



Filed by:

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

June 19, 2018

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

Notice of Exempt Modification
421 Ekonk Hill Road (Rt-49), Sterling, CT
41 39 44 N
-71 50 49 W
Sprint #: CT33XC009

Dear Ms. Bachman:

Sprint currently maintains antennas at the 170-foot level of the existing 200-foot Guyed Tower at 421 Ekonk Hill Road in Sterling, CT. The tower and property are owned by SBA Structures, Inc. Sprint now intends to replace (6) existing cell antennas with (6) newer technology cell antennas at the 170-foot level of the tower. The proposed full scope of work is as follows:

Remove:

- (6) 1-5/8" lines

Remove and Replace:

- Remove:
 - (6) Decibel DB980H90E-M Panel Antennas (actual); and
 - (3) Decibel DB980H90E-M Panel Antennas (entitlements only)
- Replace with:
 - (3) RFS - APXVTM14-C-I20 – Panel Antennas; and
 - (3) CommScope - NNVV-65B-R4 – Panel Antennas

Install:

- (3) ALU 1900 Mhz
- (6) ALU 800 Mhz
- (3) ALU TC-RRH8x20-25
- (1) Mount Kit: SiteProVFA12-HD
- (4) 1-1/4" hybrid

Existing Equipment to Remain (Including entitlements):

- (3) Sector Frames



This facility was originally approved prior to the Council's jurisdiction by the Town of Sterling's Board of Selectmen. The installation of a telecommunications tower was approved at Special Meeting on July 18, 2001. No conditions were noted. 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 Sterling's First Selectman, Russell Gray, as elected official and Zoning Enforcement Officer, Demian Sorrentino. (Separate notice is not being sent to tower or property owner, as both belong 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@sbsite.com

Attachments

cc: Russell Gray, First Selectman / with attachments
Sterling Town Hall, 1183 Plainfield Pike, Oneco, CT 06373-0157
Demian Sorrentino, Zoning Enforcement Officer / with attachments
Sterling Town Hall, 1183 Plainfield Pike, Oneco, CT 06373-0157



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):	170 feet	Height (AGL):	170 feet	Height (AGL):	170 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%	1.22 %	Antenna B1 MPE%	1.22 %	Antenna C1 MPE%	1.22 %
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):	170 feet	Height (AGL):	170 feet	Height (AGL):	170 feet
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	0.83 %	Antenna B2 MPE%	0.83 %	Antenna C2 MPE%	0.83 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	2.05 %
No additional Carriers per CSC Active MPE Database	0.00 %
Site Total MPE %:	2.05 %

SPRINT Sector A Total:	2.05 %
SPRINT Sector B Total:	2.05 %
SPRINT Sector C Total:	2.05 %
Site Total:	
	2.05 %

SPRINT Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	170	0.50	850 MHz	567	0.09%
Sprint 850 MHz LTE	2	941.82	170	2.52	850 MHz	567	0.44%
Sprint 1900 MHz (PCS) CDMA	5	511.82	170	3.42	1900 MHz (PCS)	1000	0.34%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	170	3.42	1900 MHz (PCS)	1000	0.34%
Sprint 2500 MHz (BRS) LTE	8	778.09	170	8.32	2500 MHz (BRS)	1000	0.83%
Total:							2.05%

ORIGIN ID:BBFA (508) 251-0720
KRI PELLETIER
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH MA 01581
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 1.00 LB
CAD: 105843304/NET3980

BILL SENDER

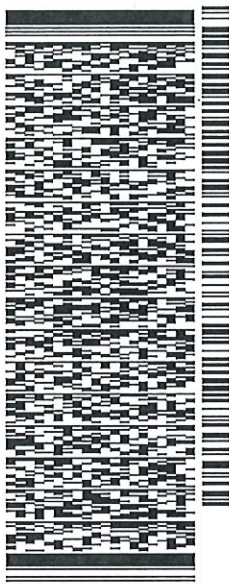
TO
RUSSEL GRAY, FIRST SELECTMAN
STERLING TOWN HALL
1183 PLAINFIELD PIKE

ONECO CT 06373

REF: 10-56-92009-6089

(508) 251-0720
INV.
PO:

DEPT:



J181118012601uv

TRK# 7725 1639 4963
0201

THU - 21 JUN 4:30P
PRIORITY OVERNIGHT

EB GONA

06373
CT-US BDL



552J293DFJ0CA5

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ORIGIN ID:BBFA (508) 251-0720
KRI PELLETIER
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 19JUN18
ACTWGT: 1.00 LB
CAD: 105843304/NET3980

BILL SENDER

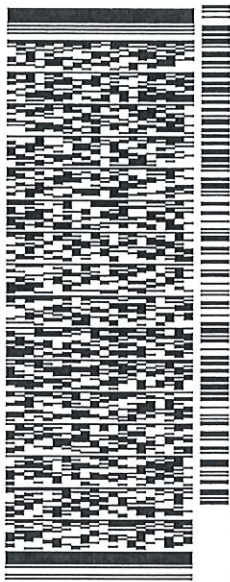
TO **DEMIAN SORRENTINO, ZONING OFFICER**
STERLING TOWN HALL
1183 PLAINFIELD PIKE

ONECO CT 06373

REF: 10-56-92009-6099

(508) 251-0720
INV:
PO:

DEPT:



J181118012601uv

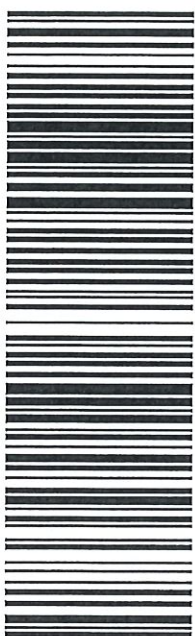
552J293DF/DCA5

TRK# 7725 1644 7170
0201

WED - 20 JUN 4:30P
PRIORITY OVERNIGHT

EB GONA

06373
CT-US BDL



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3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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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.

Sterling, CT : Assessor Database

Property Search:

Parcel ID:	Alternate ID:	Owner 1 Name:	Street Number:	Street Name:
<input type="text"/>	<input type="text"/>	<input type="text"/>	421	EKONK HILL RD <input type="text" value="v"/>
<input type="button" value="Search"/>		<input type="button" value="Reset"/>		

Property Detail:

Parcel ID:	Alternate ID/Map Block Lot:	Card:	Card:	Street Name:	Street Number:	Zoning:	LUC:	Acres:
10017200	03633-034-009A			EKONK HILL RD	421		Land w/ OBYs	1.40

Owner Information:

Owner 1 Name:	SBA STRUCTURES INC
Owner 2 Name:	
Street 1:	ATTN TAX DEPT - CT20001-A
Street 2:	8051 CONGRESS AVE
City:	BOCA RATON
State:	FL
Zip:	33487
Volume:	73
Page:	1100
Deed Date:	26-APR-1996

Property Images:

Picture:	There is no picture available.
Sketch:	There is no sketch available.

Valuation:

Appraised Land:	\$32,200.00
Appraised Bldg:	\$0.00
Appraised Total:	\$32,200.00
Total Assessment:	\$22,540.00

Out-Buildings:

Code:	Description:	Units:	Year Built:	Size1:	Size2:	Area:	Grade:	Condition:
RS1	FRAME UTILITY SHED	1	1998	0	0	0	C	AVERAGE (Res)
RS1	FRAME UTILITY SHED	1	1998	0	0	0	C	AVERAGE (Res)

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

SPRINT Existing Facility

Site ID: CT33XC009

Sterling
421 Ekonk Hill Road
Sterling, CT 06377

June 15, 2018

EBC Project Number: 6218004400

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	2.05 %



June 15, 2018

SPRINT

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

Emissions Analysis for Site: **CT33XC009 – Sterling**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **419 Ekonk Hill Road, Sterling, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 850 MHz Band is approximately $567 \mu\text{W}/\text{cm}^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is $1000 \mu\text{W}/\text{cm}^2$. 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 **419 Ekonk Hill Road, Sterling, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.
- 3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.
- 4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **170 feet** above ground level (AGL) for **Sector A**, **170 feet** above ground level (AGL) for **Sector B** and **170 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):	170 feet	Height (AGL):	170 feet	Height (AGL):	170 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%	1.22 %	Antenna B1 MPE%	1.22 %	Antenna C1 MPE%	1.22 %
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):	170 feet	Height (AGL):	170 feet	Height (AGL):	170 feet
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	0.83 %	Antenna B2 MPE%	0.83 %	Antenna C2 MPE%	0.83 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	2.05 %
No additional Carriers per CSC Active MPE Database	0.00 %
Site Total MPE %:	2.05 %

SPRINT Sector A Total:	2.05 %
SPRINT Sector B Total:	2.05 %
SPRINT Sector C Total:	2.05 %
Site Total:	2.05 %

SPRINT _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	170	0.50	850 MHz	567	0.09%
Sprint 850 MHz LTE	2	941.82	170	2.52	850 MHz	567	0.44%
Sprint 1900 MHz (PCS) CDMA	5	511.82	170	3.42	1900 MHz (PCS)	1000	0.34%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	170	3.42	1900 MHz (PCS)	1000	0.34%
Sprint 2500 MHz (BRS) LTE	8	778.09	170	8.32	2500 MHz (BRS)	1000	0.83%
						Total:	2.05%

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:	2.05 %
Sector B:	2.05 %
Sector C:	2.05 %
SPRINT Maximum Total (per sector):	2.05 %
Site Total:	2.05 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **2.05 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



Tower Engineering Solutions

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

Structural Analysis Report

Existing 200 ft Pirod Guyed Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT20001-A

Customer Site Name: STERLING CT TOWER

Carrier Name: Sprint Nextel

Carrier Site ID / Name: CT33XC009 / Sterling

Site Location: 421 Ekonk Hill Road (Rt-49)

Sterling, Connecticut

WINDHAM County

Latitude: 41.662222

Longitude: -71.846944

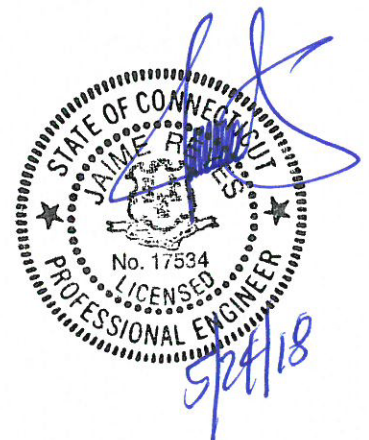
Analysis Result:

Max Structural Usage: 58.6% [Pass]

Max Foundation Usage: 48.0% [Pass]

Additional Usage Caused by New Mount: +2%

Report Prepared By: Tawfeeq Alajaj



Introduction

The purpose of this report is to summarize the analysis results on the 200 ft. PiROD Guyed Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Original design drawings prepared by PiROD. Inc. Dated 11-04-1988. Drawing No 112268-B. Job No A-106,708.
Foundation Drawing	Original foundation drawings prepared by PiROD. Inc. Dated 11-04-1988. Drawing No 112268-B. Job No A-106,708.
Geotechnical Report	Geotechnical report prepared by FDH Engineering, Inc. Dated 08-09-2012. Project No 1207123EG1.
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. In accordance with this standard, the structure was analyzed using **TESTowers**, 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: (Based on IBC 2012)	Ultimate Design Wind Speed $V_{ult} = 135.0$ mph (3-Sec. Gust) Nominal Design Wind Speed $V_{asd} = 105.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G, 2012 IBC & 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft.
Seismic Parameters:	$S_S = 0.169$, $S_1 = 0.061$

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	195.0	1	120" Omni	(1) Side Arm	(1) 7/8"	Marc Dodge
2	178.0	1	Decibel DB809 Omni	(1) Side Arm	(1) 7/8"	American Messaging
3	170.0	9	Decibel DB980H90E-M - Panel	(3) Sector Frames	(6) 1 5/8"	Sprint
4	140.0	1	Decibel DB809 Omni	(1) Side Arm	(2) 1/4"	Arch Wireless
5	99.0	1	ASPC680 (96") Omni	(1) Side Arm	(1) 1/2"	Plainfield Municipal
6	41.0	1	Larsen YA2-540 (36") - Yagi	Direct	(1) 7/8"	
7	39.0	1	Larsen YA2-540 (36") - Yagi	Direct	(1) 3/8"	
8	25.0	1	36" - Dish	(1) Pipe Mount	(2) 1/4"	American Messaging
9	14.0	1	36" - Dish	(1) Pipe Mount	(1) 7/8"	Arch Wireless

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
2	170.0	3	RFS - APXVTM14-C-I20 - Panel	(3) Sector Frames SiteProVFA12-HD	(4) 1-1/4" Hybrid	Sprint Nextel
3		3	CommScope - NNVV-65B-R4 - Panel			
4		3	ALU 1900 Mhz			
5		6	ALU 800 Mhz			
6		3	ALU TD-RRH8x20-25			

Please see the attached coax layout for the line placement considered in the analysis.

Analysis Results

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

Tower Component	Legs	Diagonals	Horizontals	Guy Wires
Max. Usage:	42.9%	35.0%	19.8%	58.6%
Pass/Fail	Pass	Pass	Pass	Pass

Foundations

Reactions (kips)	Base Reactions		Inner Anchors	
	Axial	Shear	Uplift	Shear
Original Design Reactions	69.5	3.0	30.8	27.9
Analysis Reactions	92.7	1.3	24.6	23.1
Factored Reactions*	93.8	4.1	41.6	37.7
% of Design Reactions	98.8%	32.3%	59.1%	61.2%

* 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 0.0174 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA-222-G standards, the 2012 IBC and the 2016 Connecticut State Building Code under the design basic wind speed specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT20001-A-SBA

Site Name: STERLING CT TOWER

Code: EIA/TIA-222-G

5/24/2018

Type: Guyed

Base Shape: Triangle

Basic WS: 105.00

Height: 200.00 (ft)

Base Width: 0.00

Basic Ice WS: 50.00

Base Elev: 0.00 (ft)

Top Width: 3.00

Operational WS: 60.00

Page: 1



Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1-11	SOL 1 3/4" SOLID	SOL 3/4" SOLID	SOL 3/4" SOLID

Discrete Appurtenances

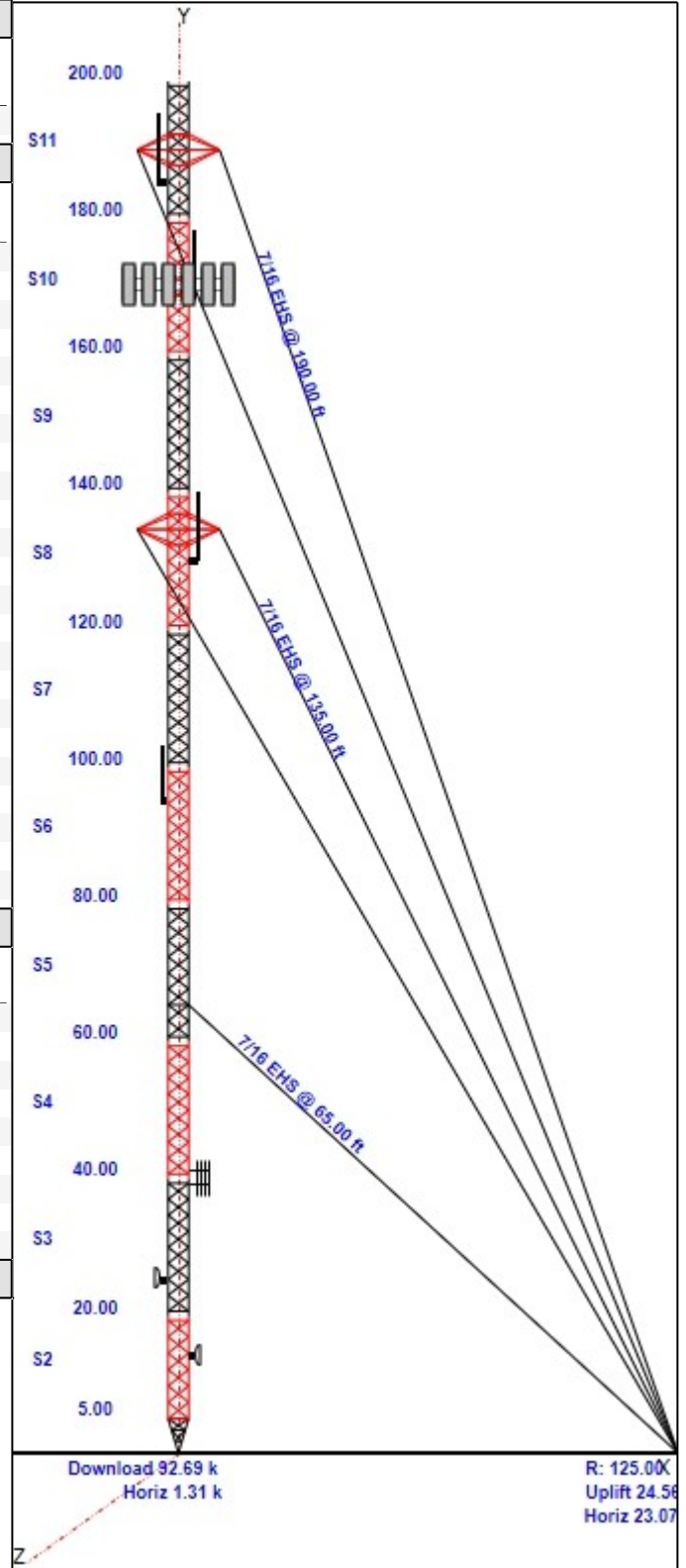
Attach Elev (ft)	Force Elev (ft)	Qty	Description
200.00	200.00	1	Beacon
190.00	190.00	1	Torque Arms
185.00	190.00	1	120" Omni
185.00	185.00	1	Side Arm
170.00	170.00	3	APXVTM14-C-I20
170.00	170.00	3	ALU 1900 Mhz
170.00	170.00	6	ALU 800 Mhz
170.00	170.00	3	ALU TD-RRH8x20-25
170.00	170.00	3	NNVV-65B-R4
170.00	170.00	1	(3) VFA12-HD
168.00	173.00	1	Decibel DB809
168.00	168.00	1	Side Arm
135.00	135.00	1	Torque Arms
130.00	135.00	1	Decibel DB809
130.00	130.00	1	Side Arm
95.00	99.00	1	ASPC680 (96")
95.00	95.00	1	Side Arm
41.00	41.00	1	Larsen YA2-540 (36")
39.00	39.00	1	Larsen YA2-540 (36")
25.00	25.00	1	36" Dish
25.00	25.00	1	Pipe Mount
14.00	14.00	1	36" Dish
14.00	14.00	1	Pipe Mount

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
3.00	185.00	1	7/8" Coax
3.00	170.00	4	1-1/4" Hybrid
3.00	168.00	1	7/8" Coax
3.00	130.00	2	1/4" Coax
3.00	95.00	1	1/2" Coax
3.00	41.00	1	7/8" Coax
3.00	39.00	1	3/8" Coax
3.00	25.00	2	1/4" Coax
3.00	14.00	1	7/8" Coax

Max Guy Wire

58.58% @ 134.6665 ft - 7/16 EHS



Structure: CT20001-A-SBA

Site Name: STERLING CT TOWER

Code: EIA/TIA-222-G

5/24/2018

Type: Guyed

Base Shape: Triangle

Basic WS: 105.00

Height: 200.00 (ft)

Base Width: 0.00

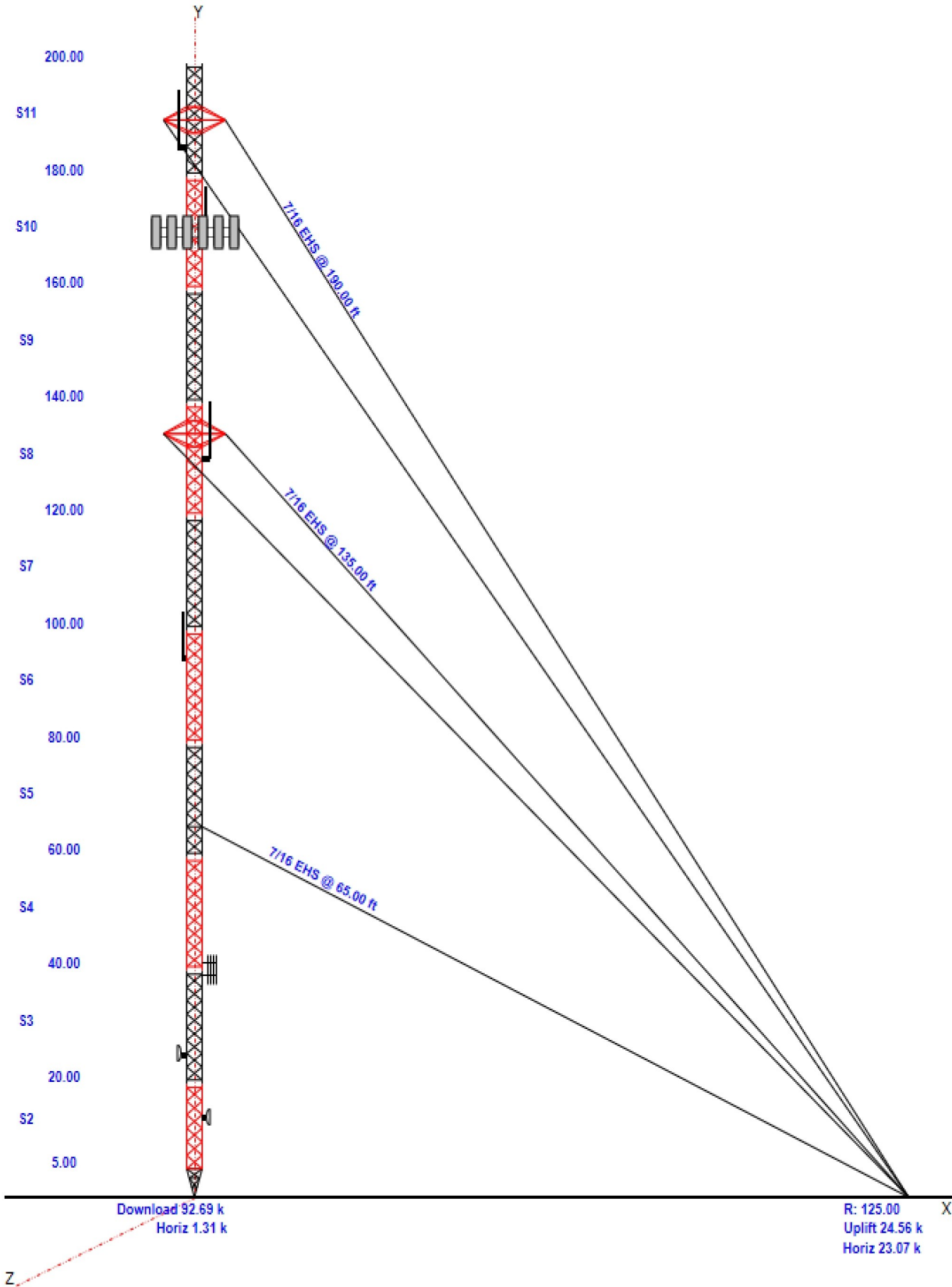
Basic Ice WS: 50.00

Base Elev: 0.00 (ft)

Top Width: 3.00

Operational WS: 60.00

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Anchor Drops with Guy Radius - Structure: CT20001-A-SBA

Site Name: STERLING CT TOWER

Code: EIA/TIA-222-G

5/24/2018

Type: Guyed

Base Shape: Triangle

Basic WS: 105.00

Height: 200.00 (ft)

