June 15th, 2018

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

RE: Notice of Exempt Modification – Antenna Swap for wireless facility located at 1 EAGLE HILL, TOLLAND CONNECTICUT – CT03XC207 (lat. 42° 52' 24.43" N, long. -72° 20' 18.66" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (133-foot level) on an existing (153-foot monopole tower) at the above-referenced address. The property is owned by the Town of Tolland, and the tower is owned by American Tower Corporation.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace six (6) antennas, relocate three (3) RRHs from ground level to the tower and add nine (9) new RRHs onto the tower. All the proposed work is contained within the existing fenced area. Please refer to the attached drawings for site plans prepared by Infinigy Engineering.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to STEVEN R. WERBNER, TOWN MANGER, and HEIDI SAMOKAR, DIRECTOR of PLANNING AND DEVELOPMENT of the Town of TOLLAND. A copy of this letter is also being sent to JUSTINE PAUL the manager for AMERICAN TOWER CORPORATION who manages the site.

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

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

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

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

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

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

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

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

Kind Regards,

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

Attachment

CC: STEVEN R. WERBNER (Town Manager, TOLLAND, CT)
JUSTINE PAUL (Manager, AMERICAN TOWER CORPORATION)
HEIDI SAMOKAR (Director of Planning & Development / TOLLAND, CT)

7017 3040 0000 7660 1192

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

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

TOLLAND, CT 06084

OFFICIAL USE

Certified Mail Fee $3.45

Extra Services & Fees (check box, add fee as appropriate) $2.75

- Return Receipt (hardcopy) $ $0.00
- Return Receipt (electronic) $ $0.00
- Certified Mail Restricted Delivery $ $0.00
- Adult Signature Required $ $0.00
- Adult Signature Restricted Delivery $ $0.00

Postage $0.50

Total Postage and Fees $6.70

Postmark Here: SARATOGA FINANCE, JUN 15 2018, 0867, 06/15/2018

Sent To: Heidi Samaker CTC3XC2C7

Street and Apt. No., or PO Box No.: 21 Tolland Green 3rd level

City, State, ZIP+4®: Tolland CT 06084

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

7017 3040 0000 7659 4418

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

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

WOBURN, MA 01801

OFFICIAL USE

Certified Mail Fee $3.45

Extra Services & Fees (check box, add fee as appropriate) $2.75

- Return Receipt (hardcopy) $ $0.00
- Return Receipt (electronic) $ $0.00
- Certified Mail Restricted Delivery $ $0.00
- Adult Signature Required $ $0.00
- Adult Signature Restricted Delivery $ $0.00

Postage $0.50

Total Postage and Fees $6.70

Postmark Here: SARATOGA FINANCE, JUN 15 2018, 0867, 06/15/2018

Sent To: Justin Paul CTC3XC2C7

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

City, State, ZIP+4®: Woburn MA 01801

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

7017 3040 0000 7660 1185

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

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

TOLLAND, CT 06084

OFFICIAL USE

Certified Mail Fee $3.45

Extra Services & Fees (check box, add fee as appropriate) $2.75

- Return Receipt (hardcopy) $ $0.00
- Return Receipt (electronic) $ $0.00
- Certified Mail Restricted Delivery $ $0.00
- Adult Signature Required $ $0.00
- Adult Signature Restricted Delivery $ $0.00

Postage $0.50

Total Postage and Fees $6.70

Postmark Here: SARATOGA FINANCE, SARATOGA SPRINGS NY 12866, JUN 15 2018, 0867, 06/15/2018

Sent To: Steven Webner CTC3XC2C7

Street and Apt. No., or PO Box No.: 21 Tolland Green 5th level

City, State, ZIP+4®: Tolland CT 06084

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

1 EAGLE HILL

Location	1 EAGLE HILL	**Mblu**	23/ E/ 51/00 /
Acct#	6783	**Owner**	TOWN OF TOLLAND
Assessment	$47,896,000	**Appraisal**	$68,422,700
PID	3893	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$65,645,700	$2,777,000	$68,422,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$45,952,100	$1,943,900	$47,896,000

Owner of Record

Owner	TOWN OF TOLLAND	**Sale Price**	$850,000
Co-Owner		**Certificate**	
Address	21 TOLLAND GREEN TOLLAND, CT 06084-0000	**Book & Page**	819/ 81
		Sale Date	04/24/2003
		Instrument	15

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
TOWN OF TOLLAND	$850,000		819/ 81	15	04/24/2003
RUOPS ALBERT J TRUSTEE U TR	$0		396/ 288	29	06/16/1960

Building Information

Building 1 : Section 1

Year Built:	2005
Living Area:	258,330
Replacement Cost:	$69,099,782
Building Percent Good:	91
Replacement Cost Less Depreciation:	$62,880,800

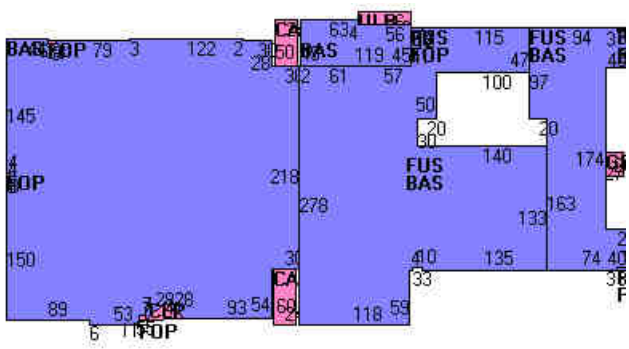
Building Attributes

Field	Description
STYLE	Schools-Public
MODEL	Commercial
Grade	Excellent
Stories:	2
Occupancy	1
Ext Wall 1	Brick Veneer
Exterior Wall 2	Reinforc Concr
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall/Sheet
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Water
AC Type	Vapor Cooler
Bldg Use	Municipal
Total Rooms	70
Total Bedrms	0
Total Baths	0
Solar	
1st Floor Use:	901C
Heat/AC	Heat/AC Split
Frame Type	Fireprf Steel
Baths/Plumbing	Average
Ceiling/Wall	Sus Ceil Min W
Rooms/Prtns	Above Average
Wall Height	16
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/TollandCTPhotos//\00\00\69/90.

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	Main Floor	177,914	177,914
FUS	Finished Upper Story	80,416	80,416
CAN	Canopy	2,640	0
CLP	Covered Loading Platform	380	0
FOP	Open Porch	202	0
GRN	Green House	540	0
ULP	Loading Platform	728	0
		262,820	258,330

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
SPR1	SPRINKLERS-WET	248306 S.F.	$180,800	1
ELV	ELEVATOR	1 UNITS	$24,600	1

Land

Land Use

Use Code	901C
Description	Municipal
Zone	RDD
Neighborhood	350C
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	68.5
Frontage	1351
Depth	
Assessed Value	$1,943,900
Appraised Value	$2,777,000

Outbuildings

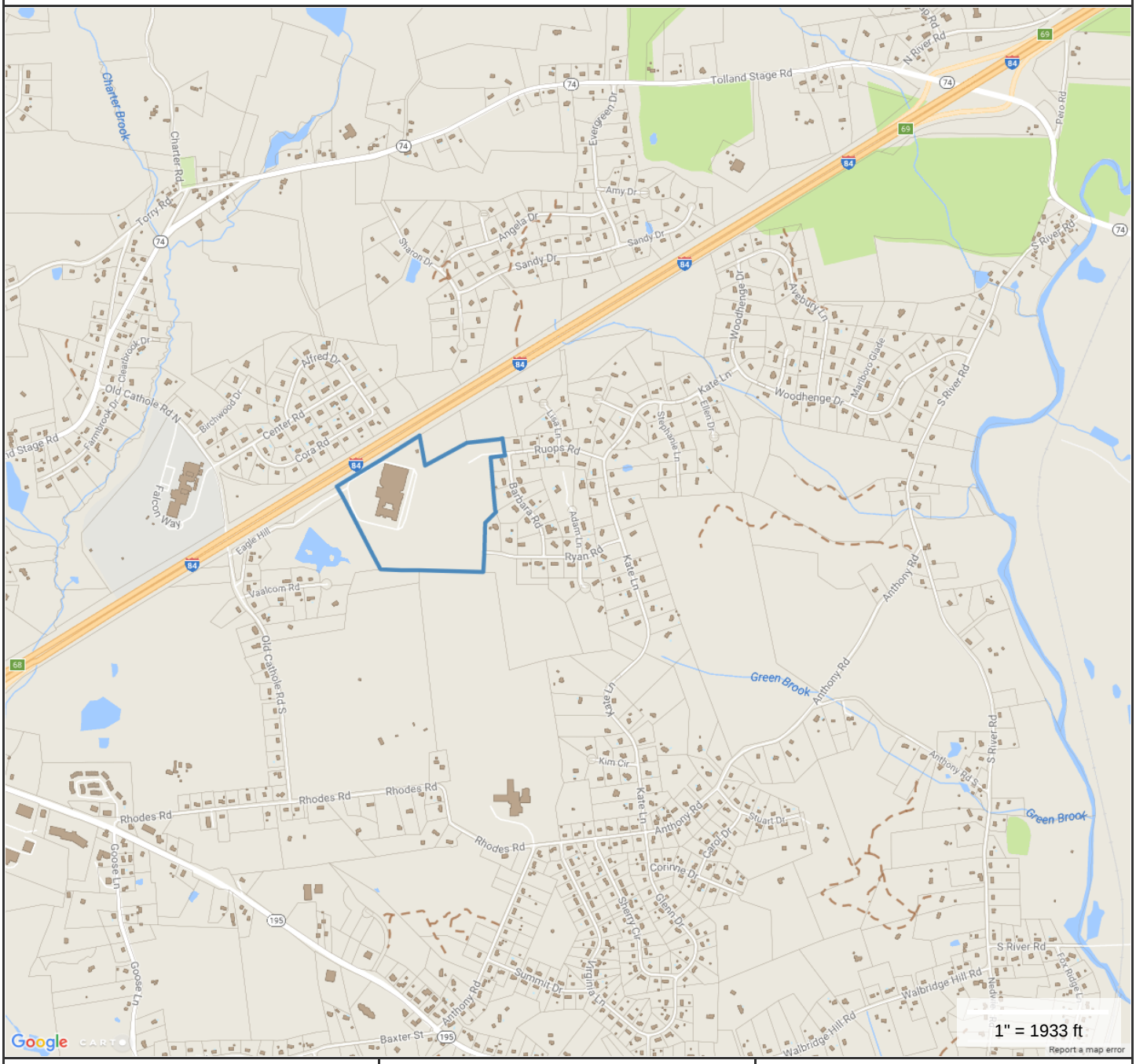
Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV	PAVING	A	Asphalt	480000 S.F.	$645,100	1
FN	FENCE	CL4	4' Chain Link	7500 L.F.	$50,400	1
PLS	POLES	L1	Lighting	48 UNITS	$121,000	1
BALL	FIELD HARD			1 UNITS	$702,000	1
TRL1	TRAILER	A	Storage	640 S.F.	$9,600	1
FGR	GARAGE	1F	1Story Frame	720 S.F.	$16,800	1
FGR	GARAGE	1F	1Story Frame	720 S.F.	$16,800	1
SHD	SHED	1LT	1 Stry Lean To	1024 S.F.	$9,200	1
BALL	FIELD HARD			2 UNITS	$650,000	1
AF	ATHLETIC FLD	FB	Football	1 UNITS	$126,000	1
AF	ATHLETIC FLD	RT	Running Trck	1 UNITS	$210,000	1
SHD	SHED	1F	1 Stry Frame	160 S.F.	$2,600	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$65,645,700	$2,777,000	$68,422,700
2014	$65,645,700	$2,777,000	$68,422,700
2013	$62,968,300	$3,111,000	$66,079,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$45,952,100	$1,943,900	$47,896,000
2014	$45,952,100	$1,943,900	$47,896,000
2013	$44,077,800	$2,177,700	$46,255,500

CT03XC207 - 1 Eagle Hill, Tolland, CT 06084



Property Information

Property ID	23/E/051
Location	1 EAGLE HILL
Owner	TOWN OF TOLLAND

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Tolland, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Properties updated 12/06/2017

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: CT03XC207

SNET - Tolland
1 Eagle Hill
Tolland, CT 06084

June 12, 2018

EBI Project Number: 6218004333

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	14.39 %

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

EBI Consulting
environmental | engineering | due diligence

June 12, 2018

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

Emissions Analysis for Site: **CT03XC207 – SNET - Tolland**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **1 Eagle Hill, Tolland, 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 **1 Eagle Hill, Tolland, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

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

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

9) The antenna mounting height centerlines of the proposed antennas are **133 feet** above ground level (AGL) for **Sector A**, **133 feet** above ground level (AGL) for **Sector B** and **133 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):	**133 feet**	Height (AGL):	**133 feet**	Height (AGL):	**133 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**2.03 %**	Antenna B1 MPE%	**2.03 %**	Antenna C1 MPE%	**2.03 %**
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):	**133 feet**	Height (AGL):	**133 feet**	Height (AGL):	**133 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%	**1.39 %**	Antenna B2 MPE%	**1.39 %**	Antenna C2 MPE%	**1.39 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**3.42 %**
T-Mobile	1.75 %
AT&T	2.98 %
Verizon Wireless	5.80 %
Nextel	0.44 %
Site Total MPE %:	**14.39 %**

SPRINT Sector A Total:	3.42 %
SPRINT Sector B Total:	3.42 %
SPRINT Sector C Total:	3.42 %
Site Total:	14.39 %

SPRINT _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	133	0.84	850 MHz	567	0.15%
Sprint 850 MHz LTE	2	941.82	133	4.20	850 MHz	567	0.74%
Sprint 1900 MHz (PCS) CDMA	5	511.82	133	5.70	1900 MHz (PCS)	1000	0.57%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	133	5.70	1900 MHz (PCS)	1000	0.57%
Sprint 2500 MHz (BRS) LTE	8	778.09	133	13.87	2500 MHz (BRS)	1000	1.39%
						Total:	**3.42%**

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:	3.42 %
Sector B:	3.42 %
Sector C:	3.42 %
SPRINT Maximum Total (per sector):	3.42 %
Site Total:	14.39 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.39 %** 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

May 12, 2018

Site Name	CT03XC207
Infinigy Job Number	526-104
Client	Airosmith
Proposed Carrier	Sprint
Site Location	5 Barbara Road Tolland, CT 06084 41.87330° N NAD83 72.33830° W NAD83
Mount Centerline El.	133.0 ft
Mount Classification	Platform w/ Handrails
Failing Structural Usage	**111.2%**
Passing Structural Usage	**74.5%**
Overall Result	**Contingent Pass- See Required Modification Below.**
Note	**Install new L1.75x1.75x0.25 angles to existing L1.75x1.75x0.25 angles with (4) ½" Dia A325X Bolts as shown in appended documents.**

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 16.0.3 analysis software.

Supporting Documentation

Colo Application	ATC Eng #OAA714899, dated March 13, 2018

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust,Vasd) / 125 mph (3-Second Gust,Vult)
Wind Speed w/ ice	50 mph (3-Second Gust,Vasd) w/ 1" 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
133.0	133.0	0.0	0.0	3	Commscope NNVV-65B-R4	Sprint
			10.0	3	RFS APXVTM14-ALU-I20	
			10.0	3	Alcatel Lucent 1900 MHz RRH	
			0.0, 10.0	6	Alcatel Lucent RRH2x50-08	
			0.0	3	Alcatel Lucent TD-RRH8x20-25	

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

Structure Usages

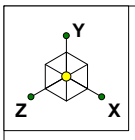
Stand off	74.5	Pass
Horizontal	56.7	Pass
Mount Pipe	29.9	Pass
RATING =	**74.5**	**Pass**

Assumptions and Limitations

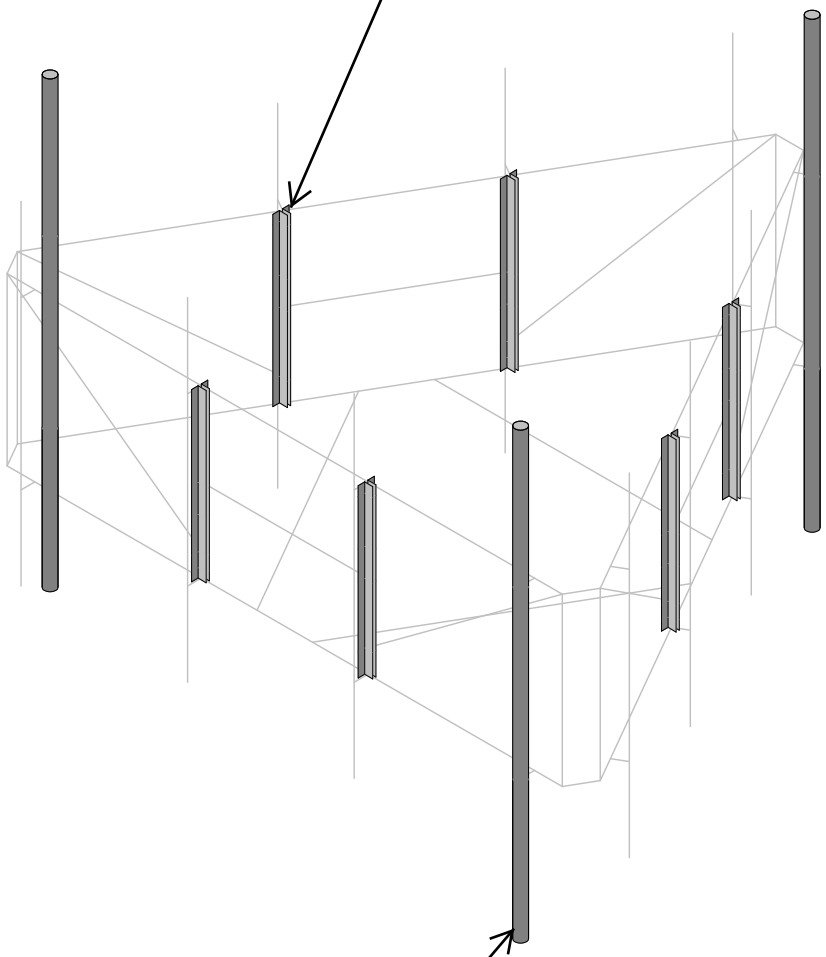
Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural 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.



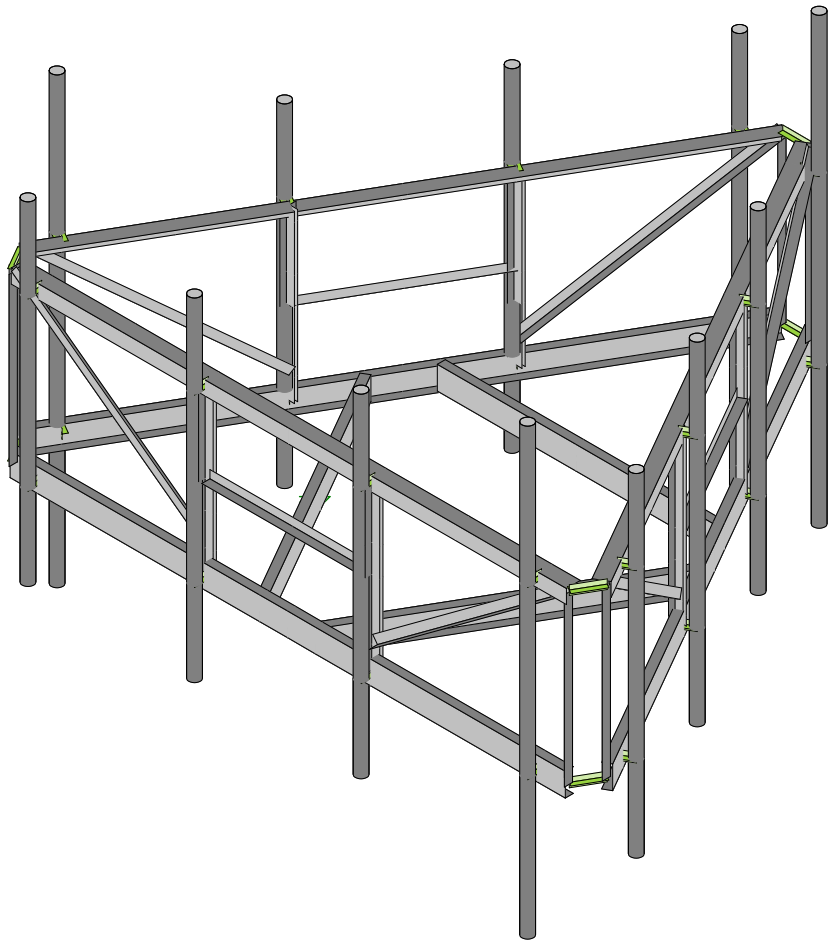
Install L1 3/4x1 3/4x1/4 to existing L1 3/4x1 3/4x1/4 with (4) 1/2"Ø A325X bolts. (Typ. of 3 Sectors)



Contractor can swap existing pipe for a 2.0 Std x 8.0' pipe to accommodate proposed 84.9" tall antenna if needed. (Typ. of 3 sectors).

Envelope Only Solution

Infinigy Engineering, PLLC	CT03XC207	
NRO		May 12, 2018 at 4:38 PM
526-104		CT03XC207 - MOD.r3d



Envelope Only Solution

Infinigy Engineering, PLLC	CT03XC207	
NRO		May 12, 2018 at 4:37 PM
526-104		CT03XC207 - MOD.r3d

Site Name:	CT03XC207
Client:	Airosmith
Carrier:	Sprint
Engineer:	NRO
Date:	5/12/2018

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

INFINIGY WIND LOAD CALCULATOR 3.0.2

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 - Platform
Number of Sectors:	3
Structure Shape 1:	Flat

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	97	mph (nominal 3-second gust)
Wind Centerline 1 (z_1):	133.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	B	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
24.53	1.00	**49.07**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
6.52	1.00	**20.62**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (nominal 3-second gust)
Base Ice Thickness:	1.00	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	133.0	3	1.00	Flat	Flat	24.53	12.27	301.05	141.07	181.06	261.05
RFS APXVTM14-ALU-I20	133.0	3	1.00	Flat	Flat	24.53	6.34	155.60	88.50	105.27	138.82
ALU TD-RRH2x20-25 w/ S.S.	133.0	3	1.00	Flat	Flat	24.53	4.05	99.25	37.60	53.01	83.84
ALU 800 MHz RRH2x50-08 w/ Filter	133.0	3	1.00	Flat	Flat	24.53	2.06	50.50	47.39	48.17	49.72
ALU 800 MHz RRH2x50-08 w/ Filter	133.0	3	1.00	Flat	Flat	24.53	2.06	50.50	47.39	48.17	49.72
ALU 1900 MHz 4x45 RRH	133.0	3	1.00	Flat	Flat	24.53	2.32	56.96	54.91	55.42	56.45

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N2		180	Horizontal	Beam	None	A36 Gr.36	Typical
2	M2	N20	N16			Pipe Mount	Beam	None	A53 Gr.B	Typical
3	M3	N21	N17			Pipe Mount	Beam	None	A53 Gr.B	Typical
4	M4	N22	N18			Pipe Mount	Beam	None	A53 Gr.B	Typical
5	M5	N23	N19			Pipe Mount	Beam	None	A53 Gr.B	Typical
6	M6	N11	N10		180	Handrail	Beam	None	A36 Gr.36	Typical
7	M7	N5	N24			RIGID	None	None	RIGID	Typical
8	M8	N12	N28			RIGID	None	None	RIGID	Typical
9	M9	N6	N25			RIGID	None	None	RIGID	Typical
10	M10	N13	N29			RIGID	None	None	RIGID	Typical
11	M11	N7	N26			RIGID	None	None	RIGID	Typical
12	M12	N14	N30			RIGID	None	None	RIGID	Typical
13	M13	N8	N27			RIGID	None	None	RIGID	Typical
14	M14	N15	N31			RIGID	None	None	RIGID	Typical
15	M15	N25	N29			MOD - Bracing	Beam	None	A36 Gr.36	Typical
16	M16	N26	N30			MOD - Bracing	Beam	None	A36 Gr.36	Typical
17	M17	N3	N11			Bracing	Beam	None	A36 Gr.36	Typical
18	M18	N2	N10			Bracing	Beam	None	A36 Gr.36	Typical
19	M19	N32	N11			Bracing	Beam	None	A36 Gr.36	Typical
20	M20	N33	N10			Bracing	Beam	None	A36 Gr.36	Typical
21	M21	N34	N35			Bracing	Beam	None	A36 Gr.36	Typical
22	M22	N38	N37		180	Horizontal	Beam	None	A36 Gr.36	Typical
23	M23	N54	N50			Pipe Mount	Beam	None	A53 Gr.B	Typical
24	M24	N55	N51			Pipe Mount	Beam	None	A53 Gr.B	Typical
25	M25	N56	N52			Pipe Mount	Beam	None	A53 Gr.B	Typical
26	M26	N57	N53			Pipe Mount	Beam	None	A53 Gr.B	Typical
27	M27	N45	N44		180	Handrail	Beam	None	A36 Gr.36	Typical
28	M28	N39	N58			RIGID	None	None	RIGID	Typical
29	M29	N46	N62			RIGID	None	None	RIGID	Typical
30	M30	N40	N59			RIGID	None	None	RIGID	Typical
31	M31	N47	N63			RIGID	None	None	RIGID	Typical
32	M32	N41	N60			RIGID	None	None	RIGID	Typical
33	M33	N48	N64			RIGID	None	None	RIGID	Typical
34	M34	N42	N61			RIGID	None	None	RIGID	Typical
35	M35	N49	N65			RIGID	None	None	RIGID	Typical
36	M36	N59	N63			MOD - Bracing	Beam	None	A36 Gr.36	Typical
37	M37	N60	N64			MOD - Bracing	Beam	None	A36 Gr.36	Typical
38	M38	N38	N45			Bracing	Beam	None	A36 Gr.36	Typical
39	M39	N37	N44			Bracing	Beam	None	A36 Gr.36	Typical
40	M40	N66	N45			Bracing	Beam	None	A36 Gr.36	Typical
41	M41	N67	N44			Bracing	Beam	None	A36 Gr.36	Typical
42	M42	N68	N69			Bracing	Beam	None	A36 Gr.36	Typical
43	M43	N73	N72		180	Horizontal	Beam	None	A36 Gr.36	Typical
44	M44	N89	N85			Pipe Mount	Beam	None	A53 Gr.B	Typical
45	M45	N90	N86			Pipe Mount	Beam	None	A53 Gr.B	Typical
46	M46	N91	N87			Pipe Mount	Beam	None	A53 Gr.B	Typical
47	M47	N92	N88			Pipe Mount	Beam	None	A53 Gr.B	Typical
48	M48	N80	N79		180	Handrail	Beam	None	A36 Gr.36	Typical
49	M49	N74	N93			RIGID	None	None	RIGID	Typical
50	M50	N81	N97			RIGID	None	None	RIGID	Typical
51	M51	N75	N94			RIGID	None	None	RIGID	Typical
52	M52	N82	N98			RIGID	None	None	RIGID	Typical
53	M53	N76	N95			RIGID	None	None	RIGID	Typical
54	M54	N83	N99			RIGID	None	None	RIGID	Typical
55	M55	N77	N96			RIGID	None	None	RIGID	Typical
56	M56	N84	N100			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
57	M57	N94	N98			MOD - Bracing	Beam	None	A36 Gr.36	Typical
58	M58	N95	N99			MOD - Bracing	Beam	None	A36 Gr.36	Typical
59	M59	N73	N80			Bracing	Beam	None	A36 Gr.36	Typical
60	M60	N72	N79			Bracing	Beam	None	A36 Gr.36	Typical
61	M61	N101	N80			Bracing	Beam	None	A36 Gr.36	Typical
62	M62	N102	N79			Bracing	Beam	None	A36 Gr.36	Typical
63	M63	N103	N104			Bracing	Beam	None	A36 Gr.36	Typical
64	M64	N3	N72			RIGID	None	None	RIGID	Typical
65	M65	N11	N79			RIGID	None	None	RIGID	Typical
66	M66	N73	N37			RIGID	None	None	RIGID	Typical
67	M67	N80	N44			RIGID	None	None	RIGID	Typical
68	M68	N38	N2			RIGID	None	None	RIGID	Typical
69	M69	N45	N10			RIGID	None	None	RIGID	Typical
70	M70	N105	N112		180	Horizontal	Beam	None	A36 Gr.36	Typical
71	M71	N113	N108		180	Horizontal	Beam	None	A36 Gr.36	Typical
72	M72	N109	N104A		180	Horizontal	Beam	None	A36 Gr.36	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		30	108	0
3	Total General		30	108	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	C5x6.7	6	540	301.7
7	A36 Gr.36	L1.75x1.75x4	15	637.2	146.8
8	A36 Gr.36	LL1 3/4x1 3/4x1/4x0	6	216	99.5
9	A36 Gr.36	L3x3x4	3	360	147
10	A53 Gr.B	PIPE_2.0	12	936	270.7
11	Total HR Steel		42	2689.2	965.7

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut..	Area(M...	Surface...
1	Self Weight	DL		-1			24		3	
2	Wind Load AZI 000	WLZ					24		1	
3	Wind Load AZI 090	WLX					24		1	
4	Ice Weight	OL1					24	72		
5	Wind + Ice Load AZI 000	OL2					24		1	
6	Wind + Ice Load AZI 090	OL3					24		1	
7	Service Live 1	LL				3				
8	BLC 1 Transient Area Loads	None						41		
9	BLC 2 Transient Area Loads	None						64		
10	BLC 3 Transient Area Loads	None						66		
11	BLC 5 Transient Area Loads	None						64		
12	BLC 6 Transient Area Loads	None						66		

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...														

