AIROSMITH DEVELOPMENT
We do it right the first time.

June 6th, 2018

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

RE: Notice of Exempt Modification – Antenna Swap for wireless facility located at 79 Putnam Pike, Killingly, CONNECTICUT – CT23XC408 (lat. 41° 50' 50.63" N, long. -71° 52' 44.24" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (140-foot level) on an existing (150-foot monopole tower) at the above-referenced address. The property is owned, and the tower are owned by the Town of Killingly.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace six (6) antennas and add twelve (12) 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 Sean Hendricks, TOWN MANAGER, and Ann-Marie Aubrey, DIRECTOR OF PLANNING & DEVELOPMENT of the Town of KILLINGLY. A copy of this letter is already being sent to the owner of the property and tower which are both owned by the Town of KILLINGLY.

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 depicted on the attached drawings; however, the proposed equipment will not require

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

AIROSMITH DEVELOPMENT
We do it right the first time.

an extension of the site boundaries.

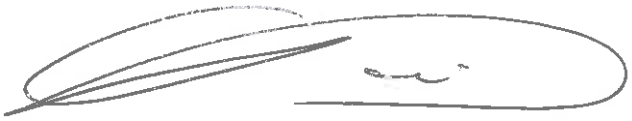
4. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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: Sean Hendricks (Town Manager, KILLINGLY, CT)
Ann-Marie L. Aubrey (Director of Planning & Development, KILLINGLY, CT)

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

DANIELSON, CT 06239

Certified Mail Fee $3.45

Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $ ~~$2.75~~ $0.00
- Return Receipt (electronic) $ ~~$0.00~~ $0.00
- Certified Mail Restricted Delivery $ ~~$0.00~~ $0.00
- Adult Signature Required $ ~~$0.00~~ $0.00
- Adult Signature Restricted Delivery $

Postage $0.50

Total Postage and Fees $6.70

Sent To Ann-Marie Adam (CT23XC408)

Street and Apt. No., or PO Box No. 172 Main ST

City, State, ZIP+4® Killingly CT 06239

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

OFFICIAL USE
SARATOGA SPRINGS NY 0867 06
JUN 0 2018
Postmark Here
SARATOGA FINANCE
6/6/2018

7017 3040 0000 7660 1161

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

DANIELSON, CT 06239

Certified Mail Fee $3.45

Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $ ~~$2.75~~ $0.00
- Return Receipt (electronic) $ $0.00
- Certified Mail Restricted Delivery $ $0.00
- Adult Signature Required $ $0.00
- Adult Signature Restricted Delivery $

Postage $0.50

Total Postage and Fees $6.70

Sent To Sean Hendricks (CT23XC408)

Street and Apt. No., or PO Box No. 172 Main St

City, State, ZIP+4® Killingly CT 06239

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

OFFICIAL USE
0867 06
Postmark Here
06/06/2018

7017 3040 0000 7660 1154

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2017

TOWN OF KILLINGLY

Situs : 79 PUTNAM PIKE	Map ID: 006994	Class: Town of Killingly	Card: 1 of 1	Printed: April 27, 2017

CURRENT OWNER

KILLINGLY TOWN OF-081
HIGHWAY GARAGE
172 MAIN ST
KILLINGLY CT 06239

GENERAL INFORMATION

Living Units	
Neighborhood	302
Alternate Id	106-42
Vol / Pg	34/1
District	2
Zoning	GENERAL COMMERCIAL
Class	EXEMPT

Property Notes

79-GARAGE 105-DOG PND 125-TRAN

Land Information

Type		Size	Influence Factors	Influence %	Value
Primary	AC	3.0000			600,000
Rear	AC	3.7000			5,550

Total Acres: 6.7
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	423,920	605,600	605,600	605,600	0
Building	374,570	535,100	535,100	270,700	0
Total	798,490	1,140,700	1,140,700	876,300	0

Manual Override Reason
Base Date of Value 10/01/2013
Value Flag COST APPROACH **Effective Date of Value** 10/01/2017
150 ' MONOPOLE 115125

Entrance Information

Date	ID	Entry Code	Source
06/29/16	CLP	Exterior	Asmt Staff
11/25/09	MHB	View ed	Asmt Staff
12/27/06	DH	Complete	Asmt Staff

Permit Information

Date Issued	Number	Price	Purpose		% Complete
10/20/15	23978	285	88 CHET	Nvc Repl Boiler & Burner	997
07/01/15	23714	60,000	97 BPP	Remove/Repl 6 Antennaes & Add	995
04/09/15	23485	15,000	BLDG	Modification Of Existing Telecom F	996
12/02/14	23332	1,000	BLDG	Run Underground Gas Lines For 1	997
11/13/14	23297	6,800	81 CELE	Hook Up Prefab Communication Sh	996

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee

Inspection Witnessed By _____

tyler
clt division

COMMERCIAL PROPERTY RECORD CARD 2017

TOWN OF KILLINGLY

Situs : 79 PUTNAM PIKE	Parcel Id: 006994	Class: Town of Killingly	Card: 1 of 1	Printed: April 27, 2017

Building Information

Year Built/Eff Year	1960 /
Building #	1
Structure Type	Auto Service Garag
Identical Units	1
Total Units	
Grade	C
# Covered Parking	
# Uncovered Parking	
DBA	TOWN GARAGE&PCS EQU

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident	Units	Line	Type	+/-	Meas1	Meas2	# Stops	Ident	Units

Interior/Exterior Information

Line	Level	From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	01	01		100	11,520	464	Auto Parts/Service	16	Brick Venee	Pre-Engineered Stee	Normal	Hot Water/Ste	None	Normal	3	3
2	M1	M1		100	1,200	120	Multi-Use Office	8	Enclosure	Fire Resistant	Normal	Hot Water/Ste	None	Normal	3	3
3	01	01		100	1,540	158	Auto Parts/Service	16	Brick Venee	Fire Resistant	Normal	Hot Water/Ste	None	None	3	3
4	02	02		100	1,540	158	Support Area	8	Brick Venee	Fire Resistant	Normal	Hot Water/Ste	None	None	3	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	11,520	Auto Parts/Service	45		240,440
2	1,200	Multi-Use Office	45		37,630
3	1,540	Auto Parts/Service	45		53,920
4	1,540	Support Area	45		34,780

Outbuilding Data

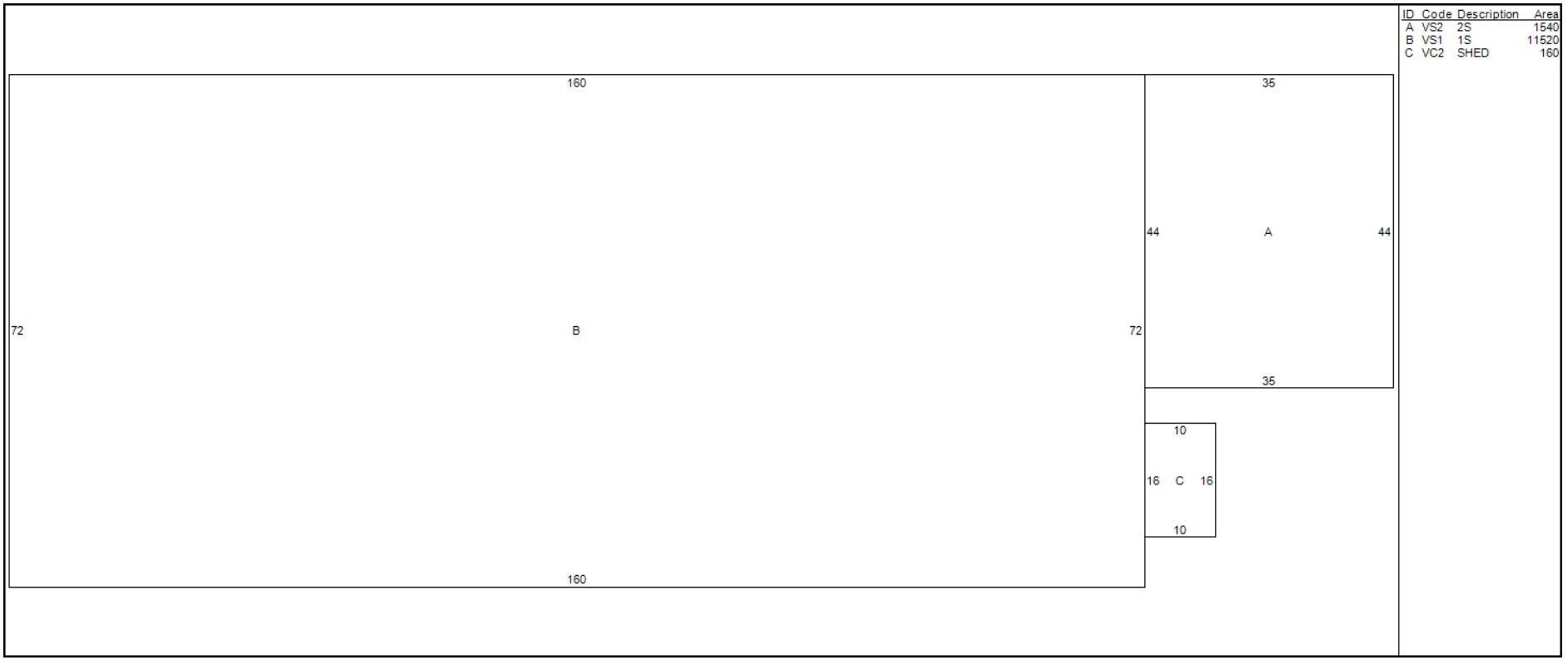
Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy	Fun	Value
1	Asph Pav	1960			1	20,000	C	3	3	24,000
2	Mas Garage	1960	60	22	1	1,320	C	3	3	17,950
3	Kennel	2009	18	50	1	900	D	3	3	5,800
4	Br/St Shed	2014	12	30	1	360	C	3	3	5,470

tyler
clt division

COMMERCIAL PROPERTY RECORD CARD 2017

TOWN OF KILLINGLY

Situs : 79 PUTNAM PIKE	Parcel Id: 006994	Class: Town of Killingly	Card: 1 of 1	Printed: April 27, 2017



ID	Code	Description	Area
A	VS2	2S	1540
B	VS1	1S	11520
C	VC2	SHED	160

Addtional Property Photos

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2017

TOWN OF KILLINGLY

Situs : 79 PUTNAM PIKE	Parcel Id: 006994	Class: Town of Killingly	Card: 1 of 1	Printed: April 27, 2017

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
00	S	001	Support Or Municipal Prope	0	1,540						0							
11	S	001	Auto Service	0	13,060	8.00		104,480	7.5		0	96,644	15			14,497	14,497	82,147
22	S	001	Multi Use Office	0	1,200	8.50		10,200	12.5		0	8,925	35			3,124	3,124	5,801

Apartment Detail - Building 1 of 1

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

Building Cost Detail - Building 1 of 1

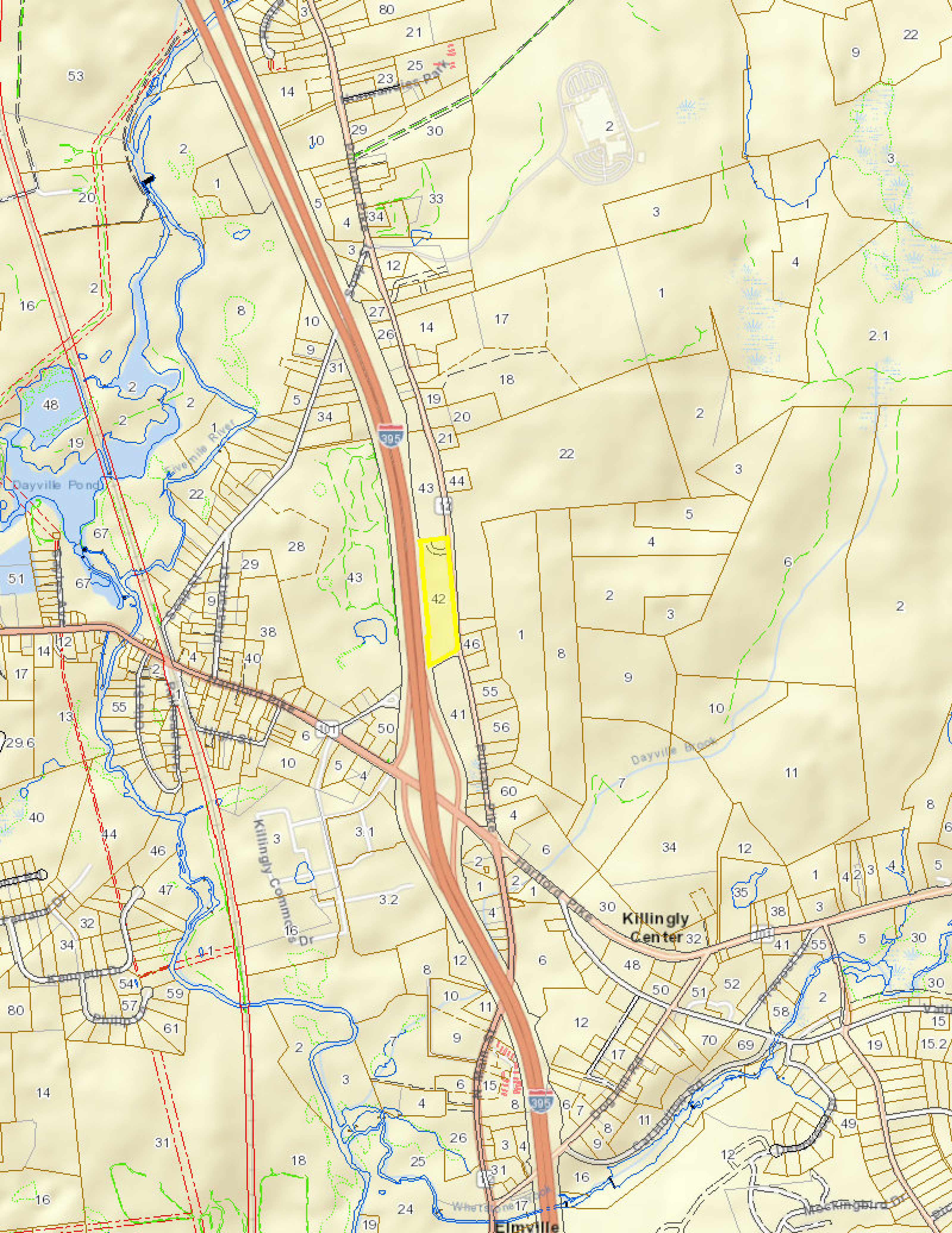
Total Gross Building Area	15,800
Replace, Cost New Less Depr	366,770
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	366,770
Value per SF	23.21

Notes - Building 1 of 1

SP #00-755 DOG POUND ADDN

Income Summary (Includes all Building on Parcel)

Total Net Income	87,948
Capitalization Rate	0.101000
Sub total	870,770
Residual Land Value	5,550
Final Income Value	876,320
Total Gross Rent Area	14,260
Total Gross Building Area	15,800



Dayville Pond
Fivemile River
395
12
101
Hartford Pike
High St
Killingly Commons Dr
Killingly Center
Dayville Brook
Kenneth Dr
Philip
Whetstone Brook
Mockingbird Dr
Elmville

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: CT23XC408

Killingly
79 Putnam Pike
Killingly, CT 06239

June 5, 2018

EBI Project Number: 6218004163

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	13.03 %

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

EBI Consulting
environmental | engineering | due diligence

June 5, 2018

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

Emissions Analysis for Site: **CT23XC408 – Killingly**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **79 Putnam Pike, Killingly, 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 **79 Putnam Pike, Killingly, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

4) 4 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 45 Watts per Channel.

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

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

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

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

9) The antenna mounting height centerlines of the proposed antennas are **140 feet** above ground level (AGL) for **Sector A**, **140 feet** above ground level (AGL) for **Sector B** and **140 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**140 feet**	Height (AGL):	**140 feet**	Height (AGL):	**140 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	12	Channel Count	12	Channel Count	12
Total TX Power(W):	380 Watts	Total TX Power(W):	380 Watts	Total TX Power(W):	380 Watts
ERP (W):	10,577.51	ERP (W):	10,577.51	ERP (W):	10,577.51
Antenna A1 MPE%	**2.46 %**	Antenna B1 MPE%	**2.46 %**	Antenna C1 MPE%	**2.46 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**140 feet**	Height (AGL):	**140 feet**	Height (AGL):	**140 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**1.25 %**	Antenna B2 MPE%	**1.25 %**	Antenna C2 MPE%	**1.25 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**3.71 %**
AT&T	0.80 %
Verizon Wireless	5.31 %
T-Mobile	1.51 %
Town	1.70 %
Site Total MPE %:	**13.03 %**

SPRINT Sector A Total:	3.71 %
SPRINT Sector B Total:	3.71 %
SPRINT Sector C Total:	3.71 %
Site Total:	13.03 %

SPRINT _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	140	0.75	850 MHz	567	0.13%
Sprint 850 MHz LTE	2	941.82	140	3.77	850 MHz	567	0.67%
Sprint 1900 MHz (PCS) CDMA	5	511.82	140	5.12	1900 MHz (PCS)	1000	0.51%
Sprint 1900 MHz (PCS) LTE	4	1,439.50	140	11.53	1900 MHz (PCS)	1000	1.15%
Sprint 2500 MHz (BRS) LTE	8	778.09	140	12.46	2500 MHz (BRS)	1000	1.25%
						Total:	**3.71%**

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:	3.71 %
Sector B:	3.71 %
Sector C:	3.71 %
SPRINT Maximum Total (per sector):	3.71 %
Site Total:	13.03 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **13.03 %** 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
FROM ZERO TO INFINIGY
the solutions are endless

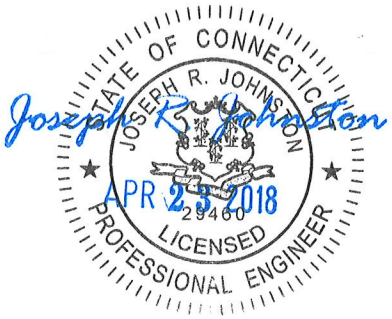
1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Mount Analysis Report

April 22, 2018

Site Name	CT23XC408
Infinigy Job Number	526-104
Client	Airosmith
Proposed Carrier	Sprint
Site Location	79 Putnam Pike Killingly, CT 06241 41° 50' 51.7" N NAD83 71° 52' 46.1" W NAD83
Mount Centerline El.	140 ft.
Mount Classification	Sector Frame
Failing Structural Usage	**> 200%**
Passing Structural Usage	**74.1%**
Overall Result	**Contingent Pass- See Required Modification Below.**
Note	**Replace existing mounts with (3) SitePro1 VFA12-HD prior to installation of proposed appurtenances**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The mounts for the proposed carrier are therefore deemed adequate to support the final loading configuration 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 mount analysis on the existing Sprint mounts. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 16.0.0 analysis software.

Supporting Documentation

RFDS	Sprint RFDS ID #45792 rev 2, dated Mach 5, 2018
Previous Analysis	EBI Project #81150114, dated February 17, 2015

Analysis Code Requirements

Wind Speed	101 mph (3-Second Gust,Vasd) / 129 mph (3-Second Gust,Vult)
Wind Speed w/ ice	50 mph (3-Second Gust,Vasd) w/ 3/4" Ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC
Jurisdictional Code	2016 Connecticut State Building Code
Structure Class	II
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 mounts for the proposed carrier are therefore deemed adequate to support the final loading configuration 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 Loading

Mount CL (ft)	Rad. HT (ft)	Vert. O/S (ft)	Horiz. O/S (ft)*	Qty	Appurtenance	Carrier
140.0	140.0	0.0	0.25	3	Commscope NNVV-65B-R4	Sprint
			11.75	3	RFS APXVTM14-ALU-I20	
			0.25	3	Alcatel Lucent TD-RRH8x20	
			11.75	3	Alcatel Lucent 1900 MHz RRH w/ S.S.	
			0.25, 11.75	6	Alcatel Lucent 800 MHz 2x50W RRH	

***Horizontal Offset is defined as the distance from the left most edge of the mount face horizontal when viewed facing the tower**

Structure Usages

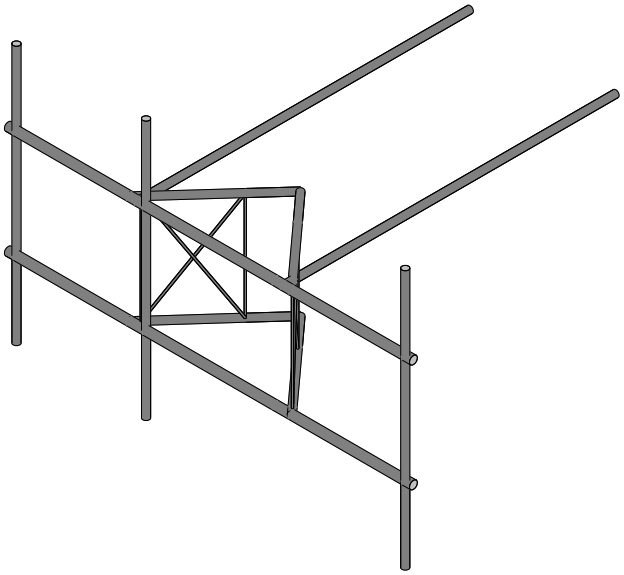
Stand off	74.1	Pass
Horizontal	36.4	Pass
Mount Pipe	34.8	Pass
RATING =	**74.1**	**Pass**

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 proposed carriers mount structure only and does not reflect adequacy of the existing tower, other mounts, 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.



Envelope Only Solution

Infinigy Engineering PLLC	VFA12-HD	
NRO		Apr 22, 2018 at 1:11 PM
526-104		CT23XC408-VFA12-HD.r3d

Site Name:	CT23XC408
Client:	Airosmith
Carrier:	Sprint
Engineer:	NRO
Date:	4/22/2018

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

INFINIGY WIND LOAD CALCULATOR 3.0

Site Information Inputs:

Adopted Building Code:	2012 IBC
Structure Load Standard:	TIA-222-G
Antenna Load Standard:	TIA-222-G
Structure Risk Category:	II
Structure Type:	Mount - Sector
Number of Sectors:	3
Structure Shape 1:	Round

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	101	mph (nominal 3-second gust)
Wind Centerline 1 (z_1):	140.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	B	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
26.99	1.00	**32.39**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
6.61	1.00	**23.89**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (nominal 3-second gust)
Base Ice Thickness:	0.75	in

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
Commscope NNVV-65B-R4	140.0	3	1.00	Flat	Flat	26.99	12.27	331.21	155.20	199.20	287.20
RFS APXVTM14-ALU-I20	140.0	3	1.00	Flat	Flat	26.99	6.34	171.19	97.37	115.82	152.73
Alcatel-Lucent TD-RRH8x20-25	140.0	3	1.00	Flat	Flat	26.99	4.05	109.19	41.37	58.32	92.23
el-Lucent 1900 MHz RRH w/ Solar S	140.0	3	1.00	Flat	Flat	26.99	2.58	69.73	68.60	68.88	69.45
Alcatel-Lucent 800 MHz 2x50 RRH	140.0	3	1.00	Flat	Flat	26.99	2.06	55.56	36.75	41.45	50.86
Alcatel-Lucent 800 MHz 2x50 RRH	140.0	3	1.00	Flat	Flat	26.99	2.06	55.56	36.75	41.45	50.86

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N4			2.5"pipe	Beam	None	A53 Gr.B	Typical
2	M2	N1	N2			2.5"pipe	Beam	None	A53 Gr.B	Typical
3	M3	N8	N6			2" pipe	Beam	None	A53 Gr.B	Typical
4	M4	N9	N6			2" pipe	Beam	None	A53 Gr.B	Typical
5	M5	N7	N5			2" pipe	Beam	None	A53 Gr.B	Typical
6	M6	N10	N5			2" pipe	Beam	None	A53 Gr.B	Typical
7	M7	N12	N14			0.625" S.R.	Beam	None	A36 Gr.36	Typical
8	M8	N14	N16			0.625" S.R.	Beam	None	A36 Gr.36	Typical
9	M9	N16	N18			0.625" S.R.	Beam	None	A36 Gr.36	Typical
10	M10	N18	N12			0.625" S.R.	Beam	None	A36 Gr.36	Typical
11	M11	N19	N13			0.625" S.R.	Beam	None	A36 Gr.36	Typical
12	M12	N13	N15			0.625" S.R.	Beam	None	A36 Gr.36	Typical
13	M13	N15	N17			0.625" S.R.	Beam	None	A36 Gr.36	Typical
14	M14	N17	N19			0.625" S.R.	Beam	None	A36 Gr.36	Typical
15	M15	N21	N23			2" pipe	Beam	None	A53 Gr.B	Typical
16	M16	N22	N24			2" pipe	Beam	None	A53 Gr.B	Typical
17	MP4	N37	N33			2" pipe	Beam	None	A53 Gr.B	Typical
18	MP3	N39	N35			2" pipe	Beam	None	A53 Gr.B	Typical
19	MP2	N40	N36			2" pipe	Beam	None	A53 Gr.B	Typical
20	MP1	N38	N34			2" pipe	Beam	None	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A36 Gr.36	0.625" S.R.	8	353.6	0
3	A53 Gr.B	PIPE_2.0	10	809	.2
4	A53 Gr.B	PIPE_2.5	2	300	.1
5	Total HR Steel		20	1462.6	.4

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut..	Area(M...	Surface...
1	Self Weight	DL		-1			8			
2	Wind Load AZI 000	WLZ					8		1	
3	Wind Load AZI 090	WLX					8		1	
4	Ice Weight	OL1					8	20		
5	Wind + Ice Load AZI 000	OL2					8		1	
6	Wind + Ice Load AZI 090	OL3					8		1	
7	Service Live 1	LL				2				
8	BLC 2 Transient Area Loads	None						17		
9	BLC 3 Transient Area Loads	None						17		
10	BLC 5 Transient Area Loads	None						17		
11	BLC 6 Transient Area Loads	None						17		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.4D	Yes	Y		DL	1.4																		
2	1.2D + 1.6W AZI 000	Yes	Y		DL	1.2	W...	1.6																
3	1.2D + 1.6W AZI 030	Yes	Y		DL	1.2	W...	1.3...	W...	.8														
4	1.2D + 1.6W AZI 060	Yes	Y		DL	1.2	W...	.8	W...	1.3...														
5	1.2D + 1.6W AZI 090	Yes	Y		DL	1.2			W...	1.6														
6	1.2D + 1.6W AZI 120	Yes	Y		DL	1.2	W...	-.8	W...	1.3...														

