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

October 25, 2018

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

Notice of Exempt Modification
97 Chaplin Road, Eastford, CT 06242
41 51 51.8 N / -72 5 46.4 W
Sprint #: CT33XC613 _DOMU

Dear Ms. Bachman:

Sprint currently maintains antennas at the 145-foot of the existing 148-foot Monopole Tower at 97 Chaplin Rd., Eastford, CT. The tower is owned by SBA 2012 TC Assets, LLC The property is owned by Desiato Sand and Gravel. Sprint now intends to remove (6) existing cell antennas and replace with (6) newer technology cell antennas at the 145-foot level of the tower. Sprint's proposed full scope of work is as follows:

Remove:

- (6) 1-1/2" coax
- (1) ½" GPS cable

Remove and Replace:

- Remove: (6) Panel Antennas
  - Replace with:
    - (3) RFS APXVTM14-C-I20 – Panel Antennas
    - (3) Commscope NNVV-65B-R4 Panel Antennas
- Remove: T-Arm & Ring Mount
  - Replace with: Platform Mount (Site Pro F4P-10W) with Handrail Kit (Sitepro FRP-HRK10)

Install:

- (3) ALU TD-RRH 8x20-25 RRUs
- (6) ALU 800 Mhz RRHs
- (4) 1-1/4" Hybrid

Existing Equipment to Remain (Including entitlements):

- (3) ALU 1900 Mhz RRHs (to be relocated from ground level to tower at 145')

**Structural report was initially run ahead of new mount. When re-ran, some equipment that is proposed to be added was then carried as existing and proposed.*

This facility was approved by the Council under Docket #232 on January 28, 2003. Approval was given for a monopole tower not to exceed 150 feet above ground level. A D&M plan was to be produced, and updated RF reports provided upon changes to the tower. Space was to be given for public and private antennas. There do not appear to be any conditions placed on the tower beyond the aforementioned. It is SBA's opinion that this modification is in full compliance.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Eastford's First Selectman, Arthur Brodeur, and Planning Commission Chair, Effie Vinal, as well as to the property owner. 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: Arthur Brodeur, First Selectman / with attachments
Town of Eastford, 16 Westford Road, Eastford, CT 06242
Effie Vinal, Planning Commission Chair, / with attachments
Town of Eastford, 16 Westford Road, Eastford, CT 06242
Desiato Sand and Gravel / with attachments
999 Stafford Rd. Storrs Mansfield CT 06268-1803

POWER DENSITY

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	1.69 %	Antenna B1 MPE%	1.69 %	Antenna C1 MPE%	1.69 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 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%	1.16 %	Antenna B2 MPE%	1.16 %	Antenna C2 MPE%	1.16 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	2.85 %
No Additional Carriers at This Facility	NA
Site Total MPE %:	2.85 %

SPRINT Sector A Total:	2.85 %
SPRINT Sector B Total:	2.85 %
SPRINT Sector C Total:	2.85 %
Site Total:	2.85 %

SPRINT Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	145	0.70	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	941.82	145	3.50	850 MHz	567	0.61%
Sprint 1900 MHz (PCS) CDMA	5	511.82	145	4.76	1900 MHz (PCS)	1000	0.48%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	145	4.76	1900 MHz (PCS)	1000	0.48%
Sprint 2500 MHz (BRS) LTE	8	778.09	145	11.58	2500 MHz (BRS)	1000	1.16%
						Total:	2.85%

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

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97 CHAPLIN RD TOWER

Location 97 CHAPLIN RD TOWER

Mblu 35/ 25/ 6T/ /

Acct# 0026701

Owner DESIATO SAND AND GRAVEL

Assessment $64,750

Appraisal $92,500

PID 101064

Building Count 1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$92,500	$0	$92,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$64,750	$0	$64,750

Owner of Record

Owner DESIATO SAND AND GRAVEL
Co-Owner C/O SBA 2012TC ASSETS
Address 8051 CONGRESS AVENUE
BOCA RATON, FL 33487-1307

Sale Price $0
Certificate
Book & Page 27/ 002
Sale Date 01/16/1987

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
DESIATO SAND AND GRAVEL	$0		27/ 002	01/16/1987

Building Information

Building 1 : Section 1

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

Building Photo

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	

Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

(http://images.vgsi.com/photos/EastfordCTPhotos//default.jpg)

Building Layout

Building Layout
(http://images.vgsi.com/photos/EastfordCTPhotos//Sketches/101

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	1060
Description	VACANT W/ OUTBUILDINGS
Zone	
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$0
Appraised Value	$0

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
	CELL TOWER			1 UNIT	$90,000	1
SHD2	W/LIGHTS ETC			120 S.F.	$2,500	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	$92,500	$0	$92,500
2016	$92,500	$0	$92,500
2015	$92,500	$0	$92,500

Assessment			
Valuation Year	Improvements	Land	Total
2017	$64,750	$0	$64,750
2016	$64,750	$0	$64,750
2015	$64,750	$0	$64,750

97 CHAPLIN RD

Location	97 CHAPLIN RD	**Mblu**	35/ 25/ 6/ /
Acct#	00026700	**Owner**	DESIATO SAND AND GRAVEL
Assessment	$227,310	**Appraisal**	$365,800
PID	100963	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$60,400	$305,400	$365,800
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$42,280	$185,030	$227,310

Owner of Record

Owner	DESIATO SAND AND GRAVEL	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	999 STAFFORD RD STORRS, CT 06268	**Book & Page**	27/ 002
		Sale Date	01/06/1987

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
DESIATO SAND AND GRAVEL	$0		27/ 002	01/06/1987

Building Information

Building 1 : Section 1

Year Built:	1801
Living Area:	1,217
Replacement Cost:	$120,824
Building Percent Good:	50
Replacement Cost Less Depreciation:	$60,400

Building Photo

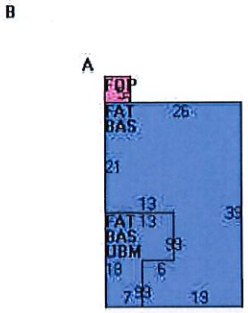
Building Attributes	
Field	**Description**
Style	Conventional
Model	Residential

Grade:	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Plastered
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	1
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	5
Bath Style:	Old Style
Kitchen Style:	Old Style

Building Photo

(http://images.vgsi.com/photos/EastfordCTPhotos//\01\00\16/74.jpg)

Building Layout



(http://images.vgsi.com/photos/EastfordCTPhotos//Sketches/10C

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,014	1,014
FAT	Attic, Finished	1,014	203
FOP	Porch, Open, Finished	25	0
UBM	Basement, Unfinished	180	0
		2,233	1,217

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	1010
Description	SINGLE FAMILY
Zone	

Land Line Valuation

Size (Acres)	47
Frontage	1580
Depth	

Neighborhood
Alt Land Appr No
Category

Assessed Value $185,030
Appraised Value $305,400

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$60,400	$305,400	$365,800
2016	$60,400	$305,400	$365,800
2015	$60,400	$305,400	$365,800

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$42,280	$185,030	$227,310
2016	$42,280	$185,030	$227,310
2015	$42,280	$185,030	$227,310

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: CT33XC613

Eastford-Desiato/SSUSA
97 Chaplin Road
Eastford, CT 06242

October 23, 2018

EBI Project Number: 6218006698

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	2.85 %

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

EBI Consulting
environmental | engineering | due diligence

October 23, 2018

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

Emissions Analysis for Site: **CT33XC613 – Eastford-Desiato/SSUSA**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **97 Chaplin Road, Eastford, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **97 Chaplin Road, Eastford, 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 for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

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

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

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

9) The antenna mounting height centerlines of the proposed panel antennas are **145 feet** above ground level (AGL) for **Sector A**, **145 feet** above ground level (AGL) for **Sector B** and **145 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**145 feet**	Height (AGL):	**145 feet**	Height (AGL):	**145 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.69 %**	Antenna B1 MPE%	**1.69 %**	Antenna C1 MPE%	**1.69 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**145 feet**	Height (AGL):	**145 feet**	Height (AGL):	**145 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%	**1.16 %**	Antenna B2 MPE%	**1.16 %**	Antenna C2 MPE%	**1.16 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.85 %**
No Additional Carriers at This Facility	NA
Site Total MPE %:	**2.85 %**

SPRINT Sector A Total:	2.85 %
SPRINT Sector B Total:	2.85 %
SPRINT Sector C Total:	2.85 %
Site Total:	2.85 %

SPRINT _ 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	376.73	145	0.70	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	941.82	145	3.50	850 MHz	567	0.61%
Sprint 1900 MHz (PCS) CDMA	5	511.82	145	4.76	1900 MHz (PCS)	1000	0.48%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	145	4.76	1900 MHz (PCS)	1000	0.48%
Sprint 2500 MHz (BRS) LTE	8	778.09	145	11.58	2500 MHz (BRS)	1000	1.16%
						Total:	**2.85%**

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:	2.85 %
Sector B:	2.85 %
Sector C:	2.85 %
SPRINT Maximum MPE % (per sector):	2.85 %
Site Total:	2.85 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **2.85 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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

Post-Mod Structural Analysis Report

Existing 148 ft EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT46145-A

Customer Site Name: Eastford-desiato/Ssusa

Carrier Name: Sprint Nextel

Carrier Site ID / Name: CT33XC613 / Eastford-desiato/Ssusa

Site Location: 97 Chaplin Road

Eastford, Connecticut

Windham County

Latitude: 41.864389

Longitude: -72.096222

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED PROFESSIONAL ENGINEER

8/24/18

Analysis Result:

Max Structural Usage: 58.2% [Pass]

Max Foundation Usage: 47% [Pass]

Report Prepared By : Vipul Patel

Introduction

The purpose of this report is to summarize the analysis results on the 148 ft EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

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

Sources of Information

Tower Drawings	EEI, Job # 11523-E01, Dated 4/24/2003
Foundation Drawing	EEI, Job # 11523-E01, Dated 4/24/2003
Geotechnical Report	Dr. Clarence Welti, Dated 3/20/2003
Existing Modification	N/A
Proposed Modification	TES Job # 56215

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} = 130.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 101.0 mph (3-Sec. Gust)
Basic Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	145.0	3	KMW ETCR-654L12H6 - Panel	(3) T-Arm & Ring Mount	(4) 1 1/4" Fiber	Sprint Nextel
2		3	ALU 1900 Mhz RRH			
3		6	ALU 800 Mhz RRH			
4		3	ALU TD-RRH8x20-25 - RRU			

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	145.0	3	RFS APXVTM14-C-I20 - Panel	Platform Mount (Sitepro F4P-10W) with Handrail Kit (Sitepro F4P-HRK10)	(4) 1 1/4" Fiber	Sprint Nextel
2		3	Commscope NNVV-65B-R4 - Panel			
3		3	ALU 1900 Mhz RRH			
4		6	ALU 800 Mhz RRH			
5		3	ALU TD-RRH8x20-25 - RRU			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**58.2%**	**44.7%**	**55%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	1891.8	18.7
Analysis Reactions	1572.2	15.5
Factored Reactions*	2553.9	25.2
% of Design Reactions	61.6%	61.7%

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

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.2910 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA/EIA 222-G standards under a basic wind speed of 101 mph no ice and 50 mph with 1" radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 56215

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed Sprint Nextel equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-322 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-322. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-322 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

Standard Conditions

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

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

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

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

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

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

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

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

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

Usage Diagram - Max Ratio 58.17% at 52.7ft

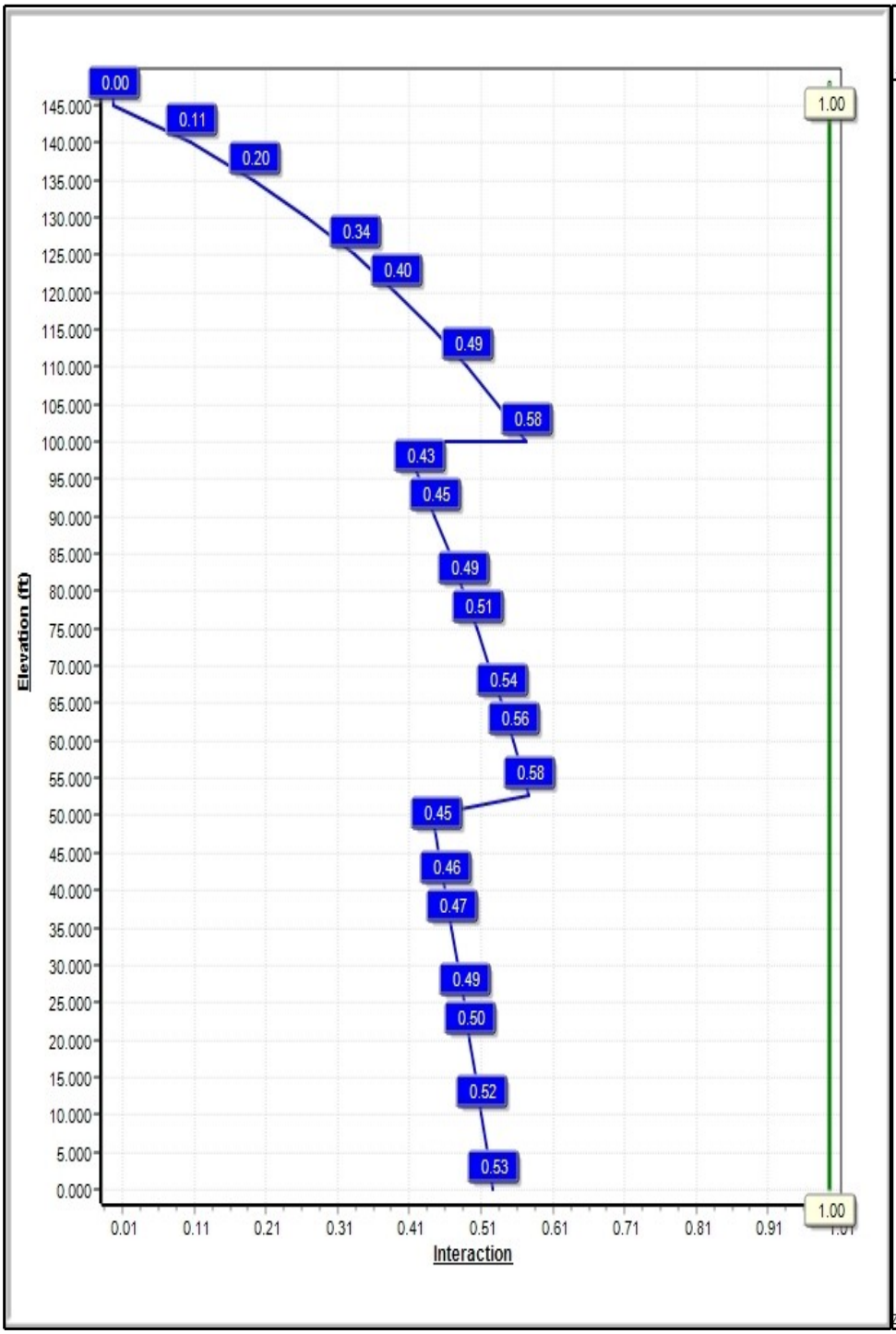
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B	
Height:	148.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

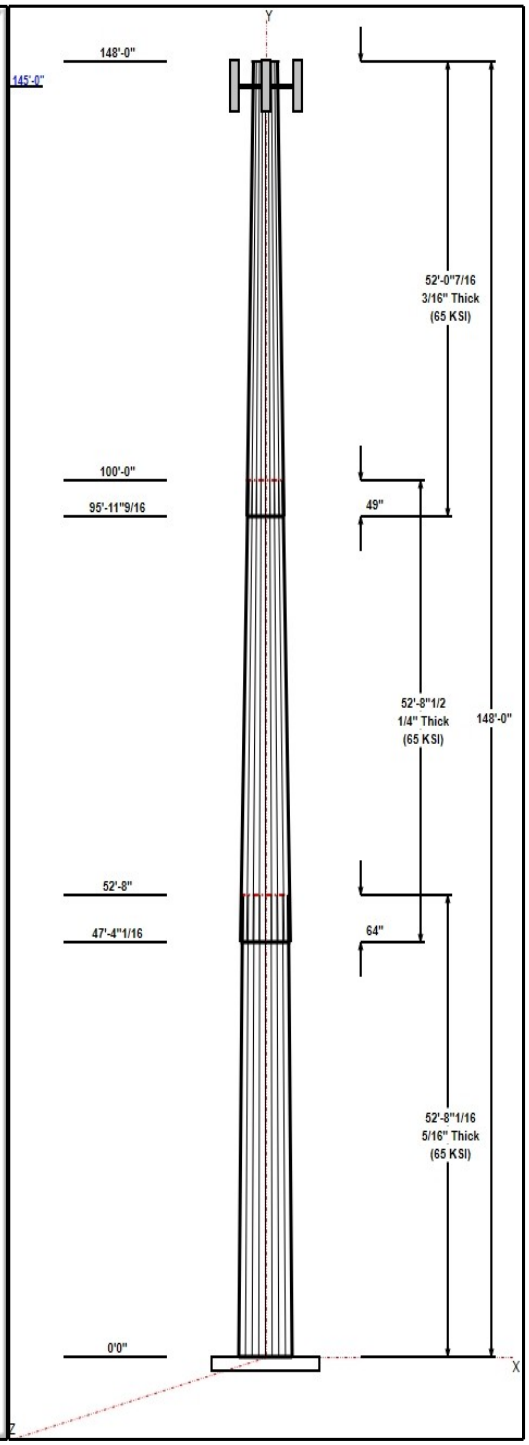
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 101 mph Wind

Iterations: 26





Structure: CT46145-A-SBA

Type:	Tapered	**Base Shape:**	18 Sided	8/24/2018
Site Name:	Eastford-desiato/Ssusa	**Taper:**	0.21706	
Height:	148.00 (ft)			
Base Elev:	0.00 (ft)			Page: 2

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	52.67	36.82	48.25	0.313		0.21706	65
2	52.71	27.03	38.48	0.250	Slip	0.21706	65
3	52.04	17.00	28.30	0.188	Slip	0.21706	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
145.00	145.00	3	APXVTM14-C-I20	Sprint Nextel
145.00	145.00	3	NNVV-65B-R4	Sprint Nextel
145.00	145.00	3	1900MHz RRH (65MHz)	Sprint Nextel
145.00	145.00	6	800 MHz RRH	Sprint Nextel
145.00	145.00	3	TD-RRH8x20-25	Sprint Nextel
145.00	145.00	1	F4P-10W	Sprint Nextel
145.00	145.00	1	F4P-HRK10	Sprint Nextel

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	145.00	Inside	1 1/4" Fiber	Sprint Nextel

