AIROSMITH DEVELOPMENT
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March 15th, 2018

Melanie Bachman, Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification – Antenna Swap for wireless facility located at 230 CLOVER MILL ROAD, MANSFIELD, CT 06268 – CT43XC852 (lat. 41° 46' 32.88" N, long. -72° 13' 21.08" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (158-foot level) on an existing (180-foot monopole tower) at the above-referenced address. The property is owned by the Town of Mansfield, and the tower is owned by American Tower Corporation.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace three (3) antennas and add six (6) new RRHs onto the tower. All the proposed work is contained within the existing fenced area. Please refer to the attached drawings for site plans prepared by Infinigy Engineering.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to PAUL SHAPIRO, MAYOR, and LINDA PAINTER, Director of Planning and Zoning for the Town of Mansfield. A copy of this letter is also being sent to JUSTINE PAUL the manager for AMERICAN TOWER CORPORATION who manages the site, and to the Town of Mansfield who owns the land.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b).

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The antennas work is a one-for-one replacement of facility components.
3. The proposed modifications will include the addition of ground base equipment as

32 Clinton Street, Saratoga Springs, NY 12866
Office 518-306-1733 – Fax 518-306-1711
www.airosmithdevelopment.com

depicted on the attached drawings; however, the proposed equipment will not require an extension of the site boundaries.

4. The proposed modifications will not increase noise levels at the facility by six decibels or more.

5. The additional ground based equipment will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b).

If you have any questions or require any additional information regarding this request, please do not hesitate to give me a call at (518) 350-4222 or email me to aperkowski@airosmithdevelopment.com

Kind Regards,

Arthur Perkowski
Airosmith Development Inc.
32 Clinton Street
Saratoga Springs, NY 12866
518-306-1711 desk & fax
518-871-3707 cell
aperkowski@airosmithdevelopment.com

Attachment

CC: PAUL SHAPIRO (MAYOR, Mansfield, CT)
JUSTINE PAUL (Manager, AMERICAN TOWER CORPORATION)
LINDA PAINTER (DIRECTOR OF PLANNING & DEVELOPMENT / Mansfield, CT)
Town of Mansfield (PAUL SHAPIRO) (Land Owner)

7017 3040 0000 7659 7389

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STORRS MANSFIELD, CT 06268

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☐ Adult Signature Required	$ $0.00
☐ Adult Signature Restricted Delivery	$
Postage	$ $0.50
Total Postage and Fees	$ $6.70

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Sent To: Paul Shapiro CT43XC652

Street and Apt. No., or PO Box No.: 4 South Eagleville Rd

City, State, ZIP+4®: Mansfield CT 06268

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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☐ Adult Signature Required	$ $0.00
☐ Adult Signature Restricted Delivery	$ $0.00
Postage	$ $0.50
Total Postage and Fees	$ $6.70

Postmark Here: SARATOGA SPRINGS NY 12866 — SARATOGA FINANCE — MAR 15 2018 — 0867 06 — 03/15/2018

Sent To: Justine Paul CT43XC852

Street and Apt. No., or PO Box No.: 10 Presidential Way

City, State, ZIP+4®: Woburn MA 01801

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☐ Certified Mail Restricted Delivery	$ $0.00
☐ Adult Signature Required	$ $0.00
☐ Adult Signature Restricted Delivery	$
Postage	$ $0.50
Total Postage and Fees	$ $6.70

Postmark Here: SARATOGA SPRINGS NY 12866 — SARATOGA FINANCE — MAR 15 2018 — 0867 06 — 03/15/2018

Sent To: Linda Painter CT43XC85

Street and Apt. No., or PO Box No.: 4 South Eagleville Road

City, State, ZIP+4®: Mansfield CT 06268

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

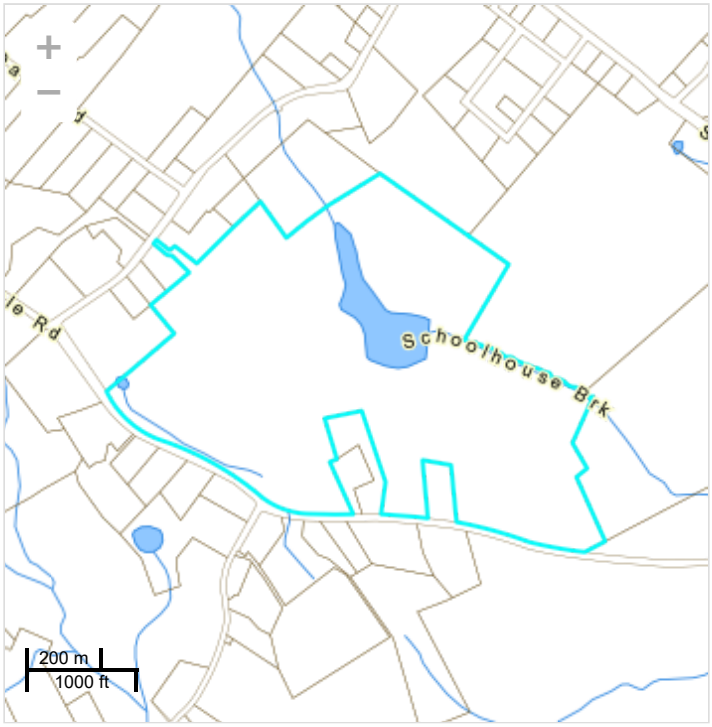
Town of Mansfield, Connecticut

Property Record Card

Card 1 of 1

205 SPRING HILL RD

ID: **23.60.7** Account #: **23 60 7**



Owner: MANSFIELD TOWN OF & BOARD OF EDUCATION &
Co-Owner: MANSFIELD MIDDLE SCHOOL
Address: 4 SOUTH EAGLEVILLE RD
STORRS CT 06268

Assessment: Total: 7996600, Assessed Value:
Building: 6383400 Land: 1297700 Yard: 315500

Sales History

Grantor	Book / Page	Sale Date	Sale Price
MANSFIELD TOWN OF	83/ 413	1957-05-10	
	106/ 136	1967-12-13	
REFERENCE	113/ 428	1971-04-16	
MANSFIELD TOWN OF & BOARD OF EDUCATION &	663/ 347	2009-01-20	

MainStreetGIS, LLC
www.mainstreetgis.com

Land Information
Land Area: 93.53 AC Zoning: (See Official Zoning Map)
Land Use: 901 - Town MDL-Com
Neighborhood:

Building Information
Style:
Year Built: 1969
Stories:
Rooms: Bedrooms:
Baths: Half Baths:
Living Area:
Finished Basement:
Heat Fuel:
Heat Type:
AC Type:
Roof Structure:
Roof Covering:
Exterior Wall 1:
Exterior Wall 2:
Interior Floor 1:
Interior Floor 2:

Extra Features

Description	Area / Units	Assessment
Paving	112400	99100
Cabana	462	4600
Tennis Court	1	3500
Shed	800	4700
Fence	280	1100
Shed	100	600
Light 5	15	19900
Gar w/Loft	6333	77600
Garage	6435	78800
Wood Deck	416	1600

Sub Areas

Description	Living Area	Gross Area
BAS - First Floor	66700	66700
UBM - Basement	0	66700
GRN - Greenhouse	0	360

CT43XC852_DO MACRO

Parcel: 23.60.7
205 SPRING HILL RD
Select

Property List
Property Card
PDF Property Card

Town of Mansfield, Connecticut

100 m
500 ft

N

MainStreetGIS
MainStreetGIS, LLC
www.mainstreetgis.com

Printed 3/15/2018 from http://www.mainstreetmaps.com/ct/mansfield/public.asp

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT43XC852

TCP Communications
230 Clover Mill Road
Storrs, CT 06268

March 3, 2018

EBI Project Number: 6218001768

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	7.73 %

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

March 3, 2018

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

Emissions Analysis for Site: **CT43XC852 – TCP Communications**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **230 Clover Mill Road, Storrs, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **230 Clover Mill Road, Storrs, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

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

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

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

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

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

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20 and the Commscope DT465B-2XR** 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 **158 feet** above ground level (AGL) for **Sector A**, **158 feet** above ground level (AGL) for **Sector B** and **158 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**158 feet**	Height (AGL):	**158 feet**	Height (AGL):	**158 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts
ERP (W):	6,662.27	ERP (W):	6,662.27	ERP (W):	6,662.27
Antenna A1 MPE%	**1.09 %**	Antenna B1 MPE%	**1.09 %**	Antenna C1 MPE%	**1.09 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR
Gain:	15.05 / 13.4 dBd	Gain:	15.05 / 13.4 dBd	Gain:	15.05 / 13.4 dBd
Height (AGL):	**158 feet**	Height (AGL):	**158 feet**	Height (AGL):	**158 feet**
Frequency Bands	2500 MHz (BRS) / 850 MHz	Frequency Bands	2500 MHz (BRS) / 850 MHz	Frequency Bands	2500 MHz (BRS) / 850 MHz
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	200 Watts	Total TX Power(W):	200 Watts	Total TX Power(W):	200 Watts
ERP (W):	5,983.32	ERP (W):	5,983.32	ERP (W):	5,983.32
Antenna A2 MPE%	**1.03 %**	Antenna B2 MPE%	**1.03 %**	Antenna C2 MPE%	**1.03 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.12 %**
Fire Svcs & EMS	1.21 %
Emergency Mgmt	0.27 %
Public Works	0.27 %
AT&T	1.23 %
Verizon Wireless	1.60 %
T-Mobile	1.03 %
Site Total MPE %:	**7.73 %**

SPRINT Sector A Total:	2.12 %
SPRINT Sector B Total:	2.12 %
SPRINT Sector C Total:	2.12 %
Site Total:	7.73 %

SPRINT _ Frequency Band / Technology Max Power Values (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	158	0.68	850 MHz	567	0.12%
Sprint 1900 MHz (PCS) CDMA	5	622.47	158	4.84	1900 MHz (PCS)	1000	0.48%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	158	4.84	1900 MHz (PCS)	1000	0.48%
Sprint 2500 MHz (BRS) LTE	8	639.78	158	7.96	2500 MHz (BRS)	1000	0.80%
Sprint 850 MHz LTE	2	432.54	158	1.35	850 MHz	567	0.24%
						Total:	**2.12%**

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:	2.12 %
Sector B:	2.12 %
Sector C:	2.12 %
SPRINT Maximum Total (per sector):	2.12 %
Site Total:	7.73 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.73 %** 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.

INFINIGY
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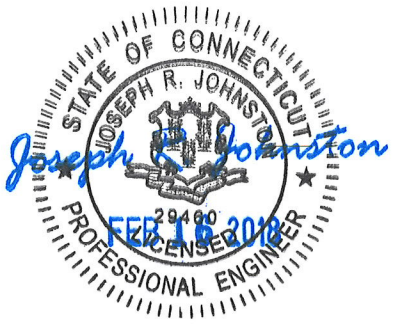
1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Structural Analysis Report

February 16, 2018

Site Name	CT43XC852
Infinigy Job Number	526-104
Client	Airosmith
Proposed Carrier	Sprint
Site Location	230 Clover Mill Road, Storrs, CT 06268 41° 46' 32.88" N NAD83 72° 13' 21.08" W NAD83
Structure Type	178' Monopole
Structural Usage Ratio	**54.5%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.



Nathaniel R. Ober, E.I.T.
Northeast Structural Region Lead

Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 178' monopole. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using TNX version 8.0.1.0 structural analysis software.