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
7	1.2D + 1.6W AZI 150	Yes	Y		DL	1.2	W...	-1.3...	W...	.8																
8	1.2D + 1.6W AZI 180	Yes	Y		DL	1.2	W...	-1.6																		
9	1.2D + 1.6W AZI 210	Yes	Y		DL	1.2	W...	-1.3...	W...	-.8																
10	1.2D + 1.6W AZI 240	Yes	Y		DL	1.2	W...	-.8	W...	-1.3...																
11	1.2D + 1.6W AZI 270	Yes	Y		DL	1.2			W...	-1.6																
12	1.2D + 1.6W AZI 300	Yes	Y		DL	1.2	W...	.8	W...	-1.3...																
13	1.2D + 1.6W AZI 330	Yes	Y		DL	1.2	W...	1.3...	W...	-.8																
14	0.9D + 1.6W AZI 000	Yes	Y		DL	.9	W...	1.6																		
15	0.9D + 1.6W AZI 030	Yes	Y		DL	.9	W...	1.3...	W...	.8																
16	0.9D + 1.6W AZI 060	Yes	Y		DL	.9	W...	.8	W...	1.3...																
17	0.9D + 1.6W AZI 090	Yes	Y		DL	.9			W...	1.6																
18	0.9D + 1.6W AZI 120	Yes	Y		DL	.9	W...	-.8	W...	1.3...																
19	0.9D + 1.6W AZI 150	Yes	Y		DL	.9	W...	-1.3...	W...	.8																
20	0.9D + 1.6W AZI 180	Yes	Y		DL	.9	W...	-1.6																		
21	0.9D + 1.6W AZI 210	Yes	Y		DL	.9	W...	-1.3...	W...	-.8																
22	0.9D + 1.6W AZI 240	Yes	Y		DL	.9	W...	-.8	W...	-1.3...																
23	0.9D + 1.6W AZI 270	Yes	Y		DL	.9			W...	-1.6																
24	0.9D + 1.6W AZI 300	Yes	Y		DL	.9	W...	.8	W...	-1.3...																
25	0.9D + 1.6W AZI 330	Yes	Y		DL	.9	W...	1.3...	W...	-.8																
26	1.2D + 1.0Di	Yes	Y		DL	1.2	OL1	1																		
27	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	1																
28	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	.5														
29	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	.866														
30	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1			OL3	1														
31	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	.866														
32	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	.5														
33	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-1																
34	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	-.5														
35	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	-.866														
36	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1			OL3	-1														
37	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	-.866														
38	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	-.5														
39	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.111																
40	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.096	W...	.056														
41	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.056	W...	.096														
42	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	.111														
43	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.056	W...	.096														
44	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.096	W...	.056														
45	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.111																
46	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.096	W...	-.056														
47	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.056	W...	-.096														
48	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	-.111														
49	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.056	W...	-.096														
50	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.096	W...	-.056														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N6	max	287.966	17	896.44	33	1348.128	14	-80.641	14	143.17	15	355.626	32
2		min	-986.562	36	203.225	14	-1887.837	8	-463.972	32	-149.816	9	-34.242	25
3	N5	max	904.532	30	950.622	27	1255.923	27	-113.332	24	589.067	7	351.625	32
4		min	-97.763	23	219.954	20	-429.012	20	-494.974	30	-469.543	25	-41.936	25
5	N23	max	38.512	17	51.392	38	1092.236	19	0	1	0	1	0	1
6		min	-38.562	11	8.795	19	-1168.201	13	0	1	0	1	0	1
7	N24	max	38.469	17	54.968	30	321.975	24	0	1	0	1	0	1
8		min	-38.591	11	13.016	24	-351.612	6	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
9	Totals:	max	928.291	17	1934.134	27	1273.45	2						
10		min	-928.291	11	506.684	20	-1273.45	20						

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

	Member	Shape	Code Check	Lo...	...	Shear C...	Loc[in] ...		LC	phi*Pnc...	phi*Pnt ...	phi*...	phi*...	...	Eqn
1	M11	0.625" ...	.741	48.4	...	.010	48.4		9	1597.791	9946.8	96.768	96.768	...	H1-...
2	M1	PIPE_2.5	.364	10...	8	.090	104....		8	41331....	50715	3596...	3596...	1	H1-...
3	MP1	PIPE_2.0	.348	68	...	.050	28		8	28122....	32130	1871...	1871...	1	H1-...
4	M6	PIPE_2.0	.340	44....	...	.128	44.7...		32	29772....	32130	1871...	1871...	1	H1-...
5	M4	PIPE_2.0	.333	44....	...	.135	44.7...		31	29772....	32130	1871...	1871...	1	H1-...
6	M2	PIPE_2.5	.298	10...	8	.089	106....		8	41331....	50715	3596...	3596...	1	H1-...
7	M10	0.625" ...	.274	48.4	...	.011	0		7	1597.791	9946.8	96.768	96.768	...	H1-...
8	M5	PIPE_2.0	.239	44....	7	.053	44.7...		50	29772....	32130	1871...	1871...	1	H1-...
9	MP2	PIPE_2.0	.201	68	...	.027	68		44	28122....	32130	1871...	1871...	1	H1-...
10	MP3	PIPE_2.0	.170	28	7	.054	68		7	28122....	32130	1871...	1871...	1	H1-...
11	M13	0.625" ...	.142	0	...	.023	0		2	1597.791	9946.8	96.768	96.768	...	H1-...
12	M16	PIPE_2.0	.142	2.5...	8	.107	2.563		13	9362.615	32130	1871...	1871...	...	H1-...
13	M7	0.625" ...	.118	40	...	.012	40		7	988.366	9946.8	96.768	96.768	...	H1-...
14	M15	PIPE_2.0	.117	3.8...	...	.029	2.563		30	9362.615	32130	1871...	1871...	...	H1-...
15	M3	PIPE_2.0	.101	44....	...	.063	3.264		32	29772....	32130	1871...	1871...	1	H1-...
16	M12	0.625" ...	.097	0	...	.017	0		7	988.366	9946.8	96.768	96.768	...	H1-...
17	M8	0.625" ...	.080	0	...	.005	0		28	1597.791	9946.8	96.768	96.768	...	H1-...
18	M14	0.625" ...	.063	40	...	.014	0		7	988.366	9946.8	96.768	96.768	...	H1-...
19	M9	0.625" ...	.053	40	8	.016	40		7	988.366	9946.8	96.768	96.768	...	H1-...

INFINIGY Design. Build. Deliver.

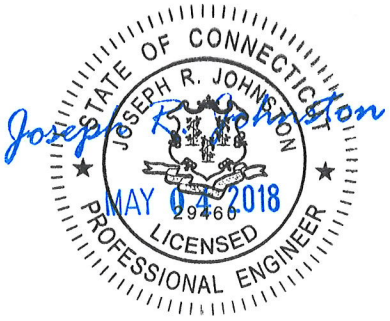
1033 Watervliet Shaker Road | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

Structural Analysis Report

May 4, 2018

Site Name	CT23XC408
Infinigy Job Number	526-104
Client	Airosmith
Proposed Carrier	Sprint
Site Location	79 Putnam Pike, Killingly, CT 06241 41° 50' 51.7" N NAD83 71° 52' 46.1" W NAD83
Structure Type	150' Monopole
Structural Usage Ratio	**72.1%**
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 150' 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 tnxTower version 8.0.1.0 tower analysis software.

Supporting Documentation

RFDS	Sprint RFDS ID #45792 rev 2, dated March 5, 2018
Previous Analysis	EBI Project #81150114, dated February 17, 2015

Analysis Code Requirements

Wind Speed	101 mph (3-Second Gust,Vasd) / 129 mph (3-Second Gust,Vult)
Wind Speed w/ ice	50 mph (3-Second Gust,Vasd) w/ 3/4" Ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC
Jurisdictional Code	2016 Connecticut State Building Code
Structure Class	II
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

Existing and Reserved Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
153.0	2	4' Omni	Side Arm	(2) 7/8"	--
150.0	3	Commscope LNX-6515DS-VTM	Sector Frame	(12) 1-5/8”	--
	3	EMS RV90-17-02-DP			
140.0	6	Decibel DB980H90E-M	Sector Frame	(6) 1 5/8"	Sprint
130.0	3	Ericsson RRUS-32	Low Profile Platform	(2) 1/2" (13) 1-5/8”	--
	3	Ericsson RRUS-E2			
	3	Surge Suppressor			
	3	TMA			
	3	Powerwave 7700			
	6	Ericsson RRUS-11			
	6	Ericsson RRUS-12			
	6	A2			
	6	Diplexer			
	9	CCI HPA-65R-BUU-H8			
119.0	2	4' Omni	Side Arm	(2) 1/2"	--
106.0	6	Ericsson RRUS-11	Low Profile Platform	(12) 1 5/8"	
	12	73"x12"x7" Panel			

To Be Removed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
140.0	6	Decibel DB980H90E-M	Existing Sector Frames	(6) 1 5/8"	Sprint

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
140.0	3	Commscope NNVV-65B-R4	(3) SitePro1 VFA12-HD Sector Frames	(4) 1.54" Hybriflex	Sprint
	3	RFS APXVTM14-ALU-I20			
	6	Alcatel Lucent 800 RRH 2x50W			
	3	Alcatel Lucent 1900 MHz RRH			
	3	Alcatel Lucent 2.5 RRUS 8x20-25			

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
153.0	2	4' Omni	Side Arm	(2) 7/8"	--
150.0	3	Commscope LNX-6515DS-VTM	Sector Frame	(12) 1-5/8"	
	3	EMS RV90-17-02-DP			
140.0	3	Commscope NNVV-65B-R4	Sector Frame	(4) 1.54" Hybriflex	Sprint
	3	RFS APXVTM14-ALU-I20			
	6	Alcatel Lucent 800 RRH 2x50W			
	3	Alcatel Lucent 1900 MHz RRH			
	3	Alcatel Lucent 2.5 RRUS 8x20-25			
130.0	3	Ericsson RRUS-32	Low Profile Platform	(2) 1/2" (13) 1-5/8"	--
	3	Ericsson RRUS-E2			
	3	Surge Suppressor			
	3	TMA			
	3	Powerwave 7700.0			
	6	Ericsson RRUS-11			
	6	Ericsson RRUS-12			
	6	A2			
	6	Diplexer			
	9	CCI HPA-65R-BUU-H8			
119.0	2	4' Omni	Side Arm	(2) 1/2"	
106.0	6	Ericsson RRUS-11	Low Profile Platform	(12) 1 5/8"	
	12	73"x12"x7" Panel			

Install proposed coax inside monopole.

Structure Usages

	Summary	
Pole (L6)	72.1	Pass
RATING =	**72.1**	**Pass**

Foundation Reactions

Reaction Data	Design Reactions
Moment (kip-ft)	4338.7
Shear (kip)	44.2
Axial (kip)	64.4

Tower base reactions are acceptable through rigorous structural analysis.

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway (°)
140.0	7.246	0.006	0.478

*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.

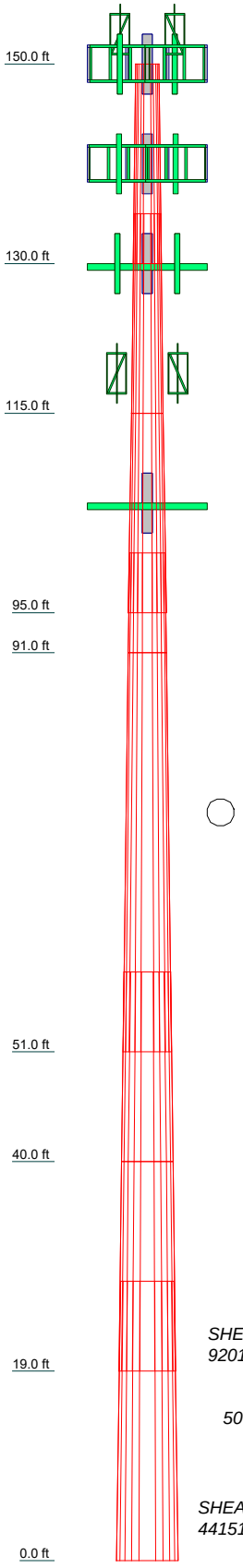
Assumptions and Limitations

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	20.00	12	0.2500	5.00	27.8125	34.3125		1688.1
2	20.00	12	0.2500		32.1875	38.6875		1927.7
3	20.00	12	0.3125	6.00	38.6875	45.1875		2850.5
4	10.00	12	0.3125		42.6125	45.8125		1503.2
5	40.00	12	0.3750	8.00	45.8125	58.8750	A36M-45	8541.3
6	19.00	12	0.3750		55.5125	61.6875		4545.5
7	21.00	12	0.4375	9.00	61.6875	68.5000		6508.7
8	28.00	12	0.4375		64.7054	73.8125		9237.4
								36802.4



ALL REACTIONS ARE FACTORED

AXIAL 99185 lb

SHEAR 9201 lb — *MOMENT 972163 lb-ft*

TORQUE 3799 lb-ft
50 mph WIND - 0.7500 in ICE

AXIAL 64350 lb

SHEAR 44151 lb — *MOMENT 4338710 lb-ft*

TORQUE 15878 lb-ft
REACTIONS - 101 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
4' Omni	153	(2) RRUS-12	130
4' Omni	153	(2) RRUS-12	130
Pipe Side Arm	153	(2) RRUS-12	130
Pipe Side Arm	153	RRUS- E2	130
RV90-17-DP	150	RRUS- E2	130
RV90-17-DP	150	RRUS- E2	130
RV90-17-DP	150	RRUS- 32	130
LNX-6515DS-VTM	150	RRUS- 32	130
LNX-6515DS-VTM	150	RRUS- 32	130
LNX-6515DS-VTM	150	Angle Low Profile Platform	130
Angle Sector Frame	150	7770.00	130
Angle Sector Frame	150	7770.00	130
Angle Sector Frame	150	7770.00	130
Angle Sector Frame (Sprint)	140	(3) HPA-65R-BUU-H8	130
Angle Sector Frame (Sprint)	140	(3) HPA-65R-BUU-H8	130
Angle Sector Frame (Sprint)	140	(3) HPA-65R-BUU-H8	130
NNVV-65B-R4 (Sprint)	140	TMA	130
NNVV-65B-R4 (Sprint)	140	TMA	130
NNVV-65B-R4 (Sprint)	140	TMA	130
APXVTM14-ALU-120	140	(2) 10" x 5" x 3" Diplexer	130
APXVTM14-ALU-120	140	(2) 10" x 5" x 3" Diplexer	130
APXVTM14-ALU-120	140	(2) 10" x 5" x 3" Diplexer	130
TD-RRH8X20	140	20"x18"x8" Surge Protector	130
TD-RRH8X20	140	20"x18"x8" Surge Protector	130
TD-RRH8X20	140	20"x18"x8" Surge Protector	130
1900MHz RRH w/ Solar Shield	140	Pipe Side Arm	119
1900MHz RRH w/ Solar Shield	140	Angle Side Arm	119
1900MHz RRH w/ Solar Shield	140	4' Omni	119
(2) 800 MHz 2x50W RRH	140	4' Omni	119
(2) 800 MHz 2x50W RRH	140	Pipe Side Arm	119
(2) 800 MHz 2x50W RRH	140	(2) RRUS-11	106
(2) RRUS-11	130	(2) RRUS-11	106
(2) RRUS-11	130	(2) RRUS-11	106
(2) RRUS-11	130	Angle Low Profile Platform	106
(2) A2	130	(4) 73"x12"x7" Panel	106
(2) A2	130	(4) 73"x12"x7" Panel	106
(2) A2	130	(4) 73"x12"x7" Panel	106

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36M-45	45 ksi	60 ksi			

TOWER DESIGN NOTES

1. Tower is located in Windham 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 0.75 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: 72.1%

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

Job: ***526-104***			
Project: ***CT23XC408***			
Client: Sprint	Drawn by: nober	App'd:	
Code: TIA-222-G	Date: 04/22/18	Scale: NTS	
Path: C:\Users\nober\Desktop\Bonus Sites 4-21-18\CT23XC408\TNX\CT23XC408.ER		Dwg No. E-1	

Tower Input Data

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

Tower is located in Windham 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 0.7500 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				Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

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	150.00-130.00	20.00	5.00	12	27.8125	34.3125	0.2500	1.0000	A36M-45

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
L2	130.00-115.00	20.00	0.00	12	32.1875	38.6875	0.2500	1.0000	(45 ksi) A36M-45 (45 ksi)
L3	115.00-95.00	20.00	6.00	12	38.6875	45.1875	0.3125	1.2500	A36M-45 (45 ksi)
L4	95.00-91.00	10.00	0.00	12	42.6125	45.8125	0.3125	1.2500	A36M-45 (45 ksi)
L5	91.00-51.00	40.00	8.00	12	45.8125	58.8750	0.3750	1.5000	A36M-45 (45 ksi)
L6	51.00-40.00	19.00	0.00	12	55.5125	61.6875	0.3750	1.5000	A36M-45 (45 ksi)
L7	40.00-19.00	21.00	9.00	12	61.6875	68.5000	0.4375	1.7500	A36M-45 (45 ksi)
L8	19.00-0.00	28.00		12	64.7054	73.8125	0.4375	1.7500	A36M-45 (45 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	28.7054	22.1878	2151.4817	9.8674	14.4069	149.3372	4359.4852	10.9202	6.7838	27.135
	35.4347	27.4203	4060.7980	12.1944	17.7739	228.4700	8228.2777	13.4954	8.5258	34.103
L2	34.9171	25.7097	3347.2225	11.4336	16.6731	200.7556	6782.3803	12.6535	7.9562	31.825
	39.9641	30.9422	5835.0856	13.7606	20.0401	291.1701	11823.4654	15.2288	9.6982	38.793
L3	39.9420	38.6148	7258.3350	13.7382	20.0401	362.1901	14707.3546	19.0051	9.5307	30.498
	46.6713	45.1555	11606.6056	16.0652	23.4071	495.8578	23518.1297	22.2241	11.2728	36.073
L4	45.9932	42.5644	9721.0448	15.1434	22.0733	440.3988	19697.4723	20.9489	10.5826	33.864
	47.3184	45.7844	12098.3469	16.2890	23.7309	509.8146	24514.5309	22.5337	11.4403	36.609
L5	47.2963	54.8658	14458.2714	16.2666	23.7309	609.2599	29296.3778	27.0033	11.2728	30.061
	60.8196	70.6388	30856.0755	20.9430	30.4973	1011.7658	62522.7744	34.7662	14.7735	39.396
L6	60.0302	66.5785	25835.3472	19.7392	28.7555	898.4497	52349.4177	32.7679	13.8724	36.993
	63.7313	74.0348	35523.8611	21.9499	31.9541	1111.7144	71980.9737	36.4377	15.5273	41.406
L7	63.7093	86.2859	41317.8922	21.9275	31.9541	1293.0378	83721.2515	42.4673	15.3598	35.108
	70.7621	95.8830	56694.8448	24.3664	35.4830	1597.8030	114879.1262	47.1907	17.1855	39.281
L8	69.8641	90.5373	47731.0881	23.0079	33.5174	1424.0700	96716.1251	44.5597	16.1685	36.957
	76.2620	103.3670	71033.6649	26.2682	38.2349	1857.8239	143933.4632	50.8741	18.6092	42.535

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 150.00-130.00				1	1	1			
L2 130.00-115.00				1	1	1			
L3 115.00-95.00				1	1	1			
L4 95.00-91.00				1	1	1			
L5 91.00-51.00				1	1	1			
L6 51.00-40.00				1	1	1			
L7 40.00-19.00				1	1	1			
L8 19.00-0.00				1	1	1			

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
7/8 (Sprint)	A	No	Inside Pole	150.00 - 7.00	2	No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
						1" Ice	0.00	0.54
1 5/8 (Sprint)	A	No	Inside Pole	150.00 - 7.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 5/8	A	No	Inside Pole	138.00 - 7.00	6	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1 5/8	A	No	Inside Pole	130.00 - 7.00	13	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1/2	A	No	Inside Pole	130.00 - 7.00	2	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25
1/2	A	No	Inside Pole	119.00 - 7.00	2	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25
1 5/8	A	No	Inside Pole	106.00 - 7.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1.54" Hybriflex	C	No	Inside Pole	140.00 - 0.00	4	No Ice	0.00	0.55
						1/2" Ice	0.00	0.55
						1" Ice	0.00	0.55

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	150.00-130.00	A	0.000	0.000	0.000	0.000	321.12
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	22.00
L2	130.00-115.00	A	0.000	0.000	0.000	0.000	509.30
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	33.00
L3	115.00-95.00	A	0.000	0.000	0.000	0.000	823.68
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	44.00
L4	95.00-91.00	A	0.000	0.000	0.000	0.000	187.20
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	8.80
L5	91.00-51.00	A	0.000	0.000	0.000	0.000	1872.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	88.00
L6	51.00-40.00	A	0.000	0.000	0.000	0.000	514.80
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	24.20
L7	40.00-19.00	A	0.000	0.000	0.000	0.000	982.80
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	46.20

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
L8	19.00-0.00	A	0.000	0.000	0.000	0.000	561.60
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	41.80

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	150.00-130.00	A	1.733	0.000	0.000	0.000	0.000	321.12
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	22.00
L2	130.00-115.00	A	1.710	0.000	0.000	0.000	0.000	509.30
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	33.00
L3	115.00-95.00	A	1.684	0.000	0.000	0.000	0.000	823.68
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	44.00
L4	95.00-91.00	A	1.664	0.000	0.000	0.000	0.000	187.20
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	8.80
L5	91.00-51.00	A	1.618	0.000	0.000	0.000	0.000	1872.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	88.00
L6	51.00-40.00	A	1.549	0.000	0.000	0.000	0.000	514.80
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	24.20
L7	40.00-19.00	A	1.482	0.000	0.000	0.000	0.000	982.80
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	46.20
L8	19.00-0.00	A	1.322	0.000	0.000	0.000	0.000	561.60
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	41.80

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
4' Omni	B	From Leg	2.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice 1" Ice	1.00 1.25 1.50	1.00 1.25 1.50	15.00 23.96 35.82

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
4' Omni	C	From Leg	2.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice 1" Ice	1.00 1.25 1.50	1.00 1.25 1.50	15.00 23.96 35.82
Pipe Side Arm	B	From Leg	2.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice 1" Ice	0.46 0.62 0.78	3.55 4.93 5.89	150.00 175.00 200.00
Pipe Side Arm	C	From Leg	2.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice 1" Ice	0.46 0.62 0.78	3.55 4.93 5.89	150.00 175.00 200.00
***									
RV90-17-DP	A	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.36 4.70 5.06	1.97 2.31 2.66	18.00 40.42 67.36
RV90-17-DP	B	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.36 4.70 5.06	1.97 2.31 2.66	18.00 40.42 67.36
RV90-17-DP	C	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.36 4.70 5.06	1.97 2.31 2.66	18.00 40.42 67.36
LNX-6515DS-VTM	A	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	63.00 128.87 202.41
LNX-6515DS-VTM	B	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	63.00 128.87 202.41
LNX-6515DS-VTM	C	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	63.00 128.87 202.41
Angle Sector Frame	A	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	17.90 22.20 26.50	8.95 13.00 17.05	400.00 510.00 620.00
Angle Sector Frame	B	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	17.90 22.20 26.50	8.95 13.00 17.05	400.00 510.00 620.00
Angle Sector Frame	C	From Leg	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	17.90 22.20 26.50	8.95 13.00 17.05	400.00 510.00 620.00
***									
Angle Sector Frame (Sprint)	A	From Leg	2.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	17.90 22.20 26.50	8.95 13.00 17.05	400.00 510.00 620.00
Angle Sector Frame (Sprint)	B	From Leg	2.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	17.90 22.20 26.50	8.95 13.00 17.05	400.00 510.00 620.00
Angle Sector Frame (Sprint)	C	From Leg	2.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	17.90 22.20 26.50	8.95 13.00 17.05	400.00 510.00 620.00
***									
7770.00	A	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	5.61 5.99 6.38	4.12 4.77 5.43	53.25 99.17 151.35
7770.00	B	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	5.61 5.99 6.38	4.12 4.77 5.43	53.25 99.17 151.35
7770.00	C	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	5.61 5.99 6.38	4.12 4.77 5.43	53.25 99.17 151.35

