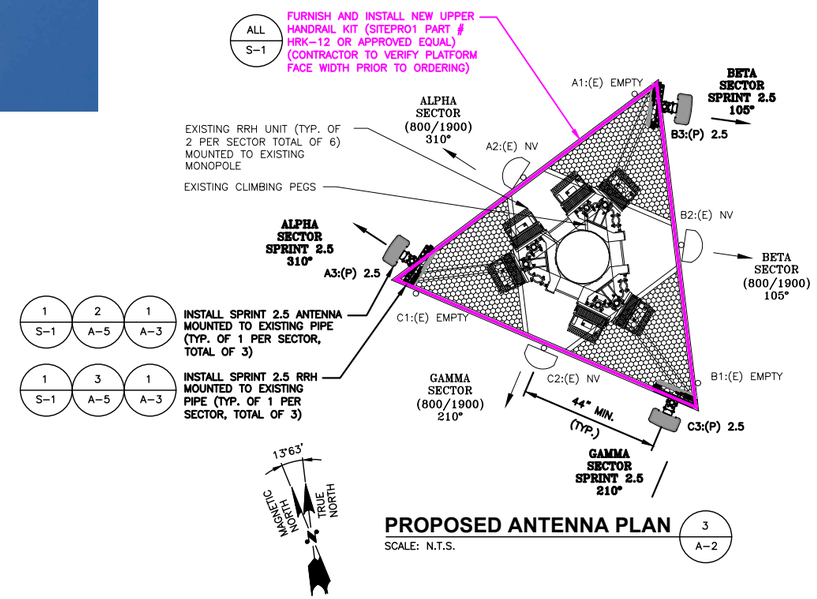


EXISTING ANTENNA PLAN
SCALE: N.T.S. (2 / A-2)

SPECIAL WORK NOTE:
JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA CAN NOT EXCEED 15'. NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY DISCREPANCY.

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

ANTENNA STATUS LEGEND:
- EMPTY – EMPTY PIPE
- (E) – EXISTING
- (P) – INSTALL
- NV – SPRINT ANTENNA MODEL APXVSPP18-C-A20
- 2.5 – SPRINT ANTENNA



PROPOSED ANTENNA PLAN
SCALE: N.T.S. (3 / A-2)

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STATE OF CONNECTICUT — DEREK J. CREASER — No. 24951 — LICENSED PROFESSIONAL ENGINEER

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SISTERS OF HOLY NAME/C.A.T.

SITE ADDRESS:
1428 MONROE TURNPIKE
MONROE, CT 06468

SHEET TITLE
ELEVATION AND ANTENNA PLANS
(DO MACRO)

SHEET NUMBER
A-2

RFDS Sheet

(by SBA Network Services 4/8/14. NOTE: General Contractor/Tower Crew shall verify that the latest RFDS is used for equipment installation.)

General Site Information

Site ID	CT23XC314	Equipment Vendor	ALU		
Market	Southern Connecticut	Latitude	41.375833		
Region	East	Longitude	-73.186389		
MLA	SBA	LL SITE ID	CT13055-A		
Structure Type	MONOPOLE				
BTS Type	Outdoor Macro				
Solution ID	Not Available	Siterra SR Equipment Type	Outdoor Macro		
		Equipment Vendor	ALU	A&E 40A	Incremental Power Draw Needed by Added Equipment: 100

Base Equipment

BBU Kit	ALU BBU Kit	Top Hat	None
BBU Kit Qty	0	Top Hat Qty	N/A
		Top Hat Dimensions (Inches)	N/A
Growth Cabinet	ALU 9929 Expansion Cabinet	Top Hat Weight (Lbs.)	N/A
Growth Cabinet Qty	1		
Growth Cabinet Dimensions (Inches)	63.65" X 31.5" X 35.5"		
Growth Cabinet Weight (Lbs.)	1,600		

RF Path Information

RRH	TD-RRH8x20-25	
RRH Qty	3	
RRH Dimensions (Inches)	26.1" x 18.6" x 6.7"	
RRH Weight (Lbs.)	70.0	
RRH Mount Weight (Lbs.)	10	
Power and Fiber Cable	ALU Fiber only	
Cable Qty	1	
Weight per Foot (Lbs.)	0.242	
Diameter (Inches)	0.730	
Hybrid Cable Length (Feet) (** A&E 200)	181	(Estimated by Sprint as Antenna CL plus 20%: DO NOT BOM using this length.)
Coax Jumper	Coax Jumper. Mfg TBD.	
Coax Jumper Qty	27	
Coax Jumper Length (Feet) (** A&E 5)	8	
Coax Jumper Weight (Lbs.)	1.7	
Coax Jumper Diameter (Inches)	0.5	
AISG Cable	Commscope ATCB-B01-006	
AISG Cable Qty	3	
AISG Diameter (Inches)	0.315	
AISG Cable Length (Feet) (** A&E 5)	8	
Weight of Entire AISG Cable (Lbs.)	1.3	

Antenna Sector Information

	Sector 1	Sector 2	Sector 3
Antenna Make/Model	RFS APXV9TM14-ALU-I20	RFS APXV9TM14-ALU-I20	RFS APXV9TM14-ALU-I20
Antenna Qty	1	1	1
Antenna Dimensions (Inches)	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3
Antenna Weight (Lbs.)	55.1	55.1	55.1
Antenna Mounting Kit Weight (Lbs.)	11.5	11.5	11.5
CL Height (Feet) (* SBA 151.0')	150.5	150.4	150.5
Antenna Azimuth (Degrees)	310	105	210
Antenna Mechanical Downtilt (Degrees)	0	0	0
Antenna Etilt (Degrees)	-2	-2	-2
RF Filter Make/Model	N/A	N/A	N/A

Comments

RFDS generated 4/8/14 by SBA Network Services from Sprint Plan of Record dated 4/2/14.