Supporting Documentation

Antenna Loading	Infinigy CD's Job #526-104, dated February 16, 2018
Previous Analysis	Ramaker & Associates Inc, Job #29265, dated July 8, 2014

Analysis Code Requirements

Wind Speed	101 mph (3-Second Gust, V_{ASD}) / 130 (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2015 IBC / 2016 Connecticut State Building Code
Structure Class	2
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Nathaniel R Ober E.I.T.
Northeast Structural Region Lead | Infinigy
1033 Watervliet Shaker Road, Albany, NY 12205
(O) (518) 690-0790 | (M) (303) 704-0322
nober@infinigy.com | www.infinigy.com

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
178.0	3	20’ Omni	Platform w/ Handrails	(4) 1-5/8”	Town
	1	3’ Grid Dish			
	1	6’ Yagi			
	3	6.5’ Panel		(12) 1-5/8”	Verizon
	3	4’ Panel			
	6	Antel LPD7905/4			
172.0	3	6’ Panel	T-Arm	(4) 1-5/8”	AT&T
	3	4.5’ Panel			
	3	Ericsson RRUS-11			
	6	TMA			
158.0	3	Commscope DT465B-2XR	Low Profile Platform	(3) 1-5/8” (1) 5/8” Fiber	Sprint
	3	RFS APXVSPP18-C-A20			
	3	Alcatel-Lucent TD-RRH8x20			
	6	Alcatel-Lucent RRH 800 MHz			
	3	Alcatel-Lucent 1900 MHz			
148.0	6	6’ Panels	Low Profile Platform	(6) 1-5/8”	T-MO
	6	TMA			
115.0	3	20’ Omni	T-Arm	(7) 1-5/8”	Town
	2	6’ Yagi			
	1	4’ Omni			
	1	3’ Grid Dish			

Structure Usages

Pole (L3)	54.5	Pass
Base Plate	47.5	Pass
RATING =	**54.5**	**Pass**

Foundation Reactions

Reaction Data	Design Reactions	Design Reactions x 1.35	Analysis Reactions	Result
Moment (kip-ft)	6250.0	8437.5	4154.6	49.2%
Axial (kip)	52.0	70.2	63.8	90.9%
Shear (kip)	48.0	64.8	33.6	51.9%

*** Design reactions are multiplied by 1.35 per ANSI/TIA-222-G 15.5.1**

Tower base reactions are acceptable when compared to the original design reactions listed in previous analysis by Ramaker & Associates, Inc.

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway (°)
158.0	12.337	0.007	0.729

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.
*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.
*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

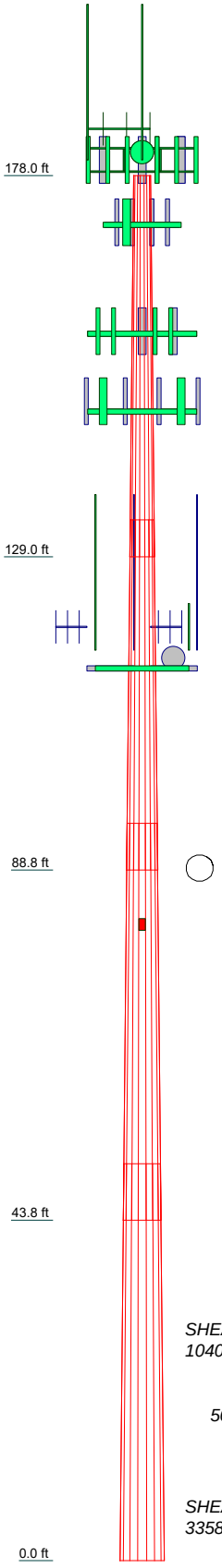
Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	49.00	18	0.2500	4.75	25.5000	37.8490	A572-65	4157.6
2	45.00	18	0.3750	6.00	36.1519	47.4930		7554.1
3	51.00	18	0.3750	7.25	45.2309	58.0840		10592.8
4	51.00	18	0.4375		55.5068	68.3600		14819.6
								37124.2



ALL REACTIONS ARE FACTORED

AXIAL 107411 lb

SHEAR 10407 lb

MOMENT 1335473 lb-ft

TORQUE 4376 lb-ft

50 mph WIND - 1.0000 in ICE

AXIAL 63767 lb

SHEAR 33587 lb

MOMENT 4154630 lb-ft

TORQUE 7058 lb-ft

REACTIONS - 101 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
3' Grid Dish	181	DT465B-2XR (Sprint)	158
Pipe Platform w/ Handrails (Town)	180	APXVSPP18-C-A20 (Sprint)	158
20' Omni (Town)	180	APXVSPP18-C-A20 (Sprint)	158
20' Omni (Town)	180	APXVSPP18-C-A20 (Sprint)	158
20' Omni (Town)	180	800 MHz 2x50W RRH (Sprint)	158
6' Yagi (Town)	180	800 MHz 2x50W RRH (Sprint)	158
78"x11.5" Panel (Verizon)	180	800 MHz 2x50W RRH (Sprint)	158
78"x11.5" Panel (Verizon)	180	800 MHz 2x50W RRH (Sprint)	158
78"x11.5" Panel (Verizon)	180	800 MHz 2x50W RRH (Sprint)	158
48"x8" Panel (Verizon)	180	800 MHz 2x50W RRH (Sprint)	158
48"x8" Panel (Verizon)	180	TD-RRH8x20-25 (Sprint)	158
48"x8" Panel (Verizon)	180	TD-RRH8x20-25 (Sprint)	158
(2) LPD7905/4 (Verizon)	180	TD-RRH8x20-25 (Sprint)	158
(2) LPD7905/4 (Verizon)	180	1900MHz RRH (Sprint)	158
(2) LPD7905/4 (Verizon)	180	1900MHz RRH (Sprint)	158
Pipe Mount	178	1900MHz RRH (Sprint)	158
Flash Beacon Lighting	178	Pipe Low Profile Platform (Sprint)	158
Pipe T-Arm (ATI)	172	72" x 12" Panel (T-Mobile)	148
Pipe T-Arm (ATI)	172	72" x 12" Panel (T-Mobile)	148
72" x 12" Panel (ATI)	172	72" x 12" Panel (T-Mobile)	148
72" x 12" Panel (ATI)	172	TMA (T-Mobile)	148
72" x 12" Panel (ATI)	172	TMA (T-Mobile)	148
54"x12"x7.5" Panel (ATI)	172	TMA (T-Mobile)	148
54"x12"x7.5" Panel (ATI)	172	Pipe Low Profile Platform (T-Mobile)	148
54"x12"x7.5" Panel (ATI)	172	Pipe T-Arm (Town)	115
RRUS-11 (ATI)	172	Pipe T-Arm (Town)	115
RRUS-11 (ATI)	172	20' Omni (Town)	115
RRUS-11 (ATI)	172	20' Omni (Town)	115
TMA (ATI)	172	20' Omni (Town)	115
TMA (ATI)	172	6' Yagi (Town)	115
TMA (ATI)	172	6' Yagi (Town)	115
TMA (ATI)	172	4' Omni (Town)	115
TMA (ATI)	172	Pipe T-Arm (Town)	115
TMA (ATI)	172	3' Grid Dish	115
Pipe T-Arm (ATI)	172	Pipe Mount	80
DT465B-2XR (Sprint)	158	GPS	80
DT465B-2XR (Sprint)	158		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 54.5%

Infingy Engineering PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Phone: 518-690-0790
FAX: 518-690-0793

Job: ***CT43XC852***			
Project: ***526-104***			
Client: Airosmith / Sprint	Drawn by: nober		App'd:
Code: TIA-222-G	Date: 02/16/18		Scale: NTS
Path: C:\Users\nober\Desktop\CT43XC852\TNX\CT43XC852.eri			Dwg No. E-1

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Tolland County, Connecticut.
Basic wind speed of 101 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice		Bypass Mast Stability Checks		Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
√	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	178.00-129.00	49.00	4.75	18	25.5000	37.8490	0.2500	1.0000	A572-65 (65 ksi)
L2	129.00-88.75	45.00	6.00	18	36.1519	47.4930	0.3750	1.5000	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	88.75-43.75	51.00	7.25	18	45.2309	58.0840	0.3750	1.5000	A572-65 (65 ksi)
L4	43.75-0.00	51.00		18	55.5068	68.3600	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	25.8934	20.0359	1613.8699	8.9637	12.9540	124.5847	3229.8634	10.0198	4.0480	16.192
	38.4329	29.8348	5328.6018	13.3476	19.2273	277.1374	10664.2150	14.9202	6.2214	24.886
L2	37.9252	42.5835	6886.2672	12.7008	18.3652	374.9635	13781.5956	21.2958	5.7027	15.207
	48.2257	56.0822	15730.2702	16.7269	24.1264	651.9929	31481.2388	28.0464	7.6988	20.53
L3	47.4641	53.3897	13571.6616	15.9238	22.9773	590.6559	27161.1811	26.6999	7.3006	19.468
	58.9800	68.6881	28900.5619	20.4867	29.5067	979.4585	57839.1519	34.3506	9.5628	25.501
L4	58.2185	76.4707	29298.9445	19.5496	28.1975	1039.0628	58636.4413	38.2426	8.9992	20.57
	69.4146	94.3189	54974.7695	24.1125	34.7269	1583.0610	110021.876 3	47.1684	11.2614	25.74

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 178.00-129.00				1	1	1			
L2 129.00-88.75				1	1	1			
L3 88.75-43.75				1	1	1			
L4 43.75-0.00				1	1	1			

Monopole Base Plate Data

Base Plate Data	
Base plate is square	√
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	24
Embedment length	84.0000 in
f'_c	4 ksi
Grout space	2.0000 in
Base plate grade	A633-60
Base plate thickness	3.0000 in
Bolt circle diameter	76.0000 in
Outer diameter	75.0000 in
Inner diameter	66.7500 in
Corner clippled	18.0000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
1 5/8 (Town)	C	No	Inside Pole	178.00 - 0.00	4	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 5/8 (Verizon)	C	No	Inside Pole	178.00 - 0.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 5/8 (AT&T)	C	No	Inside Pole	172.00 - 0.00	6	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 5/8 (AT&T)	C	No	Inside Pole	172.00 - 0.00	1	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 5/8 (Sprint)	C	No	Inside Pole	158.00 - 0.00	3	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
5/8 (Sprint)	C	No	Inside Pole	158.00 - 0.00	1	No Ice	0.00	0.40
						1/2" Ice	0.00	0.40
						1" Ice	0.00	0.40
1 5/8 (T-Mobile)	C	No	Inside Pole	148.00 - 0.00	6	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 5/8 (Town)	C	No	Inside Pole	115.00 - 0.00	7	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
3/8 (GPS)	C	No	Inside Pole	80.00 - 0.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	178.00-129.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1349.04
L2	129.00-88.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1546.72
L3	88.75-43.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1846.10
L4	43.75-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1795.50

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	178.00-129.00	A	2.330	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1349.04
L2	129.00-88.75	A	2.252	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1546.72
L3	88.75-43.75	A	2.144	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1846.10
L4	43.75-0.00	A	1.915	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1795.50

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Flash Beacon Lighting	B	From Leg	0.00	0.0000	178.00	No Ice	2.70	2.70	50.00
			0.00			1/2" Ice	3.10	3.10	70.00
			4.00			1" Ice	3.50	3.50	90.00
Pipe Mount	B	From Leg	0.00	0.0000	178.00	No Ice	2.77	2.77	72.88
			0.00			1/2" Ice	3.63	3.63	107.29
			2.00			1" Ice	4.13	4.13	146.69
****									
Pipe Platform w/ Handrails (Town)	C	None		0.0000	180.00	No Ice	27.20	27.20	2000.00
						1/2" Ice	34.20	34.20	2400.00
						1" Ice	41.20	41.20	2800.00
20' Omni (Town)	C	From Face	0.00	0.0000	180.00	No Ice	6.00	6.00	55.00
			0.00			1/2" Ice	8.03	8.03	98.17
			10.00			1" Ice	10.08	10.08	154.01
20' Omni (Town)	C	From Face	4.00	0.0000	180.00	No Ice	6.00	6.00	55.00
			7.00			1/2" Ice	8.03	8.03	98.17
			10.00			1" Ice	10.08	10.08	154.01
20' Omni (Town)	C	From Face	4.00	0.0000	180.00	No Ice	6.00	6.00	55.00
			7.00			1/2" Ice	8.03	8.03	98.17
			10.00			1" Ice	10.08	10.08	154.01
6' Yagi (Town)	C	From Face	4.00	0.0000	180.00	No Ice	8.95	8.95	25.00
			7.00			1/2" Ice	15.80	15.80	98.00
			4.00			1" Ice	22.65	22.65	171.00
***									
78"x11.5" Panel (Verizon)	A	From Leg	4.00	0.0000	180.00	No Ice	8.66	5.20	40.00
			0.00			1/2" Ice	9.15	5.68	89.60
			0.00			1" Ice	9.64	6.17	145.58
78"x11.5" Panel (Verizon)	B	From Leg	4.00	0.0000	180.00	No Ice	8.66	5.20	40.00
			0.00			1/2" Ice	9.15	5.68	89.60