Anchor Bolts

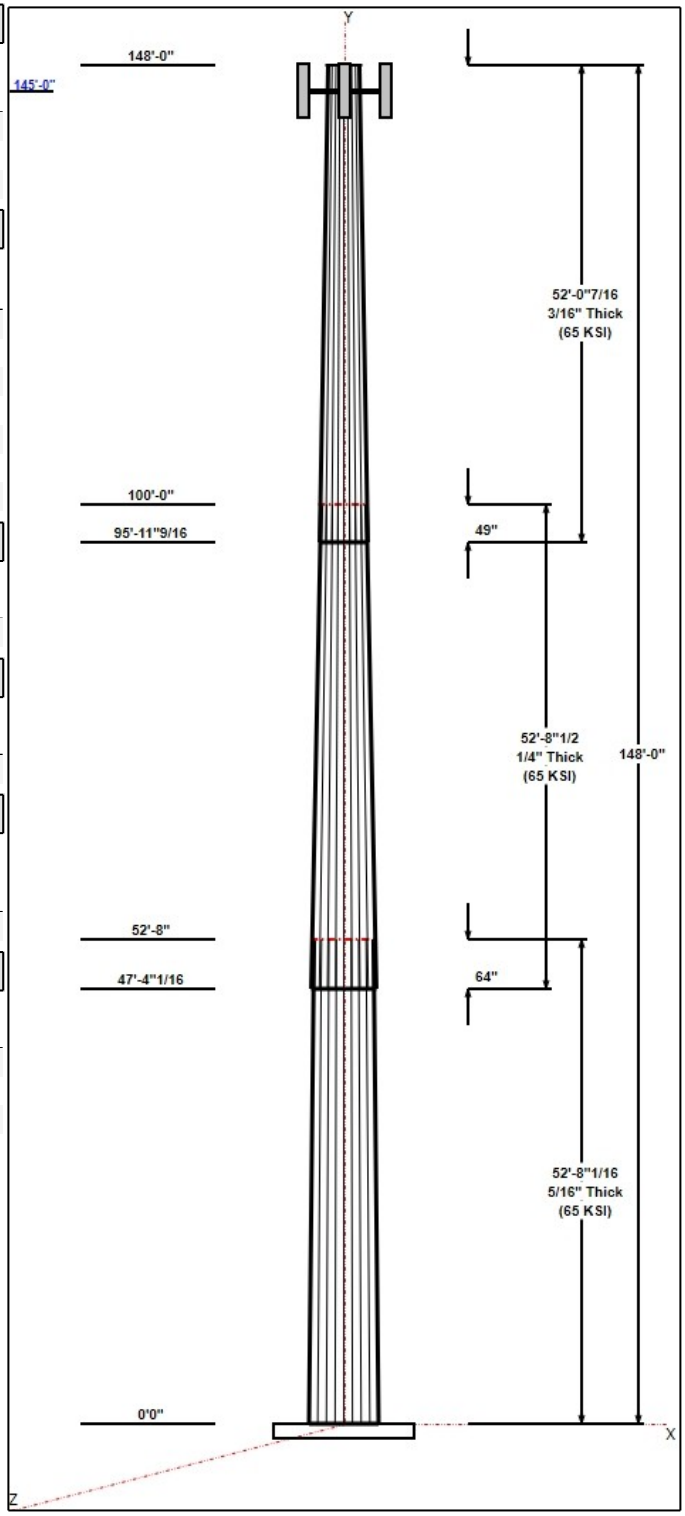
Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	63.0	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	1572.2	15.5	22.6
0.9D + 1.6W 101 mph Wind	1556.0	15.5	17.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	528.9	5.0	41.1
1.0D + 1.0W 60 mph Wind	344.7	3.4	18.9

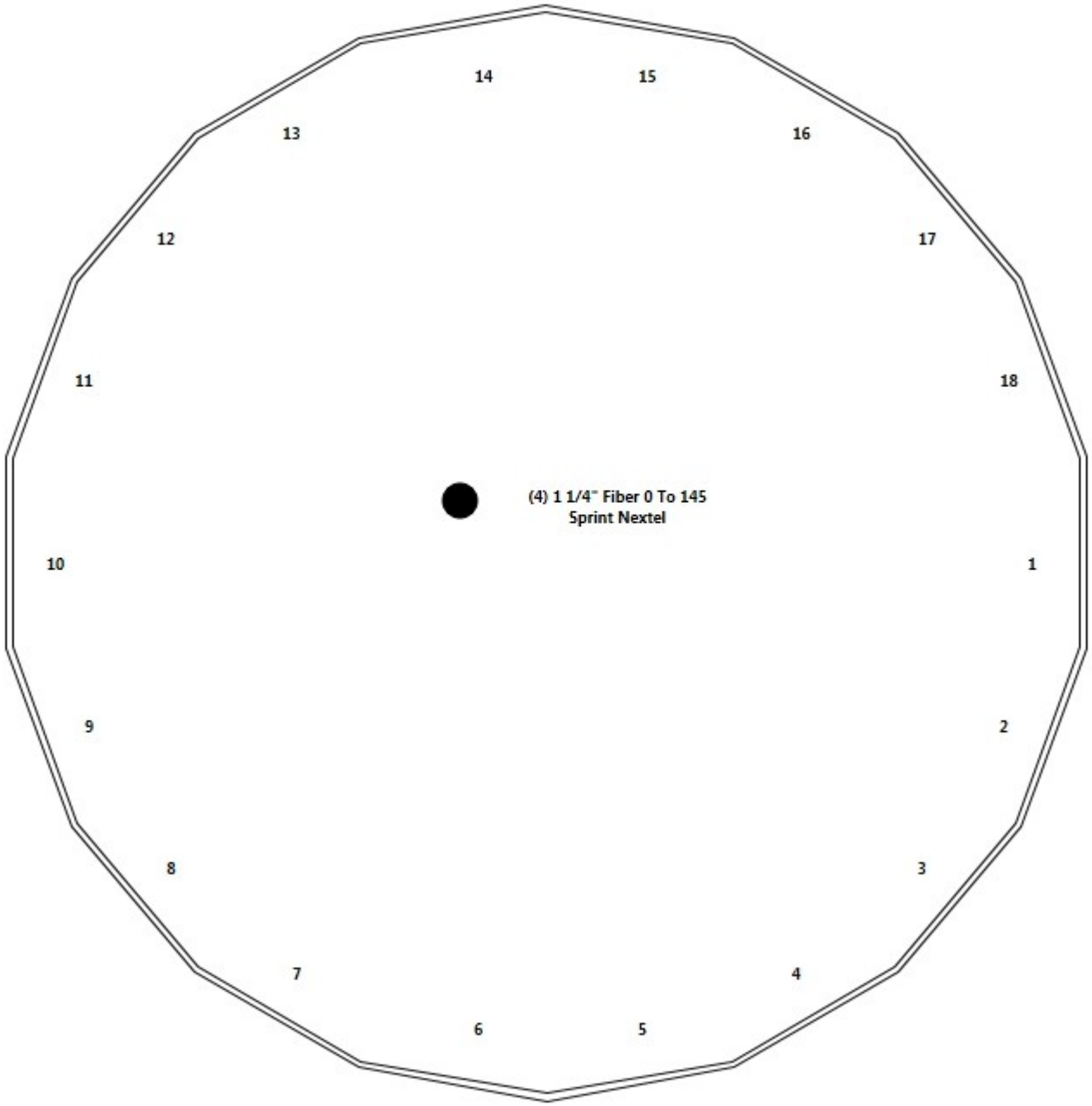


Structure: CT46145-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Eastford-desiato/Ssusa
Height: 148.00 (ft)

8/24/2018

Tower Engineering Solutions



Shaft Properties

Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 4	

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	52.670	0.3125	65		0.00	7,505
2	18	52.710	0.2500	65	Slip	64.00	4,626
3	18	52.037	0.1875	65	Slip	49.00	2,367
					Total Shaft Weight:		**14,498**

	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	48.25	0.00	47.55	13804.50	25.81	154.40	36.82	52.67	36.21	6096.04	19.36	117.8	0.217061
2	38.48	47.34	30.33	5599.24	25.73	153.90	27.03	100.05	21.25	1926.20	17.66	108.1	0.217061
3	28.30	95.96	16.73	1669.62	25.20	150.91	17.00	148.00	10.01	357.31	14.58	90.67	0.217061

Load Summary

Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (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

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	145.00	APXVTM14-C-I20	3	56.20	6.34	0.77	283.73	7.851	0.77	0.00	0.00
2	145.00	NNVV-65B-R4	3	77.40	12.27	0.74	456.86	14.205	0.74	0.00	0.00
3	145.00	1900MHz RRH (65MHz)	3	60.00	2.77	0.67	170.87	4.456	0.67	0.00	0.00
4	145.00	800 MHz RRH	6	53.00	2.49	0.50	151.28	4.010	0.50	0.00	0.00
5	145.00	TD-RRH8x20-25	3	70.00	4.05	0.67	227.05	5.158	0.67	0.00	0.00
6	145.00	F4P-10W	1	2396.00	58.98	1.00	5507.65	51.990	1.00	0.00	0.00
7	145.00	F4P-HRK10	1	478.27	9.00	1.00	1099.39	23.193	1.00	0.00	0.00
		Totals:	**20**	**3,983.07**			**10,930.26**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	145.00	(4) 1 1/4" Fiber	0.00	Inside

Shaft Section Properties

Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (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	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3125	48.250	47.546	13804.5	25.81	154.40	71.0	563.5	0.0
5.00		0.3125	47.165	46.470	12888.0	25.20	150.93	71.8	538.2	799.8
10.00		0.3125	46.079	45.393	12012.9	24.59	147.45	72.5	513.5	781.5
15.00		0.3125	44.994	44.317	11178.4	23.98	143.98	73.2	489.3	763.2
20.00		0.3125	43.909	43.241	10383.5	23.36	140.51	73.9	465.8	744.8
25.00		0.3125	42.823	42.164	9627.1	22.75	137.04	74.6	442.8	726.5
30.00		0.3125	41.738	41.088	8908.5	22.14	133.56	75.4	420.4	708.2
35.00		0.3125	40.653	40.011	8226.5	21.53	130.09	76.1	398.6	689.9
40.00		0.3125	39.568	38.935	7580.2	20.92	126.62	76.8	377.3	671.6
45.00		0.3125	38.482	37.858	6968.7	20.30	123.14	77.5	356.7	653.3
47.34	Bot - Section 2	0.3125	37.975	37.355	6694.6	20.02	121.52	77.9	347.2	299.0
50.00		0.3125	37.397	36.782	6391.0	19.69	119.67	78.2	336.6	608.7
52.67	Top - Section 1	0.2500	37.317	29.412	5105.8	24.91	149.27	0.0	0.0	600.9
55.00		0.2500	36.812	29.011	4899.6	24.55	147.25	72.5	262.2	231.6
60.00		0.2500	35.726	28.149	4476.1	23.79	142.91	73.4	246.8	486.3
65.00		0.2500	34.641	27.288	4077.7	23.02	138.56	74.3	231.9	471.6
70.00		0.2500	33.556	26.427	3703.8	22.26	134.22	75.2	217.4	457.0
75.00		0.2500	32.470	25.566	3353.3	21.49	129.88	76.1	203.4	442.3
80.00		0.2500	31.385	24.705	3025.8	20.73	125.54	77.0	189.9	427.7
85.00		0.2500	30.300	23.844	2720.3	19.96	121.20	77.9	176.8	413.0
90.00		0.2500	29.215	22.983	2436.0	19.19	116.86	78.8	164.2	398.3
95.00		0.2500	28.129	22.121	2172.3	18.43	112.52	79.7	152.1	383.7
95.96	Bot - Section 3	0.2500	27.920	21.955	2123.8	18.28	111.68	79.9	149.8	72.2
100.00		0.2500	27.044	21.260	1928.4	17.66	108.18	80.6	140.4	523.0
100.05	Top - Section 2	0.1875	27.409	16.199	1516.6	24.36	146.18	0.0	0.0	5.9
105.00		0.1875	26.334	15.560	1343.9	23.35	140.45	73.9	100.5	267.7
110.00		0.1875	25.248	14.914	1183.4	22.33	134.66	75.1	92.3	259.2
115.00		0.1875	24.163	14.268	1036.2	21.31	128.87	76.3	84.5	248.2
120.00		0.1875	23.078	13.622	901.8	20.29	123.08	77.5	77.0	237.3
125.00		0.1875	21.992	12.976	779.5	19.27	117.29	78.7	69.8	226.3
130.00		0.1875	20.907	12.330	668.8	18.25	111.50	79.9	63.0	215.3
135.00		0.1875	19.822	11.684	569.1	17.23	105.72	81.1	56.5	204.3
140.00		0.1875	18.736	11.039	479.9	16.21	99.93	82.3	50.4	193.3
145.00		0.1875	17.651	10.393	400.5	15.19	94.14	82.5	44.7	182.3
148.00		0.1875	17.000	10.005	357.3	14.58	90.67	82.5	41.4	104.1
										14498.0

Wind Loading - Shaft

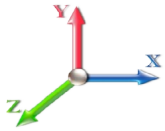
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	17.366	19.10	345.01	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	17.366	19.10	337.25	0.650	0.000	5.00	20.185	13.12	401.0	0.0	959.7
10.00		1.00	0.70	17.366	19.10	329.49	0.650	0.000	5.00	19.726	12.82	391.9	0.0	937.8
15.00		1.00	0.70	17.366	19.10	321.73	0.650	0.000	5.00	19.266	12.52	382.8	0.0	915.8
20.00		1.00	0.70	17.366	19.10	313.97	0.650	0.000	5.00	18.807	12.22	373.6	0.0	893.8
25.00		1.00	0.70	17.366	19.10	306.21	0.650	0.000	5.00	18.348	11.93	364.5	0.0	871.8
30.00		1.00	0.70	17.381	19.12	298.58	0.650	0.000	5.00	17.889	11.63	355.7	0.0	849.9
35.00		1.00	0.73	18.163	19.98	297.29	0.650	0.000	5.00	17.430	11.33	362.2	0.0	827.9
40.00		1.00	0.76	18.870	20.76	294.92	0.650	0.000	5.00	16.970	11.03	366.3	0.0	805.9
45.00		1.00	0.79	19.516	21.47	291.70	0.650	0.000	5.00	16.511	10.73	368.6	0.0	783.9
47.34	Bot - Section 2	1.00	0.80	19.800	21.78	289.95	0.650	0.000	2.34	7.559	4.91	171.2	0.0	358.8
50.00		1.00	0.81	20.112	22.12	287.77	0.650	0.000	2.66	8.606	5.59	198.0	0.0	730.5
52.67	Top - Section 1	1.00	0.82	20.413	22.45	285.43	0.650	0.000	2.67	8.497	5.52	198.4	0.0	721.1
55.00		1.00	0.83	20.667	22.73	287.15	0.650	0.000	2.33	7.308	4.75	172.8	0.0	277.9
60.00		1.00	0.85	21.187	23.31	282.17	0.650	0.000	5.00	15.345	9.97	371.9	0.0	583.5
65.00		1.00	0.87	21.678	23.85	276.75	0.650	0.000	5.00	14.886	9.68	369.2	0.0	565.9
70.00		1.00	0.89	22.142	24.36	270.93	0.650	0.000	5.00	14.427	9.38	365.4	0.0	548.3
75.00		1.00	0.91	22.582	24.84	264.76	0.650	0.000	5.00	13.968	9.08	360.8	0.0	530.8
80.00		1.00	0.93	23.003	25.30	258.28	0.650	0.000	5.00	13.508	8.78	355.5	0.0	513.2
85.00		1.00	0.94	23.404	25.74	251.52	0.650	0.000	5.00	13.049	8.48	349.4	0.0	495.6
90.00		1.00	0.96	23.790	26.17	244.50	0.650	0.000	5.00	12.590	8.18	342.6	0.0	478.0
95.00		1.00	0.97	24.160	26.58	237.24	0.650	0.000	5.00	12.131	7.89	335.3	0.0	460.4
95.96	Bot - Section 3	1.00	0.98	24.230	26.65	235.82	0.650	0.000	0.96	2.284	1.48	63.3	0.0	86.7
100.00		1.00	0.99	24.517	26.97	229.77	0.650	0.000	4.04	9.515	6.18	266.9	0.0	627.6
100.05	Top - Section 2	1.00	0.99	24.520	26.97	229.70	0.650	0.000	0.05	0.108	0.07	3.0	0.0	7.1
105.00		1.00	1.00	24.861	27.35	225.30	0.650	0.000	4.95	11.263	7.32	320.3	0.0	321.2
110.00		1.00	1.02	25.194	27.71	217.45	0.650	0.000	5.00	10.912	7.09	314.5	0.0	311.1
115.00		1.00	1.03	25.516	28.07	209.43	0.650	0.000	5.00	10.453	6.79	305.1	0.0	297.9
120.00		1.00	1.04	25.828	28.41	201.24	0.650	0.000	5.00	9.994	6.50	295.3	0.0	284.7
125.00		1.00	1.05	26.131	28.74	192.90	0.650	0.000	5.00	9.534	6.20	285.0	0.0	271.5
130.00		1.00	1.07	26.425	29.07	184.41	0.650	0.000	5.00	9.075	5.90	274.4	0.0	258.3
135.00		1.00	1.08	26.712	29.38	175.78	0.650	0.000	5.00	8.616	5.60	263.3	0.0	245.2
140.00		1.00	1.09	26.991	29.69	167.03	0.650	0.000	5.00	8.157	5.30	251.9	0.0	232.0
145.00	Appurtenance(s)	1.00	1.10	27.263	29.99	158.14	0.650	0.000	5.00	7.698	5.00	240.1	0.0	218.8
148.00		1.00	1.11	27.423	30.17	152.75	0.650	0.000	3.00	4.398	2.86	138.0	0.0	124.9
								Totals:	**148.00**			**9,978.3**		**17,397.6**

Discrete Appurtenance Forces

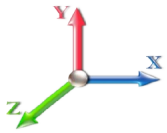
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	145.00	APXVTM14-C-I20	3	27.263	29.989	0.58	0.75	10.98	202.32	0.000	0.000	527.04	0.00	0.00
2	145.00	NNVV-65B-R4	3	27.263	29.989	0.55	0.75	20.43	278.64	0.000	0.000	980.26	0.00	0.00
3	145.00	1900MHz RRH (65MHz)	3	27.263	29.989	0.50	0.75	4.18	216.00	0.000	0.000	200.36	0.00	0.00
4	145.00	800 MHz RRH	6	27.263	29.989	0.38	0.75	5.60	381.60	0.000	0.000	268.82	0.00	0.00
5	145.00	TD-RRH8x20-25	3	27.263	29.989	0.50	0.75	6.11	252.00	0.000	0.000	292.95	0.00	0.00
6	145.00	F4P-10W	1	27.263	29.989	1.00	1.00	58.98	2875.20	0.000	0.000	2830.01	0.00	0.00
7	145.00	F4P-HRK10	1	27.263	29.989	1.00	1.00	9.00	573.92	0.000	0.000	431.84	0.00	0.00
							Totals:		**4,779.68**			**5,531.29**		

Total Applied Force Summary

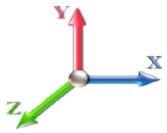
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		401.01	975.59	0.00	0.00
10.00		391.89	953.61	0.00	0.00
15.00		382.76	931.63	0.00	0.00
20.00		373.64	909.66	0.00	0.00
25.00		364.52	887.68	0.00	0.00
30.00		355.69	865.70	0.00	0.00
35.00		362.17	843.72	0.00	0.00
40.00		366.34	821.75	0.00	0.00
45.00		368.63	799.77	0.00	0.00
47.34		171.22	366.22	0.00	0.00
50.00		198.01	738.93	0.00	0.00
52.67		198.42	729.51	0.00	0.00
55.00		172.78	285.30	0.00	0.00
60.00		371.94	599.35	0.00	0.00
65.00		369.16	581.77	0.00	0.00
70.00		365.43	564.19	0.00	0.00
75.00		360.84	546.60	0.00	0.00
80.00		355.47	529.02	0.00	0.00
85.00		349.39	511.44	0.00	0.00
90.00		342.65	493.86	0.00	0.00
95.00		335.29	476.28	0.00	0.00
95.96		63.32	89.74	0.00	0.00
100.00		266.88	640.36	0.00	0.00
100.05		3.04	7.29	0.00	0.00
105.00		320.33	336.87	0.00	0.00
110.00		314.50	326.92	0.00	0.00
115.00		305.12	313.74	0.00	0.00
120.00		295.28	300.55	0.00	0.00
125.00		285.02	287.36	0.00	0.00
130.00		274.35	274.18	0.00	0.00
135.00		263.29	260.99	0.00	0.00
140.00		251.86	247.80	0.00	0.00
145.00	(20) attachments	5771.37	5014.30	0.00	0.00
148.00		137.98	124.94	0.00	0.00
	Totals:	**15,509.60**	**22,636.61**	**0.00**	**0.00**