Comments in Red Text provided by A&E Vendor.

IMPORTANT CONSTRUCTION NOTE: General Contractor/Tower Crew shall verify that the latest RFDS is used for equipment installation.

*** Note: Antenna Rad Center based on SBA-Provided Collocation Application, Equipment Database, and Structural Analysis. The SBA-Provided Antenna Rad Center shall supersede any conflicting information derived from the Sprint NV 2.5 Database.**

**** Note: Sprint CM shall confirm Hybrid Cable Length, Coax Jumper Length and AISG Cable Length before preparing BOM. A&E Recommended Hybrid Cable Length based on NV 2.5 Equipment Audit plus 20 Feet for (2) 10-foot coils at each end of the fiber trunk.**

RF DATA SHEET (1 / A-3)

SCALE: N.T.S.

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 2.5G ANTENNA AT SAME CL HEIGHT AS 1.9G ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS–BUILD DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900 MHZ AND 800 MHZ 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. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON–SPRINT ANTENNAS.
- 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/.

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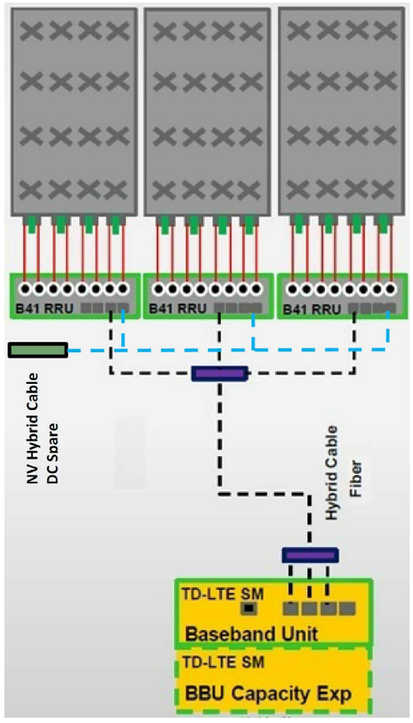
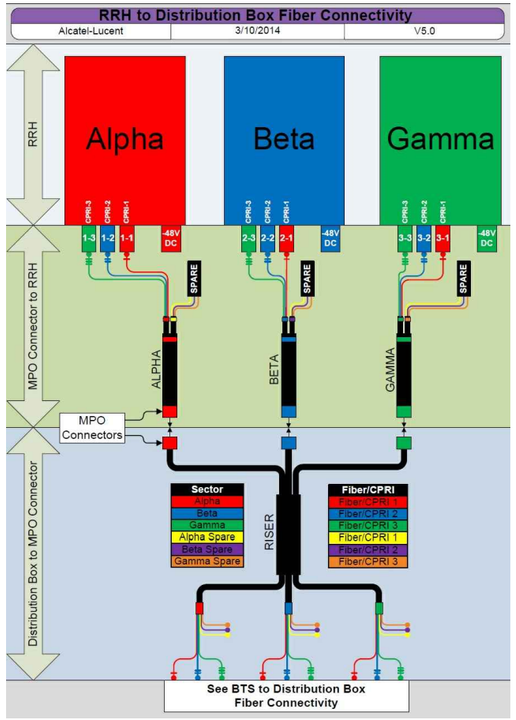
RF DATA SHEET
(DO MACRO)