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...
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...														
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...	.096														
40	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.083	W...	.048												
41	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.048	W...	.083												
42	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	.096												
43	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.048	W...	.083												
44	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.083	W...	.048												
45	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.096														
46	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.083	W...	-.048												
47	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.048	W...	-.083												
48	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	-.096												
49	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.048	W...	-.083												
50	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.083	W...	-.048												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N110	max	1567.012	16	3830.112	31	2457.954	14	3.379	3	.344	2	1.94	21
2		min	-1575.904	10	-562.115	24	-2450.356	20	-3.366	9	-.343	9	-1.956	3
3	N111	max	3508.824	17	3821.587	27	913.939	2	.019	27	.488	11	3.97	11
4		min	-3508.788	23	-549.107	20	-930.095	8	-.011	20	-.487	5	-3.962	5
5	N112A	max	1603.34	6	3830.72	35	2663.221	14	3.342	13	.369	7	1.934	13
6		min	-1593.731	24	-552.121	16	-2655.525	20	-3.349	7	-.369	13	-1.929	7

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
7	Totals:	max	6057.169	5	10476.771	35	6035.092	14						
8		min	-6057.169	23	2215.828	16	-6035.092	8						

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	M71	C5x6.7	.745	30	3	.139	30	y	38	28841....	63828	1.604	9.585	...	H1-...
2	M72	C5x6.7	.740	30	9	.139	30	y	34	28841....	63828	1.604	9.585	...	H1-...
3	M70	C5x6.7	.735	30	7	.139	30	y	30	28841....	63828	1.604	9.585	...	H1-...
4	M37	LL1 3/4...	.668	0	...	.124	4.875	z	12	41250....	52650	2.244	1.005	...	H1-...
5	M15	LL1 3/4...	.620	0	9	.151	0	y	9	41250....	52650	2.244	1.005	...	H1-...
6	M43	C5x6.7	.616	53...	5	.182	53.75	y	5	7373.526	63828	1.604	9.585	...	H1-...
7	M22	C5x6.7	.615	66...	...	.184	66.25	y	30	7373.526	63828	1.604	9.585	...	H1-...
8	M58	LL1 3/4...	.580	0	2	.127	0	z	4	41250....	52650	2.244	1.005	...	H1-...
9	M1	C5x6.7	.567	66...	7	.183	66.25	y	38	7373.526	63828	1.604	9.585	...	H1-...
10	M57	LL1 3/4...	.528	0	5	.144	2.25	z	5	41250....	52650	2.244	1.607	...	H1-...
11	M36	LL1 3/4...	.475	0	2	.133	0	z	12	41250....	52650	2.244	1.607	...	H1-...
12	M16	LL1 3/4...	.458	0	...	.134	0	y	8	41250....	52650	2.244	1.005	...	H1-...
13	M40	L1.75x1...	.385	52...	...	.014	0	z	12	15648....	26325	.513	1.149	...	H2-1
14	M61	L1.75x1...	.378	52...	5	.014	0	z	4	15648....	26325	.513	1.141	...	H2-1
15	M48	L3x3x4	.355	120	6	.120	120	y	10	7731.283	46656	1.688	3.167	...	H2-1
16	M6	L3x3x4	.350	120	...	.146	120	y	2	7731.283	46656	1.688	3.299	...	H2-1
17	M20	L1.75x1...	.344	51...	7	.011	0	z	8	15648....	26325	.513	1.153	...	H2-1
18	M41	L1.75x1...	.343	46...	...	.012	0	z	12	15648....	26325	.513	1.151	...	H2-1
19	M19	L1.75x1...	.340	52...	9	.013	0	z	8	15648....	26325	.513	1.126	...	H2-1
20	M27	L3x3x4	.334	115	...	.130	120	y	6	7731.283	46656	1.688	3.269	...	H2-1
21	M62	L1.75x1...	.321	49...	3	.010	0	z	4	15648....	26325	.513	1.151	...	H2-1
22	M5	PIPE_2.0	.299	66	...	.108	66		8	14916....	32130	1.872	1.872	...	H1-...
23	M26	PIPE_2.0	.265	66	...	.114	66		11	14916....	32130	1.872	1.872	...	H1-...
24	M47	PIPE_2.0	.261	66	5	.102	66		4	14916....	32130	1.872	1.872	...	H1-...
25	M18	L1.75x1...	.235	0	...	.020	0	z	7	20555....	26325	.513	1.177	...	H2-1
26	M59	L1.75x1...	.225	36	5	.025	0	y	5	20555....	26325	.513	1.177	...	H2-1
27	M39	L1.75x1...	.224	0	...	.023	0	y	5	20555....	26325	.513	1.177	...	H2-1
28	M17	L1.75x1...	.214	36	9	.022	0	z	9	20555....	26325	.513	1.177	...	H2-1
29	M60	L1.75x1...	.202	36	9	.022	0	z	9	20555....	26325	.513	1.177	...	H2-1
30	M38	L1.75x1...	.201	36	...	.018	0	y	13	20555....	26325	.513	1.177	...	H2-1
31	M2	PIPE_2.0	.156	54	8	.100	54		9	20866....	32130	1.872	1.872	...	H1-...
32	M23	PIPE_2.0	.144	54	...	.100	54		13	20866....	32130	1.872	1.872	...	H1-...
33	M44	PIPE_2.0	.143	54	5	.106	54		5	20866....	32130	1.872	1.872	...	H1-...
34	M42	L1.75x1...	.082	36	3	.015	36	y	3	20555....	26325	.513	1.177	...	H2-1
35	M63	L1.75x1...	.082	0	...	.014	0	y	13	20555....	26325	.513	1.177	...	H2-1
36	M21	L1.75x1...	.075	0	5	.013	0	y	5	20555....	26325	.513	1.177	...	H2-1
37	M46	PIPE_2.0	.069	18	...	.084	18		23	20866....	32130	1.872	1.872	...	H1-...
38	M4	PIPE_2.0	.068	18	5	.078	18		15	20866....	32130	1.872	1.872	...	H1-...
39	M24	PIPE_2.0	.066	18	4	.078	18		18	20866....	32130	1.872	1.872	...	H1-...
40	M25	PIPE_2.0	.066	18	9	.078	18		18	20866....	32130	1.872	1.872	...	H1-...
41	M3	PIPE_2.0	.066	18	...	.075	18		14	20866....	32130	1.872	1.872	...	H1-...
42	M45	PIPE_2.0	.060	18	7	.074	18		4	20866....	32130	1.872	1.872	...	H1-...

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**155 ft Monopole**
ATC Site Name	:	**Tolland CT, CT**
ATC Site Number	:	**302495**
Engineering Number	:	**OAA714899_C3_03**
Proposed Carrier	:	**Sprint Nextel**
Carrier Site Name	:	**SNET - Tolland**
Carrier Site Number	:	**CT03XC207**
Site Location	:	**56 Roups Road** **Tolland, CT 06084-3116** **41.873300,-72.338300**
County	:	**Tolland**
Date	:	**March 22, 2018**
Max Usage	:	**88%**
Result	:	**Pass**

Prepared By:
Robert D. Barrett, E.I.
Structural Engineer II

Robert D. Barrett

Reviewed By:

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 155 ft monopole to reflect the change in loading by Sprint Nextel.

Supporting Documents

Tower Drawings	EEI Drawing #GS50842 Rev 1, dated June 24, 1998
Foundation Drawing	EEI Drawing #F3503-150.N, dated March 2, 1998
Geotechnical Report	ASR Project #12-06077, dated December 1, 2006
Modifications	Spectrasite Drawing #CT-0031-M1, dated November 15, 2004

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	97 mph (3-Second Gust, V_{asd}) / 125 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.17, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
155.0	164.0	3	EMS RR90-17-02DP	Flush	(6) 1 5/8" Coax	T-Mobile
	159.0	6	Ericsson KRY 112 71/x			
149.0	152.0	1	7' Omni	Platform w/ Handrails	(1) 1 1/4" Coax	Spok Holdings
	149.0	1	Andrew ABT-DMDF-ADBH		(12) 1 1/4" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk (1) 3" Conduit (1) 3/8" RET Control Cable	AT&T Mobility
		3	Powerwave 7020.00 Dual Band RET			
		6	Kathrein 782-10250			
		6	CCI DTMABP7819VG12A			
		1	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS 11 (Band 12)			
		3	Ericsson RRUS-12 800MHz			
		3	Powerwave 7770.00			
		6	KMW AM-X-CD-16-65-00T-RET			
143.0	143.0	3	Nokia B5 RRH4x40-850	Platform w/ Handrails	(14) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent RRH AWS			
		3	Alcatel-Lucent RRH2x60			
		6	Swedcom ALP 9212-N			
		2	RFS DB-T1-6Z-8AB-0Z			
		6	Commscope JAHH-65B-R3B			
123.0	123.0	12	Decibel DB844H90E-A	Platform w/ Handrails	(12) 1 1/4" Coax	Sprint Nextel
107.0	107.0	3	Commscope LNX-6515DS-VTM	Flush	(6) 1 1/4" Coax	Metro PCS
105.0	105.0	3	Kathrein Smart Bias Tee	Flush	-	
83.0	83.0	1	GPS	Stand-Off	(1) 1/2" Coax	T-Mobile
63.0	63.0	2	GPS	Stand-Offs	(2) 1/2" Coax	Sprint Nextel
50.0	50.0	1	2" x 4" GPS	Stand-Off	(1) 1/2" Coax	
17.0	17.0	1	4' Std. Dish	Flush	(1) 0.27" RG-6/U	Spok Holdings

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
125.0	125.0	5	Decibel 980H65T2E-M	-	(9) 1 5/8" Coax	Sprint Nextel
		4	Decibel DB980H90A-KL			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
133.0	133.0	6	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter	Modified Platform w/ Handrails	(6) 1 5/8" Coax (4) 1 1/4" Hybriflex	Sprint Nextel
		3	Alcatel-Lucent 1900 MHz 4x45 RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		3	RFS APXVTM14-ALU-I20			
		3	Commscope NNVV-65B-R4			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	78%	Pass
Shaft	88%	Pass
Base Plate	75%	Pass
Flanges	21%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,940.5	84%
Axial (Kips)	53.5	5%
Shear (Kips)	35.2	60%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
133.0	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter	Sprint Nextel	2.160	1.898
	Alcatel-Lucent 1900 MHz 4x45 RRH			
	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	RFS APXVTM14-ALU-I20			
	Commscope NNVV-65B-R4			
17.0	4' Std. Dish	Spok Holdings	0.031	0.207

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

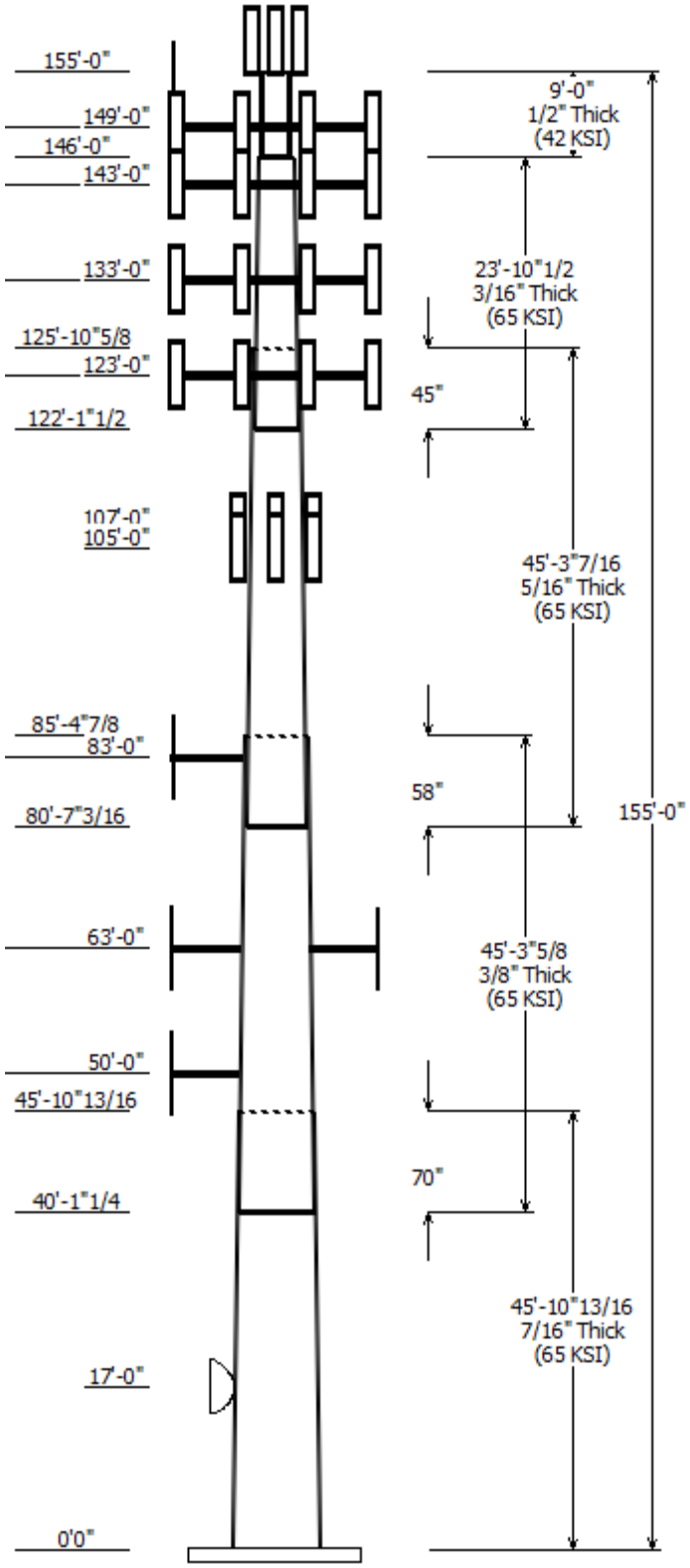
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

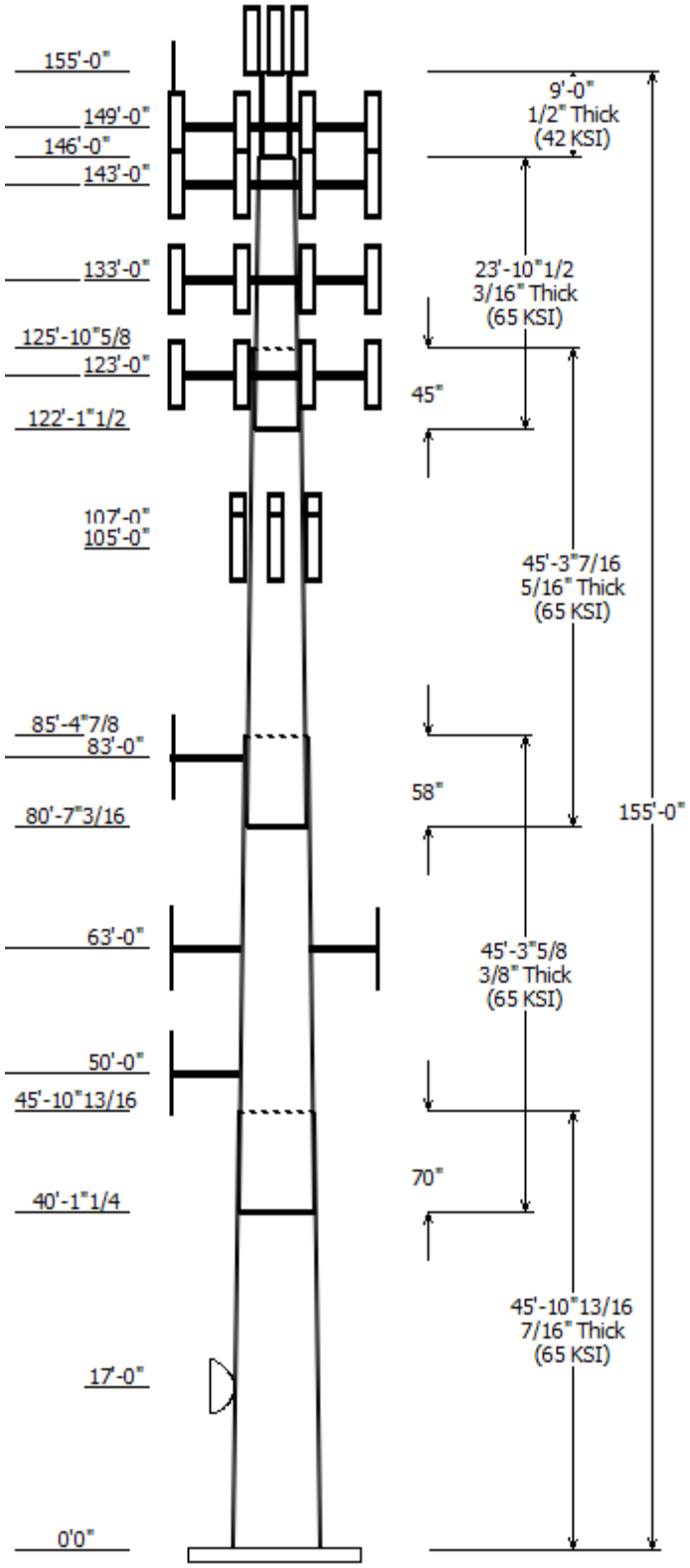
Pole :	302495	Code:	ANSI/TIA-222-G
Location :	Tolland CT, CT		
Description :	EEI 155' Monopole - Model verified 4/25/12		
Client :	Sprint Nextel	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	155.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.210616 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	45.898	40.33	50.00	0.438		0.000	12 Sides	65
2	45.302	32.76	42.30	0.375	Slip Joint	69.531	12 Sides	65
3	45.286	24.86	34.40	0.313	Slip Joint	57.688	12 Sides	65
4	23.878	21.00	26.02	0.188	Slip Joint	45.156	12 Sides	65
5	9.000	16.00	16.00	0.500	Butt Joint	0.000	Round	42

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
155.000	155.000	1	Canister
155.000	159.000	6	Ericsson KRY 112 71/x
155.000	164.000	3	EMS RR90-17-02DP
149.000	149.000	3	Ericsson RRUS-12 800 MHz
149.000	149.000	1	Raycap DC6-48-60-18-8F
149.000	152.000	1	7' Omni
149.000	149.000	3	Powerwave Allgon 7770.00
149.000	149.000	1	Flat Platform w/ Handrails
149.000	149.000	3	Powerwave Allgon 7020.00
149.000	149.000	6	KMW AM-X-CD-16-65-00T-RET
149.000	149.000	3	Ericsson RRUS 11 (Band 12)
149.000	149.000	6	CCI DTMABP7819VG12A
149.000	149.000	6	Kathrein Scala 782-10250
149.000	149.000	1	Andrew ABT-DMDF-ADBH
143.000	143.000	1	Flat Platform w/ Handrails
143.000	143.000	6	Commscope JAHH-65B-R3B
143.000	143.000	1	RFS DB-T1-6Z-8AB-0Z
143.000	143.000	1	RFS DB-T1-6Z-8AB-0Z
143.000	143.000	6	Swedcom ALP 9212-N
143.000	143.000	3	Alcatel-Lucent RRH2x60
143.000	143.000	3	Alcatel-Lucent RRH AWS
143.000	143.000	3	Alcatel-Lucent RRH2x60 700
143.000	143.000	3	Nokia B5 RRH4x40-850
133.000	133.000	3	Commscope NNVV-65B-R4
133.000	133.000	3	RFS APXVTM14-ALU-I20
133.000	133.000	3	Alcatel-Lucent TD-RRH8x20-25
133.000	133.000	3	Alcatel-Lucent 1900 MHz 4x45
133.000	133.000	6	Alcatel-Lucent 800 MHz 2X50W
133.000	133.000	1	Modified Platform w/ Handrails
123.000	123.000	12	Decibel DB844H90E-A
123.000	123.000	1	Flat Platform w/ Handrails
107.000	107.000	3	Commscope LNX-6515DS-VTM
105.000	105.000	3	Kathrein Smart Bias Tee
83.000	83.000	1	Stand-Off
83.000	83.000	1	GPS
63.000	63.000	2	Stand-Off
63.000	63.000	2	GPS
50.000	50.000	1	Stand-Off
50.000	50.000	1	2" x 4" GPS
17.000	17.000	1	4' Std. Dish



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
120.0	149.0	Climbing Ladder	Yes
0.000	155.0	1 5/8" Coax	No
0.000	17.000	0.27" RG-6/U	Yes
0.000	50.000	1/2" Coax	Yes
0.000	63.000	1/2" Coax	Yes
0.000	83.000	1/2" Coax	Yes
0.000	107.0	1 1/4" Coax	Yes
0.000	123.0	1 1/4" Coax	No
0.000	133.0	1 1/4" Hybriflex	No
0.000	133.0	1 5/8" Coax	No
0.000	143.0	1 5/8" Coax	Yes
0.000	143.0	1 5/8" Coax	No
0.000	143.0	1 5/8" Hybriflex	Yes
0.000	149.0	0.39" Fiber Trunk	No
0.000	149.0	0.78" 8 AWG 6	No
0.000	149.0	1 1/4" Coax	No
0.000	149.0	1 1/4" Coax	Yes
0.000	149.0	1 1/4" Coax	No
0.000	149.0	3" Conduit	No
0.000	149.0	3/8" RET Control	No

Load Cases

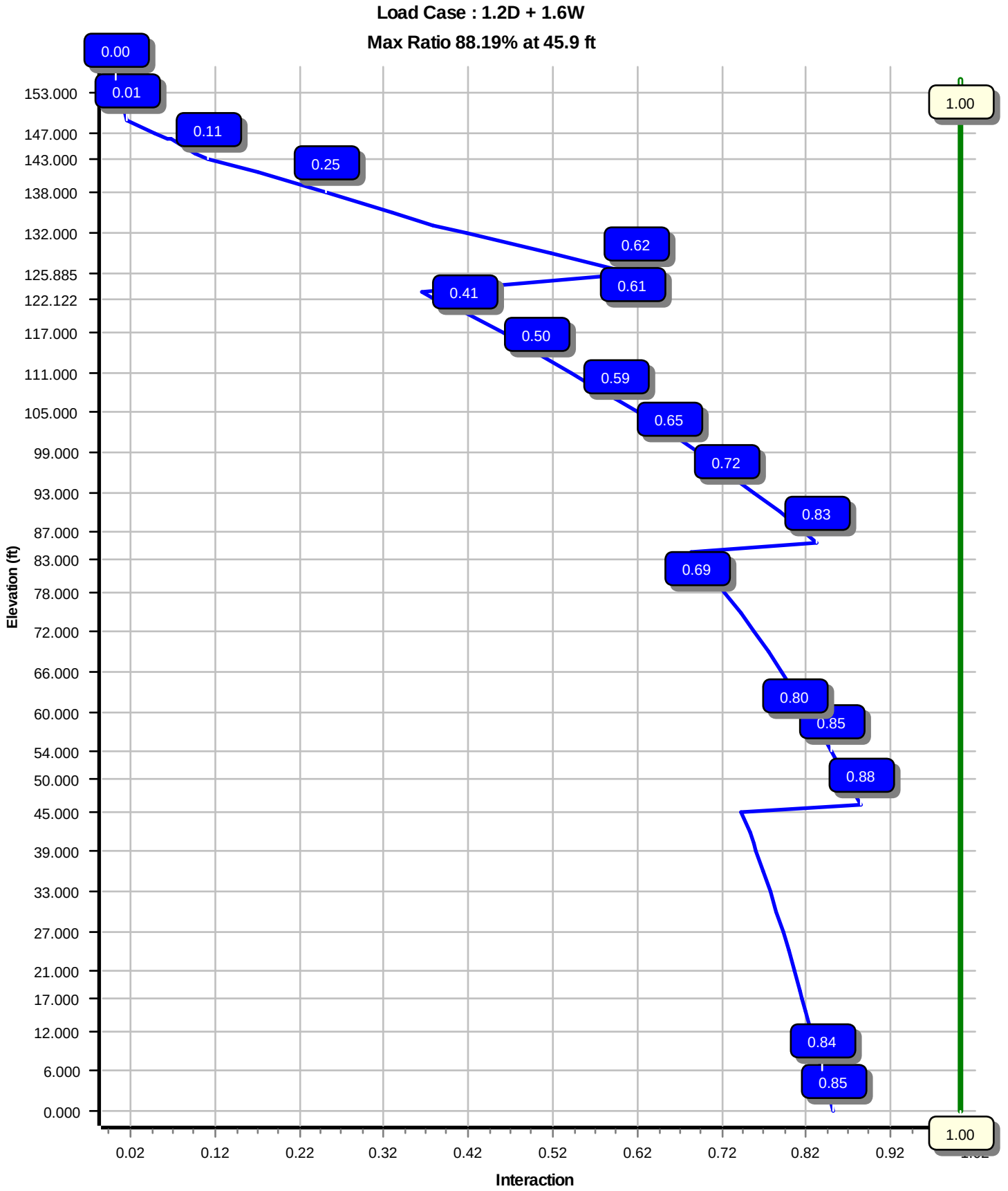
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3940.53	35.21	53.47
0.9D + 1.6W	3845.99	34.99	40.09
1.2D + 1.0Di + 1.0Wi	1097.54	8.60	101.66
(1.2 + 0.2Sds) * DL + E ELFM	233.41	1.74	54.09
(1.2 + 0.2Sds) * DL + E EMAM	336.42	2.67	54.09
(0.9 - 0.2Sds) * DL + E ELFM	227.90	1.74	37.71
(0.9 - 0.2Sds) * DL + E EMAM	328.33	2.67	37.71
1.0D + 1.0W	927.66	8.37	44.59

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	17.00	0.367	0.207


Load Case : 1.2D + 1.6W
Max Ratio 88.19% at 45.9 ft
0.00
0.01
0.11
0.25
0.62
0.61
0.41
0.50
0.59
0.65
0.72
0.83
0.69
0.80
0.85
0.88
0.84
0.85
1.00
1.00
153.000
147.000
143.000
138.000
132.000
125.885
122.122
117.000
111.000
105.000
99.000
93.000
87.000
83.000
78.000
72.000
66.000
60.000
54.000
50.000
45.000
39.000
33.000
27.000
21.000
17.000
12.000
6.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	302495	Code: ANSI/TIA-222-G	
Site Name:	Tolland CT, CT	Engineering Number:OAA714899_C3_03	3/22/2018 4:59:30 PM
Customer:	Sprint Nextel		

Analysis Parameters

Location :	Tolland County, CT	Height (ft) :	155
Code :	ANSI/TIA-222-G	Base Diameter (in) :	50.00
Shape :	12 Sides. Sect 5: Round	Top Diameter (in) :	16.00
Pole Type :	Custom	Taper (in/ft) :	0.211
Pole Manfacturer :	EEI	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.97				
T_L (sec):	6	p:	1.3	C_s:	0.030
S_s:	0.175	S_1:	0.063	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.187	S_{d1}:	0.101		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 4:59:31 PM