Calculated Forces

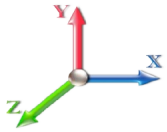
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-22.61	-15.54	0.00	-1572.2	0.00	1572.21	3039.86	1519.93	5995.78	3002.34	0.00	0.000	0.000	0.531
5.00	-21.60	-15.20	0.00	-1494.5	0.00	1494.50	3001.16	1500.58	5784.56	2896.58	0.08	-0.158	0.000	0.523
10.00	-20.60	-14.86	0.00	-1418.5	0.00	1418.51	2961.07	1480.53	5574.20	2791.24	0.34	-0.319	0.000	0.515
15.00	-19.63	-14.53	0.00	-1344.2	0.00	1344.20	2919.58	1459.79	5364.88	2686.43	0.76	-0.482	0.000	0.507
20.00	-18.69	-14.20	0.00	-1271.5	0.00	1271.56	2876.69	1438.34	5156.78	2582.22	1.35	-0.649	0.000	0.499
25.00	-17.76	-13.88	0.00	-1200.5	0.00	1200.56	2832.41	1416.20	4950.10	2478.73	2.12	-0.818	0.000	0.491
30.00	-16.86	-13.56	0.00	-1131.1	0.00	1131.17	2786.73	1393.36	4745.03	2376.04	3.07	-0.990	0.000	0.482
35.00	-15.98	-13.23	0.00	-1063.3	0.00	1063.37	2739.66	1369.83	4541.75	2274.25	4.20	-1.166	0.000	0.473
40.00	-15.13	-12.89	0.00	-997.21	0.00	997.21	2691.19	1345.59	4340.45	2173.45	5.52	-1.344	0.000	0.465
45.00	-14.31	-12.54	0.00	-932.74	0.00	932.74	2641.32	1320.66	4141.32	2073.74	7.02	-1.525	0.000	0.455
47.34	-13.93	-12.38	0.00	-903.44	0.00	903.44	2617.54	1308.77	4049.05	2027.54	7.79	-1.612	0.000	0.451
50.00	-13.17	-12.18	0.00	-870.47	0.00	870.47	2590.07	1295.03	3944.54	1975.20	8.72	-1.713	0.000	0.446
52.67	-12.43	-11.98	0.00	-837.93	0.00	837.93	1908.61	954.30	2910.23	1457.28	9.71	-1.814	0.000	0.582
55.00	-12.12	-11.84	0.00	-810.01	0.00	810.01	1893.52	946.76	2847.57	1425.90	10.61	-1.904	0.000	0.575
60.00	-11.49	-11.49	0.00	-750.83	0.00	750.83	1860.12	930.06	2713.74	1358.89	12.73	-2.131	0.000	0.559
65.00	-10.87	-11.14	0.00	-693.38	0.00	693.38	1825.33	912.66	2580.95	1292.39	15.08	-2.360	0.000	0.543
70.00	-10.28	-10.79	0.00	-637.67	0.00	637.67	1789.14	894.57	2449.37	1226.50	17.68	-2.592	0.000	0.526
75.00	-9.71	-10.45	0.00	-583.70	0.00	583.70	1751.55	875.78	2319.19	1161.32	20.52	-2.827	0.000	0.508
80.00	-9.16	-10.10	0.00	-531.46	0.00	531.46	1712.57	856.29	2190.61	1096.93	23.61	-3.063	0.000	0.490
85.00	-8.63	-9.76	0.00	-480.94	0.00	480.94	1672.20	836.10	2063.81	1033.44	26.94	-3.301	0.000	0.471
90.00	-8.12	-9.43	0.00	-432.13	0.00	432.13	1630.42	815.21	1938.98	970.93	30.52	-3.540	0.000	0.450
95.00	-7.64	-9.08	0.00	-385.00	0.00	385.00	1587.26	793.63	1816.30	909.50	34.36	-3.779	0.000	0.428
95.96	-7.53	-9.03	0.00	-376.26	0.00	376.26	1578.78	789.39	1792.93	897.80	35.12	-3.827	0.000	0.424
100.00	-6.90	-8.73	0.00	-339.82	0.00	339.82	1542.69	771.35	1695.98	849.25	38.44	-4.020	0.000	0.405
100.05	-6.87	-8.74	0.00	-339.42	0.00	339.42	1060.56	530.28	1187.41	594.59	38.48	-4.023	0.000	0.578
105.00	-6.52	-8.42	0.00	-296.13	0.00	296.13	1035.33	517.66	1113.06	557.36	42.77	-4.255	0.000	0.538
110.00	-6.18	-8.12	0.00	-254.01	0.00	254.01	1008.46	504.23	1038.86	520.20	47.38	-4.546	0.000	0.495
115.00	-5.86	-7.82	0.00	-213.43	0.00	213.43	980.21	490.10	965.69	483.57	52.29	-4.827	0.000	0.448
120.00	-5.55	-7.52	0.00	-174.35	0.00	174.35	950.55	475.28	893.76	447.54	57.49	-5.093	0.000	0.396
125.00	-5.26	-7.23	0.00	-136.75	0.00	136.75	919.50	459.75	823.24	412.23	62.95	-5.339	0.000	0.338
130.00	-4.99	-6.95	0.00	-100.59	0.00	100.59	887.06	443.53	754.32	377.72	68.65	-5.555	0.000	0.272
135.00	-4.74	-6.67	0.00	-65.85	0.00	65.85	853.21	426.61	687.20	344.11	74.56	-5.732	0.000	0.197
140.00	-4.51	-6.41	0.00	-32.48	0.00	32.48	817.98	408.99	622.06	311.49	80.63	-5.855	0.000	0.110
145.00	-0.11	-0.15	0.00	-0.45	0.00	0.45	772.13	386.06	552.49	276.66	86.79	-5.904	0.000	0.002
148.00	0.00	-0.14	0.00	0.00	0.00	0.00	743.33	371.67	511.84	256.30	90.49	-5.904	0.000	0.000

Wind Loading - Shaft

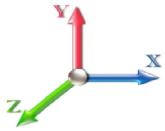
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	17.366	19.10	345.01	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	17.366	19.10	337.25	0.650	0.000	5.00	20.185	13.12	401.0	0.0	719.8
10.00		1.00	0.70	17.366	19.10	329.49	0.650	0.000	5.00	19.726	12.82	391.9	0.0	703.3
15.00		1.00	0.70	17.366	19.10	321.73	0.650	0.000	5.00	19.266	12.52	382.8	0.0	686.8
20.00		1.00	0.70	17.366	19.10	313.97	0.650	0.000	5.00	18.807	12.22	373.6	0.0	670.4
25.00		1.00	0.70	17.366	19.10	306.21	0.650	0.000	5.00	18.348	11.93	364.5	0.0	653.9
30.00		1.00	0.70	17.381	19.12	298.58	0.650	0.000	5.00	17.889	11.63	355.7	0.0	637.4
35.00		1.00	0.73	18.163	19.98	297.29	0.650	0.000	5.00	17.430	11.33	362.2	0.0	620.9
40.00		1.00	0.76	18.870	20.76	294.92	0.650	0.000	5.00	16.970	11.03	366.3	0.0	604.4
45.00		1.00	0.79	19.516	21.47	291.70	0.650	0.000	5.00	16.511	10.73	368.6	0.0	587.9
47.34	Bot - Section 2	1.00	0.80	19.800	21.78	289.95	0.650	0.000	2.34	7.559	4.91	171.2	0.0	269.1
50.00		1.00	0.81	20.112	22.12	287.77	0.650	0.000	2.66	8.606	5.59	198.0	0.0	547.9
52.67	Top - Section 1	1.00	0.82	20.413	22.45	285.43	0.650	0.000	2.67	8.497	5.52	198.4	0.0	540.8
55.00		1.00	0.83	20.667	22.73	287.15	0.650	0.000	2.33	7.308	4.75	172.8	0.0	208.4
60.00		1.00	0.85	21.187	23.31	282.17	0.650	0.000	5.00	15.345	9.97	371.9	0.0	437.6
65.00		1.00	0.87	21.678	23.85	276.75	0.650	0.000	5.00	14.886	9.68	369.2	0.0	424.4
70.00		1.00	0.89	22.142	24.36	270.93	0.650	0.000	5.00	14.427	9.38	365.4	0.0	411.3
75.00		1.00	0.91	22.582	24.84	264.76	0.650	0.000	5.00	13.968	9.08	360.8	0.0	398.1
80.00		1.00	0.93	23.003	25.30	258.28	0.650	0.000	5.00	13.508	8.78	355.5	0.0	384.9
85.00		1.00	0.94	23.404	25.74	251.52	0.650	0.000	5.00	13.049	8.48	349.4	0.0	371.7
90.00		1.00	0.96	23.790	26.17	244.50	0.650	0.000	5.00	12.590	8.18	342.6	0.0	358.5
95.00		1.00	0.97	24.160	26.58	237.24	0.650	0.000	5.00	12.131	7.89	335.3	0.0	345.3
95.96	Bot - Section 3	1.00	0.98	24.230	26.65	235.82	0.650	0.000	0.96	2.284	1.48	63.3	0.0	65.0
100.00		1.00	0.99	24.517	26.97	229.77	0.650	0.000	4.04	9.515	6.18	266.9	0.0	470.7
100.05	Top - Section 2	1.00	0.99	24.520	26.97	229.70	0.650	0.000	0.05	0.108	0.07	3.0	0.0	5.4
105.00		1.00	1.00	24.861	27.35	225.30	0.650	0.000	4.95	11.263	7.32	320.3	0.0	240.9
110.00		1.00	1.02	25.194	27.71	217.45	0.650	0.000	5.00	10.912	7.09	314.5	0.0	233.3
115.00		1.00	1.03	25.516	28.07	209.43	0.650	0.000	5.00	10.453	6.79	305.1	0.0	223.4
120.00		1.00	1.04	25.828	28.41	201.24	0.650	0.000	5.00	9.994	6.50	295.3	0.0	213.5
125.00		1.00	1.05	26.131	28.74	192.90	0.650	0.000	5.00	9.534	6.20	285.0	0.0	203.6
130.00		1.00	1.07	26.425	29.07	184.41	0.650	0.000	5.00	9.075	5.90	274.4	0.0	193.8
135.00		1.00	1.08	26.712	29.38	175.78	0.650	0.000	5.00	8.616	5.60	263.3	0.0	183.9
140.00		1.00	1.09	26.991	29.69	167.03	0.650	0.000	5.00	8.157	5.30	251.9	0.0	174.0
145.00	Appurtenance(s)	1.00	1.10	27.263	29.99	158.14	0.650	0.000	5.00	7.698	5.00	240.1	0.0	164.1
148.00		1.00	1.11	27.423	30.17	152.75	0.650	0.000	3.00	4.398	2.86	138.0	0.0	93.7
								Totals:	**148.00**			**9,978.3**		**13,048.2**

Discrete Appurtenance Forces

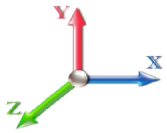
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	145.00	APXVTM14-C-I20	3	27.263	29.989	0.58	0.75	10.98	151.74	0.000	0.000	527.04	0.00	0.00
2	145.00	NNVV-65B-R4	3	27.263	29.989	0.55	0.75	20.43	208.98	0.000	0.000	980.26	0.00	0.00
3	145.00	1900MHz RRH (65MHz)	3	27.263	29.989	0.50	0.75	4.18	162.00	0.000	0.000	200.36	0.00	0.00
4	145.00	800 MHz RRH	6	27.263	29.989	0.38	0.75	5.60	286.20	0.000	0.000	268.82	0.00	0.00
5	145.00	TD-RRH8x20-25	3	27.263	29.989	0.50	0.75	6.11	189.00	0.000	0.000	292.95	0.00	0.00
6	145.00	F4P-10W	1	27.263	29.989	1.00	1.00	58.98	2156.40	0.000	0.000	2830.01	0.00	0.00
7	145.00	F4P-HRK10	1	27.263	29.989	1.00	1.00	9.00	430.44	0.000	0.000	431.84	0.00	0.00
							Totals:		**3,584.76**			**5,531.29**		

Total Applied Force Summary

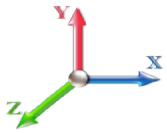
Structure:	CT46145-A-SBA		**Code:**	EIA/TIA-222-G	8/24/2018
Site Name:	Eastford-desiato/Ssusa		**Exposure:**	B	
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		401.01	731.69	0.00	0.00
10.00		391.89	715.21	0.00	0.00
15.00		382.76	698.72	0.00	0.00
20.00		373.64	682.24	0.00	0.00
25.00		364.52	665.76	0.00	0.00
30.00		355.69	649.28	0.00	0.00
35.00		362.17	632.79	0.00	0.00
40.00		366.34	616.31	0.00	0.00
45.00		368.63	599.83	0.00	0.00
47.34		171.22	274.67	0.00	0.00
50.00		198.01	554.19	0.00	0.00
52.67		198.42	547.13	0.00	0.00
55.00		172.78	213.98	0.00	0.00
60.00		371.94	449.51	0.00	0.00
65.00		369.16	436.33	0.00	0.00
70.00		365.43	423.14	0.00	0.00
75.00		360.84	409.95	0.00	0.00
80.00		355.47	396.77	0.00	0.00
85.00		349.39	383.58	0.00	0.00
90.00		342.65	370.39	0.00	0.00
95.00		335.29	357.21	0.00	0.00
95.96		63.32	67.31	0.00	0.00
100.00		266.88	480.27	0.00	0.00
100.05		3.04	5.46	0.00	0.00
105.00		320.33	252.66	0.00	0.00
110.00		314.50	245.19	0.00	0.00
115.00		305.12	235.30	0.00	0.00
120.00		295.28	225.41	0.00	0.00
125.00		285.02	215.52	0.00	0.00
130.00		274.35	205.63	0.00	0.00
135.00		263.29	195.74	0.00	0.00
140.00		251.86	185.85	0.00	0.00
145.00	(20) attachments	5771.37	3760.73	0.00	0.00
148.00		137.98	93.70	0.00	0.00
	Totals:	**15,509.60**	**16,977.46**	**0.00**	**0.00**

Calculated Forces

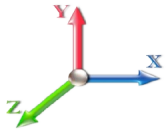
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-16.96	-15.53	0.00	-1555.9	0.00	1555.98	3039.86	1519.93	5995.78	3002.34	0.00	0.000	0.000	0.524
5.00	-16.18	-15.18	0.00	-1478.3	0.00	1478.31	3001.16	1500.58	5784.56	2896.58	0.08	-0.156	0.000	0.516
10.00	-15.43	-14.82	0.00	-1402.4	0.00	1402.44	2961.07	1480.53	5574.20	2791.24	0.33	-0.315	0.000	0.508
15.00	-14.69	-14.48	0.00	-1328.3	0.00	1328.32	2919.58	1459.79	5364.88	2686.43	0.75	-0.477	0.000	0.500
20.00	-13.97	-14.14	0.00	-1255.9	0.00	1255.93	2876.69	1438.34	5156.78	2582.22	1.34	-0.641	0.000	0.491
25.00	-13.27	-13.80	0.00	-1185.2	0.00	1185.24	2832.41	1416.20	4950.10	2478.73	2.10	-0.809	0.000	0.483
30.00	-12.59	-13.48	0.00	-1116.2	0.00	1116.22	2786.73	1393.36	4745.03	2376.04	3.04	-0.979	0.000	0.474
35.00	-11.92	-13.14	0.00	-1048.8	0.00	1048.83	2739.66	1369.83	4541.75	2274.25	4.15	-1.152	0.000	0.466
40.00	-11.27	-12.79	0.00	-983.14	0.00	983.14	2691.19	1345.59	4340.45	2173.45	5.45	-1.327	0.000	0.457
45.00	-10.65	-12.44	0.00	-919.17	0.00	919.17	2641.32	1320.66	4141.32	2073.74	6.94	-1.506	0.000	0.447
47.34	-10.36	-12.27	0.00	-890.11	0.00	890.11	2617.54	1308.77	4049.05	2027.54	7.70	-1.592	0.000	0.443
50.00	-9.79	-12.08	0.00	-857.42	0.00	857.42	2590.07	1295.03	3944.54	1975.20	8.62	-1.691	0.000	0.438
52.67	-9.23	-11.88	0.00	-825.18	0.00	825.18	1908.61	954.30	2910.23	1457.28	9.59	-1.791	0.000	0.571
55.00	-8.99	-11.72	0.00	-797.51	0.00	797.51	1893.52	946.76	2847.57	1425.90	10.49	-1.879	0.000	0.564
60.00	-8.51	-11.37	0.00	-738.90	0.00	738.90	1860.12	930.06	2713.74	1358.89	12.57	-2.102	0.000	0.548
65.00	-8.05	-11.01	0.00	-682.06	0.00	682.06	1825.33	912.66	2580.95	1292.39	14.90	-2.328	0.000	0.532
70.00	-7.60	-10.66	0.00	-626.98	0.00	626.98	1789.14	894.57	2449.37	1226.50	17.46	-2.556	0.000	0.516
75.00	-7.16	-10.31	0.00	-573.67	0.00	573.67	1751.55	875.78	2319.19	1161.32	20.26	-2.787	0.000	0.498
80.00	-6.74	-9.96	0.00	-522.12	0.00	522.12	1712.57	856.29	2190.61	1096.93	23.30	-3.019	0.000	0.480
85.00	-6.34	-9.62	0.00	-472.30	0.00	472.30	1672.20	836.10	2063.81	1033.44	26.58	-3.253	0.000	0.461
90.00	-5.95	-9.28	0.00	-424.20	0.00	424.20	1630.42	815.21	1938.98	970.93	30.12	-3.487	0.000	0.441
95.00	-5.60	-8.94	0.00	-377.80	0.00	377.80	1587.26	793.63	1816.30	909.50	33.89	-3.722	0.000	0.419
95.96	-5.52	-8.88	0.00	-369.19	0.00	369.19	1578.78	789.39	1792.93	897.80	34.65	-3.769	0.000	0.415
100.00	-5.04	-8.59	0.00	-333.34	0.00	333.34	1542.69	771.35	1695.98	849.25	37.91	-3.959	0.000	0.396
100.05	-5.02	-8.60	0.00	-332.94	0.00	332.94	1060.56	530.28	1187.41	594.59	37.95	-3.961	0.000	0.565
105.00	-4.75	-8.28	0.00	-290.35	0.00	290.35	1035.33	517.66	1113.06	557.36	42.18	-4.189	0.000	0.526
110.00	-4.49	-7.97	0.00	-248.95	0.00	248.95	1008.46	504.23	1038.86	520.20	46.72	-4.474	0.000	0.483
115.00	-4.24	-7.67	0.00	-209.09	0.00	209.09	980.21	490.10	965.69	483.57	51.55	-4.750	0.000	0.437
120.00	-4.01	-7.37	0.00	-170.75	0.00	170.75	950.55	475.28	893.76	447.54	56.66	-5.010	0.000	0.386
125.00	-3.80	-7.08	0.00	-133.89	0.00	133.89	919.50	459.75	823.24	412.23	62.03	-5.251	0.000	0.329
130.00	-3.59	-6.80	0.00	-98.46	0.00	98.46	887.06	443.53	754.32	377.72	67.64	-5.463	0.000	0.265
135.00	-3.41	-6.53	0.00	-64.44	0.00	64.44	853.21	426.61	687.20	344.11	73.45	-5.636	0.000	0.191
140.00	-3.24	-6.27	0.00	-31.78	0.00	31.78	817.98	408.99	622.06	311.49	79.42	-5.756	0.000	0.106
145.00	-0.08	-0.15	0.00	-0.44	0.00	0.44	772.13	386.06	552.49	276.66	85.47	-5.804	0.000	0.002
148.00	0.00	-0.14	0.00	0.00	0.00	0.00	743.33	371.67	511.84	256.30	89.11	-5.804	0.000	0.000