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	9.64	6.17	145.58
78"x11.5" Panel	C	From Leg	4.00	0.0000	180.00	No Ice	8.66	5.20	40.00
(Verizon)			0.00			1/2" Ice	9.15	5.68	89.60
			0.00			1" Ice	9.64	6.17	145.58
48"x8" Panel	A	From Leg	4.00	0.0000	180.00	No Ice	3.61	3.61	40.00
(Verizon)			5.00			1/2" Ice	3.92	3.92	69.07
			0.00			1" Ice	4.23	4.23	102.48
48"x8" Panel	B	From Leg	4.00	0.0000	180.00	No Ice	3.61	3.61	40.00
(Verizon)			5.00			1/2" Ice	3.92	3.92	69.07
			0.00			1" Ice	4.23	4.23	102.48
48"x8" Panel	C	From Leg	4.00	0.0000	180.00	No Ice	3.61	3.61	40.00
(Verizon)			5.00			1/2" Ice	3.92	3.92	69.07
			0.00			1" Ice	4.23	4.23	102.48
(2) LPD7905/4	A	From Leg	4.00	0.0000	180.00	No Ice	2.80	2.80	22.00
(Verizon)			0.00			1/2" Ice	3.09	3.09	24.00
			0.00			1" Ice	3.38	3.38	26.00
(2) LPD7905/4	B	From Leg	4.00	0.0000	180.00	No Ice	2.80	2.80	22.00
(Verizon)			0.00			1/2" Ice	3.09	3.09	24.00
			0.00			1" Ice	3.38	3.38	26.00
(2) LPD7905/4	C	From Leg	4.00	0.0000	180.00	No Ice	2.80	2.80	22.00
(Verizon)			0.00			1/2" Ice	3.09	3.09	24.00
			0.00			1" Ice	3.38	3.38	26.00
***									
Pipe T-Arm	A	From Face	1.50	0.0000	172.00	No Ice	12.00	3.30	250.00
(AT&T)			0.00			1/2" Ice	14.00	5.20	314.00
			0.00			1" Ice	16.00	7.10	378.00
Pipe T-Arm	B	From Face	1.50	0.0000	172.00	No Ice	12.00	3.30	250.00
(AT&T)			0.00			1/2" Ice	14.00	5.20	314.00
			0.00			1" Ice	16.00	7.10	378.00
Pipe T-Arm	C	From Face	1.50	0.0000	172.00	No Ice	12.00	3.30	250.00
(AT&T)			0.00			1/2" Ice	14.00	5.20	314.00
			0.00			1" Ice	16.00	7.10	378.00
72" x 12" Panel	A	From Face	1.50	0.0000	172.00	No Ice	8.13	4.70	45.00
(AT&T)			2.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
72" x 12" Panel	B	From Face	1.50	0.0000	172.00	No Ice	8.13	4.70	45.00
(AT&T)			2.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
72" x 12" Panel	C	From Face	1.50	0.0000	172.00	No Ice	8.13	4.70	45.00
(AT&T)			2.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
54"x12"x7.5" Panel	A	From Face	1.50	0.0000	172.00	No Ice	5.80	3.96	40.00
(AT&T)			-2.00			1/2" Ice	6.16	4.30	79.46
			0.00			1" Ice	6.52	4.64	123.87
54"x12"x7.5" Panel	B	From Face	1.50	0.0000	172.00	No Ice	5.80	3.96	40.00
(AT&T)			-2.00			1/2" Ice	6.16	4.30	79.46
			0.00			1" Ice	6.52	4.64	123.87
54"x12"x7.5" Panel	B	From Face	1.50	0.0000	172.00	No Ice	5.80	3.96	40.00
(AT&T)			-2.00			1/2" Ice	6.16	4.30	79.46
			0.00			1" Ice	6.52	4.64	123.87
RRUS-11	A	From Face	1.00	0.0000	172.00	No Ice	3.79	1.46	55.00
(AT&T)			2.00			1/2" Ice	4.04	1.63	80.77
			1.00			1" Ice	4.29	1.81	109.98
RRUS-11	B	From Face	1.00	0.0000	172.00	No Ice	3.79	1.46	55.00
(AT&T)			2.00			1/2" Ice	4.04	1.63	80.77
			1.00			1" Ice	4.29	1.81	109.98
RRUS-11	C	From Face	1.00	0.0000	172.00	No Ice	3.79	1.46	55.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(AT&T)			2.00			1/2" Ice	4.04	1.63	80.77
			1.00			1" Ice	4.29	1.81	109.98
TMA	A	From Face	1.00	0.0000	172.00	No Ice	0.72	0.66	20.61
(AT&T)			-1.50			1/2" Ice	0.83	0.79	29.38
			0.00			1" Ice	0.95	0.93	40.54
TMA	B	From Face	1.00	0.0000	172.00	No Ice	0.72	0.66	20.61
(AT&T)			-1.50			1/2" Ice	0.83	0.79	29.38
			0.00			1" Ice	0.95	0.93	40.54
TMA	C	From Face	1.00	0.0000	172.00	No Ice	0.72	0.66	20.61
(AT&T)			-1.50			1/2" Ice	0.83	0.79	29.38
			0.00			1" Ice	0.95	0.93	40.54
TMA	A	From Face	1.00	0.0000	172.00	No Ice	0.72	0.66	20.61
(AT&T)			-2.50			1/2" Ice	0.83	0.79	29.38
			0.00			1" Ice	0.95	0.93	40.54
TMA	B	From Face	1.00	0.0000	172.00	No Ice	0.72	0.66	20.61
(AT&T)			-2.50			1/2" Ice	0.83	0.79	29.38
			0.00			1" Ice	0.95	0.93	40.54
TMA	C	From Face	1.00	0.0000	172.00	No Ice	0.72	0.66	20.61
(AT&T)			-2.50			1/2" Ice	0.83	0.79	29.38
			0.00			1" Ice	0.95	0.93	40.54
***									
Pipe Low Profile Platform	C	None		0.0000	158.00	No Ice	21.70	21.70	1500.00
(Sprint)						1/2" Ice	27.20	27.20	1700.00
						1" Ice	32.70	32.70	1900.00
DT465B-2XR	A	From Leg	3.00	0.0000	158.00	No Ice	9.22	5.87	58.00
(Sprint)			4.00			1/2" Ice	9.69	6.32	116.04
			0.00			1" Ice	10.16	6.79	180.37
DT465B-2XR	B	From Leg	3.00	0.0000	158.00	No Ice	9.22	5.87	58.00
(Sprint)			4.00			1/2" Ice	9.69	6.32	116.04
			0.00			1" Ice	10.16	6.79	180.37
DT465B-2XR	C	From Leg	3.00	0.0000	158.00	No Ice	9.22	5.87	58.00
(Sprint)			4.00			1/2" Ice	9.69	6.32	116.04
			0.00			1" Ice	10.16	6.79	180.37
APXVSPP18-C-A20	A	From Leg	3.00	0.0000	158.00	No Ice	8.02	5.28	57.00
(Sprint)			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
APXVSPP18-C-A20	B	From Leg	3.00	0.0000	158.00	No Ice	8.02	5.28	57.00
(Sprint)			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
APXVSPP18-C-A20	C	From Leg	3.00	0.0000	158.00	No Ice	8.02	5.28	57.00
(Sprint)			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
800 MHz 2x50W RRH	A	From Leg	3.00	0.0000	158.00	No Ice	2.06	1.93	64.00
(Sprint)			4.00			1/2" Ice	2.24	2.11	86.12
			2.00			1" Ice	2.43	2.29	111.30
800 MHz 2x50W RRH	B	From Leg	3.00	0.0000	158.00	No Ice	2.06	1.93	64.00
(Sprint)			4.00			1/2" Ice	2.24	2.11	86.12
			2.00			1" Ice	2.43	2.29	111.30
800 MHz 2x50W RRH	C	From Leg	3.00	0.0000	158.00	No Ice	2.06	1.93	64.00
(Sprint)			4.00			1/2" Ice	2.24	2.11	86.12
			2.00			1" Ice	2.43	2.29	111.30
800 MHz 2x50W RRH	A	From Leg	3.00	0.0000	158.00	No Ice	2.06	1.93	64.00
(Sprint)			-2.00			1/2" Ice	2.24	2.11	86.12
			2.00			1" Ice	2.43	2.29	111.30
800 MHz 2x50W RRH	B	From Leg	3.00	0.0000	158.00	No Ice	2.06	1.93	64.00
(Sprint)			-2.00			1/2" Ice	2.24	2.11	86.12
			2.00			1" Ice	2.43	2.29	111.30