Base Width: 0.00

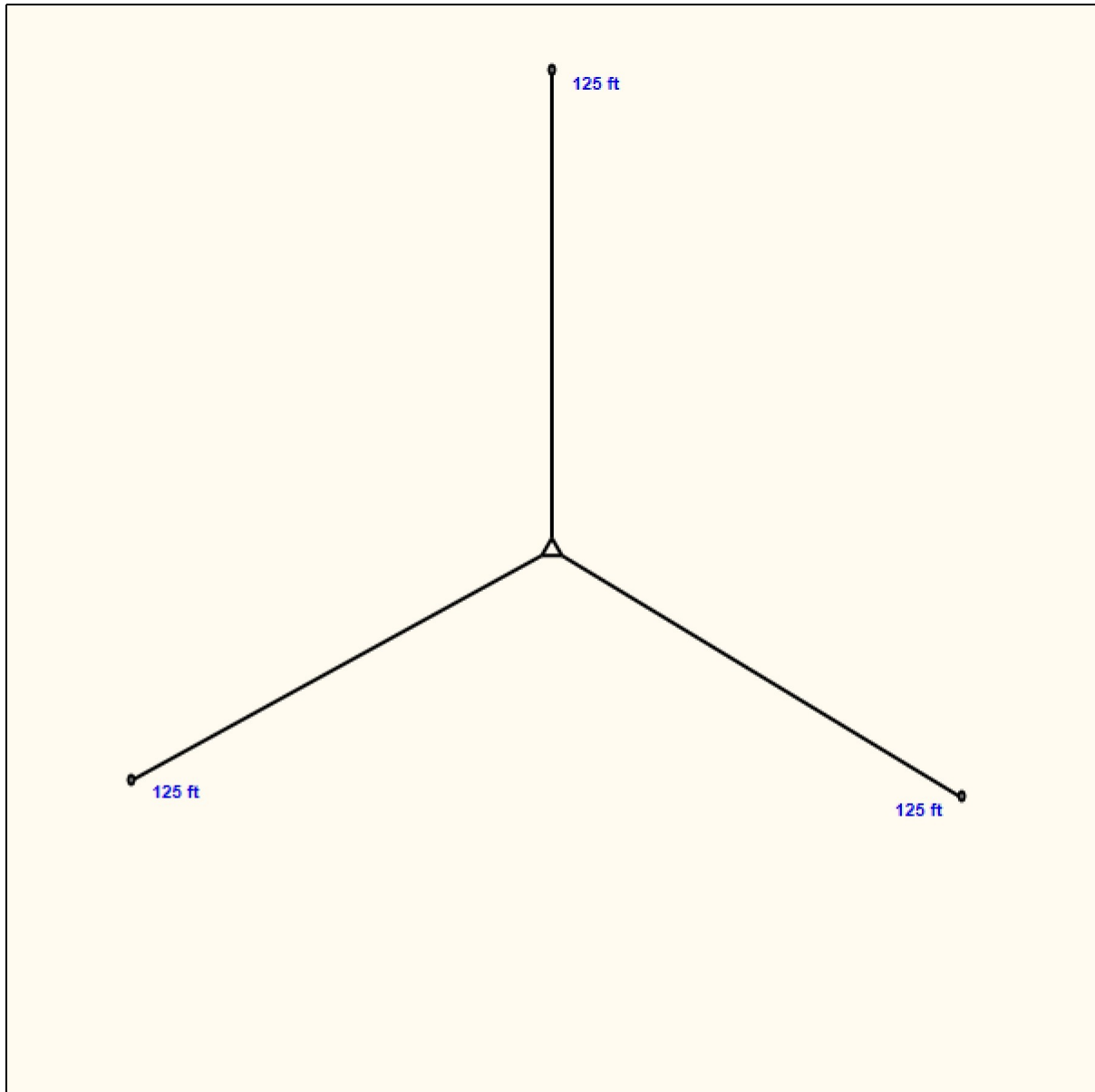
Basic Ice WS: 50.00

Base Elev: 0.00 (ft)

Top Width: 3.00

Operational WS: 60.00

Page: 3

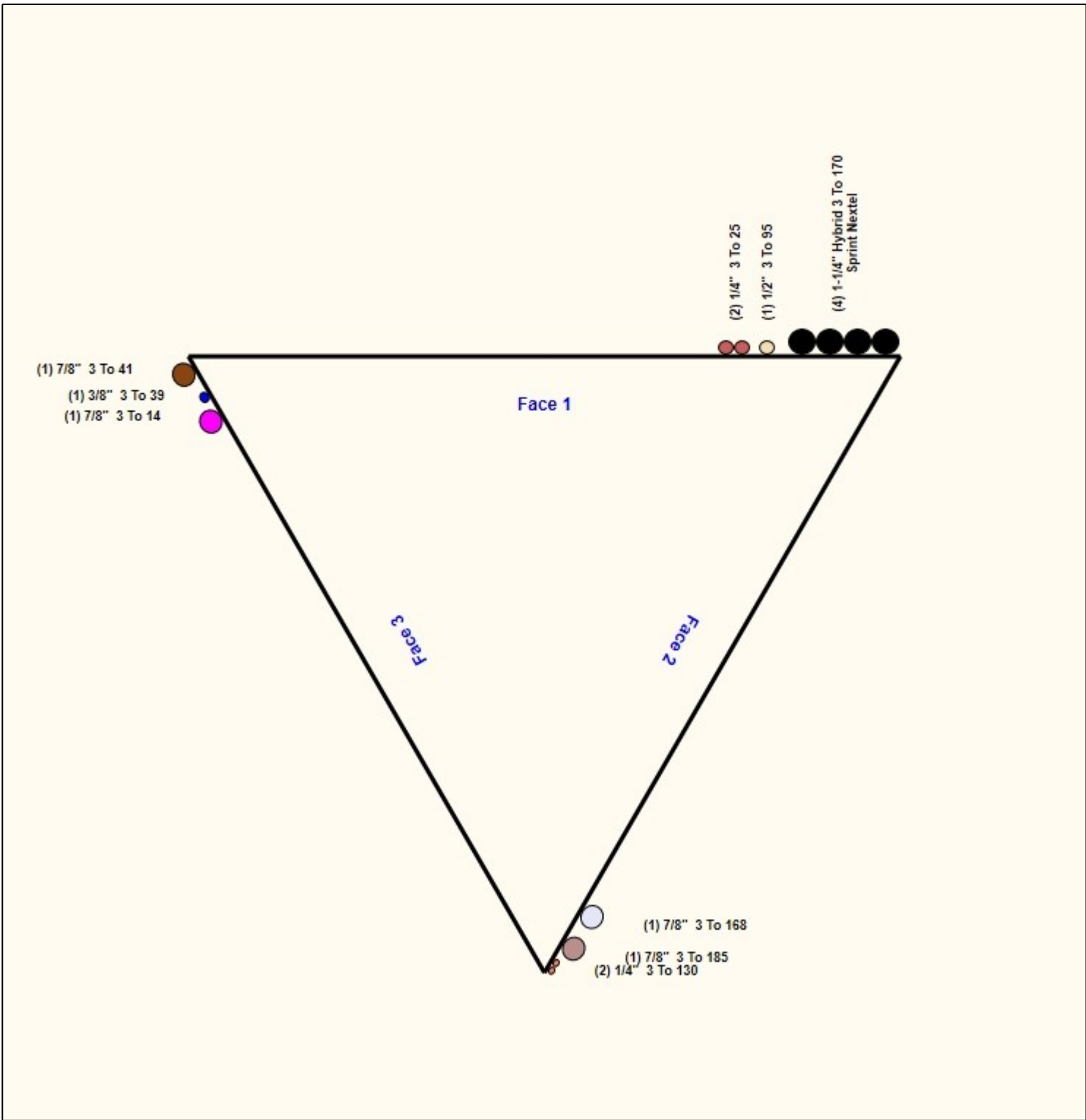


Structure: CT20001-A-SBA - Coax Line Placement

Type: Guyed
Site Name: STERLING CT TOWER
Height: 200.00 (ft)

5/24/2018

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Loading Summary

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
			Weight (lb)	CaAa (sf)	Weight (lb)	CaAa (sf)						
200.00	Beacon	1	15.00	2.400	32.87	2.400	0.000	0.000	0.000	1.00	1.00	0.000
190.00	Torque Arms	1	300.00	5.000	557.32	9.289	0.000	0.000	0.000	1.00	1.00	0.000
185.00	120" Omni	1	30.00	3.000	144.25	7.902	120.000	3.000	3.000	1.00	1.00	5.000
185.00	Side Arm	1	40.00	2.630	122.20	8.741	20.000	0.000	0.000	1.00	1.00	0.000
170.00	APXVTM14-C-I20	3	56.20	6.340	219.05	7.468	56.300	12.600	6.300	0.80	0.77	0.000
170.00	ALU 1900 Mhz	3	60.00	2.380	210.73	3.262	25.000	11.400	11.100	0.80	0.67	0.000
170.00	ALU 800 Mhz	6	53.00	2.130	127.89	3.121	19.700	13.000	10.800	0.80	0.67	0.000
170.00	ALU TD-RRH8x20-25	3	70.00	4.050	182.15	4.874	26.100	18.600	6.700	0.80	0.67	0.000
170.00	NNVV-65B-R4	3	77.40	12.270	366.56	13.745	72.000	19.600	7.800	0.80	0.74	0.000
170.00	(3) VFA12-HD	1	2322.0	50.700	4619.92	115.21	0.000	0.000	0.000	0.75	1.00	0.000
168.00	Decibel DB809	1	30.00	3.000	122.42	6.652	120.000	3.000	3.000	1.00	1.00	5.000
168.00	Side Arm	1	40.00	2.630	121.29	8.674	10.000	0.000	0.000	1.00	1.00	0.000
135.00	Torque Arms	1	300.00	5.000	547.74	9.129	0.000	0.000	0.000	1.00	1.00	0.000
130.00	Decibel DB809	1	25.00	3.000	99.98	6.555	120.000	3.000	3.000	1.00	1.00	5.000
130.00	Side Arm	1	40.00	2.630	119.14	8.514	20.000	0.000	0.000	1.00	1.00	0.000
95.00	ASPC680 (96")	1	25.00	2.400	83.07	5.016	96.000	3.000	3.000	1.00	1.00	4.000
95.00	Side Arm	1	40.00	2.630	116.28	8.301	10.000	0.000	0.000	1.00	1.00	0.000
41.00	Larsen YA2-540 (36")	1	10.00	2.980	90.65	8.605	36.000	36.000	3.000	1.00	1.00	0.000
39.00	Larsen YA2-540 (36")	1	10.00	2.980	86.64	8.325	36.000	36.000	3.000	0.00	0.00	0.000
25.00	36" Dish	1	100.00	11.760	248.58	13.857	0.000	0.000	0.000	0.00	0.00	0.000
25.00	Pipe Mount	1	50.00	1.600	135.43	4.691	10.000	0.000	0.000	1.00	1.00	0.000
14.00	36" Dish	1	100.00	11.760	236.12	13.681	0.000	0.000	0.000	0.00	0.00	0.000
14.00	Pipe Mount	1	50.00	1.600	128.27	4.432	10.000	0.000	0.000	1.00	1.00	0.000
Totals:		36	4,635.80		11,314.97						Number of Appurtenances :	23

Loading Summary

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II



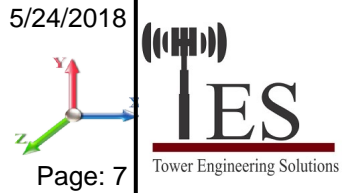
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Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
3.00	185.00	7/8" Coax	1	1.11	0.52	100.00	2	Individual NR		N	1.00	1.00	
3.00	170.00	1-1/4" Hybrid	4	1.25	0.95	100.00	1	Individual IR		N	0.50	1.00	
3.00	168.00	7/8" Coax	1	1.11	0.52	100.00	2	Individual NR		N	1.00	1.00	
3.00	130.00	1/4" Coax	2	0.25	0.04	100.00	2	Individual IR		N	0.25	1.00	
3.00	95.00	1/2" Coax	1	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	
3.00	41.00	7/8" Coax	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	
3.00	39.00	3/8" Coax	1	0.44	0.08	100.00	3	Individual NR		N	1.00	1.00	
3.00	25.00	1/4" Coax	2	0.65	0.16	100.00	1	Individual IR		N	0.25	1.00	
3.00	14.00	7/8" Coax	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	

Section Forces

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W Normal Wind	1.2D + 1.6W 105 mph Wind at Normal To Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

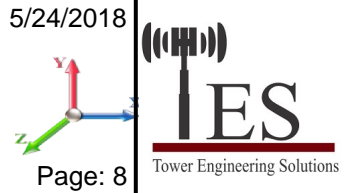
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	1.00	1.00	0.00	1.55	2.05	0.00	261.2	0.0	97.98	41.03	139.02	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	1.00	1.00	0.00	4.34	14.86	0.00	837.5	0.0	329.33	296.67	626.00	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.04	0.00	1,089.6	0.0	500.84	393.15	893.99	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	14.04	0.00	1,074.0	0.0	557.70	360.81	918.51	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	1.00	1.00	0.00	5.82	13.95	0.00	1,095.4	0.0	609.34	384.75	994.09	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	13.68	0.00	1,072.4	0.0	631.17	397.78	1,028.94	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.87	0.00	1,069.5	0.0	658.40	390.29	1,048.70	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.45	0.00	1,068.4	0.0	681.97	391.17	1,073.14	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.03	0.00	1,067.4	0.0	702.83	389.65	1,092.47	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	6.76	0.00	1,014.1	0.0	721.59	224.63	946.22	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	0.46	0.00	953.9	0.0	738.69	15.74	754.43	
														10,603.4	0.0				9,515.51

Load Case: 1.2D + 1.6W 60° Wind	1.2D + 1.6W 105 mph Wind at 60° From Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	0.80	1.00	0.00	1.55	2.05	0.00	261.2	0.0	97.98	41.03	139.02	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	0.80	1.00	0.00	4.34	14.86	0.00	837.5	0.0	329.33	296.67	626.00	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.04	0.00	1,089.6	0.0	500.84	393.15	893.99	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	14.04	0.00	1,074.0	0.0	557.70	360.81	918.51	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	0.80	1.00	0.00	5.82	13.95	0.00	1,095.4	0.0	609.34	384.75	994.09	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	13.68	0.00	1,072.4	0.0	631.17	397.78	1,028.94	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.87	0.00	1,069.5	0.0	658.40	390.29	1,048.70	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.45	0.00	1,068.4	0.0	681.97	391.17	1,073.14	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.03	0.00	1,067.4	0.0	702.83	389.65	1,092.47	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	6.76	0.00	1,014.1	0.0	721.59	224.63	946.22	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	0.46	0.00	953.9	0.0	738.69	15.74	754.43	
														10,603.4	0.0				9,515.51

Section Forces

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 90° Wind	1.2D + 1.6W 105 mph Wind at 90° From Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

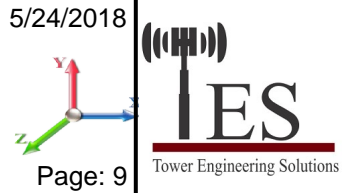
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
												Linear Area (sqft)	Linear Area (sqft)					
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	0.85	1.00	0.00	1.55	2.05	0.00	261.2	0.0	97.98	41.03	139.02
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	0.85	1.00	0.00	4.34	14.86	0.00	837.5	0.0	329.33	296.67	626.00
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.04	0.00	1,089.6	0.0	500.84	393.15	893.99
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	14.04	0.00	1,074.0	0.0	557.70	360.81	918.51
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	0.85	1.00	0.00	5.82	13.95	0.00	1,095.4	0.0	609.34	384.75	994.09
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	13.68	0.00	1,072.4	0.0	631.17	397.78	1,028.94
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.87	0.00	1,069.5	0.0	658.40	390.29	1,048.70
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.45	0.00	1,068.4	0.0	681.97	391.17	1,073.14
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.03	0.00	1,067.4	0.0	702.83	389.65	1,092.47
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	6.76	0.00	1,014.1	0.0	721.59	224.63	946.22
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	0.46	0.00	953.9	0.0	738.69	15.74	754.43
														10,603.4	0.0			9,515.51

Load Case: 0.9D + 1.6W Normal Wind	0.9D + 1.6W 105 mph Wind at Normal To Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 0.90	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
												Linear Area (sqft)	Linear Area (sqft)					
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	1.00	1.00	0.00	1.55	2.05	0.00	195.9	0.0	97.98	41.03	139.02
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	1.00	1.00	0.00	4.34	14.86	0.00	628.2	0.0	329.33	296.67	626.00
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.04	0.00	817.2	0.0	500.84	393.15	893.99
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	14.04	0.00	805.5	0.0	557.70	360.81	918.51
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	1.00	1.00	0.00	5.82	13.95	0.00	821.6	0.0	609.34	384.75	994.09
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	13.68	0.00	804.3	0.0	631.17	397.78	1,028.94
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.87	0.00	802.1	0.0	658.40	390.29	1,048.70
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.45	0.00	801.3	0.0	681.97	391.17	1,073.14
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.03	0.00	800.5	0.0	702.83	389.65	1,092.47
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	6.76	0.00	760.6	0.0	721.59	224.63	946.22
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	0.46	0.00	715.4	0.0	738.69	15.74	754.43
														7,952.6	0.0			9,515.51

Section Forces

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.6W 60° Wind	0.9D + 1.6W 105 mph Wind at 60° From Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 0.90	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

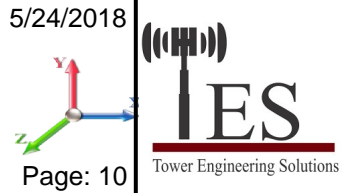
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	0.80	1.00	0.00	1.55	2.05	0.00	195.9	0.0	97.98	41.03	139.02	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	0.80	1.00	0.00	4.34	14.86	0.00	628.2	0.0	329.33	296.67	626.00	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.04	0.00	817.2	0.0	500.84	393.15	893.99	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	14.04	0.00	805.5	0.0	557.70	360.81	918.51	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	0.80	1.00	0.00	5.82	13.95	0.00	821.6	0.0	609.34	384.75	994.09	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	13.68	0.00	804.3	0.0	631.17	397.78	1,028.94	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.87	0.00	802.1	0.0	658.40	390.29	1,048.70	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.45	0.00	801.3	0.0	681.97	391.17	1,073.14	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.03	0.00	800.5	0.0	702.83	389.65	1,092.47	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	6.76	0.00	760.6	0.0	721.59	224.63	946.22	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	0.46	0.00	715.4	0.0	738.69	15.74	754.43	
														7,952.6	0.0				9,515.51

Load Case: 0.9D + 1.6W 90° Wind	0.9D + 1.6W 105 mph Wind at 90° From Face
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 0.90	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	0.85	1.00	0.00	1.55	2.05	0.00	195.9	0.0	97.98	41.03	139.02	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	0.85	1.00	0.00	4.34	14.86	0.00	628.2	0.0	329.33	296.67	626.00	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.04	0.00	817.2	0.0	500.84	393.15	893.99	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	14.04	0.00	805.5	0.0	557.70	360.81	918.51	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	0.85	1.00	0.00	5.82	13.95	0.00	821.6	0.0	609.34	384.75	994.09	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	13.68	0.00	804.3	0.0	631.17	397.78	1,028.94	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.87	0.00	802.1	0.0	658.40	390.29	1,048.70	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.45	0.00	801.3	0.0	681.97	391.17	1,073.14	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.03	0.00	800.5	0.0	702.83	389.65	1,092.47	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	6.76	0.00	760.6	0.0	721.59	224.63	946.22	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	0.46	0.00	715.4	0.0	738.69	15.74	754.43	
														7,952.6	0.0				9,515.51

Section Forces

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 10



Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 1.00	Ice Importance Factor: 1.00

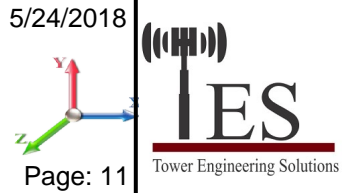
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
												Linear Area (sqft)	Linear Area (sqft)					
1	2.5	4.62	0.000	7.76	5.24	0.84	1.85	1.00	1.00	1.16	7.19	3.55	2.32	531.3	270.1	52.44	4.81	57.25
2	12.5	4.62	0.000	26.11	18.61	0.52	1.88	1.00	1.00	1.36	18.20	27.57	19.06	2,260.2	1422.7	134.49	118.53	253.02
3	30.0	5.34	0.000	36.29	26.45	0.53	1.86	1.00	1.00	1.49	25.68	31.20	24.52	3,077.9	1988.3	216.81	156.42	373.23
4	50.0	5.95	0.000	37.68	27.84	0.55	1.84	1.00	1.00	1.56	27.06	27.38	15.90	3,024.3	1950.3	251.90	132.66	384.56
5	70.0	6.39	0.000	39.66	29.60	0.58	1.82	1.00	1.00	1.62	29.14	27.65	16.17	3,189.9	2094.5	287.46	135.34	422.80
6	90.0	6.73	0.000	39.36	29.52	0.58	1.82	1.00	1.00	1.66	28.79	27.65	15.20	3,181.7	2109.3	300.15	141.93	442.09
7	110.0	7.02	0.000	39.96	30.12	0.58	1.82	1.00	1.00	1.69	29.42	27.06	11.28	3,173.8	2104.3	318.89	132.03	450.92
8	130.0	7.28	0.000	40.47	30.63	0.59	1.81	1.00	1.00	1.72	29.95	23.76	11.47	3,169.1	2100.6	335.48	122.60	458.08
9	150.0	7.50	0.000	40.91	31.07	0.60	1.81	1.00	1.00	1.75	30.43	20.35	11.63	3,154.5	2087.1	350.45	111.91	462.36
10	170.0	7.70	0.000	41.30	31.46	0.60	1.80	1.00	1.00	1.77	30.85	10.95	8.25	2,900.5	1886.4	364.14	66.83	430.97
11	190.0	7.88	0.000	41.66	31.81	0.60	1.80	1.00	1.00	1.79	31.23	0.46	1.49	2,559.0	1605.0	376.82	6.20	383.02
														30,222.2	19618.7			4,118.30

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 1.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
												Linear Area (sqft)	Linear Area (sqft)					
1	2.5	4.62	0.000	7.76	5.24	0.84	1.85	0.80	1.00	1.16	7.19	3.55	2.32	531.3	270.1	52.44	4.81	57.25
2	12.5	4.62	0.000	26.11	18.61	0.52	1.88	0.80	1.00	1.36	18.20	27.57	19.06	2,260.2	1422.7	134.49	118.53	253.02
3	30.0	5.34	0.000	36.29	26.45	0.53	1.86	0.80	1.00	1.49	25.68	31.20	24.52	3,077.9	1988.3	216.81	156.42	373.23
4	50.0	5.95	0.000	37.68	27.84	0.55	1.84	0.80	1.00	1.56	27.06	27.38	15.90	3,024.3	1950.3	251.90	132.66	384.56
5	70.0	6.39	0.000	39.66	29.60	0.58	1.82	0.80	1.00	1.62	29.14	27.65	16.17	3,189.9	2094.5	287.46	135.34	422.80
6	90.0	6.73	0.000	39.36	29.52	0.58	1.82	0.80	1.00	1.66	28.79	27.65	15.20	3,181.7	2109.3	300.15	141.93	442.09
7	110.0	7.02	0.000	39.96	30.12	0.58	1.82	0.80	1.00	1.69	29.42	27.06	11.28	3,173.8	2104.3	318.89	132.03	450.92
8	130.0	7.28	0.000	40.47	30.63	0.59	1.81	0.80	1.00	1.72	29.95	23.76	11.47	3,169.1	2100.6	335.48	122.60	458.08
9	150.0	7.50	0.000	40.91	31.07	0.60	1.81	0.80	1.00	1.75	30.43	20.35	11.63	3,154.5	2087.1	350.45	111.91	462.36
10	170.0	7.70	0.000	41.30	31.46	0.60	1.80	0.80	1.00	1.77	30.85	10.95	8.25	2,900.5	1886.4	364.14	66.83	430.97
11	190.0	7.88	0.000	41.66	31.81	0.60	1.80	0.80	1.00	1.79	31.23	0.46	1.49	2,559.0	1605.0	376.82	6.20	383.02
														30,222.2	19618.7			4,118.30

Section Forces

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 11



Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 1.00	Ice Importance Factor: 1.00

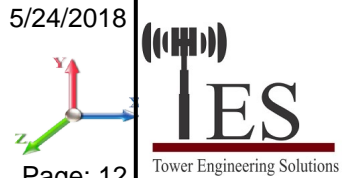
Sect Seq	Wind Height (ft)	Total Flat Area (psf) (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	4.62	0.000	7.76	5.24	0.84	1.85	0.85	1.00	1.16	7.19	3.55	2.32	531.3	270.1	52.44	4.81	57.25
2	12.5	4.62	0.000	26.11	18.61	0.52	1.88	0.85	1.00	1.36	18.20	27.57	19.06	2,260.2	1422.7	134.49	118.53	253.02
3	30.0	5.34	0.000	36.29	26.45	0.53	1.86	0.85	1.00	1.49	25.68	31.20	24.52	3,077.9	1988.3	216.81	156.42	373.23
4	50.0	5.95	0.000	37.68	27.84	0.55	1.84	0.85	1.00	1.56	27.06	27.38	15.90	3,024.3	1950.3	251.90	132.66	384.56
5	70.0	6.39	0.000	39.66	29.60	0.58	1.82	0.85	1.00	1.62	29.14	27.65	16.17	3,189.9	2094.5	287.46	135.34	422.80
6	90.0	6.73	0.000	39.36	29.52	0.58	1.82	0.85	1.00	1.66	28.79	27.65	15.20	3,181.7	2109.3	300.15	141.93	442.09
7	110.0	7.02	0.000	39.96	30.12	0.58	1.82	0.85	1.00	1.69	29.42	27.06	11.28	3,173.8	2104.3	318.89	132.03	450.92
8	130.0	7.28	0.000	40.47	30.63	0.59	1.81	0.85	1.00	1.72	29.95	23.76	11.47	3,169.1	2100.6	335.48	122.60	458.08
9	150.0	7.50	0.000	40.91	31.07	0.60	1.81	0.85	1.00	1.75	30.43	20.35	11.63	3,154.5	2087.1	350.45	111.91	462.36
10	170.0	7.70	0.000	41.30	31.46	0.60	1.80	0.85	1.00	1.77	30.85	10.95	8.25	2,900.5	1886.4	364.14	66.83	430.97
11	190.0	7.88	0.000	41.66	31.81	0.60	1.80	0.85	1.00	1.79	31.23	0.46	1.49	2,559.0	1605.0	376.82	6.20	383.02
													30,222.2	19618.7				4,118.30