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(3) HPA-65R-BUU-H8	A	From Leg	2.00	0.0000	130.00	No Ice		9.66	6.45	51.00
			0.00			1/2" Ice		10.13	6.91	113.99
			0.00			1" Ice		10.61	7.38	183.38
(3) HPA-65R-BUU-H8	B	From Leg	2.00	0.0000	130.00	No Ice		9.66	6.45	51.00
			0.00			1/2" Ice		10.13	6.91	113.99
			0.00			1" Ice		10.61	7.38	183.38
(3) HPA-65R-BUU-H8	C	From Leg	2.00	0.0000	130.00	No Ice		9.66	6.45	51.00
			0.00			1/2" Ice		10.13	6.91	113.99
			0.00			1" Ice		10.61	7.38	183.38
TMA	A	From Leg	2.00	0.0000	130.00	No Ice		0.72	0.66	20.61
			0.00			1/2" Ice		0.83	0.79	29.38
			0.00			1" Ice		0.95	0.93	40.54
TMA	B	From Leg	2.00	0.0000	130.00	No Ice		0.72	0.66	20.61
			0.00			1/2" Ice		0.83	0.79	29.38
			0.00			1" Ice		0.95	0.93	40.54
TMA	C	From Leg	2.00	0.0000	130.00	No Ice		0.72	0.66	20.61
			0.00			1/2" Ice		0.83	0.79	29.38
			0.00			1" Ice		0.95	0.93	40.54
(2) 10" x 5" x 3" Diplexer	A	From Leg	2.00	0.0000	130.00	No Ice		0.42	0.26	50.00
			0.00			1/2" Ice		0.50	0.33	53.69
			0.00			1" Ice		0.60	0.41	58.75
(2) 10" x 5" x 3" Diplexer	B	From Leg	2.00	0.0000	130.00	No Ice		0.42	0.26	50.00
			0.00			1/2" Ice		0.50	0.33	53.69
			0.00			1" Ice		0.60	0.41	58.75
(2) 10" x 5" x 3" Diplexer	C	From Leg	2.00	0.0000	130.00	No Ice		0.42	0.26	50.00
			0.00			1/2" Ice		0.50	0.33	53.69
			0.00			1" Ice		0.60	0.41	58.75
20"x18"x8" Surge Protector	A	From Leg	2.00	0.0000	130.00	No Ice		3.00	1.33	30.00
			0.00			1/2" Ice		3.21	1.49	53.04
			0.00			1" Ice		3.44	1.66	79.26
20"x18"x8" Surge Protector	B	From Leg	2.00	0.0000	130.00	No Ice		3.00	1.33	30.00
			0.00			1/2" Ice		3.21	1.49	53.04
			0.00			1" Ice		3.44	1.66	79.26
20"x18"x8" Surge Protector	C	From Leg	2.00	0.0000	130.00	No Ice		3.00	1.33	30.00
			0.00			1/2" Ice		3.21	1.49	53.04
			0.00			1" Ice		3.44	1.66	79.26
(2) RRUS-11	A	From Leg	2.00	0.0000	130.00	No Ice		3.79	1.46	55.00
			0.00			1/2" Ice		4.04	1.63	80.77
			0.00			1" Ice		4.29	1.81	109.98
(2) RRUS-11	B	From Leg	2.00	0.0000	130.00	No Ice		3.79	1.46	55.00
			0.00			1/2" Ice		4.04	1.63	80.77
			0.00			1" Ice		4.29	1.81	109.98
(2) RRUS-11	C	From Leg	2.00	0.0000	130.00	No Ice		3.79	1.46	55.00
			0.00			1/2" Ice		4.04	1.63	80.77
			0.00			1" Ice		4.29	1.81	109.98
(2) A2	A	From Leg	2.00	0.0000	130.00	No Ice		1.87	0.00	30.00
			0.00			1/2" Ice		2.20	0.00	0.00
			0.00			1" Ice		2.53	0.00	0.00
(2) A2	B	From Leg	2.00	0.0000	130.00	No Ice		1.87	0.00	30.00
			0.00			1/2" Ice		2.20	0.00	0.00
			0.00			1" Ice		2.53	0.00	0.00
(2) A2	C	From Leg	2.00	0.0000	130.00	No Ice		1.87	0.00	30.00
			0.00			1/2" Ice		2.20	0.00	0.00
			0.00			1" Ice		2.53	0.00	0.00
(2) RRUS-12	A	From Leg	2.00	0.0000	130.00	No Ice		3.15	1.29	50.00
			0.00			1/2" Ice		3.36	1.44	73.22
			0.00			1" Ice		3.59	1.60	99.64

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert*	*Azimuth Adjustment*	*Placement*		*C_AA_A Front*	*C_AA_A Side*	*Weight*
			ft ft ft	*°*	*ft*		*ft^2*	*ft^2*	*lb*
(2) RRUS-12	B	From Leg	2.00	0.0000	130.00	No Ice	3.15	1.29	50.00
			0.00			1/2" Ice	3.36	1.44	73.22
			0.00			1" Ice	3.59	1.60	99.64
(2) RRUS-12	C	From Leg	2.00	0.0000	130.00	No Ice	3.15	1.29	50.00
			0.00			1/2" Ice	3.36	1.44	73.22
			0.00			1" Ice	3.59	1.60	99.64
RRUS- E2	A	From Leg	2.00	0.0000	130.00	No Ice	3.40	1.82	76.98
			0.00			1/2" Ice	3.63	2.09	108.45
			0.00			1" Ice	3.86	2.38	144.12
RRUS- E2	B	From Leg	2.00	0.0000	130.00	No Ice	3.40	1.82	76.98
			0.00			1/2" Ice	3.63	2.09	108.45
			0.00			1" Ice	3.86	2.38	144.12
RRUS- E2	C	From Leg	2.00	0.0000	130.00	No Ice	3.40	1.82	76.98
			0.00			1/2" Ice	3.63	2.09	108.45
			0.00			1" Ice	3.86	2.38	144.12
RRUS- 32	A	From Leg	2.00	0.0000	130.00	No Ice	2.69	1.92	67.30
			0.00			1/2" Ice	2.91	2.23	93.17
			0.00			1" Ice	3.14	2.56	123.05
RRUS- 32	B	From Leg	2.00	0.0000	130.00	No Ice	2.69	1.92	67.30
			0.00			1/2" Ice	2.91	2.23	93.17
			0.00			1" Ice	3.14	2.56	123.05
RRUS- 32	C	From Leg	2.00	0.0000	130.00	No Ice	2.69	1.92	67.30
			0.00			1/2" Ice	2.91	2.23	93.17
			0.00			1" Ice	3.14	2.56	123.05
Angle Low Profile Platform	A	From Leg	2.00	0.0000	130.00	No Ice	26.10	26.10	1500.00
			0.00			1/2" Ice	31.60	31.60	1700.00
			0.00			1" Ice	37.10	37.10	1900.00
***									
4' Omni	B	From Leg	2.00	0.0000	119.00	No Ice	1.00	1.00	15.00
			0.00			1/2" Ice	1.25	1.25	23.96
			0.00			1" Ice	1.50	1.50	35.82
4' Omni	C	From Leg	2.00	0.0000	119.00	No Ice	1.00	1.00	15.00
			0.00			1/2" Ice	1.25	1.25	23.96
			0.00			1" Ice	1.50	1.50	35.82
Pipe Side Arm	B	From Leg	2.00	0.0000	119.00	No Ice	0.46	3.55	150.00
			0.00			1/2" Ice	0.62	4.93	175.00
			0.00			1" Ice	0.78	5.89	200.00
Pipe Side Arm	C	From Leg	2.00	0.0000	119.00	No Ice	0.46	3.55	150.00
			0.00			1/2" Ice	0.62	4.93	175.00
			0.00			1" Ice	0.78	5.89	200.00
Angle Side Arm	A	From Leg	2.00	0.0000	119.00	No Ice	0.82	6.23	150.00
			0.00			1/2" Ice	1.10	8.47	230.00
			0.00			1" Ice	1.40	10.20	310.00
***									
(4) 73"x12"x7" Panel	A	From Leg	2.00	0.0000	106.00	No Ice	8.13	4.70	45.00
			0.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
(4) 73"x12"x7" Panel	A	From Leg	2.00	0.0000	106.00	No Ice	8.13	4.70	45.00
			0.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
(4) 73"x12"x7" Panel	A	From Leg	2.00	0.0000	106.00	No Ice	8.13	4.70	45.00
			0.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
(2) RRUS-11	A	From Leg	2.00	0.0000	106.00	No Ice	3.79	1.46	55.00
			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
(2) RRUS-11	B	From Leg	2.00	0.0000	106.00	No Ice	3.79	1.46	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
			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
(2) RRUS-11	C	From Leg	2.00	0.0000	106.00	No Ice	3.79	1.46	55.00
			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
Angle Low Profile Platform	A	From Leg	2.00	0.0000	106.00	No Ice	26.10	26.10	1500.00
			0.00			1/2" Ice	31.60	31.60	1700.00
			0.00			1" Ice	37.10	37.10	1900.00
***									
NNVV-65B-R4 (Sprint)	A	From Leg	2.00	0.0000	140.00	No Ice	12.27	5.75	77.40
			0.00			1/2" Ice	12.77	6.21	149.54
			0.00			1" Ice	13.27	6.67	228.32
NNVV-65B-R4 (Sprint)	B	From Leg	2.00	0.0000	140.00	No Ice	12.27	5.75	77.40
			0.00			1/2" Ice	12.77	6.21	149.54
			0.00			1" Ice	13.27	6.67	228.32
NNVV-65B-R4 (Sprint)	C	From Leg	2.00	0.0000	140.00	No Ice	12.27	5.75	77.40
			0.00			1/2" Ice	12.77	6.21	149.54
			0.00			1" Ice	13.27	6.67	228.32
APXVTM14-ALU-120	A	From Leg	2.00	0.0000	140.00	No Ice	6.34	3.61	37.00
			0.00			1/2" Ice	6.72	3.97	76.53
			0.00			1" Ice	7.10	4.33	121.12
APXVTM14-ALU-120	B	From Leg	2.00	0.0000	140.00	No Ice	6.34	3.61	37.00
			0.00			1/2" Ice	6.72	3.97	76.53
			0.00			1" Ice	7.10	4.33	121.12
APXVTM14-ALU-120	C	From Leg	2.00	0.0000	140.00	No Ice	6.34	3.61	37.00
			0.00			1/2" Ice	6.72	3.97	76.53
			0.00			1" Ice	7.10	4.33	121.12
TD-RRH8X20	A	From Leg	2.00	0.0000	140.00	No Ice	3.70	1.29	66.14
			0.00			1/2" Ice	3.95	1.46	90.08
			0.00			1" Ice	4.20	1.64	117.36
TD-RRH8X20	B	From Leg	2.00	0.0000	140.00	No Ice	3.70	1.29	66.14
			0.00			1/2" Ice	3.95	1.46	90.08
			0.00			1" Ice	4.20	1.64	117.36
TD-RRH8X20	C	From Leg	2.00	0.0000	140.00	No Ice	3.70	1.29	66.14
			0.00			1/2" Ice	3.95	1.46	90.08
			0.00			1" Ice	4.20	1.64	117.36
1900MHz RRH w/ Solar Shield	A	From Leg	2.00	0.0000	140.00	No Ice	2.58	2.54	60.00
			0.00			1/2" Ice	2.79	2.75	86.47
			0.00			1" Ice	3.01	2.97	116.36
1900MHz RRH w/ Solar Shield	B	From Leg	2.00	0.0000	140.00	No Ice	2.58	2.54	60.00
			0.00			1/2" Ice	2.79	2.75	86.47
			0.00			1" Ice	3.01	2.97	116.36
1900MHz RRH w/ Solar Shield	C	From Leg	2.00	0.0000	140.00	No Ice	2.58	2.54	60.00
			0.00			1/2" Ice	2.79	2.75	86.47
			0.00			1" Ice	3.01	2.97	116.36
(2) 800 MHz 2x50W RRH	A	From Leg	2.00	0.0000	140.00	No Ice	2.06	1.93	64.00
			0.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
(2) 800 MHz 2x50W RRH	B	From Leg	2.00	0.0000	140.00	No Ice	2.06	1.93	64.00
			0.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
(2) 800 MHz 2x50W RRH	C	From Leg	2.00	0.0000	140.00	No Ice	2.06	1.93	64.00
			0.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30

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 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 130	8.251	39	0.4812	0.0052
L2	135 - 115	6.748	39	0.4723	0.0055
L3	115 - 95	4.856	39	0.4180	0.0047
L4	101 - 91	3.705	39	0.3646	0.0038
L5	91 - 51	2.969	39	0.3314	0.0031
L6	59 - 40	1.205	39	0.1941	0.0013
L7	40 - 19	0.544	39	0.1283	0.0007
L8	28 - 0	0.277	39	0.0841	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.00	4' Omni	39	8.251	0.4812	0.0052	161488
150.00	RV90-17-DP	39	8.251	0.4812	0.0052	161488
140.00	Angle Sector Frame	39	7.246	0.4775	0.0055	80744
130.00	7770.00	39	6.256	0.4634	0.0054	30618
119.00	4' Omni	39	5.215	0.4323	0.0050	15720
106.00	(4) 73"x12"x7" Panel	39	4.100	0.3831	0.0042	16703

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 130	40.920	2	2.3749	0.0267
L2	135 - 115	33.511	2	2.3269	0.0280
L3	115 - 95	24.181	2	2.0665	0.0240
L4	101 - 91	18.487	2	1.8077	0.0195
L5	91 - 51	14.836	2	1.6472	0.0159
L6	59 - 40	6.041	2	0.9710	0.0066
L7	40 - 19	2.727	2	0.6430	0.0038
L8	28 - 0	1.390	2	0.4222	0.0023

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.00	4' Omni	2	40.920	2.3749	0.0267	32390
150.00	RV90-17-DP	2	40.920	2.3749	0.0267	32390
140.00	Angle Sector Frame	2	35.965	2.3531	0.0279	16195
130.00	7770.00	2	31.086	2.2837	0.0276	6264
119.00	4' Omni	2	25.949	2.1352	0.0252	3257
106.00	(4) 73"x12"x7" Panel	2	20.440	1.8973	0.0212	3481

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	150 - 149	TP34.3125x27.8125x0.25	20.00	150.00	180.3	22.4494	-5045.76	156022.00	0.032
	149 - 148					22.7111	-5229.51	161541.00	0.032
	148 - 147					22.9727	-5414.32	167188.00	0.032
	147 - 146					23.2343	-5600.20	172965.00	0.032
	146 - 145					23.4959	-2536.58	178874.00	0.014
	145 - 144					23.7576	-2648.81	184916.00	0.014
	144 - 143					24.0192	-2762.08	191093.00	0.014
	143 - 142					24.2808	-2876.41	197405.00	0.015
	142 - 141					24.5424	-2991.79	203855.00	0.015
	141 - 140					24.8041	-3108.23	210445.00	0.015
	140 - 139					25.0657	-5826.81	217174.00	0.027
	139 - 138					25.3273	-5945.74	224046.00	0.027
	138 - 137					25.5889	-6065.80	231061.00	0.026
	137 - 136					25.8506	-6187.01	238221.00	0.026
	136 - 135					26.1122	-6309.36	245527.00	0.026
	135 - 130					27.4203	-3782.63	284306.00	0.013
L2	135 - 130	TP38.6875x32.1875x0.25	20.00	150.00	149.8	27.0178	-3688.60	271969.00	0.014
	130 - 129					27.2794	-11918.70	279947.00	0.043
	129 - 128					27.5411	-12071.90	288079.00	0.042
	128 - 127					27.8027	-12226.40	296367.00	0.041
	127 - 126					28.0643	-12382.30	304812.00	0.041
	126 - 125					28.3259	-12539.50	313417.00	0.040
	125 - 124					28.5876	-12698.00	322181.00	0.039
	124 - 123					28.8492	-12857.80	331108.00	0.039
	123 - 122					29.1108	-13019.00	340198.00	0.038
	122 - 121					29.3724	-13181.40	349453.00	0.038
	121 - 120					29.6341	-13345.10	358875.00	0.037
	120 - 119					29.8957	-13510.20	368464.00	0.037
	119 - 118					30.1573	-14238.00	378222.00	0.038
	118 - 117					30.4189	-14405.70	388151.00	0.037
	117 - 116					30.6806	-14574.80	398253.00	0.037
	116 - 115					30.9422	-14745.10	408528.00	0.036
L3	115 - 114	TP45.1875x38.6875x0.3125	20.00	150.00	129.9	38.9419	-14956.40	521194.00	0.029
	114 - 113					39.2689	-15168.50	534436.00	0.028
	113 - 112					39.5959	-15382.10	547900.00	0.028
	112 - 111					39.9230	-15597.20	561588.00	0.028
	111 - 110					40.2500	-15813.80	575502.00	0.027
	110 - 109					40.5770	-16031.90	589644.00	0.027
	109 - 108					40.9041	-16251.40	604016.00	0.027
	108 - 107					41.2311	-16472.50	618620.00	0.027
	107 - 106					41.5581	-16695.00	633457.00	0.026
	106 - 105					41.8852	-19591.80	648529.00	0.030
	105 - 104					42.2122	-19819.20	663839.00	0.030
	104 - 103					42.5392	-20048.20	679388.00	0.030
	103 - 102					42.8662	-20278.80	695177.00	0.029
	102 - 101					43.1933	-20510.90	711210.00	0.029
	101 - 95					45.1555	-11634.00	811272.00	0.014
L4	101 - 95	TP45.8125x42.6125x0.3125	10.00	150.00	113.7	44.4964	-11325.90	777540.00	0.015
	95 - 94					44.8184	-23218.40	794370.00	0.029
	94 - 93					45.1404	-23467.50	810516.00	0.029
	93 - 92					45.4624	-23718.00	826632.00	0.029
	92 - 91					45.7844	-23970.10	842714.00	0.028

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L5	91 - 89.3158	TP58.875x45.8125x0.375	40.00	150.00	109.3	55.5299	-24455.20	1049300.00	0.023
	89.3158 - 87.6316					56.1940	-24947.70	1084920.00	0.023
	87.6316 - 85.9474					56.8582	-25445.30	1120490.00	0.023
	85.9474 - 84.2632					57.5223	-25947.90	1155990.00	0.022
	84.2632 - 82.5789					58.1864	-26455.50	1191390.00	0.022
	82.5789 - 80.8947					58.8505	-26968.10	1226670.00	0.022
	80.8947 - 79.2105					59.5147	-27485.70	1261800.00	0.022
	79.2105 - 77.5263					60.1788	-28008.30	1296760.00	0.022
	77.5263 - 75.8421					60.8429	-28535.80	1331530.00	0.021
	75.8421 - 74.1579					61.5070	-29068.30	1366100.00	0.021
	74.1579 - 72.4737					62.1712	-29605.80	1400440.00	0.021
	72.4737 - 70.7895					62.8353	-30148.20	1434540.00	0.021
	70.7895 - 69.1053					63.4994	-30695.50	1468370.00	0.021
	69.1053 - 67.4211					64.1635	-31247.70	1501940.00	0.021
	67.4211 - 65.7368					64.8277	-31804.90	1535210.00	0.021
	65.7368 - 64.0526					65.4918	-32367.00	1568190.00	0.021
	64.0526 - 62.3684					66.1559	-32934.10	1600840.00	0.021
	62.3684 - 60.6842					66.8200	-33506.00	1633180.00	0.021
	60.6842 - 59					67.4842	-34082.80	1665170.00	0.020
	59 - 51					70.6387	-19764.30	1812250.00	0.011
L6	59 - 51	TP61.6875x55.5125x0.375	19.00	150.00	87.1	69.7180	-19282.80	1770190.00	0.011
	51 - 50					70.1105	-39423.20	1788210.00	0.022
	50 - 49					70.5029	-39780.30	1806100.00	0.022
	49 - 48					70.8953	-40139.10	1823850.00	0.022
	48 - 47					71.2878	-40499.60	1841460.00	0.022
	47 - 46					71.6802	-40861.70	1858940.00	0.022
	46 - 45					72.0727	-41225.60	1876270.00	0.022
	45 - 44					72.4651	-41591.20	1893470.00	0.022
	44 - 43					72.8575	-41958.40	1910530.00	0.022
	43 - 42					73.2500	-42327.40	1927440.00	0.022
	42 - 41					73.6424	-42698.10	1944210.00	0.022
	41 - 40					74.0348	-43070.40	1960840.00	0.022
L7	40 - 39	TP68.5x61.6875x0.4375	21.00	150.00	81.7	86.7429	-43493.90	2404930.00	0.018
	39 - 38					87.2000	-43918.30	2426920.00	0.018
	38 - 37					87.6570	-44344.60	2448780.00	0.018
	37 - 36					88.1140	-44772.80	2470490.00	0.018
	36 - 35					88.5710	-45203.00	2492070.00	0.018
	35 - 34					89.0280	-45635.10	2513500.00	0.018
	34 - 33					89.4850	-46069.20	2534790.00	0.018
	33 - 32					89.9420	-46505.20	2555930.00	0.018
	32 - 31					90.3990	-46943.10	2576930.00	0.018
	31 - 30					90.8560	-47383.00	2597790.00	0.018
	30 - 29					91.3130	-47824.80	2618490.00	0.018

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	29 - 28					91.7700	-48268.50	2639060.00	0.018
	28 - 19					95.8830	-28148.00	2817350.00	0.010
L8	28 - 19	TP73.8125x64.7054x0.4375	28.00	150.00	74.8	94.6612	-27524.10	2765660.00	0.010
	19 - 18					95.1194	-56133.10	2785180.00	0.020
	18 - 17					95.5776	-56572.80	2804530.00	0.020
	17 - 16					96.0358	-57014.30	2823730.00	0.020
	16 - 15					96.4940	-57457.90	2842780.00	0.020
	15 - 14					96.9522	-57903.30	2861680.00	0.020
	14 - 13					97.4104	-58350.70	2880420.00	0.020
	13 - 12					97.8686	-58800.00	2899000.00	0.020
	12 - 11					98.3268	-59251.30	2917430.00	0.020
	11 - 10					98.7850	-59704.50	2935700.00	0.020
	10 - 9					99.2432	-60159.60	2953810.00	0.020
	9 - 8					99.7014	-60616.70	2971770.00	0.020
	8 - 7					100.1600	-61075.80	2989570.00	0.020
	7 - 6					100.6180	-61536.70	3007220.00	0.020
	6 - 5					101.0760	-61999.60	3024700.00	0.020
	5 - 4					101.5340	-62464.50	3042030.00	0.021
	4 - 3					101.9920	-62931.20	3059200.00	0.021
	3 - 2					102.4510	-63400.00	3076220.00	0.021
	2 - 1					102.9090	-63870.60	3093070.00	0.021
	1 - 0					103.3670	-64343.20	3109770.00	0.021