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
800 MHz 2x50W RRH	C	From Leg	3.00	0.0000	158.00	No Ice	2.06	1.93	64.00
(Sprint)			-2.00			1/2" Ice	2.24	2.11	86.12
			2.00			1" Ice	2.43	2.29	111.30
TD-RRH8x20-25	A	From Leg	3.00	0.0000	158.00	No Ice	4.05	1.53	70.00
(Sprint)			4.00			1/2" Ice	4.30	1.71	97.14
			-2.00			1" Ice	4.56	1.90	127.80
TD-RRH8x20-25	B	From Leg	3.00	0.0000	158.00	No Ice	4.05	1.53	70.00
(Sprint)			4.00			1/2" Ice	4.30	1.71	97.14
			-2.00			1" Ice	4.56	1.90	127.80
TD-RRH8x20-25	C	From Leg	3.00	0.0000	158.00	No Ice	4.05	1.53	70.00
(Sprint)			4.00			1/2" Ice	4.30	1.71	97.14
			-2.00			1" Ice	4.56	1.90	127.80
1900MHz RRH	A	From Leg	3.00	0.0000	158.00	No Ice	2.31	2.38	60.00
(Sprint)			-2.00			1/2" Ice	2.52	2.58	83.90
			-2.00			1" Ice	2.73	2.79	111.08
1900MHz RRH	B	From Leg	3.00	0.0000	158.00	No Ice	2.31	2.38	60.00
(Sprint)			-2.00			1/2" Ice	2.52	2.58	83.90
			-2.00			1" Ice	2.73	2.79	111.08
1900MHz RRH	C	From Leg	3.00	0.0000	158.00	No Ice	2.31	2.38	60.00
(Sprint)			-2.00			1/2" Ice	2.52	2.58	83.90
			-2.00			1" Ice	2.73	2.79	111.08
***									
Pipe Low Profile Platform	C	None		0.0000	148.00	No Ice	21.70	21.70	1500.00
(T-Mobile)						1/2" Ice	27.20	27.20	1700.00
						1" Ice	32.70	32.70	1900.00
72" x 12" Panel	A	From Face	4.00	0.0000	148.00	No Ice	8.13	4.70	45.00
(T-Mobile)			0.00			1/2" Ice	8.59	5.15	92.28
			1.00			1" Ice	9.05	5.60	145.59
72" x 12" Panel	B	From Face	4.00	0.0000	148.00	No Ice	8.13	4.70	45.00
(T-Mobile)			0.00			1/2" Ice	8.59	5.15	92.28
			1.00			1" Ice	9.05	5.60	145.59
72" x 12" Panel	C	From Face	4.00	0.0000	148.00	No Ice	8.13	4.70	45.00
(T-Mobile)			0.00			1/2" Ice	8.59	5.15	92.28
			1.00			1" Ice	9.05	5.60	145.59
TMA	A	From Face	4.00	0.0000	148.00	No Ice	0.72	0.66	20.61
(T-Mobile)			0.00			1/2" Ice	0.83	0.79	29.38
			2.00			1" Ice	0.95	0.93	40.54
TMA	B	From Face	4.00	0.0000	148.00	No Ice	0.72	0.66	20.61
(T-Mobile)			0.00			1/2" Ice	0.83	0.79	29.38
			2.00			1" Ice	0.95	0.93	40.54
TMA	C	From Face	4.00	0.0000	148.00	No Ice	0.72	0.66	20.61
(T-Mobile)			0.00			1/2" Ice	0.83	0.79	29.38
			2.00			1" Ice	0.95	0.93	40.54
***									
Pipe T-Arm	A	From Face	3.00	0.0000	115.00	No Ice	12.00	3.30	250.00
(Town)			0.00			1/2" Ice	14.00	5.20	314.00
			0.00			1" Ice	16.00	7.10	378.00
Pipe T-Arm	B	From Face	3.00	0.0000	115.00	No Ice	12.00	3.30	250.00
(Town)			0.00			1/2" Ice	14.00	5.20	314.00
			0.00			1" Ice	16.00	7.10	378.00
Pipe T-Arm	C	From Face	3.00	0.0000	115.00	No Ice	12.00	3.30	250.00
(Town)			0.00			1/2" Ice	14.00	5.20	314.00
			0.00			1" Ice	16.00	7.10	378.00
20' Omni	A	From Face	3.00	0.0000	115.00	No Ice	6.00	6.00	55.00
(Town)			6.00			1/2" Ice	8.03	8.03	98.17
			12.00			1" Ice	10.08	10.08	154.01
20' Omni	B	From Face	3.00	0.0000	115.00	No Ice	6.00	6.00	55.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(Town)			6.00			1/2" Ice	8.03	8.03	98.17
			12.00			1" Ice	10.08	10.08	154.01
20' Omni	C	From Face	3.00	0.0000	115.00	No Ice	6.00	6.00	55.00
(Town)			6.00			1/2" Ice	8.03	8.03	98.17
			12.00			1" Ice	10.08	10.08	154.01
6' Yagi	A	From Face	3.00	0.0000	115.00	No Ice	8.95	8.95	25.00
(Town)			-6.00			1/2" Ice	15.80	15.80	98.00
			5.00			1" Ice	22.65	22.65	171.00
6' Yagi	B	From Face	3.00	0.0000	115.00	No Ice	8.95	8.95	25.00
(Town)			-6.00			1/2" Ice	15.80	15.80	98.00
			5.00			1" Ice	22.65	22.65	171.00
4' Omni	C	From Face	3.00	0.0000	115.00	No Ice	1.00	1.00	15.00
(Town)			-6.00			1/2" Ice	1.25	1.25	23.96
			5.00			1" Ice	1.50	1.50	35.82
***									
Pipe Mount	C	From Face	1.50	0.0000	80.00	No Ice	3.10	3.10	72.88
			0.00			1/2" Ice	3.63	3.63	107.29
			0.00			1" Ice	4.13	4.13	146.69
GPS	C	From Face	3.00	0.0000	80.00	No Ice	0.41	0.41	10.00
			0.00			1/2" Ice	0.57	0.57	15.96
			1.00			1" Ice	0.69	0.69	23.49

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
3' Grid Dish		Grid	None		0.0000		181.00	3.00	No Ice	7.07	60.00
									1/2" Ice	7.47	98.35
									1" Ice	7.86	136.69
3' Grid Dish	B	Grid	From Face	3.00	0.0000		115.00	3.00	No Ice	7.07	60.00
				0.00					1/2" Ice	7.47	98.35
				1.00					1" Ice	7.86	136.69

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg - No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp

Comb. No.	Description
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	178 - 129	15.574	13	0.8019	0.0101
L2	133.75 - 88.75	8.732	13	0.6333	0.0034
L3	94.75 - 43.75	4.276	13	0.4438	0.0017
L4	51 - 0	1.196	13	0.2153	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181.00	3' Grid Dish	13	15.574	0.8019	0.0101	85356
180.00	Pipe Platform w/ Handrails	13	15.574	0.8019	0.0101	85356
178.00	Flash Beacon Lighting	13	15.574	0.8019	0.0101	85356
172.00	Pipe T-Arm	13	14.593	0.7802	0.0090	71130
158.00	Pipe Low Profile Platform	13	12.337	0.7288	0.0066	21339
148.00	Pipe Low Profile Platform	13	10.788	0.6909	0.0051	14225
116.00	3' Grid Dish	13	6.496	0.5519	0.0023	10761
115.00	Pipe T-Arm	13	6.381	0.5471	0.0022	10831
80.00	Pipe Mount	13	3.003	0.3650	0.0013	11249

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	178 - 129	79.556	4	4.0915	0.0509
L2	133.75 - 88.75	44.569	4	3.2361	0.0171
L3	94.75 - 43.75	21.817	4	2.2658	0.0085
L4	51 - 0	6.102	4	1.0984	0.0030

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181.00	3' Grid Dish	4	79.556	4.0915	0.0509	16945
180.00	Pipe Platform w/ Handrails	4	79.556	4.0915	0.0509	16945
178.00	Flash Beacon Lighting	4	79.556	4.0915	0.0509	16945
172.00	Pipe T-Arm	4	74.538	3.9835	0.0455	14120
158.00	Pipe Low Profile Platform	4	63.002	3.7264	0.0333	4234
148.00	Pipe Low Profile Platform	4	55.081	3.5335	0.0256	2821
116.00	3' Grid Dish	4	33.150	2.8187	0.0115	2118
115.00	Pipe T-Arm	4	32.561	2.7938	0.0113	2131
80.00	Pipe Mount	4	15.319	1.8634	0.0067	2208

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual / Allowable Ratio Bolt Tension lb	Actual / Allowable Ratio Bolt Compression lb	Actual / Allowable Ratio Plate Stress ksi	Actual / Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
3.0000	24	2.2500	106245.10 223654.40 0.48	111557.77 371266.30 0.30	21.166 54.000 0.39		Bolt T	0.48 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	178 - 129 (1)	TP37.849x25.5x0.25	49.00	178.00	165.3	28.8849	-14913.70	238843.00	0.062
L2	129 - 88.75 (2)	TP47.493x36.1519x0.375	45.00	178.00	131.9	54.2824	-26225.40	704521.00	0.037
L3	88.75 - 43.75 (3)	TP58.084x45.2309x0.375	51.00	178.00	107.7	66.5134	-40909.50	1296120.00	0.032
L4	43.75 - 0 (4)	TP68.36x55.5068x0.4375	51.00	178.00	88.6	94.3189	-63752.00	2669300.00	0.024

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	178 - 129 (1)	TP37.849x25.5x0.25	559640.00	1424316.67	0.393	0.00	1424316.67	0.000
L2	129 - 88.75 (2)	TP47.493x36.1519x0.375	1392733.33	3576383.33	0.389	0.00	3576383.33	0.000
L3	88.75 - 43.75 (3)	TP58.084x45.2309x0.375	2558125.00	4987058.33	0.513	0.00	4987058.33	0.000
L4	43.75 - 0 (4)	TP68.36x55.5068x0.4375	4154633.33	8444750.00	0.492	0.00	8444750.00	0.000

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	178 - 129 (1)	TP37.849x25.5x0.25	17814.30	950455.00	0.019	3538.63	2852108.33	0.001
L2	129 - 88.75 (2)	TP47.493x36.1519x0.375	24232.10	1907470.00	0.013	1838.17	7161516.67	0.000
L3	88.75 - 43.75 (3)	TP58.084x45.2309x0.375	28899.90	2167480.00	0.013	2364.49	9986333.33	0.000
L4	43.75 - 0 (4)	TP68.36x55.5068x0.4375	33614.90	3018820.00	0.011	2363.42	16910082.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	178 - 129 (1)	0.062	0.393	0.000	0.019	0.001	0.456 ✔	1.000	4.8.2 ✔
L2	129 - 88.75 (2)	0.037	0.389	0.000	0.013	0.000	0.427 ✔	1.000	4.8.2 ✔
L3	88.75 - 43.75 (3)	0.032	0.513	0.000	0.013	0.000	0.545 ✔	1.000	4.8.2 ✔
L4	43.75 - 0 (4)	0.024	0.492	0.000	0.011	0.000	0.516 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	178 - 129	Pole	TP37.849x25.5x0.25	1	-14913.70	238843.00	45.6	Pass
L2	129 - 88.75	Pole	TP47.493x36.1519x0.375	2	-26225.40	704521.00	42.7	Pass
L3	88.75 - 43.75	Pole	TP58.084x45.2309x0.375	3	-40909.50	1296120.00	54.5	Pass
L4	43.75 - 0	Pole	TP68.36x55.5068x0.4375	4	-63752.00	2669300.00	51.6	Pass
							Summary	
						Pole (L3)	54.5	Pass
						Base Plate	47.5	Pass
						RATING =	**54.5**	**Pass**

Infingy Engineering PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Phone: 518-690-0790
FAX: 518-690-0793

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	TCP COMMUNICATIONS
SITE CASCADE:	CT43XC852
SITE ADDRESS:	230 CLOVER MILL ROAD STORRS, CT 06268
SITE TYPE:	MONOPOLE TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN, MA 01801

LATITUDE (NAD83):
41° 46' 32.88" N
41.7758°

LONGITUDE (NAD83):
72° 13' 21.08" W
-72.222522°

COUNTY:
TOLLAND COUNTY

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

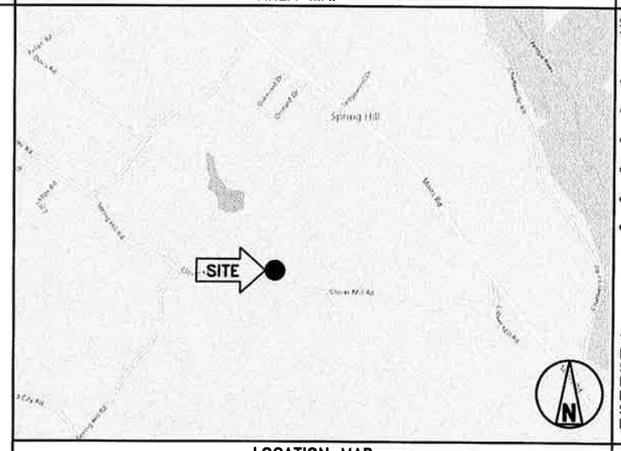
ZONING DISTRICT:
TBD

POWER COMPANY:
CL&P
PHONE: (800) 286-2000

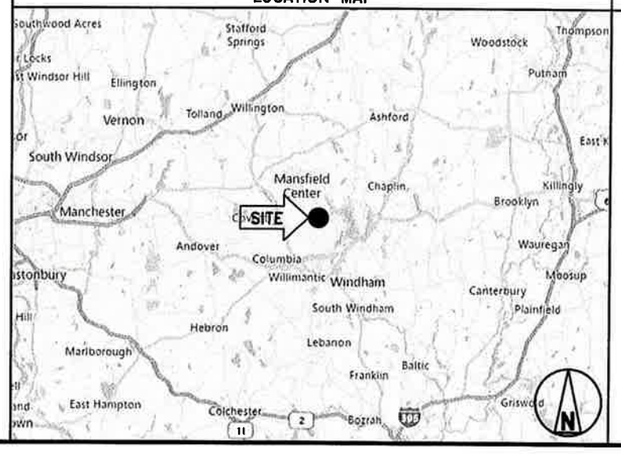
AAV PROVIDER:
AT&T
PHONE: (800) 331-0500

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
TERRI BURKHOLDER
(315)719-2928
TBURKHOLDER@AIROSMITHDEVELOPMENT.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) 800 MHz RRH'S BEHIND ANTENNAS
- INSTALL (3) 2.5 GHz RRH'S BEHIND ANTENNAS
- INSTALL (30) JUMPER CABLES
- INSTALL (1) HYBRID CABLE
- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS CABINET

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.