SHEET NUMBER
A–3



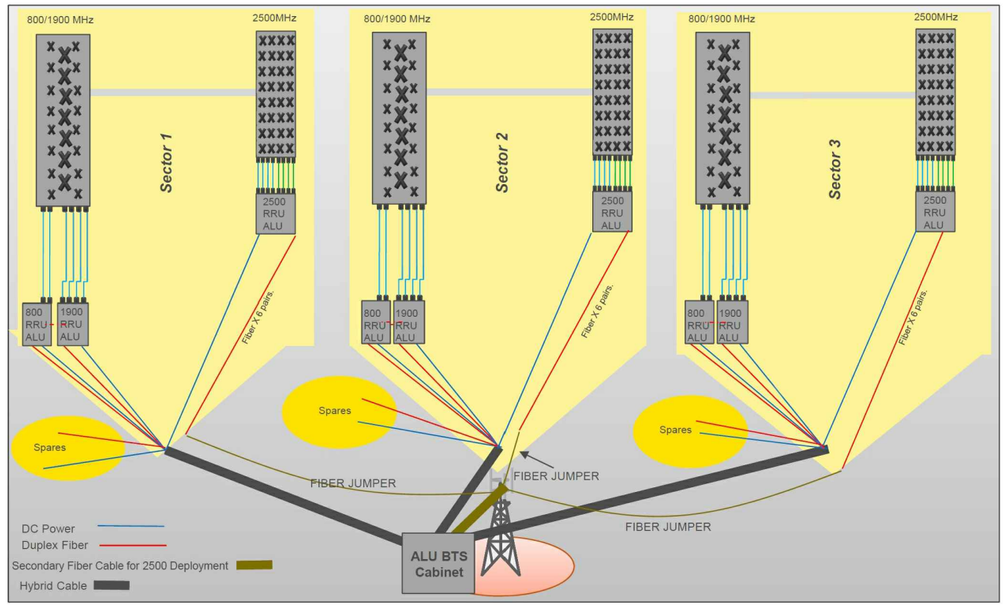
ALU 2.5 ALU SCENARIO 1

SCALE: N.T.S.



CABLE COLOR CODING DIAGRAM

SCALE: N.T.S.

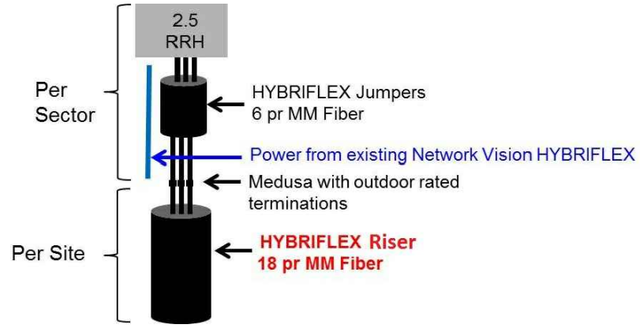


RAN WIRING DIAGRAM: ALU EQUIPMENT

SCALE: N.T.S.

NOTE:

GENERAL CONTRACTOR/TOWER CREW SHALL VERIFY THAT THE LATEST RF DATA SHEET IS USED FOR EQUIPMENT INSTALLATION.



RFS 2.5 ALU SCENARIO 1

SCALE: N.T.S.

DC POWER INSTALLATION NOTE (FIBER-ONLY SCENARIO):

USE SPACE 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.

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 23951
LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

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SITE NUMBER:
CT23XC314-B

SITE NAME:
SISTERS OF HOLY NAME/C.A.T.
SITE ADDRESS:
1428 MONROE TURNPIKE
MONROE, CT 06468

SHEET TITLE
RAN WIRING DIAGRAM
(DO MACRO)

SHEET NUMBER
A-4

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE			
MANUF: RFS			
CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
(*) FIBER ONLY	VARIES	USE NV HYBRIFLEX 5/8"	
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

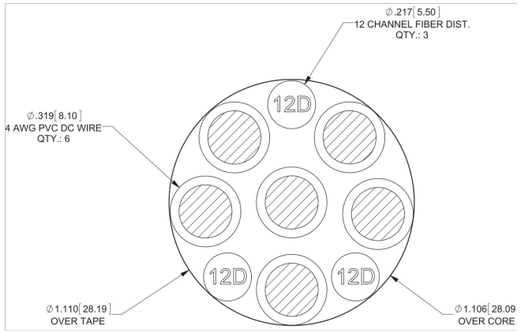
Fiber Only	(*) **Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CM OF ANY DISCREPANCY.	
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.	

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

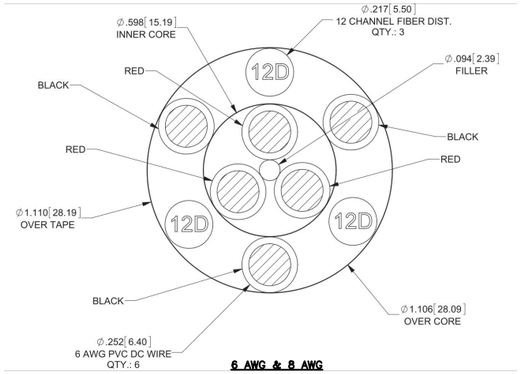
2.5 HYBRID CABLE X-SECTION AND DATA

SCALE: N.T.S.