Load Case: 1.0D + 1.0W Normal Wind	1.0D + 1.0W 60 mph Wind at Normal To Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.00	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf) (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	6.66	0.000	2.51	0.00	0.31	2.28	1.00	1.00	0.00	1.55	2.05	0.00	217.7	0.0	20.00	8.37	28.37
2	12.5	6.66	0.000	7.50	0.00	0.16	2.74	1.00	1.00	0.00	4.34	14.86	0.00	697.9	0.0	67.21	60.54	127.75
3	30.0	7.69	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.04	0.00	908.0	0.0	102.21	80.23	182.45
4	50.0	8.57	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	14.04	0.00	895.0	0.0	113.82	73.64	187.45
5	70.0	9.20	0.000	10.06	0.00	0.16	2.74	1.00	1.00	0.00	5.82	13.95	0.00	912.9	0.0	124.36	78.52	202.88
6	90.0	9.70	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	13.68	0.00	893.7	0.0	128.81	81.18	209.99
7	110.0	10.12	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.87	0.00	891.3	0.0	134.37	79.65	214.02
8	130.0	10.48	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.45	0.00	890.4	0.0	139.18	79.83	219.01
9	150.0	10.80	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	12.03	0.00	889.5	0.0	143.43	79.52	222.95
10	170.0	11.09	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	6.76	0.00	845.1	0.0	147.26	45.84	193.11
11	190.0	11.35	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	0.46	0.00	794.9	0.0	150.75	3.21	153.97
													8,836.2	0.0				1,941.94

Section Forces

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 12



Load Case: 1.0D + 1.0W 60° Wind	1.0D + 1.0W 60 mph Wind at 60° From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.00	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf) (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	6.66	0.000	2.51	0.00	0.31	2.28	0.80	1.00	0.00	1.55	2.05	0.00	217.7	0.0	20.00	8.37	28.37
2	12.5	6.66	0.000	7.50	0.00	0.16	2.74	0.80	1.00	0.00	4.34	14.86	0.00	697.9	0.0	67.21	60.54	127.75
3	30.0	7.69	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.04	0.00	908.0	0.0	102.21	80.23	182.45
4	50.0	8.57	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	14.04	0.00	895.0	0.0	113.82	73.64	187.45
5	70.0	9.20	0.000	10.06	0.00	0.16	2.74	0.80	1.00	0.00	5.82	13.95	0.00	912.9	0.0	124.36	78.52	202.88
6	90.0	9.70	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	13.68	0.00	893.7	0.0	128.81	81.18	209.99
7	110.0	10.12	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.87	0.00	891.3	0.0	134.37	79.65	214.02
8	130.0	10.48	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.45	0.00	890.4	0.0	139.18	79.83	219.01
9	150.0	10.80	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	12.03	0.00	889.5	0.0	143.43	79.52	222.95
10	170.0	11.09	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	6.76	0.00	845.1	0.0	147.26	45.84	193.11
11	190.0	11.35	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	0.46	0.00	794.9	0.0	150.75	3.21	153.97
														8,836.2	0.0			1,941.94

Load Case: 1.0D + 1.0W 90° Wind	1.0D + 1.0W 60 mph Wind at 90° From Face
Wind Load Factor: 1.00	Wind Importance Factor: 1.00
Dead Load Factor: 1.00	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf) (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
											Linear Area (sqft)	Linear Area (sqft)						
1	2.5	6.66	0.000	2.51	0.00	0.31	2.28	0.85	1.00	0.00	1.55	2.05	0.00	217.7	0.0	20.00	8.37	28.37
2	12.5	6.66	0.000	7.50	0.00	0.16	2.74	0.85	1.00	0.00	4.34	14.86	0.00	697.9	0.0	67.21	60.54	127.75
3	30.0	7.69	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.04	0.00	908.0	0.0	102.21	80.23	182.45
4	50.0	8.57	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	14.04	0.00	895.0	0.0	113.82	73.64	187.45
5	70.0	9.20	0.000	10.06	0.00	0.16	2.74	0.85	1.00	0.00	5.82	13.95	0.00	912.9	0.0	124.36	78.52	202.88
6	90.0	9.70	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	13.68	0.00	893.7	0.0	128.81	81.18	209.99
7	110.0	10.12	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.87	0.00	891.3	0.0	134.37	79.65	214.02
8	130.0	10.48	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.45	0.00	890.4	0.0	139.18	79.83	219.01
9	150.0	10.80	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	12.03	0.00	889.5	0.0	143.43	79.52	222.95
10	170.0	11.09	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	6.76	0.00	845.1	0.0	147.26	45.84	193.11
11	190.0	11.35	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	0.46	0.00	794.9	0.0	150.75	3.21	153.97
														8,836.2	0.0			1,941.94

Force/Stress Compression Summary

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
							X	Y	Z				
1	5	SOL - 1 3/4" SOLID	-34.01	1.2D + 1.0Di + 1.0Wi	60° Wind	1.76	100	100	100	48.38	50.00	91.21	37.3 Member X
2	20	SOL - 1 3/4" SOLID	-33.91	1.2D + 1.0Di + 1.0Wi	60° Wind	2.39	100	100	100	65.52	50.00	79.08	42.9 Member X
3	40	SOL - 1 3/4" SOLID	-34.20	1.2D + 1.0Di + 1.0Wi	60° Wind	2.33	100	100	100	64.00	50.00	80.23	42.6 Member X
4	60	SOL - 1 3/4" SOLID	-31.89	1.2D + 1.0Di + 1.0Wi	60° Wind	2.33	100	100	100	64.00	50.00	80.23	39.8 Member X
5	80	SOL - 1 3/4" SOLID	-29.23	1.2D + 1.6W	Normal Wind	2.33	100	100	100	64.00	50.00	80.23	36.4 Member X
6	100	SOL - 1 3/4" SOLID	-27.46	1.2D + 1.0Di + 1.0Wi	90° Wind	2.33	100	100	100	64.00	50.00	80.23	34.2 Member X
7	120	SOL - 1 3/4" SOLID	-27.03	1.2D + 1.0Di + 1.0Wi	90° Wind	2.33	100	100	100	64.00	50.00	80.23	33.7 Member X
8	140	SOL - 1 3/4" SOLID	-24.46	1.2D + 1.6W	Normal Wind	2.33	100	100	100	64.00	50.00	80.23	30.5 Member X
9	160	SOL - 1 3/4" SOLID	-22.84	1.2D + 1.6W	60° Wind	2.33	100	100	100	64.00	50.00	80.23	28.5 Member X
10	180	SOL - 1 3/4" SOLID	-34.37	1.2D + 1.6W	60° Wind	2.33	100	100	100	64.00	50.00	80.23	42.8 Member X
11	200	SOL - 1 3/4" SOLID	-23.73	1.2D + 1.6W	60° Wind	2.33	100	100	100	64.00	50.00	80.23	29.6 Member X

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
							X	Y	Z								
1	5									0.00	0	0					
2	20	SOL - 3/4" SOLID	-0.12	0.9D + 1.6W	60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			2 Member X
3	40	SOL - 3/4" SOLID	-0.11	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			2 Member X
4	60	SOL - 3/4" SOLID	-0.50	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			9 Member X
5	80	SOL - 3/4" SOLID	-0.47	1.2D + 1.6W	60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			8 Member X
6	100	SOL - 3/4" SOLID	-0.28	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			5 Member X
7	120	SOL - 3/4" SOLID	-0.15	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			3 Member X
8	140	SOL - 3/4" SOLID	-0.40	0.9D + 1.6W	60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			7 Member X
9	160	SOL - 3/4" SOLID	-1.09	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			20 Member X
10	180	SOL - 3/4" SOLID	-0.59	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			11 Member X
11	200	SOL - 3/4" SOLID	-0.60	1.2D + 1.6W	60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			11 Member X

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
							X	Y	Z								
1	5	SOL - 3/4" SOLID	-2.53	1.2D + 1.0Di + 1.0Wi	Normal	2.26	50	50	50	65.11	50.00	14.58	0	0			17 Member X
2	20	SOL - 3/4" SOLID	-0.68	1.2D + 1.6W	60° Wind	3.83	50	50	50	110.45	50.00	8.15	0	0			8 Member X
3	40	SOL - 3/4" SOLID	-0.79	1.2D + 1.6W	Normal Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			10 Member X
4	60	SOL - 3/4" SOLID	-1.32	1.2D + 1.6W	Normal Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			16 Member X
5	80	SOL - 3/4" SOLID	-1.38	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			17 Member X
6	100	SOL - 3/4" SOLID	-0.92	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			11 Member X
7	120	SOL - 3/4" SOLID	-0.66	1.2D + 1.6W	60° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			8 Member X
8	140	SOL - 3/4" SOLID	-2.90	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			35 Member X
9	160	SOL - 3/4" SOLID	-2.36	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			29 Member X
10	180	SOL - 3/4" SOLID	-1.71	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			21 Member X
11	200	SOL - 3/4" SOLID	-2.39	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			29 Member X

Force/Stress Tension Summary

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 14



LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	5				0	0.00		
2	20				0	0.00		
3	40				0	0.00		
4	60				0	0.00		
5	80				0	0.00		
6	100				0	0.00		
7	120				0	0.00		
8	140	SOL - 1 3/4" SOLID	6.28	0.9D + 1.6W 60° Wind	50	108.24	5.8	Member
9	160	SOL - 1 3/4" SOLID	8.32	0.9D + 1.6W Normal Wind	50	108.24	7.7	Member
10	180	SOL - 1 3/4" SOLID	18.98	0.9D + 1.6W Normal Wind	50	108.24	17.5	Member
11	200	SOL - 1 3/4" SOLID	11.18	0.9D + 1.6W Normal Wind	50	108.24	10.3	Member

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	SOL - 3/4" SOLID	3.24	1.2D + 1.0Di + 1.0Wi Nc	50	19.88	0	0				16.3	Member
2	20	SOL - 3/4" SOLID	3.24	1.2D + 1.0Di + 1.0Wi Nc	50	19.88	0	0				16.3	Member
3	40	SOL - 3/4" SOLID	0.34	1.2D + 1.6W 60° Wind	50	19.88	0	0				1.7	Member
4	60	SOL - 3/4" SOLID	0.68	1.2D + 1.6W 60° Wind	50	19.88	0	0				3.4	Member
5	80	SOL - 3/4" SOLID	0.76	1.2D + 1.6W Normal Wi	50	19.88	0	0				3.8	Member
6	100	SOL - 3/4" SOLID	0.44	1.2D + 1.6W 60° Wind	50	19.88	0	0				2.2	Member
7	120	SOL - 3/4" SOLID	0.37	1.2D + 1.6W 60° Wind	50	19.88	0	0				1.9	Member
8	140	SOL - 3/4" SOLID	1.04	1.2D + 1.6W Normal Wi	50	19.88	0	0				5.2	Member
9	160	SOL - 3/4" SOLID	1.24	1.2D + 1.6W 60° Wind	50	19.88	0	0				6.2	Member
10	180	SOL - 3/4" SOLID	0.76	1.2D + 1.6W 60° Wind	50	19.88	0	0				3.8	Member
11	200	SOL - 3/4" SOLID	0.93	1.2D + 1.6W Normal Wi	50	19.88	0	0				4.7	Member

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	SOL - 3/4" SOLID	0.00		50	0.00	0	0					
2	20	SOL - 3/4" SOLID	0.64	1.2D + 1.6W 90° Wind	50	19.88	0	0				3.2	Member
3	40	SOL - 3/4" SOLID	0.46	0.9D + 1.6W Normal Wi	50	19.88	0	0				2.3	Member
4	60	SOL - 3/4" SOLID	0.99	1.2D + 1.6W 60° Wind	50	19.88	0	0				5.0	Member
5	80	SOL - 3/4" SOLID	1.10	1.2D + 1.6W Normal Wi	50	19.88	0	0				5.5	Member
6	100	SOL - 3/4" SOLID	0.69	0.9D + 1.6W 90° Wind	50	19.88	0	0				3.5	Member
7	120	SOL - 3/4" SOLID	0.54	0.9D + 1.6W 60° Wind	50	19.88	0	0				2.7	Member
8	140	SOL - 3/4" SOLID	2.15	0.9D + 1.6W 90° Wind	50	19.88	0	0				10.8	Member
9	160	SOL - 3/4" SOLID	2.27	1.2D + 1.6W 90° Wind	50	19.88	0	0				11.4	Member
10	180	SOL - 3/4" SOLID	1.61	1.2D + 1.6W 90° Wind	50	19.88	0	0				8.1	Member
11	200	SOL - 3/4" SOLID	1.85	0.9D + 1.6W 90° Wind	50	19.88	0	0				9.3	Member

Support Forces Summary

Structure: CT20001-A-SBA

Code: EIA/TIA-222-G

5/24/2018

Site Name: STERLING CT TOWER

Exposure: C

Height: 200.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

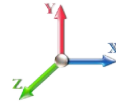
Site Class: C - Very Dense Soil

Gh: 0.85

Topography: 1

Struct Class: II

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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	60.75	-1.13	
	A1	0.00	-2.76	1.49	
	A1b	15.90	-20.27	-10.13	
	A1a	-15.90	-20.28	-10.13	
1.2D + 1.6W 60° Wind	1	-1.12	55.84	-0.64	
	A1	-0.74	-7.07	5.73	
	A1b	4.59	-7.09	-3.51	
	A1a	-19.97	-24.55	-11.53	
1.2D + 1.6W 90° Wind	1	-1.21	58.81	-0.07	
	A1	-0.95	-13.85	12.49	
	A1b	1.95	-3.76	-1.55	
	A1a	-19.70	-23.92	-10.86	
0.9D + 1.6W Normal Wind	1	0.00	56.71	-1.15	
	A1	0.00	-2.77	1.50	
	A1b	15.89	-20.26	-10.12	
	A1a	-15.89	-20.27	-10.12	
0.9D + 1.6W 60° Wind	1	-1.13	51.87	-0.65	
	A1	-0.74	-7.10	5.75	
	A1b	4.61	-7.12	-3.52	
	A1a	-19.98	-24.56	-11.54	
0.9D + 1.6W 90° Wind	1	-1.23	54.80	-0.07	
	A1	-0.95	-13.85	12.49	
	A1b	1.97	-3.78	-1.56	
	A1a	-19.69	-23.92	-10.86	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.01	91.97	-0.50	
	A1	0.00	-7.74	8.14	
	A1b	13.75	-15.48	-8.92	
	A1a	-13.76	-15.48	-8.93	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.33	92.69	-0.19	
	A1	-0.85	-10.67	10.94	
	A1b	9.05	-10.68	-6.21	
	A1a	-16.71	-18.43	-9.65	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.44	92.35	0.06	
	A1	-1.04	-13.07	13.64	
	A1b	7.44	-8.57	-4.79	
	A1a	-16.29	-17.62	-8.91	
1.0D + 1.0W Normal Wind	1	0.00	35.36	-0.31	
	A1	0.00	-4.66	4.27	
	A1b	6.49	-8.04	-3.92	
	A1a	-6.49	-8.04	-3.92	
1.0D + 1.0W 60° Wind	1	-0.26	35.55	-0.15	
	A1	-0.15	-5.86	5.40	
	A1b	4.60	-5.87	-2.83	
	A1a	-7.58	-9.26	-4.38	

1.0D + 1.0W 90° Wind	1	-0.30	35.45	0.01
	A1	-0.18	-6.96	6.50
	A1b	3.90	-4.98	-2.34
	A1a	-7.35	-8.92	-4.15

Max Reactions (kips)	Base	Anchor 1
Vertical	92.69	24.56
Horizontal	1.31	23.07

Cable Forces Summary

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 17



Load Case	Elevation (ft)	Cable	Node 1	Node 2	Allow Tension (kips)	Applied Tension (kips)	Use %
1.2D + 1.6W Normal	65.33	7/16 EHS	A1	34	12.48	0.03	0
			A1b	34a	12.48	5.18	42
			A1a	34b	12.48	5.18	42
	134.67		A1	T2	12.48	0.56	5
			A1a	T2b	12.48	5.90	47
			A1b	T2a	12.48	5.93	48
			A1b	T2	12.48	5.94	48
			A1a	T2a	12.48	5.97	48
			A1	T2b	12.48	0.56	5
	190.00		A1	T3	12.48	1.14	9
			A1a	T3b	12.48	5.88	47
			A1b	T3a	12.48	5.50	44
			A1b	T3	12.48	5.87	47
			A1a	T3a	12.48	5.48	44
			A1	T3b	12.48	1.14	9
1.2D + 1.6W 60° Wind		65.33	A1	34	12.48	1.37	11
			A1b	34a	12.48	1.35	11
			A1a	34b	12.48	6.37	51
	134.67	A1	T2	12.48	1.79	14	
		A1a	T2b	12.48	7.31	59	
		A1b	T2a	12.48	1.72	14	
		A1b	T2	12.48	1.78	14	
		A1a	T2a	12.48	7.29	58	
		A1	T2b	12.48	1.71	14	
	190.00	A1	T3	12.48	2.45	20	
		A1a	T3b	12.48	6.80	54	
		A1b	T3a	12.48	2.29	18	
		A1b	T3	12.48	2.45	20	
		A1a	T3a	12.48	6.74	54	
		A1	T3b	12.48	2.24	18	
1.2D + 1.6W 90° Wind		65.33	A1	34	12.48	3.44	28
			A1b	34a	12.48	0.38	3
			A1a	34b	12.48	6.27	50
	134.67	A1	T2	12.48	3.91	31	
		A1a	T2b	12.48	7.16	57	
		A1b	T2a	12.48	0.79	6	
		A1b	T2	12.48	0.85	7	
		A1a	T2a	12.48	7.07	57	
		A1	T2b	12.48	3.82	31	
	190.00	A1	T3	12.48	4.27	34	
		A1a	T3b	12.48	6.48	52	
		A1b	T3a	12.48	1.38	11	
		A1b	T3	12.48	1.45	12	
		A1a	T3a	12.48	6.66	53	
		A1	T3b	12.48	3.84	31	
0.9D + 1.6W Normal		65.33	A1	34	12.48	0.03	0
			A1b	34a	12.48	5.17	41
			A1a	34b	12.48	5.17	41
	134.67	A1	T2	12.48	0.56	5	
		A1a	T2b	12.48	5.90	47	
		A1b	T2a	12.48	5.93	47	
		A1b	T2	12.48	5.94	48	
		A1a	T2a	12.48	5.97	48	

0.9D + 1.6W Normal	134.67	7/16 EHS	A1	T2b	12.48	0.57	5
	190.00		A1	T3	12.48	1.15	9
			A1a	T3b	12.48	5.88	47
			A1b	T3a	12.48	5.50	44
			A1b	T3	12.48	5.87	47
			A1a	T3a	12.48	5.48	44
			A1	T3b	12.48	1.14	9
0.9D + 1.6W 60° Wind	65.33		A1	34	12.48	1.38	11
			A1b	34a	12.48	1.35	11
			A1a	34b	12.48	6.36	51
	134.67		A1	T2	12.48	1.80	14
			A1a	T2b	12.48	7.31	59
			A1b	T2a	12.48	1.73	14
			A1b	T2	12.48	1.79	14
			A1a	T2a	12.48	7.30	58
			A1	T2b	12.48	1.72	14
	190.00		A1	T3	12.48	2.46	20
			A1a	T3b	12.48	6.80	54
			A1b	T3a	12.48	2.30	18
			A1b	T3	12.48	2.46	20
			A1a	T3a	12.48	6.74	54
0.9D + 1.6W 90° Wind	65.33		A1	T3b	12.48	2.25	18
			A1	34	12.48	3.43	28
			A1b	34a	12.48	0.38	3
			A1a	34b	12.48	6.26	50
	134.67		A1	T2	12.48	3.91	31
			A1a	T2b	12.48	7.16	57
			A1b	T2a	12.48	0.80	6
			A1b	T2	12.48	0.85	7
			A1a	T2a	12.48	7.07	57
			A1	T2b	12.48	3.82	31
	190.00		A1	T3	12.48	4.27	34
			A1a	T3b	12.48	6.48	52
			A1b	T3a	12.48	1.39	11
			A1b	T3	12.48	1.46	12
		A1a	T3a	12.48	6.66	53	
1.2D + 1.0Di + 1.0Wi	65.33		A1	T3b	12.48	3.84	31
			A1	34	12.48	2.85	23
			A1b	34a	12.48	4.97	40
			A1a	34b	12.48	4.98	40
	134.67		A1	T2	12.48	2.85	23
			A1a	T2b	12.48	5.22	42
			A1b	T2a	12.48	5.05	40
			A1b	T2	12.48	5.23	42
			A1a	T2a	12.48	5.05	41
			A1	T2b	12.48	2.85	23
	190.00		A1	T3	12.48	3.09	25
			A1a	T3b	12.48	5.57	45
			A1b	T3a	12.48	5.34	43
			A1b	T3	12.48	5.56	45
		A1a	T3a	12.48	5.33	43	
1.2D + 1.0Di + 1.0Wi	65.33		A1	T3b	12.48	3.08	25
			A1	34	12.48	3.45	28
			A1b	34a	12.48	3.44	28
			A1a	34b	12.48	5.62	45
	134.67		A1	T2	12.48	3.71	30
			A1a	T2b	12.48	6.02	48
			A1b	T2a	12.48	3.53	28
			A1b	T2	12.48	3.70	30
			A1a	T2a	12.48	6.02	48
			A1	T2b	12.48	3.53	28
	190.00		A1	T3	12.48	4.22	34
			A1a	T3b	12.48	6.33	51
			A1b	T3a	12.48	3.95	32
			A1b	T3	12.48	4.21	34
		A1a	T3a	12.48	6.33	51	
		A1	T3b	12.48	3.93	31	

1.2D + 1.0Di + 1.0Wi	65.33	7/16 EHS	A1	34	12.48	4.21	34
			A1b	34a	12.48	2.95	24
			A1a	34b	12.48	5.50	44
	134.67		A1	T2	12.48	4.48	36
			A1a	T2b	12.48	5.76	46
			A1b	T2a	12.48	2.99	24
			A1b	T2	12.48	3.05	24
			A1a	T2a	12.48	5.82	47
			A1	T2b	12.48	4.26	34
	190.00		A1	T3	12.48	4.92	39
			A1a	T3b	12.48	6.03	48
			A1b	T3a	12.48	3.33	27
			A1b	T3	12.48	3.50	28
			A1a	T3a	12.48	6.12	49
			A1	T3b	12.48	4.61	37
1.0D + 1.0W Normal		65.33	A1	34	12.48	1.41	11
			A1b	34a	12.48	2.33	19
			A1a	34b	12.48	2.34	19
	134.67	A1	T2	12.48	1.24	10	
		A1a	T2b	12.48	2.30	18	
		A1b	T2a	12.48	2.29	18	
		A1b	T2	12.48	2.31	18	
		A1a	T2a	12.48	2.29	18	
		A1	T2b	12.48	1.25	10	
	190.00	A1	T3	12.48	1.42	11	
		A1a	T3b	12.48	2.35	19	
		A1b	T3a	12.48	2.26	18	
		A1b	T3	12.48	2.34	19	
		A1a	T3a	12.48	2.26	18	
		A1	T3b	12.48	1.41	11	
1.0D + 1.0W 60° Wind		65.33	A1	34	12.48	1.71	14
			A1b	34a	12.48	1.70	14
			A1a	34b	12.48	2.66	21
	134.67	A1	T2	12.48	1.63	13	
		A1a	T2b	12.48	2.68	21	
		A1b	T2a	12.48	1.60	13	
		A1b	T2	12.48	1.63	13	
		A1a	T2a	12.48	2.68	21	
		A1	T2b	12.48	1.60	13	
	190.00	A1	T3	12.48	1.79	14	
		A1a	T3b	12.48	2.62	21	
		A1b	T3a	12.48	1.70	14	
		A1b	T3	12.48	1.79	14	
		A1a	T3a	12.48	2.61	21	
		A1	T3b	12.48	1.68	13	
1.0D + 1.0W 90° Wind		65.33	A1	34	12.48	2.02	16
			A1b	34a	12.48	1.47	12
			A1a	34b	12.48	2.58	21
	134.67	A1	T2	12.48	1.98	16	
		A1a	T2b	12.48	2.58	21	
		A1b	T2a	12.48	1.33	11	
		A1b	T2	12.48	1.34	11	
		A1a	T2a	12.48	2.57	21	
		A1	T2b	12.48	1.94	16	
	190.00	A1	T3	12.48	2.08	17	
		A1a	T3b	12.48	2.51	20	
		A1b	T3a	12.48	1.48	12	
		A1b	T3	12.48	1.54	12	
		A1a	T3a	12.48	2.54	20	
		A1	T3b	12.48	1.96	16	