APPLICABLE CODES

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

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DRAWING INDEX

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	CIVIL DETAILS	0
A-6	PLUMBING DIAGRAM	0
E-1	ELECTRICAL & GROUNDING PLAN	0
E-2	ELECTRICAL & GROUNDING DETAILS	0

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY
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

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#. (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24709
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/16/18	MAP	0

SITE NAME:
TCP COMMUNICATIONS

SITE NUMBER:
CT43XC852

SITE ADDRESS:
230 CLOVER MILL ROAD
STORRS, CT 06268

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

1. GR-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:

Sprint

PLANS PREPARED BY:

INFINIGY
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

PROJECT MANAGER:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#. (518) 308-3740

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/16/18	MAP	0

SITE NAME:

TCP COMMUNICATIONS

SITE NUMBER:

CT43XC852

SITE ADDRESS:

230 CLOVER MILL ROAD
STORRS, CT 06268

SHEET DESCRIPTION:

SPRINT 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 ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

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

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

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

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

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

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

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

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

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

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)

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

INFINIGY
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

PROJECT MANAGER:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#. (518) 306-3740

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/16/18	MAP	0

SITE NAME:

TCP COMMUNICATIONS

SITE NUMBER:

CT43XC852

SITE ADDRESS:

230 CLOVER MILL ROAD
STORRS, CT 06268

SHEET DESCRIPTION:

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

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

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LICENSED PROFESSIONAL ENGINEER

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DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/16/18	MAP	0

SITE NAME:

TCP COMMUNICATIONS

SITE NUMBER:

CT43XC852

SITE ADDRESS:

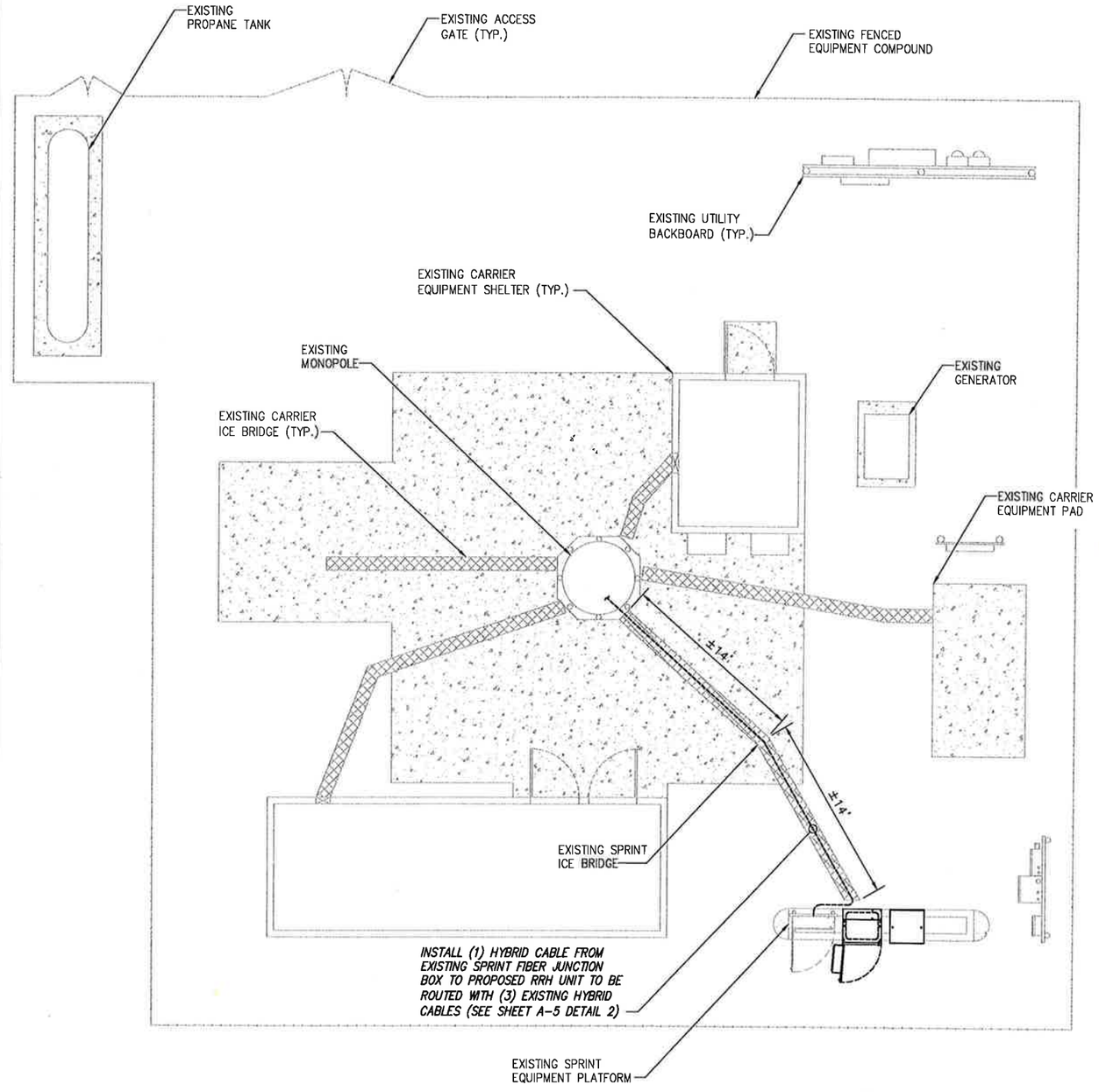
230 CLOVER MILL ROAD
STORRS, CT 06268

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

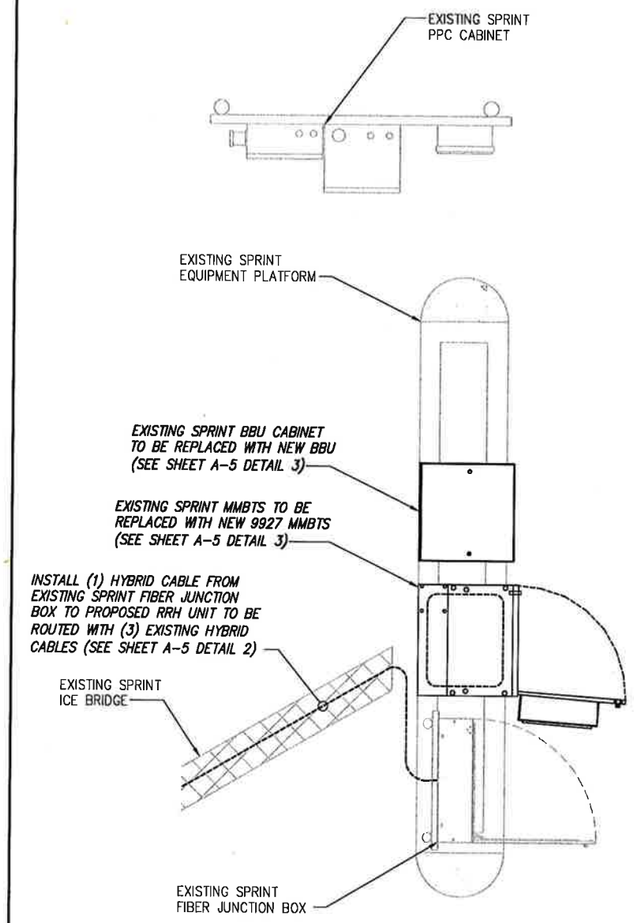
SP-3



GRAPHIC SCALE:
20' 10' 0 10' 20'
SCALE (11x17): 1" = 20'-0"
SCALE (22x34): 1" = 10'-0"

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



GRAPHIC SCALE:
6' 3' 0 3' 6'
SCALE (11x17): 1" = 6'-0"
SCALE (22x34): 1" = 3'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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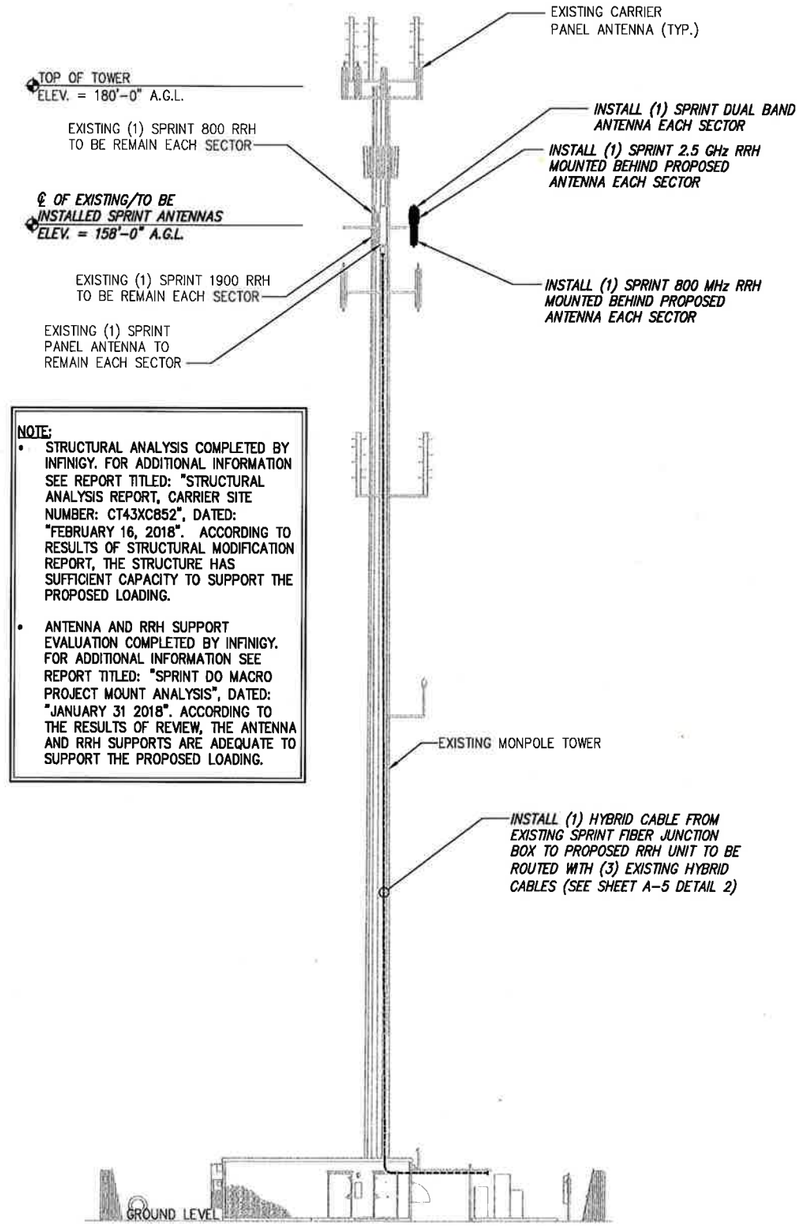
STORRS, CT 06268

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

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



NOTE:

- STRUCTURAL ANALYSIS COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT43XC852", DATED: "FEBRUARY 16, 2018". ACCORDING TO RESULTS OF STRUCTURAL MODIFICATION REPORT, THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "SPRINT DO MACRO PROJECT MOUNT ANALYSIS", DATED: "JANUARY 31 2018". ACCORDING TO THE RESULTS OF REVIEW, THE ANTENNA AND RRH SUPPORTS ARE ADEQUATE TO SUPPORT THE PROPOSED LOADING.