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	150 - 149	TP34.3125x27.8125x0.25	2673.09	633313.33	0.004	0.00	633313.33	0.000
	149 - 148		3623.20	645657.50	0.006	0.00	645657.50	0.000
	148 - 147		4598.54	658055.83	0.007	0.00	658055.83	0.000
	147 - 146		5599.40	670506.67	0.008	0.00	670506.67	0.000
	146 - 145		20214.08	683006.67	0.030	0.00	683006.67	0.000
	145 - 144		24279.83	695555.00	0.035	0.00	695555.00	0.000
	144 - 143		28471.67	708148.33	0.040	0.00	708148.33	0.000
	143 - 142		32791.00	720785.83	0.045	0.00	720785.83	0.000
	142 - 141		37239.00	733465.00	0.051	0.00	733465.00	0.000
	141 - 140		41817.17	746183.33	0.056	0.00	746183.33	0.000
	140 - 139		50696.25	758939.17	0.067	0.00	758939.17	0.000
	139 - 138		59707.75	771730.83	0.077	0.00	771730.83	0.000
	138 - 137		68853.17	784555.83	0.088	0.00	784555.83	0.000
	137 - 136		78133.67	797411.67	0.098	0.00	797411.67	0.000
	136 - 135		87550.83	810296.67	0.108	0.00	810296.67	0.000
	135 - 130		70084.50	875091.67	0.080	0.00	875091.67	0.000
L2	135 - 130	TP38.6875x32.1875x0.25	66700.08	855100.00	0.078	0.00	855100.00	0.000
	130 - 129		158932.50	868083.33	0.183	0.00	868083.33	0.000
	129 - 128		176223.33	881091.67	0.200	0.00	881091.67	0.000
	128 - 127		193653.33	894116.67	0.217	0.00	894116.67	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 $\frac{M_{uy}}{\phi M_{ny}}$
	127 - 126		211223.33	907158.33	0.233	0.00	907158.33	0.000
	126 - 125		228935.00	920208.33	0.249	0.00	920208.33	0.000
	125 - 124		246788.33	933266.67	0.264	0.00	933266.67	0.000
	124 - 123		264785.83	946333.33	0.280	0.00	946333.33	0.000
	123 - 122		282927.50	959408.33	0.295	0.00	959408.33	0.000
	122 - 121		301214.17	972483.33	0.310	0.00	972483.33	0.000
	121 - 120		319648.33	985558.33	0.324	0.00	985558.33	0.000
	120 - 119		338230.00	998641.67	0.339	0.00	998641.67	0.000
	119 - 118		357297.50	1011708.33	0.353	0.00	1011708.33	0.000
	118 - 117		376579.17	1024783.33	0.367	0.00	1024783.33	0.000
	117 - 116		396010.83	1037841.67	0.382	0.00	1037841.67	0.000
	116 - 115		415595.00	1050900.00	0.395	0.00	1050900.00	0.000
L3	115 - 114	TP45.1875x38.6875x0.3125	435330.00	1468691.67	0.296	0.00	1468691.67	0.000
	114 - 113		455215.00	1488641.67	0.306	0.00	1488641.67	0.000
	113 - 112		475250.83	1508633.33	0.315	0.00	1508633.33	0.000
	112 - 111		495439.17	1528666.67	0.324	0.00	1528666.67	0.000
	111 - 110		515780.00	1548750.00	0.333	0.00	1548750.00	0.000
	110 - 109		536275.00	1568858.33	0.342	0.00	1568858.33	0.000
	109 - 108		556925.00	1589008.33	0.350	0.00	1589008.33	0.000
	108 - 107		577731.67	1609191.67	0.359	0.00	1609191.67	0.000
	107 - 106		598695.83	1629400.00	0.367	0.00	1629400.00	0.000
	106 - 105		634173.33	1649641.67	0.384	0.00	1649641.67	0.000
	105 - 104		660669.17	1669916.67	0.396	0.00	1669916.67	0.000
	104 - 103		687324.17	1690208.33	0.407	0.00	1690208.33	0.000
	103 - 102		714140.00	1710525.00	0.417	0.00	1710525.00	0.000
	102 - 101		741116.67	1730866.67	0.428	0.00	1730866.67	0.000
	101 - 95		463526.67	1853216.67	0.250	0.00	1853216.67	0.000
L4	101 - 95	TP45.8125x42.6125x0.3125	443067.50	1812075.00	0.245	0.00	1812075.00	0.000
	95 - 94		934783.33	1832166.67	0.510	0.00	1832166.67	0.000
	94 - 93		963125.00	1852275.00	0.520	0.00	1852275.00	0.000
	93 - 92		991641.67	1872391.67	0.530	0.00	1872391.67	0.000
	92 - 91		1020308.33	1892508.33	0.539	0.00	1892508.33	0.000
L5	91 - 89.3158	TP58.875x45.8125x0.375	1068966.67	2497991.67	0.428	0.00	2497991.67	0.000
	89.3158 - 87.6316		1118100.00	2546508.33	0.439	0.00	2546508.33	0.000
	87.6316 - 85.9474		1167691.67	2595175.00	0.450	0.00	2595175.00	0.000
	85.9474 - 84.2632		1217750.00	2643983.33	0.461	0.00	2643983.33	0.000
	84.2632 - 82.5789		1268283.33	2692933.33	0.471	0.00	2692933.33	0.000
	82.5789 - 80.8947		1319291.67	2742008.33	0.481	0.00	2742008.33	0.000
	80.8947 - 79.2105		1370775.00	2791200.00	0.491	0.00	2791200.00	0.000
	79.2105 - 77.5263		1422733.33	2840491.67	0.501	0.00	2840491.67	0.000
	77.5263 - 75.8421		1475166.67	2889883.33	0.510	0.00	2889883.33	0.000
	75.8421 - 74.1579		1528083.33	2939358.33	0.520	0.00	2939358.33	0.000
	74.1579 - 72.4737		1581483.33	2988908.33	0.529	0.00	2988908.33	0.000
	72.4737 - 70.7895		1635358.33	3038525.00	0.538	0.00	3038525.00	0.000
	70.7895 - 69.1053		1689725.00	3088191.67	0.547	0.00	3088191.67	0.000
	69.1053 - 67.4211		1744575.00	3137908.33	0.556	0.00	3137908.33	0.000
	67.4211 -		1799908.33	3187658.33	0.565	0.00	3187658.33	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 $\frac{M_{uy}}{\phi M_{ny}}$
	65.7368							
	65.7368 - 64.0526		1855741.67	3237433.33	0.573	0.00	3237433.33	0.000
	64.0526 - 62.3684		1912058.33	3287225.00	0.582	0.00	3287225.00	0.000
	62.3684 - 60.6842		1968866.67	3337016.67	0.590	0.00	3337016.67	0.000
	60.6842 - 59		2026175.00	3386808.33	0.598	0.00	3386808.33	0.000
	59 - 51		1176258.33	3622941.67	0.325	0.00	3622941.67	0.000
L6	59 - 51	TP61.6875x55.5125x0.375	1129291.67	3554125.00	0.318	0.00	3554125.00	0.000
	51 - 50		2341300.00	3583466.67	0.653	0.00	3583466.67	0.000
	50 - 49		2377216.67	3612791.67	0.658	0.00	3612791.67	0.000
	49 - 48		2413300.00	3642100.00	0.663	0.00	3642100.00	0.000
	48 - 47		2449550.00	3671383.33	0.667	0.00	3671383.33	0.000
	47 - 46		2485958.33	3700641.67	0.672	0.00	3700641.67	0.000
	46 - 45		2522533.33	3729875.00	0.676	0.00	3729875.00	0.000
	45 - 44		2559283.33	3759075.00	0.681	0.00	3759075.00	0.000
	44 - 43		2596191.67	3788250.00	0.685	0.00	3788250.00	0.000
	43 - 42		2633275.00	3817383.33	0.690	0.00	3817383.33	0.000
	42 - 41		2670525.00	3846483.33	0.694	0.00	3846483.33	0.000
	41 - 40		2707941.67	3875550.00	0.699	0.00	3875550.00	0.000
L7	40 - 39	TP68.5x61.6875x0.4375	2745525.00	4931275.00	0.557	0.00	4931275.00	0.000
	39 - 38		2783258.33	4971191.67	0.560	0.00	4971191.67	0.000
	38 - 37		2821141.67	5011125.00	0.563	0.00	5011125.00	0.000
	37 - 36		2859191.67	5051066.67	0.566	0.00	5051066.67	0.000
	36 - 35		2897391.67	5091025.00	0.569	0.00	5091025.00	0.000
	35 - 34		2935741.67	5130983.33	0.572	0.00	5130983.33	0.000
	34 - 33		2974258.33	5170958.33	0.575	0.00	5170958.33	0.000
	33 - 32		3012925.00	5210925.00	0.578	0.00	5210925.00	0.000
	32 - 31		3051750.00	5250908.33	0.581	0.00	5250908.33	0.000
	31 - 30		3090733.33	5290883.33	0.584	0.00	5290883.33	0.000
	30 - 29		3129883.33	5330858.33	0.587	0.00	5330858.33	0.000
	29 - 28		3169183.33	5370833.33	0.590	0.00	5370833.33	0.000
	28 - 19		1800733.33	5730074.67	0.314	0.00	5730074.67	0.000
L8	28 - 19	TP73.8125x64.7054x0.4375	1729916.67	5623491.33	0.308	0.00	5623491.33	0.000
	19 - 18		3571675.00	5663483.33	0.631	0.00	5663483.33	0.000
	18 - 17		3612866.67	5703450.00	0.633	0.00	5703450.00	0.000
	17 - 16		3654225.00	5743391.33	0.636	0.00	5743391.33	0.000
	16 - 15		3695741.67	5783308.00	0.639	0.00	5783308.00	0.000
	15 - 14		3737425.00	5823200.00	0.642	0.00	5823200.00	0.000
	14 - 13		3779275.00	5863066.67	0.645	0.00	5863066.67	0.000
	13 - 12		3821291.67	5902891.33	0.647	0.00	5902891.33	0.000
	12 - 11		3863475.00	5942691.33	0.650	0.00	5942691.33	0.000
	11 - 10		3905833.33	5982458.00	0.653	0.00	5982458.00	0.000
	10 - 9		3948350.00	6022183.33	0.656	0.00	6022183.33	0.000
	9 - 8		3991041.67	6061866.67	0.658	0.00	6061866.67	0.000
	8 - 7		4033900.00	6101516.67	0.661	0.00	6101516.67	0.000
	7 - 6		4076925.00	6141116.67	0.664	0.00	6141116.67	0.000
	6 - 5		4120125.00	6180674.67	0.667	0.00	6180674.67	0.000
	5 - 4		4163500.00	6220183.33	0.669	0.00	6220183.33	0.000
	4 - 3		4207041.67	6259633.33	0.672	0.00	6259633.33	0.000
	3 - 2		4250758.33	6299041.33	0.675	0.00	6299041.33	0.000
	2 - 1		4294650.00	6338400.00	0.678	0.00	6338400.00	0.000
	1 - 0		4338708.33	6377691.33	0.680	0.00	6377691.33	0.000

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	150 - 149	TP34.3125x27.8125x0.25	937.65	557930.00	0.002	0.00	1288058.33	0.000
	149 - 148		962.76	562195.00	0.002	0.00	1313125.00	0.000
	148 - 147		988.14	566409.00	0.002	0.00	1338291.67	0.000
	147 - 146		1013.79	570571.00	0.002	0.00	1363566.67	0.000
	146 - 145		4003.20	574681.00	0.007	0.00	1388941.67	0.000
	145 - 144		4128.63	578740.00	0.007	0.00	1414416.67	0.000
	144 - 143		4255.41	582748.00	0.007	0.00	1439983.33	0.000
	143 - 142		4383.54	586704.00	0.007	0.00	1465633.33	0.000
	142 - 141		4513.00	590608.00	0.008	0.00	1491375.00	0.000
	141 - 140		4643.80	594461.00	0.008	0.00	1517191.67	0.000
	140 - 139		8945.32	598262.00	0.015	0.00	1543083.33	0.000
	139 - 138		9078.56	602012.00	0.015	0.00	1569041.67	0.000
	138 - 137		9213.08	605710.00	0.015	0.00	1595075.00	0.000
	137 - 136		9348.87	609357.00	0.015	0.00	1621166.67	0.000
	136 - 135		9485.95	612952.00	0.015	0.00	1647325.00	0.000
	135 - 130		5392.91	630154.00	0.009	0.00	1778825.00	0.000
L2	135 - 130	TP38.6875x32.1875x0.25	4822.14	624998.00	0.008	0.00	1738250.00	0.000
	130 - 129		17222.80	628363.00	0.027	0.00	1764608.33	0.000
	129 - 128		17361.50	631677.00	0.027	0.00	1791016.67	0.000
	128 - 127		17501.30	634939.00	0.028	0.00	1817441.67	0.000
	127 - 126		17642.10	638150.00	0.028	0.00	1843908.33	0.000
	126 - 125		17784.00	641309.00	0.028	0.00	1870391.67	0.000
	125 - 124		17927.00	644416.00	0.028	0.00	1896891.67	0.000
	124 - 123		18071.10	647472.00	0.028	0.00	1923408.33	0.000
	123 - 122		18216.20	650476.00	0.028	0.00	1949941.67	0.000
	122 - 121		18362.40	653429.00	0.028	0.00	1976475.00	0.000
	121 - 120		18509.80	656330.00	0.028	0.00	2003016.67	0.000
	120 - 119		18658.20	659180.00	0.028	0.00	2029550.00	0.000
	119 - 118		19208.60	661978.00	0.029	0.00	2056083.33	0.000
	118 - 117		19359.00	664725.00	0.029	0.00	2082600.00	0.000
	117 - 116		19510.50	667420.00	0.029	0.00	2109108.33	0.000
	116 - 115		19663.10	670064.00	0.029	0.00	2135600.00	0.000
L3	115 - 114	TP45.1875x38.6875x0.3125	19812.00	931551.00	0.021	0.00	2986191.67	0.000
	114 - 113		19962.50	936279.00	0.021	0.00	3026691.67	0.000
	113 - 112		20114.10	940957.00	0.021	0.00	3067275.00	0.000
	112 - 111		20266.70	945582.00	0.021	0.00	3107941.67	0.000
	111 - 110		20420.40	950156.00	0.021	0.00	3148691.67	0.000
	110 - 109		20575.20	954679.00	0.022	0.00	3189516.67	0.000
	109 - 108		20731.00	959150.00	0.022	0.00	3230408.33	0.000
	108 - 107		20887.80	963570.00	0.022	0.00	3271375.00	0.000
	107 - 106		21045.80	967938.00	0.022	0.00	3312400.00	0.000
	106 - 105		26419.80	972254.00	0.027	0.00	3353483.33	0.000
	105 - 104		26578.80	976519.00	0.027	0.00	3394616.67	0.000
	104 - 103		26738.80	980732.00	0.027	0.00	3435808.33	0.000
	103 - 102		26899.80	984894.00	0.027	0.00	3477041.67	0.000
	102 - 101		27061.80	989004.00	0.027	0.00	3518316.67	0.000
	101 - 95		14618.10	1012580.00	0.014	0.00	3766625.00	0.000
L4	101 - 95	TP45.8125x42.6125x0.3125	13502.30	1004870.00	0.013	0.00	3683125.00	0.000
	95 - 94		28272.00	1008670.00	0.028	0.00	3723908.33	0.000
	94 - 93		28433.40	1012410.00	0.028	0.00	3764708.33	0.000
	93 - 92		28595.70	1016100.00	0.028	0.00	3805525.00	0.000
	92 - 91		28759.00	1019750.00	0.028	0.00	3846350.00	0.000
L5	91 - 89.3158	TP58.875x45.8125x0.375	29037.30	1333440.00	0.022	0.00	5079141.67	0.000
	89.3158 - 87.6316		29314.70	1343140.00	0.022	0.00	5177616.67	0.000
	87.6316 - 85.9474		29593.10	1352700.00	0.022	0.00	5276408.33	0.000
	85.9474 - 84.2632		29872.60	1362110.00	0.022	0.00	5375483.33	0.000
	84.2632 -		30153.00	1371370.00	0.022	0.00	5474833.33	0.000

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 $\frac{T_u}{\phi T_n}$
	82.5789							
	82.5789 - 80.8947		30434.40	1380480.00	0.022	0.00	5574441.67	0.000
	80.8947 - 79.2105		30716.80	1389440.00	0.022	0.00	5674274.67	0.000
	79.2105 - 77.5263		31000.30	1398260.00	0.022	0.00	5774324.67	0.000
	77.5263 - 75.8421		31284.70	1406930.00	0.022	0.00	5874566.67	0.000
	75.8421 - 74.1579		31570.10	1415450.00	0.022	0.00	5974974.67	0.000
	74.1579 - 72.4737		31856.60	1423830.00	0.022	0.00	6075533.33	0.000
	72.4737 - 70.7895		32144.00	1432050.00	0.022	0.00	6176233.33	0.000
	70.7895 - 69.1053		32432.40	1440130.00	0.023	0.00	6277033.33	0.000
	69.1053 - 67.4211		32721.80	1448060.00	0.023	0.00	6377924.67	0.000
	67.4211 - 65.7368		33012.30	1455850.00	0.023	0.00	6478883.33	0.000
	65.7368 - 64.0526		33303.70	1463490.00	0.023	0.00	6579900.00	0.000
	64.0526 - 62.3684		33596.10	1470970.00	0.023	0.00	6680933.33	0.000
	62.3684 - 60.6842		33889.40	1478320.00	0.023	0.00	6781983.33	0.000
	60.6842 - 59		34183.80	1485510.00	0.023	0.00	6883024.67	0.000
	59 - 51		18572.00	1517660.00	0.012	0.00	7362174.67	0.000
L6	59 - 51	TP61.6875x55.5125x0.375	17130.40	1508620.00	0.011	0.00	7222524.67	0.000
	51 - 50		35842.80	1512510.00	0.024	0.00	7282074.67	0.000
	50 - 49		36006.50	1516350.00	0.024	0.00	7341583.33	0.000
	49 - 48		36170.90	1520130.00	0.024	0.00	7401050.00	0.000
	48 - 47		36336.10	1523870.00	0.024	0.00	7460466.67	0.000
	47 - 46		36502.00	1527550.00	0.024	0.00	7519833.33	0.000
	46 - 45		36668.60	1531180.00	0.024	0.00	7579150.00	0.000
	45 - 44		36836.00	1534760.00	0.024	0.00	7638400.00	0.000
	44 - 43		37004.10	1538290.00	0.024	0.00	7697583.33	0.000
	43 - 42		37173.00	1541760.00	0.024	0.00	7756700.00	0.000
	42 - 41		37342.60	1545190.00	0.024	0.00	7815750.00	0.000
	41 - 40		37512.90	1548560.00	0.024	0.00	7874716.67	0.000
L7	40 - 39	TP68.5x61.6875x0.4375	37665.00	1963940.00	0.019	0.00	10023166.67	0.000
	39 - 38		37818.90	1969390.00	0.019	0.00	10104166.67	0.000
	38 - 37		37973.40	1974790.00	0.019	0.00	10185250.00	0.000
	37 - 36		38128.60	1980130.00	0.019	0.00	10266250.00	0.000
	36 - 35		38284.30	1985430.00	0.019	0.00	10347333.33	0.000
	35 - 34		38440.70	1990670.00	0.019	0.00	10428500.00	0.000
	34 - 33		38597.80	1995860.00	0.019	0.00	10509583.33	0.000
	33 - 32		38755.40	2001000.00	0.019	0.00	10590666.67	0.000
	32 - 31		38913.70	2006090.00	0.019	0.00	10671833.33	0.000
	31 - 30		39072.60	2011130.00	0.019	0.00	10752916.67	0.000
	30 - 29		39232.20	2016110.00	0.019	0.00	10834083.33	0.000
	29 - 28		39392.30	2021050.00	0.019	0.00	10915166.67	0.000
	28 - 19		21290.80	2063150.00	0.010	0.00	11644166.67	0.000
L8	28 - 19	TP73.8125x64.7054x0.4375	19696.20	2051080.00	0.010	0.00	11427916.00	0.000
	19 - 18		41118.40	2055650.00	0.020	0.00	11509000.00	0.000
	18 - 17		41282.00	2060160.00	0.020	0.00	11590082.67	0.000
	17 - 16		41446.20	2064630.00	0.020	0.00	11671166.67	0.000
	16 - 15		41611.10	2069050.00	0.020	0.00	11752166.67	0.000
	15 - 14		41776.60	2073410.00	0.020	0.00	11833082.67	0.000

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 $\frac{T_u}{\phi T_n}$
	14 - 13		41942.80	2077720.00	0.020	0.00	11914000.00	0.000
	13 - 12		42109.50	2081980.00	0.020	0.00	11994833.33	0.000
	12 - 11		42277.00	2086190.00	0.020	0.00	12075582.67	0.000
	11 - 10		42445.00	2090350.00	0.020	0.00	12156249.33	0.000
	10 - 9		42613.70	2094450.00	0.020	0.00	12236833.33	0.000
	9 - 8		42783.10	2098510.00	0.020	0.00	12317333.33	0.000
	8 - 7		42953.10	2102510.00	0.020	0.00	12397833.33	0.000
	7 - 6		43123.70	2106460.00	0.020	0.00	12478166.67	0.000
	6 - 5		43294.90	2110360.00	0.021	0.00	12558416.00	0.000
	5 - 4		43466.80	2114210.00	0.021	0.00	12638582.67	0.000
	4 - 3		43639.30	2118000.00	0.021	0.00	12718582.67	0.000
	3 - 2		43812.50	2121750.00	0.021	0.00	12798582.67	0.000
	2 - 1		43986.30	2125440.00	0.021	0.00	12878416.00	0.000
	1 - 0		44160.70	2129080.00	0.021	0.00	12958166.67	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	150 - 149	0.032	0.004	0.000	0.002	0.000	0.037 ✔	1.000	4.8.2 ✔
	149 - 148	0.032	0.006	0.000	0.002	0.000	0.038 ✔	1.000	4.8.2 ✔
	148 - 147	0.032	0.007	0.000	0.002	0.000	0.039 ✔	1.000	4.8.2 ✔
	147 - 146	0.032	0.008	0.000	0.002	0.000	0.041 ✔	1.000	4.8.2 ✔
	146 - 145	0.014	0.030	0.000	0.007	0.000	0.044 ✔	1.000	4.8.2 ✔
	145 - 144	0.014	0.035	0.000	0.007	0.000	0.049 ✔	1.000	4.8.2 ✔
	144 - 143	0.014	0.040	0.000	0.007	0.000	0.055 ✔	1.000	4.8.2 ✔
	143 - 142	0.015	0.045	0.000	0.007	0.000	0.060 ✔	1.000	4.8.2 ✔
	142 - 141	0.015	0.051	0.000	0.008	0.000	0.066 ✔	1.000	4.8.2 ✔
	141 - 140	0.015	0.056	0.000	0.008	0.000	0.071 ✔	1.000	4.8.2 ✔
	140 - 139	0.027	0.067	0.000	0.015	0.000	0.094 ✔	1.000	4.8.2 ✔
	139 - 138	0.027	0.077	0.000	0.015	0.000	0.104 ✔	1.000	4.8.2 ✔
	138 - 137	0.026	0.088	0.000	0.015	0.000	0.114 ✔	1.000	4.8.2 ✔
	137 - 136	0.026	0.098	0.000	0.015	0.000	0.124 ✔	1.000	4.8.2 ✔
	136 - 135	0.026	0.108	0.000	0.015	0.000	0.134 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	135 - 130	0.013	0.080	0.000	0.009	0.000	0.093 ✔	1.000	4.8.2 ✔
L2	135 - 130	0.014	0.078	0.000	0.008	0.000	0.092 ✔	1.000	4.8.2 ✔
	130 - 129	0.043	0.183	0.000	0.027	0.000	0.226 ✔	1.000	4.8.2 ✔
	129 - 128	0.042	0.200	0.000	0.027	0.000	0.243 ✔	1.000	4.8.2 ✔
	128 - 127	0.041	0.217	0.000	0.028	0.000	0.259 ✔	1.000	4.8.2 ✔
	127 - 126	0.041	0.233	0.000	0.028	0.000	0.274 ✔	1.000	4.8.2 ✔
	126 - 125	0.040	0.249	0.000	0.028	0.000	0.290 ✔	1.000	4.8.2 ✔
	125 - 124	0.039	0.264	0.000	0.028	0.000	0.305 ✔	1.000	4.8.2 ✔
	124 - 123	0.039	0.280	0.000	0.028	0.000	0.319 ✔	1.000	4.8.2 ✔
	123 - 122	0.038	0.295	0.000	0.028	0.000	0.334 ✔	1.000	4.8.2 ✔
	122 - 121	0.038	0.310	0.000	0.028	0.000	0.348 ✔	1.000	4.8.2 ✔
	121 - 120	0.037	0.324	0.000	0.028	0.000	0.362 ✔	1.000	4.8.2 ✔
	120 - 119	0.037	0.339	0.000	0.028	0.000	0.376 ✔	1.000	4.8.2 ✔
	119 - 118	0.038	0.353	0.000	0.029	0.000	0.392 ✔	1.000	4.8.2 ✔
	118 - 117	0.037	0.367	0.000	0.029	0.000	0.405 ✔	1.000	4.8.2 ✔
	117 - 116	0.037	0.382	0.000	0.029	0.000	0.419 ✔	1.000	4.8.2 ✔
	116 - 115	0.036	0.395	0.000	0.029	0.000	0.432 ✔	1.000	4.8.2 ✔
L3	115 - 114	0.029	0.296	0.000	0.021	0.000	0.326 ✔	1.000	4.8.2 ✔
	114 - 113	0.028	0.306	0.000	0.021	0.000	0.335 ✔	1.000	4.8.2 ✔
	113 - 112	0.028	0.315	0.000	0.021	0.000	0.344 ✔	1.000	4.8.2 ✔
	112 - 111	0.028	0.324	0.000	0.021	0.000	0.352 ✔	1.000	4.8.2 ✔
	111 - 110	0.027	0.333	0.000	0.021	0.000	0.361 ✔	1.000	4.8.2 ✔
	110 - 109	0.027	0.342	0.000	0.022	0.000	0.369 ✔	1.000	4.8.2 ✔
	109 - 108	0.027	0.350	0.000	0.022	0.000	0.378 ✔	1.000	4.8.2 ✔
	108 - 107	0.027	0.359	0.000	0.022	0.000	0.386 ✔	1.000	4.8.2 ✔
	107 - 106	0.026	0.367	0.000	0.022	0.000	0.394 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	106 - 105	0.030	0.384	0.000	0.027	0.000	0.415 ✔	1.000	4.8.2 ✔
	105 - 104	0.030	0.396	0.000	0.027	0.000	0.426 ✔	1.000	4.8.2 ✔
	104 - 103	0.030	0.407	0.000	0.027	0.000	0.437 ✔	1.000	4.8.2 ✔
	103 - 102	0.029	0.417	0.000	0.027	0.000	0.447 ✔	1.000	4.8.2 ✔
	102 - 101	0.029	0.428	0.000	0.027	0.000	0.458 ✔	1.000	4.8.2 ✔
	101 - 95	0.014	0.250	0.000	0.014	0.000	0.265 ✔	1.000	4.8.2 ✔
L4	101 - 95	0.015	0.245	0.000	0.013	0.000	0.259 ✔	1.000	4.8.2 ✔
	95 - 94	0.029	0.510	0.000	0.028	0.000	0.540 ✔	1.000	4.8.2 ✔
	94 - 93	0.029	0.520	0.000	0.028	0.000	0.550 ✔	1.000	4.8.2 ✔
	93 - 92	0.029	0.530	0.000	0.028	0.000	0.559 ✔	1.000	4.8.2 ✔
	92 - 91	0.028	0.539	0.000	0.028	0.000	0.568 ✔	1.000	4.8.2 ✔
L5	91 - 89.3158	0.023	0.428	0.000	0.022	0.000	0.452 ✔	1.000	4.8.2 ✔
	89.3158 - 87.6316	0.023	0.439	0.000	0.022	0.000	0.463 ✔	1.000	4.8.2 ✔
	87.6316 - 85.9474	0.023	0.450	0.000	0.022	0.000	0.473 ✔	1.000	4.8.2 ✔
	85.9474 - 84.2632	0.022	0.461	0.000	0.022	0.000	0.484 ✔	1.000	4.8.2 ✔
	84.2632 - 82.5789	0.022	0.471	0.000	0.022	0.000	0.494 ✔	1.000	4.8.2 ✔
	82.5789 - 80.8947	0.022	0.481	0.000	0.022	0.000	0.504 ✔	1.000	4.8.2 ✔
	80.8947 - 79.2105	0.022	0.491	0.000	0.022	0.000	0.513 ✔	1.000	4.8.2 ✔
	79.2105 - 77.5263	0.022	0.501	0.000	0.022	0.000	0.523 ✔	1.000	4.8.2 ✔
	77.5263 - 75.8421	0.021	0.510	0.000	0.022	0.000	0.532 ✔	1.000	4.8.2 ✔
	75.8421 - 74.1579	0.021	0.520	0.000	0.022	0.000	0.542 ✔	1.000	4.8.2 ✔
	74.1579 - 72.4737	0.021	0.529	0.000	0.022	0.000	0.551 ✔	1.000	4.8.2 ✔
	72.4737 - 70.7895	0.021	0.538	0.000	0.022	0.000	0.560 ✔	1.000	4.8.2 ✔
	70.7895 - 69.1053	0.021	0.547	0.000	0.023	0.000	0.569 ✔	1.000	4.8.2 ✔
	69.1053 - 67.4211	0.021	0.556	0.000	0.023	0.000	0.577 ✔	1.000	4.8.2 ✔
	67.4211 - 65.7368	0.021	0.565	0.000	0.023	0.000	0.586 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	65.7368 - 64.0526	0.021	0.573	0.000	0.023	0.000	0.594 ✔	1.000	4.8.2 ✔
	64.0526 - 62.3684	0.021	0.582	0.000	0.023	0.000	0.603 ✔	1.000	4.8.2 ✔
	62.3684 - 60.6842	0.021	0.590	0.000	0.023	0.000	0.611 ✔	1.000	4.8.2 ✔
	60.6842 - 59	0.020	0.598	0.000	0.023	0.000	0.619 ✔	1.000	4.8.2 ✔
	59 - 51	0.011	0.325	0.000	0.012	0.000	0.336 ✔	1.000	4.8.2 ✔
L6	59 - 51	0.011	0.318	0.000	0.011	0.000	0.329 ✔	1.000	4.8.2 ✔
	51 - 50	0.022	0.653	0.000	0.024	0.000	0.676 ✔	1.000	4.8.2 ✔
	50 - 49	0.022	0.658	0.000	0.024	0.000	0.681 ✔	1.000	4.8.2 ✔
	49 - 48	0.022	0.663	0.000	0.024	0.000	0.685 ✔	1.000	4.8.2 ✔
	48 - 47	0.022	0.667	0.000	0.024	0.000	0.690 ✔	1.000	4.8.2 ✔
	47 - 46	0.022	0.672	0.000	0.024	0.000	0.694 ✔	1.000	4.8.2 ✔
	46 - 45	0.022	0.676	0.000	0.024	0.000	0.699 ✔	1.000	4.8.2 ✔
	45 - 44	0.022	0.681	0.000	0.024	0.000	0.703 ✔	1.000	4.8.2 ✔
	44 - 43	0.022	0.685	0.000	0.024	0.000	0.708 ✔	1.000	4.8.2 ✔
	43 - 42	0.022	0.690	0.000	0.024	0.000	0.712 ✔	1.000	4.8.2 ✔
	42 - 41	0.022	0.694	0.000	0.024	0.000	0.717 ✔	1.000	4.8.2 ✔
	41 - 40	0.022	0.699	0.000	0.024	0.000	0.721 ✔	1.000	4.8.2 ✔
L7	40 - 39	0.018	0.557	0.000	0.019	0.000	0.575 ✔	1.000	4.8.2 ✔
	39 - 38	0.018	0.560	0.000	0.019	0.000	0.578 ✔	1.000	4.8.2 ✔
	38 - 37	0.018	0.563	0.000	0.019	0.000	0.581 ✔	1.000	4.8.2 ✔
	37 - 36	0.018	0.566	0.000	0.019	0.000	0.585 ✔	1.000	4.8.2 ✔
	36 - 35	0.018	0.569	0.000	0.019	0.000	0.588 ✔	1.000	4.8.2 ✔
	35 - 34	0.018	0.572	0.000	0.019	0.000	0.591 ✔	1.000	4.8.2 ✔
	34 - 33	0.018	0.575	0.000	0.019	0.000	0.594 ✔	1.000	4.8.2 ✔
	33 - 32	0.018	0.578	0.000	0.019	0.000	0.597 ✔	1.000	4.8.2 ✔
	32 - 31	0.018	0.581	0.000	0.019	0.000	0.600 ✔	1.000	4.8.2 ✔