Customer: Sprint Nextel

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	45.898	0.4375	65		0.00	9,841	50.00	0.00	69.82	21891.7	27.94	114.29	40.33	45.90	56.20	11418.1	22.02	92.19	0.210616
2-12	45.302	0.3750	65	Slip	69.53	6,917	42.30	40.10	50.63	11360.5	27.55	112.81	32.76	85.41	39.11	5235.8	20.73	87.37	0.210616
3-12	45.286	0.3125	65	Slip	57.69	4,546	34.40	80.60	34.30	5087.0	26.82	110.08	24.86	125.89	24.70	1900.2	18.64	79.56	0.210616
4-12	23.878	0.1875	65	Slip	45.16	1,144	26.02	122.12	15.60	1329.8	34.52	138.82	21.00	146.00	12.57	694.7	27.33	112.00	0.210616
5-R	9.000	0.5000	42	Butt	0.00	746	16.00	146.00	24.35	731.7	0.00	32.00	16.00	155.00	24.35	731.7	0.00	32.00	0.000000
				Shaft Weight		23,194													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
155.00	Canister	1	0.000	0.000	500.00	9.800	1.00
155.00	EMS RR90-17-02DP	3	0.000	9.000	13.50	4.360	0.01
155.00	Ericsson KRY 112 71/x	6	0.000	4.000	13.20	0.730	0.01
149.00	7' Omni	1	0.000	3.000	25.00	2.100	1.00
149.00	Andrew ABT-DMDF-ADBH	1	0.000	0.000	1.10	0.050	0.50
149.00	CCI DTMABP7819VG12A	6	0.000	0.000	19.20	0.970	0.50
149.00	Ericsson RRUS 11 (Band 12)	3	0.000	0.000	50.00	2.570	0.67
149.00	Ericsson RRUS-12 800 MHz	3	0.000	0.000	60.00	2.700	0.67
149.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
149.00	Kathrein Scala 782-10250	6	0.000	0.000	6.40	0.520	0.50
149.00	KMW AM-X-CD-16-65-00T-RET	6	0.000	0.000	48.50	8.020	0.67
149.00	Powerwave Allgon 7020.00 Dual	3	0.000	0.000	2.20	0.400	0.50
149.00	Powerwave Allgon 7770.00	3	0.000	0.000	35.00	5.510	0.65
149.00	Raycap DC6-48-60-18-8F	1	0.000	0.000	31.80	1.280	1.00
143.00	Alcatel-Lucent RRH AWS	3	0.000	0.000	49.00	2.500	0.67
143.00	Alcatel-Lucent RRH2x60	3	0.000	0.000	60.00	3.500	0.67
143.00	Alcatel-Lucent RRH2x60 700	3	0.000	0.000	56.70	2.150	0.67
143.00	Commscope JAHH-65B-R3B	6	0.000	0.000	60.60	9.110	0.69
143.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
143.00	Nokia B5 RRH4x40-850	3	0.000	0.000	48.50	1.320	0.50
143.00	RFS DB-T1-6Z-8AB-0Z	1	0.000	0.000	44.00	4.800	0.67
143.00	RFS DB-T1-6Z-8AB-0Z	1	0.000	0.000	44.00	4.800	0.67
143.00	Swedcom ALP 9212-N	6	0.000	0.000	26.70	4.520	0.90
133.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	0.000	60.00	2.320	0.67
133.00	Alcatel-Lucent 800 MHz 2X50W R	6	0.000	0.000	64.00	2.060	0.67
133.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	0.000	70.00	4.050	0.67
133.00	Commscope NNVV-65B-R4	3	0.000	0.000	77.40	12.270	0.64
133.00	Modified Platform w/ Handrails	1	0.000	0.000	2500.00	47.400	1.00
133.00	RFS APXVTM14-ALU-I20	3	0.000	0.000	56.20	6.340	0.66
123.00	Decibel DB844H90E-A	12	0.000	0.000	10.00	3.800	0.72
123.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
107.00	Commscope LNX-6515DS-VTM	3	0.000	0.000	50.30	11.450	0.84
105.00	Kathrein Smart Bias Tee	3	0.000	0.000	3.31	0.090	0.50
83.00	GPS	1	0.000	0.000	10.00	1.000	1.00
83.00	Stand-Off	1	0.000	0.000	75.00	2.500	1.00
63.00	GPS	2	0.000	0.000	10.00	1.000	1.00
63.00	Stand-Off	2	0.000	0.000	75.00	2.500	0.90
50.00	2" x 4" GPS	1	0.000	0.000	5.00	0.040	1.00
50.00	Stand-Off	1	0.000	0.000	75.00	2.500	1.00
17.00	4' Std. Dish	1	0.000	0.000	188.00	20.910	1.00
Totals	Num Loadings:40	118			13296.83		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	155.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
0.00	149.00	1	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	149.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	149.00	9	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
0.00	149.00	3	1 1/4" Coax	1.55	0.63	N	1.55	Y	AT&T Mobility
0.00	149.00	1	1 1/4" Coax	1.55	0.63	N	0.00	N	Spok Holdings
0.00	149.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	149.00	1	3/8" RET Control Cable	0.38	0.23	N	0.00	N	AT&T Mobility
120.00	149.00	1	Climbing Ladder	2.00	6.90	Y	2.00	Y	--
0.00	143.00	3	1 5/8" Coax	1.98	0.82	N	1.98	Y	Verizon Wireless
0.00	143.00	11	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
0.00	143.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	Y	Verizon Wireless
0.00	133.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	Sprint Nextel
0.00	133.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	123.00	12	1 1/4" Coax	1.55	0.63	N	0.00	N	Sprint Nextel
0.00	107.00	6	1 1/4" Coax	1.55	0.63	N	0.00	Y	Metro PCS
0.00	83.00	1	1/2" Coax	0.63	0.15	N	0.00	Y	T-Mobile
0.00	63.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	Sprint Nextel
0.00	50.00	1	1/2" Coax	0.63	0.15	N	0.00	Y	Sprint Nextel
0.00	17.00	1	0.27" RG-6/U	0.27	0.04	N	0.00	Y	Spok Holdings

Segment Properties (Max Len : 3. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.4375	50.000	69.821	21,891.7	27.94	114.29	74.2	845.8	0.0	0.0
3.00		0.4375	49.368	68.931	21,065.1	27.56	112.84	74.7	824.3	0.0	708.2
6.00		0.4375	48.736	68.041	20,259.5	27.17	111.40	75.1	803.1	0.0	699.1
9.00		0.4375	48.104	67.151	19,474.8	26.78	109.95	75.5	782.1	0.0	690.0
12.00		0.4375	47.473	66.261	18,710.5	26.40	108.51	75.9	761.4	0.0	681.0
15.00		0.4375	46.841	65.371	17,966.6	26.01	107.06	76.3	741.0	0.0	671.9
17.00		0.4375	46.420	64.777	17,481.7	25.75	106.10	76.6	727.5	0.0	442.9
18.00		0.4375	46.209	64.480	17,242.6	25.62	105.62	76.8	720.9	0.0	219.9
21.00		0.4375	45.577	63.590	16,538.3	25.23	104.18	77.2	701.0	0.0	653.7
24.00		0.4375	44.945	62.700	15,853.5	24.85	102.73	77.6	681.4	0.0	644.6
27.00		0.4375	44.313	61.810	15,187.9	24.46	101.29	78.0	662.1	0.0	635.5
30.00		0.4375	43.682	60.920	14,541.1	24.07	99.84	78.5	643.1	0.0	626.4
33.00		0.4375	43.050	60.030	13,913.0	23.69	98.40	78.9	624.3	0.0	617.3
36.00		0.4375	42.418	59.140	13,303.2	23.30	96.95	79.3	605.9	0.0	608.3
39.00		0.4375	41.786	58.250	12,711.5	22.91	95.51	79.7	587.7	0.0	599.2
40.10	Bot - Section 2	0.4375	41.553	57.922	12,498.3	22.77	94.98	79.9	581.1	0.0	218.2
42.00		0.4375	41.154	57.360	12,137.7	22.53	94.07	80.1	569.8	0.0	696.9
45.00		0.4375	40.522	56.469	11,581.3	22.14	92.62	80.6	552.1	0.0	1,089.0
45.90	Top - Section 1	0.3750	41.083	49.155	10,397.1	26.68	109.55	75.6	488.9	0.0	322.9
48.00		0.3750	40.640	48.620	10,061.7	26.36	108.37	76.0	478.3	0.0	349.6
50.00		0.3750	40.219	48.112	9,749.2	26.06	107.25	76.3	468.3	0.0	329.2
51.00		0.3750	40.009	47.858	9,595.4	25.91	106.69	76.5	463.3	0.0	163.3
54.00		0.3750	39.377	47.095	9,143.7	25.46	105.00	77.0	448.6	0.0	484.7
57.00		0.3750	38.745	46.332	8,706.5	25.00	103.32	77.4	434.1	0.0	476.9
60.00		0.3750	38.113	45.569	8,283.4	24.55	101.63	77.9	419.9	0.0	469.1
63.00		0.3750	37.481	44.806	7,874.3	24.10	99.95	78.4	405.9	0.0	461.3
66.00		0.3750	36.849	44.043	7,478.8	23.65	98.26	78.9	392.1	0.0	453.5
69.00		0.3750	36.217	43.280	7,096.9	23.20	96.58	79.4	378.5	0.0	445.7
72.00		0.3750	35.586	42.517	6,728.1	22.75	94.89	79.9	365.3	0.0	437.9
75.00		0.3750	34.954	41.754	6,372.4	22.30	93.21	80.4	352.2	0.0	430.1
78.00		0.3750	34.322	40.991	6,029.4	21.84	91.53	80.9	339.4	0.0	422.3
80.60	Bot - Section 3	0.3750	33.775	40.330	5,742.4	21.45	90.07	81.3	328.5	0.0	359.6
81.00		0.3750	33.690	40.228	5,699.0	21.39	89.84	81.4	326.8	0.0	101.7
83.00		0.3750	33.269	39.719	5,485.5	21.09	88.72	81.7	318.5	0.0	503.5
84.00		0.3750	33.058	39.465	5,380.8	20.94	88.16	81.9	314.4	0.0	249.3
85.41	Top - Section 2	0.3125	33.387	33.281	4,647.0	25.95	106.84	76.4	268.9	0.0	348.0
87.00		0.3125	33.051	32.943	4,507.0	25.66	105.76	76.7	263.4	0.0	179.6
90.00		0.3125	32.420	32.308	4,251.0	25.12	103.74	77.3	253.3	0.0	333.1
93.00		0.3125	31.788	31.672	4,004.9	24.58	101.72	77.9	243.4	0.0	326.6
96.00		0.3125	31.156	31.036	3,768.6	24.03	99.70	78.5	233.7	0.0	320.1
99.00		0.3125	30.524	30.400	3,541.7	23.49	97.68	79.1	224.2	0.0	313.6
102.0		0.3125	29.892	29.765	3,324.1	22.95	95.65	79.7	214.8	0.0	307.1
105.0		0.3125	29.260	29.129	3,115.6	22.41	93.63	80.3	205.7	0.0	300.6
107.0		0.3125	28.839	28.705	2,981.5	22.05	92.28	80.7	199.7	0.0	196.8
108.0		0.3125	28.628	28.493	2,916.0	21.87	91.61	80.9	196.8	0.0	97.3
111.0		0.3125	27.997	27.857	2,725.1	21.33	89.59	81.5	188.0	0.0	287.6
114.0		0.3125	27.365	27.221	2,542.7	20.78	87.57	81.9	179.5	0.0	281.1
117.0		0.3125	26.733	26.586	2,368.7	20.24	85.55	81.9	171.2	0.0	274.6
120.0		0.3125	26.101	25.950	2,202.8	19.70	83.52	81.9	163.0	0.0	268.1
122.1	Bot - Section 4	0.3125	25.654	25.500	2,090.2	19.32	82.09	81.9	157.4	0.0	185.8
123.0		0.3125	25.469	25.314	2,044.8	19.16	81.50	81.9	155.1	0.0	122.3
125.8	Top - Section 3	0.1875	25.236	15.123	1,211.2	33.38	134.59	68.3	92.7	0.0	395.8
126.0		0.1875	25.212	15.109	1,207.7	33.35	134.47	68.3	92.5	0.0	5.9
129.0		0.1875	24.580	14.727	1,118.5	32.45	131.10	69.3	87.9	0.0	152.3
132.0		0.1875	23.949	14.346	1,033.8	31.54	127.73	70.3	83.4	0.0	148.4
133.0		0.1875	23.738	14.219	1,006.6	31.24	126.60	70.6	81.9	0.0	48.6
135.0		0.1875	23.317	13.964	953.5	30.64	124.36	71.3	79.0	0.0	95.9
138.0		0.1875	22.685	13.583	877.5	29.74	120.99	72.3	74.7	0.0	140.6

141.0		0.1875	22.053	13.201	805.6	28.84	117.62	73.3	70.6	0.0	136.7
143.0		0.1875	21.632	12.947	759.9	28.23	115.37	73.9	67.9	0.0	89.0
144.0		0.1875	21.421	12.820	737.8	27.93	114.25	74.2	66.5	0.0	43.8
146.0	Top - Section 4	0.1875	21.000	12.566	694.7	27.33	112.00	74.9	63.9	0.0	86.4
146.0	Bot - Section 5	0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	
147.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	82.8
149.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	165.7
150.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	82.8
153.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	248.5
155.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	165.7
											23,194.0

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 4:59:31 PM

Customer: Sprint Nextel

Load Case: 1.2D + 1.6W 97 mph with No Ice 29 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		181.3	0.0					0.0	0.0	181.3	0.0	0.0	0.0
3.00		360.2	849.9					0.0	205.7	360.2	1,055.6	0.0	0.0
6.00		355.6	839.0					0.0	205.7	355.6	1,044.7	0.0	0.0
9.00		351.0	828.0					0.0	205.7	351.0	1,033.8	0.0	0.0
12.00		346.4	817.1					0.0	205.7	346.4	1,022.8	0.0	0.0
15.00		285.5	806.2					0.0	205.7	285.5	1,011.9	0.0	0.0
17.00	Appurtenance(s)	169.7	531.4	589.5	0.0	0.0	225.6	0.0	137.1	759.2	894.2	0.0	0.0
18.00		223.8	263.9					0.0	68.5	223.8	332.4	0.0	0.0
21.00		332.6	784.4					0.0	205.6	332.6	990.0	0.0	0.0
24.00		327.9	773.5					0.0	205.6	327.9	979.1	0.0	0.0
27.00		323.3	762.6					0.0	205.6	323.3	968.2	0.0	0.0
30.00		321.1	751.7					0.0	205.6	321.1	957.3	0.0	0.0
33.00		323.0	740.8					0.0	205.6	323.0	946.4	0.0	0.0
36.00		326.2	729.9					0.0	205.6	326.2	935.5	0.0	0.0
39.00		224.4	719.0					0.0	205.6	224.4	924.6	0.0	0.0
40.10	Bot - Section 2	166.9	261.9					0.0	75.7	166.9	337.5	0.0	0.0
42.00		275.1	836.3					0.0	129.9	275.1	966.2	0.0	0.0
45.00		219.6	1,306.8					0.0	205.6	219.6	1,512.4	0.0	0.0
45.90	Top - Section 1	169.5	387.4					0.0	61.6	169.5	449.0	0.0	0.0
48.00		232.0	419.5					0.0	144.0	232.0	563.5	0.0	0.0
50.00	Appurtenance(s)	169.9	395.0	82.9	0.0	0.0	96.0	0.0	137.0	252.8	628.0	0.0	0.0
51.00		226.7	195.9					0.0	68.3	226.7	264.3	0.0	0.0
54.00		340.1	581.6					0.0	205.0	340.1	786.6	0.0	0.0
57.00		339.8	572.2					0.0	205.0	339.8	777.3	0.0	0.0
60.00		339.2	562.9					0.0	205.0	339.2	767.9	0.0	0.0
63.00	Appurtenance(s)	338.3	553.5	211.0	0.0	0.0	204.0	0.0	205.0	549.3	962.6	0.0	0.0
66.00		337.1	544.2					0.0	203.9	337.1	748.1	0.0	0.0
69.00		335.5	534.9					0.0	203.9	335.5	738.8	0.0	0.0
72.00		333.7	525.5					0.0	203.9	333.7	729.4	0.0	0.0
75.00		331.6	516.2					0.0	203.9	331.6	720.1	0.0	0.0
78.00		307.4	506.8					0.0	203.9	307.4	710.8	0.0	0.0
80.60	Bot - Section 3	164.5	431.5					0.0	176.7	164.5	608.2	0.0	0.0
81.00		133.6	122.1					0.0	27.3	133.6	149.3	0.0	0.0
83.00	Appurtenance(s)	166.8	604.1	132.1	0.0	0.0	102.0	0.0	136.0	298.9	842.1	0.0	0.0
84.00		133.6	299.2					0.0	67.8	133.6	367.0	0.0	0.0
85.41	Top - Section 2	165.9	417.6					0.0	95.3	165.9	512.9	0.0	0.0
87.00		252.7	215.5					0.0	108.1	252.7	323.5	0.0	0.0
90.00		329.1	399.7					0.0	203.4	329.1	603.1	0.0	0.0
93.00		327.7	391.9					0.0	203.4	327.7	595.3	0.0	0.0
96.00		326.2	384.1					0.0	203.4	326.2	587.5	0.0	0.0
99.00		324.5	376.3					0.0	203.4	324.5	579.7	0.0	0.0
102.00		322.7	368.5					0.0	203.4	322.7	571.9	0.0	0.0
105.00	Appurtenance(s)	267.6	360.7	5.4	0.0	0.0	11.9	0.0	203.4	273.0	576.0	0.0	0.0
107.00	Appurtenance(s)	159.9	236.2	1,170.8	0.0	0.0	181.1	0.0	135.6	1,330.7	552.8	0.0	0.0
108.00		212.0	116.8					0.0	63.3	212.0	180.0	0.0	0.0
111.00		316.5	345.1					0.0	189.8	316.5	534.9	0.0	0.0
114.00		314.2	337.4					0.0	189.8	314.2	527.1	0.0	0.0
117.00		311.8	329.6					0.0	189.8	311.8	519.4	0.0	0.0

Load Case: 1.2D + 1.6W 97 mph with No Ice 29 Iterations

Gust Response Factor :1.10
Dead Load Factor :1.20
Wind Load Factor :1.60

Wind Importance Factor 1.00

120.00		274.8	321.8					0.0	189.8	274.8	511.6	0.0	0.0
122.12	Bot - Section 4	169.2	222.9					61.2	151.8	230.4	374.8	0.0	0.0
123.00	Appurtenance(s)	211.3	146.8	2,830.1	0.0	0.0	2,544.0	25.4	62.8	3,066.8	2,753.5	0.0	0.0
125.89	Top - Section 3	168.0	475.0					83.9	180.3	251.9	655.3	0.0	0.0
126.00		171.3	7.1					3.3	7.2	174.6	14.2	0.0	0.0
129.00		326.8	182.7					87.8	187.4	414.6	370.2	0.0	0.0
132.00		215.1	178.1					88.4	187.4	303.5	365.5	0.0	0.0
133.00	Appurtenance(s)	158.6	58.3	3,898.9	0.0	0.0	4,409.8	29.6	62.5	4,087.1	4,530.6	0.0	0.0
135.00		260.8	115.1					59.4	103.5	320.2	218.6	0.0	0.0
138.00		307.4	168.7					89.6	155.3	397.0	324.0	0.0	0.0
141.00		251.5	164.1					90.1	155.3	341.7	319.4	0.0	0.0
143.00	Appurtenance(s)	147.7	106.8	4,742.7	0.0	0.0	3,905.3	60.4	103.5	4,950.8	4,115.6	0.0	0.0
144.00		144.2	52.6					0.0	34.9	144.2	87.5	0.0	0.0
146.00	Top - Section 4	131.5	103.7					0.0	69.7	131.5	173.4	0.0	0.0
147.00		106.7	99.4					21.7	34.9	128.4	134.3	0.0	0.0
149.00	Appurtenance(s)	89.1	198.8	3,990.9	0.0	282.6	3,532.9	43.5	69.7	4,123.4	3,801.5	0.0	0.0
150.00		71.6	99.4					0.0	5.9	71.6	105.3	0.0	0.0
153.00		89.8	298.3					0.0	17.7	89.8	316.0	0.0	0.0
155.00	Appurtenance(s)	36.0	198.8	450.1	0.0	61.9	743.6	0.0	11.8	486.1	954.3	0.0	0.0
								Totals:		35,323.6	53,515.0	0.00	0.00

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 4:59:40 PM

Customer: Sprint Nextel

Load Case: 1.2D + 1.6W 97 mph with No Ice 29 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-53.47	-35.21	0.00	-3,940.53	0.00	3,940.53	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.848
3.00	-52.32	-34.99	0.00	-3,834.89	0.00	3,834.89	4,631.78	2,315.89	9,346.21	4,615.74	0.05	-0.15	0.842
6.00	-51.18	-34.77	0.00	-3,729.91	0.00	3,729.91	4,597.82	2,298.91	9,156.81	4,522.21	0.19	-0.30	0.836
9.00	-50.06	-34.55	0.00	-3,625.61	0.00	3,625.61	4,563.18	2,281.59	8,967.87	4,428.89	0.44	-0.46	0.830
12.00	-48.94	-34.33	0.00	-3,521.96	0.00	3,521.96	4,527.86	2,263.93	8,779.43	4,335.83	0.78	-0.62	0.823
15.00	-47.86	-34.14	0.00	-3,418.98	0.00	3,418.98	4,491.86	2,245.93	8,591.56	4,243.05	1.21	-0.77	0.817
17.00	-46.93	-33.43	0.00	-3,350.70	0.00	3,350.70	4,467.49	2,233.75	8,466.65	4,181.36	1.56	-0.88	0.812
18.00	-46.53	-33.29	0.00	-3,317.27	0.00	3,317.27	4,455.19	2,227.60	8,404.31	4,150.57	1.75	-0.94	0.810
21.00	-45.46	-33.07	0.00	-3,217.39	0.00	3,217.39	4,417.85	2,208.92	8,217.72	4,058.43	2.39	-1.10	0.803
24.00	-44.39	-32.85	0.00	-3,118.18	0.00	3,118.18	4,379.82	2,189.91	8,031.86	3,966.64	3.14	-1.26	0.796
27.00	-43.34	-32.63	0.00	-3,019.63	0.00	3,019.63	4,341.13	2,170.56	7,846.78	3,875.23	3.98	-1.43	0.789
30.00	-42.29	-32.41	0.00	-2,921.73	0.00	2,921.73	4,301.75	2,150.88	7,662.53	3,784.23	4.93	-1.59	0.782
33.00	-41.26	-32.18	0.00	-2,824.51	0.00	2,824.51	4,261.70	2,130.85	7,479.16	3,693.68	5.99	-1.76	0.775
36.00	-40.24	-31.95	0.00	-2,727.97	0.00	2,727.97	4,220.97	2,110.49	7,296.73	3,603.58	7.15	-1.93	0.767
39.00	-39.26	-31.77	0.00	-2,632.13	0.00	2,632.13	4,179.57	2,089.78	7,115.28	3,513.97	8.42	-2.10	0.759
40.10	-38.88	-31.65	0.00	-2,597.06	0.00	2,597.06	4,164.16	2,082.08	7,048.76	3,481.12	8.91	-2.17	0.756
42.00	-37.85	-31.43	0.00	-2,537.06	0.00	2,537.06	4,137.49	2,068.74	6,934.89	3,424.88	9.80	-2.28	0.750
45.00	-36.28	-31.22	0.00	-2,442.76	0.00	2,442.76	4,094.73	2,047.37	6,755.59	3,336.33	11.29	-2.45	0.741
45.90	-35.79	-31.09	0.00	-2,414.71	0.00	2,414.71	3,345.43	1,672.72	5,614.65	2,772.86	11.75	-2.51	0.882
48.00	-35.17	-30.91	0.00	-2,349.38	0.00	2,349.38	3,324.15	1,662.07	5,517.72	2,724.99	12.89	-2.63	0.873
50.00	-34.50	-30.69	0.00	-2,287.56	0.00	2,287.56	3,303.59	1,651.79	5,425.69	2,679.55	14.02	-2.76	0.865
51.00	-34.18	-30.53	0.00	-2,256.87	0.00	2,256.87	3,293.20	1,646.60	5,379.77	2,656.86	14.60	-2.83	0.860
54.00	-33.31	-30.26	0.00	-2,165.29	0.00	2,165.29	3,261.57	1,630.78	5,242.36	2,589.00	16.44	-3.03	0.847
57.00	-32.45	-29.99	0.00	-2,074.51	0.00	2,074.51	3,229.26	1,614.63	5,105.54	2,521.44	18.41	-3.23	0.833
60.00	-31.60	-29.72	0.00	-1,984.53	0.00	1,984.53	3,196.28	1,598.14	4,969.37	2,454.19	20.50	-3.42	0.819
63.00	-30.57	-29.22	0.00	-1,895.37	0.00	1,895.37	3,162.62	1,581.31	4,833.91	2,387.28	22.71	-3.62	0.804
66.00	-29.74	-28.94	0.00	-1,807.71	0.00	1,807.71	3,128.28	1,564.14	4,699.19	2,320.75	25.06	-3.82	0.789
69.00	-28.93	-28.66	0.00	-1,720.90	0.00	1,720.90	3,093.27	1,546.64	4,565.29	2,254.62	27.52	-4.03	0.773
72.00	-28.12	-28.37	0.00	-1,634.93	0.00	1,634.93	3,057.58	1,528.79	4,432.24	2,188.92	30.12	-4.23	0.756
75.00	-27.33	-28.08	0.00	-1,549.82	0.00	1,549.82	3,021.22	1,510.61	4,300.11	2,123.66	32.83	-4.43	0.739
78.00	-26.56	-27.81	0.00	-1,465.58	0.00	1,465.58	2,984.18	1,492.09	4,168.95	2,058.89	35.68	-4.63	0.721
80.60	-25.92	-27.64	0.00	-1,393.31	0.00	1,393.31	2,951.54	1,475.77	4,056.14	2,003.18	38.25	-4.81	0.705
81.00	-25.74	-27.53	0.00	-1,382.23	0.00	1,382.23	2,946.46	1,473.23	4,038.81	1,994.61	38.65	-4.83	0.702
83.00	-24.88	-27.20	0.00	-1,327.17	0.00	1,327.17	2,920.94	1,460.47	3,952.64	1,952.06	40.71	-4.97	0.689
84.00	-24.48	-27.07	0.00	-1,299.97	0.00	1,299.97	2,908.96	1,454.48	3,910.94	1,931.47	41.75	-5.04	0.682
85.41	-23.94	-26.90	0.00	-1,261.90	0.00	1,261.90	2,288.86	1,144.43	3,120.34	1,541.02	43.25	-5.13	0.830
87.00	-23.56	-26.69	0.00	-1,219.02	0.00	1,219.02	2,274.94	1,137.47	3,069.59	1,515.96	44.98	-5.24	0.815
90.00	-22.89	-26.40	0.00	-1,138.95	0.00	1,138.95	2,248.22	1,124.11	2,974.43	1,468.96	48.34	-5.46	0.786
93.00	-22.23	-26.10	0.00	-1,059.75	0.00	1,059.75	2,220.81	1,110.41	2,879.80	1,422.23	51.84	-5.68	0.756
96.00	-21.58	-25.80	0.00	-981.46	0.00	981.46	2,192.74	1,096.37	2,785.75	1,375.78	55.48	-5.90	0.724
99.00	-20.95	-25.49	0.00	-904.07	0.00	904.07	2,163.98	1,081.99	2,692.34	1,329.64	59.25	-6.12	0.690
102.00	-20.32	-25.18	0.00	-827.60	0.00	827.60	2,134.56	1,067.28	2,599.61	1,283.85	63.15	-6.32	0.655
105.00	-19.71	-24.90	0.00	-752.06	0.00	752.06	2,104.45	1,052.22	2,507.63	1,238.42	67.18	-6.53	0.617
107.00	-19.27	-23.55	0.00	-702.26	0.00	702.26	2,084.00	1,042.00	2,446.74	1,208.36	69.94	-6.66	0.591
108.00	-19.07	-23.36	0.00	-678.71	0.00	678.71	2,073.67	1,036.83	2,416.44	1,193.39	71.34	-6.73	0.578
111.00	-18.50	-23.04	0.00	-608.62	0.00	608.62	2,042.21	1,021.11	2,326.10	1,148.77	75.62	-6.91	0.539
114.00	-17.94	-22.72	0.00	-539.50	0.00	539.50	2,006.48	1,003.24	2,232.66	1,102.63	80.01	-7.09	0.499
117.00	-17.40	-22.40	0.00	-471.33	0.00	471.33	1,959.62	979.81	2,129.00	1,051.43	84.51	-7.26	0.458
120.00	-16.88	-22.10	0.00	-404.14	0.00	404.14	1,912.75	956.38	2,027.81	1,001.46	89.12	-7.42	0.413
122.12	-16.51	-21.84	0.00	-357.24	0.00	357.24	1,879.60	939.80	1,957.71	966.84	92.43	-7.53	0.379
123.00	-14.16	-18.46	0.00	-338.07	0.00	338.07	1,865.89	932.94	1,929.08	952.70	93.82	-7.57	0.363