Analysis Summary

Structure: CT20001-A-SBA	Code: EIA/TIA-222-G	5/24/2018
Site Name: STERLING CT TOWER	Exposure: C	
Height: 200.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 20



Max Reactions

Base:	92.69 (Vertical)	1.31 (Horizontal)
Anchor 1:	24.56 (Vertical)	23.07 (Horizontal)

Max Usages

Max Leg: 42.9% (1.2D + 1.0Di + 1.0Wi 60° Wind - Sect 2)
 Max Diag: 35.0% (1.2D + 1.6W 90° Wind - Sect 8)
 Max Horiz: 19.8% (0.9D + 1.6W Normal Wind - Sect 9)
 Max Cable: 58.6% (0.9D + 1.6W 60° Wind) - Elev: 135 ft

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 105 mph Wind at 60° From Face	14.56	0.0823	0.0658	0.3107
	25.33	0.1417	0.0638	0.2613
	39.33	0.1932	0.0733	0.0939
	40.67	0.1942	0.0740	0.0681
	94.67	0.3943	0.0725	0.2151
	130.00	0.5275	0.0226	0.2055
	134.67	0.5474	0.0165	0.2554
	167.67	0.7396	0.0629	0.1862
	170.00	0.7492	0.0634	0.1866
	200.00	0.7594	0.0611	0.0590
----- 0.9D + 1.6W 105 mph Wind at 90° From Face	14.56	0.0975	0.2434	0.3780
	25.33	0.1758	0.2294	0.3254
	39.33	0.2329	0.2280	0.1765
	40.67	0.2358	0.2272	0.1602
	94.67	0.5095	0.1355	0.2267
	130.00	0.6772	0.0617	0.1451
	134.67	0.7022	0.0569	0.3001
	167.67	0.9101	0.0686	0.0810
	170.00	0.9226	0.0731	0.2288
	200.00	0.9462	0.0797	0.0865
----- 0.9D + 1.6W 105 mph Wind at Normal To Face	14.56	0.1128	-0.2024	0.3986
	25.33	0.1787	-0.1818	0.3512
	39.33	0.2518	-0.1556	0.2034
	40.67	0.2557	-0.1528	0.1906
	94.67	0.5577	-0.0646	0.4464
	130.00	0.7609	-0.0214	0.4672
	134.67	0.7881	-0.0230	0.3500
	167.67	1.0259	-0.0024	0.4318
	170.00	1.0370	0.0071	0.2372
	200.00	1.0825	0.0169	0.1260

1.0D + 1.0W 60 mph Wind at 60° From Face	14.56	0.0141	0.0040	0.0529
	25.33	0.0239	0.0020	0.0416
	39.33	0.0316	0.0028	0.0132
	40.67	0.0316	0.0030	0.0007
	94.67	0.0571	0.0021	0.0269
	130.00	0.0720	0.0012	0.0286
	134.67	0.0741	0.0012	0.0309
	167.67	0.0998	0.0031	0.0280
	170.00	0.1009	0.0036	0.0174
	185.33	0.0978	0.0067	0.0459
	190.00	0.0959	0.0081	0.0236
	200.00	0.0924	0.0076	0.0079

1.0D + 1.0W 60 mph Wind at 90° From Face	14.56	0.0136	0.0190	0.0531
	25.33	0.0245	0.0097	0.0406
	39.33	0.0304	0.0074	0.0133
	40.67	0.0305	0.0076	0.0055
	94.67	0.0548	0.0043	0.0096
	130.00	0.0664	0.0059	0.0113
	134.67	0.0683	0.0065	0.0255
	167.67	0.0903	0.0060	0.0202
	170.00	0.0913	0.0067	0.0148
	185.33	0.0866	0.0128	0.0600
	190.00	0.0841	0.0148	0.0330
	200.00	0.0796	0.0141	0.0169

1.0D + 1.0W 60 mph Wind at Normal To Face	14.56	0.0147	-0.0180	0.0489
	25.33	0.0224	-0.0083	0.0383
	39.33	0.0292	-0.0037	0.0128
	40.67	0.0293	-0.0036	0.0101
	94.67	0.0495	-0.0013	0.0400
	130.00	0.0586	-0.0021	0.0441
	134.67	0.0600	-0.0032	0.0202
	167.67	0.0788	0.0004	0.0388
	170.00	0.0791	0.0011	0.0090
	185.33	0.0725	0.0026	0.0067
	190.00	0.0697	0.0031	0.0364
	200.00	0.0639	0.0028	0.0214

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	14.56	0.0405	0.0160	0.1572
	25.33	0.0698	0.0114	0.1330
	39.33	0.0978	0.0126	0.0802
	40.67	0.0990	0.0129	0.0460
	94.67	0.1825	0.0091	0.0694
	130.00	0.2105	0.0038	0.0428
	134.67	0.2131	0.0037	0.0358
	167.67	0.2453	0.0110	0.0485
	170.00	0.2459	0.0125	0.0085
	185.33	0.2349	0.0176	0.1054
	190.00	0.2292	0.0205	0.0729
	200.00	0.2177	0.0196	0.0529

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	14.56	0.0423	0.0750	0.1686
	25.33	0.0763	0.0638	0.1399
	39.33	0.1013	0.0628	0.0860
	40.67	0.1027	0.0631	0.0578
	94.67	0.1748	0.0481	0.0446
	130.00	0.1743	0.0466	0.1073
	134.67	0.1752	0.0472	0.0791
	167.67	0.1819	0.0726	0.1549
	170.00	0.1827	0.0749	0.1288
	185.33	0.1722	0.0906	0.2298
	190.00	0.1695	0.0945	0.1926
	200.00	0.1687	0.0937	0.1718

1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	14.56	0.0457	-0.0071	0.1688
	25.33	0.0758	-0.0048	0.1430
	39.33	0.1059	-0.0017	0.0891
	40.67	0.1076	-0.0015	0.0730
	94.67	0.1555	0.0002	0.0257
	130.00	0.1178	-0.0021	0.0611
	134.67	0.1089	-0.0039	0.1108
	167.67	0.0450	0.0022	0.1256
	170.00	0.0379	0.0045	0.1999
	185.33	0.0247	0.0076	0.2045
	190.00	0.0459	0.0088	0.2644
200.00	0.0907	0.0082	0.2447	

1.2D + 1.6W 105 mph Wind at 60° From Face	14.56	0.0826	0.0659	0.3121
	25.33	0.1423	0.0639	0.2623
	39.33	0.1939	0.0735	0.0934
	40.67	0.1949	0.0743	0.0664
	94.67	0.3955	0.0728	0.2160
	130.00	0.5292	0.0228	0.2064
	134.67	0.5492	0.0166	0.2565
	167.67	0.7421	0.0632	0.1868
	170.00	0.7518	0.0637	0.1875
	185.33	0.7641	0.0574	0.1612
	190.00	0.7627	0.0634	0.0265
200.00	0.7623	0.0615	0.0596	

1.2D + 1.6W 105 mph Wind at 90° From Face	14.56	0.0981	0.2441	0.3806
	25.33	0.1769	0.2300	0.3275
	39.33	0.2344	0.2287	0.1772
	40.67	0.2373	0.2279	0.1602
	94.67	0.5125	0.1358	0.2286
	130.00	0.6813	0.0618	0.1469
	134.67	0.7064	0.0570	0.3021
	167.67	0.9154	0.0687	0.0824
	170.00	0.9280	0.0733	0.2303
	185.33	0.9470	0.0764	0.1374
	190.00	0.9478	0.0814	0.0279
200.00	0.9522	0.0799	0.0875	

1.2D + 1.6W 105 mph Wind at Normal To Face	14.56	0.1135	-0.2036	0.4010
	25.33	0.1798	-0.1828	0.3534
	39.33	0.2534	-0.1565	0.2042
	40.67	0.2573	-0.1537	0.1909
	94.67	0.5612	-0.0648	0.4488
	130.00	0.7658	-0.0214	0.4696
	134.67	0.7931	-0.0231	0.3525
	167.67	1.0325	-0.0025	0.4339
	170.00	1.0436	0.0071	0.2391
	185.33	1.0732	0.0151	0.2021
	190.00	1.0784	0.0183	0.0620
200.00	1.0901	0.0170	0.1279	



Guyed Tower Base Design

Date
5/24/2018

Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	200
Site Nmber:	CT20001-A-SBA	Engineer Name:	T. Alajaj
Engr. Number:	53622	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Guyed Tower

Analysis or Design?

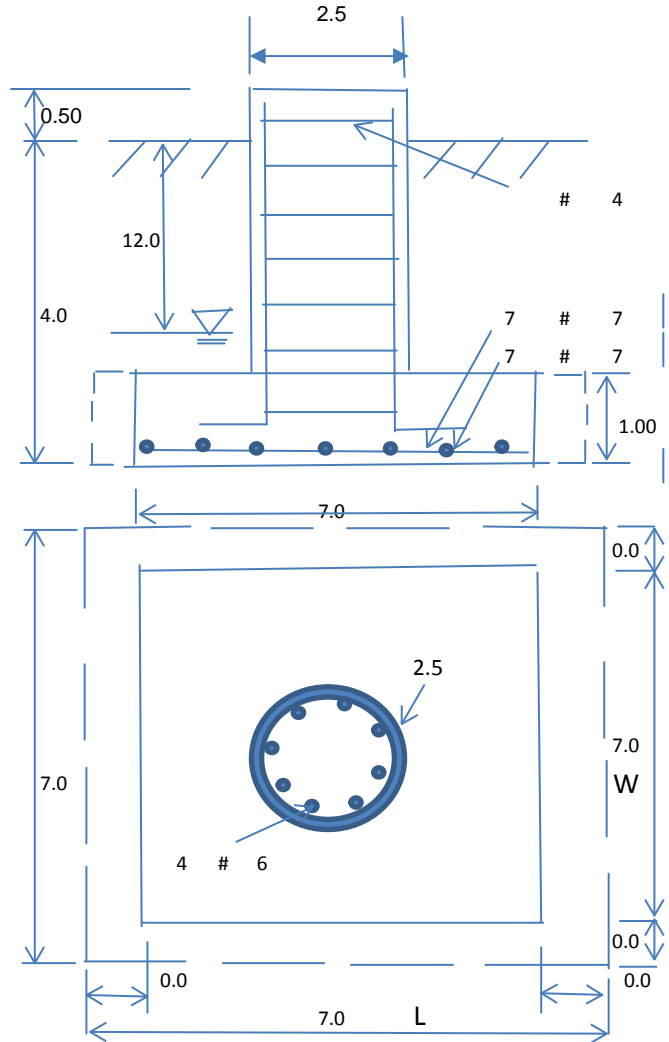
Analysis

Base Reactions (Factored):

Axial Load (Kips):	92.7	Shear Force (Kips):	1.3
Uplift Force (Kips):	0.0	Moment (Kips-ft):	
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	2.5	Depth of Base BG (ft.):	4.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	1.00
Length of Pad (ft.):	7	Width of Pad (ft.):	7
Final Length of pad (ft)	7.0	Final width of pad (ft):	7.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	6	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	4	Tie Spacing (in):	16.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	7	
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):	7	Qty. of Rebar in Pad (W):	7	

Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	12.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	30000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	30
					Angle from Bottm of Pad:	25

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.6
Total Dry Soil Volume (cu. Ft.):	132.27	Total Dry Soil Weight (Kips):	16.53
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	16.53	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	66.18	Total Dry Concrete Weight (Kips):	9.93
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	9.93	Total Vertical Load on Base (Kips):	119.15

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1989.7	<	Allowable Factored Soil Bearing (psf):	18000	0.11	OK!
Calculated Foundation Allowable Axail Capacity (Kips):	882.0	>	Design Factored Axial Load (Kips):	95	0.11	OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

Load/
Capacity
Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	0.44	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	92.1	> Design Factored Moment (Mu, Kips-Ft)	4.6	0.05	OK!
Calculated Shear Capacity (Kips):	103.1	> Design Factored Shear (Kips):	1.3	0.01	OK!
Calculated Tension Capacity (Tn, Kips):	95.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	1246.6	> Design Factored Axial Load (Pu Kips):	92.7	0.07	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.12	OK!			
Pier Reinforcement Ratio:	0.002				

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Dir. Kips);	68.2	> One-Way Factored Shear (L-Dir Kips):	20.8	0.30	OK!
One-Way Design Shear Capacity (W-Dir. Kips):	68.2	> One-Way Factored Shear (W-Dir Kips)	20.8	0.30	OK!
Two-Way Design Shear Capacity (Kips):	196.8	> Two-Way Factored Shear (Kips):	77.4	0.39	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0058	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0058	OK!
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	153.5	> Moment at Bottom (L-Direct. K-Ft):	34.2	0.22	OK!
Lower Steel Pad Moment Capacity (W-Dir. Kips-ft):	153.5	> Moment at Bottom (W-Dir. Kips-Ft):	34.2	0.22	OK!



Guy Anchor Analysis and Design

Date

43244

Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EA-222-G
Site Name:	0	Structure Height (Ft.):	200
Site Number:	CT20001-A-SBA	Engineer Name:	T. Alana
Engr. Number:	53622	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Number of Anchors:

1 Set

Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Unit Weight:	65.0	cf	Cohesion of Soils (psf):	0
Water Table Depth (ft):	4.3	Unit Weight of Water:	62.4	pcf	Internal Angle of Friction (°):	40
Ultimate Lateral Pressure (psf):	3600	Ultimate Sin Friction:		sf	Coefficient of Shear Friction:	0.50
Conical Failure Angle from Top:	30	Failure Angle from Bottom:	20			

Material Properties:

Concrete Strength (psi):	3000	Unit Weight of Concrete:	150.0	pcf	Horizontal Rebar Yield (psi):	60000
Shear Strength Reduction Factor:	0.5				Flexure Strength Reduction Factor:	0.9

A. Inner Anchors:

Radius (ft.): 125

1. Design Reactions (Factored):

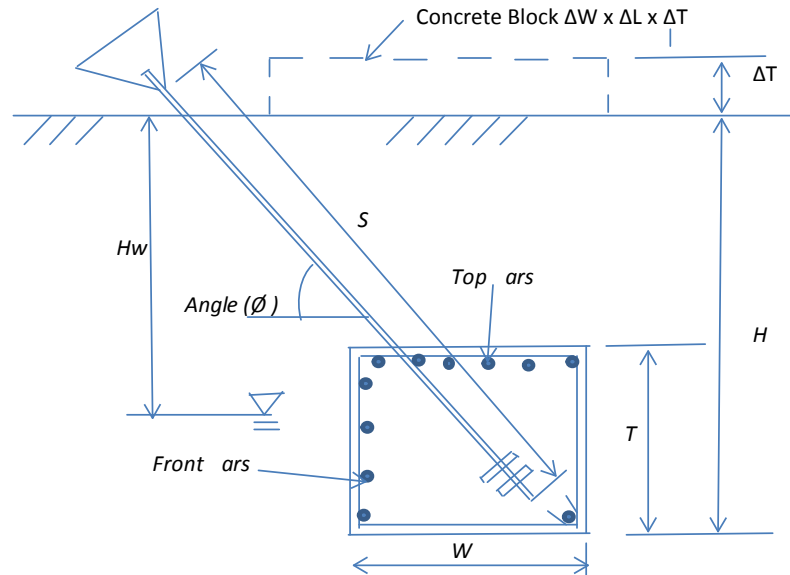
Uplift (kips): 24.6 Shear (kips): 23.1 Angle of force resultant (∅): 46.8

2. Foundation Geometries:

Anchor Depth (ft.):	8.0	Anchor with/without toe:	0	Water Table below grade (ft.):	99.00
Length of Anchor (ft.):	9.0	Width of Anchor (ft.):	4.0	Thickness of Anchor (ft.):	2.5
Concrete top of Anchor:	0				

(1). Inner Anchors:

Radius (ft.):	125
H (ft.):	8.0
L (ft.):	9.0
T (ft.):	2.5
S (ft.):	11.66
Top bars:	4 # 5
Front bars:	3 # 5
Concrete Volume (Cu. Ft.)/Each:	3.33



3. Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	462.02	Total Dry Soil Weight (Kips):	68.26
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	57.75	Weight of the Concrete Block at Top (Kips):	0.00
Total Dry Concrete Volume (cu. Ft.):	90.00	Total Dry Concrete Weight (Kip):	13.50
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	13.50	Weight Reduction Factor:	0.9
Uplift Strength Reduction Factor on Soil:	0.75	Shear Strength Reduction Factor on Soil:	0.75

4. Check Soil and Foundation Capacities:

Nominal Factored Uplift Resistance:	59.18	Kips > Design Uplift Force (Kips):	24.6	OK!
Ultimate Shear Friction Resistance at base:	11.77	Kips Ultimate Resistance Pressure:	3600.0	Psf
Factored Shear Resistance:	69.58	Kips > Design Shear Force (Kips):	23.1	OK!

5. Design Concrete Block:

Rebar Size (#):	5	Wind Load Factor on Concrete Design:	1.00	
Qty. of the Rebar at top of the block:	4	Qty. of the Rebar in the front of the block:	3	
Area of Single Rebar (sq. in.):	0.31	Factor for concrete compression zone:	0.85	
One Way Shear due to Shear Force (Kips):	11.5	One Way Shear Capacity for shear (kips):	108.4	OK!
One Way Shear due to Uplift (Kips):	12.3	One Way Shear Capacity for uplift (kips):	102.5	OK!
Moment due to Shear Load (Kips-ft):	26.0	Flexural Capacity for Shear Load (Kips-ft):	184.1	OK!
Moment due to uplift Load (Kips-ft):	27.6	Flexural Capacity for uplift Load (Kips-ft):	145.0	OK!
Ratio of Design Moment/Moment capacity:	0.19			
Max. Ratio of Shear Force/Shear capacity:	0.12	OK!		

Antenna Mount Structural Analysis



Source: SBA Date: 11.14.2017

SBA Site: CT20001-A Sterling CT Tower
Sprint Site Number: CT33XC009
Project: Sprint DO Macro Upgrade

Prepared For: Sprint

Mount Description: (3) Replacement Sector Frames
Sitepro1 VFA12-HD

Site Location: 421 Ekonk Hill Road (Rt-49), Sterling, CT
Windham County
41.662222°, -71.846944°

Design Codes: ANSI/TIA-222-G
IBC 2012 w/ 2016 CT Building Code

Analysis Load Case: Sprint Final Configuration

Analysis Result: **Adequate @ 53% - Once Replaced**
See Conclusion



Revision 0
May 4, 2018

CT33XC009-PASSING-MOUNT-STRUCTURAL-ANALYSIS-05-04-18

1.0 Introduction

An antenna mount structural analysis has been performed on Sprint's replacement mount assembly located at the CT20001-A Sterling CT Tower communications site in Windham County, CT considering the final equipment loading configuration listed in Section 3.0.

2.0 Analysis Criteria

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

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

Wind w/o ice = 135 mph (3-sec gust Ultimate Wind Speed)	
Wind w/o ice = 105 mph (3-sec gust Equivalent per TIA-222-G Tower Code)	
Wind with ice = 50 mph (3-sec gust, 3/4" Ice)	Topographic Category 1
Exposure Category C	Structure Class II

The following documents were provided:

<ul style="list-style-type: none"> • <u>Mount and Tower Record Documents</u> SBA • <u>Tower Analysis</u> TES, 1/25/18. • <u>RF Design</u> Sprint DOMU Project, RFDS ID: 111249.
--

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

3.0 Appurtenance Information

Table 3.1 – Sprint Final Configuration¹

COR	(Quantity) Appurtenance Make/Model	Mount Description
170.0'±	(3) RFS APXVTM14-ALU-I20	(3) Replacement Sector Frames <i>Sitepro1 VFA12-HD</i>
	(3) COMMSCOPE NNVV-65B-R4	
	(6) ALU 800MHz RRH	
	(3) ALU 1900MHz RRH	
	(3) ALU 2500MHz RRH	

1. Refer to antenna installation Construction Drawings (by others, when applicable) for additional information regarding final antenna and equipment orientations.
2. Panel antennas to be installed in Positions 2 and 3 with a horizontal separation not to exceed 4.5'. RRH units to be installed behind each panel antenna on dual RRH swivel brackets (maximum of two RRH per panel mount pipe).

4.0 Analysis Results

Table 4.1 – Replacement Mount Capacity

Load Case	Governing Mount Component ¹	% Capacity ²	Result
Final Sprint Configuration	Standoff Connection Plates	53%	Adequate Once Replaced³

1. Refer to the Calculations & Software Output portion of this report for mount component and structural information.
2. Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.2. 105% is an acceptable allowable stress percentage for mount components.
3. Refer to Conclusion & Recommendations Section for more information regarding mount replacement.

Table 4.2 – Structural Component Material Strengths

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

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

5.0 Conclusion & Recommendations

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

- Install **(3) Replacement Sector Frames**; attach sector frame clamps directly to guyed tower legs per manufacturer's specifications and install (2) tie-back members per mount. Existing antenna mount frames and appurtenances should be removed from the tower and properly disposed of.
 - Sitepro1 VFA12-HD, (3) total.
 - 12' Heavy Duty V-Frame Assembly with Two Stiff Arms.

Once the recommended replacement is successfully implemented, the **replacement** mount assembly has sufficient capacity to support the loading considered in this analysis pursuant to the listed standards.

Installation Requirements:

- **Antennas and equipment shall be installed centered vertically on the mount front face rails. If this assumption is incorrect, the results of this analysis will be affected.**
- **Panel antennas to be installed in Positions 2 and 3 with a horizontal separation not to exceed 4.5'. RRH units to be installed behind each panel antenna on dual RRH swivel brackets (maximum of two RRH per panel mount pipe).**

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

Prepared by:



Jesse Drennen, PE, MLE
208.761.7986
jesse.drennen@geostructural.com

Reviewed and Approved by:



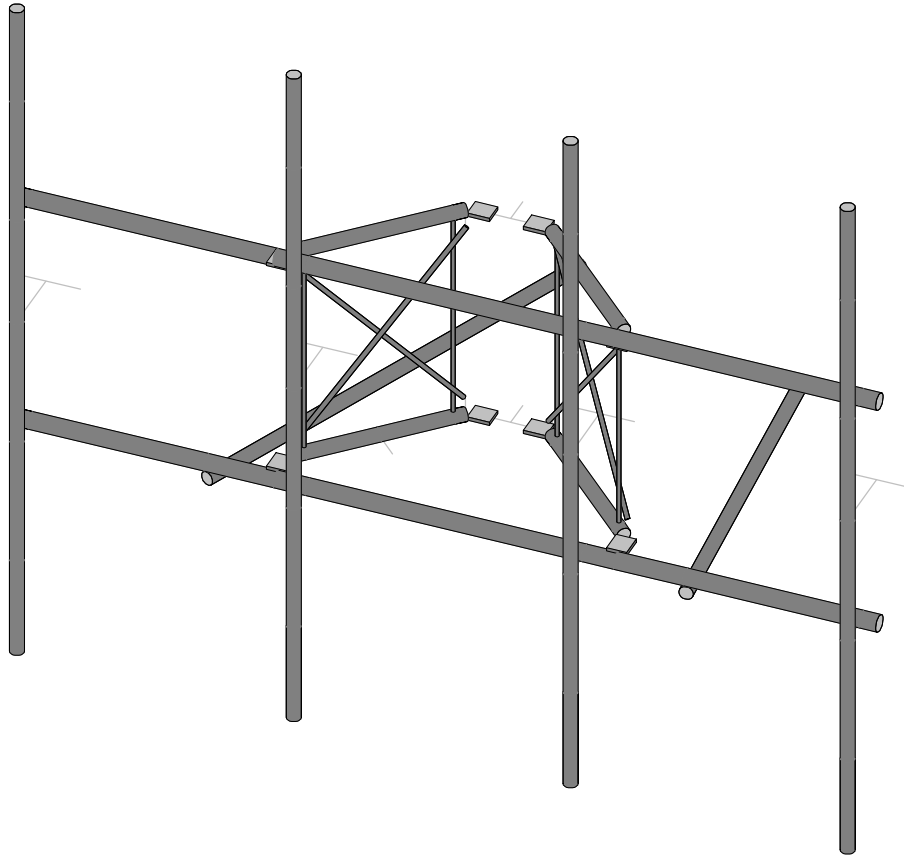
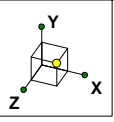
Don George, PE, SE, MLSE
208.602.6569
don.george@geostructural.com

6.0 Standard Conditions

- All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study to verify existing conditions and the results of this analysis are based solely on the information provided. It has been assumed that the tower, antenna support structure and foundation have been constructed according to the provided existing drawings, previous structural analysis reports, mapping documents, etc.
- The default Structure Classification is Class II in accordance with ANSI/TIA-222-G §A.2.2 & §A.15.3 and has been assumed for this analysis. The owner shall verify this classification conforms with original or desired reliability criteria.
- This analysis assumes that the structure has been properly installed and maintained in accordance with ANSI/TIA-222-G §15.5 and that no physical deterioration has occurred in any of the components of the structure. Damaged, missing, or rusted members were not considered.
- This analysis verifies the adequacy of the main components of the structure. Not all connections, welds, bolts, plates, etc. were individually detailed and analyzed. Where not specifically analyzed, the existing connection plates, welds, bolts, etc. were assumed adequate to develop the full capacity of the main structural members.
- No consideration has been made for unusual or extreme wind events, rime/in-cloud ice loadings, harmonic or nodal vibration, vortex shedding or other similar conditions.
- It is the owner's responsibility to determine the appropriate design wind speed and amount of ice accumulation beyond code minimum values that should be considered in the analysis.
- This analysis report does not constitute a maintenance and condition assessment. No certifications regarding maintenance and condition are expressed or implied. If desired, GeoStructural can provide these services under a subsequent contract.
- This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If desired, GeoStructural can provide these services under a subsequent contract.