Wind Loading - Shaft

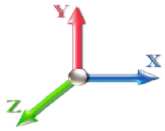
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 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	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.656	5.00	21.565	25.88	121.1	506.4	1466.1
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.775	5.00	21.205	25.45	119.1	532.0	1469.7
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.848	5.00	20.807	24.97	116.9	542.3	1458.0
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.902	5.00	20.392	24.47	114.6	545.8	1439.6
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.945	5.00	19.969	23.96	112.2	545.4	1417.2
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.981	5.00	19.540	23.45	109.9	542.4	1392.2
35.00		1.00	0.73	4.451	4.90	0.00	1.200	2.012	5.00	19.106	22.93	112.3	537.5	1365.4
40.00		1.00	0.76	4.625	5.09	0.00	1.200	2.039	5.00	18.669	22.40	114.0	531.2	1337.1
45.00		1.00	0.79	4.783	5.26	0.00	1.200	2.063	5.00	18.230	21.88	115.1	523.8	1307.7
47.34	Bot - Section 2	1.00	0.80	4.852	5.34	0.00	1.200	2.073	2.34	8.366	10.04	53.6	243.0	601.8
50.00		1.00	0.81	4.929	5.42	0.00	1.200	2.085	2.66	9.531	11.44	62.0	278.0	1008.5
52.67	Top - Section 1	1.00	0.82	5.003	5.50	0.00	1.200	2.096	2.67	9.429	11.32	62.3	276.2	997.2
55.00		1.00	0.83	5.065	5.57	0.00	1.200	2.105	2.33	8.125	9.75	54.3	239.0	516.9
60.00		1.00	0.85	5.193	5.71	0.00	1.200	2.123	5.00	17.115	20.54	117.3	503.2	1086.7
65.00		1.00	0.87	5.313	5.84	0.00	1.200	2.140	5.00	16.670	20.00	116.9	492.9	1058.8
70.00		1.00	0.89	5.426	5.97	0.00	1.200	2.156	5.00	16.224	19.47	116.2	482.1	1030.4
75.00		1.00	0.91	5.534	6.09	0.00	1.200	2.171	5.00	15.777	18.93	115.3	470.9	1001.6
80.00		1.00	0.93	5.637	6.20	0.00	1.200	2.185	5.00	15.329	18.40	114.1	459.2	972.4
85.00		1.00	0.94	5.736	6.31	0.00	1.200	2.198	5.00	14.881	17.86	112.7	447.3	942.9
90.00		1.00	0.96	5.830	6.41	0.00	1.200	2.211	5.00	14.433	17.32	111.1	435.0	913.0
95.00		1.00	0.97	5.921	6.51	0.00	1.200	2.223	5.00	13.983	16.78	109.3	422.4	882.8
95.96	Bot - Section 3	1.00	0.98	5.938	6.53	0.00	1.200	2.225	0.96	2.642	3.17	20.7	80.9	167.6
100.00		1.00	0.99	6.008	6.61	0.00	1.200	2.234	4.04	11.019	13.22	87.4	334.8	962.4
100.05	Top - Section 2	1.00	0.99	6.009	6.61	0.00	1.200	2.235	0.05	0.126	0.15	1.0	3.9	11.0
105.00		1.00	1.00	6.093	6.70	0.00	1.200	2.245	4.95	13.117	15.74	105.5	397.9	719.1
110.00		1.00	1.02	6.174	6.79	0.00	1.200	2.256	5.00	12.792	15.35	104.3	388.3	699.4
115.00		1.00	1.03	6.253	6.88	0.00	1.200	2.266	5.00	12.341	14.81	101.9	374.8	672.7
120.00		1.00	1.04	6.330	6.96	0.00	1.200	2.276	5.00	11.890	14.27	99.3	361.1	645.8
125.00		1.00	1.05	6.404	7.04	0.00	1.200	2.285	5.00	11.439	13.73	96.7	347.1	618.6
130.00		1.00	1.07	6.476	7.12	0.00	1.200	2.294	5.00	10.987	13.18	93.9	333.0	591.4
135.00		1.00	1.08	6.546	7.20	0.00	1.200	2.303	5.00	10.535	12.64	91.0	318.7	563.9
140.00		1.00	1.09	6.615	7.28	0.00	1.200	2.311	5.00	10.083	12.10	88.0	304.3	536.3
145.00	Appurtenance(s)	1.00	1.10	6.681	7.35	0.00	1.200	2.319	5.00	9.630	11.56	84.9	289.7	508.5
148.00		1.00	1.11	6.721	7.39	0.00	1.200	2.324	3.00	5.560	6.67	49.3	168.5	293.5
								Totals:	**148.00**			**3,204.1**		**30,656.4**

Discrete Appurtenance Forces

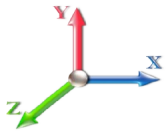
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 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	145.00	APXVTM14-C-I20	3	6.681	7.350	0.58	0.75	13.60	884.92	0.000	0.000	99.96	0.00	0.00
2	145.00	NNVV-65B-R4	3	6.681	7.350	0.55	0.75	23.65	1219.61	0.000	0.000	173.83	0.00	0.00
3	145.00	1900MHz RRH (65MHz)	3	6.681	7.350	0.50	0.75	6.72	476.91	0.000	0.000	49.37	0.00	0.00
4	145.00	800 MHz RRH	6	6.681	7.350	0.38	0.75	9.02	844.68	0.000	0.000	66.31	0.00	0.00
5	145.00	TD-RRH8x20-25	3	6.681	7.350	0.50	0.75	7.78	723.16	0.000	0.000	57.15	0.00	0.00
6	145.00	F4P-10W	1	6.681	7.350	1.00	1.00	151.99	5295.85	0.000	0.000	1117.06	0.00	0.00
7	145.00	F4P-HRK10	1	6.681	7.350	1.00	1.00	23.19	573.92	0.000	0.000	170.46	0.00	0.00
							Totals:		**10,019.05**			**1,734.12**		

Total Applied Force Summary

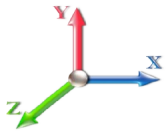
Structure:	CT46145-A-SBA		**Code:**	EIA/TIA-222-G	8/24/2018
Site Name:	Eastford-desiato/Ssusa		**Exposure:**	B	
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

Tower Engineering Solutions

Load Case: 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		121.15	1481.99	0.00	0.00
10.00		119.13	1485.58	0.00	0.00
15.00		116.89	1473.89	0.00	0.00
20.00		114.56	1455.43	0.00	0.00
25.00		112.18	1433.05	0.00	0.00
30.00		109.86	1408.08	0.00	0.00
35.00		112.26	1381.22	0.00	0.00
40.00		113.96	1352.94	0.00	0.00
45.00		115.09	1323.54	0.00	0.00
47.34		53.59	609.22	0.00	0.00
50.00		62.01	1016.95	0.00	0.00
52.67		62.27	1005.70	0.00	0.00
55.00		54.32	524.31	0.00	0.00
60.00		117.30	1102.53	0.00	0.00
65.00		116.90	1074.66	0.00	0.00
70.00		116.21	1046.29	0.00	0.00
75.00		115.26	1017.48	0.00	0.00
80.00		114.07	988.27	0.00	0.00
85.00		112.67	958.71	0.00	0.00
90.00		111.07	928.83	0.00	0.00
95.00		109.29	898.65	0.00	0.00
95.96		20.71	170.65	0.00	0.00
100.00		87.39	975.21	0.00	0.00
100.05		1.00	11.16	0.00	0.00
105.00		105.49	734.79	0.00	0.00
110.00		104.26	715.26	0.00	0.00
115.00		101.87	688.53	0.00	0.00
120.00		99.34	661.61	0.00	0.00
125.00		96.69	634.49	0.00	0.00
130.00		93.92	607.19	0.00	0.00
135.00		91.03	579.73	0.00	0.00
140.00		88.04	552.10	0.00	0.00
145.00	(20) attachments	1819.05	10543.38	0.00	0.00
148.00		49.33	293.47	0.00	0.00
	Totals:	**4,938.18**	**41,134.86**	**0.00**	**0.00**

Calculated Forces

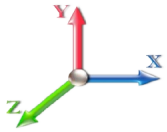
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 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	-41.13	-4.96	0.00	-528.88	0.00	528.88	3039.86	1519.93	5995.78	3002.34	0.00	0.000	0.000	0.190
5.00	-39.65	-4.87	0.00	-504.09	0.00	504.09	3001.16	1500.58	5784.56	2896.58	0.03	-0.053	0.000	0.187
10.00	-38.16	-4.79	0.00	-479.73	0.00	479.73	2961.07	1480.53	5574.20	2791.24	0.11	-0.108	0.000	0.185
15.00	-36.68	-4.70	0.00	-455.79	0.00	455.79	2919.58	1459.79	5364.88	2686.43	0.26	-0.163	0.000	0.182
20.00	-35.22	-4.62	0.00	-432.28	0.00	432.28	2876.69	1438.34	5156.78	2582.22	0.46	-0.219	0.000	0.180
25.00	-33.78	-4.53	0.00	-409.18	0.00	409.18	2832.41	1416.20	4950.10	2478.73	0.72	-0.277	0.000	0.177
30.00	-32.37	-4.45	0.00	-386.51	0.00	386.51	2786.73	1393.36	4745.03	2376.04	1.04	-0.336	0.000	0.174
35.00	-30.98	-4.36	0.00	-364.25	0.00	364.25	2739.66	1369.83	4541.75	2274.25	1.42	-0.396	0.000	0.171
40.00	-29.63	-4.27	0.00	-342.44	0.00	342.44	2691.19	1345.59	4340.45	2173.45	1.87	-0.457	0.000	0.169
45.00	-28.30	-4.17	0.00	-321.09	0.00	321.09	2641.32	1320.66	4141.32	2073.74	2.38	-0.519	0.000	0.166
47.34	-27.69	-4.12	0.00	-311.35	0.00	311.35	2617.54	1308.77	4049.05	2027.54	2.64	-0.549	0.000	0.164
50.00	-26.67	-4.07	0.00	-300.37	0.00	300.37	2590.07	1295.03	3944.54	1975.20	2.96	-0.584	0.000	0.162
52.67	-25.66	-4.01	0.00	-289.51	0.00	289.51	1908.61	954.30	2910.23	1457.28	3.30	-0.619	0.000	0.212
55.00	-25.14	-3.97	0.00	-280.17	0.00	280.17	1893.52	946.76	2847.57	1425.90	3.61	-0.650	0.000	0.210
60.00	-24.03	-3.88	0.00	-260.31	0.00	260.31	1860.12	930.06	2713.74	1358.89	4.33	-0.728	0.000	0.204
65.00	-22.95	-3.78	0.00	-240.93	0.00	240.93	1825.33	912.66	2580.95	1292.39	5.13	-0.808	0.000	0.199
70.00	-21.90	-3.68	0.00	-222.04	0.00	222.04	1789.14	894.57	2449.37	1226.50	6.02	-0.889	0.000	0.193
75.00	-20.88	-3.57	0.00	-203.66	0.00	203.66	1751.55	875.78	2319.19	1161.32	7.00	-0.971	0.000	0.187
80.00	-19.89	-3.47	0.00	-185.79	0.00	185.79	1712.57	856.29	2190.61	1096.93	8.06	-1.053	0.000	0.181
85.00	-18.93	-3.37	0.00	-168.43	0.00	168.43	1672.20	836.10	2063.81	1033.44	9.21	-1.136	0.000	0.174
90.00	-18.00	-3.26	0.00	-151.59	0.00	151.59	1630.42	815.21	1938.98	970.93	10.44	-1.220	0.000	0.167
95.00	-17.10	-3.15	0.00	-135.27	0.00	135.27	1587.26	793.63	1816.30	909.50	11.77	-1.304	0.000	0.160
95.96	-16.93	-3.14	0.00	-132.23	0.00	132.23	1578.78	789.39	1792.93	897.80	12.03	-1.321	0.000	0.158
100.00	-15.95	-3.04	0.00	-119.56	0.00	119.56	1542.69	771.35	1695.98	849.25	13.18	-1.389	0.000	0.151
100.05	-15.94	-3.05	0.00	-119.42	0.00	119.42	1060.56	530.28	1187.41	594.59	13.19	-1.390	0.000	0.216
105.00	-15.20	-2.95	0.00	-104.33	0.00	104.33	1035.33	517.66	1113.06	557.36	14.68	-1.471	0.000	0.202
110.00	-14.49	-2.85	0.00	-89.58	0.00	89.58	1008.46	504.23	1038.86	520.20	16.27	-1.574	0.000	0.187
115.00	-13.80	-2.75	0.00	-75.33	0.00	75.33	980.21	490.10	965.69	483.57	17.97	-1.673	0.000	0.170
120.00	-13.13	-2.65	0.00	-61.56	0.00	61.56	950.55	475.28	893.76	447.54	19.78	-1.767	0.000	0.151
125.00	-12.50	-2.56	0.00	-48.29	0.00	48.29	919.50	459.75	823.24	412.23	21.68	-1.854	0.000	0.131
130.00	-11.89	-2.46	0.00	-35.51	0.00	35.51	887.06	443.53	754.32	377.72	23.66	-1.930	0.000	0.107
135.00	-11.31	-2.36	0.00	-23.23	0.00	23.23	853.21	426.61	687.20	344.11	25.72	-1.993	0.000	0.081
140.00	-10.76	-2.25	0.00	-11.45	0.00	11.45	817.98	408.99	622.06	311.49	27.83	-2.036	0.000	0.050
145.00	-0.29	-0.06	0.00	-0.18	0.00	0.18	772.13	386.06	552.49	276.66	29.97	-2.053	0.000	0.001
148.00	0.00	-0.05	0.00	0.00	0.00	0.00	743.33	371.67	511.84	256.30	31.26	-2.054	0.000	0.000

Wind Loading - Shaft

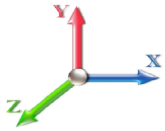
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 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	0.70	6.129	6.74	204.96	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	200.35	0.650	0.000	5.00	20.185	13.12	88.4	0.0	799.8
10.00		1.00	0.70	6.129	6.74	195.74	0.650	0.000	5.00	19.726	12.82	86.4	0.0	781.5
15.00		1.00	0.70	6.129	6.74	191.13	0.650	0.000	5.00	19.266	12.52	84.4	0.0	763.2
20.00		1.00	0.70	6.129	6.74	186.52	0.650	0.000	5.00	18.807	12.22	82.4	0.0	744.8
25.00		1.00	0.70	6.129	6.74	181.91	0.650	0.000	5.00	18.348	11.93	80.4	0.0	726.5
30.00		1.00	0.70	6.134	6.75	177.37	0.650	0.000	5.00	17.889	11.63	78.5	0.0	708.2
35.00		1.00	0.73	6.410	7.05	176.61	0.650	0.000	5.00	17.430	11.33	79.9	0.0	689.9
40.00		1.00	0.76	6.659	7.33	175.20	0.650	0.000	5.00	16.970	11.03	80.8	0.0	671.6
45.00		1.00	0.79	6.887	7.58	173.29	0.650	0.000	5.00	16.511	10.73	81.3	0.0	653.3
47.34	Bot - Section 2	1.00	0.80	6.988	7.69	172.24	0.650	0.000	2.34	7.559	4.91	37.8	0.0	299.0
50.00		1.00	0.81	7.098	7.81	170.95	0.650	0.000	2.66	8.606	5.59	43.7	0.0	608.7
52.67	Top - Section 1	1.00	0.82	7.204	7.92	169.56	0.650	0.000	2.67	8.497	5.52	43.8	0.0	600.9
55.00		1.00	0.83	7.294	8.02	170.59	0.650	0.000	2.33	7.308	4.75	38.1	0.0	231.6
60.00		1.00	0.85	7.477	8.22	167.63	0.650	0.000	5.00	15.345	9.97	82.0	0.0	486.3
65.00		1.00	0.87	7.650	8.42	164.40	0.650	0.000	5.00	14.886	9.68	81.4	0.0	471.6
70.00		1.00	0.89	7.814	8.60	160.95	0.650	0.000	5.00	14.427	9.38	80.6	0.0	457.0
75.00		1.00	0.91	7.969	8.77	157.29	0.650	0.000	5.00	13.968	9.08	79.6	0.0	442.3
80.00		1.00	0.93	8.118	8.93	153.44	0.650	0.000	5.00	13.508	8.78	78.4	0.0	427.7
85.00		1.00	0.94	8.260	9.09	149.42	0.650	0.000	5.00	13.049	8.48	77.1	0.0	413.0
90.00		1.00	0.96	8.396	9.24	145.25	0.650	0.000	5.00	12.590	8.18	75.6	0.0	398.3
95.00		1.00	0.97	8.526	9.38	140.94	0.650	0.000	5.00	12.131	7.89	74.0	0.0	383.7
95.96	Bot - Section 3	1.00	0.98	8.551	9.41	140.09	0.650	0.000	0.96	2.284	1.48	14.0	0.0	72.2
100.00		1.00	0.99	8.652	9.52	136.50	0.650	0.000	4.04	9.515	6.18	58.9	0.0	523.0
100.05	Top - Section 2	1.00	0.99	8.653	9.52	136.45	0.650	0.000	0.05	0.108	0.07	0.7	0.0	5.9
105.00		1.00	1.00	8.774	9.65	133.84	0.650	0.000	4.95	11.263	7.32	70.7	0.0	267.7
110.00		1.00	1.02	8.891	9.78	129.18	0.650	0.000	5.00	10.912	7.09	69.4	0.0	259.2
115.00		1.00	1.03	9.005	9.91	124.41	0.650	0.000	5.00	10.453	6.79	67.3	0.0	248.2
120.00		1.00	1.04	9.115	10.03	119.55	0.650	0.000	5.00	9.994	6.50	65.1	0.0	237.3
125.00		1.00	1.05	9.222	10.14	114.59	0.650	0.000	5.00	9.534	6.20	62.9	0.0	226.3
130.00		1.00	1.07	9.326	10.26	109.55	0.650	0.000	5.00	9.075	5.90	60.5	0.0	215.3
135.00		1.00	1.08	9.427	10.37	104.43	0.650	0.000	5.00	8.616	5.60	58.1	0.0	204.3
140.00		1.00	1.09	9.525	10.48	99.22	0.650	0.000	5.00	8.157	5.30	55.6	0.0	193.3
145.00	Appurtenance(s)	1.00	1.10	9.621	10.58	93.95	0.650	0.000	5.00	7.698	5.00	53.0	0.0	182.3
148.00		1.00	1.11	9.678	10.65	90.74	0.650	0.000	3.00	4.398	2.86	30.4	0.0	104.1
								Totals:	**148.00**			**2,200.9**		**14,498.0**

Discrete Appurtenance Forces

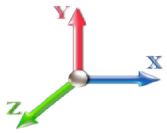
Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 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	145.00	APXVTM14-C-I20	3	9.621	10.583	0.58	0.75	10.98	168.60	0.000	0.000	116.25	0.00	0.00
2	145.00	NNVV-65B-R4	3	9.621	10.583	0.55	0.75	20.43	232.20	0.000	0.000	216.21	0.00	0.00
3	145.00	1900MHz RRH (65MHz)	3	9.621	10.583	0.50	0.75	4.18	180.00	0.000	0.000	44.19	0.00	0.00
4	145.00	800 MHz RRH	6	9.621	10.583	0.38	0.75	5.60	318.00	0.000	0.000	59.29	0.00	0.00
5	145.00	TD-RRH8x20-25	3	9.621	10.583	0.50	0.75	6.11	210.00	0.000	0.000	64.62	0.00	0.00
6	145.00	F4P-10W	1	9.621	10.583	1.00	1.00	58.98	2396.00	0.000	0.000	624.20	0.00	0.00
7	145.00	F4P-HRK10	1	9.621	10.583	1.00	1.00	9.00	478.27	0.000	0.000	95.25	0.00	0.00
							Totals:		**3,983.07**			**1,220.02**		

Total Applied Force Summary

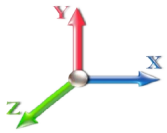
Structure:	CT46145-A-SBA		**Code:**	EIA/TIA-222-G	8/24/2018
Site Name:	Eastford-desiato/Ssusa		**Exposure:**	B	
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Tower Engineering Solutions

Load Case: 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		88.45	812.99	0.00	0.00
10.00		86.44	794.68	0.00	0.00
15.00		84.42	776.36	0.00	0.00
20.00		82.41	758.05	0.00	0.00
25.00		80.40	739.73	0.00	0.00
30.00		78.45	721.42	0.00	0.00
35.00		79.88	703.10	0.00	0.00
40.00		80.80	684.79	0.00	0.00
45.00		81.31	666.47	0.00	0.00
47.34		37.76	305.19	0.00	0.00
50.00		43.67	615.77	0.00	0.00
52.67		43.76	607.92	0.00	0.00
55.00		38.11	237.75	0.00	0.00
60.00		82.04	499.46	0.00	0.00
65.00		81.42	484.81	0.00	0.00
70.00		80.60	470.15	0.00	0.00
75.00		79.59	455.50	0.00	0.00
80.00		78.41	440.85	0.00	0.00
85.00		77.06	426.20	0.00	0.00
90.00		75.58	411.55	0.00	0.00
95.00		73.95	396.90	0.00	0.00
95.96		13.97	74.79	0.00	0.00
100.00		58.86	533.64	0.00	0.00
100.05		0.67	6.07	0.00	0.00
105.00		70.65	280.73	0.00	0.00
110.00		69.37	272.44	0.00	0.00
115.00		67.30	261.45	0.00	0.00
120.00		65.13	250.46	0.00	0.00
125.00		62.87	239.47	0.00	0.00
130.00		60.51	228.48	0.00	0.00
135.00		58.07	217.49	0.00	0.00
140.00		55.55	206.50	0.00	0.00
145.00	(20) attachments	1272.97	4178.58	0.00	0.00
148.00		30.43	104.11	0.00	0.00
	Totals:	**3,420.90**	**18,863.85**	**0.00**	**0.00**

Calculated Forces

Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (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	