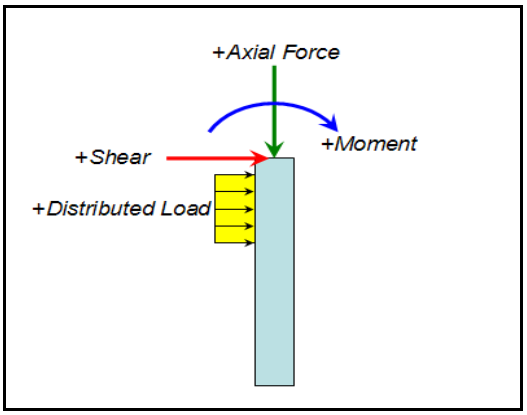
Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	31 - 30	0.018	0.584	0.000	0.019	0.000	0.603 ✔	1.000	4.8.2 ✔
	30 - 29	0.018	0.587	0.000	0.019	0.000	0.606 ✔	1.000	4.8.2 ✔
	29 - 28	0.018	0.590	0.000	0.019	0.000	0.609 ✔	1.000	4.8.2 ✔
	28 - 19	0.010	0.314	0.000	0.010	0.000	0.324 ✔	1.000	4.8.2 ✔
L8	28 - 19	0.010	0.308	0.000	0.010	0.000	0.318 ✔	1.000	4.8.2 ✔
	19 - 18	0.020	0.631	0.000	0.020	0.000	0.651 ✔	1.000	4.8.2 ✔
	18 - 17	0.020	0.633	0.000	0.020	0.000	0.654 ✔	1.000	4.8.2 ✔
	17 - 16	0.020	0.636	0.000	0.020	0.000	0.657 ✔	1.000	4.8.2 ✔
	16 - 15	0.020	0.639	0.000	0.020	0.000	0.660 ✔	1.000	4.8.2 ✔
	15 - 14	0.020	0.642	0.000	0.020	0.000	0.662 ✔	1.000	4.8.2 ✔
	14 - 13	0.020	0.645	0.000	0.020	0.000	0.665 ✔	1.000	4.8.2 ✔
	13 - 12	0.020	0.647	0.000	0.020	0.000	0.668 ✔	1.000	4.8.2 ✔
	12 - 11	0.020	0.650	0.000	0.020	0.000	0.671 ✔	1.000	4.8.2 ✔
	11 - 10	0.020	0.653	0.000	0.020	0.000	0.674 ✔	1.000	4.8.2 ✔
	10 - 9	0.020	0.656	0.000	0.020	0.000	0.676 ✔	1.000	4.8.2 ✔
	9 - 8	0.020	0.658	0.000	0.020	0.000	0.679 ✔	1.000	4.8.2 ✔
	8 - 7	0.020	0.661	0.000	0.020	0.000	0.682 ✔	1.000	4.8.2 ✔
	7 - 6	0.020	0.664	0.000	0.020	0.000	0.685 ✔	1.000	4.8.2 ✔
	6 - 5	0.020	0.667	0.000	0.021	0.000	0.688 ✔	1.000	4.8.2 ✔
	5 - 4	0.021	0.669	0.000	0.021	0.000	0.690 ✔	1.000	4.8.2 ✔
	4 - 3	0.021	0.672	0.000	0.021	0.000	0.693 ✔	1.000	4.8.2 ✔
	3 - 2	0.021	0.675	0.000	0.021	0.000	0.696 ✔	1.000	4.8.2 ✔
	2 - 1	0.021	0.678	0.000	0.021	0.000	0.699 ✔	1.000	4.8.2 ✔
	1 - 0	0.021	0.680	0.000	0.021	0.000	0.701 ✔	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	150 - 130	Pole	TP34.3125x27.8125x0.25	1	-6309.36	245527.00	13.4	Pass
L2	130 - 115	Pole	TP38.6875x32.1875x0.25	2	-14745.10	408528.00	43.2	Pass
L3	115 - 95	Pole	TP45.1875x38.6875x0.3125	3	-20510.90	711210.00	45.8	Pass
L4	95 - 91	Pole	TP45.8125x42.6125x0.3125	4	-23970.10	842714.00	56.8	Pass
L5	91 - 51	Pole	TP58.875x45.8125x0.375	5	-34082.80	1665170.00	61.9	Pass
L6	51 - 40	Pole	TP61.6875x55.5125x0.375	6	-43070.40	1960840.00	72.1	Pass
L7	40 - 19	Pole	TP68.5x61.6875x0.4375	7	-48268.50	2639060.00	60.9	Pass
L8	19 - 0	Pole	TP73.8125x64.7054x0.4375	8	-64343.20	3109770.00	70.1	Pass
							Summary	
						Pole (L6)	72.1	Pass
						RATING =	**72.1**	**Pass**

Date:	4/22/2018
Site Name:	CT23XC408
Client:	Sprint
Engineering #:	526-104
Analysis/Design:	Analysis
Tower Type:	Monopole

Infinigy Engineering PLLC
Drilled Shaft Calculations
ACI 318-11
Ensoft L-Pile 1212.6.37
Ensoft Shaft 2012.7.8



Loading Data			
TIA Code Revision:	ANSI/TIA-222-G		
Factored Moment:	4338.7	kip-ft	From ATC Tower
Factored Uplift:	0	kips	
Factored Axial:	64.4	kips	
Factored Shear:	44.2	kips	
Service Moment:	794	kip-ft	
Service Uplift:	0	kips	
Service Axial:	46.6	kips	
Service Shear:	8.2	kips	

Concrete Strength Check			
Bending Reduction Factor:	0.90		
Unfactored Ultimate Moment Capacity:	11172.0	k-ft	From L-Pile
Maximum Moment In Shaft:	833.4	k-ft	
Depth of Maximum Moment in Shaft:	5.76	ft	
Drilled Shaft Strength Usage:	**8.29**	%	

Soil Stability Check			
Allowable Service Pile Head Deflection:	0.75	in	
Maximum Service Pile Head Deflection:	0.15	in	From L-Pile
Deflection Ratio:	**20**	%	
Ultimate Pile Head Deflection:	3	in	
Maximum Design Pile Head Deflection:	0.84	in	From L-Pile
Deflection Ratio:	**28**	%	

LPile Plus for Windows, Version 2012-06.037

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This copy of LPile is licensed to:

Infinigy Engineering, PLLC
Albany, NY

Serial Number of Security Device: 140966619
Company Name Stored in Security Device: Infinigy

Files Used for Analysis

Path to file locations: C:\Users\Ocalc1\Desktop\Old Documents\CT23XC408\
Name of input data file: CT23XC408.lp6d
Name of output report file: CT23XC408.lp6o
Name of plot output file: CT23XC408.lp6p
Name of runtime messeage file: CT23XC408.lp6r

Date and Time of Analysis

Date: November 22, 2017 Time: 12:44:33

Problem Title

Project Name: CT23XC408

Job Number: 514-000

Client: Sprint

Engineer: BD

Description:

Program Options

Engineering units are US Customary Units: pounds, inches, feet

Basic Program Options:

This analysis computes pile response to lateral loading and will compute nonlinear moment-curvature and nominal moment capacity for section types with nonlinear properties.

Computation Options:
- Analysis does not use p-y multipliers (individual pile or shaft only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix values
- Report pile response for full length of pile
- Analysis assumes no loading by soil movements acting on pile
- No p-y curves to be computed and reported for user-specified depths

Solution Control Parameters:

- Number of pile increments	=	100	
- Maximum number of iterations allowed	=	100	
- Deflection tolerance for convergence	=	1.0000E-04	in
- Maximum allowable deflection	=	100.0000	in

Pile Response Output Options:
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1

Pile Structural Properties and Geometry

Total number of pile sections = 1

Total length of pile = 24.00 ft

Depth of ground surface below top of pile = 0.00 ft

Pile diameter values used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	99.0000000
2	24.000000	99.0000000

Input Structural Properties:

Pile Section No. 1:

Section Type = Drilled Shaft (Bored Pile)
Section Length = 24.00000000 ft
Section Diameter = 99.00000000 in

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 6 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	5.00000 ft
Effective unit weight at top of layer	=	123.00000 pcf
Effective unit weight at bottom of layer	=	123.00000 pcf
Friction angle at top of layer	=	25.00000 deg.
Friction angle at bottom of layer	=	25.00000 deg.
Subgrade k at top of layer	=	0.0000 pci
Subgrade k at bottom of layer	=	0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	5.00000 ft
Distance from top of pile to bottom of layer	=	8.00000 ft
Effective unit weight at top of layer	=	123.00000 pcf
Effective unit weight at bottom of layer	=	123.00000 pcf
Friction angle at top of layer	=	38.00000 deg.
Friction angle at bottom of layer	=	38.00000 deg.
Subgrade k at top of layer	=	0.0000 pci
Subgrade k at bottom of layer	=	0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	8.00000 ft
Distance from top of pile to bottom of layer	=	11.50000 ft
Effective unit weight at top of layer	=	123.00000 pcf
Effective unit weight at bottom of layer	=	123.00000 pcf
Friction angle at top of layer	=	38.00000 deg.
Friction angle at bottom of layer	=	38.00000 deg.
Subgrade k at top of layer	=	0.0000 pci
Subgrade k at bottom of layer	=	0.0000 pci

NOTE: Internal default values for subgrade k will be computed for

the above soil layer.

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	11.50000	ft
Distance from top of pile to bottom of layer	=	15.00000	ft
Effective unit weight at top of layer	=	123.00000	pcf
Effective unit weight at bottom of layer	=	123.00000	pcf
Friction angle at top of layer	=	38.00000	deg.
Friction angle at bottom of layer	=	38.00000	deg.
Subgrade k at top of layer	=	0.0000	pci
Subgrade k at bottom of layer	=	0.0000	pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	15.00000	ft
Distance from top of pile to bottom of layer	=	18.00000	ft
Effective unit weight at top of layer	=	60.00000	pcf
Effective unit weight at bottom of layer	=	60.00000	pcf
Friction angle at top of layer	=	38.00000	deg.
Friction angle at bottom of layer	=	38.00000	deg.
Subgrade k at top of layer	=	0.0000	pci
Subgrade k at bottom of layer	=	0.0000	pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 6 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	18.00000	ft
Distance from top of pile to bottom of layer	=	24.00000	ft
Effective unit weight at top of layer	=	60.00000	pcf
Effective unit weight at bottom of layer	=	60.00000	pcf
Friction angle at top of layer	=	38.00000	deg.
Friction angle at bottom of layer	=	38.00000	deg.
Subgrade k at top of layer	=	0.0000	pci
Subgrade k at bottom of layer	=	0.0000	pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

(Depth of lowest soil layer extends 0.00 ft below pile tip)

Summary of Soil Properties

Layer Num.	Soil Type (p-y Curve Criteria)	Layer Depth ft	Effective Unit Wt. pcf	Angle of Friction deg.	kpy pci
1	Sand (Reese, et al.)	0.00	123.000	25.000	default
		5.000	123.000	25.000	default
2	Sand (Reese, et al.)	5.000	123.000	38.000	default
		8.000	123.000	38.000	default
3	Sand (Reese, et al.)	8.000	123.000	38.000	default
		11.500	123.000	38.000	default
4	Sand (Reese, et al.)	11.500	123.000	38.000	default
		15.000	123.000	38.000	default
5	Sand (Reese, et al.)	15.000	60.000	38.000	default
		18.000	60.000	38.000	default
6	Sand (Reese, et al.)	18.000	60.000	38.000	default
		24.000	60.000	38.000	default

Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load No.	Load Compute Type	Condition 1	Condition 2	Axial Thrust Force, lbs Top y vs. Pile Length
1	1 No	V = 8700.00000 lbs	M = 10356000. in-lbs	53.60000000

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head
y = lateral deflection relative to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applie to pile head
Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

---

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	24.00000000 ft
Shaft Diameter	=	99.00000000 in
Concrete Cover Thickness	=	3.00000000 in
Number of Reinforcing Bars	=	66 bars
Yield Stress of Reinforcing Bars	=	60.00000000 ksi
Modulus of Elasticity of Reinforcing Bars	=	29000. ksi
Gross Area of Shaft	=	7697.68739946 sq. in.
Total Area of Reinforcing Steel	=	52.14000000 sq. in.

Area Ratio of Steel Reinforcement = 0.68 percent
Edge-to-Edge Bar Spacing = 3.37753626 in
Maximum Concrete Aggregate Size = 0.75000000 in
Ratio of Bar Spacing to Aggregate Size = 4.50
Offset of Rebar Cage Center from Center of Pile = 0.0000000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As = 29123.262 kips
Tensile Load for Cracking of Concrete = -3354.303 kips
Nominal Axial Tensile Capacity = -3128.400 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.00000	0.79000	46.00000	0.00000
2	1.00000	0.79000	45.79171	4.37258
3	1.00000	0.79000	45.16872	8.70556
4	1.00000	0.79000	44.13668	12.95970
5	1.00000	0.79000	42.70492	17.09647
6	1.00000	0.79000	40.88643	21.07842
7	1.00000	0.79000	38.69766	24.86948
8	1.00000	0.79000	36.15844	28.43531
9	1.00000	0.79000	33.29177	31.74363
10	1.00000	0.79000	30.12359	34.76448
11	1.00000	0.79000	26.68262	37.47049
12	1.00000	0.79000	23.00000	39.83717
13	1.00000	0.79000	19.10909	41.84307
14	1.00000	0.79000	15.04513	43.47004
15	1.00000	0.79000	10.84491	44.70333
16	1.00000	0.79000	6.54648	45.53179
17	1.00000	0.79000	2.18877	45.94790
18	1.00000	0.79000	-2.18877	45.94790
19	1.00000	0.79000	-6.54648	45.53179
20	1.00000	0.79000	-10.84491	44.70333
21	1.00000	0.79000	-15.04513	43.47004
22	1.00000	0.79000	-19.10909	41.84307
23	1.00000	0.79000	-23.00000	39.83717
24	1.00000	0.79000	-26.68262	37.47049
25	1.00000	0.79000	-30.12359	34.76448
26	1.00000	0.79000	-33.29177	31.74363
27	1.00000	0.79000	-36.15844	28.43531
28	1.00000	0.79000	-38.69766	24.86948
29	1.00000	0.79000	-40.88643	21.07842

30	1.00000	0.79000	-42.70492	17.09647
31	1.00000	0.79000	-44.13668	12.95970
32	1.00000	0.79000	-45.16872	8.70556
33	1.00000	0.79000	-45.79171	4.37258
34	1.00000	0.79000	-46.00000	0.00000
35	1.00000	0.79000	-45.79171	-4.37258
36	1.00000	0.79000	-45.16872	-8.70556
37	1.00000	0.79000	-44.13668	-12.95970
38	1.00000	0.79000	-42.70492	-17.09647
39	1.00000	0.79000	-40.88643	-21.07842
40	1.00000	0.79000	-38.69766	-24.86948
41	1.00000	0.79000	-36.15844	-28.43531
42	1.00000	0.79000	-33.29177	-31.74363
43	1.00000	0.79000	-30.12359	-34.76448
44	1.00000	0.79000	-26.68262	-37.47049
45	1.00000	0.79000	-23.00000	-39.83717
46	1.00000	0.79000	-19.10909	-41.84307
47	1.00000	0.79000	-15.04513	-43.47004
48	1.00000	0.79000	-10.84491	-44.70333
49	1.00000	0.79000	-6.54648	-45.53179
50	1.00000	0.79000	-2.18877	-45.94790
51	1.00000	0.79000	2.18877	-45.94790
52	1.00000	0.79000	6.54648	-45.53179
53	1.00000	0.79000	10.84491	-44.70333
54	1.00000	0.79000	15.04513	-43.47004
55	1.00000	0.79000	19.10909	-41.84307
56	1.00000	0.79000	23.00000	-39.83717
57	1.00000	0.79000	26.68262	-37.47049
58	1.00000	0.79000	30.12359	-34.76448
59	1.00000	0.79000	33.29177	-31.74363
60	1.00000	0.79000	36.15844	-28.43531
61	1.00000	0.79000	38.69766	-24.86948
62	1.00000	0.79000	40.88643	-21.07842
63	1.00000	0.79000	42.70492	-17.09647
64	1.00000	0.79000	44.13668	-12.95970
65	1.00000	0.79000	45.16872	-8.70556
66	1.00000	0.79000	45.79171	-4.37258

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 3.37754 inches
between Bars 65 and 66

Spacing to aggregate size ratio = 4.50338

Concrete Properties:

Compressive Strength of Concrete = 4.00000000 ksi
Modulus of Elasticity of Concrete = 3604.99653259 ksi
Modulus of Rupture of Concrete = -0.47434164 ksi
Compression Strain at Peak Stress = 0.00188627
Tensile Strain at Fracture of Concrete = -0.00011537
Maximum Coarse Aggregate Size = 0.75000000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.054

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318-08 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than than 0.003. See ACI 318-08, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 0.054 kips