7.0 Calculations & Software Output

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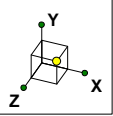
Jesse Drennen, PE

CT33XC009

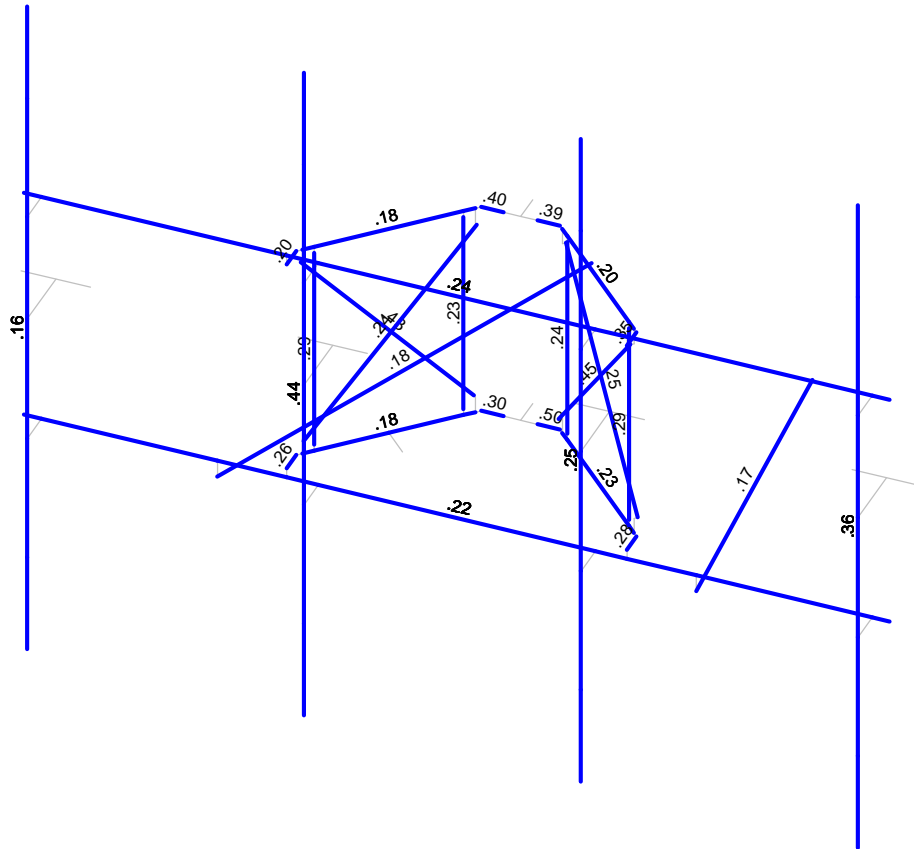
SK - 1

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CT33XC009_VFA12HD Mount Ana...

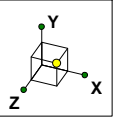


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Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



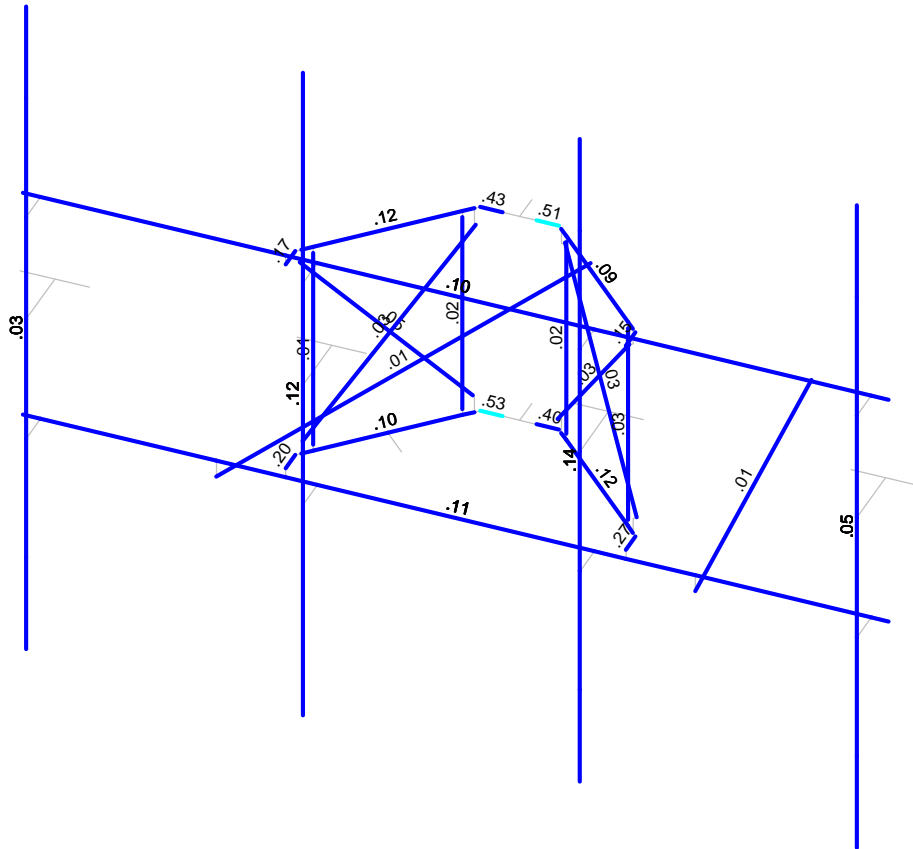
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		CT33XC009_VFA12HD Mount Ana...



Shear Check
(Env)

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- 0-.50



Member Shear Checks Displayed (Enveloped)
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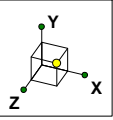
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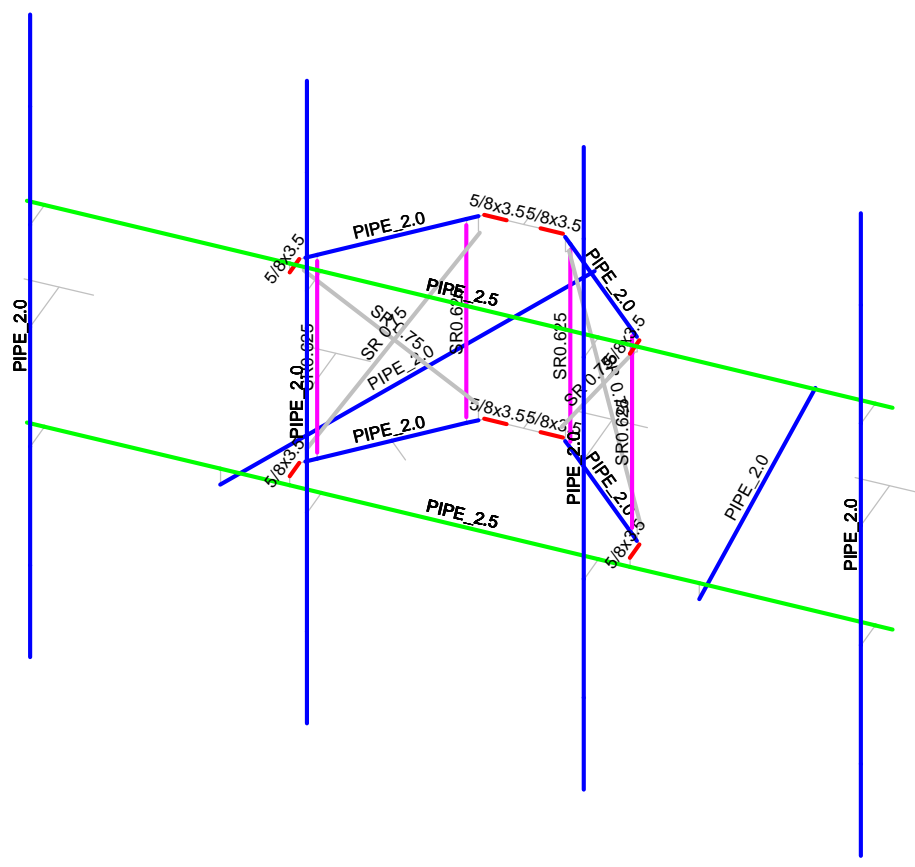
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CT33XC009_VFA12HD Mount Ana...



Section Sets	
Blue	PIPE_2.0
Green	PIPE_2.5
Red	5/8x3.5
Grey	SR 0.75
Pink	SR0.625
Cyan	RIGID



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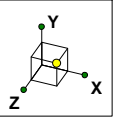
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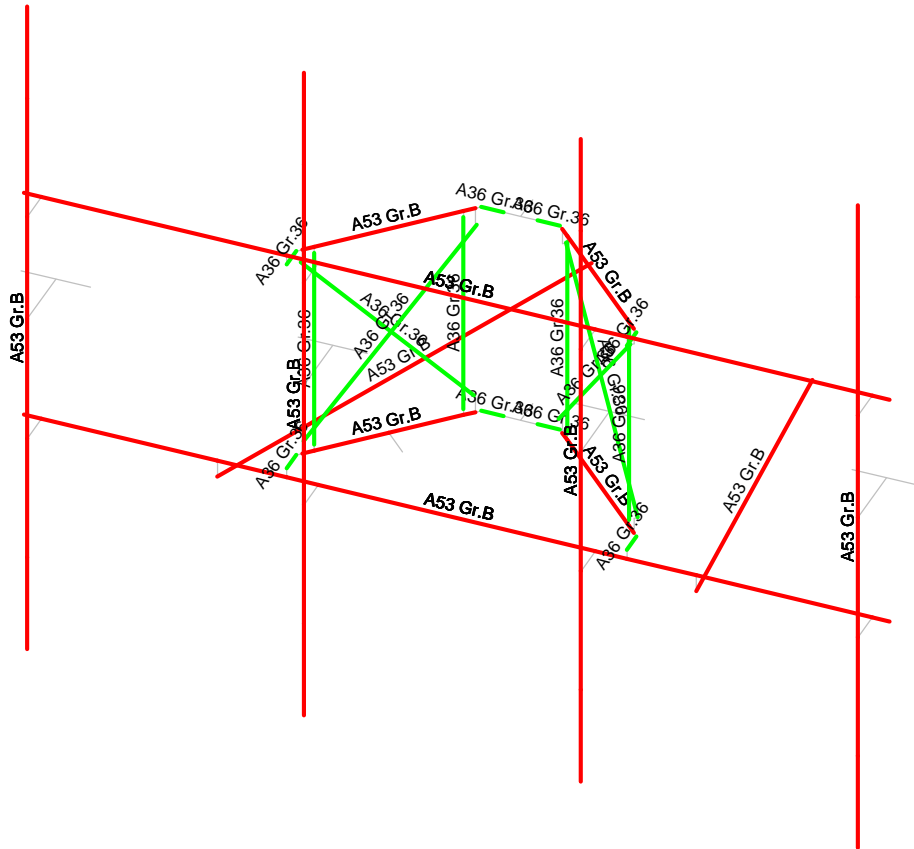
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Material Sets	
■	RIGID
■	A36 Gr.36
■	A53 Gr.B



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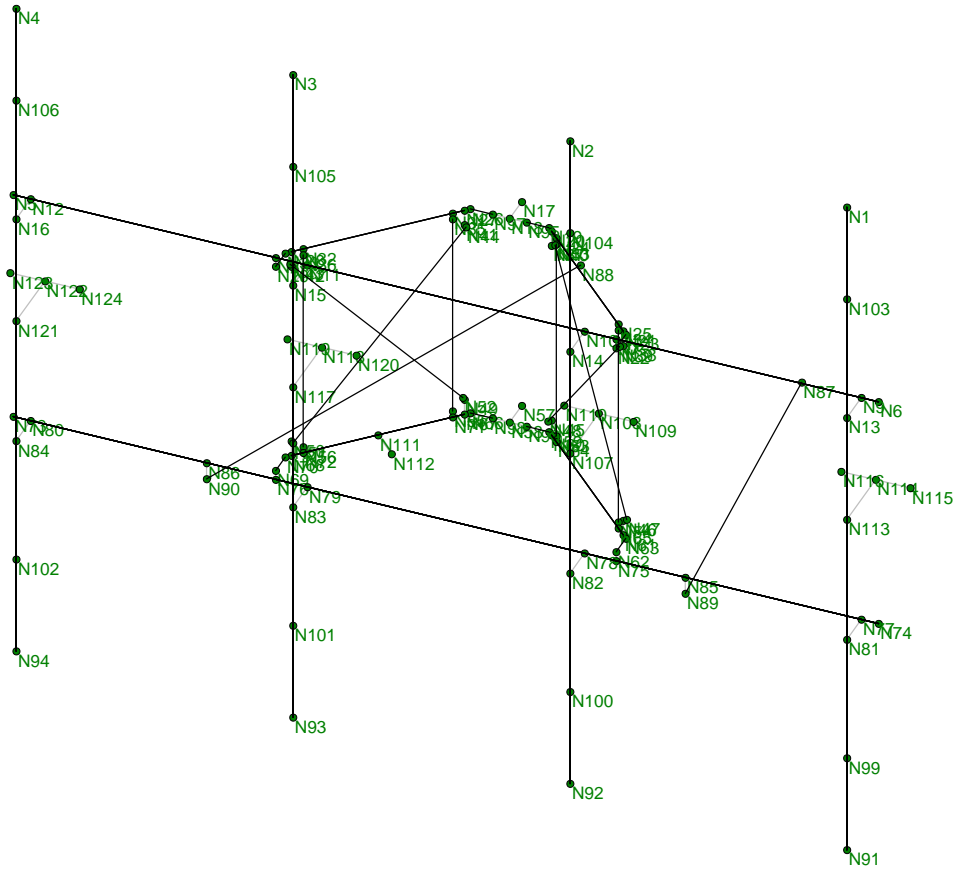
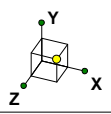
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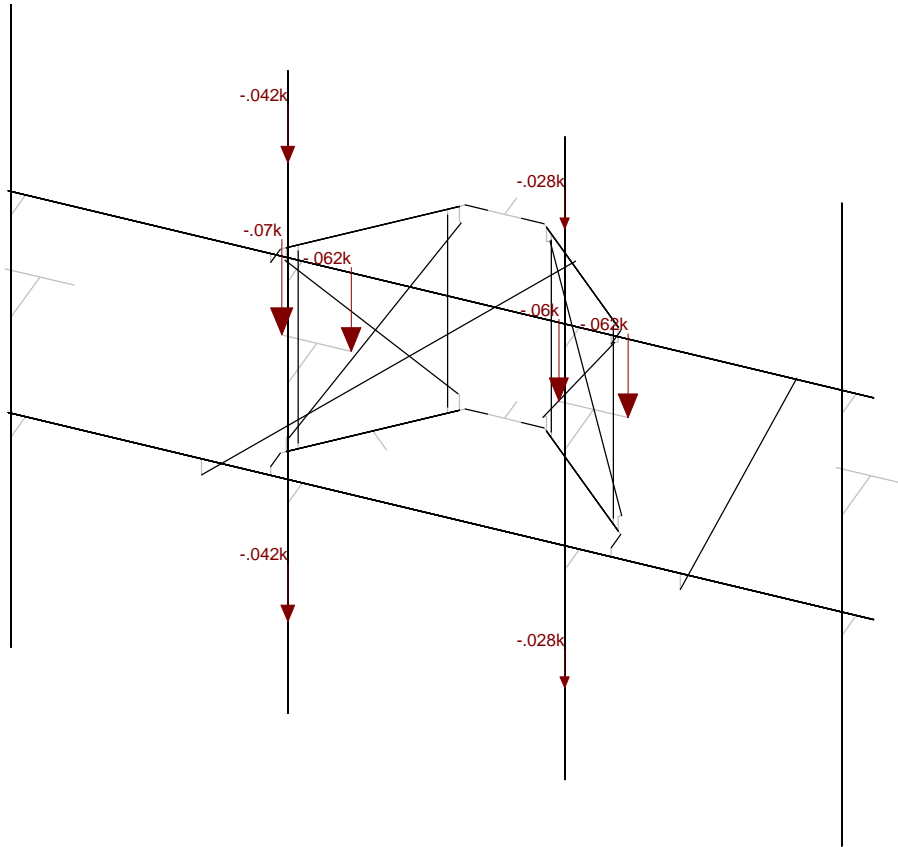
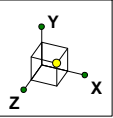
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Loads: BLC 1, D
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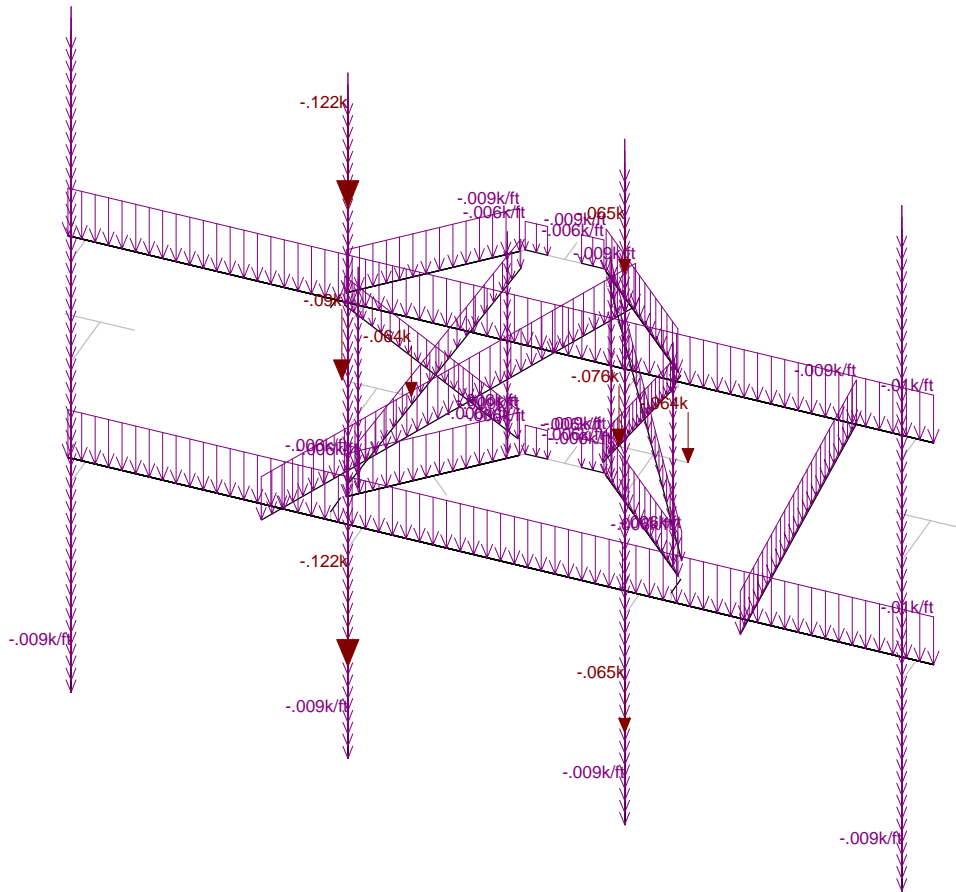
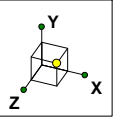
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Loads: BLC 2, Di
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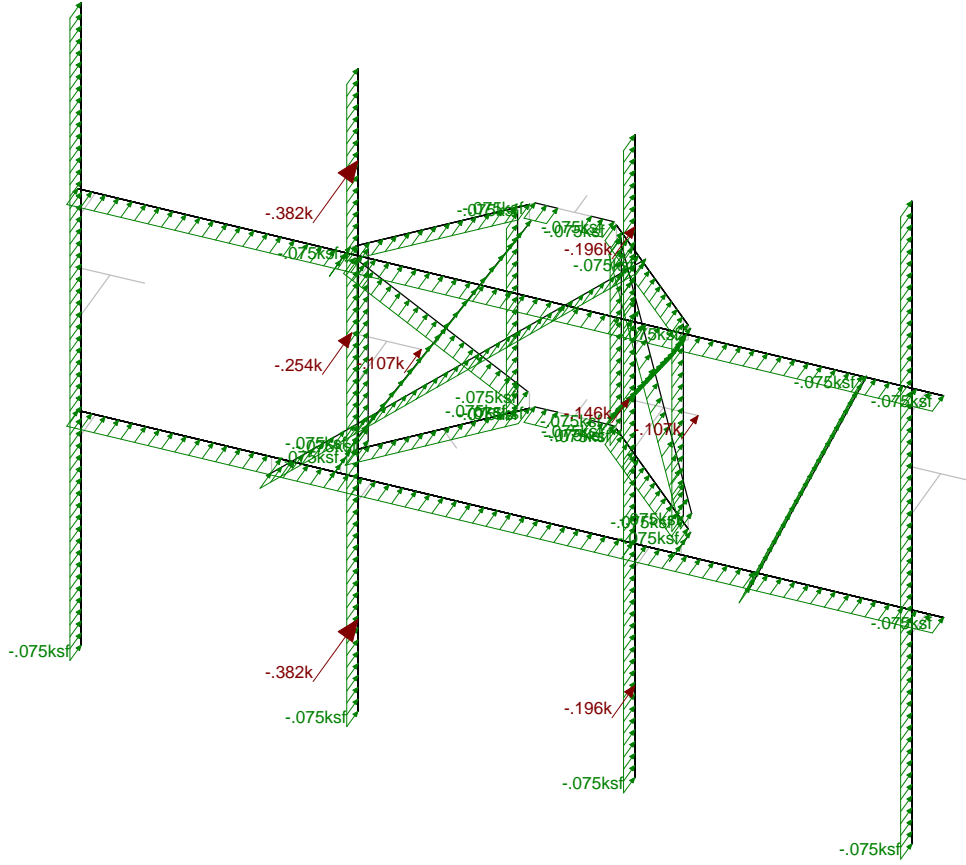
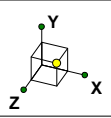
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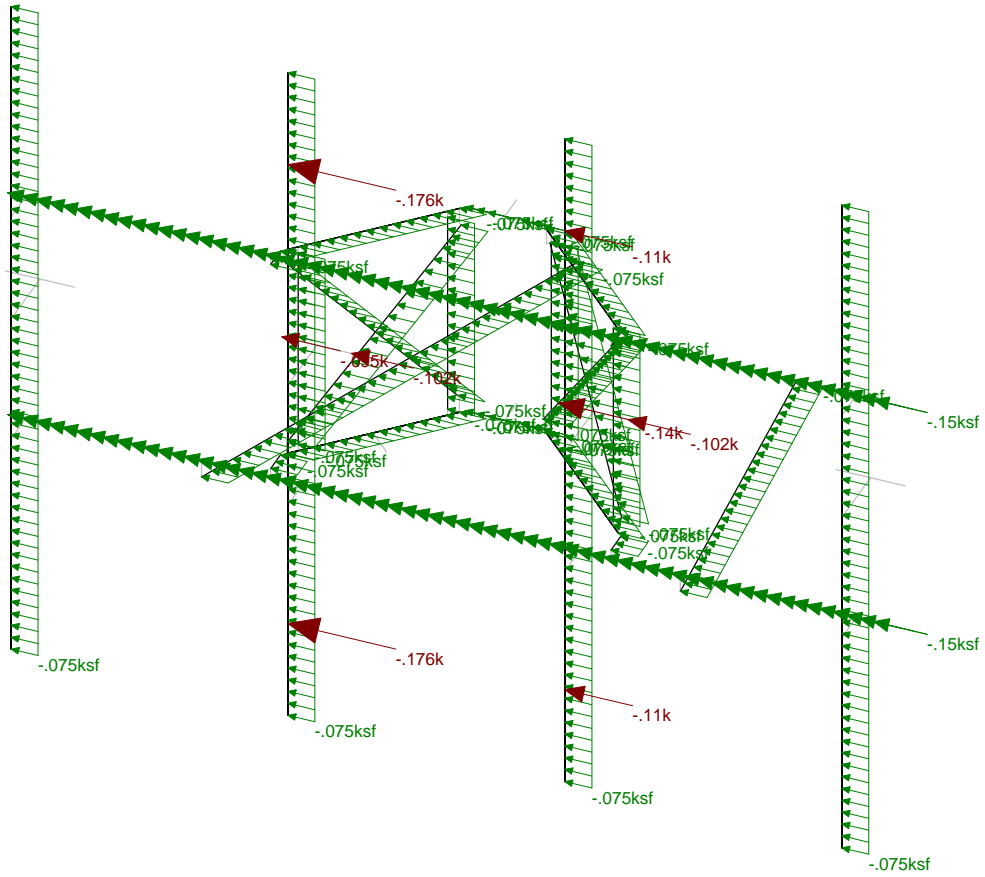
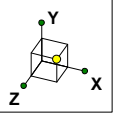
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Loads: BLC 6, Wox
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Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	D	DL		-1		9			
2	Di	SL				9		24	
3	Lm [500]	LL				1			
4	Lv [250]	LL				2			
5	Woz	WL				9		28	
6	Wox	WL				9		30	
7	Wiz	WL				9		28	
8	Wix	WL				9		30	
9	Ez	EL				9			
10	Ex	EL				9			