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 4:59:41 PM

Customer: Sprint Nextel

Load Case: 1.2D + 1.6W 97 mph with No Ice 29 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

125.89	-13.52	-18.14	0.00	-284.81	0.00	284.81	929.68	464.84	961.73	474.96	98.42	-7.69	0.616
126.00	-13.50	-17.99	0.00	-282.73	0.00	282.73	929.29	464.65	960.40	474.31	98.60	-7.70	0.612
129.00	-13.14	-17.56	0.00	-228.77	0.00	228.77	918.88	459.44	925.49	457.06	103.48	-7.88	0.516
132.00	-12.79	-17.24	0.00	-176.08	0.00	176.08	907.79	453.90	890.46	439.76	108.47	-8.03	0.416
133.00	-8.86	-12.56	0.00	-158.84	0.00	158.84	903.95	451.97	878.77	433.99	110.15	-8.08	0.377
135.00	-8.67	-12.23	0.00	-133.72	0.00	133.72	896.03	448.02	855.37	422.43	113.55	-8.16	0.327
138.00	-8.39	-11.80	0.00	-97.03	0.00	97.03	883.59	441.80	820.26	405.10	118.69	-8.26	0.250
141.00	-8.11	-11.43	0.00	-61.62	0.00	61.62	870.48	435.24	785.20	387.78	123.89	-8.34	0.169
143.00	-4.76	-5.93	0.00	-38.76	0.00	38.76	861.36	430.68	761.88	376.27	127.39	-8.38	0.109
144.00	-4.69	-5.78	0.00	-32.83	0.00	32.83	856.69	428.34	750.24	370.52	129.14	-8.39	0.094
146.00	-4.54	-5.62	0.00	-21.27	0.00	21.27	847.12	423.56	727.02	359.05	132.64	-8.41	0.065
146.00	-4.54	-5.62	0.00	-21.27	0.00	21.27	920.33	460.16	575.46	378.52	132.64	-8.41	0.061
147.00	-4.42	-5.48	0.00	-15.65	0.00	15.65	920.33	460.16	575.46	378.52	134.40	-8.42	0.046
149.00	-1.27	-0.84	0.00	-4.41	0.00	4.41	920.33	460.16	575.46	378.52	137.92	-8.43	0.013
150.00	-1.17	-0.76	0.00	-3.57	0.00	3.57	920.33	460.16	575.46	378.52	139.67	-8.43	0.011
153.00	-0.87	-0.62	0.00	-1.30	0.00	1.30	920.33	460.16	575.46	378.52	144.95	-8.43	0.004
155.00	0.00	-0.49	0.00	-0.06	0.00	0.06	920.33	460.16	575.46	378.52	148.47	-8.43	0.000

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 29 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.60

Wind Importance Factor 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		181.3	0.0					0.0	0.0	181.3	0.0	0.0	0.0
3.00		360.2	637.4					0.0	154.3	360.2	791.7	0.0	0.0
6.00		355.6	629.2					0.0	154.3	355.6	783.5	0.0	0.0
9.00		351.0	621.0					0.0	154.3	351.0	775.3	0.0	0.0
12.00		346.4	612.9					0.0	154.3	346.4	767.1	0.0	0.0
15.00		285.5	604.7					0.0	154.3	285.5	759.0	0.0	0.0
17.00	Appurtenance(s)	169.7	398.6	589.5	0.0	0.0	169.2	0.0	102.9	759.2	670.6	0.0	0.0
18.00		223.8	197.9					0.0	51.4	223.8	249.3	0.0	0.0
21.00		332.6	588.3					0.0	154.2	332.6	742.5	0.0	0.0
24.00		327.9	580.1					0.0	154.2	327.9	734.3	0.0	0.0
27.00		323.3	572.0					0.0	154.2	323.3	726.1	0.0	0.0
30.00		321.1	563.8					0.0	154.2	321.1	718.0	0.0	0.0
33.00		323.0	555.6					0.0	154.2	323.0	709.8	0.0	0.0
36.00		326.2	547.4					0.0	154.2	326.2	701.6	0.0	0.0
39.00		224.4	539.3					0.0	154.2	224.4	693.4	0.0	0.0
40.10	Bot - Section 2	166.9	196.4					0.0	56.7	166.9	253.2	0.0	0.0
42.00		275.1	627.2					0.0	97.4	275.1	724.6	0.0	0.0
45.00		219.6	980.1					0.0	154.2	219.6	1,134.3	0.0	0.0
45.90	Top - Section 1	169.5	290.6					0.0	46.2	169.5	336.7	0.0	0.0
48.00		232.0	314.6					0.0	108.0	232.0	422.6	0.0	0.0
50.00	Appurtenance(s)	169.9	296.2	82.9	0.0	0.0	72.0	0.0	102.8	252.8	471.0	0.0	0.0
51.00		226.7	147.0					0.0	51.3	226.7	198.2	0.0	0.0
54.00		340.1	436.2					0.0	153.8	340.1	590.0	0.0	0.0
57.00		339.8	429.2					0.0	153.8	339.8	582.9	0.0	0.0
60.00		339.2	422.2					0.0	153.8	339.2	575.9	0.0	0.0
63.00	Appurtenance(s)	338.3	415.2	211.0	0.0	0.0	153.0	0.0	153.8	549.3	721.9	0.0	0.0
66.00		337.1	408.1					0.0	153.0	337.1	561.1	0.0	0.0
69.00		335.5	401.1					0.0	153.0	335.5	554.1	0.0	0.0
72.00		333.7	394.1					0.0	153.0	333.7	547.1	0.0	0.0
75.00		331.6	387.1					0.0	153.0	331.6	540.1	0.0	0.0
78.00		307.4	380.1					0.0	153.0	307.4	533.1	0.0	0.0
80.60	Bot - Section 3	164.4	323.6					0.0	132.5	164.4	456.1	0.0	0.0
81.00		132.9	91.5					0.0	20.4	132.9	112.0	0.0	0.0
83.00	Appurtenance(s)	165.7	453.1	132.1	0.0	0.0	76.5	0.0	102.0	297.8	631.6	0.0	0.0
84.00		132.3	224.4					0.0	50.8	132.3	275.3	0.0	0.0
85.41	Top - Section 2	164.3	313.2					0.0	71.5	164.3	384.7	0.0	0.0
87.00		249.9	161.6					0.0	81.0	249.9	242.7	0.0	0.0
90.00		324.0	299.7					0.0	152.5	324.0	452.3	0.0	0.0
93.00		320.7	293.9					0.0	152.5	320.7	446.5	0.0	0.0
96.00		317.2	288.1					0.0	152.5	317.2	440.6	0.0	0.0
99.00		313.5	282.2					0.0	152.5	313.5	434.8	0.0	0.0
102.00		309.6	276.4					0.0	152.5	309.6	428.9	0.0	0.0
105.00	Appurtenance(s)	255.3	270.5	5.4	0.0	0.0	8.9	0.0	152.5	260.7	432.0	0.0	0.0
107.00	Appurtenance(s)	151.8	177.1	1,170.8	0.0	0.0	135.8	0.0	101.7	1,322.6	414.6	0.0	0.0
108.00		200.0	87.6					0.0	47.4	200.0	135.0	0.0	0.0
111.00		297.1	258.9					0.0	142.3	297.1	401.2	0.0	0.0
114.00		292.6	253.0					0.0	142.3	292.6	395.4	0.0	0.0
117.00		288.0	247.2					0.0	142.3	288.0	389.5	0.0	0.0

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 29 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.60

Wind Importance Factor 1.00

120.00		262.3	241.3					0.0	142.3	262.3	383.7	0.0	0.0
122.12	Bot - Section 4	169.2	167.2					61.2	113.9	230.4	281.1	0.0	0.0
123.00	Appurtenance(s)	211.3	110.1	2,830.1	0.0	0.0	1,908.0	25.4	47.1	3,066.8	2,065.2	0.0	0.0
125.89	Top - Section 3	168.0	356.2					83.9	135.2	251.9	491.4	0.0	0.0
126.00		171.3	5.3					3.3	5.4	174.6	10.7	0.0	0.0
129.00		326.8	137.1					87.8	140.6	414.6	277.6	0.0	0.0
132.00		215.1	133.6					88.4	140.6	303.5	274.1	0.0	0.0
133.00	Appurtenance(s)	158.6	43.7	3,898.9	0.0	0.0	3,307.3	29.6	46.9	4,087.1	3,397.9	0.0	0.0
135.00		260.8	86.3					59.4	77.7	320.2	164.0	0.0	0.0
138.00		307.4	126.5					89.6	116.5	397.0	243.0	0.0	0.0
141.00		251.5	123.0					90.1	116.5	341.7	239.5	0.0	0.0
143.00	Appurtenance(s)	140.5	80.1	4,742.7	0.0	0.0	2,929.0	60.4	77.7	4,943.5	3,086.7	0.0	0.0
144.00		122.0	39.5					0.0	26.2	122.0	65.6	0.0	0.0
146.00	Top - Section 4	116.5	77.7					0.0	52.3	116.5	130.1	0.0	0.0
147.00		106.7	74.6					21.7	26.2	128.4	100.7	0.0	0.0
149.00	Appurtenance(s)	89.1	149.1	3,990.9	0.0	282.6	2,649.7	43.5	52.3	4,123.4	2,851.1	0.0	0.0
150.00		71.6	74.6					0.0	4.4	71.6	79.0	0.0	0.0
153.00		89.8	223.7					0.0	13.3	89.8	237.0	0.0	0.0
155.00	Appurtenance(s)	36.0	149.1	450.1	0.0	61.9	557.7	0.0	8.9	486.1	715.7	0.0	0.0
								Totals:		35,116.9	40,136.2	0.00	0.00

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 4:59:51 PM

Customer: Sprint Nextel

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 29 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-40.09	-34.99	0.00	-3,845.99	0.00	3,845.99	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.825
3.00	-39.21	-34.73	0.00	-3,741.03	0.00	3,741.03	4,631.78	2,315.89	9,346.21	4,615.74	0.05	-0.15	0.819
6.00	-38.34	-34.47	0.00	-3,636.85	0.00	3,636.85	4,597.82	2,298.91	9,156.81	4,522.21	0.19	-0.30	0.813
9.00	-37.47	-34.21	0.00	-3,533.44	0.00	3,533.44	4,563.18	2,281.59	8,967.87	4,428.89	0.43	-0.45	0.806
12.00	-36.62	-33.96	0.00	-3,430.79	0.00	3,430.79	4,527.86	2,263.93	8,779.43	4,335.83	0.76	-0.60	0.800
15.00	-35.79	-33.75	0.00	-3,328.92	0.00	3,328.92	4,491.86	2,245.93	8,591.56	4,243.05	1.18	-0.76	0.793
17.00	-35.08	-33.02	0.00	-3,261.43	0.00	3,261.43	4,467.49	2,233.75	8,466.65	4,181.36	1.52	-0.86	0.788
18.00	-34.78	-32.86	0.00	-3,228.41	0.00	3,228.41	4,455.19	2,227.60	8,404.31	4,150.57	1.71	-0.91	0.786
21.00	-33.95	-32.61	0.00	-3,129.82	0.00	3,129.82	4,417.85	2,208.92	8,217.72	4,058.43	2.33	-1.07	0.779
24.00	-33.13	-32.36	0.00	-3,032.00	0.00	3,032.00	4,379.82	2,189.91	8,031.86	3,966.64	3.06	-1.23	0.772
27.00	-32.32	-32.11	0.00	-2,934.92	0.00	2,934.92	4,341.13	2,170.56	7,846.78	3,875.23	3.88	-1.39	0.765
30.00	-31.52	-31.86	0.00	-2,838.59	0.00	2,838.59	4,301.75	2,150.88	7,662.53	3,784.23	4.81	-1.55	0.758
33.00	-30.73	-31.61	0.00	-2,743.00	0.00	2,743.00	4,261.70	2,130.85	7,479.16	3,693.68	5.83	-1.72	0.750
36.00	-29.95	-31.35	0.00	-2,648.18	0.00	2,648.18	4,220.97	2,110.49	7,296.73	3,603.58	6.96	-1.88	0.742
39.00	-29.20	-31.16	0.00	-2,554.15	0.00	2,554.15	4,179.57	2,089.78	7,115.28	3,513.97	8.20	-2.05	0.734
40.10	-28.91	-31.02	0.00	-2,519.75	0.00	2,519.75	4,164.16	2,082.08	7,048.76	3,481.12	8.68	-2.11	0.731
42.00	-28.12	-30.79	0.00	-2,460.94	0.00	2,460.94	4,137.49	2,068.74	6,934.89	3,424.88	9.54	-2.22	0.726
45.00	-26.94	-30.58	0.00	-2,368.57	0.00	2,368.57	4,094.73	2,047.37	6,755.59	3,336.33	10.99	-2.39	0.717
45.90	-26.56	-30.43	0.00	-2,341.10	0.00	2,341.10	3,345.43	1,672.72	5,614.65	2,772.86	11.44	-2.44	0.853
48.00	-26.08	-30.24	0.00	-2,277.14	0.00	2,277.14	3,324.15	1,662.07	5,517.72	2,724.99	12.55	-2.56	0.844
50.00	-25.58	-30.01	0.00	-2,216.67	0.00	2,216.67	3,303.59	1,651.79	5,425.69	2,679.55	13.65	-2.69	0.835
51.00	-25.32	-29.83	0.00	-2,186.66	0.00	2,186.66	3,293.20	1,646.60	5,379.77	2,656.86	14.21	-2.75	0.831
54.00	-24.65	-29.54	0.00	-2,097.18	0.00	2,097.18	3,261.57	1,630.78	5,242.36	2,589.00	16.00	-2.94	0.818
57.00	-23.99	-29.25	0.00	-2,008.55	0.00	2,008.55	3,229.26	1,614.63	5,105.54	2,521.44	17.91	-3.13	0.804
60.00	-23.34	-28.96	0.00	-1,920.80	0.00	1,920.80	3,196.28	1,598.14	4,969.37	2,454.19	19.95	-3.33	0.790
63.00	-22.55	-28.44	0.00	-1,833.92	0.00	1,833.92	3,162.62	1,581.31	4,833.91	2,387.28	22.10	-3.52	0.776
66.00	-21.92	-28.15	0.00	-1,748.59	0.00	1,748.59	3,128.28	1,564.14	4,699.19	2,320.75	24.37	-3.71	0.761
69.00	-21.29	-27.85	0.00	-1,664.15	0.00	1,664.15	3,093.27	1,546.64	4,565.29	2,254.62	26.77	-3.91	0.745
72.00	-20.68	-27.55	0.00	-1,580.60	0.00	1,580.60	3,057.58	1,528.79	4,432.24	2,188.92	29.28	-4.10	0.729
75.00	-20.07	-27.25	0.00	-1,497.96	0.00	1,497.96	3,021.22	1,510.61	4,300.11	2,123.66	31.92	-4.30	0.712
78.00	-19.48	-26.96	0.00	-1,416.23	0.00	1,416.23	2,984.18	1,492.09	4,168.95	2,058.89	34.68	-4.49	0.695
80.60	-18.99	-26.79	0.00	-1,346.16	0.00	1,346.16	2,951.54	1,475.77	4,056.14	2,003.18	37.18	-4.66	0.679
81.00	-18.85	-26.68	0.00	-1,335.41	0.00	1,335.41	2,946.46	1,473.23	4,038.81	1,994.61	37.57	-4.69	0.676
83.00	-18.20	-26.36	0.00	-1,282.06	0.00	1,282.06	2,920.94	1,460.47	3,952.64	1,952.06	39.56	-4.82	0.663
84.00	-17.90	-26.23	0.00	-1,255.70	0.00	1,255.70	2,908.96	1,454.48	3,910.94	1,931.47	40.58	-4.89	0.657
85.41	-17.49	-26.06	0.00	-1,218.82	0.00	1,218.82	2,288.86	1,144.43	3,120.34	1,541.02	42.03	-4.98	0.799
87.00	-17.20	-25.84	0.00	-1,177.28	0.00	1,177.28	2,274.94	1,137.47	3,069.59	1,515.96	43.71	-5.08	0.785
90.00	-16.68	-25.54	0.00	-1,099.76	0.00	1,099.76	2,248.22	1,124.11	2,974.43	1,468.96	46.97	-5.30	0.757
93.00	-16.17	-25.24	0.00	-1,023.15	0.00	1,023.15	2,220.81	1,110.41	2,879.80	1,422.23	50.36	-5.51	0.727
96.00	-15.67	-24.94	0.00	-947.44	0.00	947.44	2,192.74	1,096.37	2,785.75	1,375.78	53.88	-5.72	0.696
99.00	-15.19	-24.63	0.00	-872.63	0.00	872.63	2,163.98	1,081.99	2,692.34	1,329.64	57.54	-5.93	0.664
102.00	-14.71	-24.33	0.00	-798.73	0.00	798.73	2,134.56	1,067.28	2,599.61	1,283.85	61.32	-6.13	0.630
105.00	-14.24	-24.07	0.00	-725.73	0.00	725.73	2,104.45	1,052.22	2,507.63	1,238.42	65.23	-6.32	0.593
107.00	-13.94	-22.73	0.00	-677.60	0.00	677.60	2,084.00	1,042.00	2,446.74	1,208.36	67.90	-6.45	0.568
108.00	-13.78	-22.54	0.00	-654.87	0.00	654.87	2,073.67	1,036.83	2,416.44	1,193.39	69.26	-6.52	0.556
111.00	-13.34	-22.25	0.00	-587.24	0.00	587.24	2,042.21	1,021.11	2,326.10	1,148.77	73.41	-6.70	0.518
114.00	-12.92	-21.95	0.00	-520.51	0.00	520.51	2,006.48	1,003.24	2,232.66	1,102.63	77.66	-6.87	0.479
117.00	-12.51	-21.65	0.00	-454.67	0.00	454.67	1,959.62	979.81	2,129.00	1,051.43	82.02	-7.04	0.439
120.00	-12.11	-21.37	0.00	-389.73	0.00	389.73	1,912.75	956.38	2,027.81	1,001.46	86.48	-7.19	0.396
122.12	-11.84	-21.12	0.00	-344.38	0.00	344.38	1,879.60	939.80	1,957.71	966.84	89.69	-7.29	0.363
123.00	-10.15	-17.83	0.00	-325.85	0.00	325.85	1,865.89	932.94	1,929.08	952.70	91.03	-7.33	0.348

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 4:59:51 PM

Customer: Sprint Nextel

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 29 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

125.89	-9.68	-17.52	0.00	-274.41	0.00	274.41	929.68	464.84	961.73	474.96	95.49	-7.45	0.590
126.00	-9.66	-17.37	0.00	-272.41	0.00	272.41	929.29	464.65	960.40	474.31	95.67	-7.45	0.586
129.00	-9.40	-16.94	0.00	-220.31	0.00	220.31	918.88	459.44	925.49	457.06	100.40	-7.63	0.494
132.00	-9.14	-16.62	0.00	-169.48	0.00	169.48	907.79	453.90	890.46	439.76	105.22	-7.78	0.397
133.00	-6.31	-12.12	0.00	-152.86	0.00	152.86	903.95	451.97	878.77	433.99	106.85	-7.82	0.360
135.00	-6.18	-11.79	0.00	-128.63	0.00	128.63	896.03	448.02	855.37	422.43	110.14	-7.90	0.312
138.00	-5.97	-11.37	0.00	-93.26	0.00	93.26	883.59	441.80	820.26	405.10	115.12	-8.00	0.238
141.00	-5.77	-11.00	0.00	-59.15	0.00	59.15	870.48	435.24	785.20	387.78	120.16	-8.07	0.160
143.00	-3.41	-5.68	0.00	-37.14	0.00	37.14	861.36	430.68	761.88	376.27	123.54	-8.11	0.103
144.00	-3.36	-5.55	0.00	-31.47	0.00	31.47	856.69	428.34	750.24	370.52	125.23	-8.12	0.089
146.00	-3.25	-5.41	0.00	-20.37	0.00	20.37	847.12	423.56	727.02	359.05	128.63	-8.14	0.061
146.00	-3.25	-5.41	0.00	-20.37	0.00	20.37	920.33	460.16	575.46	378.52	128.63	-8.14	0.057
147.00	-3.17	-5.27	0.00	-14.96	0.00	14.96	920.33	460.16	575.46	378.52	130.33	-8.15	0.043
149.00	-0.93	-0.79	0.00	-4.13	0.00	4.13	920.33	460.16	575.46	378.52	133.73	-8.15	0.012
150.00	-0.86	-0.71	0.00	-3.34	0.00	3.34	920.33	460.16	575.46	378.52	135.43	-8.16	0.010
153.00	-0.64	-0.58	0.00	-1.23	0.00	1.23	920.33	460.16	575.46	378.52	140.54	-8.16	0.004
155.00	0.00	-0.49	0.00	-0.06	0.00	0.06	920.33	460.16	575.46	378.52	143.95	-8.16	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 29 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		38.2	0.0					0.0	0.0	38.2	0.0	0.0	0.0
3.00		76.1	1,139.9					0.0	370.9	76.1	1,510.8	0.0	0.0
6.00		75.6	1,159.6					0.0	397.0	75.6	1,556.7	0.0	0.0
9.00		74.9	1,161.9					0.0	410.8	74.9	1,572.7	0.0	0.0
12.00		74.1	1,158.4					0.0	420.6	74.1	1,579.0	0.0	0.0
15.00		61.2	1,152.0					0.0	428.2	61.2	1,580.2	0.0	0.0
17.00	Appurtenance(s)	36.4	764.0	112.5	0.0	0.0	472.4	0.0	289.0	148.9	1,525.4	0.0	0.0
18.00		48.1	380.8					0.0	140.7	48.1	521.5	0.0	0.0
21.00		71.6	1,134.3					0.0	425.4	71.6	1,559.7	0.0	0.0
24.00		70.8	1,123.9					0.0	429.8	70.8	1,553.7	0.0	0.0
27.00		69.9	1,112.8					0.0	433.7	69.9	1,546.5	0.0	0.0
30.00		69.6	1,101.1					0.0	437.2	69.6	1,538.3	0.0	0.0
33.00		70.1	1,089.0					0.0	440.4	70.1	1,529.4	0.0	0.0
36.00		71.0	1,076.5					0.0	443.4	71.0	1,519.9	0.0	0.0
39.00		48.9	1,063.6					0.0	446.2	48.9	1,509.8	0.0	0.0
40.10	Bot - Section 2	36.4	388.8					0.0	164.9	36.4	553.7	0.0	0.0
42.00		60.0	1,056.7					0.0	283.9	60.0	1,340.6	0.0	0.0
45.00		47.9	1,652.7					0.0	451.2	47.9	2,104.0	0.0	0.0
45.90	Top - Section 1	37.1	491.0					0.0	135.6	37.1	626.6	0.0	0.0
48.00		50.8	660.2					0.0	317.9	50.8	978.2	0.0	0.0
50.00	Appurtenance(s)	37.2	622.8	26.2	0.0	0.0	167.9	0.0	303.6	63.4	1,094.3	0.0	0.0
51.00		49.8	309.6					0.0	145.6	49.8	455.2	0.0	0.0
54.00		74.8	918.9					0.0	438.0	74.8	1,356.9	0.0	0.0
57.00		74.9	906.4					0.0	439.8	74.9	1,346.1	0.0	0.0
60.00		74.9	893.7					0.0	441.5	74.9	1,335.1	0.0	0.0
63.00	Appurtenance(s)	74.8	880.8	55.6	0.0	0.0	433.0	0.0	443.1	130.4	1,756.9	0.0	0.0
66.00		74.7	867.9					0.0	420.3	74.7	1,288.2	0.0	0.0
69.00		74.5	854.8					0.0	421.7	74.5	1,276.5	0.0	0.0
72.00		74.3	841.6					0.0	422.9	74.3	1,264.6	0.0	0.0
75.00		74.0	828.3					0.0	424.2	74.0	1,252.5	0.0	0.0
78.00		68.8	815.0					0.0	425.3	68.8	1,240.3	0.0	0.0
80.60	Bot - Section 3	36.8	695.5					0.0	369.4	36.8	1,064.9	0.0	0.0
81.00		29.8	163.5					0.0	57.1	29.8	220.6	0.0	0.0
83.00	Appurtenance(s)	37.1	808.7	36.1	0.0	0.0	220.5	0.0	284.9	73.2	1,314.1	0.0	0.0
84.00		29.7	401.1					0.0	135.5	29.7	536.6	0.0	0.0
85.41	Top - Section 2	36.9	559.8					0.0	190.7	36.9	750.5	0.0	0.0
87.00		56.3	375.5					0.0	216.4	56.3	591.9	0.0	0.0
90.00		73.1	696.3					0.0	408.0	73.1	1,104.3	0.0	0.0
93.00		72.5	684.1					0.0	408.9	72.5	1,093.0	0.0	0.0
96.00		71.9	671.9					0.0	409.7	71.9	1,081.6	0.0	0.0
99.00		71.3	659.6					0.0	410.6	71.3	1,070.1	0.0	0.0
102.00		70.6	647.2					0.0	411.4	70.6	1,058.6	0.0	0.0
105.00	Appurtenance(s)	58.4	634.8	3.2	0.0	0.0	45.0	0.0	412.2	61.5	1,092.0	0.0	0.0
107.00	Appurtenance(s)	34.8	416.9	230.9	0.0	0.0	1,253.6	0.0	275.2	265.7	1,945.7	0.0	0.0
108.00		46.0	206.7					0.0	109.5	46.0	316.2	0.0	0.0
111.00		68.4	609.8					0.0	329.0	68.4	938.7	0.0	0.0
114.00		67.6	597.2					0.0	329.5	67.6	926.7	0.0	0.0
117.00		66.8	584.6					0.0	330.0	66.8	914.5	0.0	0.0

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 5:00:01 PM

Customer: Sprint Nextel

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 29 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00