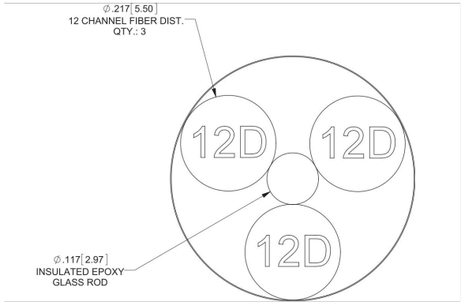
1 / A-5



4 AWG

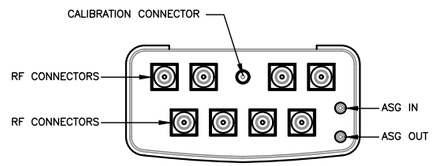


6 AWG & 8 AWG

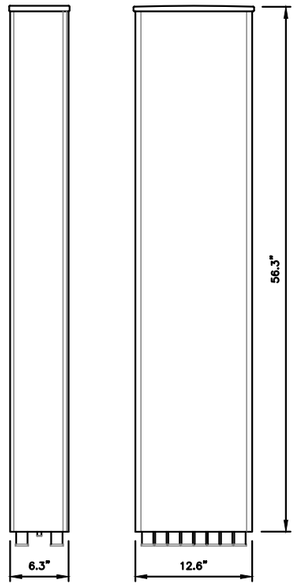


FIBER ONLY

MANUF:	RFS
MODEL:	APXV9TM14-ALU-I20
LENGTH:	56.3
WIDTH:	12.6
DEPTH:	6.3
WEIGHT:	55.1 LBS
AREA:	4.9 SF



PLAN VIEW

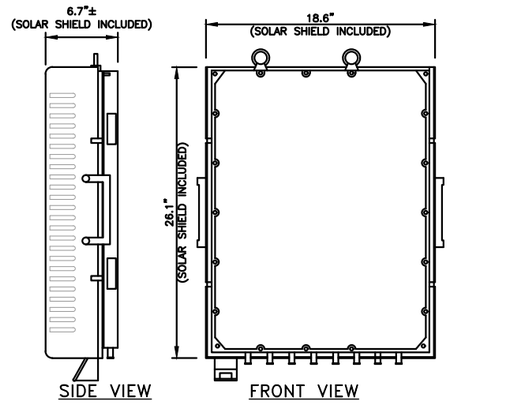


2.5 ANTENNA SPECIFICATIONS

SCALE: N.T.S.

2 / A-5

MANUF:	ALCATEL-LUCENT
MODEL:	TD-RRH8x20-25
LENGTH:	26.1
WIDTH:	18.6
DEPTH:	6.7
WEIGHT:	70 LBS
AREA:	3.5 SF



PLAN VIEW

2.5 RRH'S

SCALE: N.T.S.

3 / A-5

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

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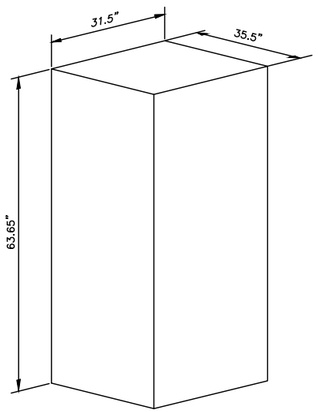
MONROE, CT 06468

SHEET TITLE
EQUIPMENT DETAILS
(DO MACRO)

SHEET NUMBER
A-5



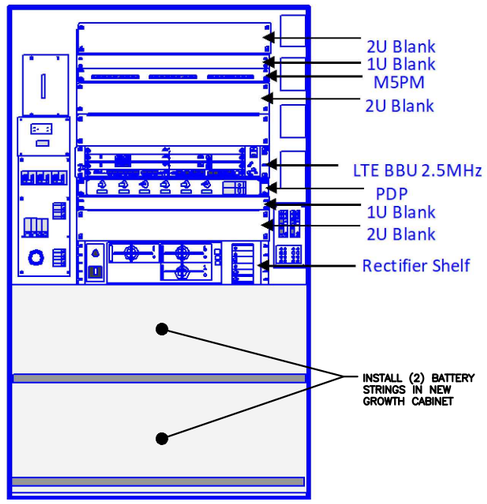
MANUFACTURER	ALU
MODEL	9929
HEIGHT	63.65"
WIDTH	31.5"
DEPTH	35.5"
TOTAL WEIGHT (FULLY LOADED)	1600 lbs

NOTE:
EQUIPMENT SHALL BE ANCHORED PER MANUFACTURERS SPECIFICATIONS.

9929 MMBTS OUTDOOR CABINET

SCALE: N.T.S.

1 / A-6



FRONT VIEW

PROPOSED MMBTS OUTDOOR CABINET WITH LTE 2.5 BBU EQUIPMENT

SCALE: N.T.S.

2 / A-6

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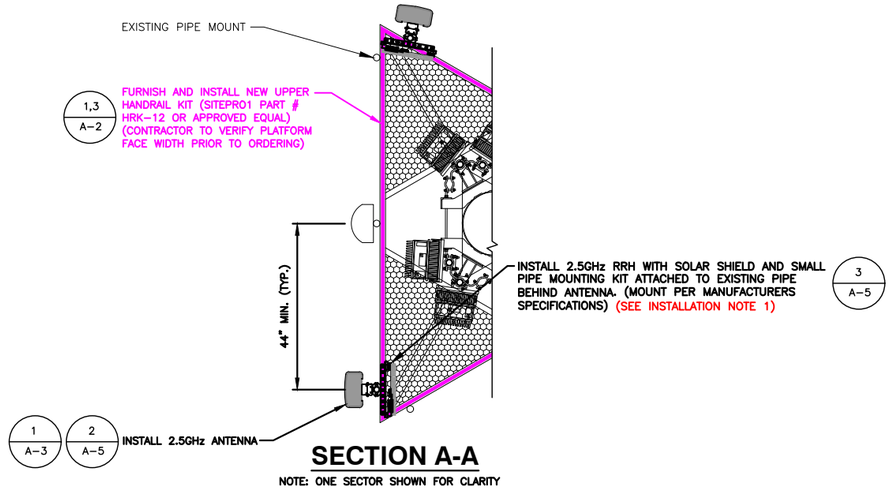


SECTION A-A

NOTE: ONE SECTOR SHOWN FOR CLARITY

SPECIAL CONSTRUCTION NOTE:
THE SPRINT NETWORK VISION 2.5 GHz TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTENCE/APPROVAL BY SBA COMMUNICATIONS CORP.