TOWER ELEVATION | NO SCALE | 1

SITE LOADING CHART

SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	DT465B-2XR	COMMSCOPE	0°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1	±210'*	±158' AGL
	EXISTING	APXVSPP18-C-A20	RFS	0°	1	REMAIN	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	EXISTING COAX		
	–	–	–	–	–	–	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
BETA	PROPOSED	DT465B-2XR	COMMSCOPE	90°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1		±158' AGL
	EXISTING	APXVSPP18-C-A20	RFS	90°	1	REMAIN	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	EXISTING COAX		
	–	–	–	–	–	–	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
GAMMA	PROPOSED	DT465B-2XR	COMMSCOPE	240°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1		±158' AGL
	EXISTING	APXVSPP18-C-A20	RFS	240°	1	REMAIN	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	EXISTING COAX		
	–	–	–	–	–	–	(1) 1900 MHz 4X45 RRH	EXISTING COAX		

PROJECT SCOPE:

INSTALL: (3) PANEL ANTENNAS AND (6) RRH'S

* 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.

SITE LOADING CHART | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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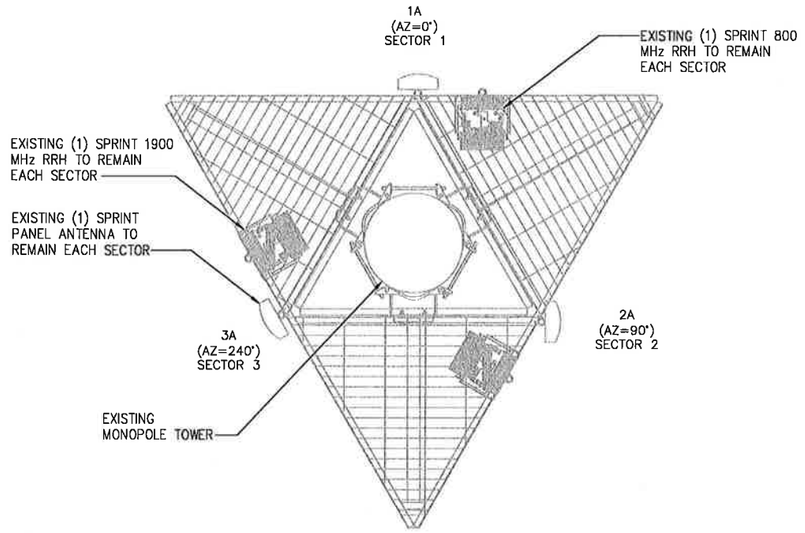
STORRS, CT 06268

SHEET DESCRIPTION:

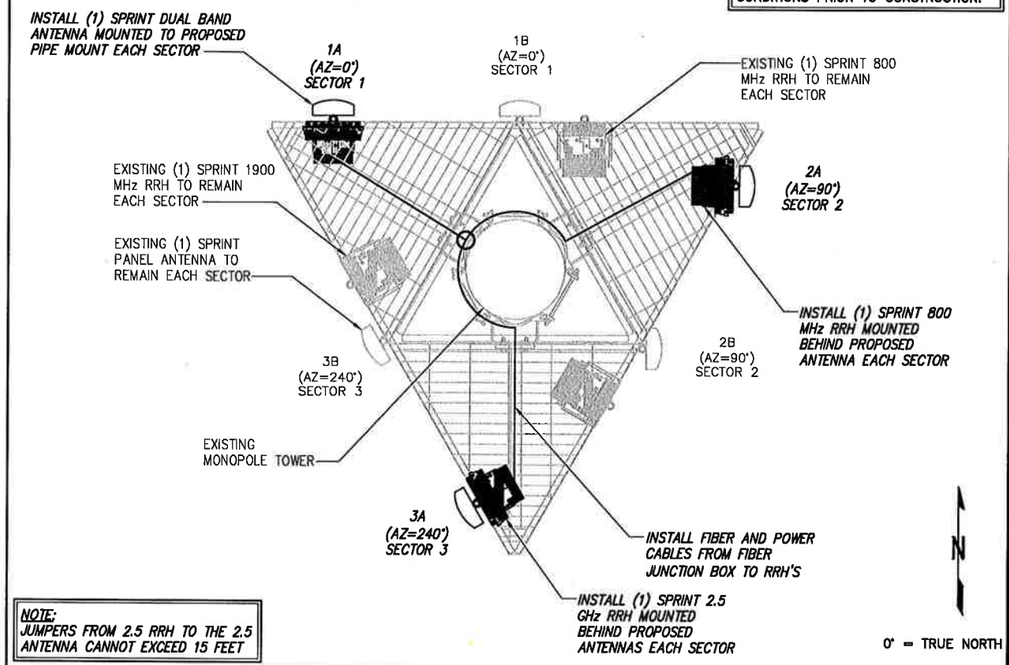
TOWER ELEVATION

SHEET NUMBER:

A-2



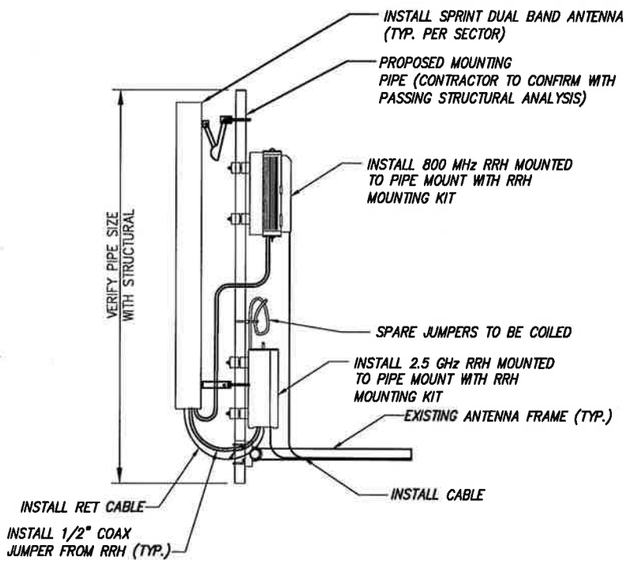
EXISTING ANTENNA & RRH LAYOUT | NO SCALE | 1



THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

NOTE:
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

FINAL ANTENNA LAYOUT | NO SCALE | 2



NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

NOTE:
THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRH MOUNTING DETAILS

NOTES:

1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
3. DO NO EXCEED BEND RADIUS.

TYPICAL ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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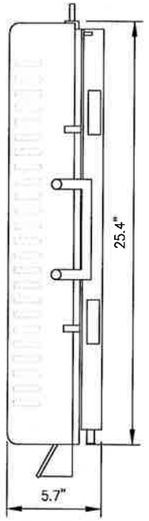
SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

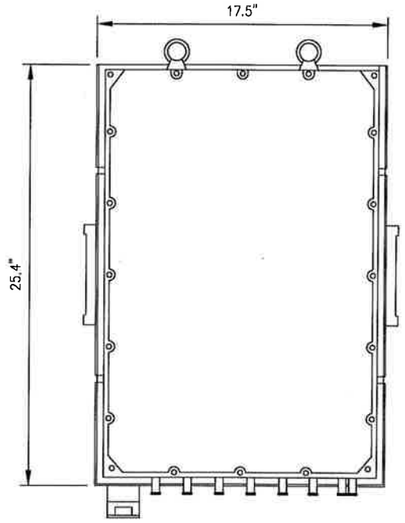
SHEET NUMBER:
A-3

RRH: ALCATEL LUCENT TD-RRH8X20

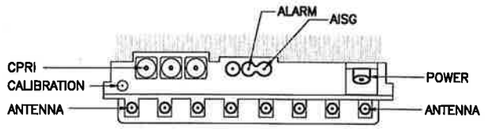
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

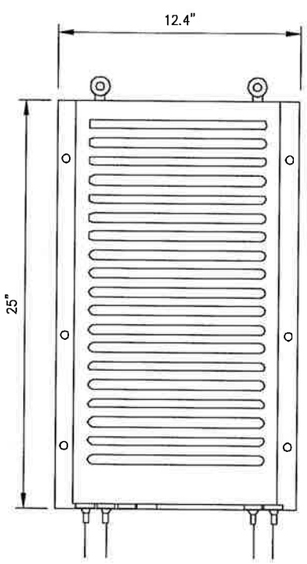
NOTES

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.

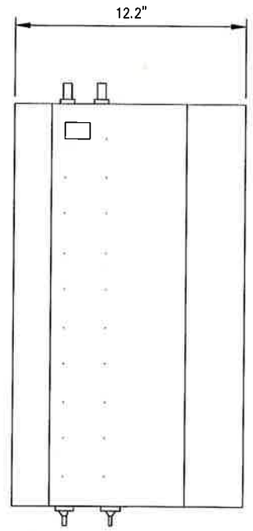
2.5 GHz RRH'S | NO SCALE | 1

RRH: ALCATEL LUCENT 1900 MHz

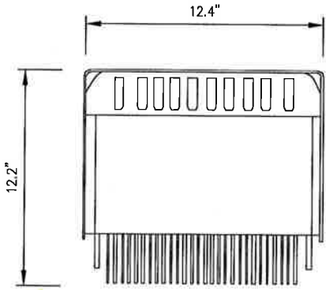
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW

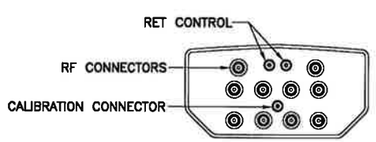


TOP VIEW

EXISTING 1900 MHz RRH | NO SCALE | 2

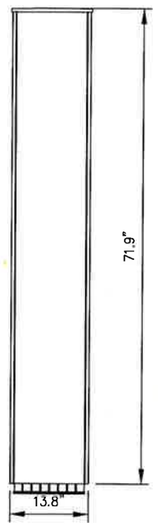
ANTENNA COMMSCOPE DT465B-2XR

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	71.9"x13.8"x8.2" (1825x350x209mm)
WEIGHT:	58 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE
	(8) 4.1/9.5 DIN FEMALE



PLAN VIEW

SIDE VIEW



FRONT VIEW

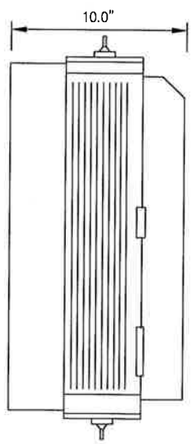
NO SCALE | 3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

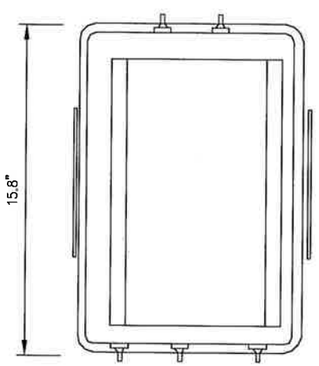
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

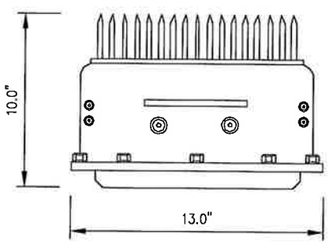
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW



PLAN VIEW

800 MHz RRH | NO SCALE | 4

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www.infinigy.com
JOB NUMBER 526-104

PROJECT MANAGER:
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SARATOGA SPRINGS, NY 12866
OFFICE#. (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 21705
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/16/18	MAP	0

SITE NAME:
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SITE NUMBER:
CT43XC852

SITE ADDRESS:
230 CLOVER MILL ROAD
STORRS, CT 06268

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

RFS HYBRIFLEX RISER CABLE SCHEDULE

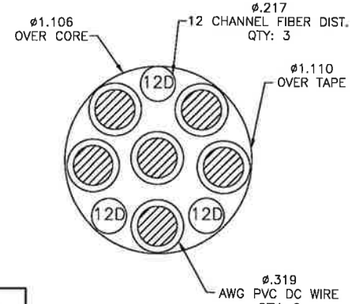
Fiber Only (Existing DC Power)	Hybrid cable MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 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 (1)*
	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

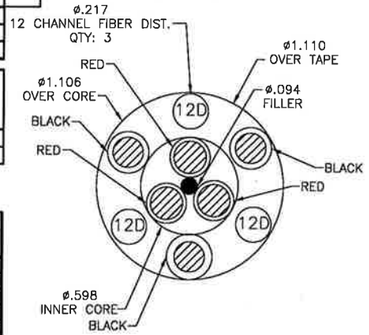
Fiber Only	Hybrid Jumper cable MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	Hybrid Jumper cable MN: HBF058-08U1M3-5F1 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

* 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.