Bending Curvature rad/in.	Bending Max Concrete Stress ksi	Bending Max Steel Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Run Msg
0.000000313	6660.3734169	21313194934.	49.5051329	0.0000155	-0.0000155	0.0646927	0.4441543
0.000000625	13286.	21258257241.	49.5026063	0.0000309			

```
-0.0000309     0.1288513     0.8882629
   0.000000938        19878.  21203319543.    49.5017643     0.0000464
-0.0000464     0.1924827     1.3323714
   0.000001250        26435.  21148381844.    49.5013434     0.0000619
-0.0000619     0.2555868     1.7764800
   0.000001563        32959.  21093444146.    49.5010910     0.0000773
-0.0000773     0.3181635     2.2205885
   0.000001875        39447.  21038506446.    49.5009229     0.0000928
-0.0000928     0.3802129     2.6646971
   0.000002188        45902.  20983568747.    49.5008029     0.0001083
-0.0001083     0.4417351     3.1088056
   0.000002500        45902.  18360622654.    21.1287832     0.0000528
-0.0001947     0.2157871    -5.6097757  C
   0.000002813        45902.  16320553470.    21.1352653     0.0000594
-0.0002190     0.2424147    -6.3104690  C
   0.000003125        45902.  14688498123.    21.1418369     0.0000661
-0.0002433     0.2689661    -7.0110367  C
   0.000003438        45902.  13353180112.    21.1484779     0.0000727
-0.0002676     0.2954411    -7.7114783  C
   0.000003750        45902.  12240415102.    21.1551749     0.0000793
-0.0002919     0.3218395    -8.4117935  C
   0.000004063        45902.  11298844710.    21.1619188     0.0000860
-0.0003162     0.3481613    -9.1119818  C
   0.000004375        45902.  10491784374.    21.1687028     0.0000926
-0.0003405     0.3744063    -9.8120427  C
   0.000004688        45902.   9792332082.    21.1755222     0.0000993
-0.0003648     0.4005743   -10.5119759  C
   0.000005000        45902.   9180311327.    21.1823734     0.0001059
-0.0003891     0.4266653   -11.2117808  C
   0.000005313        45902.   8640293013.    21.1892537     0.0001126
-0.0004134     0.4526791   -11.9114572  C
   0.000005625        45902.   8160276735.    21.1961610     0.0001192
-0.0004376     0.4786156   -12.6110044  C
   0.000005938        45902.   7730788486.    21.2030936     0.0001259
-0.0004619     0.5044747   -13.3104220  C
   0.000006250        45902.   7344249061.    21.2100502     0.0001326
-0.0004862     0.5302561   -14.0097096  C
   0.000006563        45902.   6994522916.    21.2170298     0.0001392
-0.0005105     0.5559599   -14.7088668  C
   0.000006875        45902.   6676590056.    21.2240316     0.0001459
-0.0005347     0.5815857   -15.4078931  C
   0.000007188        45902.   6386303532.    21.2310549     0.0001526
-0.0005590     0.6071336   -16.1067879  C
   0.000007500        45902.   6120207551.    21.2380990     0.0001593
-0.0005832     0.6326034   -16.8055510  C
   0.000007813        45902.   5875399249.    21.2451637     0.0001660
-0.0006075     0.6579948   -17.5041817  C
   0.000008125        45902.   5649422355.    21.2522485     0.0001727
```

```
-0.0006317     0.6833079   -18.2026796  C
   0.000008438        45902.   5440184490.    21.2593531     0.0001794
-0.0006559     0.7085424   -18.9010442  C
   0.000008750        45902.   5245892187.    21.2664773     0.0001861
-0.0006802     0.7336982   -19.5992751  C
   0.000009063        45902.   5064999353.    21.2736208     0.0001928
-0.0007044     0.7587752   -20.2973718  C
   0.000009375        45902.   4896166041.    21.2807836     0.0001995
-0.0007286     0.7837732   -20.9953338  C
   0.000009688        45902.   4738225201.    21.2878132     0.0002062
-0.0007528     0.8086866   -21.6932034  C
     0.0000100        45902.   4590155663.    21.2946438     0.0002129
-0.0007771     0.8335121   -22.3910033  C
     0.0000103        45902.   4451060037.    21.3014914     0.0002197
-0.0008013     0.8582574   -23.0886743  C
     0.0000106        45902.   4320146507.    21.3083561     0.0002264
-0.0008255     0.8829223   -23.7862159  C
     0.0000109        45902.   4196713749.    21.3152378     0.0002331
-0.0008497     0.9075067   -24.4836277  C
     0.0000113        45902.   4080138367.    21.3221364     0.0002399
-0.0008739     0.9320105   -25.1809093  C
     0.0000116        45902.   3969864358.    21.3290519     0.0002466
-0.0008981     0.9564335   -25.8780601  C
     0.0000119        45902.   3865394243.    21.3359843     0.0002534
-0.0009223     0.9807755   -26.5750798  C
     0.0000122        45902.   3766281570.    21.3429337     0.0002601
-0.0009464     1.0050365   -27.2719678  C
     0.0000128        45902.   3582560518.    21.3568831     0.0002736
-0.0009948     1.0533146   -28.6653474  C
     0.0000134        45902.   3415929796.    21.3709003     0.0002872
-0.0010431     1.1012667   -30.0581947  C
     0.0000141        46649.   3317279738.    21.3849856     0.0003007
-0.0010915     1.1488915   -31.4505061  C
     0.0000147        48703.   3315937058.    21.3991391     0.0003143
-0.0011398     1.1961880   -32.8422778  C
     0.0000153        50755.   3314589351.    21.4133614     0.0003279
-0.0011880     1.2431549   -34.2335060  C
     0.0000159        52805.   3313236527.    21.4276528     0.0003415
-0.0012363     1.2897910   -35.6241867  C
     0.0000166        54853.   3311878499.    21.4420137     0.0003551
-0.0012846     1.3360951   -37.0143159  C
     0.0000172        56899.   3310515184.    21.4564447     0.0003688
-0.0013328     1.3820659   -38.4038896  C
     0.0000178        58944.   3309146505.    21.4709464     0.0003825
-0.0013810     1.4277023   -39.7929037  C
     0.0000184        60987.   3307772387.    21.4855192     0.0003961
-0.0014292     1.4730029   -41.1813541  C
     0.0000191        63028.   3306392758.    21.5001638     0.0004098
```

```
-0.0014773     1.5179665   -42.5692365  C
     0.0000197        65067.   3305007546.    21.5148807     0.0004236
-0.0015255     1.5625918   -43.9565467  C
     0.0000203        67105.   3303616682.    21.5296707     0.0004373
-0.0015736     1.6068775   -45.3432805  C
     0.0000209        69140.   3302220277.    21.5445343     0.0004511
-0.0016217     1.6508223   -46.7294327  C
     0.0000216        71174.   3300817914.    21.5594723     0.0004649
-0.0016698     1.6944249   -48.1150003  C
     0.0000222        73206.   3299409697.    21.5744853     0.0004787
-0.0017179     1.7376838   -49.4999780  C
     0.0000228        75236.   3297995561.    21.5895741     0.0004925
-0.0017659     1.7805979   -50.8843614  C
     0.0000234        77263.   3296575438.    21.6047393     0.0005064
-0.0018140     1.8231656   -52.2681459  C
     0.0000241        79290.   3295149264.    21.6199818     0.0005202
-0.0018620     1.8653856   -53.6513267  C
     0.0000247        81314.   3293716971.    21.6353023     0.0005341
-0.0019099     1.9072566   -55.0338991  C
     0.0000253        83336.   3292278493.    21.6507016     0.0005480
-0.0019579     1.9487770   -56.4158584  C
     0.0000259        85356.   3290833763.    21.6661804     0.0005620
-0.0020058     1.9899455   -57.7971995  C
     0.0000266        87374.   3289382715.    21.6817396     0.0005759
-0.0020538     2.0307605   -59.1779177  C
     0.0000272        89390.   3287925279.    21.6973801     0.0005899
-0.0021017     2.0712208   -60.0000000  CY
     0.0000278        91405.   3286461390.    21.7131026     0.0006039
-0.0021495     2.1113246   -60.0000000  CY
     0.0000284        93262.   3279539399.    21.7166137     0.0006176
-0.0021977     2.1500624   -60.0000000  CY
     0.0000291        94812.   3262357321.    21.6966727     0.0006306
-0.0022466     2.1864654   -60.0000000  CY
     0.0000297        96211.   3240797758.    21.6662858     0.0006432
-0.0022958     2.2215593   -60.0000000  CY
     0.0000303        97475.   3215656712.    21.6270729     0.0006556
-0.0023454     2.2554547   -60.0000000  CY
     0.0000309        98631.   3188081808.    21.5815062     0.0006677
-0.0023951     2.2883427   -60.0000000  CY
     0.0000316        99723.   3159526080.    21.5330728     0.0006796
-0.0024450     2.3205126   -60.0000000  CY
     0.0000322       100728.   3129410635.    21.4801376     0.0006914
-0.0024952     2.3518181   -60.0000000  CY
     0.0000328       101691.   3099151358.    21.4263086     0.0007031
-0.0025454     2.3825715   -60.0000000  CY
     0.0000334       102568.   3067459502.    21.3680529     0.0007145
-0.0025958     2.4124600   -60.0000000  CY
     0.0000341       103416.   3036062564.    21.3099862     0.0007259
```

```
-0.0026463     2.4418941   -60.0000000  CY
     0.0000347       104216.   3004414849.    21.2484350     0.0007371
-0.0026970     2.4705455   -60.0000000  CY
     0.0000353       104953.   2972121662.    21.1826606     0.0007480
-0.0027479     2.4983436   -60.0000000  CY
     0.0000359       105681.   2940681705.    21.1187177     0.0007590
-0.0027989     2.5258445   -60.0000000  CY
     0.0000366       106384.   2909636521.    21.0551714     0.0007698
-0.0028499     2.5529244   -60.0000000  CY
     0.0000372       107005.   2877446072.    20.9870912     0.0007805
-0.0029011     2.5791264   -60.0000000  CY
     0.0000397       109324.   2754609374.    20.7249544     0.0008225
-0.0031065     2.6804520   -60.0000000  CY
     0.0000422       111298.   2638166517.    20.4696858     0.0008636
-0.0033130     2.7756355   -60.0000000  CY
     0.0000447       113013.   2528971667.    20.2208449     0.0009036
-0.0035204     2.8650229   -60.0000000  CY
     0.0000472       114452.   2425481606.    19.9667291     0.0009422
-0.0037294     2.9477771   -60.0000000  CY
     0.0000497       115753.   2329620175.    19.7285546     0.0009803
-0.0039388     3.0263982   -60.0000000  CY
     0.0000522       116912.   2240236832.    19.5034469     0.0010178
-0.0041487     3.1009438   -60.0000000  CY
     0.0000547       117953.   2156846865.    19.2894295     0.0010549
-0.0043592     3.1715192   -60.0000000  CY
     0.0000572       118868.   2078569192.    19.0716189     0.0010907
-0.0045709     3.2368279   -60.0000000  CY
     0.0000597       119736.   2006044385.    18.8694749     0.0011263
-0.0047828     3.2991824   -60.0000000  CY
     0.0000622       120465.   1937120116.    18.6718993     0.0011612
-0.0049954     3.3576455   -60.0000000  CY
     0.0000647       121187.   1873425497.    18.4911036     0.0011961
-0.0052079     3.4137211   -60.0000000  CY
     0.0000672       121857.   1813686471.    18.3203578     0.0012309
-0.0054207     3.4668820   -60.0000000  CY
     0.0000697       122414.   1756620126.    18.1396692     0.0012641
-0.0056350     3.5152360   -60.0000000  CY
     0.0000722       122962.   1703373892.    17.9718750     0.0012973
-0.0058492     3.5613301   -60.0000000  CY
     0.0000747       123505.   1653617057.    17.8164543     0.0013307
-0.0060634     3.6052354   -60.0000000  CY
     0.0000772       123979.   1606208511.    17.6650465     0.0013635
-0.0062780     3.6462369   -60.0000000  CY
     0.0000797       124402.   1561118065.    17.5188890     0.0013960
-0.0064930     3.6845877   -60.0000000  CY
     0.0000822       124821.   1518737747.    17.3828949     0.0014287
-0.0067079     3.7208559   -60.0000000  CY
     0.0000847       125230.   1478727339.    17.2493190     0.0014608
```

```
-0.0069233     3.7544105   -60.0000000  CY
     0.0000872       125608.   1440670228.    17.1165406     0.0014923
-0.0071392     3.7852296   -60.0000000  CY
     0.0000897       125934.   1404140499.    16.9858561     0.0015234
-0.0073556     3.8135475   -60.0000000  CY
     0.0000922       126237.   1369346047.    16.8607176     0.0015543
-0.0075722     3.8397436   -60.0000000  CY
     0.0000947       126537.   1336365902.    16.7432339     0.0015854
-0.0077887     3.8640351   -60.0000000  CY
     0.0000972       126835.   1305059676.    16.6328258     0.0016165
-0.0080051     3.8864029   -60.0000000  CY
     0.0000997       127132.   1275301063.    16.5289727     0.0016477
-0.0082213     3.9068275   -60.0000000  CY
     0.0001022       127405.   1246779372.    16.4285432     0.0016788
-0.0084378     3.9251314   -60.0000000  CY
     0.0001047       127667.   1219503080.    16.3323390     0.0017098
-0.0086543     3.9414048   -60.0000000  CY
     0.0001072       127875.   1193003380.    16.2257210     0.0017392
-0.0088724     3.9549707   -60.0000000  CY
     0.0001097       128082.   1167695679.    16.1248331     0.0017687
-0.0090904     3.9667899   -60.0000000  CY
     0.0001122       128286.   1143500031.    16.0293023     0.0017983
-0.0093083     3.9768445   -60.0000000  CY
     0.0001147       128489.   1120343454.    15.9387887     0.0018280
-0.0095261     3.9851163   -60.0000000  CY
     0.0001172       128691.   1098159190.    15.8529815     0.0018578
-0.0097438     3.9915868   -60.0000000  CY
     0.0001197       128888.   1076867297.    15.7712530     0.0018876
-0.0099614     3.9962319   -60.0000000  CY
     0.0001222       129076.   1056373756.    15.6926389     0.0019174
-0.0101791     3.9990342   -60.0000000  CY
     0.0001247       129262.   1036686927.    15.6179929     0.0019474
-0.0103967     3.9999996   -60.0000000  CY
     0.0001272       129410.   1017472801.    15.5419850     0.0019767
-0.0106148     3.9913726   -60.0000000  CY
     0.0001297       129553.    998961197.    15.4690917     0.0020061
-0.0108329     3.9940567   -60.0000000  CY
     0.0001322       129694.    981138546.    15.3996483     0.0020356
-0.0110509     3.9975242   -60.0000000  CY
     0.0001347       129832.    963952610.    15.3318839     0.0020650
-0.0112690     3.9994914   -60.0000000  CY
     0.0001372       129960.    947318955.    15.2601327     0.0020935
-0.0114881     3.9989011   -60.0000000  CY
     0.0001522       130682.    858693204.    14.8906496     0.0022662
-0.0128004     3.9989855    60.0000000  CY
     0.0001672       131207.    784788300.    14.5798196     0.0024376
-0.0141140     3.9991179    60.0000000  CY
     0.0001822       131670.    722717274.    14.3264048     0.0026101
```

```
-0.0154265     3.9913287    60.0000000  CY
     0.0001972       132037.    669602266.    14.0890234     0.0027782
-0.0167434     3.9957868    60.0000000  CY
     0.0002122       132271.    623366705.    13.8989045     0.0029492
-0.0180574     3.9903896    60.0000000  CY
     0.0002272       132453.    583012234.    13.7422214     0.0031221
-0.0193695     3.9999983    60.0000000  CYT
     0.0002422       132591.    547471083.    13.6261611     0.0033001
-0.0206765     3.9764734    60.0000000  CYT
     0.0002572       132718.    516036118.    13.5301111     0.0034798
-0.0219818     3.9957483    60.0000000  CYT
     0.0002722       132794.    487876984.    13.4523755     0.0036616
-0.0232850     3.9925472    60.0000000  CYT
     0.0002872       132833.    462530342.    13.3815480     0.0038430
-0.0245885     3.9659228    60.0000000  CYT


--------------------------------------------------------------------------------
   Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1
--------------------------------------------------------------------------------

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

 Load           Axial Thrust        Nominal Mom. Cap.      Max. Comp.
  No.               kips                in-kip              Strain
 ----         ----------------     ------------------     ------------
   1                 0.054            132324.266           0.00300000

Note note that the values of moment capacity in the table above are not
factored by a strength reduction factor (phi-factor).

In ACI 318-08, the value of the strength reduction factor depends on whether
the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction
factor to compute ultimate moment capacity according to ACI 318-08, Section
9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding
bending stiffnesses computed for common resistance factor values used for
reinforced concrete sections.

 Axial     Resistance           Nominal           Ultimate (Factored)     Ultimate
(Factored)     Bending Stiffness
 Load        Factor         Moment Capacity          Axial Thrust           Moment
Capacity       at Ult. Mom. Cap.
  No.      for Moment           in-kip                  kips
```

```
in-kip                 kip-in^2
 -----     ----------     -------------------     -------------------
-------------------     -------------------
   1          0.65              132324.266                   0.035
86010.770          3290363002.679

   1          0.70              132324.266                   0.038
92626.985          3281905812.634

   1          0.75              132324.266                   0.040
99243.199          3172069341.948
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 8700.000 lbs
Applied moment at pile head = 10356000.000 in-lbs
Axial thrust load on pile head = 53.600 lbs

Depth X	Deflect. y	Bending Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil Res. Es*h	Soil Spr. Distrib. p Lat. Load
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	lb/in	lb/inch lb/inch
0.00	0.1619	10356000.	8700.0000	-0.000845	0.000	2.127E+13	0.000	0.000 0.000
0.240	0.1595	10381056.	8692.6915	-0.000843	0.000	2.127E+13	-5.0741	91.6291 0.000
0.480	0.1571	10406070.	8670.9957	-0.000842	0.000	2.127E+13	-9.9937	183.2583 0.000
0.720	0.1546	10431001.	8635.3513	-0.000840	0.000	2.127E+13	-14.7594	274.8874 0.000
0.960	0.1522	10455810.	8586.2030	-0.000839	0.000	2.127E+13	-19.3714	366.5166 0.000
1.200	0.1498	10480458.	8523.9928	-0.000838	0.000	2.127E+13	-23.8302	458.1457 0.000
1.440	0.1474	10504909.	8449.1612	-0.000836	0.000	2.127E+13	-28.1362	549.7749 0.000

```
     1.680     0.1450  10529126.  8362.1481  -0.000835      0.000  2.127E+13
-32.2897   641.4040      0.000
     1.920     0.1426  10553075.  8263.3917  -0.000833      0.000  2.127E+13
-36.2911   733.0332      0.000
     2.160     0.1402  10576723.  8153.3295  -0.000832      0.000  2.127E+13
-40.1409   824.6623      0.000
     2.400     0.1378  10600038.  8032.3978  -0.000830      0.000  2.127E+13
-43.8395   916.2915      0.000
     2.640     0.1354  10622990.  7901.0316  -0.000829      0.000  2.127E+13
-47.3871  1007.9206      0.000
     2.880     0.1330  10645548.  7759.6647  -0.000828      0.000  2.127E+13
-50.7843  1099.5498      0.000
     3.120     0.1306  10667686.  7608.7301  -0.000826      0.000  2.127E+13
-54.0314  1191.1789      0.000
     3.360     0.1283  10689375.  7448.6592  -0.000825      0.000  2.127E+13
-57.1289  1282.8081      0.000
     3.600     0.1259  10710590.  7279.8826  -0.000823      0.000  2.127E+13
-60.0771  1374.4372      0.000
     3.840     0.1235  10731307.  7102.8296  -0.000822      0.000  2.127E+13
-62.8764  1466.0664      0.000
     4.080     0.1212  10751503.  6917.9284  -0.000820      0.000  2.127E+13
-65.5272  1557.6955      0.000
     4.320     0.1188  10771155.  6725.6060  -0.000819      0.000  2.127E+13
-68.0300  1649.3247      0.000
     4.560     0.1164  10790243.  6526.2881  -0.000817      0.000  2.127E+13
-70.3852  1740.9538      0.000
     4.800     0.1141  10808746.  6320.3994  -0.000816      0.000  2.127E+13
-72.5930  1832.5830      0.000
     5.040     0.1117  10826648.  5400.0991  -0.000814      0.000  2.127E+13
-566.5043     14602.      0.000
     5.280     0.1094  10839851.  3731.2897  -0.000813      0.000  2.127E+13
-592.3911     15596.      0.000
     5.520     0.1071  10848141.  1990.2215  -0.000812      0.000  2.127E+13
-616.6840     16590.      0.000
     5.760     0.1047  10851315.   181.4787  -0.000810      0.000  2.127E+13
-639.3874     17585.      0.000
     6.000     0.1024  10849186. -1690.3672  -0.000809      0.000  2.127E+13
-660.5056     18579.      0.000
     6.240     0.1001  10841579. -3620.7575  -0.000807      0.000  2.127E+13
-680.0431     19573.      0.000
     6.480     0.0977  10828331. -5605.1457  -0.000806      0.000  2.127E+13
-698.0043     20568.      0.000
     6.720     0.0954  10809294. -7638.9984  -0.000804      0.000  2.127E+13
-714.3934     21562.      0.000
     6.960     0.0931  10784331. -9717.7940  -0.000803      0.000  2.127E+13
-729.2147     22556.      0.000
     7.200     0.0908  10753319.    -11837.  -0.000801      0.000  2.127E+13
-742.4727     23551.      0.000
```

```
     7.440     0.0885  10716150.    -13992.  -0.000800      0.000  2.127E+13
-754.1714     24545.      0.000
     7.680     0.0862  10672725.    -16179.  -0.000798      0.000  2.127E+13
-764.3152     25539.      0.000
     7.920     0.0839  10622960.    -18392.  -0.000797      0.000  2.127E+13
-772.9082     26534.      0.000
     8.160     0.0816  10566785.    -20625.  -0.000795      0.000  2.127E+13
-777.6951     27448.      0.000
     8.400     0.0793  10504159.    -22873.  -0.000794      0.000  2.127E+13
-783.2621     28443.      0.000
     8.640     0.0770  10435036.    -25135.  -0.000793      0.000  2.127E+13
-787.2905     29437.      0.000
     8.880     0.0747  10359383.    -27406.  -0.000791      0.000  2.127E+13
-789.7841     30431.      0.000
     9.120     0.0725  10277180.    -29682.  -0.000790      0.000  2.127E+13
-790.7469     31426.      0.000
     9.360     0.0702  10188417.    -31958.  -0.000788      0.000  2.128E+13
-790.1826     32420.      0.000
     9.600     0.0679  10093101.    -34231.  -0.000787      0.000  2.128E+13
-788.0951     33414.      0.000
     9.840     0.0657   9991248.    -36495.  -0.000786      0.000  2.128E+13
-784.4879     34409.      0.000
    10.080     0.0634   9882888.    -38747.  -0.000784      0.000  2.128E+13
-779.3648     35403.      0.000
    10.320     0.0611   9768063.    -40982.  -0.000783      0.000  2.128E+13
-772.7290     36397.      0.000
    10.560     0.0589   9646830.    -43196.  -0.000782      0.000  2.128E+13
-764.5842     37392.      0.000
    10.800     0.0566   9519254.    -45384.  -0.000780      0.000  2.128E+13
-754.9335     38386.      0.000
    11.040     0.0544   9385417.    -47542.  -0.000779      0.000  2.128E+13
-743.7803     39380.      0.000
    11.280     0.0522   9245411.    -49666.  -0.000778      0.000  2.128E+13
-731.1275     40375.      0.000
    11.520     0.0499   9099340.    -51741.  -0.000777      0.000  2.128E+13
-709.5849     40943.      0.000
    11.760     0.0477   8947384.    -53762.  -0.000775      0.000  2.129E+13
-694.2731     41937.      0.000
    12.000     0.0454   8789669.    -55738.  -0.000774      0.000  2.129E+13
-677.4700     42931.      0.000
    12.240     0.0432   8626335.    -57662.  -0.000773      0.000  2.129E+13
-659.1782     43926.      0.000
    12.480     0.0410   8457533.    -59532.  -0.000772      0.000  2.129E+13
-639.4003     44920.      0.000
    12.720     0.0388   8283428.    -61343.  -0.000771      0.000  2.129E+13
-618.1388     45914.      0.000
    12.960     0.0366   8104196.    -63091.  -0.000770      0.000  2.129E+13
-595.3958     46909.      0.000
```