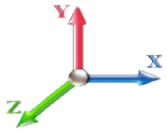
Tower Engineering Solutions

Load Case: 1.0D + 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	-18.86	-3.43	0.00	-344.73	0.00	344.73	3039.86	1519.93	5995.78	3002.34	0.00	0.000	0.000	0.121
5.00	-18.05	-3.35	0.00	-327.60	0.00	327.60	3001.16	1500.58	5784.56	2896.58	0.02	-0.035	0.000	0.119
10.00	-17.25	-3.27	0.00	-310.86	0.00	310.86	2961.07	1480.53	5574.20	2791.24	0.07	-0.070	0.000	0.117
15.00	-16.47	-3.20	0.00	-294.50	0.00	294.50	2919.58	1459.79	5364.88	2686.43	0.17	-0.106	0.000	0.115
20.00	-15.71	-3.12	0.00	-278.52	0.00	278.52	2876.69	1438.34	5156.78	2582.22	0.30	-0.142	0.000	0.113
25.00	-14.97	-3.05	0.00	-262.91	0.00	262.91	2832.41	1416.20	4950.10	2478.73	0.47	-0.179	0.000	0.111
30.00	-14.25	-2.98	0.00	-247.66	0.00	247.66	2786.73	1393.36	4745.03	2376.04	0.67	-0.217	0.000	0.109
35.00	-13.54	-2.90	0.00	-232.77	0.00	232.77	2739.66	1369.83	4541.75	2274.25	0.92	-0.255	0.000	0.107
40.00	-12.86	-2.83	0.00	-218.24	0.00	218.24	2691.19	1345.59	4340.45	2173.45	1.21	-0.294	0.000	0.105
45.00	-12.19	-2.75	0.00	-204.09	0.00	204.09	2641.32	1320.66	4141.32	2073.74	1.54	-0.334	0.000	0.103
47.34	-11.88	-2.72	0.00	-197.67	0.00	197.67	2617.54	1308.77	4049.05	2027.54	1.71	-0.353	0.000	0.102
50.00	-11.27	-2.67	0.00	-190.44	0.00	190.44	2590.07	1295.03	3944.54	1975.20	1.91	-0.375	0.000	0.101
52.67	-10.66	-2.63	0.00	-183.30	0.00	183.30	1908.61	954.30	2910.23	1457.28	2.13	-0.397	0.000	0.131
55.00	-10.42	-2.59	0.00	-177.18	0.00	177.18	1893.52	946.76	2847.57	1425.90	2.33	-0.417	0.000	0.130
60.00	-9.92	-2.52	0.00	-164.20	0.00	164.20	1860.12	930.06	2713.74	1358.89	2.79	-0.466	0.000	0.126
65.00	-9.43	-2.44	0.00	-151.62	0.00	151.62	1825.33	912.66	2580.95	1292.39	3.30	-0.517	0.000	0.122
70.00	-8.96	-2.36	0.00	-139.41	0.00	139.41	1789.14	894.57	2449.37	1226.50	3.87	-0.567	0.000	0.119
75.00	-8.50	-2.29	0.00	-127.60	0.00	127.60	1751.55	875.78	2319.19	1161.32	4.49	-0.619	0.000	0.115
80.00	-8.06	-2.21	0.00	-116.17	0.00	116.17	1712.57	856.29	2190.61	1096.93	5.17	-0.670	0.000	0.111
85.00	-7.64	-2.14	0.00	-105.11	0.00	105.11	1672.20	836.10	2063.81	1033.44	5.90	-0.722	0.000	0.106
90.00	-7.22	-2.06	0.00	-94.44	0.00	94.44	1630.42	815.21	1938.98	970.93	6.68	-0.775	0.000	0.102
95.00	-6.83	-1.99	0.00	-84.13	0.00	84.13	1587.26	793.63	1816.30	909.50	7.52	-0.827	0.000	0.097
95.96	-6.75	-1.97	0.00	-82.22	0.00	82.22	1578.78	789.39	1792.93	897.80	7.69	-0.837	0.000	0.096
100.00	-6.22	-1.91	0.00	-74.26	0.00	74.26	1542.69	771.35	1695.98	849.25	8.42	-0.880	0.000	0.091
100.05	-6.21	-1.91	0.00	-74.17	0.00	74.17	1060.56	530.28	1187.41	594.59	8.43	-0.880	0.000	0.131
105.00	-5.93	-1.84	0.00	-64.70	0.00	64.70	1035.33	517.66	1113.06	557.36	9.37	-0.931	0.000	0.122
110.00	-5.66	-1.77	0.00	-55.49	0.00	55.49	1008.46	504.23	1038.86	520.20	10.38	-0.994	0.000	0.112
115.00	-5.39	-1.71	0.00	-46.62	0.00	46.62	980.21	490.10	965.69	483.57	11.45	-1.056	0.000	0.102
120.00	-5.14	-1.64	0.00	-38.09	0.00	38.09	950.55	475.28	893.76	447.54	12.59	-1.114	0.000	0.091
125.00	-4.90	-1.58	0.00	-29.87	0.00	29.87	919.50	459.75	823.24	412.23	13.78	-1.168	0.000	0.078
130.00	-4.68	-1.52	0.00	-21.97	0.00	21.97	887.06	443.53	754.32	377.72	15.03	-1.215	0.000	0.063
135.00	-4.46	-1.46	0.00	-14.38	0.00	14.38	853.21	426.61	687.20	344.11	16.33	-1.254	0.000	0.047
140.00	-4.25	-1.40	0.00	-7.09	0.00	7.09	817.98	408.99	622.06	311.49	17.66	-1.280	0.000	0.028
145.00	-0.10	-0.03	0.00	-0.10	0.00	0.10	772.13	386.06	552.49	276.66	19.01	-1.291	0.000	0.000
148.00	0.00	-0.03	0.00	0.00	0.00	0.00	743.33	371.67	511.84	256.30	19.82	-1.291	0.000	0.000

Final Analysis Summary

Structure:	CT46145-A-SBA	**Code:**	EIA/TIA-222-G	8/24/2018	
Site Name:	Eastford-desiato/Ssusa	**Exposure:**	B		
Height:	148.00 (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	

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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 101 mph Wind	15.5	0.00	22.61	0.00	0.00	1572.21
0.9D + 1.6W 101 mph Wind	15.5	0.00	16.96	0.00	0.00	1555.98
1.2D + 1.0Di + 1.0Wi 50 mph Wind	5.0	0.00	41.13	0.00	0.00	528.88
1.0D + 1.0W 60 mph Wind	3.4	0.00	18.86	0.00	0.00	344.73

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 101 mph Wind	-12.43	-11.98	0.00	-837.93	0.00	-837.93	1908.61	954.30	2910.23	1457.28	52.67	0.582
0.9D + 1.6W 101 mph Wind	-9.23	-11.88	0.00	-825.18	0.00	-825.18	1908.61	954.30	2910.23	1457.28	52.67	0.571
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-15.94	-3.05	0.00	-119.42	0.00	-119.42	1060.56	530.28	1187.41	594.59	100.05	0.216
1.0D + 1.0W 60 mph Wind	-10.66	-2.63	0.00	-183.30	0.00	-183.30	1908.61	954.30	2910.23	1457.28	52.67	0.131

Monopole Mat Foundation Design

			Date: 8/24/2018
Customer Name:	Sprint Nextel	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	148
Site Number:	CT46145-A-SBA	**Engineer Name:**	V. Patel
Engr. Number:	56215	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

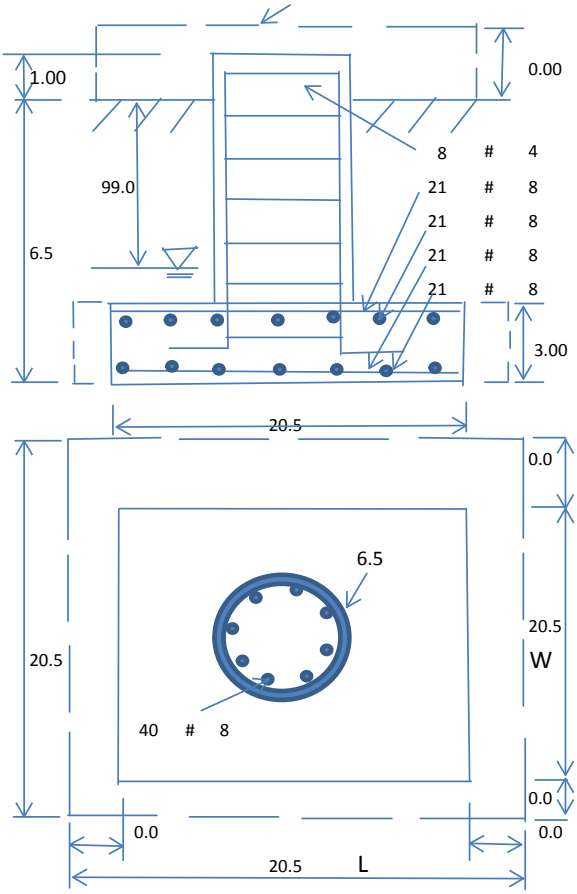
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	22.6	Shear Force (Kips):	15.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	1572.2
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	6.5	Depth of Base BG (ft.):	6.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	20.5	Width of Pad (ft.):	20.5
Final Length of pad (ft)	20.5	Final width of pad (ft):	20.5
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	40	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	21	Qty. of Rebar in Pad (W):	21	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	21	Qty. of Rebar in Pad (W):	21	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	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.):	1354.73	Total Dry Soil Weight (Kips):	149.07
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	149.07	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1410.07	Total Dry Concrete Weight (Kips):	211.51
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	211.51	Total Vertical Load on Base (Kips):	383.19

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2165	<	Allowable Factored Soil Bearing (psf): 9000	0.24	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3558.1	>	Design Factored Momont (kips-ft): 1688	0.47	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.11	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		

(1) Concrete Pier:

					Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	4817.8	>	Design Factored Moment (Mu, Kips-Ft	1642.0	0.34	OK!
Calculated Shear Capacity (Kips):	517.4	>	Design Factored Shear (Kips):	15.5	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	1706.4	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	6294.2	>	Design Factored Axial Load (Pu Kips):	22.6	0.00	OK!
Moment & Axial Strength Combination:	0.34	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI				

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	656.9	>	One-Way Factored Shear (L-D. Kips):	117.6	0.18	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	656.9	>	One-Way Factored Shear (W-D., Kips)	117.6	0.18	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	720.7	>	One-Way Factored Shear (C-C, Kips):	108.9	0.15	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0021	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0021		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2367.1	>	Moment at Bottom (L-Direct. K-Ft):	252.3	0.11	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2367.1	>	Moment at Bottom (W-Direct. K-Ft):	252.3	0.11	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3323.3	>	Moment at Bottom (C-C Dir. K-Ft):	356.8	0.11	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0021	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0021		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	2367.1	>	Moment at the top (L-Dir Kips-Ft):	100.9	0.04	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	2367.1	>	Moment at the top (W-Dir Kips-Ft):	100.9	0.04	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	3323.3	>	Moment at the top (C-C Direc. K-Ft):	187.9	0.06	OK!

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 148' EEI MONOPOLE TOWER

PROPOSED CARRIER: SPRINT NEXTEL

SITE: CT46145-A-SBA / EASTFORD-DESIATO/SSUSA

COORDINATES (LATITUDE: 41.864389°, LONGITUDE: -72.096222°)

CONSTRUCTION CLASS

TES HAS DETERMINED THIS AS A CLASS **I** CONSTRUCTION PROJECT PER ANSI/ASSE A10.48

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

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-2	TOWER PROFILE	0
A-2	18 SIDED MONOPOLE BASE PLATE ADDED STIFFENER MODIFICATION DETAILS	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. 53616, DATED 07/05/18.

Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

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

TES JOB NO: 56215

CUSTOMER SITE NO: CT46145-A-SBA

CUSTOMER SITE NAME: EASTFORD-DESIATO/SSUSA

97 CHAPLIN ROAD
EASTFORD, CT 06242

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED PROFESSIONAL ENGINEER

8/23/18

DRAWN BY: JRL | CHECKED BY: VP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	08/22/18

SHEET TITLE: TITLE SHEET

SHEET NUMBER: T-1 | REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE						
			Following Items are Non-standard Parts						
12	12	SP1-18-6	PL 1" X 6" X 1'-6" A572-50	---	A-2	F-1	20	240.0	GALVANIZED
2	2	---	LANCO /HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV (GALLON)						PROVIDED BY CONTRACTOR
			ALL LPXXXX and RLPXXXX PARTS ARE AVAILABLE FROM METROSITE, LLC. 180 IND PARK BLVD COMMERCE, GA 30529 OFFICE: (706) 335-7045 FAX: (706) 335-7056						
			NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.						
						TOTAL WEIGHT (LBS) =		**240.0**	

Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA

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

TES JOB NO:
56215

CUSTOMER SITE NO:
CT46145-A-SBA
CUSTOMER SITE NAME:
EASTFORD-DESIATO/SSUSA
97 CHAPLIN ROAD
EASTFORD, CT 06242

DRAWN BY: JRL | CHECKED BY: VP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	08/22/18

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, ANSI/ASSE A10.48, 2016 CONNECTICUT STATE BUILDING CODE, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER TIA-1019-A, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

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

WELDING

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

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2012 SECTION 1705 – TABLE 1705.2.2 FOR STEEL CONSTRUCTION AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

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

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

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

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

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

[d] BEVELED WASHER NOT USED.

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

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

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

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

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

TES JOB NO:
56215

CUSTOMER SITE NO:
CT46145-A-SBA
CUSTOMER SITE NAME:
EASTFORD-DESIATO/SSUSA
97 CHAPLIN ROAD
EASTFORD, CT 06242

DRAWN BY: JRL | CHECKED BY: VP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	08/22/18

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1
REV #: 0

NOTES:

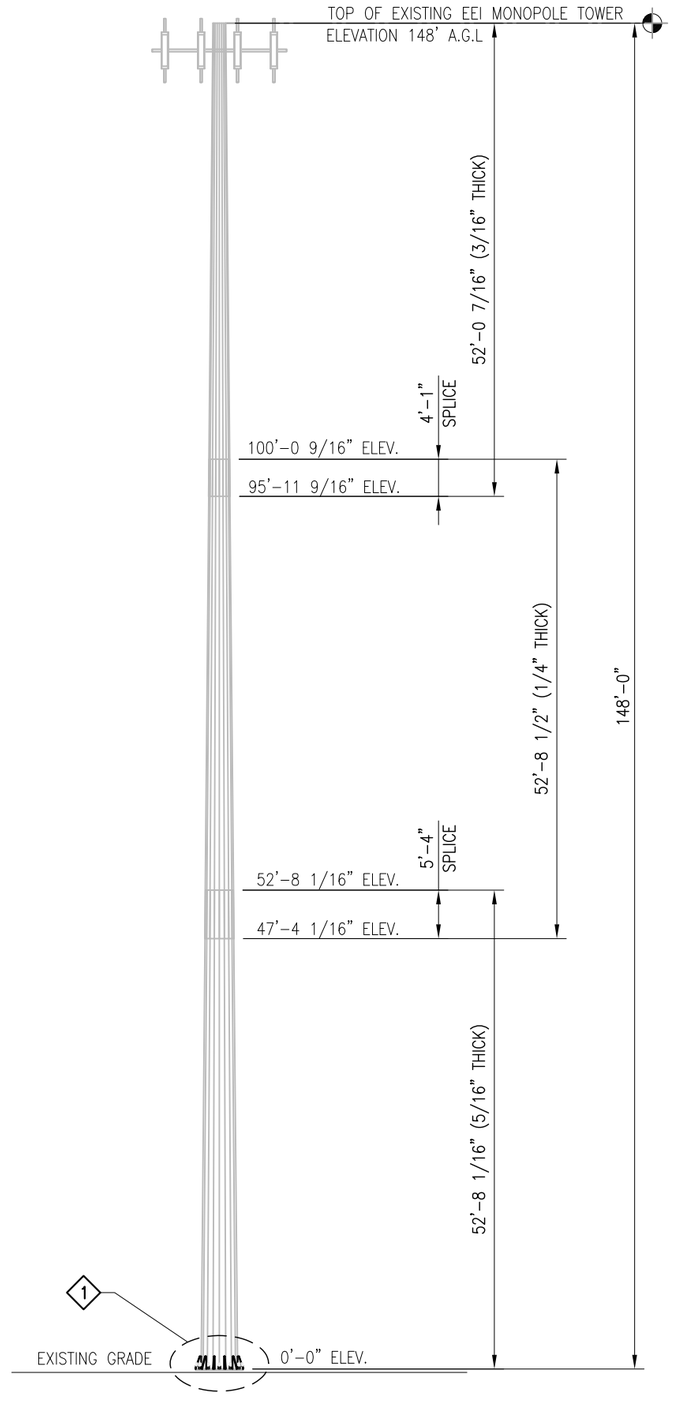
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.
3. REFERENCE THE "FIELD HOT WORK PLAN NOTES" ON SHEET GN-1 FOR ALL FIELD CUTTING & WELDING.

SCOPE OF WORK

1. INSTALL (12) PL 1" X 6" X 1'-6" A572-50 STIFFENER PLATES AT BASE PLATE. SEE SHEET A-2 FOR DETAILS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.
6. APPLY COLD GALVANIZE AT LEAST 2'-3' ABOVE FOUNDATION.



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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO: 56215

CUSTOMER SITE NO: CT46145-A-SBA

CUSTOMER SITE NAME: EASTFORD-DESIATO/SSUSA

97 CHAPLIN ROAD
EASTFORD, CT 06242

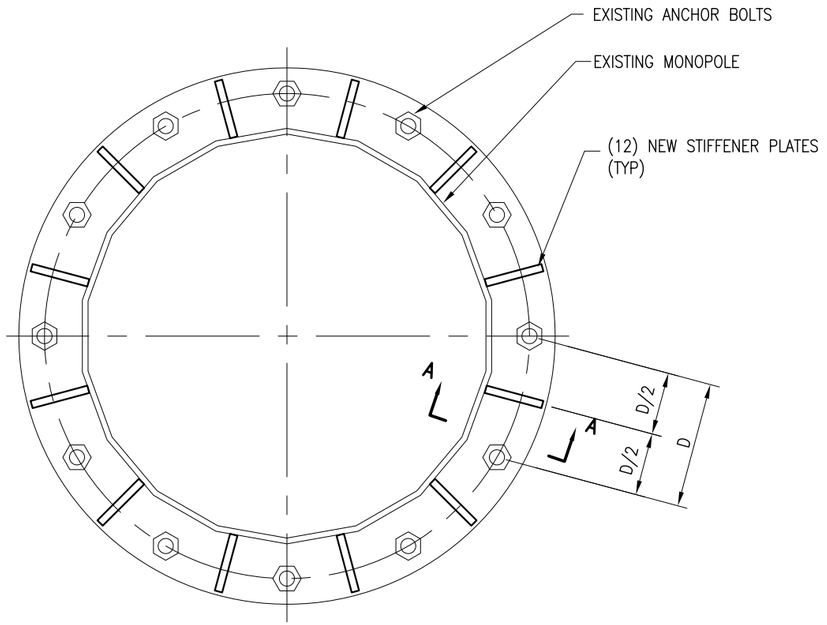
DRAWN BY: JRL | CHECKED BY: VP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	08/22/18

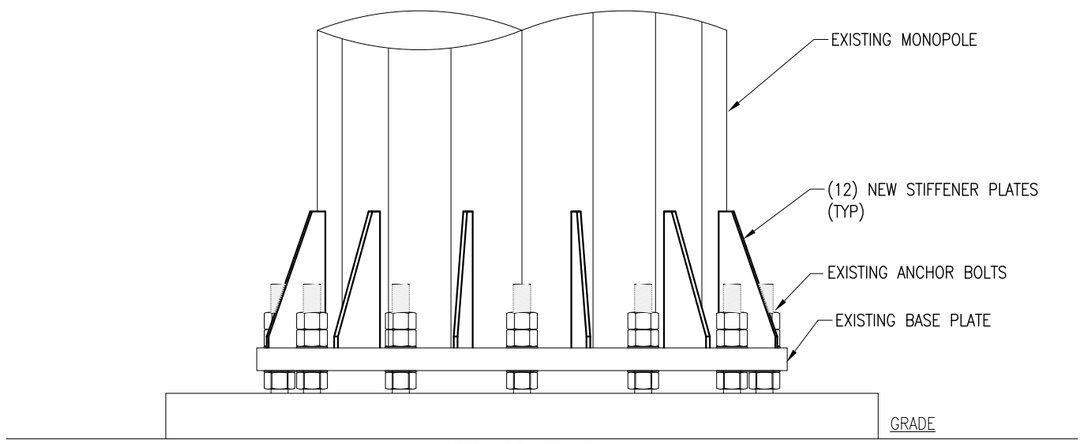
SHEET TITLE: TOWER PROFILE

SHEET NUMBER: A-1

REV #: 0

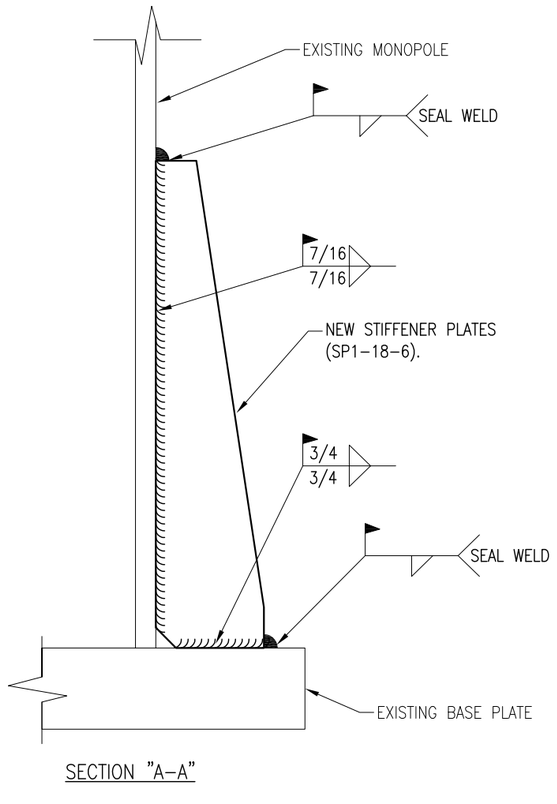


PLAN VIEW



ELEVATION VIEW

APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND WELDED AREAS.