Dead Load Factor :1.20 Ice Importance Factor :1.00

Wind Load Factor :1.00

120.00		56.4	571.9					0.0	330.5	56.4	902.3	0.0	0.0
122.12	Bot - Section 4	32.9	397.5					34.9	273.3	67.8	670.8	0.0	0.0
123.00	Appurtenance(s)	41.1	219.5	717.6	0.0	0.0	5,822.2	14.5	113.1	773.2	6,154.8	0.0	0.0
125.89	Top - Section 3	32.7	709.4					47.9	346.1	80.6	1,055.5	0.0	0.0
126.00		33.5	16.4					1.9	13.8	35.4	30.1	0.0	0.0
129.00		64.0	421.3					50.3	360.4	114.3	781.7	0.0	0.0
132.00		42.3	411.6					50.7	360.9	93.0	772.5	0.0	0.0
133.00	Appurtenance(s)	31.3	135.7	985.8	0.0	0.0	10,426.9	17.0	120.4	1,034.1	10,683.0	0.0	0.0
135.00		51.6	267.4					34.1	219.7	85.7	487.1	0.0	0.0
138.00		61.1	392.1					51.5	329.9	112.6	722.0	0.0	0.0
141.00		50.2	382.2					51.9	330.5	102.1	712.7	0.0	0.0
143.00	Appurtenance(s)	29.8	250.0	1,328.7	0.0	0.0	9,879.8	34.8	220.6	1,393.3	10,350.4	0.0	0.0
144.00		29.4	123.7					0.0	60.9	29.4	184.6	0.0	0.0
146.00	Top - Section 4	27.2	243.4					0.0	121.9	27.2	365.3	0.0	0.0
147.00		22.9	151.4					12.7	61.0	35.6	212.3	0.0	0.0
149.00	Appurtenance(s)	22.9	302.8	991.1	0.0	94.9	8,752.1	25.5	122.0	1,039.6	9,177.0	0.0	0.0
150.00		30.7	151.5					0.0	5.9	30.7	157.4	0.0	0.0
153.00		38.5	454.7					0.0	17.7	38.5	472.4	0.0	0.0
155.00	Appurtenance(s)	15.5	303.3	100.5	0.0	13.9	1,567.9	0.0	11.8	116.0	1,883.0	0.0	0.0
								Totals:		8,599.37	101,668.	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 29 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-101.66	-8.60	0.00	-1,097.54	0.00	1,097.54	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.255
3.00	-100.15	-8.60	0.00	-1,071.74	0.00	1,071.74	4,631.78	2,315.89	9,346.21	4,615.74	0.01	-0.04	0.254
6.00	-98.58	-8.59	0.00	-1,045.95	0.00	1,045.95	4,597.82	2,298.91	9,156.81	4,522.21	0.05	-0.09	0.253
9.00	-97.01	-8.59	0.00	-1,020.17	0.00	1,020.17	4,563.18	2,281.59	8,967.87	4,428.89	0.12	-0.13	0.252
12.00	-95.42	-8.59	0.00	-994.40	0.00	994.40	4,527.86	2,263.93	8,779.43	4,335.83	0.22	-0.17	0.250
15.00	-93.83	-8.58	0.00	-968.64	0.00	968.64	4,491.86	2,245.93	8,591.56	4,243.05	0.34	-0.22	0.249
17.00	-92.31	-8.46	0.00	-951.48	0.00	951.48	4,467.49	2,233.75	8,466.65	4,181.36	0.44	-0.25	0.248
18.00	-91.78	-8.46	0.00	-943.02	0.00	943.02	4,455.19	2,227.60	8,404.31	4,150.57	0.49	-0.26	0.248
21.00	-90.21	-8.46	0.00	-917.63	0.00	917.63	4,417.85	2,208.92	8,217.72	4,058.43	0.67	-0.31	0.247
24.00	-88.65	-8.45	0.00	-892.27	0.00	892.27	4,379.82	2,189.91	8,031.86	3,966.64	0.88	-0.36	0.245
27.00	-87.10	-8.44	0.00	-866.93	0.00	866.93	4,341.13	2,170.56	7,846.78	3,875.23	1.12	-0.40	0.244
30.00	-85.56	-8.43	0.00	-841.61	0.00	841.61	4,301.75	2,150.88	7,662.53	3,784.23	1.39	-0.45	0.242
33.00	-84.02	-8.42	0.00	-816.31	0.00	816.31	4,261.70	2,130.85	7,479.16	3,693.68	1.69	-0.50	0.241
36.00	-82.49	-8.41	0.00	-791.05	0.00	791.05	4,220.97	2,110.49	7,296.73	3,603.58	2.02	-0.55	0.239
39.00	-80.98	-8.39	0.00	-765.83	0.00	765.83	4,179.57	2,089.78	7,115.28	3,513.97	2.38	-0.60	0.237
40.10	-80.42	-8.39	0.00	-756.56	0.00	756.56	4,164.16	2,082.08	7,048.76	3,481.12	2.52	-0.62	0.237
42.00	-79.08	-8.37	0.00	-740.67	0.00	740.67	4,137.49	2,068.74	6,934.89	3,424.88	2.77	-0.65	0.235
45.00	-76.97	-8.34	0.00	-715.56	0.00	715.56	4,094.73	2,047.37	6,755.59	3,336.33	3.20	-0.70	0.233
45.90	-76.34	-8.33	0.00	-708.07	0.00	708.07	3,345.43	1,672.72	5,614.65	2,772.86	3.33	-0.72	0.278
48.00	-75.36	-8.32	0.00	-690.57	0.00	690.57	3,324.15	1,662.07	5,517.72	2,724.99	3.66	-0.75	0.276
50.00	-74.26	-8.28	0.00	-673.93	0.00	673.93	3,303.59	1,651.79	5,425.69	2,679.55	3.98	-0.79	0.274
51.00	-73.80	-8.27	0.00	-665.66	0.00	665.66	3,293.20	1,646.60	5,379.77	2,656.86	4.15	-0.81	0.273
54.00	-72.43	-8.25	0.00	-640.85	0.00	640.85	3,261.57	1,630.78	5,242.36	2,589.00	4.68	-0.87	0.270
57.00	-71.08	-8.23	0.00	-616.10	0.00	616.10	3,229.26	1,614.63	5,105.54	2,521.44	5.24	-0.93	0.266
60.00	-69.74	-8.20	0.00	-591.42	0.00	591.42	3,196.28	1,598.14	4,969.37	2,454.19	5.85	-0.99	0.263
63.00	-67.98	-8.11	0.00	-566.82	0.00	566.82	3,162.62	1,581.31	4,833.91	2,387.28	6.49	-1.05	0.259
66.00	-66.68	-8.08	0.00	-542.49	0.00	542.49	3,128.28	1,564.14	4,699.19	2,320.75	7.16	-1.11	0.255
69.00	-65.40	-8.05	0.00	-518.25	0.00	518.25	3,093.27	1,546.64	4,565.29	2,254.62	7.88	-1.17	0.251
72.00	-64.13	-8.02	0.00	-494.09	0.00	494.09	3,057.58	1,528.79	4,432.24	2,188.92	8.63	-1.23	0.247
75.00	-62.87	-7.98	0.00	-470.04	0.00	470.04	3,021.22	1,510.61	4,300.11	2,123.66	9.43	-1.29	0.242
78.00	-61.62	-7.95	0.00	-446.08	0.00	446.08	2,984.18	1,492.09	4,168.95	2,058.89	10.26	-1.35	0.237
80.60	-60.55	-7.92	0.00	-425.42	0.00	425.42	2,951.54	1,475.77	4,056.14	2,003.18	11.01	-1.41	0.233
81.00	-60.33	-7.91	0.00	-422.25	0.00	422.25	2,946.46	1,473.23	4,038.81	1,994.61	11.13	-1.41	0.232
83.00	-59.01	-7.84	0.00	-406.43	0.00	406.43	2,920.94	1,460.47	3,952.64	1,952.06	11.73	-1.46	0.228
84.00	-58.48	-7.82	0.00	-398.59	0.00	398.59	2,908.96	1,454.48	3,910.94	1,931.47	12.03	-1.48	0.226
85.41	-57.72	-7.79	0.00	-387.60	0.00	387.60	2,288.86	1,144.43	3,120.34	1,541.02	12.47	-1.51	0.277
87.00	-57.12	-7.77	0.00	-375.18	0.00	375.18	2,274.94	1,137.47	3,069.59	1,515.96	12.98	-1.54	0.273
90.00	-56.01	-7.74	0.00	-351.86	0.00	351.86	2,248.22	1,124.11	2,974.43	1,468.96	13.97	-1.61	0.264
93.00	-54.91	-7.70	0.00	-328.65	0.00	328.65	2,220.81	1,110.41	2,879.80	1,422.23	15.00	-1.68	0.256
96.00	-53.83	-7.66	0.00	-305.56	0.00	305.56	2,192.74	1,096.37	2,785.75	1,375.78	16.08	-1.74	0.247
99.00	-52.75	-7.61	0.00	-282.59	0.00	282.59	2,163.98	1,081.99	2,692.34	1,329.64	17.19	-1.81	0.237
102.00	-51.69	-7.57	0.00	-259.76	0.00	259.76	2,134.56	1,067.28	2,599.61	1,283.85	18.35	-1.87	0.227
105.00	-50.59	-7.52	0.00	-237.06	0.00	237.06	2,104.45	1,052.22	2,507.63	1,238.42	19.55	-1.94	0.216
107.00	-48.65	-7.21	0.00	-222.03	0.00	222.03	2,084.00	1,042.00	2,446.74	1,208.36	20.37	-1.98	0.207
108.00	-48.33	-7.19	0.00	-214.82	0.00	214.82	2,073.67	1,036.83	2,416.44	1,193.39	20.79	-2.00	0.203
111.00	-47.39	-7.13	0.00	-193.26	0.00	193.26	2,042.21	1,021.11	2,326.10	1,148.77	22.07	-2.06	0.191
114.00	-46.46	-7.08	0.00	-171.86	0.00	171.86	2,006.48	1,003.24	2,232.66	1,102.63	23.38	-2.12	0.179
117.00	-45.54	-7.02	0.00	-150.63	0.00	150.63	1,959.62	979.81	2,129.00	1,051.43	24.73	-2.17	0.167
120.00	-44.63	-6.96	0.00	-129.58	0.00	129.58	1,912.75	956.38	2,027.81	1,001.46	26.11	-2.22	0.153
122.12	-43.96	-6.88	0.00	-114.81	0.00	114.81	1,879.60	939.80	1,957.71	966.84	27.11	-2.26	0.142
123.00	-37.84	-5.89	0.00	-108.76	0.00	108.76	1,865.89	932.94	1,929.08	952.70	27.52	-2.27	0.134

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 29 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

125.89	-36.79	-5.78	0.00	-91.78	0.00	91.78	929.68	464.84	961.73	474.96	28.91	-2.31	0.233
126.00	-36.76	-5.76	0.00	-91.12	0.00	91.12	929.29	464.65	960.40	474.31	28.96	-2.31	0.232
129.00	-35.97	-5.65	0.00	-73.84	0.00	73.84	918.88	459.44	925.49	457.06	30.43	-2.37	0.201
132.00	-35.20	-5.54	0.00	-56.90	0.00	56.90	907.79	453.90	890.46	439.76	31.94	-2.42	0.168
133.00	-24.57	-4.06	0.00	-51.36	0.00	51.36	903.95	451.97	878.77	433.99	32.45	-2.43	0.146
135.00	-24.09	-3.97	0.00	-43.23	0.00	43.23	896.03	448.02	855.37	422.43	33.47	-2.46	0.129
138.00	-23.37	-3.84	0.00	-31.32	0.00	31.32	883.59	441.80	820.26	405.10	35.03	-2.49	0.104
141.00	-22.66	-3.71	0.00	-19.81	0.00	19.81	870.48	435.24	785.20	387.78	36.61	-2.52	0.077
143.00	-12.38	-1.87	0.00	-12.38	0.00	12.38	861.36	430.68	761.88	376.27	37.67	-2.53	0.047
144.00	-12.20	-1.83	0.00	-10.51	0.00	10.51	856.69	428.34	750.24	370.52	38.20	-2.54	0.043
146.00	-11.83	-1.79	0.00	-6.85	0.00	6.85	847.12	423.56	727.02	359.05	39.26	-2.54	0.033
146.00	-11.83	-1.79	0.00	-6.85	0.00	6.85	920.33	460.16	575.46	378.52	39.26	-2.54	0.031
147.00	-11.62	-1.74	0.00	-5.07	0.00	5.07	920.33	460.16	575.46	378.52	39.79	-2.54	0.026
149.00	-2.50	-0.30	0.00	-1.49	0.00	1.49	920.33	460.16	575.46	378.52	40.86	-2.55	0.007
150.00	-2.35	-0.26	0.00	-1.19	0.00	1.19	920.33	460.16	575.46	378.52	41.39	-2.55	0.006
153.00	-1.88	-0.20	0.00	-0.41	0.00	0.41	920.33	460.16	575.46	378.52	42.99	-2.55	0.003
155.00	0.00	-0.12	0.00	-0.01	0.00	0.01	920.33	460.16	575.46	378.52	44.06	-2.55	0.000

Site Number: 302495 Code: ANSI/TIA-222-G
Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 5:00:01 PM
Customer: Sprint Nextel

Load Case: 1.0D + 1.0W Serviceability 60 mph 27 Iterations
Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		43.3	0.0					0.0	0.0	43.3	0.0	0.0	0.0
3.00		86.1	708.2					0.0	171.4	86.1	879.6	0.0	0.0
6.00		85.0	699.1					0.0	171.4	85.0	870.5	0.0	0.0
9.00		83.9	690.0					0.0	171.4	83.9	861.5	0.0	0.0
12.00		82.8	681.0					0.0	171.4	82.8	852.4	0.0	0.0
15.00		68.3	671.9					0.0	171.4	68.3	843.3	0.0	0.0
17.00	Appurtenance(s)	40.6	442.9	141.0	0.0	0.0	188.0	0.0	114.3	181.6	745.1	0.0	0.0
18.00		53.5	219.9					0.0	57.1	53.5	277.0	0.0	0.0
21.00		79.5	653.7					0.0	171.3	79.5	825.0	0.0	0.0
24.00		78.4	644.6					0.0	171.3	78.4	815.9	0.0	0.0
27.00		77.3	635.5					0.0	171.3	77.3	806.8	0.0	0.0
30.00		76.8	626.4					0.0	171.3	76.8	797.7	0.0	0.0
33.00		77.2	617.3					0.0	171.3	77.2	788.6	0.0	0.0
36.00		78.0	608.3					0.0	171.3	78.0	779.6	0.0	0.0
39.00		53.7	599.2					0.0	171.3	53.7	770.5	0.0	0.0
40.10	Bot - Section 2	39.9	218.2					0.0	63.0	39.9	281.3	0.0	0.0
42.00		65.8	696.9					0.0	108.3	65.8	805.2	0.0	0.0
45.00		52.5	1,089.0					0.0	171.3	52.5	1,260.3	0.0	0.0
45.90	Top - Section 1	40.5	322.9					0.0	51.3	40.5	374.2	0.0	0.0
48.00		55.5	349.6					0.0	120.0	55.5	469.6	0.0	0.0
50.00	Appurtenance(s)	40.6	329.2	19.8	0.0	0.0	80.0	0.0	114.2	60.5	523.4	0.0	0.0
51.00		54.2	163.3					0.0	56.9	54.2	220.2	0.0	0.0
54.00		81.3	484.7					0.0	170.8	81.3	655.5	0.0	0.0
57.00		81.3	476.9					0.0	170.8	81.3	647.7	0.0	0.0
60.00		81.1	469.1					0.0	170.8	81.1	639.9	0.0	0.0
63.00	Appurtenance(s)	80.9	461.3	50.5	0.0	0.0	170.0	0.0	170.8	131.4	802.1	0.0	0.0
66.00		80.6	453.5					0.0	169.9	80.6	623.4	0.0	0.0
69.00		80.2	445.7					0.0	169.9	80.2	615.7	0.0	0.0
72.00		79.8	437.9					0.0	169.9	79.8	607.9	0.0	0.0
75.00		79.3	430.1					0.0	169.9	79.3	600.1	0.0	0.0
78.00		73.5	422.3					0.0	169.9	73.5	592.3	0.0	0.0
80.60	Bot - Section 3	39.3	359.6					0.0	147.2	39.3	506.8	0.0	0.0
81.00		31.8	101.7					0.0	22.7	31.8	124.4	0.0	0.0
83.00	Appurtenance(s)	39.6	503.5	31.6	0.0	0.0	85.0	0.0	113.3	71.2	701.8	0.0	0.0
84.00		31.6	249.3					0.0	56.5	31.6	305.8	0.0	0.0
85.41	Top - Section 2	39.3	348.0					0.0	79.5	39.3	427.4	0.0	0.0
87.00		59.8	179.6					0.0	90.0	59.8	269.6	0.0	0.0
90.00		77.5	333.1					0.0	169.5	77.5	502.6	0.0	0.0
93.00		76.7	326.6					0.0	169.5	76.7	496.1	0.0	0.0
96.00		75.9	320.1					0.0	169.5	75.9	489.6	0.0	0.0
99.00		75.0	313.6					0.0	169.5	75.0	483.1	0.0	0.0
102.00		74.0	307.1					0.0	169.5	74.0	476.6	0.0	0.0
105.00	Appurtenance(s)	61.0	300.6	1.3	0.0	0.0	9.9	0.0	169.5	62.3	480.0	0.0	0.0
107.00	Appurtenance(s)	36.3	196.8	280.0	0.0	0.0	150.9	0.0	113.0	316.3	460.7	0.0	0.0
108.00		47.8	97.3					0.0	52.7	47.8	150.0	0.0	0.0
111.00		71.0	287.6					0.0	158.2	71.0	445.8	0.0	0.0
114.00		70.0	281.1					0.0	158.2	70.0	439.3	0.0	0.0
117.00		68.9	274.6					0.0	158.2	68.9	432.8	0.0	0.0

Load Case: 1.0D + 1.0W Serviceability 60 mph 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

120.00		62.7	268.1					0.0	158.2	62.7	426.3	0.0	0.0
122.12	Bot - Section 4	40.5	185.8					14.6	126.5	55.1	312.3	0.0	0.0
123.00	Appurtenance(s)	50.5	122.3	676.8	0.0	0.0	2,120.0	6.1	52.3	733.4	2,294.6	0.0	0.0
125.89	Top - Section 3	40.2	395.8					20.1	150.2	60.2	546.0	0.0	0.0
126.00		41.0	5.9					0.8	6.0	41.8	11.9	0.0	0.0
129.00		78.1	152.3					21.0	156.2	99.1	308.5	0.0	0.0
132.00		51.4	148.4					21.1	156.2	72.6	304.6	0.0	0.0
133.00	Appurtenance(s)	37.9	48.6	932.3	0.0	0.0	3,674.8	7.1	52.1	977.4	3,775.5	0.0	0.0
135.00		62.4	95.9					14.2	86.3	76.6	182.2	0.0	0.0
138.00		73.5	140.6					21.4	129.4	94.9	270.0	0.0	0.0
141.00		60.1	136.7					21.6	129.4	81.7	266.1	0.0	0.0
143.00	Appurtenance(s)	33.6	89.0	1,134.1	0.0	0.0	3,254.4	14.4	86.3	1,182.2	3,429.7	0.0	0.0
144.00		29.2	43.8					0.0	29.1	29.2	72.9	0.0	0.0
146.00	Top - Section 4	27.9	86.4					0.0	58.1	27.9	144.5	0.0	0.0
147.00		25.5	82.8					5.2	29.1	30.7	111.9	0.0	0.0
149.00	Appurtenance(s)	21.3	165.7	954.3	0.0	67.6	2,944.1	10.4	58.1	986.0	3,167.9	0.0	0.0
150.00		17.1	82.8					0.0	4.9	17.1	87.8	0.0	0.0
153.00		21.5	248.5					0.0	14.8	21.5	263.3	0.0	0.0
155.00	Appurtenance(s)	8.6	165.7	107.6	0.0	14.8	619.7	0.0	9.8	116.2	795.2	0.0	0.0
								Totals:		8,397.60	44,595.8	0.00	0.00

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 5:00:10 PM

Customer: Sprint Nextel

Load Case: 1.0D + 1.0W Serviceability 60 mph 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-44.59	-8.37	0.00	-927.66	0.00	927.66	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.207
3.00	-43.71	-8.31	0.00	-902.56	0.00	902.56	4,631.78	2,315.89	9,346.21	4,615.74	0.01	-0.04	0.205
6.00	-42.83	-8.25	0.00	-877.64	0.00	877.64	4,597.82	2,298.91	9,156.81	4,522.21	0.05	-0.07	0.203
9.00	-41.97	-8.19	0.00	-852.89	0.00	852.89	4,563.18	2,281.59	8,967.87	4,428.89	0.10	-0.11	0.202
12.00	-41.11	-8.13	0.00	-828.32	0.00	828.32	4,527.86	2,263.93	8,779.43	4,335.83	0.18	-0.15	0.200
15.00	-40.26	-8.08	0.00	-803.92	0.00	803.92	4,491.86	2,245.93	8,591.56	4,243.05	0.29	-0.18	0.198
17.00	-39.51	-7.91	0.00	-787.75	0.00	787.75	4,467.49	2,233.75	8,466.65	4,181.36	0.37	-0.21	0.197
18.00	-39.23	-7.88	0.00	-779.84	0.00	779.84	4,455.19	2,227.60	8,404.31	4,150.57	0.41	-0.22	0.197
21.00	-38.40	-7.82	0.00	-756.21	0.00	756.21	4,417.85	2,208.92	8,217.72	4,058.43	0.56	-0.26	0.195
24.00	-37.58	-7.76	0.00	-732.75	0.00	732.75	4,379.82	2,189.91	8,031.86	3,966.64	0.74	-0.30	0.193
27.00	-36.77	-7.70	0.00	-709.47	0.00	709.47	4,341.13	2,170.56	7,846.78	3,875.23	0.94	-0.34	0.192
30.00	-35.97	-7.65	0.00	-686.36	0.00	686.36	4,301.75	2,150.88	7,662.53	3,784.23	1.16	-0.37	0.190
33.00	-35.18	-7.59	0.00	-663.41	0.00	663.41	4,261.70	2,130.85	7,479.16	3,693.68	1.41	-0.41	0.188
36.00	-34.39	-7.53	0.00	-640.65	0.00	640.65	4,220.97	2,110.49	7,296.73	3,603.58	1.68	-0.45	0.186
39.00	-33.62	-7.49	0.00	-618.06	0.00	618.06	4,179.57	2,089.78	7,115.28	3,513.97	1.98	-0.49	0.184
40.10	-33.33	-7.46	0.00	-609.79	0.00	609.79	4,164.16	2,082.08	7,048.76	3,481.12	2.10	-0.51	0.183
42.00	-32.53	-7.40	0.00	-595.66	0.00	595.66	4,137.49	2,068.74	6,934.89	3,424.88	2.30	-0.54	0.182
45.00	-31.26	-7.35	0.00	-573.45	0.00	573.45	4,094.73	2,047.37	6,755.59	3,336.33	2.65	-0.58	0.180
45.90	-30.89	-7.32	0.00	-566.85	0.00	566.85	3,345.43	1,672.72	5,614.65	2,772.86	2.76	-0.59	0.214
48.00	-30.41	-7.27	0.00	-551.47	0.00	551.47	3,324.15	1,662.07	5,517.72	2,724.99	3.03	-0.62	0.212
50.00	-29.89	-7.22	0.00	-536.92	0.00	536.92	3,303.59	1,651.79	5,425.69	2,679.55	3.30	-0.65	0.209
51.00	-29.66	-7.18	0.00	-529.70	0.00	529.70	3,293.20	1,646.60	5,379.77	2,656.86	3.43	-0.67	0.208
54.00	-29.00	-7.11	0.00	-508.16	0.00	508.16	3,261.57	1,630.78	5,242.36	2,589.00	3.87	-0.71	0.205
57.00	-28.35	-7.05	0.00	-486.82	0.00	486.82	3,229.26	1,614.63	5,105.54	2,521.44	4.33	-0.76	0.202
60.00	-27.71	-6.98	0.00	-465.68	0.00	465.68	3,196.28	1,598.14	4,969.37	2,454.19	4.82	-0.80	0.198
63.00	-26.90	-6.86	0.00	-444.74	0.00	444.74	3,162.62	1,581.31	4,833.91	2,387.28	5.34	-0.85	0.195
66.00	-26.27	-6.79	0.00	-424.17	0.00	424.17	3,128.28	1,564.14	4,699.19	2,320.75	5.89	-0.90	0.191
69.00	-25.65	-6.72	0.00	-403.80	0.00	403.80	3,093.27	1,546.64	4,565.29	2,254.62	6.47	-0.95	0.187
72.00	-25.04	-6.65	0.00	-383.63	0.00	383.63	3,057.58	1,528.79	4,432.24	2,188.92	7.08	-0.99	0.183
75.00	-24.44	-6.58	0.00	-363.68	0.00	363.68	3,021.22	1,510.61	4,300.11	2,123.66	7.72	-1.04	0.179
78.00	-23.84	-6.52	0.00	-343.93	0.00	343.93	2,984.18	1,492.09	4,168.95	2,058.89	8.39	-1.09	0.175
80.60	-23.33	-6.48	0.00	-327.00	0.00	327.00	2,951.54	1,475.77	4,056.14	2,003.18	8.99	-1.13	0.171
81.00	-23.21	-6.45	0.00	-324.40	0.00	324.40	2,946.46	1,473.23	4,038.81	1,994.61	9.09	-1.14	0.171
83.00	-22.50	-6.37	0.00	-311.50	0.00	311.50	2,920.94	1,460.47	3,952.64	1,952.06	9.57	-1.17	0.167
84.00	-22.20	-6.34	0.00	-305.12	0.00	305.12	2,908.96	1,454.48	3,910.94	1,931.47	9.82	-1.18	0.166
85.41	-21.77	-6.30	0.00	-296.20	0.00	296.20	2,288.86	1,144.43	3,120.34	1,541.02	10.17	-1.21	0.202
87.00	-21.50	-6.25	0.00	-286.16	0.00	286.16	2,274.94	1,137.47	3,069.59	1,515.96	10.58	-1.23	0.198
90.00	-20.99	-6.18	0.00	-267.39	0.00	267.39	2,248.22	1,124.11	2,974.43	1,468.96	11.37	-1.28	0.191
93.00	-20.49	-6.12	0.00	-248.84	0.00	248.84	2,220.81	1,110.41	2,879.80	1,422.23	12.19	-1.34	0.184
96.00	-20.00	-6.05	0.00	-230.50	0.00	230.50	2,192.74	1,096.37	2,785.75	1,375.78	13.04	-1.39	0.177
99.00	-19.51	-5.98	0.00	-212.36	0.00	212.36	2,163.98	1,081.99	2,692.34	1,329.64	13.93	-1.44	0.169
102.00	-19.03	-5.91	0.00	-194.44	0.00	194.44	2,134.56	1,067.28	2,599.61	1,283.85	14.85	-1.49	0.160
105.00	-18.55	-5.84	0.00	-176.72	0.00	176.72	2,104.45	1,052.22	2,507.63	1,238.42	15.80	-1.53	0.152
107.00	-18.09	-5.52	0.00	-165.03	0.00	165.03	2,084.00	1,042.00	2,446.74	1,208.36	16.45	-1.56	0.145
108.00	-17.94	-5.48	0.00	-159.51	0.00	159.51	2,073.67	1,036.83	2,416.44	1,193.39	16.78	-1.58	0.142
111.00	-17.50	-5.41	0.00	-143.08	0.00	143.08	2,042.21	1,021.11	2,326.10	1,148.77	17.78	-1.62	0.133
114.00	-17.05	-5.34	0.00	-126.85	0.00	126.85	2,006.48	1,003.24	2,232.66	1,102.63	18.82	-1.67	0.124
117.00	-16.62	-5.27	0.00	-110.83	0.00	110.83	1,959.62	979.81	2,129.00	1,051.43	19.88	-1.71	0.114
120.00	-16.19	-5.20	0.00	-95.03	0.00	95.03	1,912.75	956.38	2,027.81	1,001.46	20.96	-1.74	0.103
122.12	-15.88	-5.14	0.00	-83.99	0.00	83.99	1,879.60	939.80	1,957.71	966.84	21.74	-1.77	0.095
123.00	-13.61	-4.34	0.00	-79.48	0.00	79.48	1,865.89	932.94	1,929.08	952.70	22.07	-1.78	0.091

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:OAA714899_C3_03 3/22/2018 5:00:11 PM

Customer: Sprint Nextel

Load Case: 1.0D + 1.0W Serviceability 60 mph 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