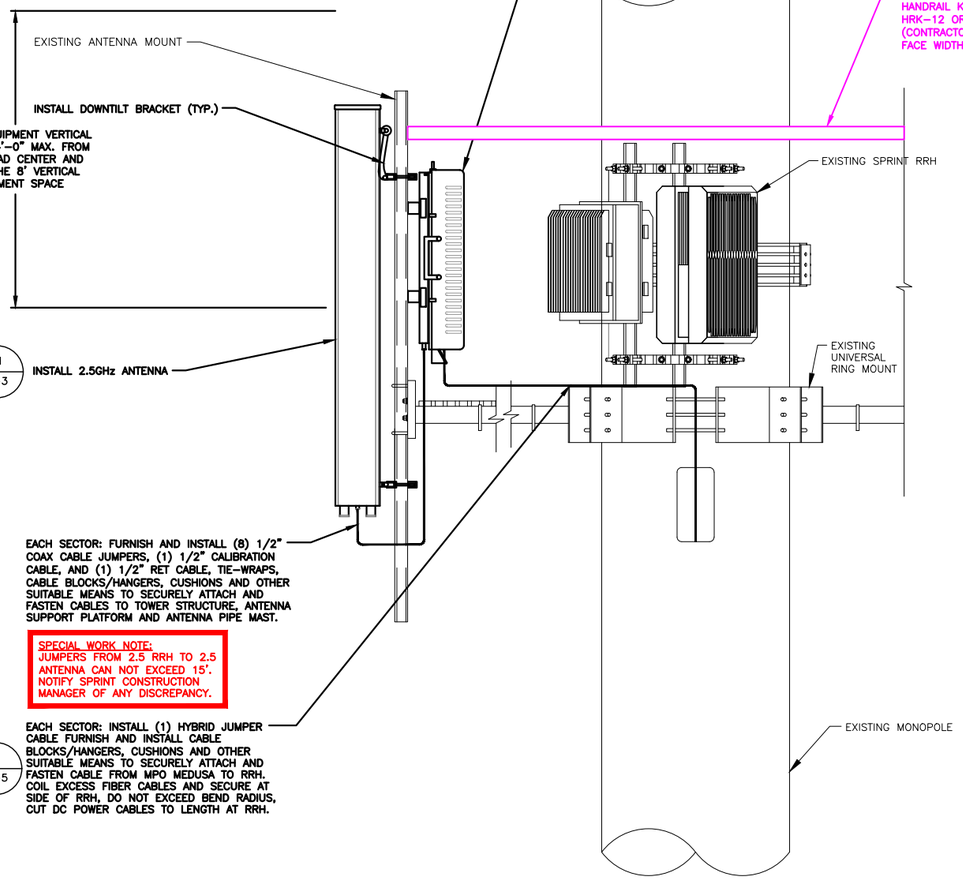
STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO MOUNT ANALYSIS PROVIDED BY HDG DATED 1/18/2018 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

INSTALLATION NOTES:

1. CONTRACTOR TO ENSURE THAT RRH MOUNTING DOES NOT INTERFERE WITH CLIMBING LADDER/PEGS, CABLE CLIMB, OR COAX PORTS. MONOPOLE: COLLAR-MOUNT RRH CLUSTER SHALL PROVIDE AN OPENING BETWEEN ADJACENT RRH AT LEAST 30" WIDE CENTERED ON THE EXISTING SAFETY-CLIMB AND 30" DEEP FROM THE FACE OF THE POLE. SELF-SUPPORT: RRH LEG-MOUNT OR FACE-MOUNT SHALL PROVIDE AN UNOBSTRUCTED VERTICAL CLIMBING PASSAGE AT LEAST 30" WIDE AND 30" DEEP CENTERED ON THE LEG WITH THE CLIMBING LADDER/PEGS.
2. CONTRACTOR TO VERIFY DIAMETER OF EXISTING MONOPOLE BEFORE ORDERING PARTS.
3. CONTRACTOR TO VERIFY IN FIELD SIZE OF EXISTING MOUNTING PIPE TO BE 2-1/2" STD (2.88 O.D.) PIPE MAST (6'-0" LONG).
4. VERIFY EXACT RRH AND ANTENNA MODEL & AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.
5. ROTATE EXISTING ANTENNA FRAME AS NEEDED TO ACCOMMODATE INSTALL ANTENNAS.
6. RRH PLACEMENT FOR REFERENCE ONLY. CONTRACTOR SHALL PLACE RRH IN CORRECT ORDER MATCHING INSTALL ANTENNA PLACEMENT AND ENSURE THAT THERE IS ENOUGH CLEARANCE FOR RRHS TO BE PLACED ON THE INSIDE ON THE ANTENNA FRAME.
7. INSTALL EQUIPMENT TO BE MOUNTED PER MANUFACTURERS SPECIFICATIONS.