SECTION "A-A"

FIELD WELD NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

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

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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
56215

CUSTOMER SITE NO:
CT46145-A-SBA
CUSTOMER SITE NAME:
EASTFORD-DESIATO/SSUSA
97 CHAPLIN ROAD
EASTFORD, CT 06242

DRAWN BY: JRL | CHECKED BY: VP/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	08/22/18

SHEET TITLE:

18 SIDED MONOPOLE BASE PLATE ADDED STIFFENER MODIFICATION DETAILS

SHEET NUMBER: A-2

REV #: 0

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

Sprint®

SITE NAME: EASTFORD-DESIATO/SSUSA

SITE NUMBER: CT33XC613

AUGMENT ID: CT33XC613Q17.2

SITE ADDRESS: 97 CHAPLIN ROAD
EASTFORD, CT 06242

JURISDICTION: TOWN OF EASTFORD/ CT SITING COUNCIL

SITE TYPE: EXISTING 148' MONOPOLE

PROGRAM: DO MACRO UPGRADE EQUIPMENT DEPLOYMENT

PROJECT INFORMATION

SITE INFORMATION

LATTITUDE: (PER SBA RECORD)	41° 51' 51.80" N (41.86439°)
LONGITUDE: (PER SBA RECORD)	72° 05' 46.40" W (-72.09622°)
GROUND ELEVATION:	520'± AMSL (PER GOOGLE EARTH)
STRUCTURE HEIGHT:	148'± AGL (FROM SBA RECORD)
STRUCTURE TYPE:	MONOPOLE
ZONING JURISDICTION	TOWN OF EASTFORD/ CT SITING COUNCIL
ZONING DISTRICT/ OCCUPANCY:	N/A (CT SITING COUNCIL)
COUNTY:	WINDHAM

APPLICANT

SPRINT
1 INTERNATIONAL BLVD. SUITE 800
MAHWAH, NJ 07495

PROPERTY OWNER:

N/F DESIATO SAND AND GRAVEL
999 STAFFORD ROAD
STORRS, CT 06268

TOWER OWNER:

SBA 2012 TC ASSETS, LLC
8051 CONGRESS AVENUE
BOCA RATON, FL 33487
(561) 995-7670

SBA SITE ID:	CT46145-A
SBA SITE NAME:	EASTFORD-DESIATO/SSUSA

SBA CONTACT:

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

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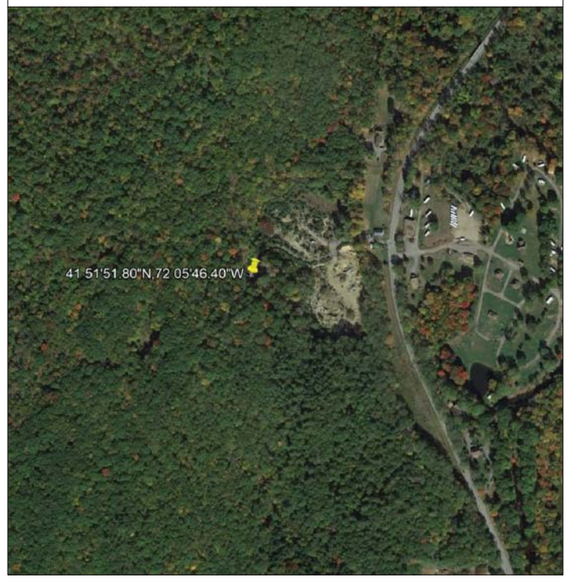
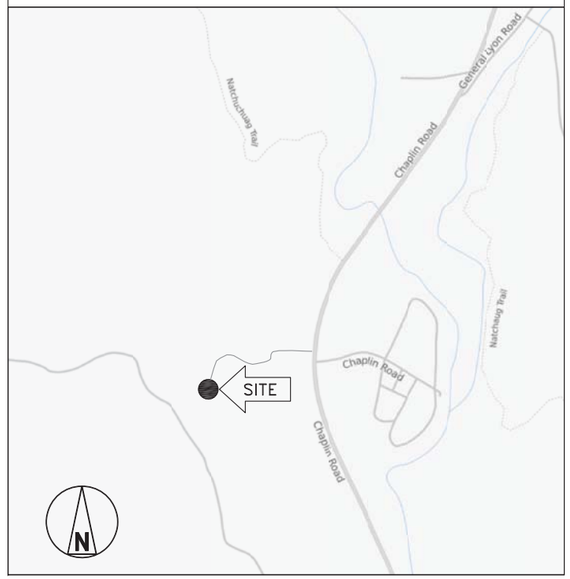
LOCATION MAP N.T.S.



AREA MAP N.T.S.



SCOPE OF WORK

1. REMOVE AND REPLACE (6) EXISTING SPRINT ANTENNAS AND ANTENNA MOUNTING PIPE MASTS WITH (6) NEW SPRINT ANTENNAS.
2. REMOVE AND REPLACE EXISTING SECTOR MOUNTS WITH NEW EQUIPMENT PLATFORM.
3. REMOVE AND RELOCATE (3) EXISTING SPRINT 1900 MHZ RRHS FROM GROUND LEVEL TO ANTENNA LEVEL.
4. INSTALL (6) NEW SPRINT 800 MHZ RRHS.
5. INSTALL (3) NEW SPRINT 2500 MHZ RRHS.
6. REMOVE EXISTING COAX CABLES.
7. INSTALL (4) HYBRID CABLES.

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.

DRAWING INDEX

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

CODE COMPLIANCE

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

BASED ON INFORMATION PROVIDED BY SPRINT, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).

APPROVALS

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

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

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

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

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

STATE OF CONNECTICUT
JESSE M. MORENO
No. 24389
LICENSED PROFESSIONAL ENGINEER
4-5-18

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	04/05/18	CONSTRUCTION REVISED	JEB/PN
1	01/29/18	ISSUED FOR CONSTRUCTION	PN
0	11/03/17	ISSUED FOR REVIEW	JEB/PN

SITE NUMBER:
CT33XC613
SITE NAME:
EASTFORD-DESIATO/SSUSA
SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

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

SECTION 01 100 - SCOPE OF WORK

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

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

1.5 DEFINITIONS:

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

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

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

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

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

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

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

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

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

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

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

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

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

3.2 DELIVERABLES:

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

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

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

SECTION 01 300 - CELL SITE CONSTRUCTION

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 NOTICE TO PROCEED:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

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

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

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

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

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

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

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

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

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

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

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

CONTINUE SHEET SP-2

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

SBA
SBA COMMUNICATIONS CORP.
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STATE OF CONNECTICUT
JESSE M. MORENO
No. 24389
LICENSED PROFESSIONAL ENGINEER
4-518

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	04/05/18	CONSTRUCTION REVISED	JEB/PN
1	01/29/18	ISSUED FOR CONSTRUCTION	PN
0	11/03/17	ISSUED FOR REVIEW	JEB/PN

SITE NUMBER:
CT33XC613
SITE NAME:
EASTFORD-DESIATO/SSUSA

SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP–1

CONTINUED FROM SP-1:

SECTION 01 400 - SUBMITTALS, TESTS, AND INSPECTIONS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 SUBMITTALS:

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

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

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

1.4 TESTS AND INSPECTIONS:

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

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

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

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPS

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

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

3.2 REQUIRED TESTS:

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

3.3 REQUIRED INSPECTIONS:

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

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

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

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

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

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

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

SECTION 01 500 - PROJECT REPORTING

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

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

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

3.2 PROJECT CONFERENCE CALLS:

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

3.3 PROJECT TRACKING IN SMS:

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

3.4 ADDITIONAL REPORTING:

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

3.5 PROJECT PHOTOGRAPHS:

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

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

SECTION 07 500 - ROOF CUTTING, PATCHING AND REPAIR

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

1.4 SUBMITTALS:

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

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

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

SECTION 09 900 - PAINTING

QUALITY ASSURANCE:

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

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

CONTINUE SHEET SP-3

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

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

ProTerra
DESIGN GROUP, LLC
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Hadley, MA 01035 Ph: (413)320–4918

STATE OF CONNECTICUT
JESSE M. MORENO
No. 24389
LICENSED PROFESSIONAL ENGINEER
4-5-18

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	04/05/18	CONSTRUCTION REVISED	JEB/PN
1	01/29/18	ISSUED FOR CONSTRUCTION	PN
0	11/03/17	ISSUED FOR REVIEW	JEB/PN

SITE NUMBER:
CT33XC613
SITE NAME:
EASTFORD-DESIATO/SSUSA
SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP–2

CONTINUED FROM SP-2:

MATERIALS:

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

PAINT SCHEDULE:

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

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

PAINTING APPLICATION:

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

TOUCHUP PAINTING:

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

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

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

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

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

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

REMOTE ELECTRICAL TILT (RET) CABLES:

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

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

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

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

HYBRID CABLES INSTALLATION:

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

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

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

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

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

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

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

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

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

SUMMARY:

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

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

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS

DC CIRCUIT BREAKER LABELING

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

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

SUMMARY:

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

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

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS

SUPPORTING DEVICES:

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

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

SUPPORTING DEVICES:

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

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

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

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

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

ELECTRICAL IDENTIFICATION:

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

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

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

CONDUIT:

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

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

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

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

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

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

HUBS AND BOXES:

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

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

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

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

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

SUPPLEMENTAL GROUNDING SYSTEM

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

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

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

EXISTING STRUCTURE:

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

CONDUIT AND CONDUCTOR INSTALLATION:

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

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

Sprint
1 INTERNATIONAL BLVD, SUITE 800
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WESTBOROUGH, MA 01581 TEL: (508) 251-0720

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

STATE OF CONNECTICUT
JESSE M. MORENO
No. 24389
LICENSED PROFESSIONAL ENGINEER
4-518

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
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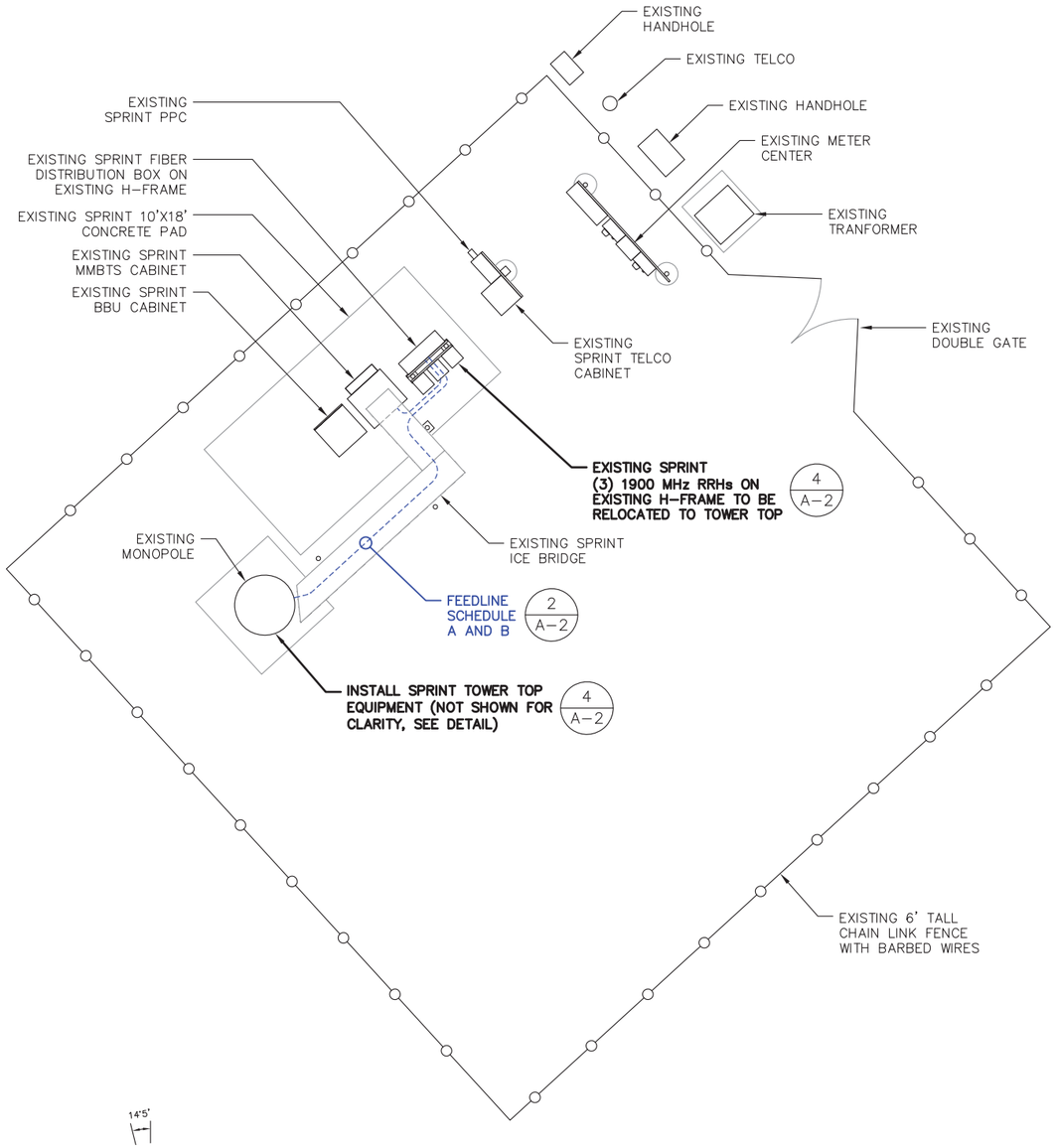
1	01/29/18	ISSUED FOR CONSTRUCTION	PN
0	11/03/17	ISSUED FOR REVIEW	JEB/PN

SITE NUMBER:
CT33XC613
SITE NAME:
EASTFORD-DESIATO/SSUSA

SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-3



COMPOUND PLAN

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

1 / A-1

10 5 0 10

IMAGE SOURCE: PROTERRA 10/8/2017
(VIEW FROM SOUTHEAST)

IMAGE SOURCE: PROTERRA 10/8/2017
(VIEW FROM NORTHEAST)

EQUIPMENT PLAN PHOTO DETAIL

SCALE: N.T.S.

2 / A-1

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1 INTERNATIONAL BLVD, SUITE 800
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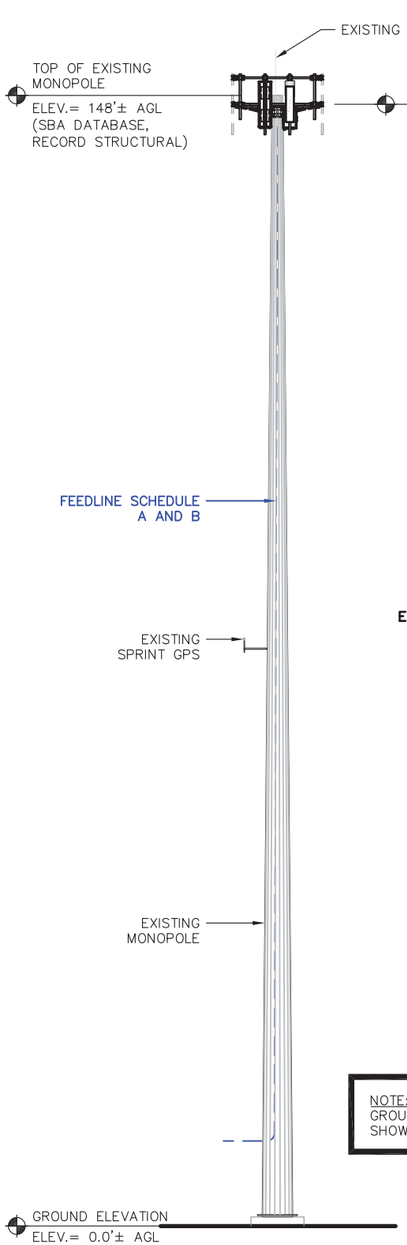
SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A-1



ELEVATION

1 / A-2

SCALE: 1"=20' (11"x17")
1"=10' (22"x34")

20 10 0 20

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

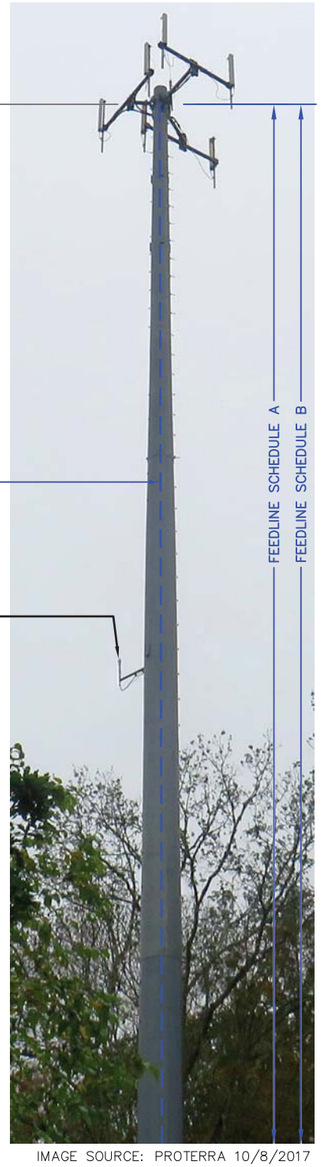


IMAGE SOURCE: PROTERRA 10/8/2017

TOWER ELEVATION PHOTO DETAIL

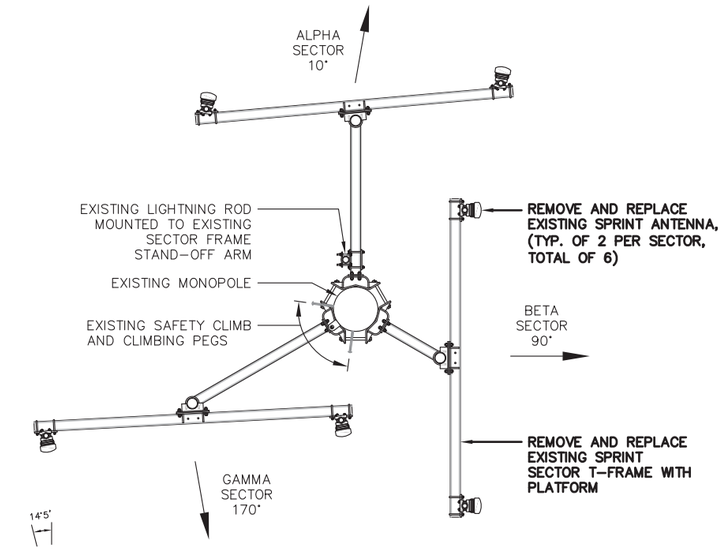
2 / A-2

SCALE: N.T.S.