Load Combination Design

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

Load Combination Design (Continued)

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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
8	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
9	A500 Gr.B RND_1	29000	11154	.3	.65	.527	42	1.4	58	1.3
10	A500 Gr.B Rect_1	29000	11154	.3	.65	.527	46	1.4	58	1.3
11	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	PIPE 2.0	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	PIPE 2.5	PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
3	5/8x3.5	5/8x3.5	Beam	BAR	A36 Gr.36	Typical	2.188	.071	2.233	.253
4	SR 0.75	SR 0.75	Beam	BAR	A36 Gr.36	Typical	.442	.016	.016	.031

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design R...	A [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
5	SR0.625	SR0.625	Beam	BAR	A36 Gr.36	Typical	.307	.007	.007	.015

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M4	N6	N5			PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical
2	M5	N7	N22			RIGID	None	None	RIGID	Typical
3	M6	N8	N29			RIGID	None	None	RIGID	Typical
4	M7	N9	N13			RIGID	None	None	RIGID	Typical
5	M8	N10	N14			RIGID	None	None	RIGID	Typical
6	M9	N11	N15			RIGID	None	None	RIGID	Typical
7	M10	N12	N16			RIGID	None	None	RIGID	Typical
8	M11	N17	N18			RIGID	None	None	RIGID	Typical
9	M13	N19	N20			RIGID	None	None	RIGID	Typical
10	M14	N20	N21			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
11	M15	N20	N37			RIGID	None	None	RIGID	Typical
12	M16	N21	N23		90	RIGID	None	None	RIGID	Typical
13	M17	N21	N38			RIGID	None	None	RIGID	Typical
14	M18	N23	N22		90	5/8x3.5	Beam	BAR	A36 Gr.36	Typical
15	M19	N24	N33			RIGID	None	None	RIGID	Typical
16	M20	N25	N34			RIGID	None	None	RIGID	Typical
17	M22	N26	N27			RIGID	None	None	RIGID	Typical
18	M23	N27	N28			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
19	M24	N27	N41			RIGID	None	None	RIGID	Typical
20	M25	N28	N30		90	RIGID	None	None	RIGID	Typical
21	M26	N28	N42			RIGID	None	None	RIGID	Typical
22	M27	N30	N29		90	5/8x3.5	Beam	BAR	A36 Gr.36	Typical
23	M28	N31	N35			RIGID	None	None	RIGID	Typical
24	M29	N32	N36			RIGID	None	None	RIGID	Typical
25	M30	N38	N39			RIGID	None	None	RIGID	Typical
26	M31	N40	N37			RIGID	None	None	RIGID	Typical
27	M32	N41	N44			RIGID	None	None	RIGID	Typical
28	M33	N43	N42			RIGID	None	None	RIGID	Typical
29	M35	N45	N48			RIGID	None	None	RIGID	Typical
30	M36	N47	N46			RIGID	None	None	RIGID	Typical
31	M37	N47	N40			SR 0.75	Beam	BAR	A36 Gr.36	Typical
32	M38	N48	N39			SR 0.75	Beam	BAR	A36 Gr.36	Typical
33	M39	N50	N51			RIGID	None	None	RIGID	Typical
34	M40	N51	N44			SR 0.75	Beam	BAR	A36 Gr.36	Typical
35	M41	N52	N49			RIGID	None	None	RIGID	Typical
36	M42	N52	N43			SR 0.75	Beam	BAR	A36 Gr.36	Typical
37	M43	N53	N33			SR0.625	Beam	BAR	A36 Gr.36	Typical
38	M44	N54	N34			SR0.625	Beam	BAR	A36 Gr.36	Typical
39	M45	N55	N35			SR0.625	Beam	BAR	A36 Gr.36	Typical
40	M46	N56	N36			SR0.625	Beam	BAR	A36 Gr.36	Typical
41	M47	N57	N58			RIGID	None	None	RIGID	Typical
42	M49	N59	N60			RIGID	None	None	RIGID	Typical
43	M50	N60	N61			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
44	M51	N60	N45			RIGID	None	None	RIGID	Typical
45	M52	N61	N63		90	RIGID	None	None	RIGID	Typical
46	M53	N61	N46			RIGID	None	None	RIGID	Typical
47	M54	N63	N62		90	5/8x3.5	Beam	BAR	A36 Gr.36	Typical
48	M55	N64	N53			RIGID	None	None	RIGID	Typical
49	M56	N65	N54			RIGID	None	None	RIGID	Typical
50	M58	N66	N67			RIGID	None	None	RIGID	Typical
51	M59	N67	N68			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
52	M60	N67	N49			RIGID	None	None	RIGID	Typical
53	M61	N68	N70		90	RIGID	None	None	RIGID	Typical
54	M62	N68	N50			RIGID	None	None	RIGID	Typical
55	M63	N70	N69		90	5/8x3.5	Beam	BAR	A36 Gr.36	Typical
56	M64	N71	N55			RIGID	None	None	RIGID	Typical
57	M65	N72	N56			RIGID	None	None	RIGID	Typical
58	M66	N74	N73			PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical
59	M67	N75	N62			RIGID	None	None	RIGID	Typical
60	M68	N76	N69			RIGID	None	None	RIGID	Typical
61	M69	N77	N81			RIGID	None	None	RIGID	Typical
62	M70	N78	N82			RIGID	None	None	RIGID	Typical
63	M71	N79	N83			RIGID	None	None	RIGID	Typical
64	M72	N80	N84			RIGID	None	None	RIGID	Typical
65	M74	N87	N89			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
66	M75	N88	N90			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
67	M76	N89	N85			RIGID	None	None	RIGID	Typical
68	M77	N90	N86			RIGID	None	None	RIGID	Typical
69	M86	N91	N1			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
70	M87	N92	N2			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
71	M88	N93	N3			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
72	M89	N94	N4			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
73	M86A	N96	N58			RIGID	None	None	RIGID	Typical
74	M87A	N95	N18			RIGID	None	None	RIGID	Typical
75	M88A	N59	N96		90	5/8x3.5	Beam	BAR	A36 Gr.36	Typical
76	M89A	N19	N95		90	5/8x3.5	Beam	BAR	A36 Gr.36	Typical
77	M90	N98	N58			RIGID	None	None	RIGID	Typical
78	M91	N97	N18			RIGID	None	None	RIGID	Typical
79	M92	N66	N98		90	5/8x3.5	Beam	BAR	A36 Gr.36	Typical
80	M93	N26	N97		90	5/8x3.5	Beam	BAR	A36 Gr.36	Typical
81	M93A	N108	N107			RIGID	None	None	RIGID	Typical
82	M100	N109	N110			RIGID	None	None	RIGID	Typical
83	M97	N111	N112			RIGID	None	None	RIGID	Typical
84	M84	N114	N113			RIGID	None	None	RIGID	Typical
85	M85	N115	N116			RIGID	None	None	RIGID	Typical
86	M86B	N118	N117			RIGID	None	None	RIGID	Typical
87	M87B	N119	N120			RIGID	None	None	RIGID	Typical
88	M88B	N122	N121			RIGID	None	None	RIGID	Typical
89	M89B	N123	N124			RIGID	None	None	RIGID	Typical

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N87	max	.053	11	.064	11	1.057	11	0	1	0	1	0	1
2		min	-.045	17	-.042	17	-.995	17	0	1	0	1	0	1
3	N88	max	.33	22	.057	28	.983	4	0	1	0	1	0	1
4		min	-.369	4	-.024	22	-.895	22	0	1	0	1	0	1
5	N57	max	1.485	17	1.32	26	1.927	26	0	1	0	1	0	1
6		min	-1.512	11	-.037	20	-.534	20	0	1	0	1	0	1
7	N17	max	.838	5	1.361	32	1.057	14	0	1	0	1	0	1
8		min	-1.373	47	-.062	14	-2.295	8	0	1	0	1	0	1
9	Totals:	max	1.969	17	2.641	37	3.101	2						
10		min	-1.969	11	.684	67	-3.101	20						

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

Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M92	5/8x3.5	.301	0	31	.530	.324	y	27	69.162	70.875	.923	5.168	1...H1-1b
2	M89A	5/8x3.5	.386	0	48	.506	.324	y	33	69.162	70.875	.923	5.168	1...H1-1b
3	M93	5/8x3.5	.399	0	28	.430	.324	y	31	69.162	70.875	.923	5.168	1...H1-1b
4	M88A	5/8x3.5	.499	0	45	.396	.324	y	26	69.162	70.875	.923	5.168	2...H1-1b
5	M54	5/8x3.5	.275	0	41	.273	0	y	10	69.048	70.875	.923	5.168	1...H1-1b
6	M63	5/8x3.5	.257	0	32	.203	0	y	6	69.048	70.875	.923	5.168	1...H1-1b
7	M27	5/8x3.5	.201	0	28	.170	0	y	7	69.048	70.875	.923	5.168	1...H1-1b
8	M18	5/8x3.5	.349	0	47	.155	0	y	9	69.048	70.875	.923	5.168	1...H1-1b
9	M87	PIPE 2.0	.247	7.109	8	.144	5.469		5	8.922	32.13	1.872	1.872	2...H1-1b
10	M88	PIPE 2.0	.436	7.109	8	.122	5.469		11	8.922	32.13	1.872	1.872	3...H1-1b
11	M50	PIPE 2.0	.227	2.5	4	.117	2.5		44	29.81	32.13	1.872	1.872	2...H1-1b
12	M23	PIPE 2.0	.177	0	29	.117	2.344		2	29.81	32.13	1.872	1.872	1...H1-1b
13	M66	PIPE 2.5	.225	3.776	44	.114	3.776		11	41.612	50.715	3.596	3.596	2...H1-1b
14	M4	PIPE 2.5	.240	3.776	46	.098	4.297		4	41.612	50.715	3.596	3.596	2...H1-1b
15	M59	PIPE 2.0	.184	0	34	.096	2.344		7	29.81	32.13	1.872	1.872	1...H1-1b
16	M14	PIPE 2.0	.201	0	47	.091	2.5		49	29.81	32.13	1.872	1.872	2...H1-1b
17	M42	SR 0.75	.434	3.795	27	.046	0		3	4.005	14.314	.179	.179	1...H1-1a
18	M86	PIPE 2.0	.360	7	43	.046	7		47	8.922	32.13	1.872	1.872	4...H1-1b
19	M37	SR 0.75	.253	0	34	.032	0		44	4.005	14.314	.179	.179	1...H1-1b
20	M40	SR 0.75	.238	3.795	31	.029	3.795		8	4.005	14.314	.179	.179	1...H1-1b
21	M38	SR 0.75	.447	0	36	.029	0		13	4.005	14.314	.179	.179	1.6H1-1a
22	M44	SR0.625	.288	0	36	.028	3.135		46	2.829	9.94	.104	.104	2...H1-1b
23	M89	PIPE 2.0	.157	3.5	3	.027	3.5		10	8.922	32.13	1.872	1.872	1...H1-1b
24	M43	SR0.625	.243	0	28	.022	0		4	2.829	9.94	.104	.104	2...H1-1b
25	M45	SR0.625	.234	3.135	34	.022	0		4	2.829	9.94	.104	.104	2...H1-1b
26	M46	SR0.625	.292	3.135	28	.015	0		47	2.829	9.94	.104	.104	2...H1-1b
27	M74	PIPE 2.0	.170	5.121	11	.008	0		11	23.46	32.13	1.872	1.872	1...H1-1b
28	M75	PIPE 2.0	.175	7.021	4	.007	0		4	17.792	32.13	1.872	1.872	1...H1-1b

SPECIAL CONSTRUCTION NOTE:
 SPRINT WORK IS CONTINGENT ON THE FOLLOWING:
 * COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS.
 * COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT.
 * GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

PROGRAM: DO MACRO UPGRADE
 EQUIPMENT DEPLOYMENT

SITE NUMBER: CT33XC009

SITE ADDRESS: 421 EKONK HILL ROAD
 STERLING, CT 06377

SITE TYPE: GUYED TOWER

PLANS PREPARED FOR:




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

PROJECT MANAGER:



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

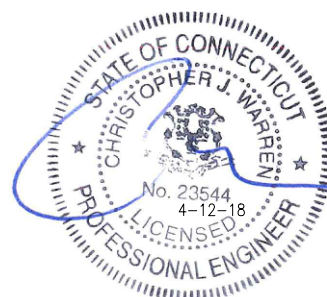
PLANS PREPARED BY:

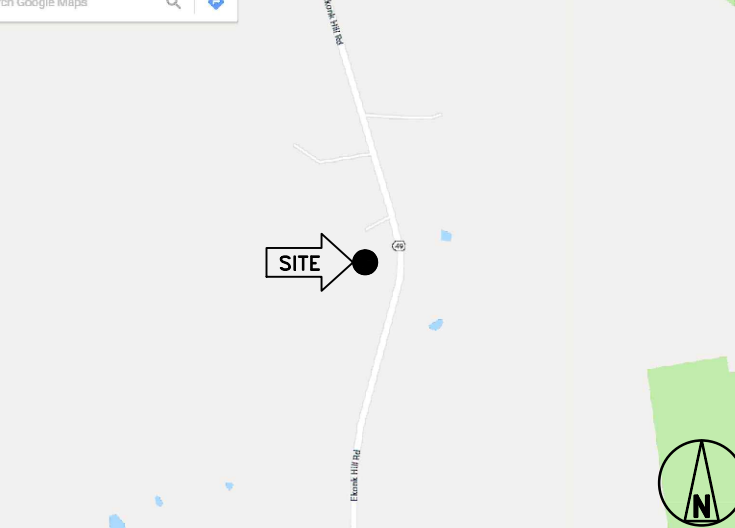




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ENGINEERING LICENSE:




PROJECT INFORMATION	AREA MAP	PROJECT DESCRIPTION	DRAWING INDEX																																							
<p>SITE INFORMATION: LATITUDE: 41° 39' 44.23" N (PER SBA RECORDS) 41.662286° LONGITUDE: -71° 50' 49.65" W (PER SBA RECORDS) -71.847125° STRUCTURE HEIGHT: 200'± STRUCTURE TYPE: GUYED TOWER</p> <p>APPLICANT: SPRINT 1 INTERNATIONAL BLVD, SUITE 800 MAHWAH, NJ 07495</p> <p>TOWER OWNER: SBA PROPERTIES LLC. 8051 CONGRESS AVENUE BOCA RATON, FL 33487</p> <p>SBA SITE ID: CT20001-A SBA SITE NAME: STERLING CT TOWER SBA CONTACT: STEPHEN ROTH (800) 539-4920 sroth@sbasite.com</p>		<p>SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.</p> <ul style="list-style-type: none"> REMOVE (6) PANEL ANTENNAS INSTALL (6) PANEL ANTENNAS INSTALL (3) 2.5 GHz RRR'S ON PROPOSED PIPE MOUNT RELOCATE (3) 1900 MHz RRR'S ON PROPOSED PIPE MOUNT INSTALL (6) 800 MHz RRR'S ON PROPOSED PIPE MOUNT REMOVE (6) EXISTING COAX CABLES INSTALL (4) HYBRID CABLES INSTALL RAN EQUIPMENT INSIDE EXISTING MMBTS CABINET INSTALL NEW ANTENNA MOUNT <p>THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.</p>	<table border="1"> <thead> <tr> <th>SHEET NO.</th> <th>SHEET TITLE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>T-1</td> <td>TITLE SHEET & PROJECT DATA</td> <td>0</td> </tr> <tr> <td>SP-1</td> <td>SPRINT SPECIFICATIONS</td> <td>0</td> </tr> <tr> <td>SP-2</td> <td>SPRINT SPECIFICATIONS</td> <td>0</td> </tr> <tr> <td>SP-3</td> <td>SPRINT SPECIFICATIONS</td> <td>0</td> </tr> <tr> <td>A-1</td> <td>SITE PLAN</td> <td>0</td> </tr> <tr> <td>A-2</td> <td>TOWER ELEVATION</td> <td>0</td> </tr> <tr> <td>A-3</td> <td>ANTENNA LAYOUT & MOUNTING DETAILS</td> <td>0</td> </tr> <tr> <td>A-4</td> <td>EQUIPMENT & MOUNTING DETAILS</td> <td>0</td> </tr> <tr> <td>A-5</td> <td>DETAILS</td> <td>0</td> </tr> <tr> <td>E-1</td> <td>ELECTRICAL & GROUNDING DETAILS</td> <td>0</td> </tr> <tr> <td>RF-1</td> <td>RF DATA SHEET</td> <td>0</td> </tr> <tr> <td>RF-2</td> <td>PLUMBING DIAGRAM</td> <td>0</td> </tr> </tbody> </table>	SHEET NO.	SHEET TITLE	REV.	T-1	TITLE SHEET & PROJECT DATA	0	SP-1	SPRINT SPECIFICATIONS	0	SP-2	SPRINT SPECIFICATIONS	0	SP-3	SPRINT SPECIFICATIONS	0	A-1	SITE PLAN	0	A-2	TOWER ELEVATION	0	A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0	A-4	EQUIPMENT & MOUNTING DETAILS	0	A-5	DETAILS	0	E-1	ELECTRICAL & GROUNDING DETAILS	0	RF-1	RF DATA SHEET	0	RF-2	PLUMBING DIAGRAM	0
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<p>CALL CONNECTICUT ONE CALL (800) 922-4455 CALL 3 WORKING DAYS BEFORE YOU DIG!</p>  <p>Know what's below. Call before you dig. www.call811.com</p>	<p>LOCATION MAP</p> 	<p>APPLICABLE CODES</p> <p>ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.</p> <ol style="list-style-type: none"> INTERNATIONAL BUILDING CODE (2012 IBC) TIA-222-G OR LATEST EDITION NFPA 780 - LIGHTNING PROTECTION CODE 2014 NATIONAL ELECTRIC CODE OR LATEST EDITION ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS CT BUILDING CODE LOCAL BUILDING CODE CITY/COUNTY ORDINANCES 	<p>GENERAL NOTES</p> <ol style="list-style-type: none"> THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION: <ul style="list-style-type: none"> ADA COMPLIANCE NOT REQUIRED. POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED. NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED. 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. 																																							
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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-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
 - 5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 - 3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
 - 4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
 - 5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
 - 6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
 - 7. AMERICAN CONCRETE INSTITUTE (ACI)
 - 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
 - 9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
 - 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
 - 11. PORTLAND CEMENT ASSOCIATION (PCA)
 - 12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
 - 13. BRICK INDUSTRY ASSOCIATION (BIA)
 - 14. AMERICAN WELDING SOCIETY (AWS)
 - 15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
 - 16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
 - 17. DOOR AND HARDWARE INSTITUTE (DHI)
 - 18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
 - 19. 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.

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193
- 1.15 USE OF ELECTRONIC PROJECT 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. 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 CO.

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:

PLANS PREPARED FOR:




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

PROJECT MANAGER:



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

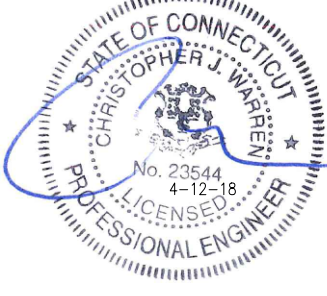
PLANS PREPARED BY:



FROM ZERO TO INFINIGY
the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-104

ENGINEERING LICENSE:



CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/12/18	RWF	0

SITE NUMBER:

CT33XC009

SITE ADDRESS:

421 EKONK HILL
ROADSTERLING, CT
06377

SHEET DESCRIPTION:

OUTLINE SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

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 ANTENNA 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.

SECTION 01 400 - SUBMITTALS & TESTS

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
 - D. 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 TS-0200 REV 4 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:
 1. 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.
 2. 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.
 3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
 4. 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)

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PROJECT MANAGER:



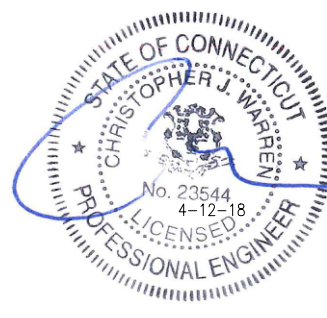
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ENGINEERING LICENSE:



CHECKED BY:

APPROVED BY:

REVISIONS:	DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION		04/12/18	RWF	0

SITE NUMBER:

CT33XC009

SITE ADDRESS:

421 EKONK HILL
ROADSTERLING, CT 06377

SHEET DESCRIPTION:

OUTLINE SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

- 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
 - C. 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.
 - D. 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 01 400 - SUBMITTALS & TESTS

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 RADI).
 - 23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADI).

- 24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADI).
- 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.

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TEL: (800) 357-7641

PROJECT MANAGER:



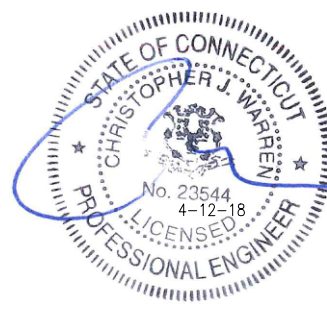
SBA COMMUNICATIONS CORP.
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PLANS PREPARED BY:



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ENGINEERING LICENSE:



CHECKED BY:

APPROVED BY:

REVISIONS:	DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION		04/12/18	RWF	0

SITE NUMBER:

CT33XC009

SITE ADDRESS:

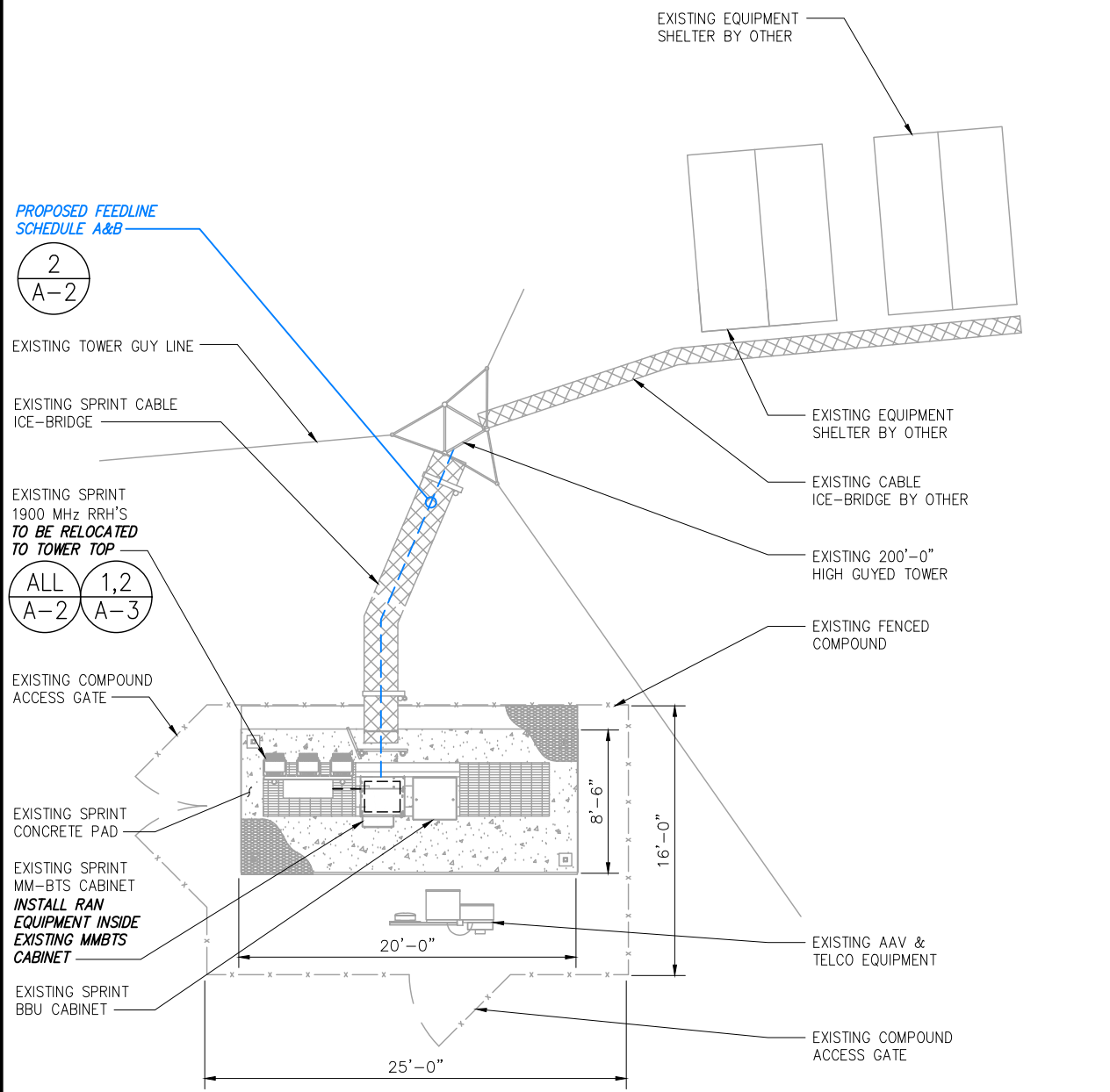
421 EKONK HILL
ROADSTERLING, CT
06377

SHEET DESCRIPTION:

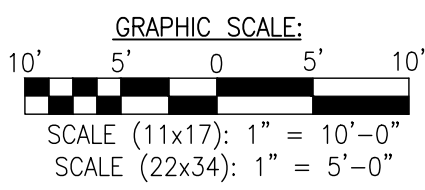
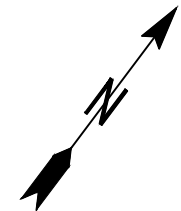
OUTLINE SPECIFICATIONS

SHEET NUMBER:

SP-3



INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.