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:

* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.
* SBA COMMUNICATIONS CORPORATION SHALL PROVIDE WRITTEN ACCEPTANCE/APPROVAL FOR THE COMPLETION OF ALL TOWER/FOUNDATION STRUCTURAL MODIFICATIONS INCLUDING (AS NECESSARY) CONTROLLED CONSTRUCTION INSPECTIONS, SHOP-DRAWING APPROVALS, MATERIALS TEST RESULTS, AND FINAL ENGINEER'S AFFIDAVIT.

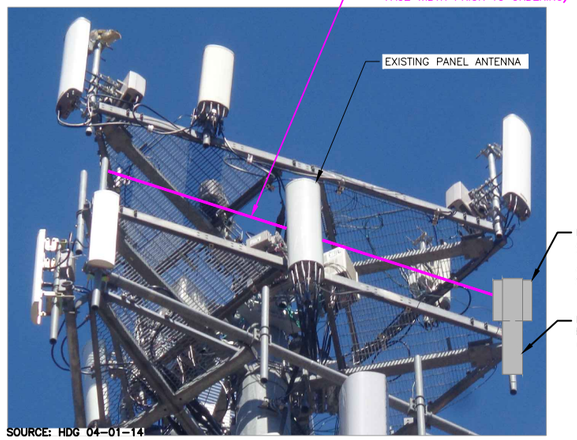


NOTE: ONE SECTOR SHOWN FOR CLARITY

2.5 ANTENNA AND RRH MOUNTING DETAIL

1 S-1

SCALE: N.T.S.

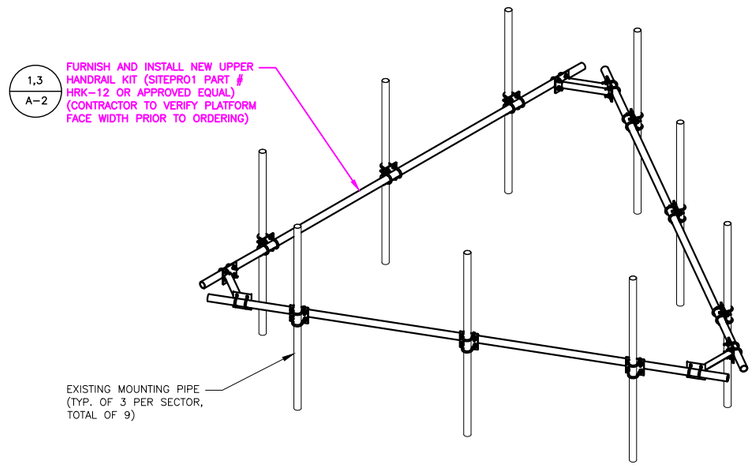


SOURCE: HDG 04-01-14

2.5 ANTENNA AND RRH PHOTO DETAIL AND EQUIPMENT SCHEMATIC

2 S-1

SCALE: N.T.S.



2.5 ANTENNA AND RRH PHOTO DETAIL AND EQUIPMENT SCHEMATIC

3 S-1

SCALE: N.T.S.

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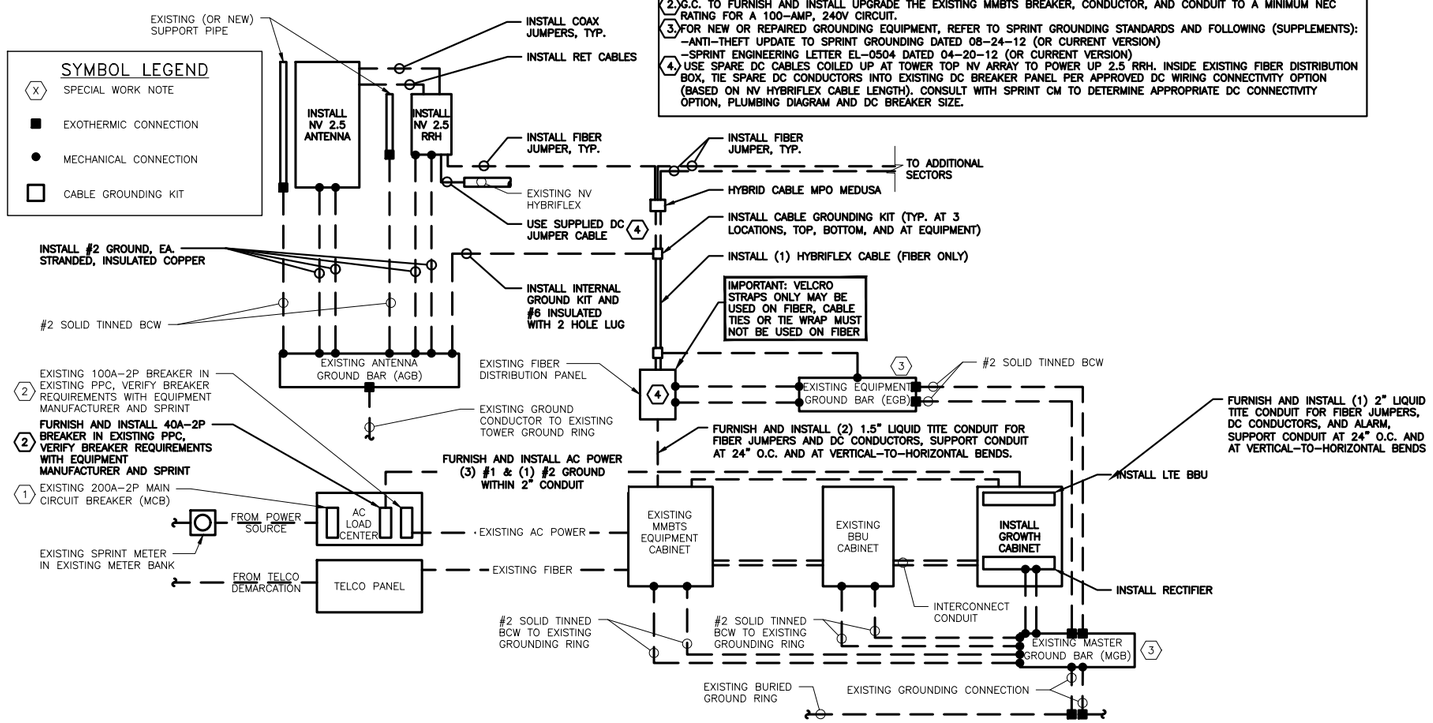