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING TO BE REMOVED: (6) 1⅝" COAX TO 145' RAD EXISTING TO BE REMOVED: (1) ½" GPS CABLE TO 75'±	UP INSIDE MONOPOLE TO RAD
B	PROPOSED: (4) HYBRID TO 145' RAD;	UP INSIDE MONOPOLE TO RAD

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

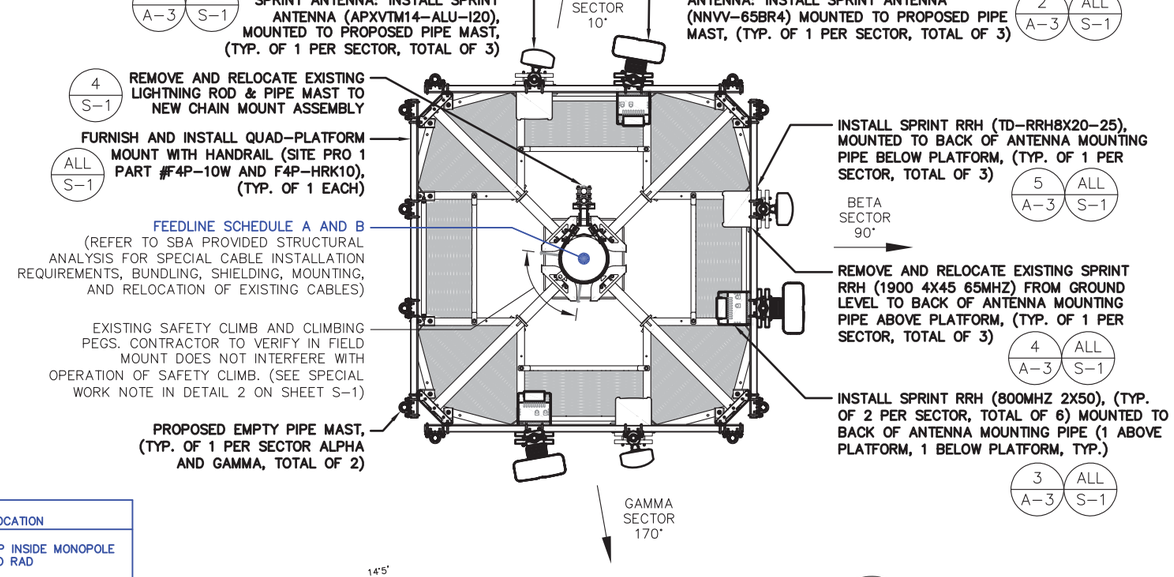
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



EXISTING ANTENNA PLAN

3 / A-2

SCALE: N.T.S.



PROPOSED ANTENNA PLAN

4 / A-2

SCALE: N.T.S.

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

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

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1 INTERNATIONAL BLVD, SUITE 800
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STATE OF CONNECTICUT
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4-5-18

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APPROVED BY: JMM/TEJ

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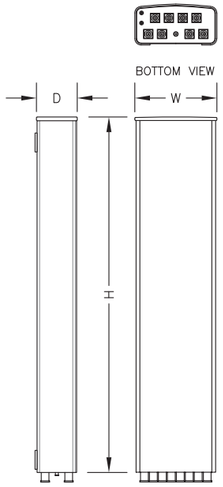
SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
ELEVATION AND ANTENNA PLANS

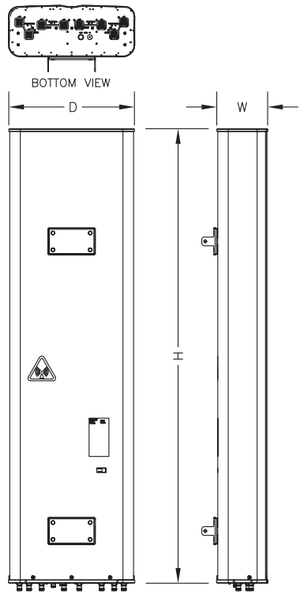
SHEET NUMBER
A-2



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

2.5 GHz ANTENNA DETAIL (1 / A-3)

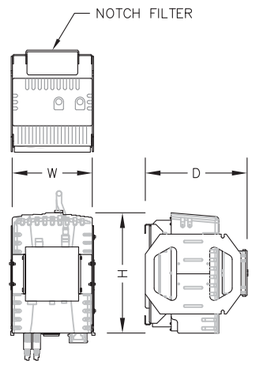
SCALE: N.T.S.



ANTENNA SPECIFICATIONS	
MANUF.	COMMSCOPE
MODEL #	NNVV-65B-R4
HEIGHT	72.0"
WIDTH	19.6"
DEPTH	7.8"
WEIGHT	77.4± LBS. (MOUNT BRACKETS NOT INCLUDED)

800 MHZ/1900 MHZ ANTENNA DETAIL (2 / A-3)

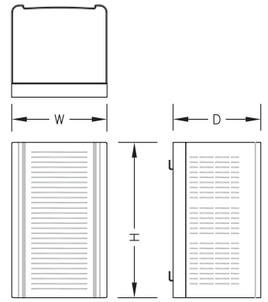
SCALE: N.T.S.



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

800 MHz RRH DETAIL (3 / A-3)

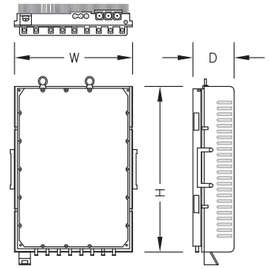
SCALE: N.T.S.



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

EXISTING 1900 MHz RRH DETAIL (4 / A-3)

SCALE: N.T.S.



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

2.5 GHz RRH DETAIL (5 / A-3)

SCALE: N.T.S.

MAJOR RF EQUIPMENT LIST

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

DESCRIPTION	QUANTITY	UNITS	MAKE/MODEL/MATERIAL	PROVIDED BY
ANTENNA	3	EA	RFS APXVTM14-ALU-i20	SPRINT
ANTENNA	3	EA	COMMSCOPE NNVV-65B-R4	SPRINT
2500 RRH	3	EA	NOKIA (ALU) TD-RRH8x20-25	SPRINT
1900 RRH (RELOCATE EXISTING)	3	EA	NOKIA (ALU) 1900 4X45 65MHZ	SPRINT (EXISTING)
800 RRH	6	EA	NOKIA (ALU) 800MHz 2x50W	SPRINT
FIBER	4 @ 225'± FROM FIBER CABINET	LINEAR FEET LISTED [INCLUDES (2) 10' COILS]	1-1/4" HYBRIFLEX	SPRINT

SPRINT-PROVIDED EQUIPMENT SCHEDULE (6 / A-3)

SCALE: N.T.S.

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1 INTERNATIONAL BLVD, SUITE 800
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SITE ADDRESS:
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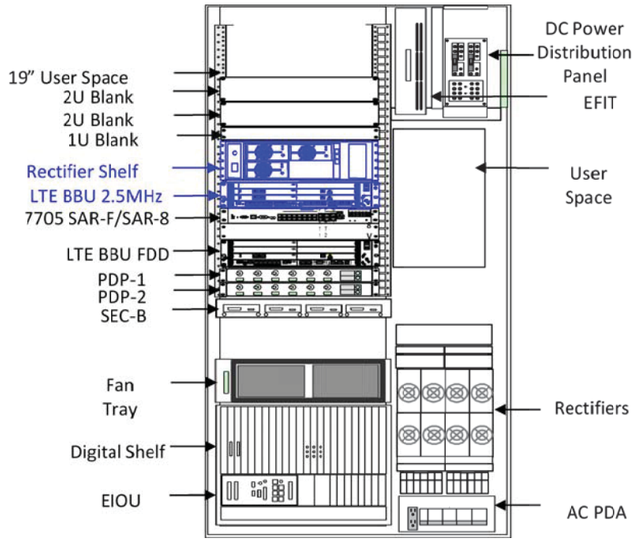
EASTFORD, CT 06242

SHEET TITLE
TOWER EQUIPMENT DETAILS

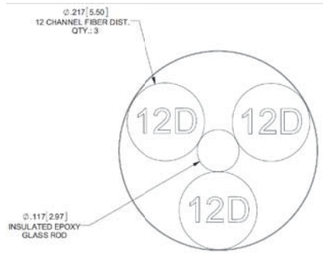
SHEET NUMBER
A-3



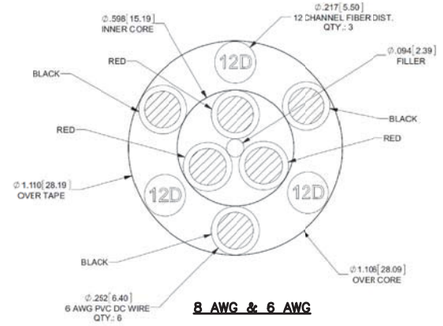
EXISTING MMBTS OUTDOOR CABINET WITH 2.5 EQUIPMENT

SCALE: N.T.S.

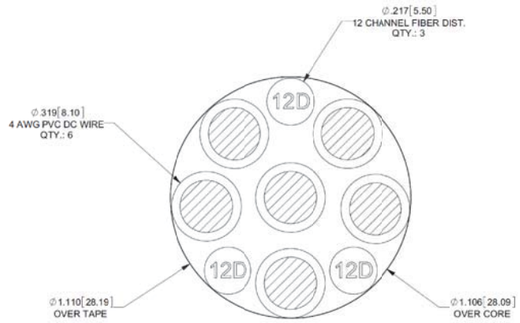
1 / A-4



FIBER ONLY



8 AWG & 6 AWG



4 AWG

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE

MANUF: RFS

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

RFS HYBRIFLEX RISER CABLE SCHEDULE

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

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

2.5 HYBRID CABLE X-SECTION AND DATA

SCALE: N.T.S.

2 / A-4

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

Sprint

1 INTERNATIONAL BLVD, SUITE 800
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EQUIPMENT DETAILS

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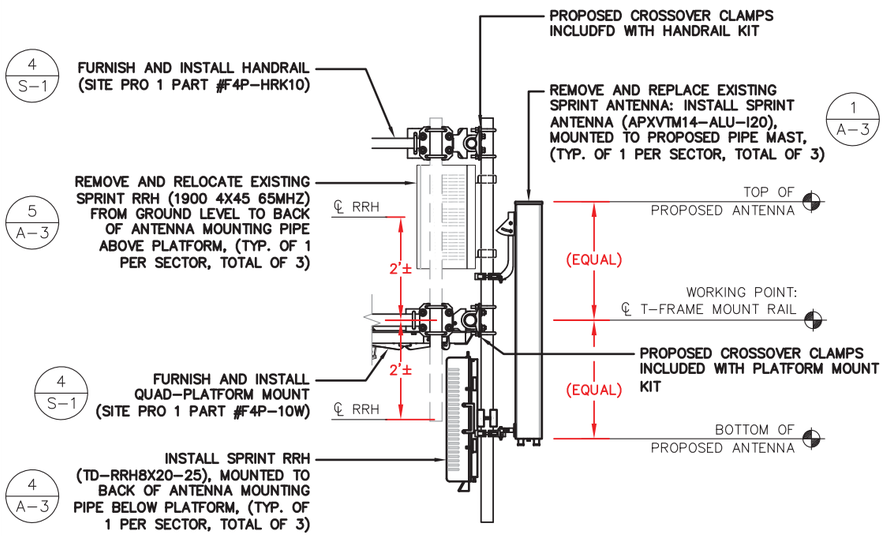


2.5 GHz ANTENNA AND RRH MOUNTING DETAIL

1 S-1

SCALE: N.T.S.

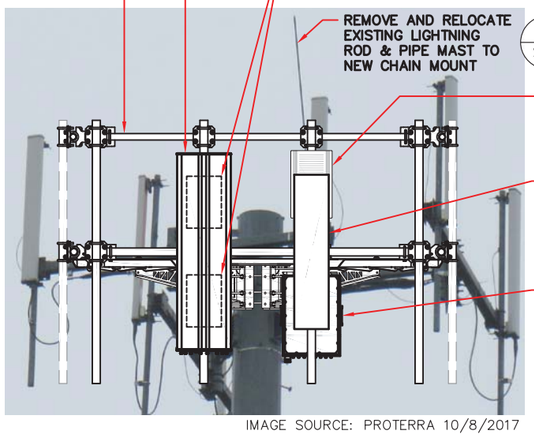


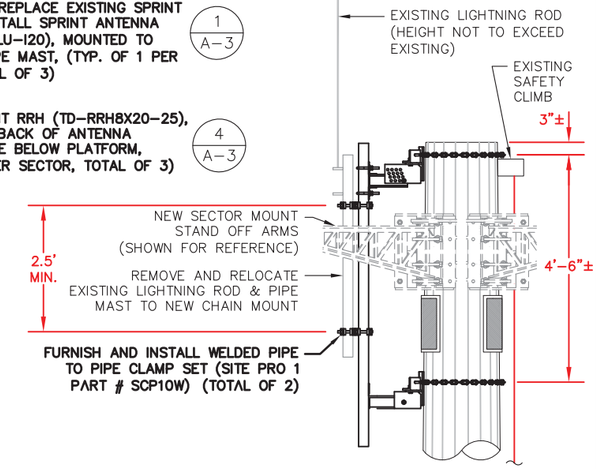
IMAGE SOURCE: PROTERRA 10/8/2017

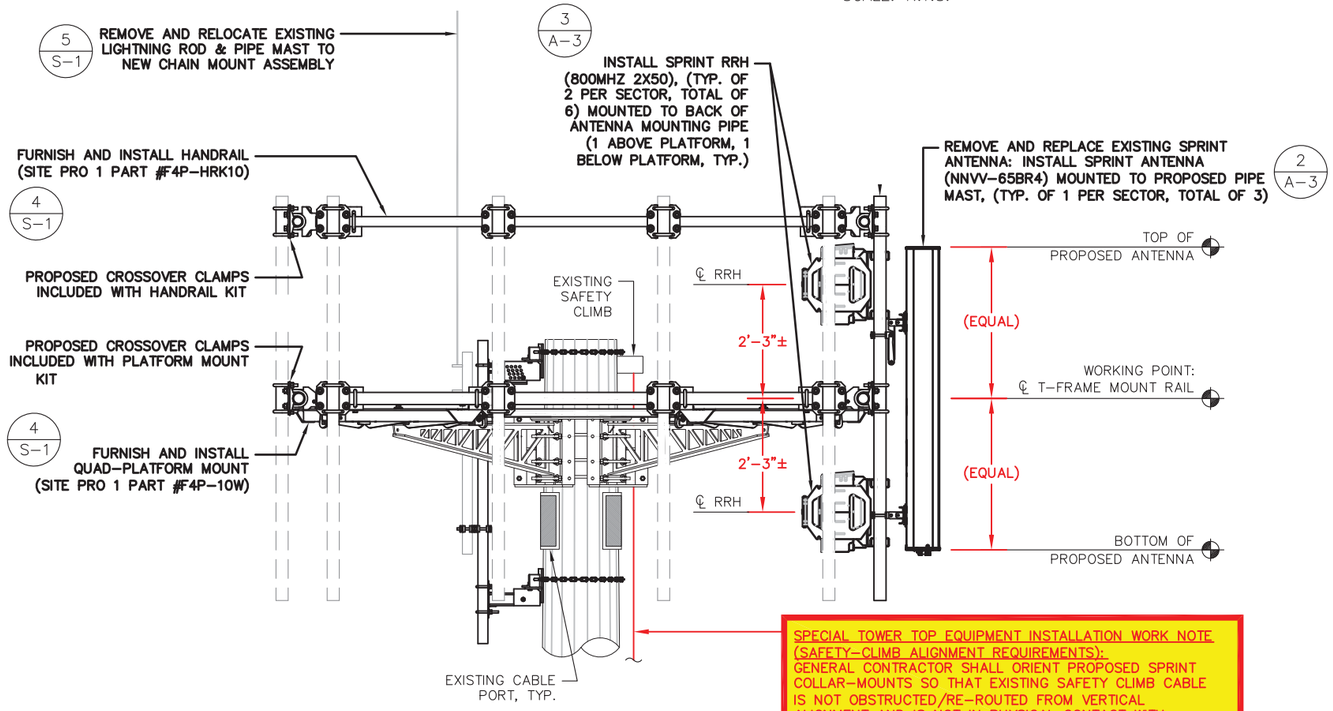
ANTENNA AND RRH MOUNT PHOTO DETAIL

3 S-1

SCALE: N.T.S.

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





800 MHz/1900 MHz ANTENNA AND RRH MOUNTING DETAIL

2 S-1

SCALE: N.T.S.

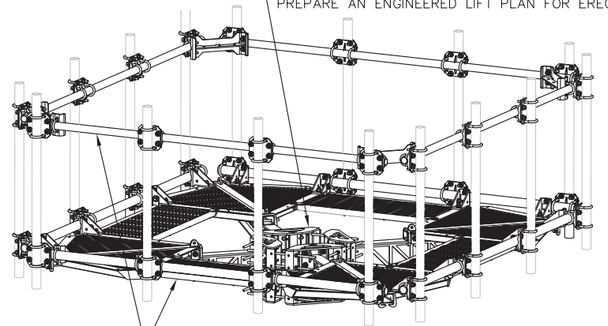
SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS): GENERAL CONTRACTOR SHALL ORIENT PROPOSED SPRINT COLLAR-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED COLLAR-MOUNT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

LIGHTNING ROD MOUNTING DETAIL

5 S-1

SCALE: N.T.S.

FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION. DO NOT OVER TORQUE (60-100 FT-LBS MAX ON COLLAR BOLTS), CONTRACTOR TO TAKE SPECIAL CARE AND ERECT IN PIECES OR PREPARE AN ENGINEERED LIFT PLAN FOR ERECTION.



10'-6" FORTRESS QUAD-PLATFORM MOUNT (SITEPRO1 P/N F4P-10W) WITH HANDRAIL KIT (SITEPRO1 P/N F4P-HRK10)

SECTOR FRAME DETAIL

4 S-1

SCALE: N.T.S.