OVERALL SITE PLAN

SCALE: AS NOTED 1



SOURCE: WESTCHESTER SERVICES 11/14/17

SPRINT EQUIPMENT PHOTO DETAIL

SCALE: AS NOTED 2

PLANS PREPARED FOR:

Sprint

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MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:

SBA

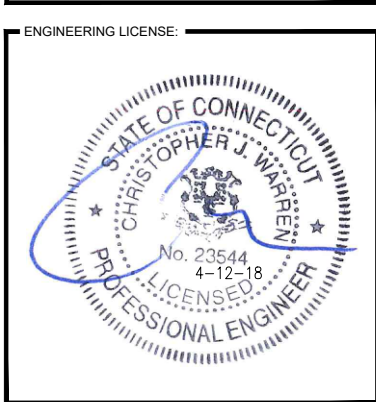
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CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/12/18	RWF	0

SITE NUMBER:

CT33XC009

SITE ADDRESS:

421 EKONK HILL
ROADSTERLING, CT
06377

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

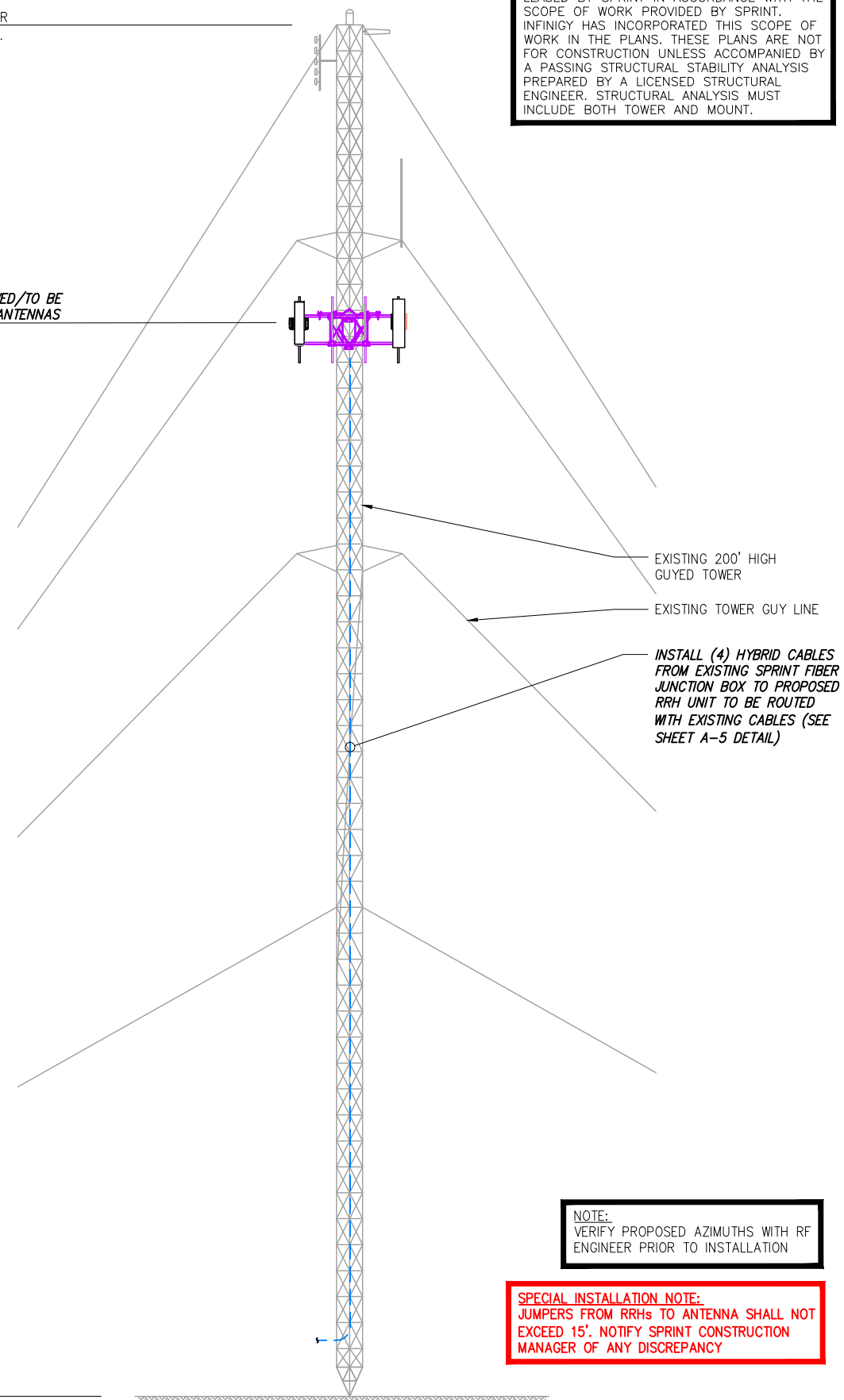
A-1

NOTE:
SEE DETAIL 2 ON A-3
FOR ANTENNA LAYOUT

TOP OF GUYED TOWER
ELEV. = ±200' A.G.L.

Ø OF TO BE REMOVED/TO BE
INSTALLED SPRINT ANTENNAS
ELEV. = 170' A.G.L.

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.



NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF
ENGINEER PRIOR TO INSTALLATION

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

Ø OF PROPOSED SPRINT ANTENNAS
ELEV. = 170' A.G.L.

ALL
A-3 ALL
A-4

2
A-2 PROPOSED FEEDLINE
SCHEDULE A&B

SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
GENERAL CONTRACTOR SHALL ORIENT PROPOSED STRUCTURAL AUGMENT REINFORCEMENT KIT LEG-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 LEG-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.

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING TO BE REMOVED: (6) 1 5/8" COAX EXISTING TO REMAIN: (1) 1/2" COAX	UP GUYED TOWER TO RAD
B	PROPOSED: (4) HYBRID TO 170' RAD	UP GUYED TOWER TO RAD

NOTE:
EXISTING SPRINT EQUIPMENT FEEDLINE INVENTORY BASED ON COLOCATION APPLICATION AND SBA RECORD, NOT FIELD OBSERVATIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.



SOURCE: WESTCHESTER SERVICES 11/14/17

PLANS PREPARED FOR:

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

PROJECT MANAGER:

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

PLANS PREPARED BY:

FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-104

ENGINEERING LICENSE:

CHRISTOPHER J. WARREN
No. 23544
4-12-18
LICENSED PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

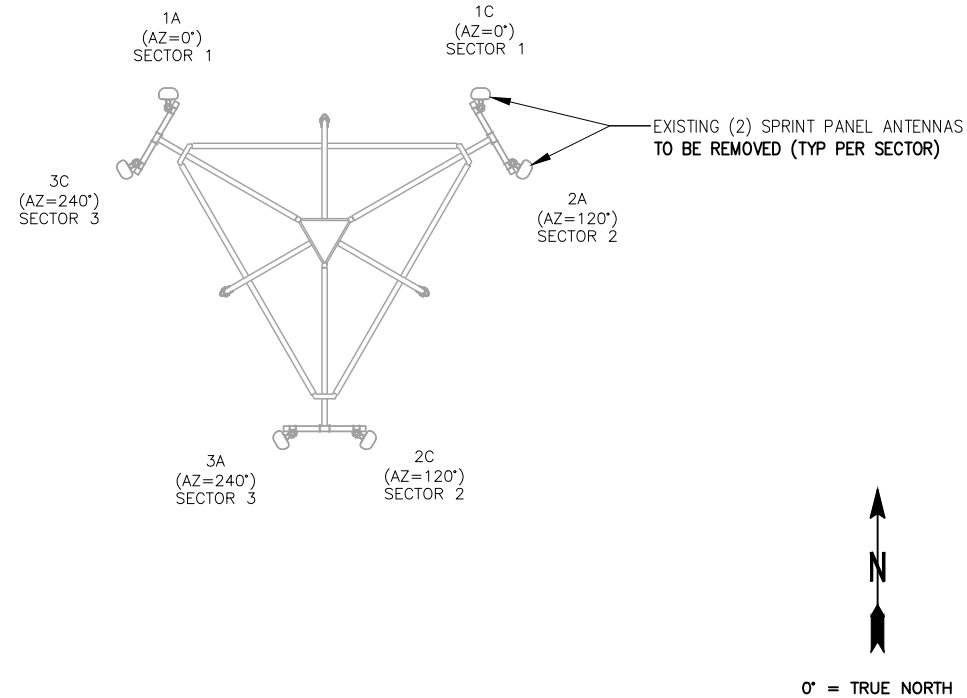
REVISIONS:	DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION		04/12/18	RWF	0

SITE NUMBER:
CT33XC009

SITE ADDRESS:
421 EKONK HILL
ROADSTERLING, CT
06377

SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



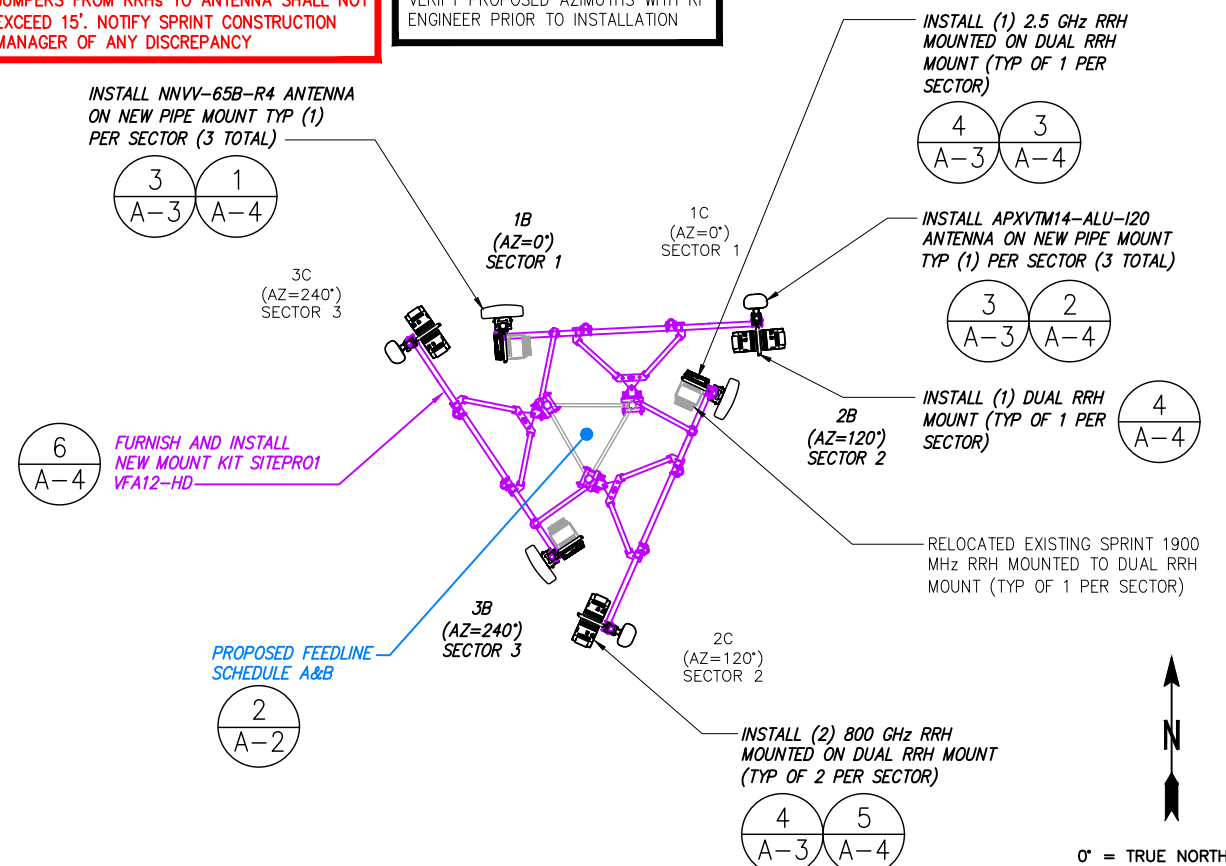
EXISTING ANTENNA & RRH LAYOUT

NO SCALE

1

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

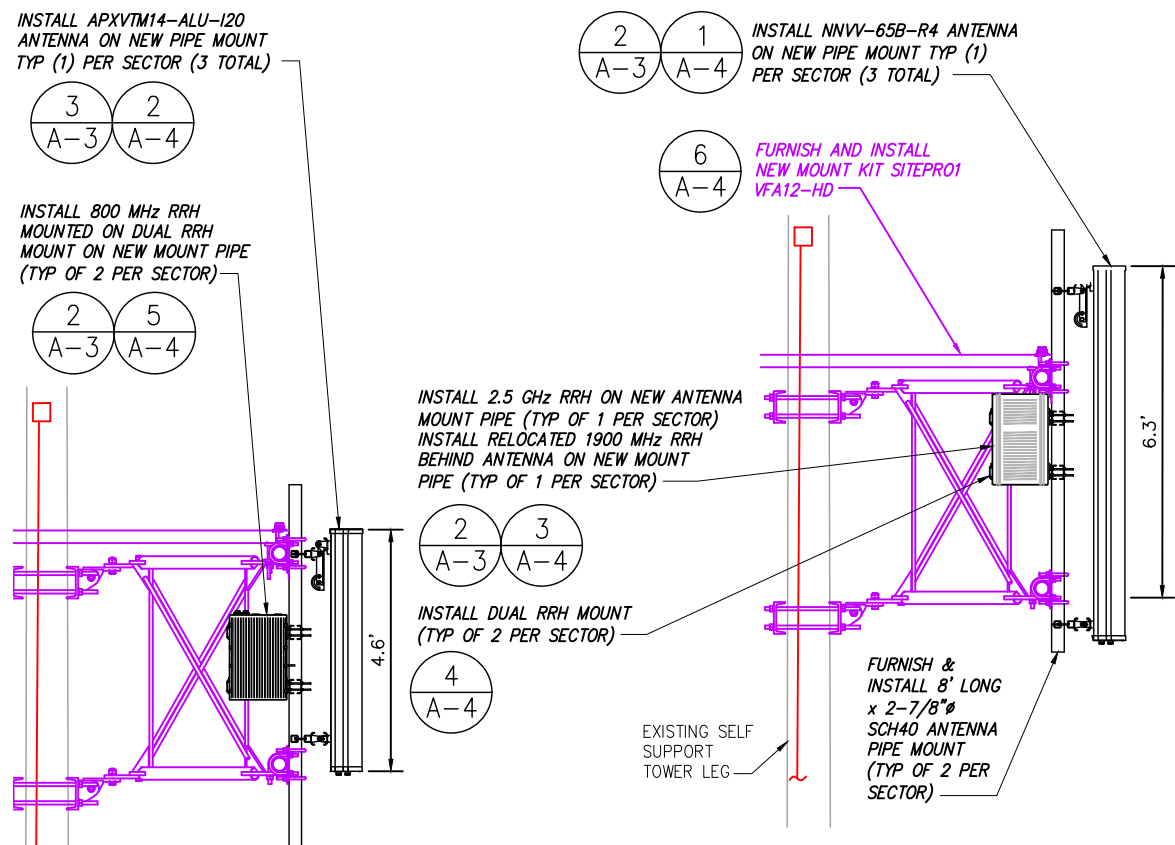
NOTE:
 VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION



FINAL ANTENNA & RRH LAYOUT

NO SCALE

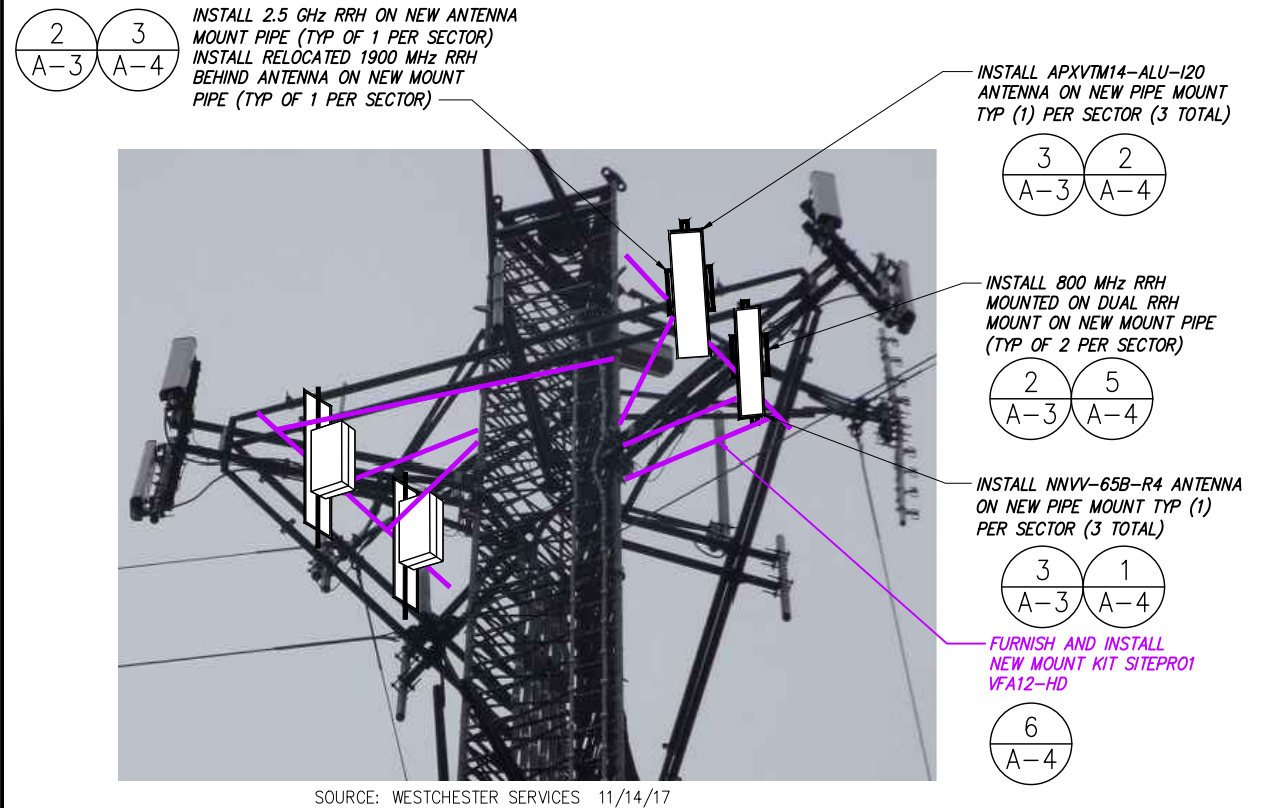
2



TYPICAL ANTENNA & RRH MOUNTING DETAILS

NO SCALE

3



TYPICAL ANTENNA & RRH MOUNT PHOTO DETAIL

NO SCALE

4

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CHRISTOPHER J. WARREN
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 4-12-18
 PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

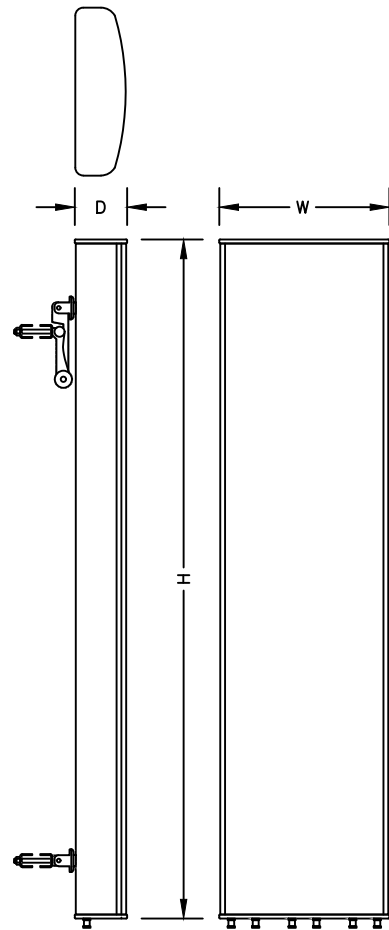
DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/12/18	RWF	0

SITE NUMBER:
CT33XC009

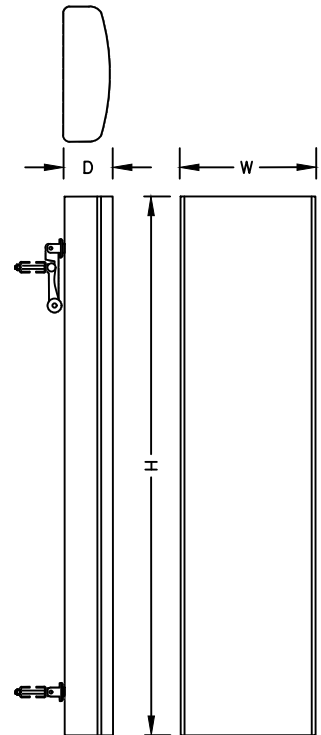
SITE ADDRESS:
 421 EKONK HILL
 ROADSTERLING, CT
 06377

SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

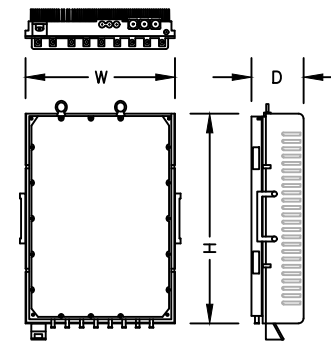
SHEET NUMBER:
A-3



ANTENNA SPECIFICATIONS	
MANUF.	COMMSCOPE
MODEL #	NNVV-65B-R4
HEIGHT	72"
WIDTH	19.6"
DEPTH	7.8"
WEIGHT	84.7± LBS.



ANTENNA SPECIFICATIONS	
MANUF.	RFS
MODEL #	APXVTM14-ALU-120
HEIGHT	56.3"
WIDTH	12.6"
DEPTH	6.3"
WEIGHT	56.2± LBS.