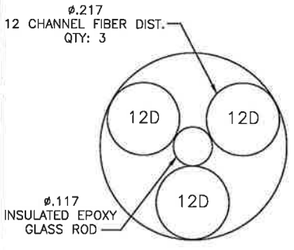
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



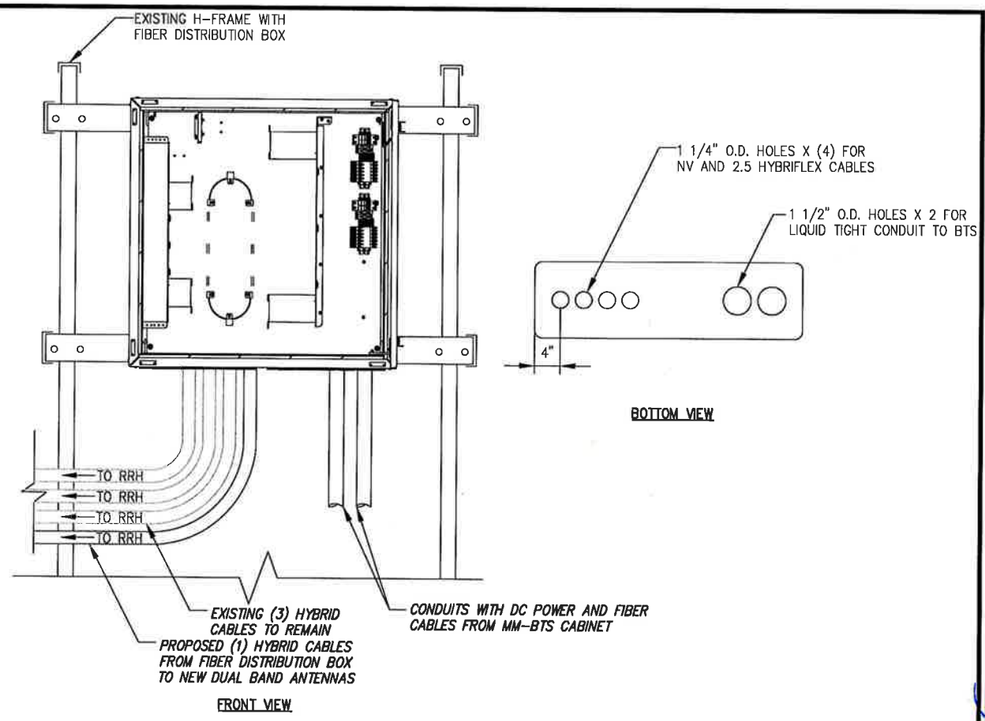
4 AWG



8 & 6 AWG



FIBER ONLY

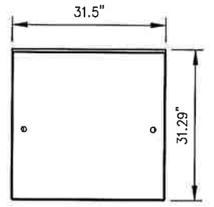


FRONT VIEW

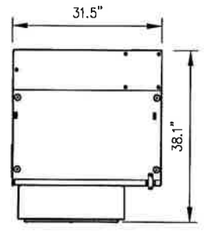
BOTTOM VIEW

FIBER JUNCTION BOX PENETRATION

NO SCALE | 2



TOP VIEW



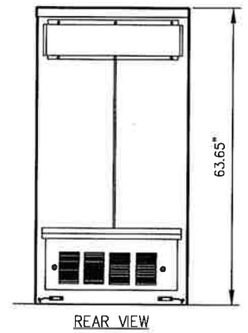
TOP VIEW

DESIGN CRITERIA:

2009 INTERNATIONAL BUILDING CODE W/ STATE MODIFICATION	
WIND SPEED (ASCE-7-05)	90 MPH
EXPOSURE B	
IMPORTANCE FACTOR	1.0
SEISMIC SITE CLASS	D
Ss=0.152 S1=0.050	
SEISMIC IMPORTANCE FACTOR	1.0
SEISMIC DESIGN CATEGORY	B
9927 MM BTS CABINET WEIGHT:	594 LBS.
EMERSON BATTERY CABINET SPECIFICATIONS:	
(31.29"x31.5"x63.65")	
WEIGHTS:	
SHIPPING WEIGHT:	600 LBS.
LIFT WEIGHT:	540 LBS.
TOTAL WEIGHT:	2640 LBS (WITH BATTERIES)
INDIVIDUAL BATTERY WEIGHT:	105 LBS
(DO NOT LIFT WITH BATTERIES IN CABINET)	

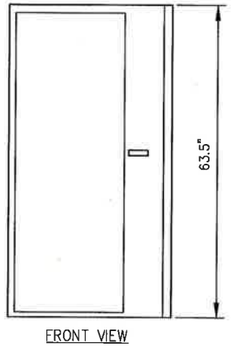
MATERIAL SPECIFICATIONS

C-, M-, AND ANGLE SHAPES:	ASTM A36
HIGH-STRENGTH BOLTS:	ASTM A325SC OR (A325N)
STRUCTURAL WF SHAPES:	ASTM A572-GR50
TUBE STEEL & PIPE COLUMNS:	ASTM A500, GRADE B
WELDING ELECTRODES:	E70XX
W - SHAPES:	ASTM A992, GRADE 50
U-BOLTS:	ASTM A36



REAR VIEW

BATTERY CABINET PROFILE



FRONT VIEW

BTS CABINET PROFILE

2.5 CABLE CROSS SECTION DATA

NO SCALE | 1

EQUIPMENT CABINET DETAILS

NO SCALE | 3

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www.infinigy.com
JOB NUMBER 526-104

PROJECT MANAGER:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#. (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/16/18	MAP	0

SITE NAME:
TCP COMMUNICATIONS

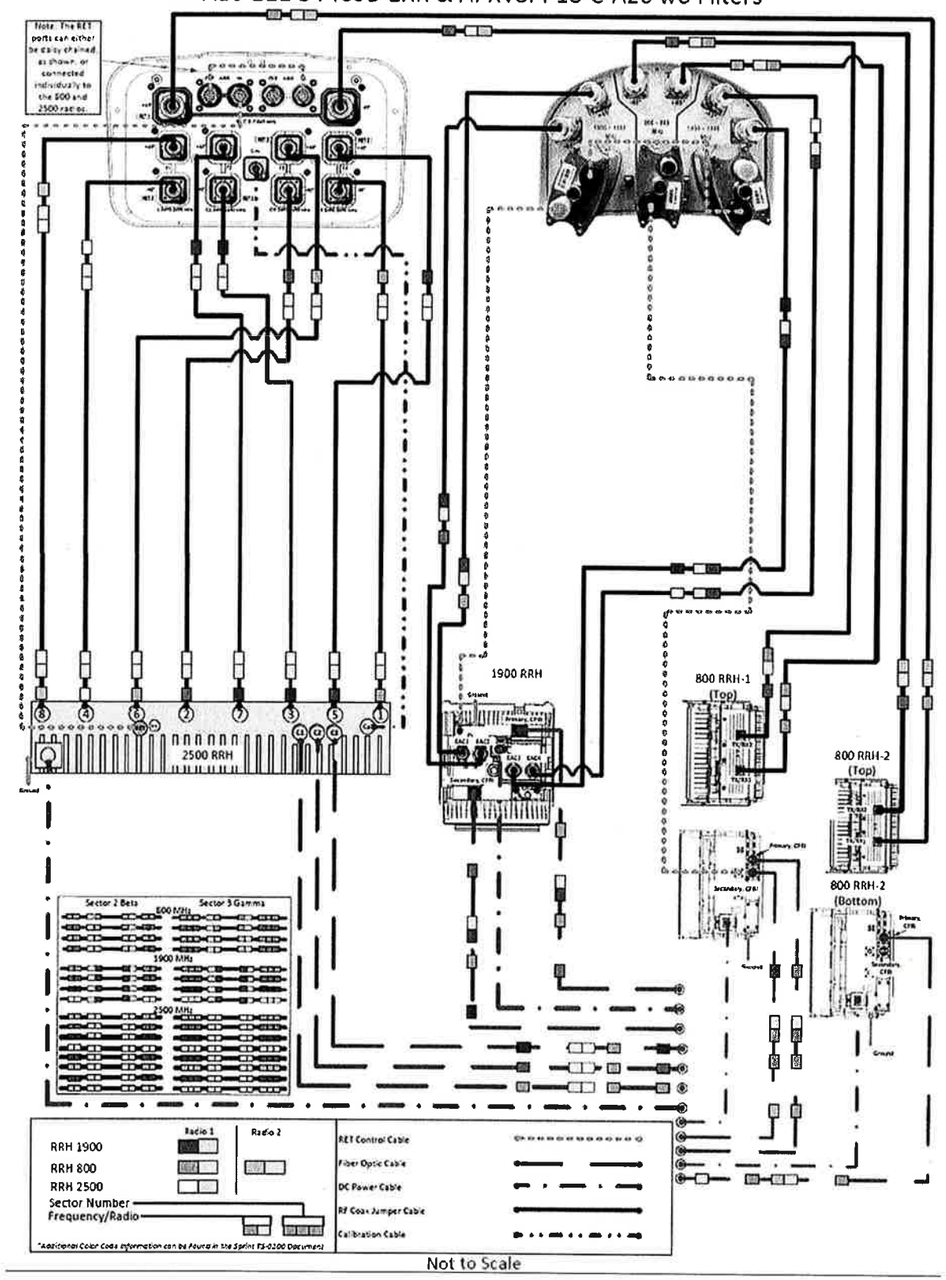
SITE NUMBER:
CT43XC852

SITE ADDRESS:
230 CLOVER MILL ROAD
STORRS, CT 06268

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5

ALU 211 DT465B-2XR & APXVSPP18-C-A20 wo Filters



Not to Scale

PLUMBING DIAGRAM | NO SCALE | 1

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TCP COMMUNICATIONS

SITE NUMBER:

CT43XC852

SITE ADDRESS:

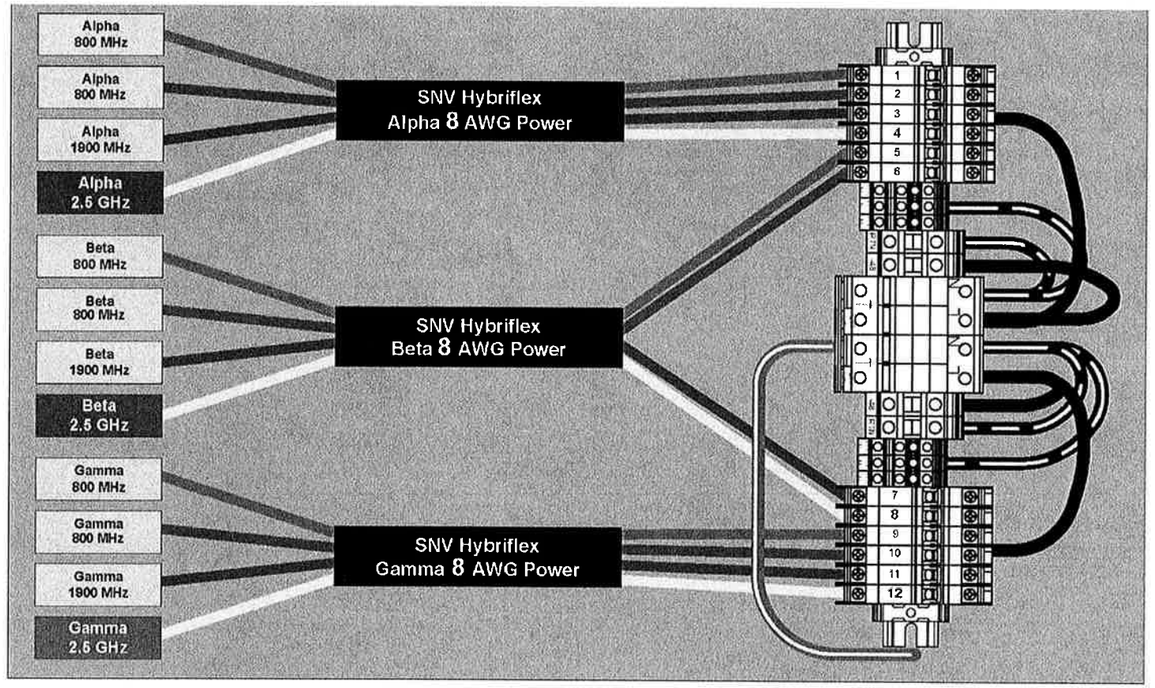
230 CLOVER MILL ROAD
STORRS, CT 06268

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

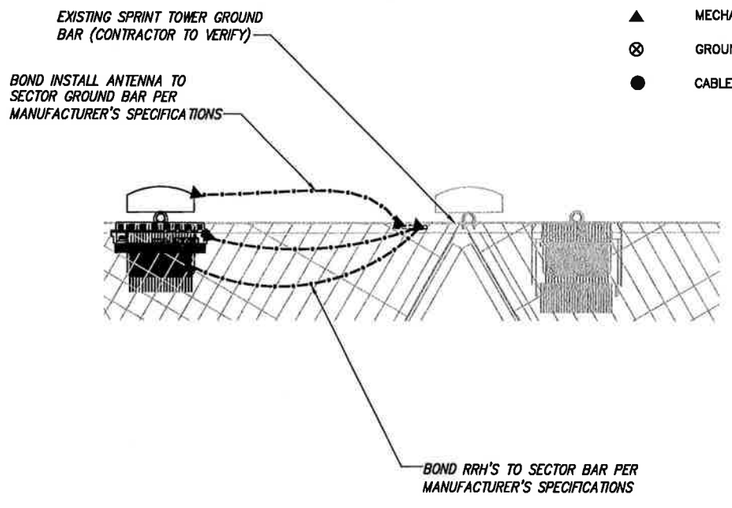
A-6



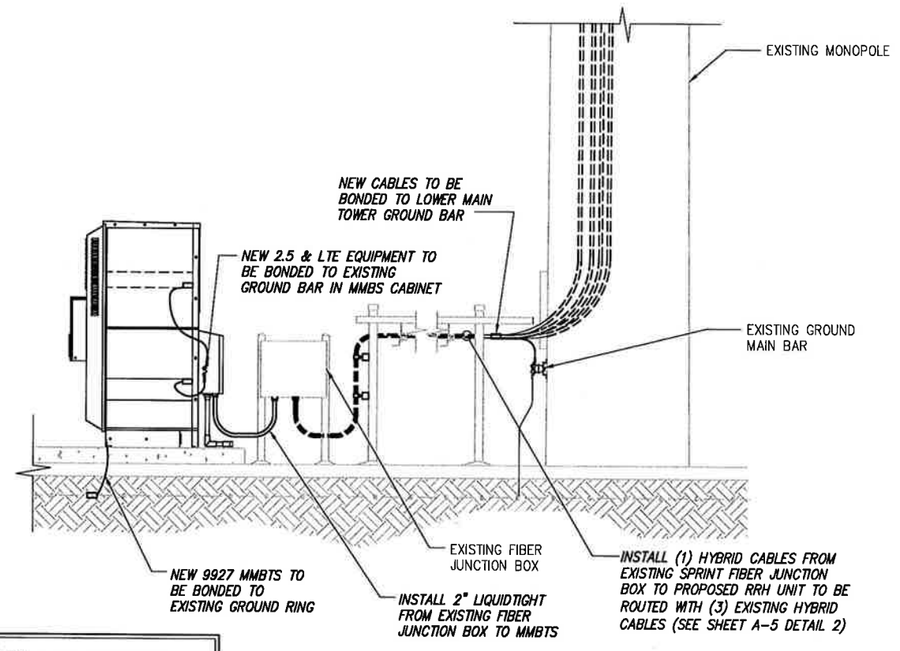
RRH TO DISTRIBUTION BOX POWER CONNECTIVITY | NO SCALE | 1

LEGEND:

- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



NOTE:
DEPICTION IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO FIELD VERIFY PRIOR TO CONSTRUCTION

TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION) | NO SCALE | 3

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SARATOGA SPRINGS, NY 12866
OFFICE#. (518) 306-3740

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

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ISSUED FOR PERMIT	02/16/18	MAP	0

SITE NAME:
TCP COMMUNICATIONS

SITE NUMBER:
CT43XC852

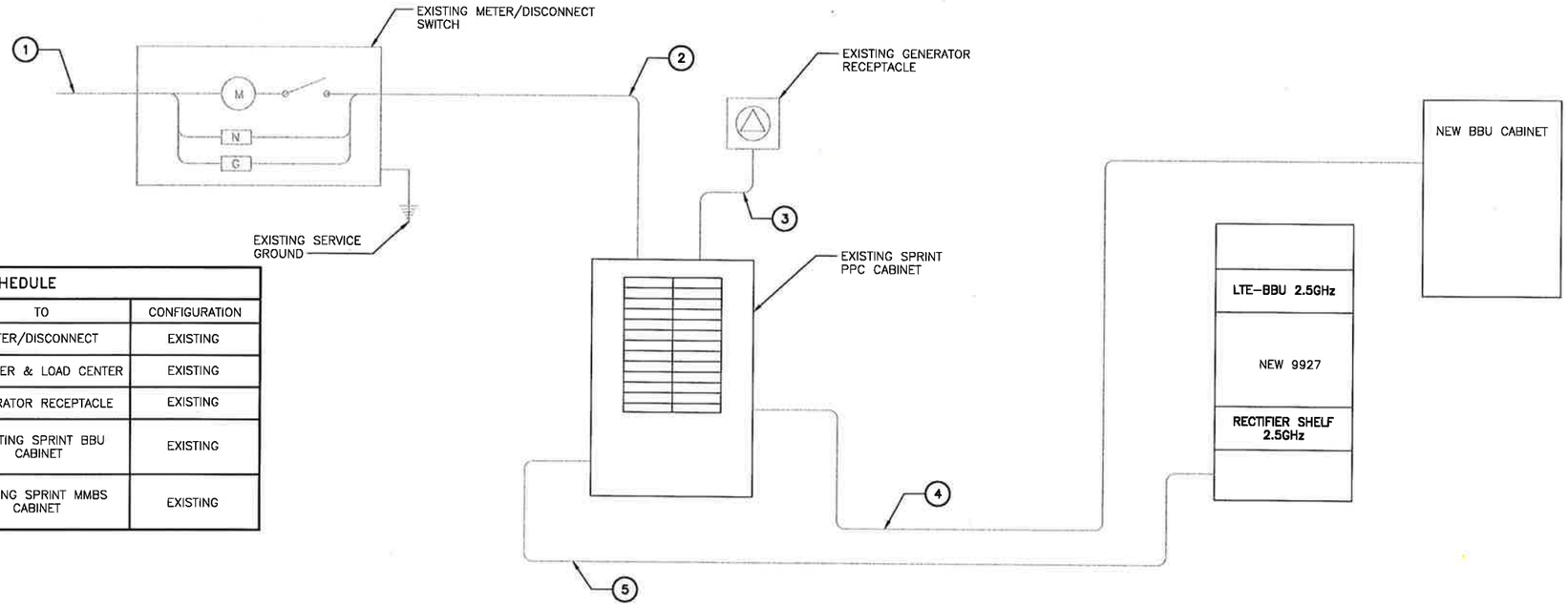
SITE ADDRESS:
230 CLOVER MILL ROAD
STORRS, CT 06268

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1

NOTES

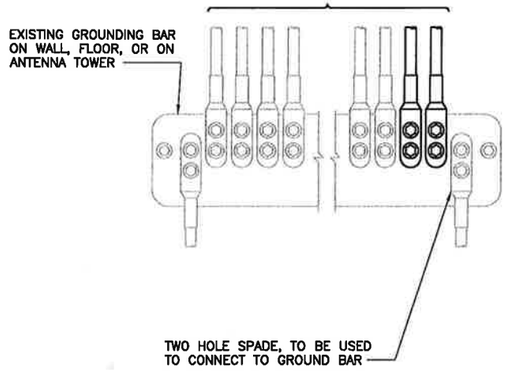
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

ELECTRICAL ONE–LINE DIAGRAM

NO SCALE | 1

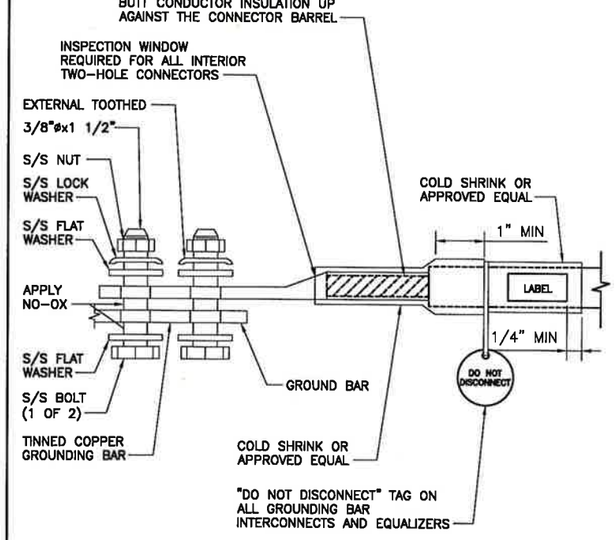


NOTES

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

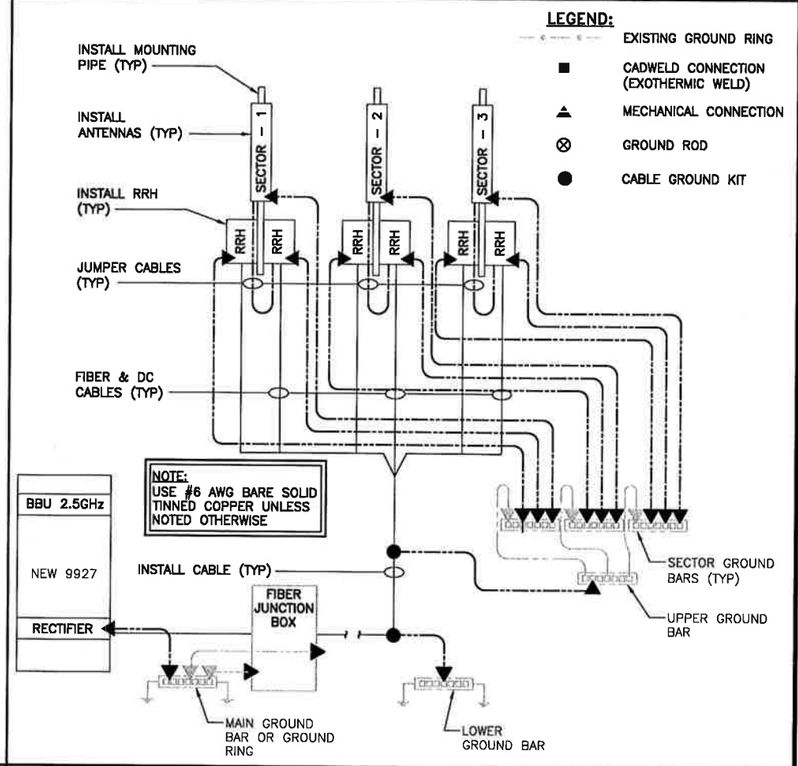
INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE | 2



TWO HOLE LUG

NO SCALE | 3



GROUNDING RISER DIAGRAM

NO SCALE | 4

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STORRS, CT 06268

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2