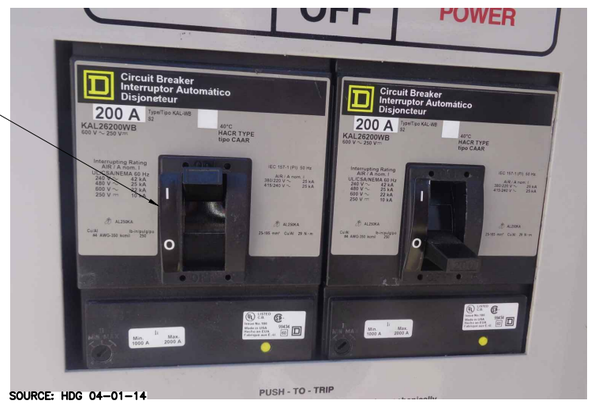
SPECIAL WORK NOTE:

1. G.C. TO FURNISH AND INSTALL ALL COMPONENTS TO UPGRADE EXISTING ELECTRICAL SERVICE, CONDUIT, CONDUCTOR, PPC AND MCB IN ACCORDANCE WITH SPRINT CONSTRUCTION STANDARDS NV 2.5 ADDENDUM "ENGINEERING NOTICE 2013–002 (POWER UPGRADES) REV.0" (OR CURRENT VERSION)
2. G.C. TO FURNISH AND INSTALL UPGRADE THE EXISTING MMBTS BREAKER, CONDUCTOR, AND CONDUIT TO A MINIMUM NEC RATING FOR A 100–AMP, 240V CIRCUIT.
3. 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)
4. 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.

TYPICAL POWER AND GROUNDING ONE LINE DIAGRAMS

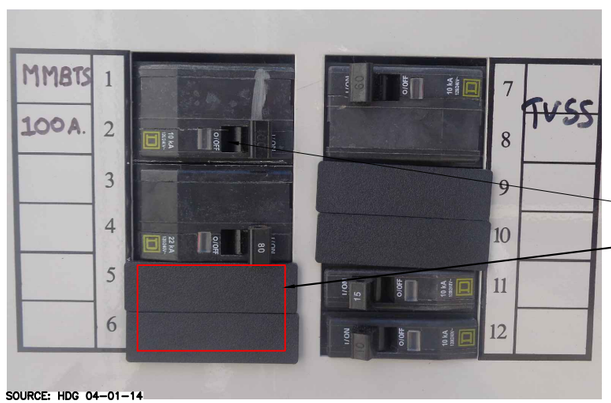
SCALE: N.T.S.

1 / E–1



1 EXISTING 200A–2P MAIN CIRCUIT BREAKER (MCB)

SOURCE: HDG 04–01–14



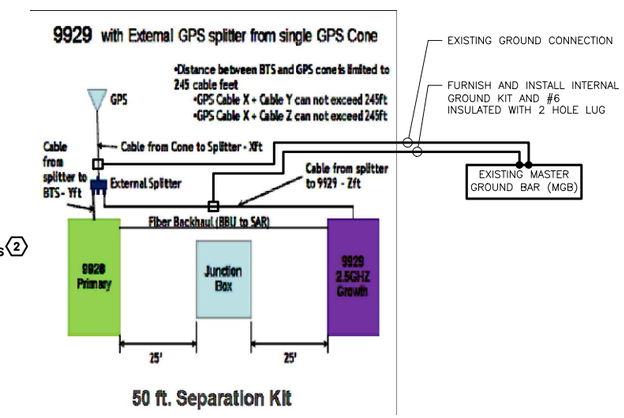
EXISTING 100A–2P MMBTS CIRCUIT BREAKER 2

FURNISH AND INSTALL 40A–2P BREAKER IN EXISTING PPC, VERIFY BREAKER REQUIREMENTS WITH EQUIPMENT MANUFACTURER AND SPRINT 2

SOURCE: HDG 04–01–14

EXISTING PPC BREAKER PANEL

SCALE: N.T.S.



GPS SPLITTER DETAIL

SCALE: N.T.S.

2 / E–1

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.