125.89	-13.06	-4.27	0.00	-66.95	0.00	66.95	929.68	464.84	961.73	474.96	23.15	-1.81	0.155
126.00	-13.05	-4.23	0.00	-66.46	0.00	66.46	929.29	464.65	960.40	474.31	23.20	-1.81	0.154
129.00	-12.74	-4.13	0.00	-53.76	0.00	53.76	918.88	459.44	925.49	457.06	24.35	-1.85	0.132
132.00	-12.44	-4.05	0.00	-41.37	0.00	41.37	907.79	453.90	890.46	439.76	25.52	-1.89	0.108
133.00	-8.70	-2.95	0.00	-37.32	0.00	37.32	903.95	451.97	878.77	433.99	25.92	-1.90	0.096
135.00	-8.52	-2.88	0.00	-31.41	0.00	31.41	896.03	448.02	855.37	422.43	26.72	-1.92	0.084
138.00	-8.25	-2.77	0.00	-22.78	0.00	22.78	883.59	441.80	820.26	405.10	27.93	-1.94	0.066
141.00	-7.99	-2.69	0.00	-14.46	0.00	14.46	870.48	435.24	785.20	387.78	29.16	-1.96	0.046
143.00	-4.60	-1.39	0.00	-9.09	0.00	9.09	861.36	430.68	761.88	376.27	29.98	-1.97	0.029
144.00	-4.53	-1.36	0.00	-7.70	0.00	7.70	856.69	428.34	750.24	370.52	30.39	-1.97	0.026
146.00	-4.38	-1.32	0.00	-4.99	0.00	4.99	847.12	423.56	727.02	359.05	31.22	-1.98	0.019
146.00	-4.38	-1.32	0.00	-4.99	0.00	4.99	920.33	460.16	575.46	378.52	31.22	-1.98	0.018
147.00	-4.27	-1.29	0.00	-3.66	0.00	3.66	920.33	460.16	575.46	378.52	31.63	-1.98	0.014
149.00	-1.14	-0.19	0.00	-1.02	0.00	1.02	920.33	460.16	575.46	378.52	32.46	-1.98	0.004
150.00	-1.05	-0.17	0.00	-0.82	0.00	0.82	920.33	460.16	575.46	378.52	32.87	-1.98	0.003
153.00	-0.79	-0.14	0.00	-0.30	0.00	0.30	920.33	460.16	575.46	378.52	34.12	-1.98	0.002
155.00	0.00	-0.12	0.00	-0.01	0.00	0.01	920.33	460.16	575.46	378.52	34.95	-1.98	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.17	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.97	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	44.60	k
Seismic Base Shear (E):	1.74	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
66	154.00	176	4,163	0.010	17	217
65	151.50	263	6,043	0.014	25	326
64	149.50	88	1,962	0.005	8	109
63	148.00	224	4,902	0.012	20	277
62	146.50	112	2,402	0.006	10	138
61	145.00	145	3,038	0.007	13	179
60	143.50	73	1,501	0.004	6	90
59	142.00	175	3,534	0.008	15	217
58	139.50	266	5,179	0.012	21	329
57	136.50	270	5,031	0.012	21	334
56	134.00	182	3,271	0.008	13	225
55	132.50	101	1,767	0.004	7	125
54	130.50	305	5,187	0.012	21	377
53	127.50	308	5,015	0.012	21	382
52	125.94	12	188	0.000	1	15
51	124.44	546	8,456	0.020	35	676
50	122.56	175	2,623	0.006	11	216
49	121.06	312	4,577	0.011	19	386
48	118.50	426	5,986	0.014	25	527
47	115.50	433	5,774	0.014	24	536
46	112.50	439	5,560	0.013	23	544
45	109.50	446	5,345	0.013	22	552
44	107.50	150	1,734	0.004	7	186

43	106.00	310	3,481	0.008	14	383
42	103.50	470	5,036	0.012	21	582
41	100.50	477	4,814	0.011	20	590
40	97.50	483	4,592	0.011	19	598
39	94.50	490	4,372	0.010	18	606
38	91.50	496	4,153	0.010	17	614
37	88.50	503	3,936	0.009	16	622
36	86.20	270	2,004	0.005	8	334
35	84.70	427	3,067	0.007	13	529
34	83.50	306	2,132	0.005	9	378
33	82.00	617	4,147	0.010	17	763
32	80.80	124	812	0.002	3	154
31	79.30	507	3,187	0.008	13	627
30	76.50	592	3,466	0.008	14	733
29	73.50	600	3,242	0.008	13	742
28	70.50	608	3,021	0.007	12	752
27	67.50	616	2,805	0.007	12	762
26	64.50	623	2,594	0.006	11	771
25	61.50	632	2,391	0.006	10	782
24	58.50	640	2,190	0.005	9	792
23	55.50	648	1,995	0.005	8	801
22	52.50	656	1,807	0.004	7	811
21	50.50	220	562	0.001	2	272
20	49.00	443	1,065	0.003	4	549
19	46.95	470	1,035	0.002	4	581
18	45.45	374	773	0.002	3	463
17	43.50	1,260	2,385	0.006	10	1,559
16	41.05	805	1,357	0.003	6	996
15	39.55	281	440	0.001	2	348
14	37.50	770	1,083	0.003	4	953
13	34.50	780	928	0.002	4	965
12	31.50	789	783	0.002	3	976
11	28.50	798	648	0.002	3	987
10	25.50	807	525	0.001	2	998
9	22.50	816	413	0.001	2	1,010
8	19.50	825	314	0.001	1	1,021
7	17.50	277	85	0.000	0	343
6	16.00	557	143	0.000	1	689
5	13.50	843	154	0.000	1	1,043
4	10.50	852	94	0.000	0	1,055
3	7.50	861	48	0.000	0	1,066
2	4.50	871	18	0.000	0	1,077
1	1.50	880	2	0.000	0	1,088
Ericsson KRY 112 71/	155.00	79	1,903	0.005	8	98
EMS RR90-17-02DP	155.00	41	973	0.002	4	50
Canister	155.00	500	12,013	0.028	49	619
Andrew ABT-DMDF-ADBH	149.00	1	24	0.000	0	1
Powerwave Allgon 702	149.00	7	147	0.000	1	8
Kathrein Scala 782-1	149.00	38	853	0.002	4	48
CCI DTMABP7819VG12A	149.00	115	2,558	0.006	11	143
Raycap DC6-48-60-18-	149.00	32	706	0.002	3	39
7' Omni	149.00	25	555	0.001	2	31
Ericsson RRUS 11 (Ba	149.00	150	3,330	0.008	14	186
Ericsson RRUS-12 800	149.00	180	3,996	0.009	16	223
Powerwave Allgon 777	149.00	105	2,331	0.006	10	130
KMW AM-X-CD-16-65-00	149.00	291	6,460	0.015	27	360
Flat Platform w/ Han	149.00	2,000	44,402	0.105	183	2,475
Nokia B5 RRH4x40-850	143.00	146	2,975	0.007	12	180
Alcatel-Lucent RRH2x	143.00	170	3,478	0.008	14	210
Alcatel-Lucent RRH A	143.00	147	3,006	0.007	12	182
Alcatel-Lucent RRH2x	143.00	180	3,681	0.009	15	223
Swedcom ALP 9212-N	143.00	160	3,276	0.008	13	198
RFS DB-T1-6Z-8AB-0Z	143.00	44	900	0.002	4	54
RFS DB-T1-6Z-8AB-0Z	143.00	44	900	0.002	4	54

Commscope JAHH-65B-R	143.00	364	7,435	0.018	31	450
Flat Platform w/ Han	143.00	2,000	40,898	0.097	168	2,475
Alcatel-Lucent 800 M	133.00	384	6,793	0.016	28	475
Alcatel-Lucent 1900	133.00	180	3,184	0.008	13	223
Alcatel-Lucent TD-RR	133.00	210	3,715	0.009	15	260
RFS APXVTM14-ALU-I20	133.00	169	2,982	0.007	12	209
Commscope NNVV-65B-R	133.00	232	4,107	0.010	17	287
Modified Platform w/	133.00	2,500	44,223	0.105	182	3,093
Decibel DB844H90E-A	123.00	120	1,815	0.004	7	148
Flat Platform w/ Han	123.00	2,000	30,258	0.072	125	2,475
Commscope LNX-6515DS	107.00	151	1,728	0.004	7	187
Kathrein Smart Bias	105.00	10	109	0.000	0	12
GPS	83.00	10	69	0.000	0	12
Stand-Off	83.00	75	517	0.001	2	93
GPS	63.00	20	79	0.000	0	25
Stand-Off	63.00	150	595	0.001	2	186
2" x 4" GPS	50.00	5	13	0.000	0	6
Stand-Off	50.00	75	188	0.000	1	93
4' Std. Dish	17.00	188	54	0.000	0	233
		44,596	422,563	1.000	1,739	55,180

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
66	154.00	176	4,163	0.010	17	151
65	151.50	263	6,043	0.014	25	227
64	149.50	88	1,962	0.005	8	76
63	148.00	224	4,902	0.012	20	193
62	146.50	112	2,402	0.006	10	97
61	145.00	145	3,038	0.007	13	125
60	143.50	73	1,501	0.004	6	63
59	142.00	175	3,534	0.008	15	151
58	139.50	266	5,179	0.012	21	230
57	136.50	270	5,031	0.012	21	233
56	134.00	182	3,271	0.008	13	157
55	132.50	101	1,767	0.004	7	87
54	130.50	305	5,187	0.012	21	263
53	127.50	308	5,015	0.012	21	266
52	125.94	12	188	0.000	1	10
51	124.44	546	8,456	0.020	35	471
50	122.56	175	2,623	0.006	11	151
49	121.06	312	4,577	0.011	19	269
48	118.50	426	5,986	0.014	25	368
47	115.50	433	5,774	0.014	24	373
46	112.50	439	5,560	0.013	23	379
45	109.50	446	5,345	0.013	22	385
44	107.50	150	1,734	0.004	7	129
43	106.00	310	3,481	0.008	14	267
42	103.50	470	5,036	0.012	21	406
41	100.50	477	4,814	0.011	20	411
40	97.50	483	4,592	0.011	19	417
39	94.50	490	4,372	0.010	18	422
38	91.50	496	4,153	0.010	17	428
37	88.50	503	3,936	0.009	16	434
36	86.20	270	2,004	0.005	8	233
35	84.70	427	3,067	0.007	13	369
34	83.50	306	2,132	0.005	9	264
33	82.00	617	4,147	0.010	17	532
32	80.80	124	812	0.002	3	107

31	79.30	507	3,187	0.008	13	437
30	76.50	592	3,466	0.008	14	511
29	73.50	600	3,242	0.008	13	518
28	70.50	608	3,021	0.007	12	524
27	67.50	616	2,805	0.007	12	531
26	64.50	623	2,594	0.006	11	538
25	61.50	632	2,391	0.006	10	545
24	58.50	640	2,190	0.005	9	552
23	55.50	648	1,995	0.005	8	559
22	52.50	656	1,807	0.004	7	565
21	50.50	220	562	0.001	2	190
20	49.00	443	1,065	0.003	4	382
19	46.95	470	1,035	0.002	4	405
18	45.45	374	773	0.002	3	323
17	43.50	1,260	2,385	0.006	10	1,087
16	41.05	805	1,357	0.003	6	695
15	39.55	281	440	0.001	2	243
14	37.50	770	1,083	0.003	4	665
13	34.50	780	928	0.002	4	673
12	31.50	789	783	0.002	3	680
11	28.50	798	648	0.002	3	688
10	25.50	807	525	0.001	2	696
9	22.50	816	413	0.001	2	704
8	19.50	825	314	0.001	1	712
7	17.50	277	85	0.000	0	239
6	16.00	557	143	0.000	1	481
5	13.50	843	154	0.000	1	727
4	10.50	852	94	0.000	0	735
3	7.50	861	48	0.000	0	743
2	4.50	871	18	0.000	0	751
1	1.50	880	2	0.000	0	759
Ericsson KRY 112 71/	155.00	79	1,903	0.005	8	68
EMS RR90-17-02DP	155.00	41	973	0.002	4	35
Canister	155.00	500	12,013	0.028	49	431
Andrew ABT-DMDF-ADBH	149.00	1	24	0.000	0	1
Powerwave Allgon 702	149.00	7	147	0.000	1	6
Kathrein Scala 782-1	149.00	38	853	0.002	4	33
CCI DTMABP7819VG12A	149.00	115	2,558	0.006	11	99
Raycap DC6-48-60-18-	149.00	32	706	0.002	3	27
7' Omni	149.00	25	555	0.001	2	22
Ericsson RRUS 11 (Ba	149.00	150	3,330	0.008	14	129
Ericsson RRUS-12 800	149.00	180	3,996	0.009	16	155
Powerwave Allgon 777	149.00	105	2,331	0.006	10	91
KMW AM-X-CD-16-65-00	149.00	291	6,460	0.015	27	251
Flat Platform w/ Han	149.00	2,000	44,402	0.105	183	1,725
Nokia B5 RRH4x40-850	143.00	146	2,975	0.007	12	126
Alcatel-Lucent RRH2x	143.00	170	3,478	0.008	14	147
Alcatel-Lucent RRH A	143.00	147	3,006	0.007	12	127
Alcatel-Lucent RRH2x	143.00	180	3,681	0.009	15	155
Swedcom ALP 9212-N	143.00	160	3,276	0.008	13	138
RFS DB-T1-6Z-8AB-0Z	143.00	44	900	0.002	4	38
RFS DB-T1-6Z-8AB-0Z	143.00	44	900	0.002	4	38
Commscope JAHH-65B-R	143.00	364	7,435	0.018	31	314
Flat Platform w/ Han	143.00	2,000	40,898	0.097	168	1,725
Alcatel-Lucent 800 M	133.00	384	6,793	0.016	28	331
Alcatel-Lucent 1900	133.00	180	3,184	0.008	13	155
Alcatel-Lucent TD-RR	133.00	210	3,715	0.009	15	181
RFS APXVTM14-ALU-I20	133.00	169	2,982	0.007	12	145
Commscope NNVV-65B-R	133.00	232	4,107	0.010	17	200
Modified Platform w/	133.00	2,500	44,223	0.105	182	2,157
Decibel DB844H90E-A	123.00	120	1,815	0.004	7	104
Flat Platform w/ Han	123.00	2,000	30,258	0.072	125	1,725
Commscope LNX-6515DS	107.00	151	1,728	0.004	7	130
Kathrein Smart Bias	105.00	10	109	0.000	0	9

GPS	83.00	10	69	0.000	0	9
Stand-Off	83.00	75	517	0.001	2	65
GPS	63.00	20	79	0.000	0	17
Stand-Off	63.00	150	595	0.001	2	129
2" x 4" GPS	50.00	5	13	0.000	0	4
Stand-Off	50.00	75	188	0.000	1	65
4' Std. Dish	17.00	188	54	0.000	0	162
		44,596	422,563	1.000	1,739	38,471

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-54.09	-1.74	0.00	-233.41	0.00	233.41	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.061
3.00	-53.01	-1.75	0.00	-228.18	0.00	228.18	4,631.78	2,315.89	9,346.21	4,615.74	0.00	-0.01	0.061
6.00	-51.95	-1.76	0.00	-222.93	0.00	222.93	4,597.82	2,298.91	9,156.81	4,522.21	0.01	-0.02	0.061
9.00	-50.89	-1.77	0.00	-217.65	0.00	217.65	4,563.18	2,281.59	8,967.87	4,428.89	0.03	-0.03	0.060
12.00	-49.85	-1.77	0.00	-212.35	0.00	212.35	4,527.86	2,263.93	8,779.43	4,335.83	0.05	-0.04	0.060
15.00	-49.16	-1.78	0.00	-207.03	0.00	207.03	4,491.86	2,245.93	8,591.56	4,243.05	0.07	-0.05	0.060
17.00	-48.58	-1.78	0.00	-203.47	0.00	203.47	4,467.49	2,233.75	8,466.65	4,181.36	0.09	-0.05	0.060
18.00	-47.56	-1.79	0.00	-201.69	0.00	201.69	4,455.19	2,227.60	8,404.31	4,150.57	0.10	-0.06	0.059
21.00	-46.55	-1.79	0.00	-196.34	0.00	196.34	4,417.85	2,208.92	8,217.72	4,058.43	0.14	-0.07	0.059
24.00	-45.55	-1.80	0.00	-190.96	0.00	190.96	4,379.82	2,189.91	8,031.86	3,966.64	0.19	-0.08	0.059
27.00	-44.57	-1.80	0.00	-185.58	0.00	185.58	4,341.13	2,170.56	7,846.78	3,875.23	0.24	-0.09	0.058
30.00	-43.59	-1.80	0.00	-180.18	0.00	180.18	4,301.75	2,150.88	7,662.53	3,784.23	0.30	-0.10	0.058
33.00	-42.63	-1.80	0.00	-174.78	0.00	174.78	4,261.70	2,130.85	7,479.16	3,693.68	0.36	-0.11	0.057
36.00	-41.67	-1.81	0.00	-169.36	0.00	169.36	4,220.97	2,110.49	7,296.73	3,603.58	0.43	-0.12	0.057
39.00	-41.32	-1.81	0.00	-163.94	0.00	163.94	4,179.57	2,089.78	7,115.28	3,513.97	0.51	-0.13	0.057
40.10	-40.33	-1.80	0.00	-161.95	0.00	161.95	4,164.16	2,082.08	7,048.76	3,481.12	0.54	-0.13	0.056
42.00	-38.77	-1.80	0.00	-158.53	0.00	158.53	4,137.49	2,068.74	6,934.89	3,424.88	0.59	-0.14	0.056
45.00	-38.30	-1.80	0.00	-153.14	0.00	153.14	4,094.73	2,047.37	6,755.59	3,336.33	0.68	-0.15	0.055
45.90	-37.72	-1.80	0.00	-151.52	0.00	151.52	3,345.43	1,672.72	5,614.65	2,772.86	0.71	-0.15	0.066
48.00	-37.17	-1.79	0.00	-147.75	0.00	147.75	3,324.15	1,662.07	5,517.72	2,724.99	0.78	-0.16	0.065
50.00	-36.80	-1.79	0.00	-144.16	0.00	144.16	3,303.59	1,651.79	5,425.69	2,679.55	0.85	-0.17	0.065
51.00	-35.99	-1.79	0.00	-142.36	0.00	142.36	3,293.20	1,646.60	5,379.77	2,656.86	0.89	-0.17	0.065
54.00	-35.19	-1.79	0.00	-136.99	0.00	136.99	3,261.57	1,630.78	5,242.36	2,589.00	1.00	-0.19	0.064
57.00	-34.40	-1.78	0.00	-131.63	0.00	131.63	3,229.26	1,614.63	5,105.54	2,521.44	1.12	-0.20	0.063
60.00	-33.62	-1.78	0.00	-126.28	0.00	126.28	3,196.28	1,598.14	4,969.37	2,454.19	1.25	-0.21	0.062
63.00	-32.63	-1.77	0.00	-120.95	0.00	120.95	3,162.62	1,581.31	4,833.91	2,387.28	1.39	-0.22	0.061
66.00	-31.87	-1.76	0.00	-115.65	0.00	115.65	3,128.28	1,564.14	4,699.19	2,320.75	1.53	-0.24	0.060
69.00	-31.12	-1.75	0.00	-110.37	0.00	110.37	3,093.27	1,546.64	4,565.29	2,254.62	1.68	-0.25	0.059
72.00	-30.38	-1.74	0.00	-105.11	0.00	105.11	3,057.58	1,528.79	4,432.24	2,188.92	1.85	-0.26	0.058
75.00	-29.64	-1.73	0.00	-99.89	0.00	99.89	3,021.22	1,510.61	4,300.11	2,123.66	2.01	-0.28	0.057
78.00	-29.02	-1.72	0.00	-94.69	0.00	94.69	2,984.18	1,492.09	4,168.95	2,058.89	2.19	-0.29	0.056
80.60	-28.86	-1.72	0.00	-90.22	0.00	90.22	2,951.54	1,475.77	4,056.14	2,003.18	2.35	-0.30	0.055
81.00	-28.10	-1.70	0.00	-89.53	0.00	89.53	2,946.46	1,473.23	4,038.81	1,994.61	2.38	-0.30	0.054
83.00	-27.61	-1.69	0.00	-86.13	0.00	86.13	2,920.94	1,460.47	3,952.64	1,952.06	2.51	-0.31	0.054
84.00	-27.09	-1.68	0.00	-84.44	0.00	84.44	2,908.96	1,454.48	3,910.94	1,931.47	2.57	-0.32	0.053
85.41	-26.75	-1.67	0.00	-82.08	0.00	82.08	2,288.86	1,144.43	3,120.34	1,541.02	2.67	-0.32	0.065
87.00	-26.13	-1.66	0.00	-79.42	0.00	79.42	2,274.94	1,137.47	3,069.59	1,515.96	2.77	-0.33	0.064
90.00	-25.52	-1.64	0.00	-74.45	0.00	74.45	2,248.22	1,124.11	2,974.43	1,468.96	2.98	-0.34	0.062
93.00	-24.91	-1.63	0.00	-69.52	0.00	69.52	2,220.81	1,110.41	2,879.80	1,422.23	3.20	-0.36	0.060
96.00	-24.31	-1.61	0.00	-64.64	0.00	64.64	2,192.74	1,096.37	2,785.75	1,375.78	3.43	-0.37	0.058
99.00	-23.72	-1.59	0.00	-59.81	0.00	59.81	2,163.98	1,081.99	2,692.34	1,329.64	3.67	-0.39	0.056
102.00	-23.14	-1.57	0.00	-55.04	0.00	55.04	2,134.56	1,067.28	2,599.61	1,283.85	3.92	-0.40	0.054
105.00	-22.74	-1.56	0.00	-50.32	0.00	50.32	2,104.45	1,052.22	2,507.63	1,238.42	4.17	-0.41	0.051
107.00	-22.37	-1.55	0.00	-47.20	0.00	47.20	2,084.00	1,042.00	2,446.74	1,208.36	4.35	-0.42	0.050
108.00	-21.82	-1.52	0.00	-45.65	0.00	45.65	2,073.67	1,036.83	2,416.44	1,193.39	4.44	-0.43	0.049
111.00	-21.28	-1.50	0.00	-41.08	0.00	41.08	2,042.21	1,021.11	2,326.10	1,148.77	4.71	-0.44	0.046
114.00	-20.74	-1.48	0.00	-36.58	0.00	36.58	2,006.48	1,003.24	2,232.66	1,102.63	4.99	-0.45	0.044
117.00	-20.21	-1.45	0.00	-32.15	0.00	32.15	1,959.62	979.81	2,129.00	1,051.43	5.28	-0.46	0.041
120.00	-19.83	-1.43	0.00	-27.80	0.00	27.80	1,912.75	956.38	2,027.81	1,001.46	5.57	-0.47	0.038
122.12	-19.61	-1.42	0.00	-24.76	0.00	24.76	1,879.60	939.80	1,957.71	966.84	5.78	-0.48	0.036
123.00	-16.31	-1.23	0.00	-23.51	0.00	23.51	1,865.89	932.94	1,929.08	952.70	5.87	-0.48	0.033
125.89	-16.30	-1.23	0.00	-19.96	0.00	19.96	929.68	464.84	961.73	474.96	6.17	-0.49	0.060
126.00	-15.92	-1.21	0.00	-19.82	0.00	19.82	929.29	464.65	960.40	474.31	6.18	-0.49	0.059
129.00	-15.54	-1.19	0.00	-16.20	0.00	16.20	918.88	459.44	925.49	457.06	6.49	-0.51	0.052
132.00	-15.41	-1.18	0.00	-12.64	0.00	12.64	907.79	453.90	890.46	439.76	6.81	-0.52	0.046
133.00	-10.65	-0.86	0.00	-11.46	0.00	11.46	903.95	451.97	878.77	433.99	6.92	-0.52	0.038