2.5 GHZ RRH SPECIFICATIONS

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

ANTENNA DETAIL

NO SCALE

1

ANTENNA DETAIL

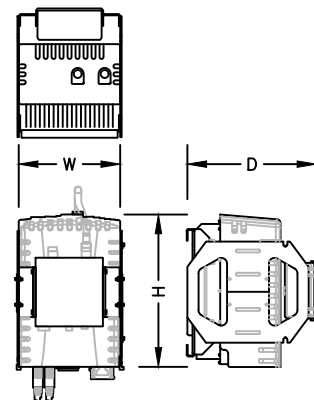
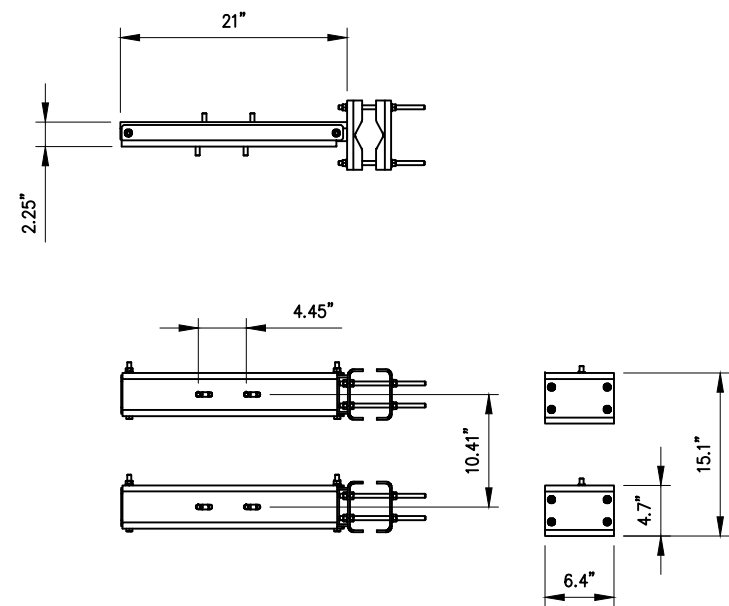
NO SCALE

2

2.5 RRH

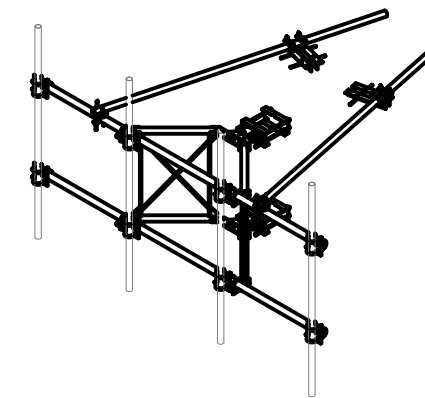
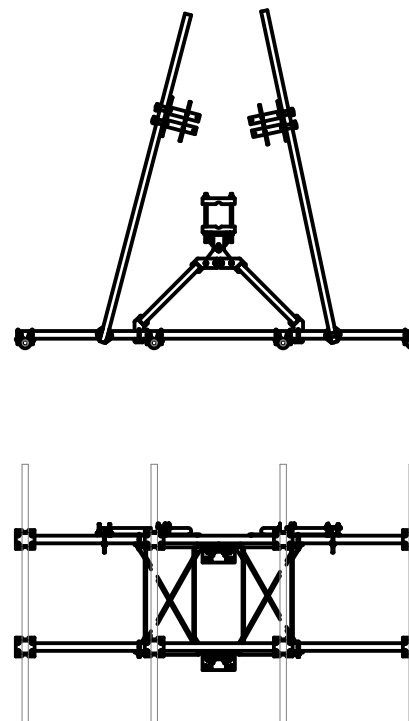
NO SCALE

3



800 MHZ RRH SPECIFICATIONS

MANUF.	NOKIA (ALU)
MODEL #	800MHZ 2X50W
HEIGHT	19.7"
WIDTH	13"
DEPTH	10.8"
WEIGHT	53± LBS



SITEPRO1_VFA-12_HD

DUAL RRH MOUNT DETAIL

NO SCALE

4

800 MHz RRH

NO SCALE

5

MOUNT DETAIL

NO SCALE

6

PLANS PREPARED FOR:

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134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
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ENGINEERING LICENSE:

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-12-18
PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:	DESCRIPTION	DATE	BY	REV.
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SITE NUMBER:
CT33XC009

SITE ADDRESS:
421 EKONK HILL
ROADSTERLING, CT
06377

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

RFS HYBRIFLEX RISER CABLE SCHEDULE

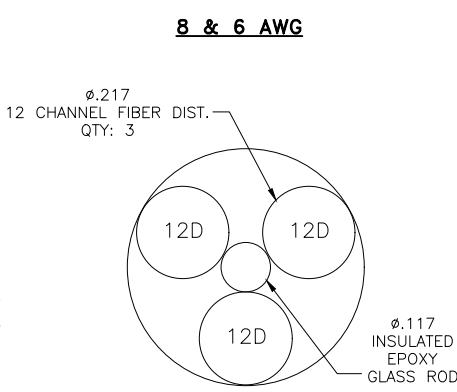
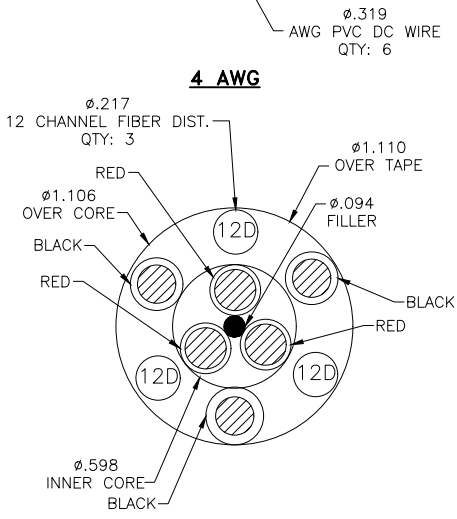
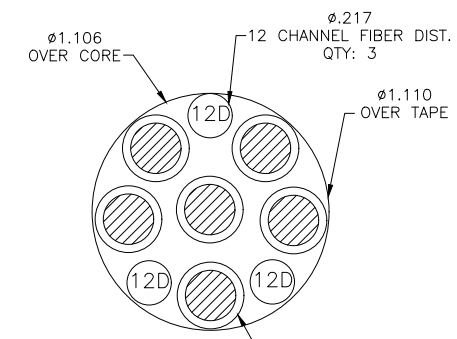
Fiber Only (Existing DC Power)	Hybrid cable MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 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
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
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
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
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
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
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
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE
AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF
HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.

* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.



PLANS PREPARED FOR:

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MAHWAH, NJ 07495
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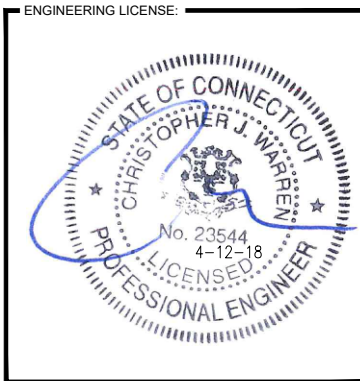
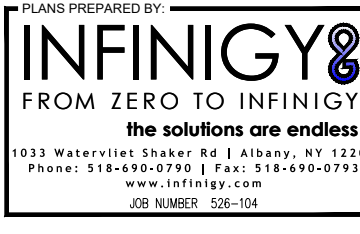
REVISIONS:	DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION		04/12/18	RWF	0

SITE NUMBER:
CT33XC009

SITE ADDRESS:
421 EKONK HILL
ROADSTERLING, CT
06377

SHEET DESCRIPTION:
DETAILS

SHEET NUMBER:
A-5



CHECKED BY:

APPROVED BY:

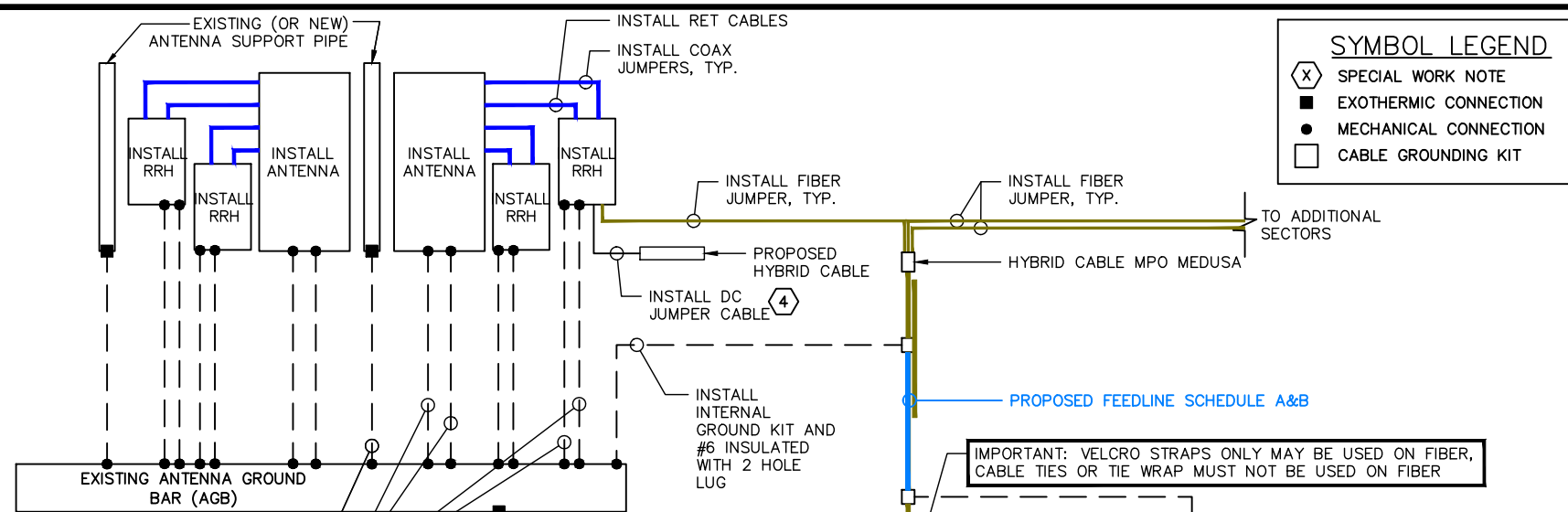
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SITE NUMBER: CT33XC009

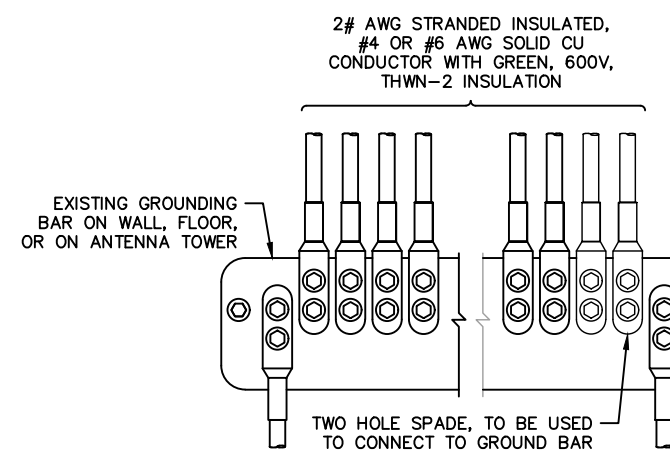
SITE ADDRESS: 421 EKONK HILL ROADSTERLING, CT 06377

SHEET DESCRIPTION: ELECTRICAL & GROUNDING DETAILS

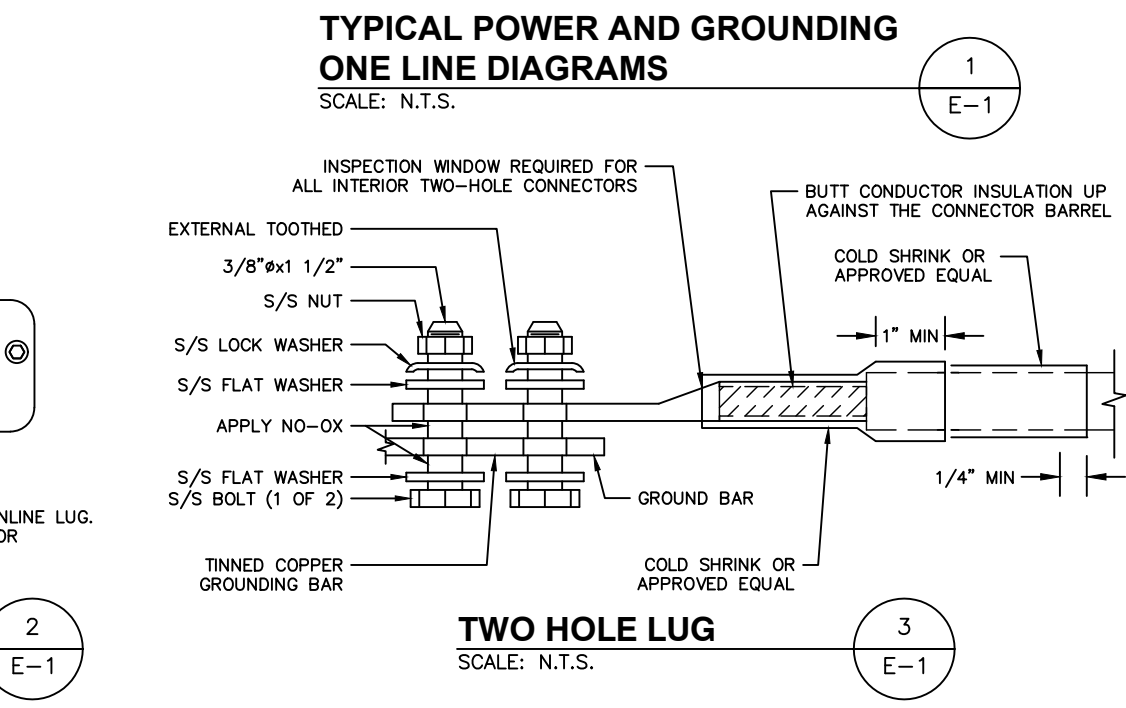
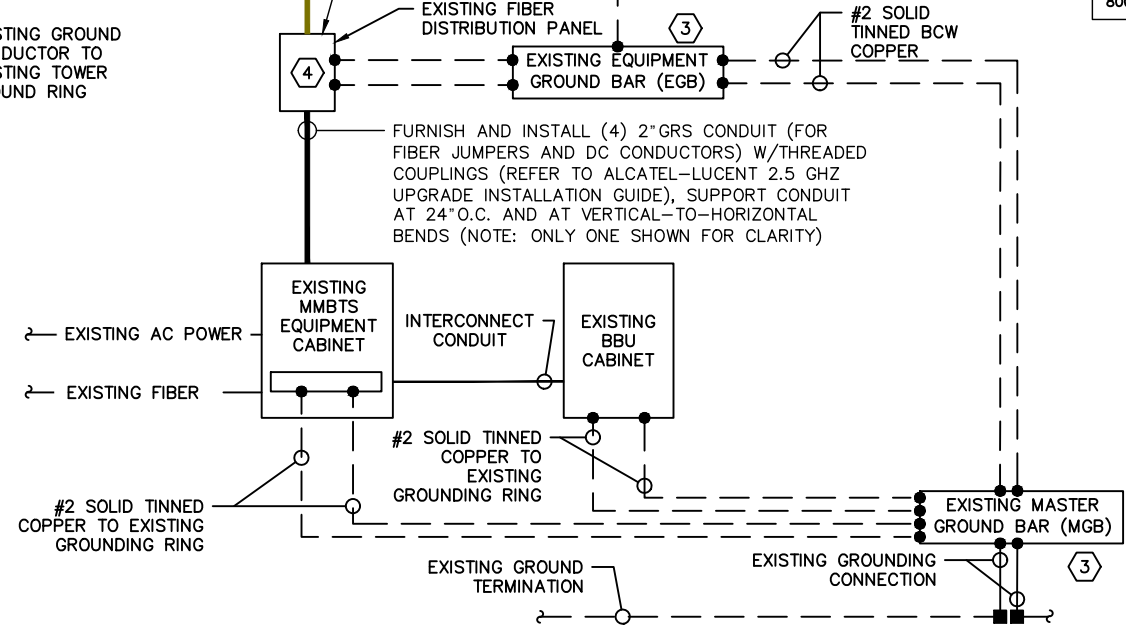
SHEET NUMBER: E-1



- SPECIAL WORK NOTE:**
- 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)
 - G.C. TO FURNISH AND INSTALL UPGRADE THE EXISTING MMBTS BREAKER, CONDUCTOR, AND CONDUIT TO A MINIMUM NEC RATING.
 - 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)
 - 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.



- APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
 - 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.



TWO HOLE LUG
SCALE: N.T.S.

- SYMBOL LEGEND**
- (X) SPECIAL WORK NOTE
 - EXOTHERMIC CONNECTION
 - MECHANICAL CONNECTION
 - CABLE GROUNDING KIT

- ELECTRICAL NOTES**
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
 - THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND SPRINT CONSTRUCTION MANAGER.
 - ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.
 - ALL METAL CONDUITS SHALL BE PROVIDED WITH GROUNDING BUSHINGS.
 - 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.
 - ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
 - THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIALS DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
 - GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
 - 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.
 - BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
 - ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
 - 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.
 - 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.
 - FIBER OPTIC CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 770-OPTICAL FIBER CABLES AND RACEWAYS.
 - COMMUNICATIONS CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 800-COMMUNICATIONS SYSTEMS.

- PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES:**
- GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
 - 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".
 - PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
 - 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 "GALVANOX" OR EQUAL.
 - 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.
 - 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.
 - ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
 - PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
 - 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.
 - EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
 - 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'.
 - THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
 - 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.
 - 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.
 - 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.
 - ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
 - 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.
 - 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)



RF Design Sheet

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

PROJECT MANAGER:

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SITE ADDRESS:

421 EKONK HILL
ROADSTERLING, CT
06377

SHEET DESCRIPTION:

RF DATA SHEET

SHEET NUMBER:

RF-1

Site Identification	
Cascade	CT33XC009
SMS Schedule ID	12323192
SMS Schedule Name	DO Macro Upgrade
PID	
RRU OEM	ALU
Switch OEM	Alcatel Lucent
RFDS Issue Date	2017-08-15 00:00:00.0
RFDS Revision Date	2017-10-18 03:20:52.0
RFDS Revision	2

Filter Analysis Complete	YES
RFDS - Issue Date	08/15/2017
Design Status	Complete
Project Description	DO Macro Upgrade - Add 800MHz (3G + 4G) and 2500 MHz

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

Location Details	
Latitude	41.66445
Longitude	-71.84833
Market	Northern Connecticut
Region	Northeast
City	Sterling
State	CT
Zip Code	CT/06377
County	Windham

2500MHz	3
1900MHz	3
800MHz	3

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

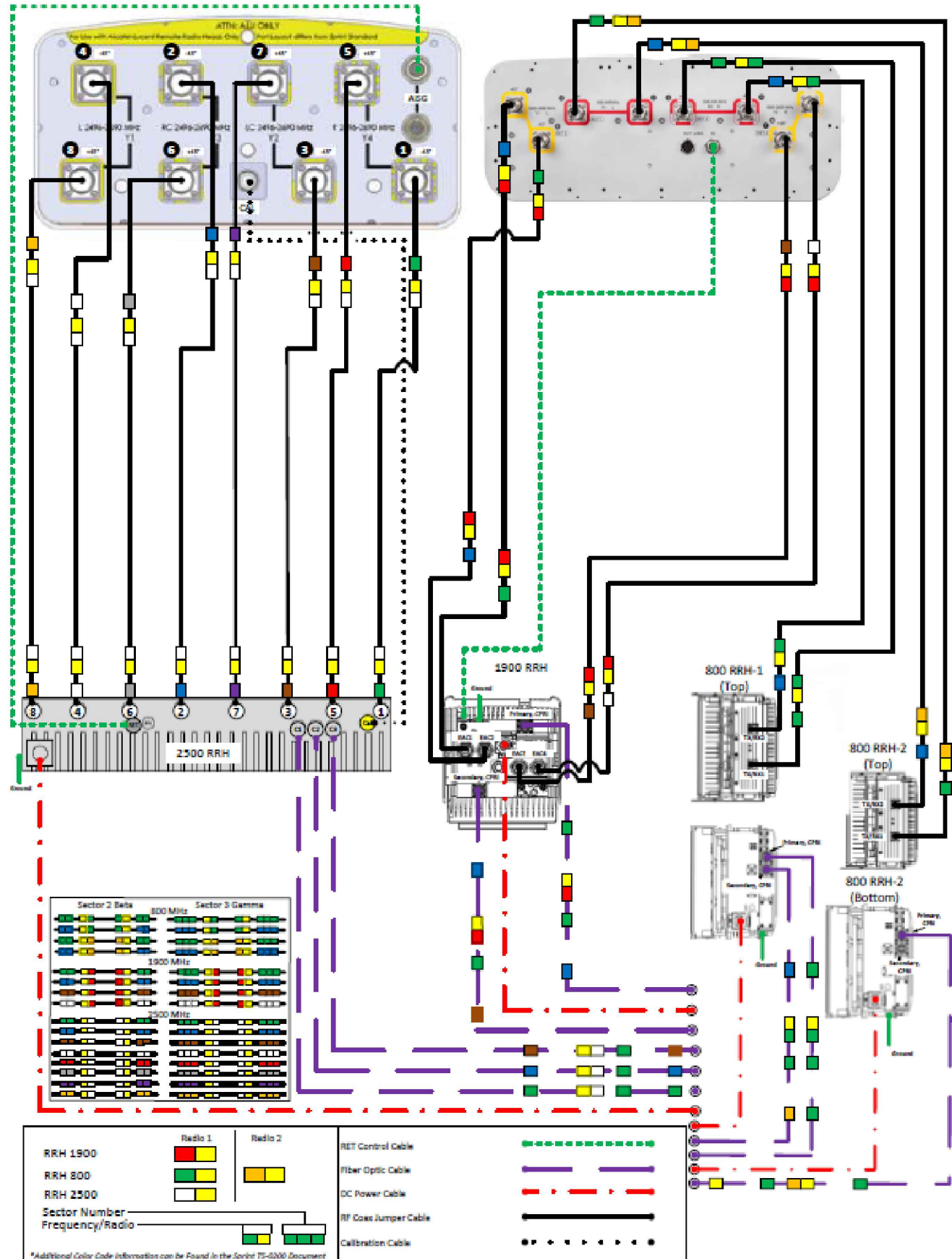
Trunk Cable 1						
Model Number	Hybriflex	N/A	N/A	N/A	N/A	N/A
Weight (lbs.)	1	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	1.54	N/A	N/A	N/A	N/A	N/A
Manufacturer	ALU	N/A	N/A	N/A	N/A	N/A

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

Band: 2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna 1						
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
Ant 1 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	0	120	240	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)	169.9803204	169.9803204	169.9803204	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

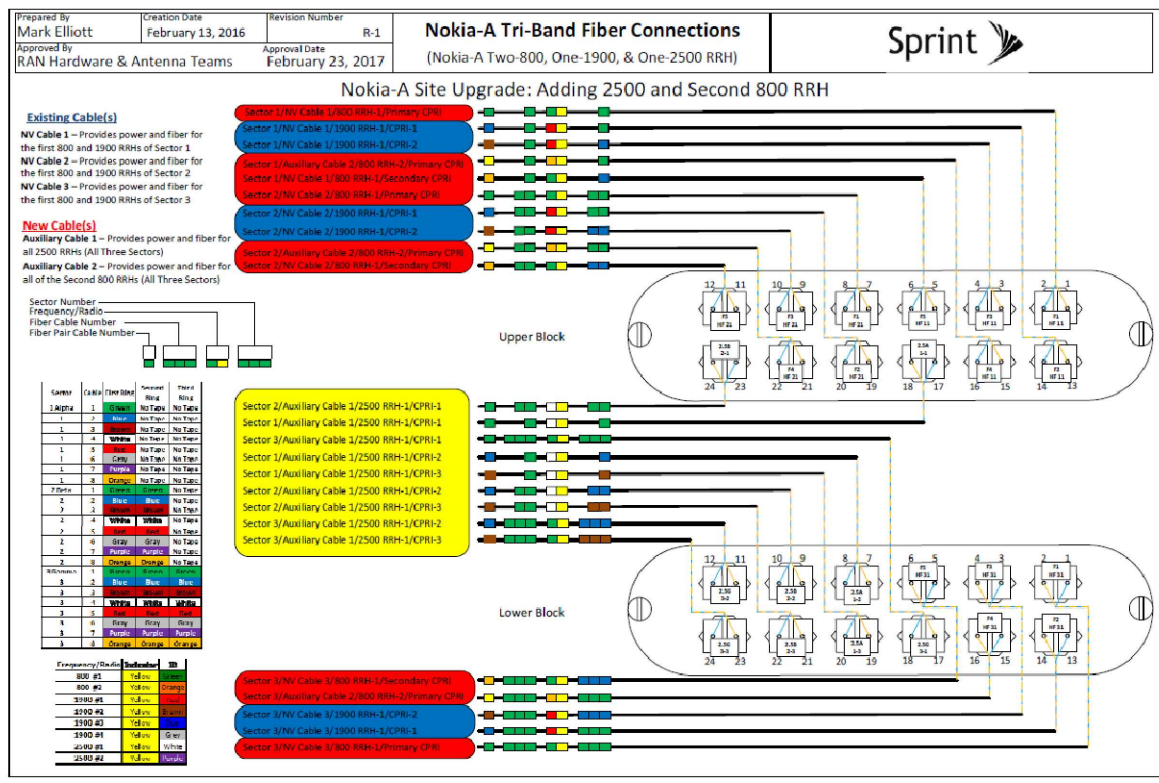
Band: 1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna 1						
Model Number	NNVV-65B-R4	NNVV-65B-R4	NNVV-65B-R4			
Weight (lbs)	84.7	84.7	84.7	N/A	N/A	N/A
Dimensions	72 x 19.6 x 7.8	72 x 19.6 x 7.8	72 x 19.6 x 7.8	N/A	N/A	N/A
Manufacturer	CommScope	CommScope	CommScope	N/A	N/A	N/A
Ant 1 Top Jumper Make/Mode/Qty	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	0	120	240	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)	169.9803204	169.9803204	169.9803204	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

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



Not to Scale

PLUMBING DIAGRAM



PLANS PREPARED FOR:

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MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
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PLANS PREPARED BY:

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1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-104

ENGINEERING LICENSE:

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-12-18
PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/12/18	RWF	0

SITE NUMBER:
CT33XC009

SITE ADDRESS:
421 EKONK HILL
ROADSTERLING, CT
06377

SHEET DESCRIPTION:
PLUMBING DIAGRAM

SHEET NUMBER:
RF-2