```
    13.200     0.0343   7920026.    -64771.  -0.000769      0.000  2.130E+13
-571.1736     47903.      0.000
    13.440     0.0321   7731118.    -66379.  -0.000768      0.000  2.130E+13
-545.4743     48897.      0.000
    13.680     0.0299   7537685.    -67910.  -0.000766      0.000  2.130E+13
-518.2998     49892.      0.000
    13.920     0.0277   7339954.    -69362.  -0.000765      0.000  2.130E+13
-489.6517     50886.      0.000
    14.160     0.0255   7138161.    -70729.  -0.000765      0.000  2.131E+13
-459.5319     51880.      0.000
    14.400     0.0233   6932557.    -72007.  -0.000764      0.000  2.131E+13
-427.9417     52875.      0.000
    14.640     0.0211   6723403.    -73192.  -0.000763      0.000  2.131E+13
-394.8827     53869.      0.000
    14.880     0.0189   6510974.    -74279.  -0.000762      0.000  2.131E+13
-360.3559     54863.      0.000
    15.120     0.0167   6295556.    -75265.  -0.000761      0.000  2.131E+13
-324.6184     55902.      0.000
    15.360     0.0145   6077445.    -76146.  -0.000760      0.000  2.131E+13
-287.1259     56896.      0.000
    15.600     0.0123   5856953.    -76917.  -0.000759      0.000  2.131E+13
-248.1686     57890.      0.000
    15.840     0.0102   5634402.    -77574.  -0.000758      0.000  2.131E+13
-207.7473     58885.      0.000
    16.080   0.007977   5410129.    -78112.  -0.000758      0.000  2.131E+13
-165.8625     59879.      0.000
    16.320   0.005796   5184479.    -78527.  -0.000757      0.000  2.131E+13
-122.5147     60874.      0.000
    16.560   0.003617   4957813.    -78815.  -0.000756      0.000  2.131E+13
-77.7041     61868.      0.000
    16.800   0.001440   4730503.    -78972.  -0.000756      0.000  2.131E+13
-31.4308     62862.      0.000
    17.040  -0.000735   4502933.    -78994.  -0.000755      0.000  2.131E+13
16.3050     63857.      0.000
    17.280  -0.002909   4275497.    -78876.  -0.000754      0.000  2.131E+13
65.5035     64851.      0.000
    17.520  -0.005081   4048605.    -78615.  -0.000754      0.000  2.131E+13
116.1649     65845.      0.000
    17.760  -0.007251   3822676.    -78205.  -0.000753      0.000  2.131E+13
168.2894     66840.      0.000
    18.000  -0.009420   3598143.    -77634.  -0.000753      0.000  2.131E+13
228.1120     69740.      0.000
    18.240    -0.0116   3375502.    -76896.  -0.000752      0.000  2.131E+13
284.5988     70734.      0.000
    18.480    -0.0138   3155222.    -75993.  -0.000752      0.000  2.131E+13
342.5496     71729.      0.000
    18.720    -0.0159   2937783.    -74921.  -0.000752      0.000  2.131E+13
401.9651     72723.      0.000
```

18.960	-0.0181	2723678.	-73676.	-0.000751	0.000	2.131E+13
462.8463	73717.	0.000				
19.200	-0.0202	2513412.	-72253.	-0.000751	0.000	2.131E+13
525.1942	74712.	0.000				
19.440	-0.0224	2307502.	-70648.	-0.000750	0.000	2.131E+13
589.0097	75706.	0.000				
19.680	-0.0246	2106478.	-68858.	-0.000750	0.000	2.131E+13
654.2941	76700.	0.000				
19.920	-0.0267	1910881.	-66877.	-0.000750	0.000	2.131E+13
721.0485	77695.	0.000				
20.160	-0.0289	1721264.	-64703.	-0.000750	0.000	2.131E+13
789.2740	78689.	0.000				
20.400	-0.0310	1538194.	-62329.	-0.000749	0.000	2.131E+13
858.9721	79683.	0.000				
20.640	-0.0332	1362248.	-59753.	-0.000749	0.000	2.131E+13
930.1440	80678.	0.000				
20.880	-0.0354	1194018.	-56969.	-0.000749	0.000	2.131E+13
1002.7910	81672.	0.000				
21.120	-0.0375	1034105.	-53975.	-0.000749	0.000	2.131E+13
1076.9144	82666.	0.000				
21.360	-0.0397	883125.	-50764.	-0.000749	0.000	2.131E+13
1152.5156	83661.	0.000				
21.600	-0.0418	741703.	-47334.	-0.000749	0.000	2.131E+13
1229.5959	84655.	0.000				
21.840	-0.0440	610481.	-43680.	-0.000749	0.000	2.131E+13
1308.1566	85649.	0.000				
22.080	-0.0461	490109.	-39797.	-0.000748	0.000	2.131E+13
1388.1988	86644.	0.000				
22.320	-0.0483	381251.	-35681.	-0.000748	0.000	2.131E+13
1469.7239	87638.	0.000				
22.560	-0.0505	284584.	-31329.	-0.000748	0.000	2.131E+13
1552.7328	88632.	0.000				
22.800	-0.0526	200796.	-26736.	-0.000748	0.000	2.131E+13
1637.2267	89627.	0.000				
23.040	-0.0548	130588.	-21897.	-0.000748	0.000	2.131E+13
1723.2063	90621.	0.000				
23.280	-0.0569	74672.	-16808.	-0.000748	0.000	2.131E+13
1810.6726	91615.	0.000				
23.520	-0.0591	33775.	-11465.	-0.000748	0.000	2.131E+13
1899.6261	92610.	0.000				
23.760	-0.0612	8634.3413	-5863.7723	-0.000748	0.000	2.131E+13
1990.0674	93604.	0.000				
24.000	-0.0634	0.000	0.000	-0.000748	0.000	2.131E+13
2081.9967	47299.	0.000				

* This analysis makes computations of pile response using nonlinear moment-curvature relationships.
  The above values of total stress are computed for combined axial and bending

stress in elastic
sections and do not equal actual stresses in concrete and steel in the range of nonlinear bending.

Output Summary for Load Case No. 1:

Pile-head deflection	=	0.1619134 inches
Computed slope at pile head	=	-0.0008446 radians
Maximum bending moment	=	10851315. inch-lbs
Maximum shear force	=	-78994. lbs
Depth of maximum bending moment	=	69.1200000 inches below pile head
Depth of maximum shear force	=	204.4800000 inches below pile head
Number of iterations	=	6
Number of zero deflection points	=	1

Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

Load Case	Load Type	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Maximum Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in Pile in-lbs	Pile-head Shear lbs	Pile-head Rotation radians
1	1	V = 8700.0000	M = 10356000.	53.60000000	0.16191339	10851315.	-78994.	-0.00084461

The analysis ended normally.

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	KILLINGLY
SITE CASCADE:	CT23XC408
SITE ADDRESS:	79 PUTNAM PIKE KILLINGLY, CT 06239
SITE TYPE:	MONOPOLE
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
TOWN OF KILLINGLY
172 MAIN STREET
KILLINGLY, CT 06239

LATITUDE (NAD83):
41° 50' 50.63"
N 41.84739722°

LONGITUDE (NAD83):
71° 52' 44.24" W
-71.8789555

COUNTY:
WINDHAM COUNTY

ZONING JURISDICTION:
CONNCETICUT SITING COUNCIL

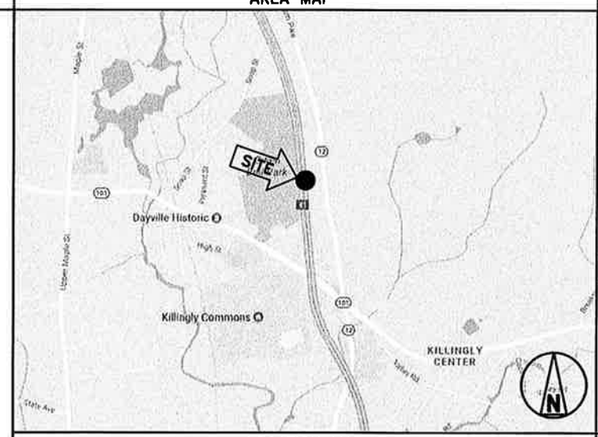
ZONING DISTRICT:
GC – (GENERAL COMMERCIAL)

POWER COMPANY:
NIMO
PHONE: (800) 642-4272

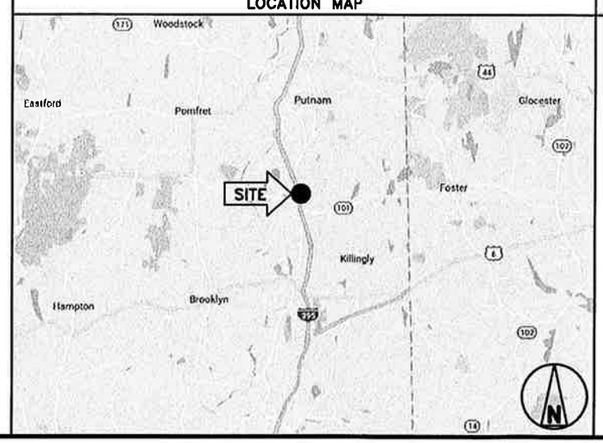
AAV PROVIDER:
VERIZON
PHONE: (800) 870-6464

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.

- REMOVE (6) EXISTING PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS
- RELOCATE (3) 1900 MHz RRHS BEHIND ANTENNAS
- INSTALL (3) 800 MHz RRH'S ON PROPOSED PIPE MOUNT
- INSTALL (3) 2.5 GHz & (3) 800 MHz RRH'S BEHIND ANTENNAS
- INSTALL (48) JUMPER CABLES
- INSTALL (4) HYBRID CABLES
- 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

811 Know what's below. Call before you dig. www.call811.com

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	EQUIPMENT & MOUNTING DETAILS	0
A-6	CIVIL DETAILS	0
A-7	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 514-104

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24018
LICENSED PROFESSIONAL ENGINEER
MAY 21 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:
KILLINGLY

SITE NUMBER:
CT23XC408

SITE ADDRESS:
79 PUTNAM PIKE
KILLINGLY, CT 06239

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 514-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
MAY 21 2018
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:

KILLINGLY

SITE NUMBER:

CT23XC408

SITE ADDRESS:

79 PUTNAM PIKE
KILLINGLY, CT 06239

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 514-104

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
LICENSED PROFESSIONAL ENGINEER
MAY 01 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:
KILLINGLY

SITE NUMBER:
CT23XC408

SITE ADDRESS:
79 PUTNAM PIKE
KILLINGLY, CT 06239

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.

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 514-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:

KILLINGLY

SITE NUMBER:

CT23XC408

SITE ADDRESS:

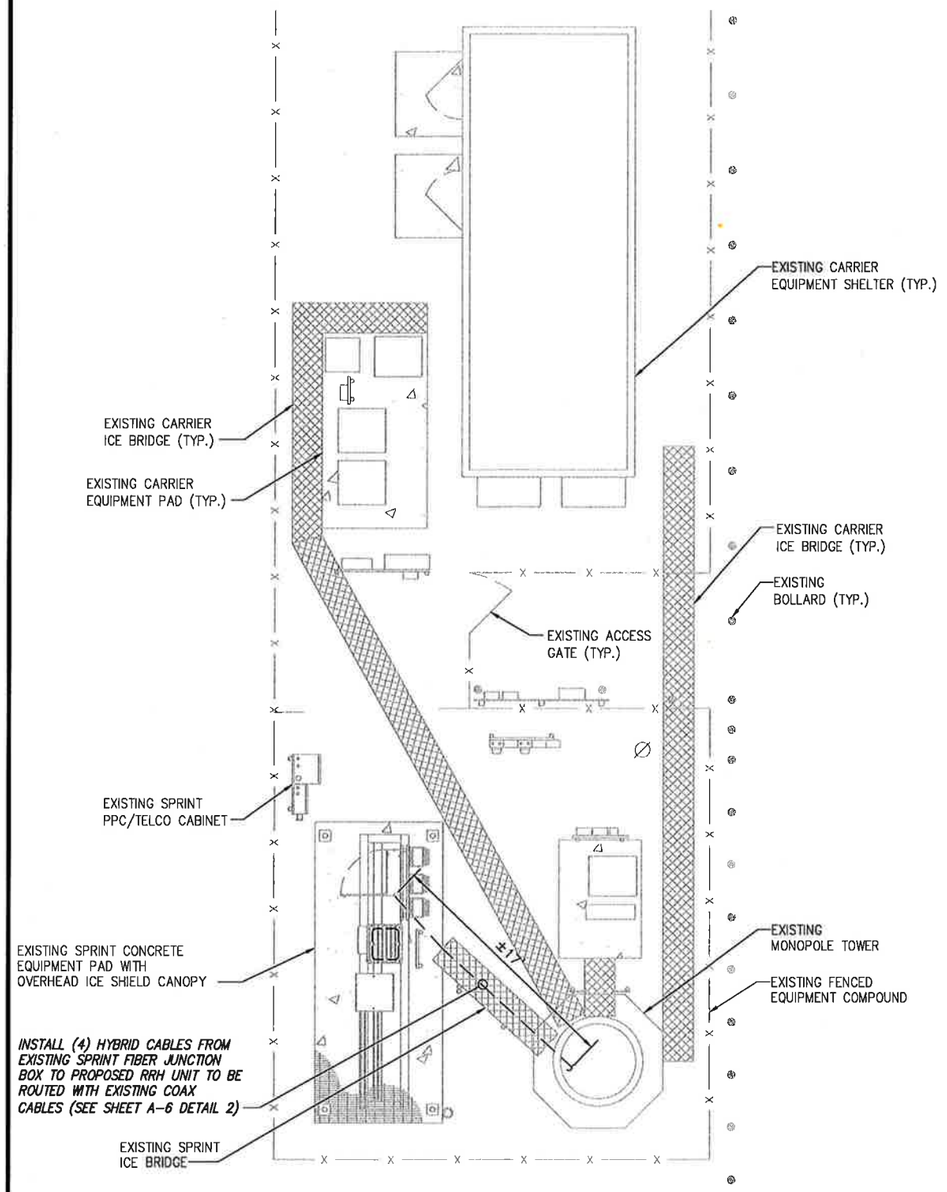
79 PUTNAM PIKE
KILLINGLY, CT 06239

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

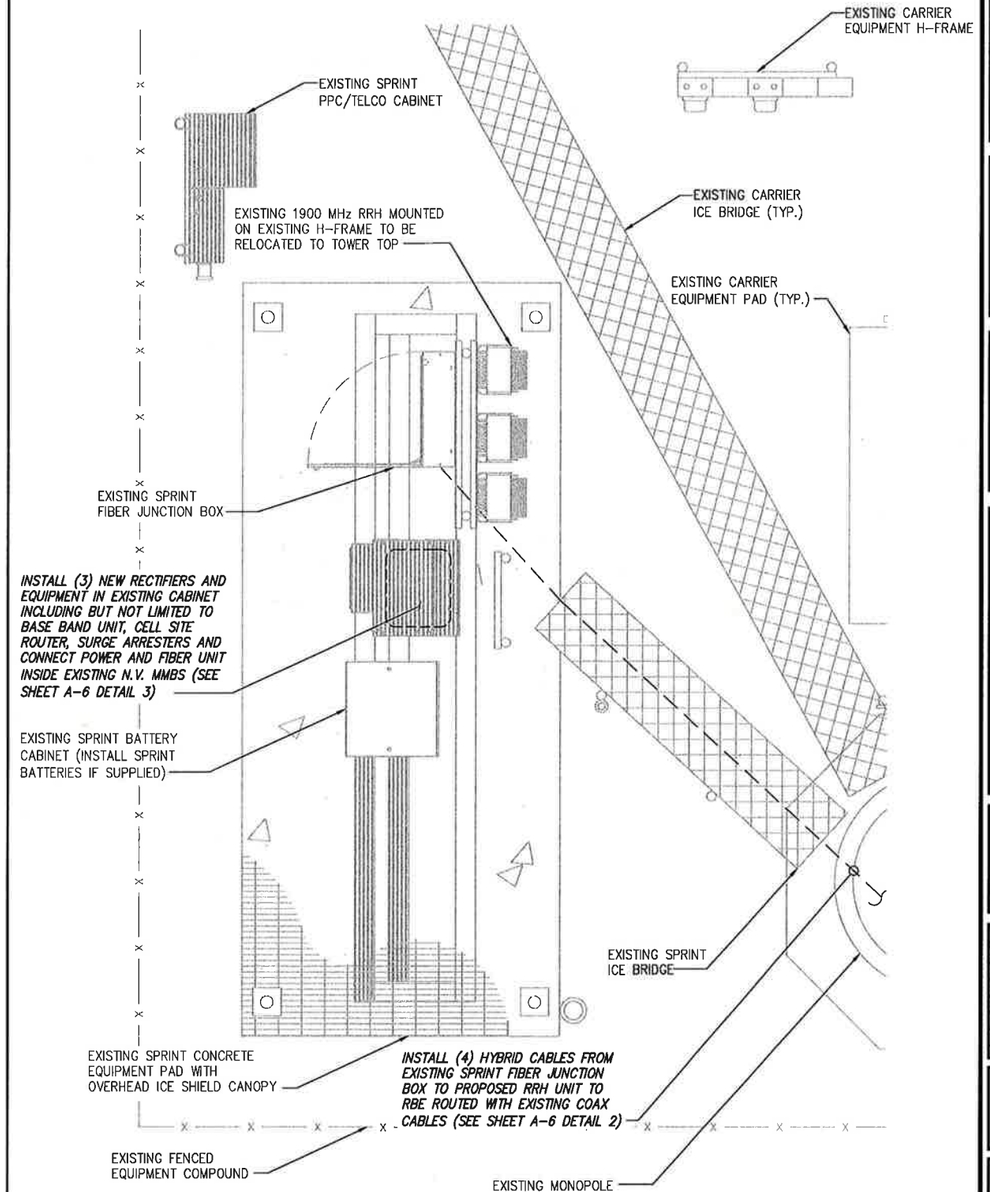
SP-3



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

GRAPHIC SCALE:
10' 5' 0 5' 10'
SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



GRAPHIC SCALE:
4' 2' 0 2' 4'
SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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 514-104

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
REGISTERED PROFESSIONAL ENGINEER
MAY 21 2018

DRAWING NOTICE:
THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF SPRINT AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:
KILLINGLY

SITE NUMBER:
CT23XC408

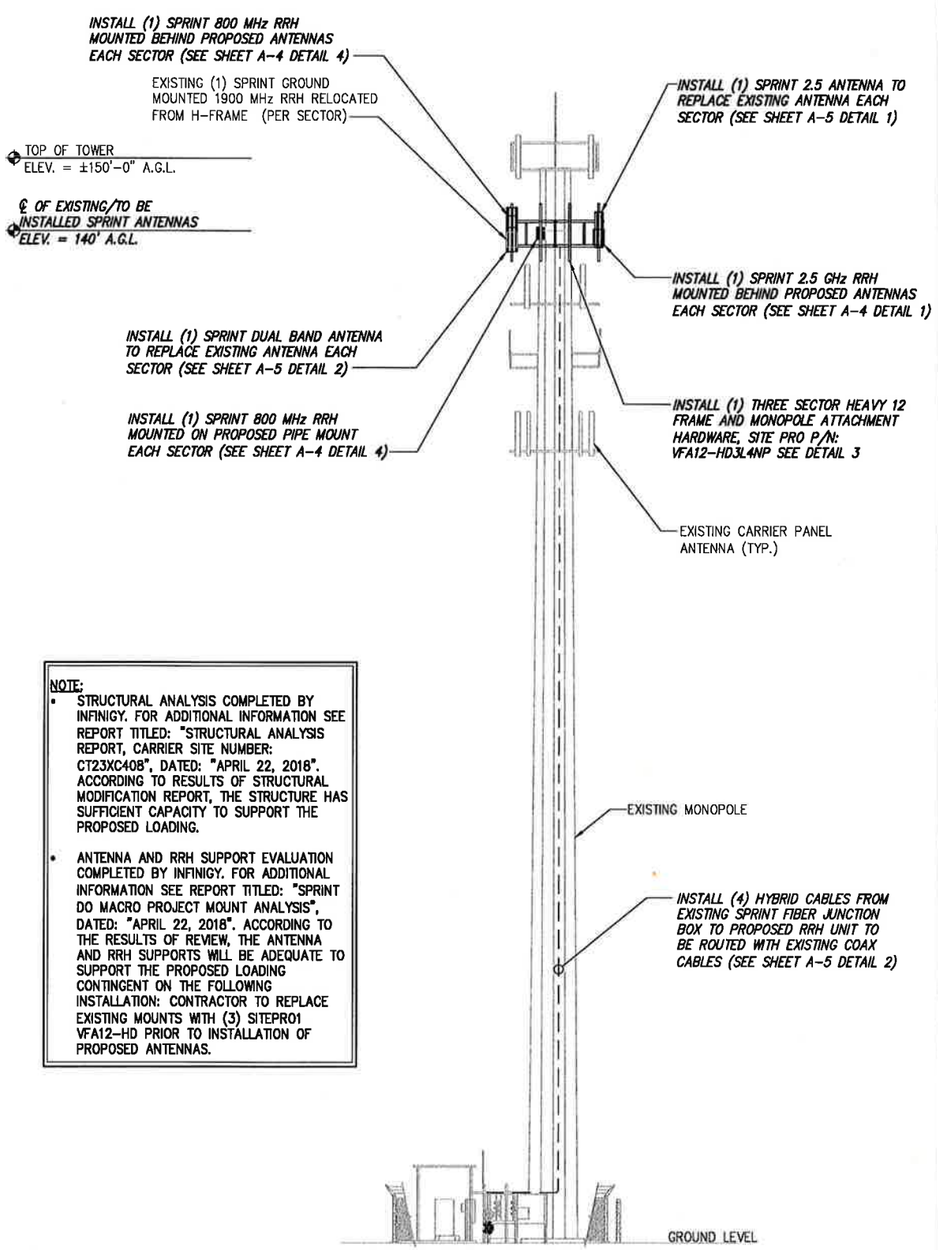
SITE ADDRESS:
79 PUTNAM PIKE
KILLINGLY, CT 06239

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

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

NOTE:
INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING STRUCTURE FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.



NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT23XC408", DATED: "APRIL 22, 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: "APRIL 22, 2018". ACCORDING TO THE RESULTS OF REVIEW, THE ANTENNA AND RRH SUPPORTS WILL BE ADEQUATE TO SUPPORT THE PROPOSED LOADING CONTINGENT ON THE FOLLOWING INSTALLATION: CONTRACTOR TO REPLACE EXISTING MOUNTS WITH (3) SITEPRO1 VFA12-HD PRIOR TO INSTALLATION OF PROPOSED ANTENNAS.

TOWER ELEVATION | NO SCALE | 1

SITE LOADING CHART

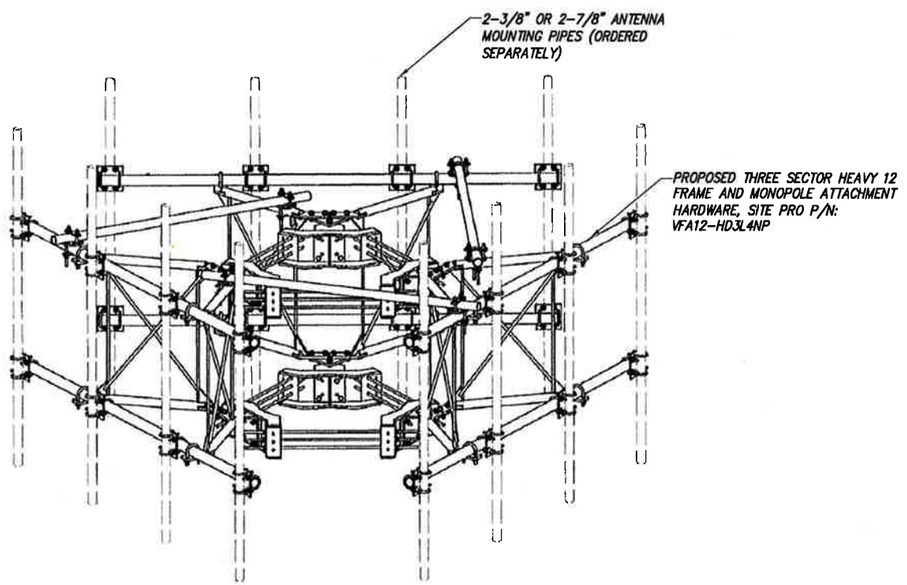
SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	APXVTM14-ALU-120	RFS	20°	1	-	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1	±187'*	±140' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	20°	1	-	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980H90E-M	DECIBEL	20°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
BETA	PROPOSED	APXVTM14-ALU-120	RFS	120°	1	-	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1		±140' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	120°	1	-	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980H90E-M	DECIBEL	120°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
GAMMA	PROPOSED	APXVTM14-ALU-120	RFS	210°	1	-	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1		±140' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	210°	1	-	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980H90E-M	DECIBEL	210°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		

PROJECT SCOPE:

REMOVE: (6) PANEL ANTENNAS INSTALL: (6) PANEL ANTENNAS AND (9) RRH'S RELOCATE: (3) EXISTING 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



V-FRAME ASSEMBLY WITH STIFF ARM DETAIL | NO SCALE | 3

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 514-104

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
MAY 21 2018
PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

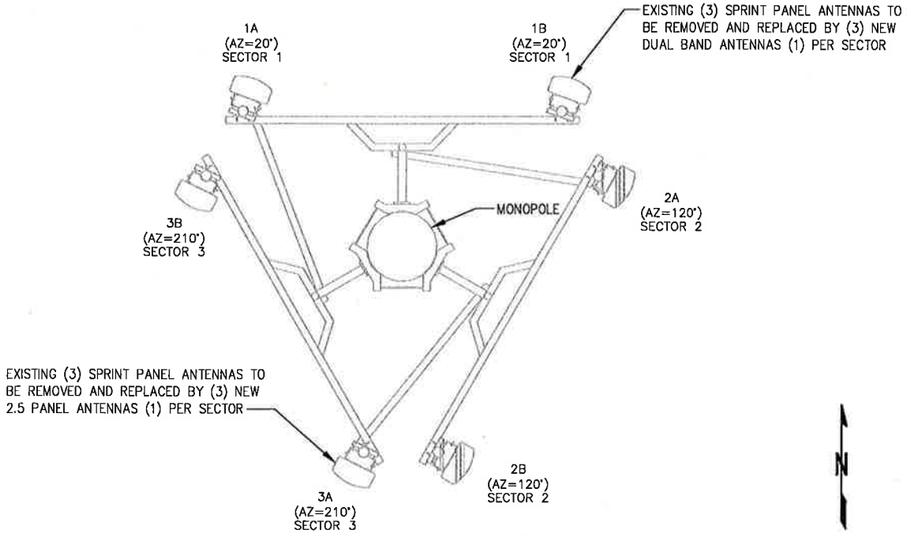
SITE NAME:
KILLINGLY

SITE NUMBER:
CT23XC408

SITE ADDRESS:
79 PUTNAM PIKE
KILLINGLY, CT 06239

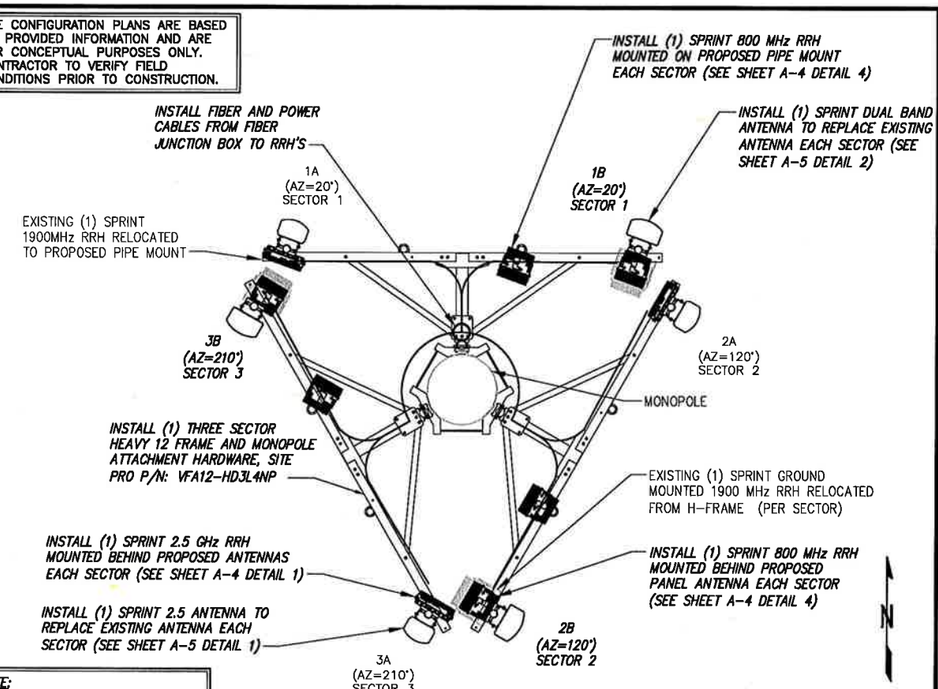
SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



EXISTING ANTENNA 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.

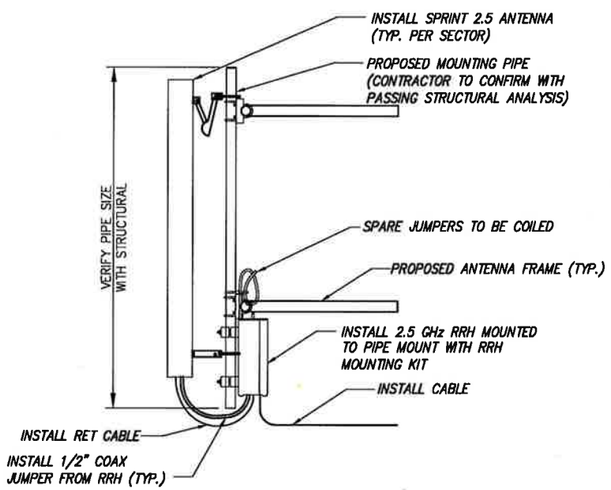


NOTE:
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

FINAL ANTENNA & RRH 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.

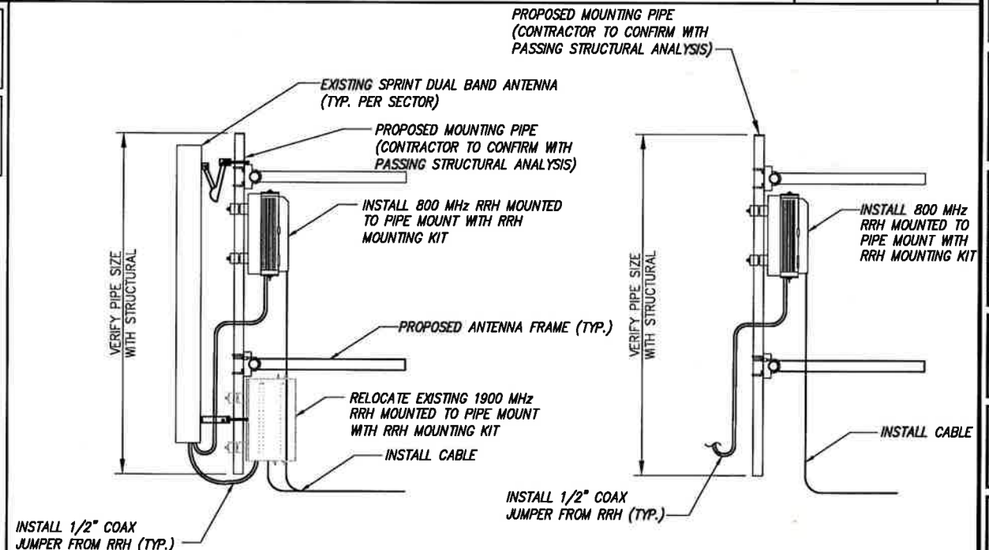
NOTE:
THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRH MOUNTING DETAILS



NOTES:

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

TYPICAL 2.5 ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 3



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 DUAL BAND & RRH MOUNTING DETAILS | NO SCALE | 4

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 514-104

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

ENGINEERING LICENSE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:
KILLINGLY

SITE NUMBER:
CT23XC408

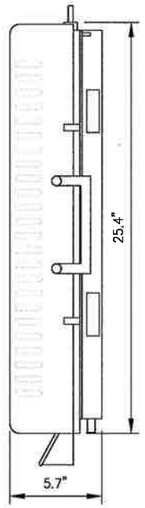
SITE ADDRESS:
79 PUTNAM PIKE
KILLINGLY, CT 06239

SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

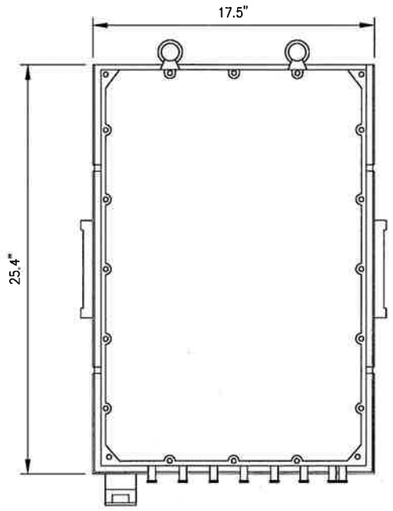
SHEET NUMBER:
A-3

RRH: ALCATEL LUCENT TD-RRH8X20

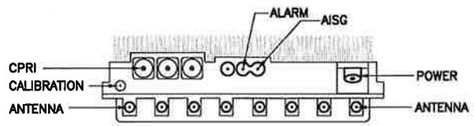
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

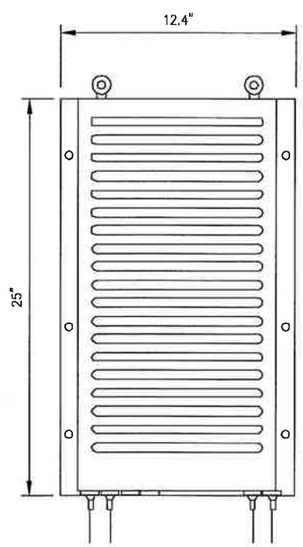
NOTES

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.

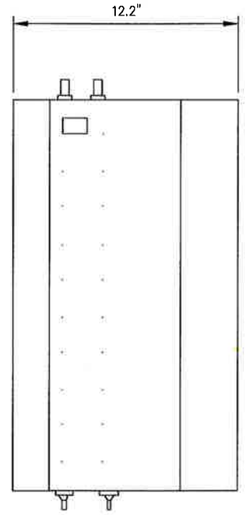
2.5 RRH	NO SCALE	1

RRH: ALCATEL LUCENT 1900 MHz

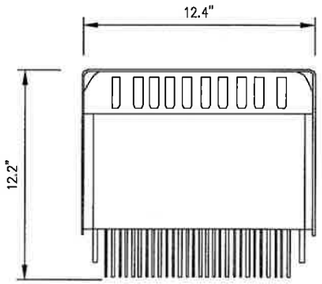
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW



TOP VIEW

1900 MHz RRH	NO SCALE	2

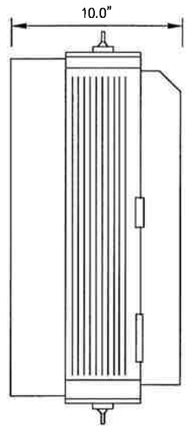
DETAIL NOT USED	NO SCALE	3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

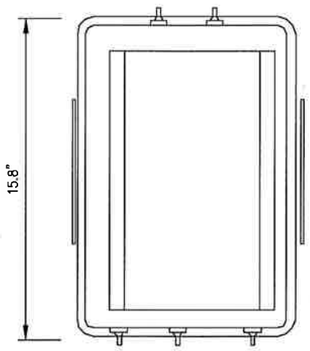
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

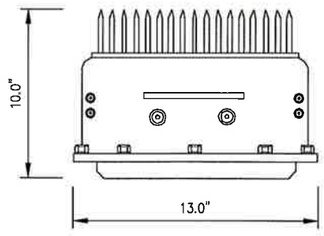
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW



PLAN VIEW

800 MHz RRH	NO SCALE	4

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 514-104

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
PROFESSIONAL ENGINEER
MAY 21 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:
KILLINGLY

SITE NUMBER:
CT23XC408

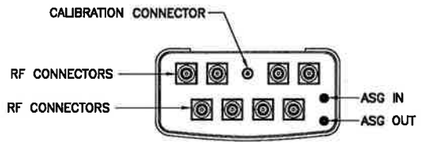
SITE ADDRESS:
79 PUTNAM PIKE
KILLINGLY, CT 06239

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

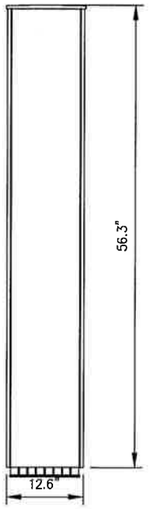
ANTENNA RFS APXVTM14-ALU-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	56.3"x12.6"x6.3" (1549x439x300mm)
WEIGHT:	56.2 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF – CALIBRATION CONNECTOR



PLAN VIEW

SIDE VIEW

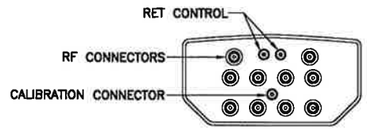


FRONT VIEW

2.5 ANTENNA DETAIL	NO SCALE	1

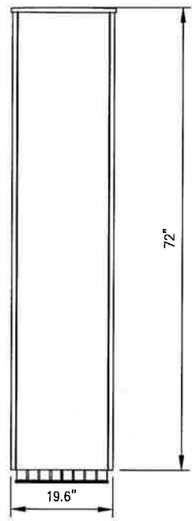
ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	72"x19.6"x7.8" (1829x498x198mm)
WEIGHT:	77.4 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE (8) 4.1/9.5 DIN FEMALE



PLAN VIEW

SIDE VIEW



FRONT VIEW

DUAL BAND ANTENNA DETAIL	NO SCALE	2

DETAIL NOT USED | NO SCALE | 3

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 514-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:

KILLINGLY

SITE NUMBER:

CT23XC408

SITE ADDRESS:

79 PUTNAM PIKE
KILLINGLY, CT 06239

SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-5

RFS HYBRIFLEX RISER CABLE SCHEDULE

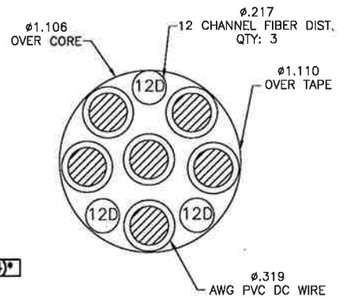
Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F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

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

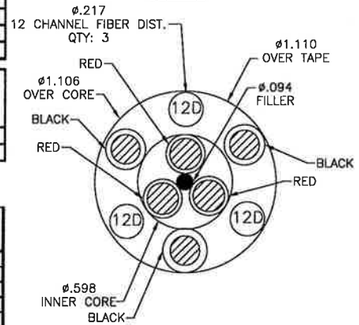
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

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

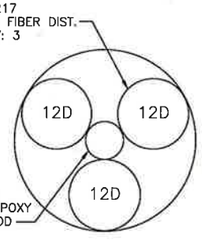
* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.



4 AWG

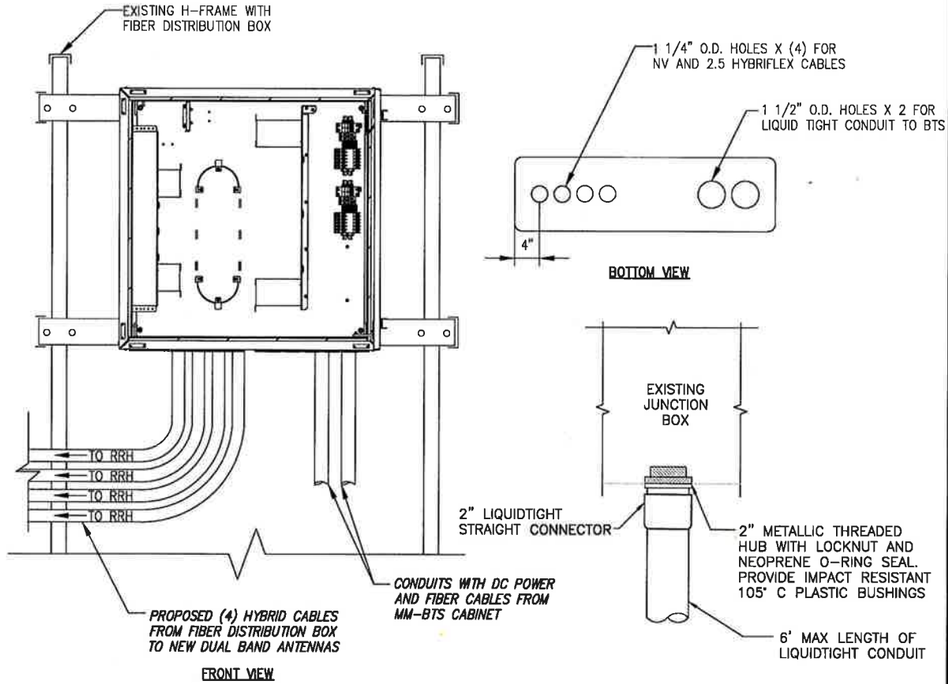


8 & 6 AWG



FIBER ONLY

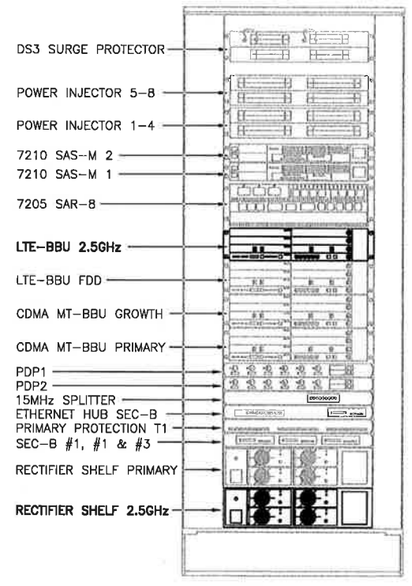
800/1900/2500 CROSS SECTION DATA	NO SCALE	1



BOTTOM VIEW

FRONT VIEW

FIBER JUNCTION BOX & PENETRATION	NO SCALE	2



FRONT VIEW

NEW EQUIPMENT IN EXISTING CABINET	NO SCALE	3

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 514-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:

KILLINGLY

SITE NUMBER:

CT23XC408

SITE ADDRESS:

79 PUTNAM PIKE
KILLINGLY, CT 06239

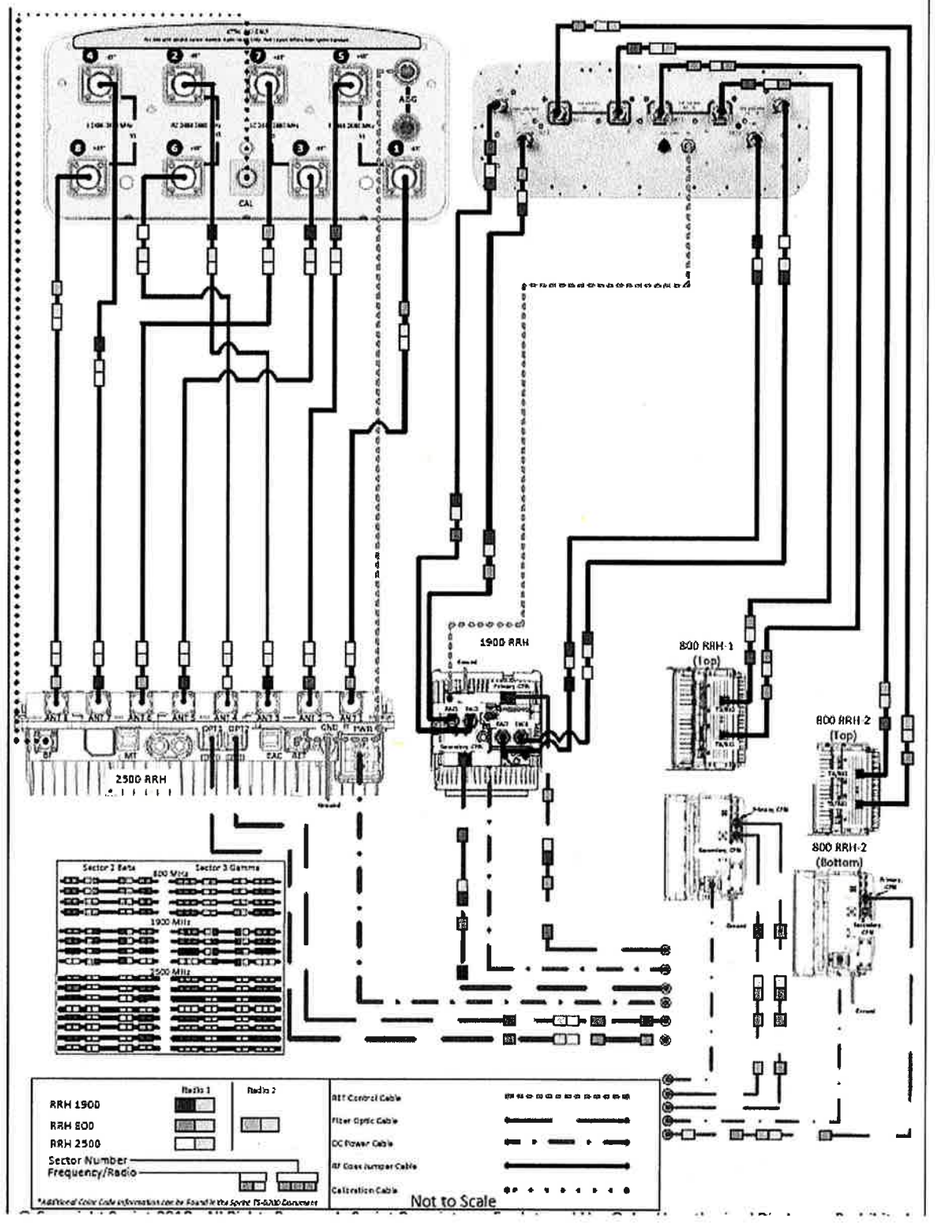
SHEET DESCRIPTION:

CIVIL DETAILS

SHEET NUMBER:

A-6

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



PLUMBING DIAGRAM | NO SCALE | 1

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 514-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 21706
LICENSED PROFESSIONAL ENGINEER
MAY 21 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:

KILLINGLY

SITE NUMBER:

CT23XC408

SITE ADDRESS:

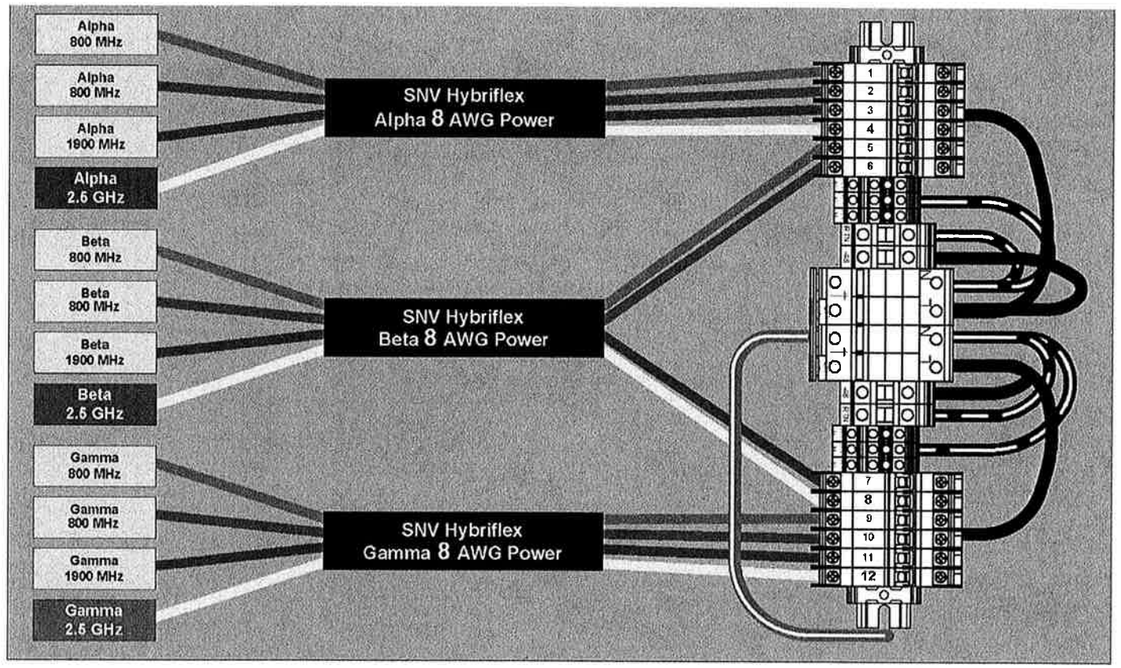
79 PUTNAM PIKE
KILLINGLY, CT 06239

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

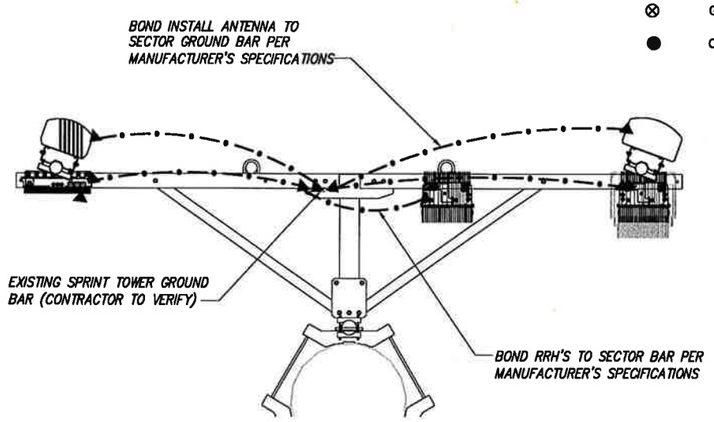
A-7



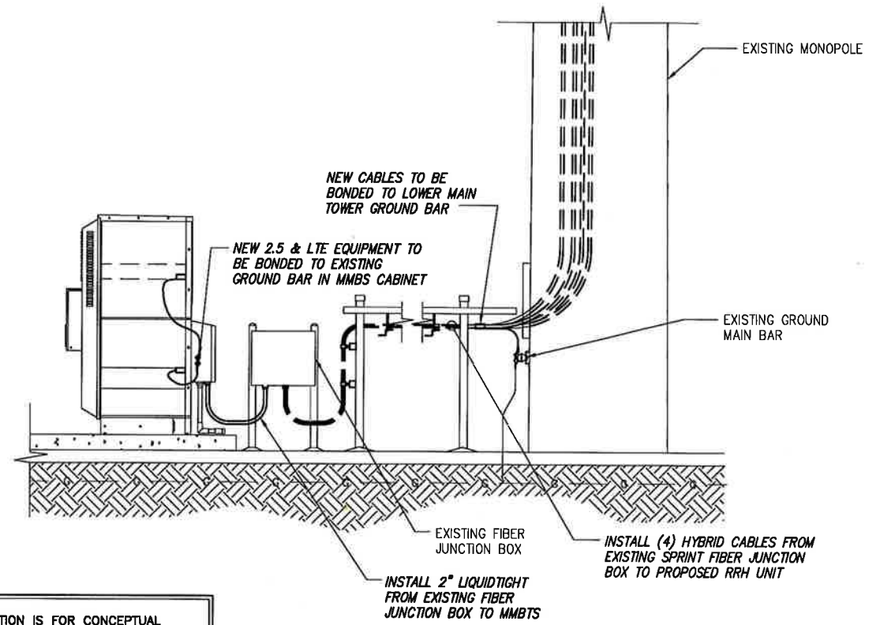
RRH TO DISTRIBUTION BOX POWER CONNECTIVITY | NO SCALE | 1

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

PLANS PREPARED FOR:

Sprint

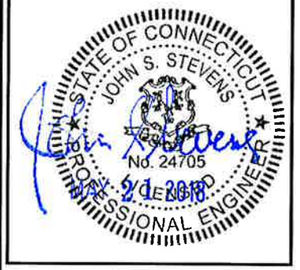
PLANS PREPARED BY:

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 514-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:



DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:
KILLINGLY

SITE NUMBER:
CT23XC408

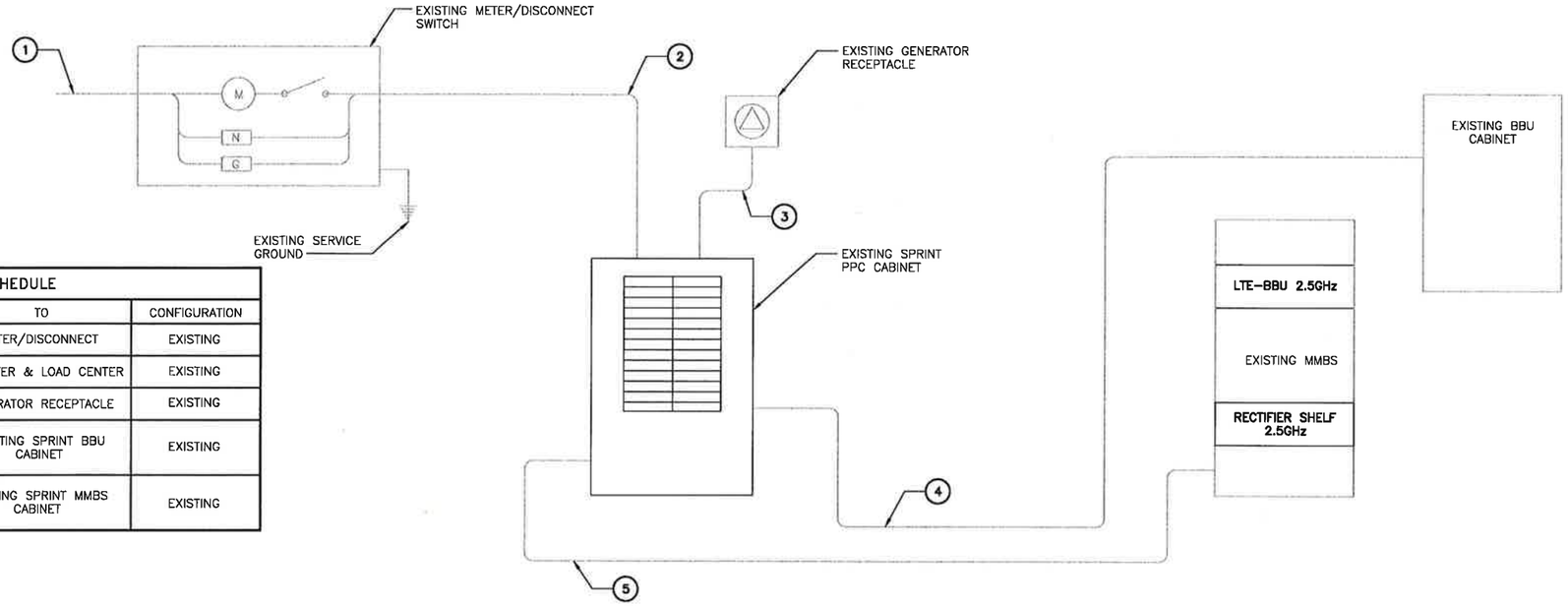
SITE ADDRESS:
79 PUTNAM PIKE
KILLINGLY, CT 06239

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1

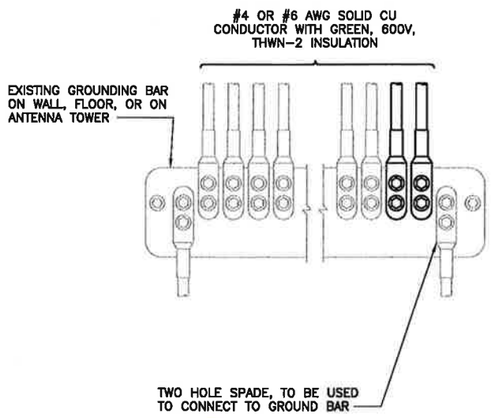
NOTES

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

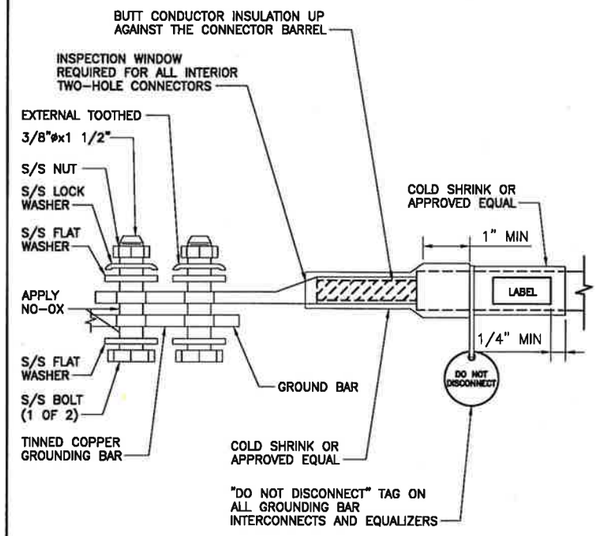
ELECTRICAL ONE–LINE DIAGRAM | NO SCALE | 1



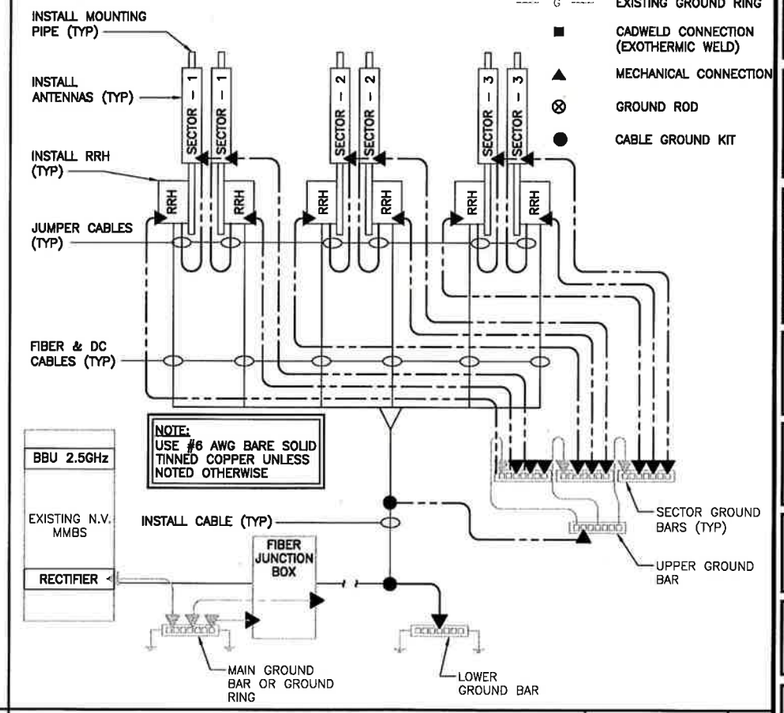
NOTES

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

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 514-104

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
MAY 21 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/17/18	ETC	0

SITE NAME:

KILLINGLY

SITE NUMBER:

CT23XC408

SITE ADDRESS:

79 PUTNAM PIKE
KILLINGLY, CT 06239

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2