135.00	-10.31	-0.83	0.00	-9.75	0.00	9.75	896.03	448.02	855.37	422.43	7.14	-0.53	0.035
138.00	-9.98	-0.81	0.00	-7.25	0.00	7.25	883.59	441.80	820.26	405.10	7.47	-0.53	0.029
141.00	-9.77	-0.79	0.00	-4.81	0.00	4.81	870.48	435.24	785.20	387.78	7.81	-0.54	0.024
143.00	-5.65	-0.48	0.00	-3.22	0.00	3.22	861.36	430.68	761.88	376.27	8.04	-0.54	0.015
144.00	-5.47	-0.46	0.00	-2.75	0.00	2.75	856.69	428.34	750.24	370.52	8.15	-0.54	0.014
146.00	-5.33	-0.45	0.00	-1.82	0.00	1.82	847.12	423.56	727.02	359.05	8.38	-0.54	0.011
146.00	-5.33	-0.45	0.00	-1.82	0.00	1.82	920.33	460.16	575.46	378.52	8.38	-0.54	0.011
147.00	-5.06	-0.43	0.00	-1.37	0.00	1.37	920.33	460.16	575.46	378.52	8.49	-0.55	0.009
149.00	-1.31	-0.12	0.00	-0.52	0.00	0.52	920.33	460.16	575.46	378.52	8.72	-0.55	0.003
150.00	-0.98	-0.09	0.00	-0.40	0.00	0.40	920.33	460.16	575.46	378.52	8.84	-0.55	0.002
153.00	-0.77	-0.07	0.00	-0.14	0.00	0.14	920.33	460.16	575.46	378.52	9.18	-0.55	0.001
155.00	0.00	-0.06	0.00	0.00	0.00	0.00	920.33	460.16	575.46	378.52	9.41	-0.55	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.71	-1.74	0.00	-227.90	0.00	227.90	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.056
3.00	-36.96	-1.75	0.00	-222.68	0.00	222.68	4,631.78	2,315.89	9,346.21	4,615.74	0.00	-0.01	0.056
6.00	-36.22	-1.75	0.00	-217.45	0.00	217.45	4,597.82	2,298.91	9,156.81	4,522.21	0.01	-0.02	0.056
9.00	-35.48	-1.76	0.00	-212.19	0.00	212.19	4,563.18	2,281.59	8,967.87	4,428.89	0.03	-0.03	0.056
12.00	-34.75	-1.76	0.00	-206.93	0.00	206.93	4,527.86	2,263.93	8,779.43	4,335.83	0.05	-0.04	0.055
15.00	-34.27	-1.76	0.00	-201.64	0.00	201.64	4,491.86	2,245.93	8,591.56	4,243.05	0.07	-0.05	0.055
17.00	-33.87	-1.77	0.00	-198.12	0.00	198.12	4,467.49	2,233.75	8,466.65	4,181.36	0.09	-0.05	0.055
18.00	-33.16	-1.77	0.00	-196.35	0.00	196.35	4,455.19	2,227.60	8,404.31	4,150.57	0.10	-0.05	0.055
21.00	-32.46	-1.77	0.00	-191.05	0.00	191.05	4,417.85	2,208.92	8,217.72	4,058.43	0.14	-0.06	0.054
24.00	-31.76	-1.77	0.00	-185.73	0.00	185.73	4,379.82	2,189.91	8,031.86	3,966.64	0.18	-0.07	0.054
27.00	-31.07	-1.78	0.00	-180.41	0.00	180.41	4,341.13	2,170.56	7,846.78	3,875.23	0.23	-0.08	0.054
30.00	-30.39	-1.78	0.00	-175.09	0.00	175.09	4,301.75	2,150.88	7,662.53	3,784.23	0.29	-0.09	0.053
33.00	-29.72	-1.78	0.00	-169.76	0.00	169.76	4,261.70	2,130.85	7,479.16	3,693.68	0.35	-0.10	0.053
36.00	-29.05	-1.78	0.00	-164.43	0.00	164.43	4,220.97	2,110.49	7,296.73	3,603.58	0.42	-0.11	0.053
39.00	-28.81	-1.78	0.00	-159.10	0.00	159.10	4,179.57	2,089.78	7,115.28	3,513.97	0.50	-0.12	0.052
40.10	-28.12	-1.77	0.00	-157.14	0.00	157.14	4,164.16	2,082.08	7,048.76	3,481.12	0.52	-0.13	0.052
42.00	-27.03	-1.76	0.00	-153.78	0.00	153.78	4,137.49	2,068.74	6,934.89	3,424.88	0.58	-0.14	0.051
45.00	-26.70	-1.76	0.00	-148.49	0.00	148.49	4,094.73	2,047.37	6,755.59	3,336.33	0.67	-0.15	0.051
45.90	-26.30	-1.76	0.00	-146.90	0.00	146.90	3,345.43	1,672.72	5,614.65	2,772.86	0.69	-0.15	0.061
48.00	-25.92	-1.76	0.00	-143.20	0.00	143.20	3,324.15	1,662.07	5,517.72	2,724.99	0.76	-0.16	0.060
50.00	-25.66	-1.76	0.00	-139.68	0.00	139.68	3,303.59	1,651.79	5,425.69	2,679.55	0.83	-0.16	0.060
51.00	-25.09	-1.75	0.00	-137.93	0.00	137.93	3,293.20	1,646.60	5,379.77	2,656.86	0.86	-0.17	0.060
54.00	-24.53	-1.75	0.00	-132.67	0.00	132.67	3,261.57	1,630.78	5,242.36	2,589.00	0.97	-0.18	0.059
57.00	-23.98	-1.74	0.00	-127.43	0.00	127.43	3,229.26	1,614.63	5,105.54	2,521.44	1.09	-0.19	0.058
60.00	-23.43	-1.74	0.00	-122.20	0.00	122.20	3,196.28	1,598.14	4,969.37	2,454.19	1.22	-0.21	0.057
63.00	-22.75	-1.72	0.00	-116.99	0.00	116.99	3,162.62	1,581.31	4,833.91	2,387.28	1.35	-0.22	0.056
66.00	-22.22	-1.72	0.00	-111.82	0.00	111.82	3,128.28	1,564.14	4,699.19	2,320.75	1.49	-0.23	0.055
69.00	-21.69	-1.71	0.00	-106.68	0.00	106.68	3,093.27	1,546.64	4,565.29	2,254.62	1.64	-0.24	0.054
72.00	-21.18	-1.69	0.00	-101.56	0.00	101.56	3,057.58	1,528.79	4,432.24	2,188.92	1.79	-0.25	0.053
75.00	-20.66	-1.68	0.00	-96.48	0.00	96.48	3,021.22	1,510.61	4,300.11	2,123.66	1.96	-0.27	0.052
78.00	-20.23	-1.67	0.00	-91.43	0.00	91.43	2,984.18	1,492.09	4,168.95	2,058.89	2.13	-0.28	0.051
80.60	-20.12	-1.67	0.00	-87.08	0.00	87.08	2,951.54	1,475.77	4,056.14	2,003.18	2.29	-0.29	0.050
81.00	-19.59	-1.65	0.00	-86.41	0.00	86.41	2,946.46	1,473.23	4,038.81	1,994.61	2.31	-0.29	0.050
83.00	-19.25	-1.64	0.00	-83.11	0.00	83.11	2,920.94	1,460.47	3,952.64	1,952.06	2.44	-0.30	0.049
84.00	-18.88	-1.63	0.00	-81.47	0.00	81.47	2,908.96	1,454.48	3,910.94	1,931.47	2.50	-0.31	0.049
85.41	-18.65	-1.62	0.00	-79.18	0.00	79.18	2,288.86	1,144.43	3,120.34	1,541.02	2.59	-0.31	0.060
87.00	-18.22	-1.61	0.00	-76.60	0.00	76.60	2,274.94	1,137.47	3,069.59	1,515.96	2.70	-0.32	0.059
90.00	-17.79	-1.59	0.00	-71.78	0.00	71.78	2,248.22	1,124.11	2,974.43	1,468.96	2.90	-0.33	0.057
93.00	-17.36	-1.57	0.00	-67.01	0.00	67.01	2,220.81	1,110.41	2,879.80	1,422.23	3.11	-0.35	0.055
96.00	-16.95	-1.56	0.00	-62.29	0.00	62.29	2,192.74	1,096.37	2,785.75	1,375.78	3.33	-0.36	0.053
99.00	-16.54	-1.54	0.00	-57.62	0.00	57.62	2,163.98	1,081.99	2,692.34	1,329.64	3.57	-0.37	0.051
102.00	-16.13	-1.52	0.00	-53.00	0.00	53.00	2,134.56	1,067.28	2,599.61	1,283.85	3.80	-0.39	0.049
105.00	-15.85	-1.51	0.00	-48.44	0.00	48.44	2,104.45	1,052.22	2,507.63	1,238.42	4.05	-0.40	0.047
107.00	-15.59	-1.49	0.00	-45.43	0.00	45.43	2,084.00	1,042.00	2,446.74	1,208.36	4.22	-0.41	0.045
108.00	-15.21	-1.47	0.00	-43.94	0.00	43.94	2,073.67	1,036.83	2,416.44	1,193.39	4.31	-0.41	0.044
111.00	-14.83	-1.45	0.00	-39.54	0.00	39.54	2,042.21	1,021.11	2,326.10	1,148.77	4.57	-0.42	0.042
114.00	-14.46	-1.42	0.00	-35.20	0.00	35.20	2,006.48	1,003.24	2,232.66	1,102.63	4.84	-0.44	0.039
117.00	-14.09	-1.40	0.00	-30.94	0.00	30.94	1,959.62	979.81	2,129.00	1,051.43	5.12	-0.45	0.037
120.00	-13.82	-1.38	0.00	-26.74	0.00	26.74	1,912.75	956.38	2,027.81	1,001.46	5.40	-0.46	0.034
122.12	-13.67	-1.37	0.00	-23.82	0.00	23.82	1,879.60	939.80	1,957.71	966.84	5.61	-0.47	0.032
123.00	-11.37	-1.18	0.00	-22.62	0.00	22.62	1,865.89	932.94	1,929.08	952.70	5.70	-0.47	0.030
125.89	-11.36	-1.18	0.00	-19.20	0.00	19.20	929.68	464.84	961.73	474.96	5.98	-0.48	0.053
126.00	-11.09	-1.16	0.00	-19.07	0.00	19.07	929.29	464.65	960.40	474.31	5.99	-0.48	0.052
129.00	-10.83	-1.14	0.00	-15.58	0.00	15.58	918.88	459.44	925.49	457.06	6.30	-0.49	0.046
132.00	-10.74	-1.13	0.00	-12.16	0.00	12.16	907.79	453.90	890.46	439.76	6.61	-0.50	0.040
133.00	-7.42	-0.82	0.00	-11.03	0.00	11.03	903.95	451.97	878.77	433.99	6.71	-0.50	0.034

135.00	-7.19	-0.80	0.00	-9.38	0.00	9.38	896.03	448.02	855.37	422.43	6.92	-0.51	0.030
138.00	-6.96	-0.78	0.00	-6.97	0.00	6.97	883.59	441.80	820.26	405.10	7.25	-0.52	0.025
141.00	-6.81	-0.76	0.00	-4.63	0.00	4.63	870.48	435.24	785.20	387.78	7.57	-0.52	0.020
143.00	-3.94	-0.46	0.00	-3.11	0.00	3.11	861.36	430.68	761.88	376.27	7.79	-0.52	0.013
144.00	-3.81	-0.45	0.00	-2.65	0.00	2.65	856.69	428.34	750.24	370.52	7.90	-0.53	0.012
146.00	-3.72	-0.43	0.00	-1.76	0.00	1.76	847.12	423.56	727.02	359.05	8.12	-0.53	0.009
146.00	-3.72	-0.43	0.00	-1.76	0.00	1.76	920.33	460.16	575.46	378.52	8.12	-0.53	0.009
147.00	-3.52	-0.41	0.00	-1.32	0.00	1.32	920.33	460.16	575.46	378.52	8.23	-0.53	0.007
149.00	-0.91	-0.11	0.00	-0.50	0.00	0.50	920.33	460.16	575.46	378.52	8.45	-0.53	0.002
150.00	-0.69	-0.08	0.00	-0.39	0.00	0.39	920.33	460.16	575.46	378.52	8.56	-0.53	0.002
153.00	-0.53	-0.07	0.00	-0.13	0.00	0.13	920.33	460.16	575.46	378.52	8.90	-0.53	0.001
155.00	0.00	-0.06	0.00	0.00	0.00	0.00	920.33	460.16	575.46	378.52	9.12	-0.53	0.000

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.97
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
66	154.00	176	1.866	1.854	1.094	0.337	51	217
65	151.50	263	1.806	1.564	0.987	0.300	68	326
64	149.50	88	1.758	1.356	0.907	0.272	21	109
63	148.00	224	1.723	1.212	0.851	0.252	49	277
62	146.50	112	1.688	1.079	0.797	0.232	23	138
61	145.00	145	1.654	0.955	0.746	0.214	27	179
60	143.50	73	1.620	0.842	0.697	0.196	12	90
59	142.00	175	1.586	0.737	0.652	0.178	27	217
58	139.50	266	1.531	0.580	0.580	0.150	35	329
57	136.50	270	1.466	0.420	0.503	0.120	28	334
56	134.00	182	1.413	0.308	0.445	0.096	15	225
55	132.50	101	1.381	0.249	0.413	0.082	7	125
54	130.50	305	1.340	0.179	0.372	0.066	17	377
53	127.50	308	1.279	0.092	0.318	0.042	11	382
52	125.94	12	1.248	0.055	0.292	0.031	0	15
51	124.44	546	1.218	0.023	0.269	0.021	10	676
50	122.56	175	1.182	-0.012	0.241	0.010	1	216
49	121.06	312	1.153	-0.035	0.221	0.001	0	386
48	118.50	426	1.105	-0.067	0.190	-0.012	-4	527
47	115.50	433	1.049	-0.094	0.157	-0.025	-10	536
46	112.50	439	0.996	-0.111	0.129	-0.036	-14	544
45	109.50	446	0.943	-0.120	0.105	-0.044	-17	552
44	107.50	150	0.909	-0.122	0.091	-0.049	-6	186
43	106.00	310	0.884	-0.121	0.081	-0.051	-14	383
42	103.50	470	0.843	-0.118	0.067	-0.053	-22	582
41	100.50	477	0.795	-0.111	0.052	-0.054	-22	590
40	97.50	483	0.748	-0.100	0.040	-0.052	-22	598
39	94.50	490	0.703	-0.088	0.030	-0.048	-20	606
38	91.50	496	0.659	-0.074	0.023	-0.041	-18	614
37	88.50	503	0.616	-0.059	0.016	-0.032	-14	622
36	86.20	270	0.585	-0.047	0.013	-0.024	-6	334
35	84.70	427	0.564	-0.040	0.011	-0.019	-7	529
34	83.50	306	0.548	-0.034	0.010	-0.014	-4	378
33	82.00	617	0.529	-0.027	0.008	-0.008	-5	763

32	80.80	124	0.514	-0.021	0.008	-0.004	0	154
31	79.30	507	0.495	-0.014	0.007	0.002	1	627
30	76.50	592	0.460	-0.002	0.006	0.013	6	733
29	73.50	600	0.425	0.010	0.006	0.023	12	742
28	70.50	608	0.391	0.021	0.007	0.032	17	752
27	67.50	616	0.358	0.030	0.008	0.039	21	762
26	64.50	623	0.327	0.039	0.010	0.045	24	771
25	61.50	632	0.298	0.046	0.012	0.049	27	782
24	58.50	640	0.269	0.052	0.015	0.052	29	792
23	55.50	648	0.242	0.057	0.018	0.053	30	801
22	52.50	656	0.217	0.061	0.021	0.054	31	811
21	50.50	220	0.201	0.063	0.023	0.055	10	272
20	49.00	443	0.189	0.064	0.025	0.055	21	549
19	46.95	470	0.173	0.066	0.027	0.055	22	581
18	45.45	374	0.162	0.067	0.028	0.054	18	463
17	43.50	1,260	0.149	0.068	0.030	0.054	59	1,559
16	41.05	805	0.133	0.069	0.033	0.054	37	996
15	39.55	281	0.123	0.070	0.034	0.053	13	348
14	37.50	770	0.111	0.070	0.036	0.053	35	953
13	34.50	780	0.094	0.071	0.038	0.052	35	965
12	31.50	789	0.078	0.072	0.040	0.051	35	976
11	28.50	798	0.064	0.072	0.041	0.051	35	987
10	25.50	807	0.051	0.071	0.042	0.050	35	998
9	22.50	816	0.040	0.070	0.042	0.049	34	1,010
8	19.50	825	0.030	0.068	0.041	0.048	34	1,021
7	17.50	277	0.024	0.066	0.039	0.046	11	343
6	16.00	557	0.020	0.064	0.038	0.045	22	689
5	13.50	843	0.014	0.060	0.035	0.043	32	1,043
4	10.50	852	0.009	0.053	0.030	0.039	29	1,055
3	7.50	861	0.004	0.043	0.024	0.034	25	1,066
2	4.50	871	0.002	0.029	0.016	0.025	19	1,077
1	1.50	880	0.000	0.011	0.006	0.010	8	1,088
Ericsson KRY 112 71/	155.00	79	1.890	1.980	1.140	0.352	24	98
EMS RR90-17-02DP	155.00	41	1.890	1.980	1.140	0.352	12	50
Canister	155.00	500	1.890	1.980	1.140	0.352	153	619
Andrew ABT-DMDF-	149.00	1	1.747	1.306	0.888	0.265	0	1
Powerwave Allgon 702	149.00	7	1.747	1.306	0.888	0.265	2	8
Kathrein Scala 782-1	149.00	38	1.747	1.306	0.888	0.265	9	48
CCI DTMABP7819VG12A	149.00	115	1.747	1.306	0.888	0.265	26	143
Raycap DC6-48-60-18-	149.00	32	1.747	1.306	0.888	0.265	7	39
7' Omni	149.00	25	1.747	1.306	0.888	0.265	6	31
Ericsson RRUS 11 (Ba	149.00	150	1.747	1.306	0.888	0.265	34	186
Ericsson RRUS-12 800	149.00	180	1.747	1.306	0.888	0.265	41	223
Powerwave Allgon 777	149.00	105	1.747	1.306	0.888	0.265	24	130
KMW AM-X-CD-16-65-00	149.00	291	1.747	1.306	0.888	0.265	67	360
Flat Platform w/ Han	149.00	2,000	1.747	1.306	0.888	0.265	460	2,475
Nokia B5 RRH4x40-850	143.00	146	1.609	0.806	0.682	0.190	24	180
Alcatel-Lucent RRH2x	143.00	170	1.609	0.806	0.682	0.190	28	210
Alcatel-Lucent RRH A	143.00	147	1.609	0.806	0.682	0.190	24	182
Alcatel-Lucent RRH2x	143.00	180	1.609	0.806	0.682	0.190	30	223
Swedcom ALP 9212-N	143.00	160	1.609	0.806	0.682	0.190	26	198
RFS DB-T1-6Z-8AB-0Z	143.00	44	1.609	0.806	0.682	0.190	7	54
RFS DB-T1-6Z-8AB-0Z	143.00	44	1.609	0.806	0.682	0.190	7	54
Commscope JAHH-65B-	143.00	364	1.609	0.806	0.682	0.190	60	450
Flat Platform w/ Han	143.00	2,000	1.609	0.806	0.682	0.190	329	2,475
Alcatel-Lucent 800 M	133.00	384	1.392	0.268	0.423	0.087	29	475
Alcatel-Lucent 1900	133.00	180	1.392	0.268	0.423	0.087	14	223
Alcatel-Lucent TD-RR	133.00	210	1.392	0.268	0.423	0.087	16	260
RFS APXVTM14-ALU-I20	133.00	169	1.392	0.268	0.423	0.087	13	209
Commscope NNVV-	133.00	232	1.392	0.268	0.423	0.087	17	287
Modified Platform w/	133.00	2,500	1.392	0.268	0.423	0.087	188	3,093
Decibel DB844H90E-A	123.00	120	1.190	-0.004	0.248	0.012	1	148
Flat Platform w/ Han	123.00	2,000	1.190	-0.004	0.248	0.012	21	2,475
Commscope LNX-	107.00	151	0.901	-0.122	0.088	-0.049	-6	187

Kathrein Smart Bias	105.00	10	0.867	-0.121	0.075	-0.052	0	12
GPS	83.00	10	0.542	-0.032	0.009	-0.012	0	12
Stand-Off	83.00	75	0.542	-0.032	0.009	-0.012	-1	93
GPS	63.00	20	0.312	0.042	0.011	0.047	1	25
Stand-Off	63.00	150	0.312	0.042	0.011	0.047	6	186
2" x 4" GPS	50.00	5	0.197	0.063	0.024	0.055	0	6
Stand-Off	50.00	75	0.197	0.063	0.024	0.055	4	93
4' Std. Dish	17.00	188	0.023	0.065	0.039	0.046	8	233
		44,596	99.034	40.822	34.842	9.718	2,677	55,180

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
66	154.00	176	1.866	1.854	1.094	0.337	51	151
65	151.50	263	1.806	1.564	0.987	0.300	68	227
64	149.50	88	1.758	1.356	0.907	0.272	21	76
63	148.00	224	1.723	1.212	0.851	0.252	49	193
62	146.50	112	1.688	1.079	0.797	0.232	23	97
61	145.00	145	1.654	0.955	0.746	0.214	27	125
60	143.50	73	1.620	0.842	0.697	0.196	12	63
59	142.00	175	1.586	0.737	0.652	0.178	27	151
58	139.50	266	1.531	0.580	0.580	0.150	35	230
57	136.50	270	1.466	0.420	0.503	0.120	28	233
56	134.00	182	1.413	0.308	0.445	0.096	15	157
55	132.50	101	1.381	0.249	0.413	0.082	7	87
54	130.50	305	1.340	0.179	0.372	0.066	17	263
53	127.50	308	1.279	0.092	0.318	0.042	11	266
52	125.94	12	1.248	0.055	0.292	0.031	0	10
51	124.44	546	1.218	0.023	0.269	0.021	10	471
50	122.56	175	1.182	-0.012	0.241	0.010	1	151
49	121.06	312	1.153	-0.035	0.221	0.001	0	269
48	118.50	426	1.105	-0.067	0.190	-0.012	-4	368
47	115.50	433	1.049	-0.094	0.157	-0.025	-10	373
46	112.50	439	0.996	-0.111	0.129	-0.036	-14	379
45	109.50	446	0.943	-0.120	0.105	-0.044	-17	385
44	107.50	150	0.909	-0.122	0.091	-0.049	-6	129
43	106.00	310	0.884	-0.121	0.081	-0.051	-14	267
42	103.50	470	0.843	-0.118	0.067	-0.053	-22	406
41	100.50	477	0.795	-0.111	0.052	-0.054	-22	411
40	97.50	483	0.748	-0.100	0.040	-0.052	-22	417
39	94.50	490	0.703	-0.088	0.030	-0.048	-20	422
38	91.50	496	0.659	-0.074	0.023	-0.041	-18	428
37	88.50	503	0.616	-0.059	0.016	-0.032	-14	434
36	86.20	270	0.585	-0.047	0.013	-0.024	-6	233
35	84.70	427	0.564	-0.040	0.011	-0.019	-7	369
34	83.50	306	0.548	-0.034	0.010	-0.014	-4	264
33	82.00	617	0.529	-0.027	0.008	-0.008	-5	532
32	80.80	124	0.514	-0.021	0.008	-0.004	0	107
31	79.30	507	0.495	-0.014	0.007	0.002	1	437
30	76.50	592	0.460	-0.002	0.006	0.013	6	511
29	73.50	600	0.425	0.010	0.006	0.023	12	518
28	70.50	608	0.391	0.021	0.007	0.032	17	524
27	67.50	616	0.358	0.030	0.008	0.039	21	531
26	64.50	623	0.327	0.039	0.010	0.045	24	538
25	61.50	632	0.298	0.046	0.012	0.049	27	545
24	58.50	640	0.269	0.052	0.015	0.052	29	552
23	55.50	648	0.242	0.057	0.018	0.053	30	559
22	52.50	656	0.217	0.061	0.021	0.054	31	565

21	50.50	220	0.201	0.063	0.023	0.055	10	190
20	49.00	443	0.189	0.064	0.025	0.055	21	382
19	46.95	470	0.173	0.066	0.027	0.055	22	405
18	45.45	374	0.162	0.067	0.028	0.054	18	323
17	43.50	1,260	0.149	0.068	0.030	0.054	59	1,087
16	41.05	805	0.133	0.069	0.033	0.054	37	695
15	39.55	281	0.123	0.070	0.034	0.053	13	243
14	37.50	770	0.111	0.070	0.036	0.053	35	665
13	34.50	780	0.094	0.071	0.038	0.052	35	673
12	31.50	789	0.078	0.072	0.040	0.051	35	680
11	28.50	798	0.064	0.072	0.041	0.051	35	688
10	25.50	807	0.051	0.071	0.042	0.050	35	696
9	22.50	816	0.040	0.070	0.042	0.049	34	704
8	19.50	825	0.030	0.068	0.041	0.048	34	712
7	17.50	277	0.024	0.066	0.039	0.046	11	239
6	16.00	557	0.020	0.064	0.038	0.045	22	481
5	13.50	843	0.014	0.060	0.035	0.043	32	727
4	10.50	852	0.009	0.053	0.030	0.039	29	735
3	7.50	861	0.004	0.043	0.024	0.034	25	743
2	4.50	871	0.002	0.029	0.016	0.025	19	751
1	1.50	880	0.000	0.011	0.006	0.010	8	759
Ericsson KRY 112 71/	155.00	79	1.890	1.980	1.140	0.352	24	68
EMS RR90-17-02DP	155.00	41	1.890	1.980	1.140	0.352	12	35
Canister	155.00	500	1.890	1.980	1.140	0.352	153	431
Andrew ABT-DMDF-	149.00	1	1.747	1.306	0.888	0.265	0	1
Powerwave Allgon 702	149.00	7	1.747	1.306	0.888	0.265	2	6
Kathrein Scala 782-1	149.00	38	1.747	1.306	0.888	0.265	9	33
CCI DTMABP7819VG12A	149.00	115	1.747	1.306	0.888	0.265	26	99
Raycap DC6-48-60-18-	149.00	32	1.747	1.306	0.888	0.265	7	27
7' Omni	149.00	25	1.747	1.306	0.888	0.265	6	22
Ericsson RRUS 11 (Ba	149.00	150	1.747	1.306	0.888	0.265	34	129
Ericsson RRUS-12 800	149.00	180	1.747	1.306	0.888	0.265	41	155
Powerwave Allgon 777	149.00	105	1.747	1.306	0.888	0.265	24	91
KMW AM-X-CD-16-65-00	149.00	291	1.747	1.306	0.888	0.265	67	251
Flat Platform w/ Han	149.00	2,000	1.747	1.306	0.888	0.265	460	1,725
Nokia B5 RRH4x40-850	143.00	146	1.609	0.806	0.682	0.190	24	126
Alcatel-Lucent RRH2x	143.00	170	1.609	0.806	0.682	0.190	28	147
Alcatel-Lucent RRH A	143.00	147	1.609	0.806	0.682	0.190	24	127
Alcatel-Lucent RRH2x	143.00	180	1.609	0.806	0.682	0.190	30	155
Swedcom ALP 9212-N	143.00	160	1.609	0.806	0.682	0.190	26	138
RFS DB-T1-6Z-8AB-0Z	143.00	44	1.609	0.806	0.682	0.190	7	38
RFS DB-T1-6Z-8AB-0Z	143.00	44	1.609	0.806	0.682	0.190	7	38
Commscope JAHH-65B-	143.00	364	1.609	0.806	0.682	0.190	60	314
Flat Platform w/ Han	143.00	2,000	1.609	0.806	0.682	0.190	329	1,725
Alcatel-Lucent 800 M	133.00	384	1.392	0.268	0.423	0.087	29	331
Alcatel-Lucent 1900	133.00	180	1.392	0.268	0.423	0.087	14	155
Alcatel-Lucent TD-RR	133.00	210	1.392	0.268	0.423	0.087	16	181
RFS APXVTM14-ALU-I20	133.00	169	1.392	0.268	0.423	0.087	13	145
Commscope NNVV-	133.00	232	1.392	0.268	0.423	0.087	17	200
Modified Platform w/	133.00	2,500	1.392	0.268	0.423	0.087	188	2,157
Decibel DB844H90E-A	123.00	120	1.190	-0.004	0.248	0.012	1	104
Flat Platform w/ Han	123.00	2,000	1.190	-0.004	0.248	0.012	21	1,725
Commscope LNX-	107.00	151	0.901	-0.122	0.088	-0.049	-6	130
Kathrein Smart Bias	105.00	10	0.867	-0.121	0.075	-0.052	0	9
GPS	83.00	10	0.542	-0.032	0.009	-0.012	0	9
Stand-Off	83.00	75	0.542	-0.032	0.009	-0.012	-1	65
GPS	63.00	20	0.312	0.042	0.011	0.047	1	17
Stand-Off	63.00	150	0.312	0.042	0.011	0.047	6	129
2" x 4" GPS	50.00	5	0.197	0.063	0.024	0.055	0	4
Stand-Off	50.00	75	0.197	0.063	0.024	0.055	4	65
4' Std. Dish	17.00	188	0.023	0.065	0.039	0.046	8	162
		44,596	99.034	40.822	34.842	9.718	2,677	38,471