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 24951
LICENSED
PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	01/26/18	ISSUED FOR CONSTRUCTION	DJM
1	05/21/14	ISSUED FOR CONSTRUCTION	SF
0	05/09/14	ISSUED FOR CONSTRUCTION	SF

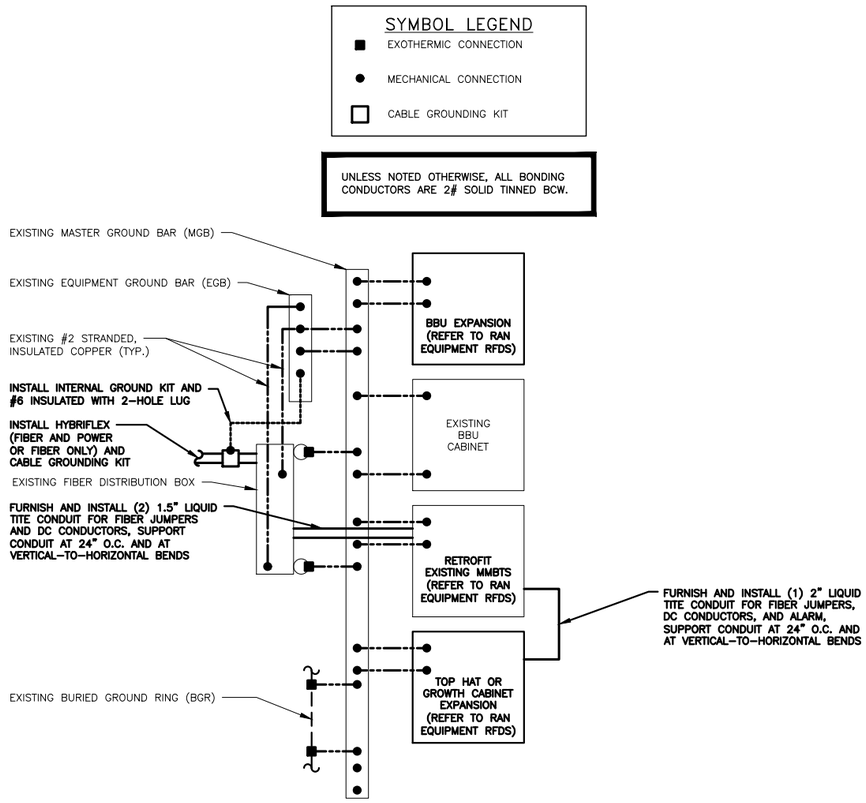
SITE NUMBER:
CT23XC314–B

SITE NAME:
SISTERS OF HOLY NAME/C.A.T.

SITE ADDRESS:
1428 MONROE TURNPIKE
MONROE, CT 06468

SHEET TITLE
ONE LINE DIAGRAM
(DO MACRO)

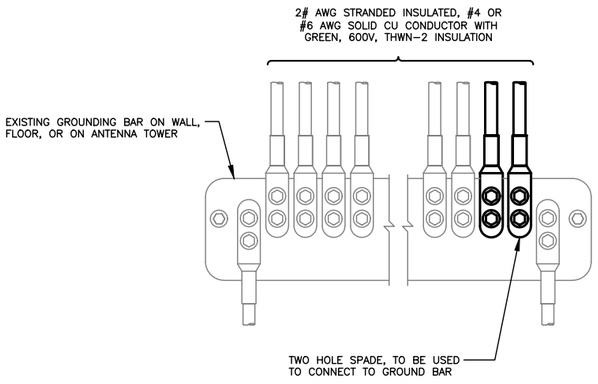
SHEET NUMBER
E–1



2.5 RAN EQUIPMENT GROUNDING SCHEMATIC

SCALE: N.T.S.

1 / E-2



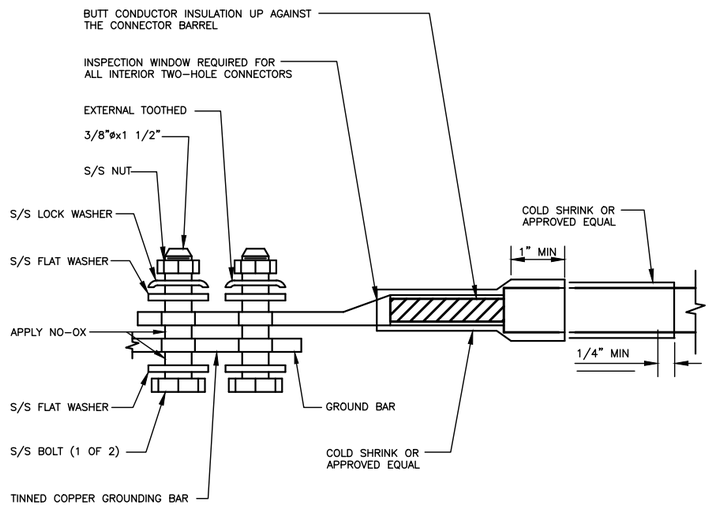
NOTES

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

SCALE: N.T.S.

2 / E-2



TWO HOLE LUG

SCALE: N.T.S.

3 / E-2

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)

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SHEET TITLE
GROUNDING DETAILS AND NOTES
(DO MACRO)

SHEET NUMBER
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