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STATE OF CONNECTICUT
JESSE M. MORENO
No. 24389
LICENSED PROFESSIONAL ENGINEER
4-5-18

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
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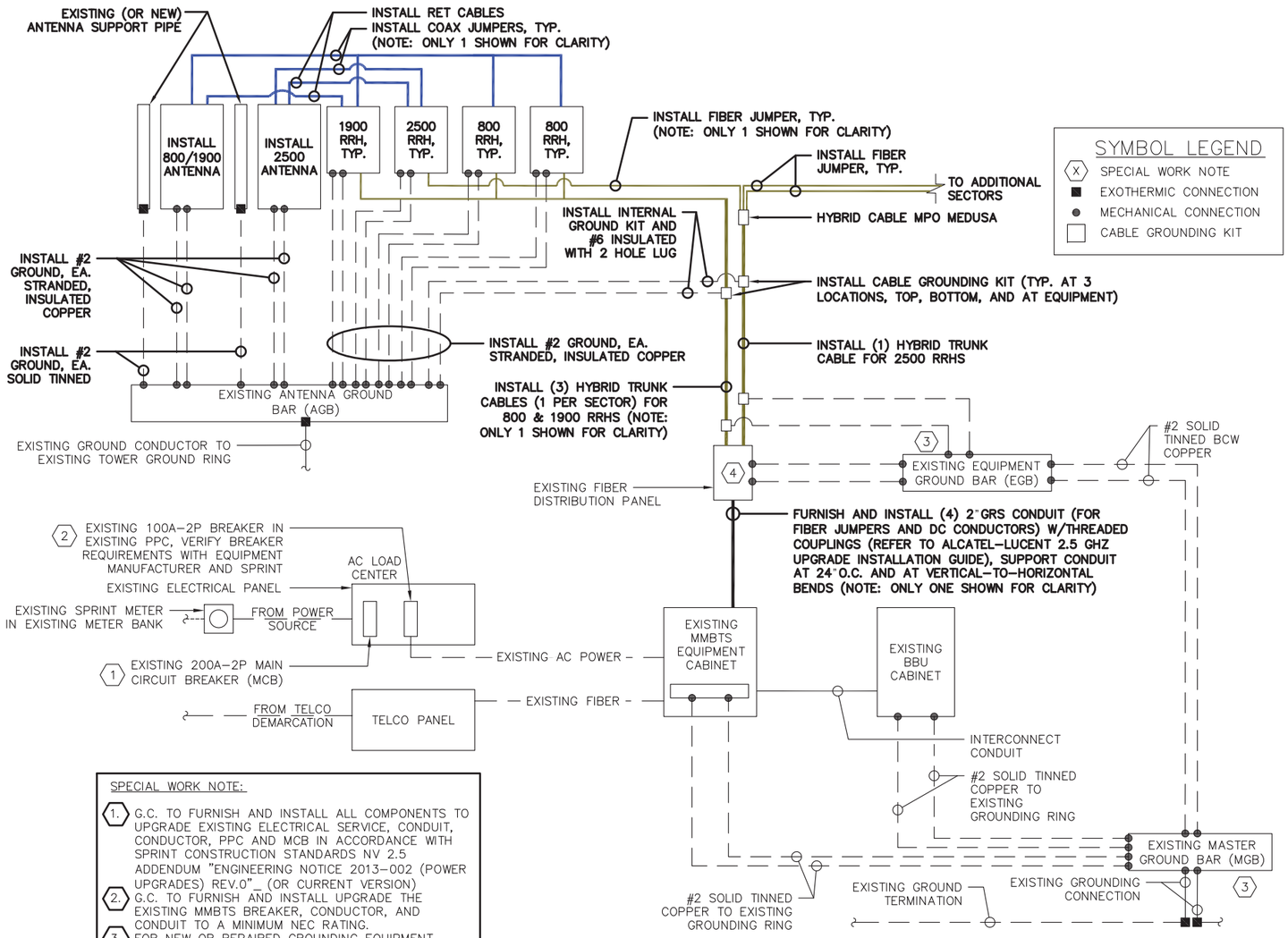
1	01/29/18	ISSUED FOR CONSTRUCTION	PN
0	11/03/17	ISSUED FOR REVIEW	JEB/PN

SITE NUMBER:
CT33XC613
SITE NAME:
EASTFORD-DESIATO/SSUSA

SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
ANTENNA AND RRH MOUNTING DETAILS

SHEET NUMBER
S-1



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.
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

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
JESSE M. MORENO
No. 24389
LICENSED PROFESSIONAL ENGINEER
FOR SCHEMATIC ONLY
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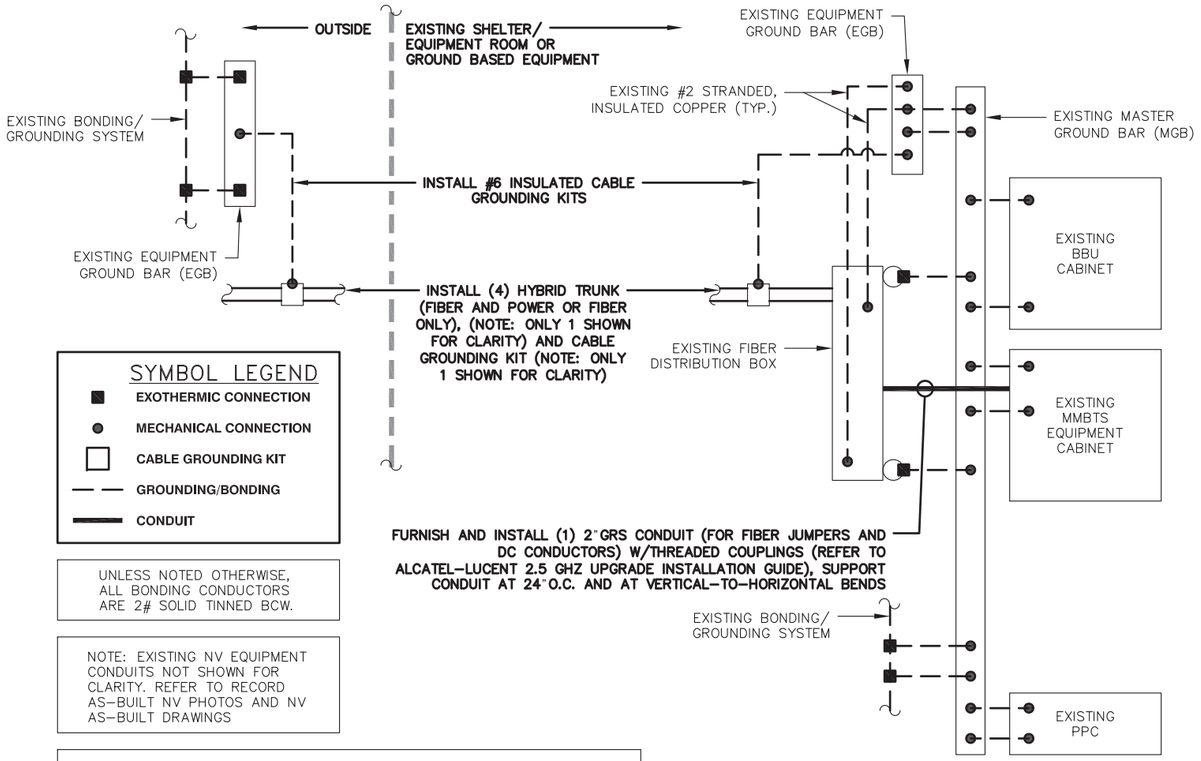
SITE NAME:
EASTFORD-DESIATO/SSUSA

SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
ONE LINE DIAGRAM

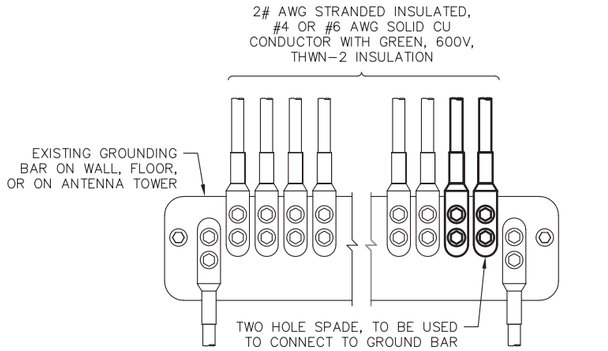
SHEET NUMBER
E-1



RAN EQUIPMENT GROUNDING SCHEMATIC

SCALE: N.T.S.

1 / E-2

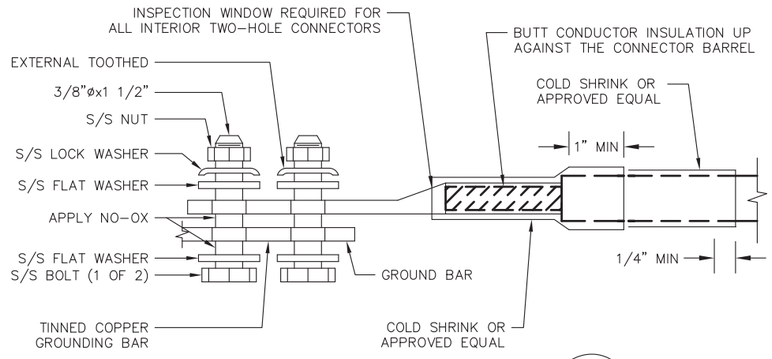


1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

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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SITE NUMBER:
CT33XC613
SITE NAME:
EASTFORD-DESIATO/SSUSA

SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
GROUNDING DETAILS AND NOTES

SHEET NUMBER
E-2

Augment ID: CT33XC613Q17.2
RFDS ID: 45864

SprintVision

RF Design Sheet

Site Identification	
Cascade	CT33XC613
SMS Schedule ID	7297370
SMS Schedule Name	DO Macro Upgrade
PID	DOMU_CT33XC613
RBU OEM	ALU
Switch OEM	Alcatel Lucent
RFDS Issue Date	
RFDS Revision Date	2017-11-30 08:06:38.0
RFDS Revision	2

Filter Analysis Complete	YES
RFDS - Issue Date	
Design Status	Complete
Project Description	DO Macro Upgrade Add 800 MHz (20 + 40) 1900 MHz (4

Contact Information	
Engineer Email	Bill.M.Hastings@Sprint.com
Sprint Badged RF Engineer	Bill Hastings
RF Engineer Email	Bill.M.Hastings@Sprint.com
RF Engineer Phone	978.590.9700
RF Manager	Jonathan Hall
RF Manager Email	Jonathan.B.Hall@Sprint.com
RF Manager Phone	617.233.7520

Carrier Count	
2500 LTE	0
1900 LTE	1
1900 EVDO	
1900 Voice	1
800 LTE	1
800 Voice	1

Location Details	
Latitude	41.8644
Longitude	-72.0823
Market	Northern Connecticut
Region	Northeast
City	Eastford
State	CT
Zip Code	C1RK242
County	Windham

2500MHz	1
1900MHz	1
800MHz	1

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

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

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

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

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

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

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

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

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

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

A&E Drawing Requirements
11/28/2017 (NR): RFDS revised to change AGL from 147' to 145' as advised by RSD.

Band: 2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	APXVTM14-ALU-I20	APXVTM14-ALU-I20	APXVTM14-ALU-I20			
Weight (lbs)	56.2	56.2	56.2	N/A	N/A	N/A
Dimensions	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	N/A	N/A	N/A
Manufacturer	RFS	RFS	RFS	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	2.5 Jumper 8	2.5 Jumper 8	2.5 Jumper 8	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	10	90	170	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	145	145	145	N/A	N/A	N/A
Antenna 1 Electrical DT	2	2	2	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A

Band: 1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	NNVV-65B-R4	NNVV-65B-R4	NNVV-65B-R4			
Weight (lbs)	84.7	84.7	84.7	N/A	N/A	N/A
Dimensions	72 x 19.6 x 7.8	72 x 19.6 x 7.8	72 x 19.6 x 7.8	N/A	N/A	N/A
Manufacturer	CommScope	CommScope	CommScope	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	800/1900 Jumper 4	800/1900 Jumper 4	800/1900 Jumper 4	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	10	90	170	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	145	145	145	N/A	N/A	N/A
Antenna 1 Electrical DT	3	3	3	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A

Band: 800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	Antenna assigned on a different band	Antenna assigned on a different band	Antenna assigned on a different band			
Weight (lbs)	0	0	0	N/A	N/A	N/A
Dimensions	0 x 0 x 0	0 x 0 x 0	0 x 0 x 0	N/A	N/A	N/A
Manufacturer				N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	800/1900 Jumper 4	800/1900 Jumper 4	800/1900 Jumper 4	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	10	90	170	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	145	145	145	N/A	N/A	N/A
Antenna 1 Electrical DT	3	3	3	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A

Band: 1500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	TD-RRH8x20-25	TD-RRH8x20-25	TD-RRH8x20-25	N/A	N/A	N/A
Weight (lbs)	76.2	76.2	76.2	N/A	N/A	N/A
Dimensions	26 x 18.6 x 6.7	26 x 18.6 x 6.7	26 x 18.6 x 6.7	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	1	1	1	0	0	0
Filter Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 2						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A		N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 3						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions		N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1						
Model Number	Hybriflex	Hybriflex	N/A	N/A	N/A	N/A
Weight (Lbs.)	1	1	N/A	N/A	N/A	N/A
Dimensions (In.)	1.54	1.54	N/A	N/A	N/A	N/A
Manufacturer	ALU	ALU	N/A	N/A	N/A	N/A
Trunk Cable 1 Qty						

Band: 1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	RRH-4x45-1900	RRH-4x45-1900	RRH-4x45-1900	N/A	N/A	N/A
Weight (lbs)	69.5	69.5	69.5	N/A	N/A	N/A
Dimensions	25 X 12 X 12	25 x 12 x 12	25 x 12 x 12	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	1	1	1	0	0	0
Filter Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 2						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A		N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 3						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions		N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1						
Model Number	1900 Hybrid_ALU	1900 Hybrid_ALU	1900 Hybrid_ALU	N/A	N/A	N/A
Weight (Lbs.)	1.1	1.1	1.1	N/A	N/A	N/A
Dimensions (In.)	1.25	1.25	1.25	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Trunk Cable 1 Qty						

Band: 800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	RRH-2x50-800	RRH-2x50-800	RRH-2x50-800	N/A	N/A	N/A
Weight (lbs)	69.1	69.1	69.1	N/A	N/A	N/A
Dimensions	16 x 13 x 10	16 x 13 x 10	16 x 13 x 10	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	2	2	2	0	0	0
Filter Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 2						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A		N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 3						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions		N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1 Qty						

NOTE: RFDS PROVIDED BY SPRINT DATED 11/30/2017. EXCERPTS TAKEN DEPICT RELEVANT RF DESIGN INFORMATION.
A&E VENDOR SCOPE OF WORK LIMITED TO DESIGN OF MECHANICAL/STRUCUTRAL EQUIPMENT ATTACHMENTS.

RF DATA SHEET

SCALE: N.T.S.

1
RF-1

SPRINT CONSTRUCTION STANDARDS:

GENERAL CONTRACTOR SHALL ADHERE TO THE FOLLOWING SPRINT CONSTRUCTION STANDARDS.

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

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

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

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

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

STATE OF CONNECTICUT
JESSE M. MORENO
No. 24389
LICENSED PROFESSIONAL ENGINEER
FOR SCHEMATIC ONLY

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	04/05/18	CONSTRUCTION REVISED	JEB/PN
1	01/29/18	ISSUED FOR CONSTRUCTION	PN
0	11/03/17	ISSUED FOR REVIEW	JEB/PN

SITE NUMBER:
CT33XC613
SITE NAME:
EASTFORD-DESIATO/SSUSA

SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

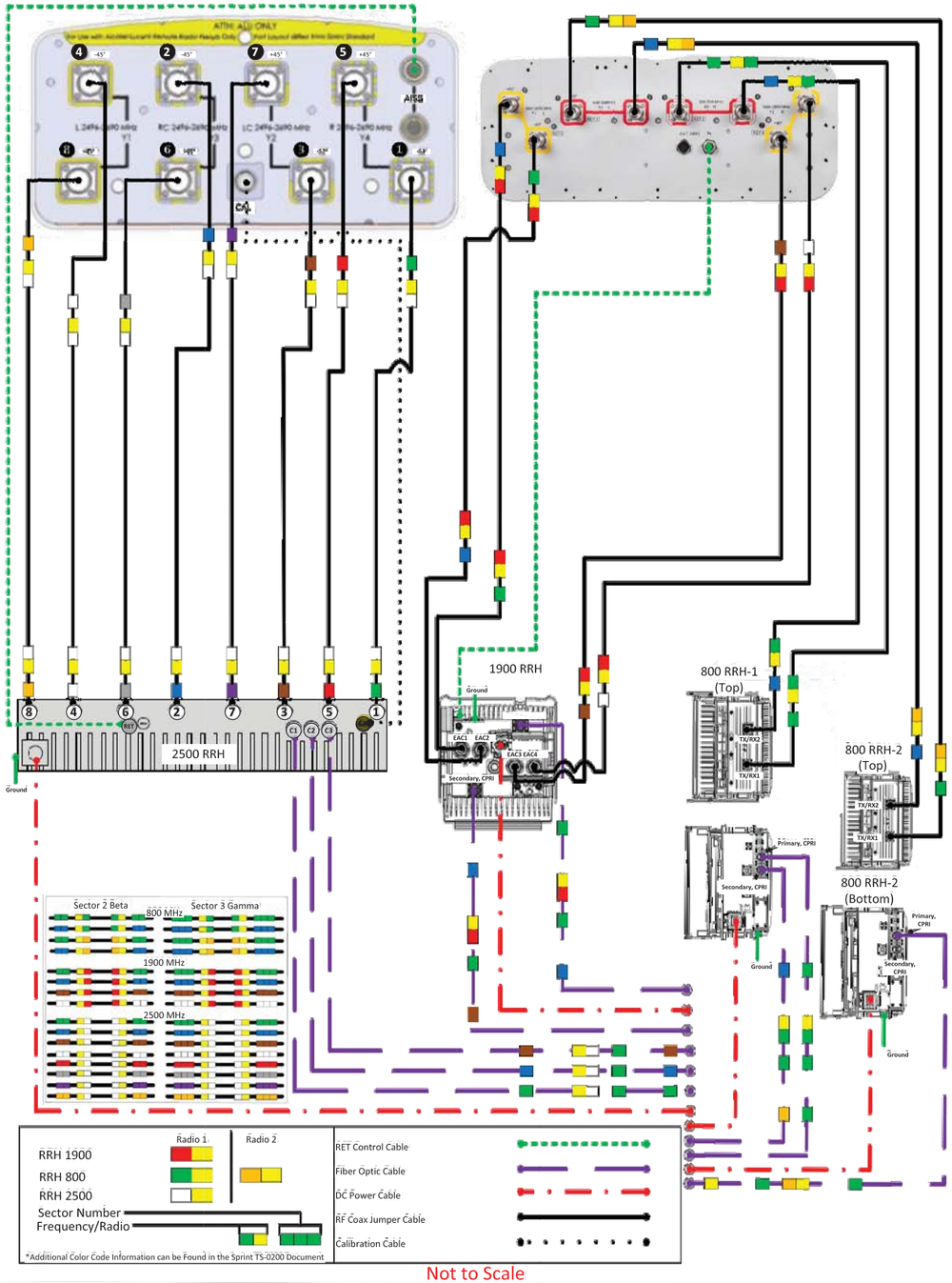
SHEET TITLE
RF DATA SHEET

SHEET NUMBER
RF-1

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

Sprint

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



*Additional Color Code Information can be Found in the Sprint TS-0200 Document

Not to Scale

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

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

Sprint

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

Existing Cable(s)

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

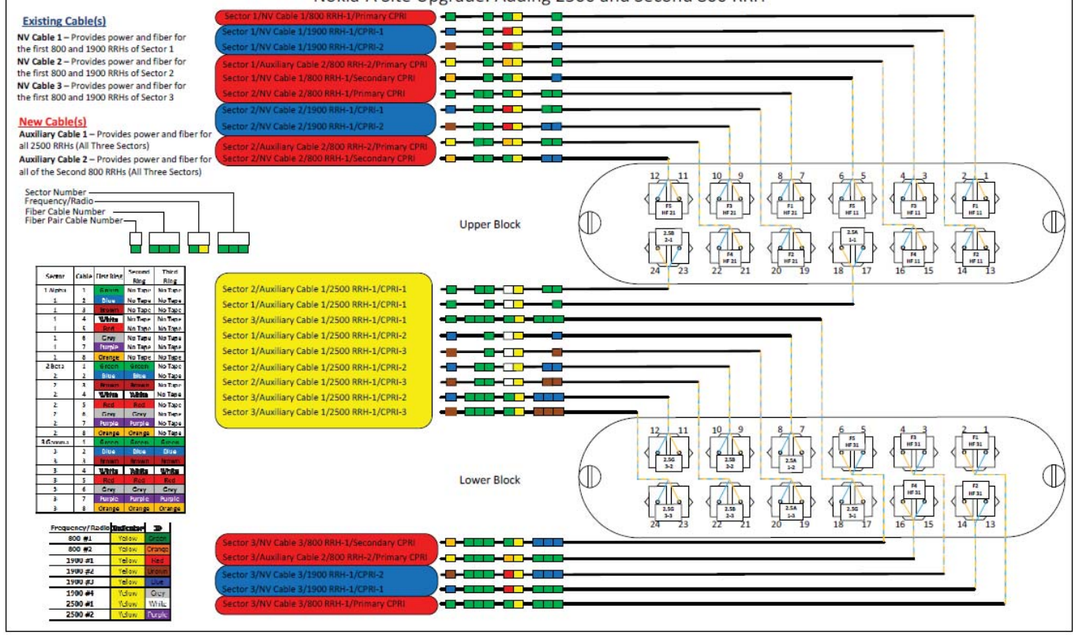
New Cable(s)

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

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

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

Frequency/Radio	Tracer
800 #1	Yellow Green
800 #2	Yellow Orange
1900 #1	Yellow Red
1900 #2	Yellow Brown
1900 #3	Yellow Blue
1900 #4	Yellow Gray
2500 #1	Yellow White
2500 #2	Yellow Purple



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SITE NAME:
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SITE ADDRESS:
97 CHAPLIN ROAD
EASTFORD, CT 06242

SHEET TITLE
PLUMBING DIAGRAM AND RAN WIRING

SHEET NUMBER
RF-2