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-54.09	-2.67	0.00	-336.42	0.00	336.42	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.083
3.00	-53.01	-2.67	0.00	-328.40	0.00	328.40	4,631.78	2,315.89	9,346.21	4,615.74	0.00	-0.01	0.083
6.00	-51.95	-2.65	0.00	-320.40	0.00	320.40	4,597.82	2,298.91	9,156.81	4,522.21	0.02	-0.03	0.082
9.00	-50.89	-2.64	0.00	-312.44	0.00	312.44	4,563.18	2,281.59	8,967.87	4,428.89	0.04	-0.04	0.082
12.00	-49.85	-2.62	0.00	-304.53	0.00	304.53	4,527.86	2,263.93	8,779.43	4,335.83	0.07	-0.05	0.081
15.00	-49.16	-2.60	0.00	-296.69	0.00	296.69	4,491.86	2,245.93	8,591.56	4,243.05	0.10	-0.07	0.081
17.00	-48.58	-2.59	0.00	-291.48	0.00	291.48	4,467.49	2,233.75	8,466.65	4,181.36	0.13	-0.08	0.081
18.00	-47.56	-2.56	0.00	-288.89	0.00	288.89	4,455.19	2,227.60	8,404.31	4,150.57	0.15	-0.08	0.080
21.00	-46.55	-2.54	0.00	-281.21	0.00	281.21	4,417.85	2,208.92	8,217.72	4,058.43	0.21	-0.09	0.080
24.00	-45.55	-2.51	0.00	-273.60	0.00	273.60	4,379.82	2,189.91	8,031.86	3,966.64	0.27	-0.11	0.079
27.00	-44.56	-2.49	0.00	-266.07	0.00	266.07	4,341.13	2,170.56	7,846.78	3,875.23	0.34	-0.12	0.079
30.00	-43.59	-2.46	0.00	-258.61	0.00	258.61	4,301.75	2,150.88	7,662.53	3,784.23	0.43	-0.14	0.078
33.00	-42.62	-2.43	0.00	-251.23	0.00	251.23	4,261.70	2,130.85	7,479.16	3,693.68	0.52	-0.15	0.078
36.00	-41.67	-2.41	0.00	-243.92	0.00	243.92	4,220.97	2,110.49	7,296.73	3,603.58	0.62	-0.17	0.078
39.00	-41.32	-2.40	0.00	-236.70	0.00	236.70	4,179.57	2,089.78	7,115.28	3,513.97	0.73	-0.18	0.077
40.10	-40.32	-2.37	0.00	-234.05	0.00	234.05	4,164.16	2,082.08	7,048.76	3,481.12	0.77	-0.19	0.077
42.00	-38.76	-2.31	0.00	-229.57	0.00	229.57	4,137.49	2,068.74	6,934.89	3,424.88	0.85	-0.20	0.076
45.00	-38.30	-2.30	0.00	-222.64	0.00	222.64	4,094.73	2,047.37	6,755.59	3,336.33	0.98	-0.22	0.076
45.90	-37.72	-2.28	0.00	-220.57	0.00	220.57	3,345.43	1,672.72	5,614.65	2,772.86	1.02	-0.22	0.091
48.00	-37.17	-2.26	0.00	-215.79	0.00	215.79	3,324.15	1,662.07	5,517.72	2,724.99	1.12	-0.23	0.090
50.00	-36.80	-2.25	0.00	-211.26	0.00	211.26	3,303.59	1,651.79	5,425.69	2,679.55	1.22	-0.24	0.090
51.00	-35.99	-2.23	0.00	-209.01	0.00	209.01	3,293.20	1,646.60	5,379.77	2,656.86	1.27	-0.25	0.090
54.00	-35.19	-2.20	0.00	-202.33	0.00	202.33	3,261.57	1,630.78	5,242.36	2,589.00	1.44	-0.27	0.089
57.00	-34.39	-2.18	0.00	-195.71	0.00	195.71	3,229.26	1,614.63	5,105.54	2,521.44	1.61	-0.29	0.088
60.00	-33.61	-2.16	0.00	-189.16	0.00	189.16	3,196.28	1,598.14	4,969.37	2,454.19	1.80	-0.31	0.088
63.00	-32.63	-2.14	0.00	-182.67	0.00	182.67	3,162.62	1,581.31	4,833.91	2,387.28	2.00	-0.33	0.087
66.00	-31.87	-2.12	0.00	-176.26	0.00	176.26	3,128.28	1,564.14	4,699.19	2,320.75	2.21	-0.34	0.086
69.00	-31.11	-2.11	0.00	-169.89	0.00	169.89	3,093.27	1,546.64	4,565.29	2,254.62	2.43	-0.36	0.085
72.00	-30.37	-2.11	0.00	-163.55	0.00	163.55	3,057.58	1,528.79	4,432.24	2,188.92	2.66	-0.38	0.085
75.00	-29.64	-2.11	0.00	-157.23	0.00	157.23	3,021.22	1,510.61	4,300.11	2,123.66	2.91	-0.40	0.084
78.00	-29.01	-2.11	0.00	-150.91	0.00	150.91	2,984.18	1,492.09	4,168.95	2,058.89	3.17	-0.43	0.083
80.60	-28.85	-2.12	0.00	-145.42	0.00	145.42	2,951.54	1,475.77	4,056.14	2,003.18	3.41	-0.44	0.082
81.00	-28.09	-2.12	0.00	-144.57	0.00	144.57	2,946.46	1,473.23	4,038.81	1,994.61	3.45	-0.45	0.082
83.00	-27.61	-2.12	0.00	-140.34	0.00	140.34	2,920.94	1,460.47	3,952.64	1,952.06	3.64	-0.46	0.081
84.00	-27.08	-2.13	0.00	-138.21	0.00	138.21	2,908.96	1,454.48	3,910.94	1,931.47	3.73	-0.47	0.081
85.41	-26.74	-2.14	0.00	-135.21	0.00	135.21	2,288.86	1,144.43	3,120.34	1,541.02	3.87	-0.48	0.099
87.00	-26.12	-2.16	0.00	-131.81	0.00	131.81	2,274.94	1,137.47	3,069.59	1,515.96	4.04	-0.49	0.098
90.00	-25.51	-2.18	0.00	-125.34	0.00	125.34	2,248.22	1,124.11	2,974.43	1,468.96	4.35	-0.51	0.097
93.00	-24.90	-2.20	0.00	-118.80	0.00	118.80	2,220.81	1,110.41	2,879.80	1,422.23	4.68	-0.54	0.095
96.00	-24.30	-2.23	0.00	-112.18	0.00	112.18	2,192.74	1,096.37	2,785.75	1,375.78	5.03	-0.56	0.093
99.00	-23.71	-2.26	0.00	-105.49	0.00	105.49	2,163.98	1,081.99	2,692.34	1,329.64	5.39	-0.59	0.090
102.00	-23.13	-2.28	0.00	-98.72	0.00	98.72	2,134.56	1,067.28	2,599.61	1,283.85	5.77	-0.61	0.088
105.00	-22.73	-2.30	0.00	-91.87	0.00	91.87	2,104.45	1,052.22	2,507.63	1,238.42	6.16	-0.64	0.085
107.00	-22.36	-2.31	0.00	-87.26	0.00	87.26	2,084.00	1,042.00	2,446.74	1,208.36	6.43	-0.65	0.083
108.00	-21.80	-2.33	0.00	-84.95	0.00	84.95	2,073.67	1,036.83	2,416.44	1,193.39	6.57	-0.66	0.082
111.00	-21.26	-2.35	0.00	-77.96	0.00	77.96	2,042.21	1,021.11	2,326.10	1,148.77	6.99	-0.69	0.078
114.00	-20.72	-2.36	0.00	-70.91	0.00	70.91	2,006.48	1,003.24	2,232.66	1,102.63	7.43	-0.71	0.075
117.00	-20.20	-2.37	0.00	-63.83	0.00	63.83	1,959.62	979.81	2,129.00	1,051.43	7.88	-0.73	0.071
120.00	-19.81	-2.37	0.00	-56.74	0.00	56.74	1,912.75	956.38	2,027.81	1,001.46	8.35	-0.75	0.067
122.12	-19.59	-2.37	0.00	-51.72	0.00	51.72	1,879.60	939.80	1,957.71	966.84	8.69	-0.77	0.064
123.00	-16.29	-2.29	0.00	-49.64	0.00	49.64	1,865.89	932.94	1,929.08	952.70	8.83	-0.77	0.061
125.89	-16.28	-2.29	0.00	-43.03	0.00	43.03	929.68	464.84	961.73	474.96	9.30	-0.79	0.108
126.00	-15.90	-2.28	0.00	-42.77	0.00	42.77	929.29	464.65	960.40	474.31	9.32	-0.79	0.107
129.00	-15.52	-2.27	0.00	-35.92	0.00	35.92	918.88	459.44	925.49	457.06	9.83	-0.82	0.096
132.00	-15.39	-2.26	0.00	-29.13	0.00	29.13	907.79	453.90	890.46	439.76	10.35	-0.85	0.083
133.00	-10.63	-1.90	0.00	-26.87	0.00	26.87	903.95	451.97	878.77	433.99	10.53	-0.85	0.074

135.00	-10.29	-1.87	0.00	-23.06	0.00	23.06	896.03	448.02	855.37	422.43	10.89	-0.87	0.066
138.00	-9.96	-1.83	0.00	-17.45	0.00	17.45	883.59	441.80	820.26	405.10	11.44	-0.89	0.054
141.00	-9.75	-1.81	0.00	-11.95	0.00	11.95	870.48	435.24	785.20	387.78	12.00	-0.90	0.042
143.00	-5.64	-1.19	0.00	-8.34	0.00	8.34	861.36	430.68	761.88	376.27	12.38	-0.91	0.029
144.00	-5.46	-1.16	0.00	-7.14	0.00	7.14	856.69	428.34	750.24	370.52	12.57	-0.91	0.026
146.00	-5.32	-1.14	0.00	-4.81	0.00	4.81	847.12	423.56	727.02	359.05	12.96	-0.91	0.020
146.00	-5.32	-1.14	0.00	-4.81	0.00	4.81	920.33	460.16	575.46	378.52	12.96	-0.91	0.019
147.00	-5.04	-1.09	0.00	-3.67	0.00	3.67	920.33	460.16	575.46	378.52	13.15	-0.92	0.015
149.00	-1.30	-0.33	0.00	-1.50	0.00	1.50	920.33	460.16	575.46	378.52	13.53	-0.92	0.005
150.00	-0.98	-0.26	0.00	-1.17	0.00	1.17	920.33	460.16	575.46	378.52	13.72	-0.92	0.004
153.00	-0.76	-0.20	0.00	-0.40	0.00	0.40	920.33	460.16	575.46	378.52	14.30	-0.92	0.002
155.00	0.00	-0.19	0.00	0.00	0.00	0.00	920.33	460.16	575.46	378.52	14.69	-0.92	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.71	-2.67	0.00	-328.33	0.00	328.33	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.078
3.00	-36.96	-2.66	0.00	-320.31	0.00	320.31	4,631.78	2,315.89	9,346.21	4,615.74	0.00	-0.01	0.077
6.00	-36.22	-2.64	0.00	-312.33	0.00	312.33	4,597.82	2,298.91	9,156.81	4,522.21	0.02	-0.03	0.077
9.00	-35.48	-2.62	0.00	-304.40	0.00	304.40	4,563.18	2,281.59	8,967.87	4,428.89	0.04	-0.04	0.077
12.00	-34.75	-2.60	0.00	-296.53	0.00	296.53	4,527.86	2,263.93	8,779.43	4,335.83	0.06	-0.05	0.076
15.00	-34.27	-2.58	0.00	-288.73	0.00	288.73	4,491.86	2,245.93	8,591.56	4,243.05	0.10	-0.06	0.076
17.00	-33.87	-2.57	0.00	-283.57	0.00	283.57	4,467.49	2,233.75	8,466.65	4,181.36	0.13	-0.07	0.075
18.00	-33.16	-2.54	0.00	-281.00	0.00	281.00	4,455.19	2,227.60	8,404.31	4,150.57	0.15	-0.08	0.075
21.00	-32.45	-2.51	0.00	-273.39	0.00	273.39	4,417.85	2,208.92	8,217.72	4,058.43	0.20	-0.09	0.075
24.00	-31.76	-2.48	0.00	-265.86	0.00	265.86	4,379.82	2,189.91	8,031.86	3,966.64	0.26	-0.11	0.074
27.00	-31.07	-2.45	0.00	-258.41	0.00	258.41	4,341.13	2,170.56	7,846.78	3,875.23	0.33	-0.12	0.074
30.00	-30.39	-2.42	0.00	-251.05	0.00	251.05	4,301.75	2,150.88	7,662.53	3,784.23	0.41	-0.13	0.073
33.00	-29.71	-2.40	0.00	-243.77	0.00	243.77	4,261.70	2,130.85	7,479.16	3,693.68	0.50	-0.15	0.073
36.00	-29.05	-2.37	0.00	-236.59	0.00	236.59	4,220.97	2,110.49	7,296.73	3,603.58	0.60	-0.16	0.073
39.00	-28.81	-2.36	0.00	-229.49	0.00	229.49	4,179.57	2,089.78	7,115.28	3,513.97	0.71	-0.18	0.072
40.10	-28.11	-2.32	0.00	-226.89	0.00	226.89	4,164.16	2,082.08	7,048.76	3,481.12	0.75	-0.18	0.072
42.00	-27.02	-2.26	0.00	-222.49	0.00	222.49	4,137.49	2,068.74	6,934.89	3,424.88	0.83	-0.19	0.071
45.00	-26.70	-2.25	0.00	-215.69	0.00	215.69	4,094.73	2,047.37	6,755.59	3,336.33	0.95	-0.21	0.071
45.90	-26.30	-2.23	0.00	-213.67	0.00	213.67	3,345.43	1,672.72	5,614.65	2,772.86	0.99	-0.21	0.085
48.00	-25.91	-2.21	0.00	-208.98	0.00	208.98	3,324.15	1,662.07	5,517.72	2,724.99	1.09	-0.23	0.084
50.00	-25.65	-2.20	0.00	-204.55	0.00	204.55	3,303.59	1,651.79	5,425.69	2,679.55	1.19	-0.24	0.084
51.00	-25.09	-2.17	0.00	-202.35	0.00	202.35	3,293.20	1,646.60	5,379.77	2,656.86	1.24	-0.24	0.084
54.00	-24.53	-2.15	0.00	-195.83	0.00	195.83	3,261.57	1,630.78	5,242.36	2,589.00	1.40	-0.26	0.083
57.00	-23.98	-2.13	0.00	-189.38	0.00	189.38	3,229.26	1,614.63	5,105.54	2,521.44	1.57	-0.28	0.083
60.00	-23.43	-2.10	0.00	-183.00	0.00	183.00	3,196.28	1,598.14	4,969.37	2,454.19	1.75	-0.30	0.082
63.00	-22.75	-2.08	0.00	-176.69	0.00	176.69	3,162.62	1,581.31	4,833.91	2,387.28	1.94	-0.32	0.081
66.00	-22.21	-2.06	0.00	-170.46	0.00	170.46	3,128.28	1,564.14	4,699.19	2,320.75	2.14	-0.33	0.081
69.00	-21.69	-2.05	0.00	-164.28	0.00	164.28	3,093.27	1,546.64	4,565.29	2,254.62	2.36	-0.35	0.080
72.00	-21.17	-2.04	0.00	-158.14	0.00	158.14	3,057.58	1,528.79	4,432.24	2,188.92	2.59	-0.37	0.079
75.00	-20.66	-2.04	0.00	-152.02	0.00	152.02	3,021.22	1,510.61	4,300.11	2,123.66	2.83	-0.39	0.078
78.00	-20.22	-2.04	0.00	-145.91	0.00	145.91	2,984.18	1,492.09	4,168.95	2,058.89	3.08	-0.41	0.078
80.60	-20.11	-2.04	0.00	-140.61	0.00	140.61	2,951.54	1,475.77	4,056.14	2,003.18	3.31	-0.43	0.077
81.00	-19.58	-2.05	0.00	-139.79	0.00	139.79	2,946.46	1,473.23	4,038.81	1,994.61	3.35	-0.43	0.077
83.00	-19.24	-2.05	0.00	-135.69	0.00	135.69	2,920.94	1,460.47	3,952.64	1,952.06	3.53	-0.45	0.076
84.00	-18.87	-2.06	0.00	-133.64	0.00	133.64	2,908.96	1,454.48	3,910.94	1,931.47	3.63	-0.45	0.076
85.41	-18.64	-2.07	0.00	-130.75	0.00	130.75	2,288.86	1,144.43	3,120.34	1,541.02	3.76	-0.46	0.093
87.00	-18.21	-2.08	0.00	-127.45	0.00	127.45	2,274.94	1,137.47	3,069.59	1,515.96	3.92	-0.47	0.092
90.00	-17.78	-2.10	0.00	-121.21	0.00	121.21	2,248.22	1,124.11	2,974.43	1,468.96	4.22	-0.50	0.090
93.00	-17.35	-2.13	0.00	-114.90	0.00	114.90	2,220.81	1,110.41	2,879.80	1,422.23	4.55	-0.52	0.089
96.00	-16.94	-2.15	0.00	-108.52	0.00	108.52	2,192.74	1,096.37	2,785.75	1,375.78	4.88	-0.55	0.087
99.00	-16.52	-2.18	0.00	-102.06	0.00	102.06	2,163.98	1,081.99	2,692.34	1,329.64	5.23	-0.57	0.084
102.00	-16.12	-2.20	0.00	-95.53	0.00	95.53	2,134.56	1,067.28	2,599.61	1,283.85	5.60	-0.59	0.082
105.00	-15.84	-2.22	0.00	-88.92	0.00	88.92	2,104.45	1,052.22	2,507.63	1,238.42	5.98	-0.62	0.079
107.00	-15.58	-2.23	0.00	-84.48	0.00	84.48	2,084.00	1,042.00	2,446.74	1,208.36	6.24	-0.63	0.077
108.00	-15.20	-2.25	0.00	-82.25	0.00	82.25	2,073.67	1,036.83	2,416.44	1,193.39	6.37	-0.64	0.076
111.00	-14.82	-2.26	0.00	-75.51	0.00	75.51	2,042.21	1,021.11	2,326.10	1,148.77	6.78	-0.66	0.073
114.00	-14.44	-2.27	0.00	-68.72	0.00	68.72	2,006.48	1,003.24	2,232.66	1,102.63	7.21	-0.69	0.070
117.00	-14.07	-2.28	0.00	-61.89	0.00	61.89	1,959.62	979.81	2,129.00	1,051.43	7.65	-0.71	0.066
120.00	-13.80	-2.28	0.00	-55.05	0.00	55.05	1,912.75	956.38	2,027.81	1,001.46	8.10	-0.73	0.062
122.12	-13.65	-2.28	0.00	-50.21	0.00	50.21	1,879.60	939.80	1,957.71	966.84	8.43	-0.74	0.059
123.00	-11.35	-2.22	0.00	-48.21	0.00	48.21	1,865.89	932.94	1,929.08	952.70	8.56	-0.75	0.057
125.89	-11.34	-2.22	0.00	-41.81	0.00	41.81	929.68	464.84	961.73	474.96	9.02	-0.77	0.100
126.00	-11.07	-2.21	0.00	-41.55	0.00	41.55	929.29	464.65	960.40	474.31	9.04	-0.77	0.100
129.00	-10.81	-2.19	0.00	-34.93	0.00	34.93	918.88	459.44	925.49	457.06	9.53	-0.80	0.088
132.00	-10.72	-2.19	0.00	-28.35	0.00	28.35	907.79	453.90	890.46	439.76	10.04	-0.82	0.076
133.00	-7.40	-1.85	0.00	-26.16	0.00	26.16	903.95	451.97	878.77	433.99	10.21	-0.83	0.068

135.00	-7.17	-1.82	0.00	-22.46	0.00	22.46	896.03	448.02	855.37	422.43	10.56	-0.84	0.061
138.00	-6.94	-1.78	0.00	-17.00	0.00	17.00	883.59	441.80	820.26	405.10	11.10	-0.86	0.050
141.00	-6.79	-1.76	0.00	-11.65	0.00	11.65	870.48	435.24	785.20	387.78	11.64	-0.87	0.038
143.00	-3.93	-1.16	0.00	-8.14	0.00	8.14	861.36	430.68	761.88	376.27	12.01	-0.88	0.026
144.00	-3.80	-1.14	0.00	-6.98	0.00	6.98	856.69	428.34	750.24	370.52	12.19	-0.88	0.023
146.00	-3.70	-1.11	0.00	-4.70	0.00	4.70	847.12	423.56	727.02	359.05	12.56	-0.89	0.017
146.00	-3.70	-1.11	0.00	-4.70	0.00	4.70	920.33	460.16	575.46	378.52	12.56	-0.89	0.016
147.00	-3.51	-1.06	0.00	-3.59	0.00	3.59	920.33	460.16	575.46	378.52	12.75	-0.89	0.013
149.00	-0.91	-0.32	0.00	-1.47	0.00	1.47	920.33	460.16	575.46	378.52	13.12	-0.89	0.005
150.00	-0.68	-0.25	0.00	-1.15	0.00	1.15	920.33	460.16	575.46	378.52	13.31	-0.89	0.004
153.00	-0.53	-0.20	0.00	-0.39	0.00	0.39	920.33	460.16	575.46	378.52	13.87	-0.89	0.002
155.00	0.00	-0.19	0.00	0.00	0.00	0.00	920.33	460.16	575.46	378.52	14.24	-0.89	0.000

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	35.21	0.00	53.47	0.00	0.00	3940.53	45.90	0.88
0.9D + 1.6W	34.99	0.00	40.09	0.00	0.00	3845.99	45.90	0.85
1.2D + 1.0Di + 1.0Wi	8.60	0.00	101.66	0.00	0.00	1097.54	45.90	0.28
(1.2 + 0.2Sds) * DL + E ELFM	1.74	0.00	54.09	0.00	0.00	233.41	45.90	0.07
(1.2 + 0.2Sds) * DL + E EMAM	2.67	0.00	54.09	0.00	0.00	336.42	125.89	0.11
(0.9 - 0.2Sds) * DL + E ELFM	1.74	0.00	37.71	0.00	0.00	227.90	45.90	0.06
(0.9 - 0.2Sds) * DL + E EMAM	2.67	0.00	37.71	0.00	0.00	328.33	125.89	0.10
1.0D + 1.0W	8.37	0.00	44.59	0.00	0.00	927.66	45.90	0.21

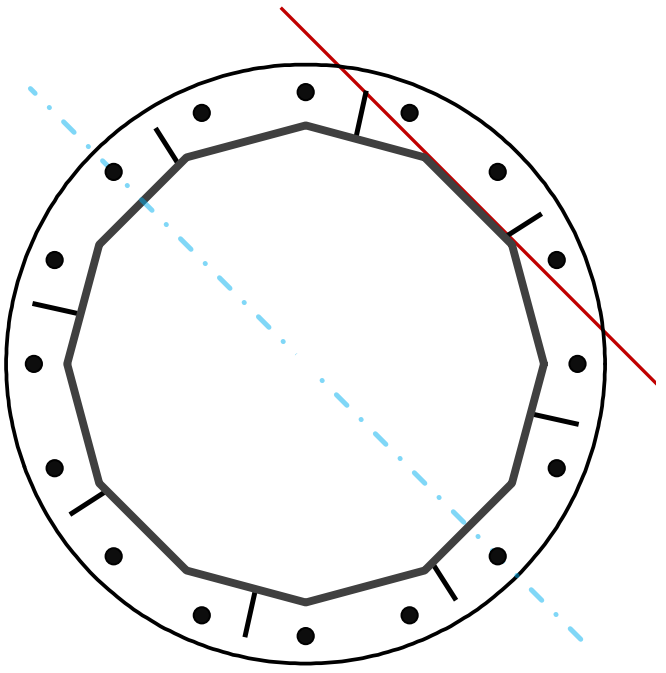
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	50.00	in
Thickness	0.438	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	3940.5	k-ft
Axial, Pu	53.5	k
Shear, Vu	35.2	k
Neutral Axis	315	°

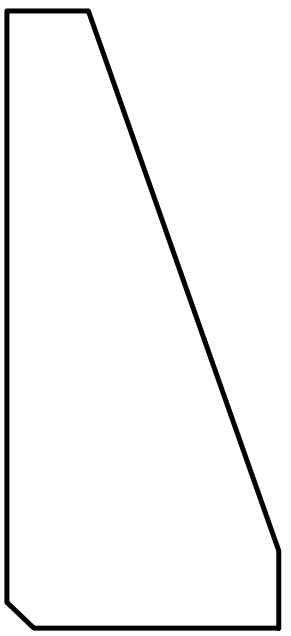
Report Capacities		
Component	Capacity	Result
Base Plate	75%	Pass
Anchor Rods	78%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	65	in
Thickness	2	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1765.4	k
Bending Stress, ϕMn	2369.2	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	59	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	11.6	in
Orientation Offset	0	°
Applied Force, Pu	203.6	k
Anchor Rods, ϕPn	259.8	k

Stiffeners		
Arrangement	Radial	-
Quantity	8	-
Height	12	in
Width	5	in
Effective Width	5.000	in
Thickness	3/4	in
Effective Thickness	0.370	in
Notch	0.5	in
Flat Edge	1.5	in
Grade	A36	-
Yield Strength, Fy	36	ksi
Tensile Strength, Fu	58	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	5/16	in
Bevel Depth	0	in
Vertical Weld	Fillet	
Vertical Fillet Size	5/16	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	10	°
Vertical Weld, ϕRn	167.4	k
Horz. Weld, ϕRn	73.9	k
Ten. Capacity, ϕTn	109.4	k
Comp. Capacity, ϕPn	167.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	35.2	3940.5	1.00
Anchor Rod Forces	35.2	3940.5	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	6.3	710.4	0.18

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	67.3455	5.6121	0.3596		20683.11
Bolt	3.9761	3.2477	0.8393	4.5	22623.84
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	1.6650	1.4985	15.4167		4548.46

Base Plate		
Shape	Round	-
Diameter, D	65	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	41.533	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	35.809	in
Additional AA	8.066	in
Section Modulus, Z	43.875	in^3
Applied Moment, Mu	1765.4	k-ft
Bending Capacity, ϕMn	2369.2	k-ft
Capacity, Mu/ϕMn	0.745	OK
Chord Length AB	33.208	in
Additional AB	6.302	in
Section Modulus, Z	39.510	in^3
Applied Moment, Mu	1253.6	k-ft
Bending Capacity, ϕMn	2133.6	k-ft
Capacity, Mu/ϕMn	0.588	OK
Bend Line Length	37.245	in
Additional Bend Line	20.740	in
Section Modulus, Z	57.985	in^3
Applied Moment, Mu	1765.4	k-ft
Bending Capacity, ϕMn	3131.2	k-ft
Capacity, Mu/ϕMn	0.564	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	59	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	203.6	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.784	OK
Interaction Capacity	0.784	OK

Additional Bolt Group 1		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Compressive Capacity, ϕPn		
Interaction Capacity		

Additional Bolt Group 2		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Compressive Capacity, ϕPn		
Interaction Capacity		

Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	56.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Capacity, Pu/ϕPn		

Base Plate Stiffeners		
Applied Axial Force, Pu	76.6	k
Applied Horizontal Force, Vu	0.40	k

Vertical Weld		
Vert.-to-Stiffener a=e_x/l	0.139	-
Spacing Ratio, k	0.063	-
Weld Coefficient, C	3.720	-
Compressive Capacity, ϕPn	167.4	k
Vert.-to-Plate a=e_x/l	0.333	-
Spacing Ratio, k	0.063	-
Weld Coefficient, C	2.940	-
Shear Capacity, ϕVn	132.3	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.461	OK

Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	0.167	-
Spacing Ratio, k	0.150	-
Weld Coefficient, C	3.940	-
Effective Fillet	0.313	in
Compressive Capacity, ϕPn	73.9	k
Horz.-to-Pole a=e_x/l	0.400	-
Spacing Ratio, k	0.150	-
Weld Coefficient, C	2.670	-
Shear Capacity, ϕVn	50.1	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	1.045	OK

Plate Tension		
Gross Cross Section	1.665	in^2
Net Cross Section	1.499	in^2
Tensile Capacity, ϕTn	109.4	k
Capacity, Tu/ϕTn	0.350	OK

Plate Compression		
Radius of Gyration	0.107	in^3
kl/r	67.41	-
4.71 √(E/Fy)	133.68	-
Buckling Stress(Fe)	63.0	-
Crit. Buckling Stress(Fcr)	55.2	ksi
Compressive Capacity, ϕPn	167.8	k
Capacity, Pu/ϕPn	0.228	OK

Base/Flange Plate	Plate Type	***Flange***	***@ 146.0 ft***
	Pole Diameter	16	in
	Pole Thickness	0.5	in
	Plate Diameter	28.5	in
	Plate Thickness	1	in
	Plate Fy	60	ksi
	Weld Length	0.3125	in
	ϕ_s Resistance	56.55	k-in
	Applied	11.70	k-in
Stiffeners	#	***0***	

Bolts	#	***12***	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
●	Diameter	1	in
	Hole Diameter	1.125	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	ϕ_s Resistance	54.52	k
	Applied	2.92	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev. ***G***

Date	3/22/2018
Engineer	RDB
Site #	302495
Carrier	Sprint Nextel

Moment	21.3 k-ft
Axial	4.5 k

Required Flange Thickness:
0.45 in OK

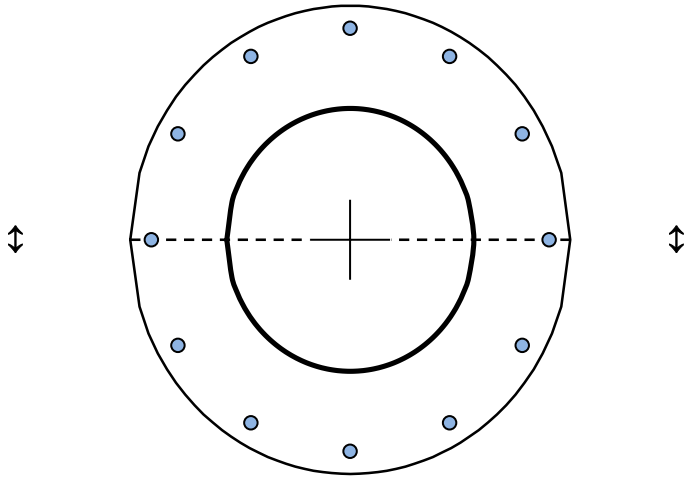
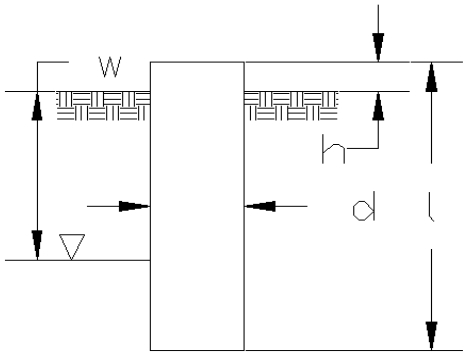


Plate Stress Ratio:
0.21 (Pass)

Bolt Stress Ratio:
0.05 (Pass)

Site Name:	Tolland CT, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302495	*American Tower Corporation*	
Engineer:	RDB		
Engineering Number:	OAA714899_C3_03		
Date:	03/22/18		



Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	N	
Moment (M):	3940.5	k-ft
Shear/Leg (V):	35.2	k
Axial Load (P):	53.5	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	7.0	ft
Caisson Embedment (L-h):	30.0	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	3.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	0.75	
Pullout Angle:	30.0	degrees

Engineer Notes

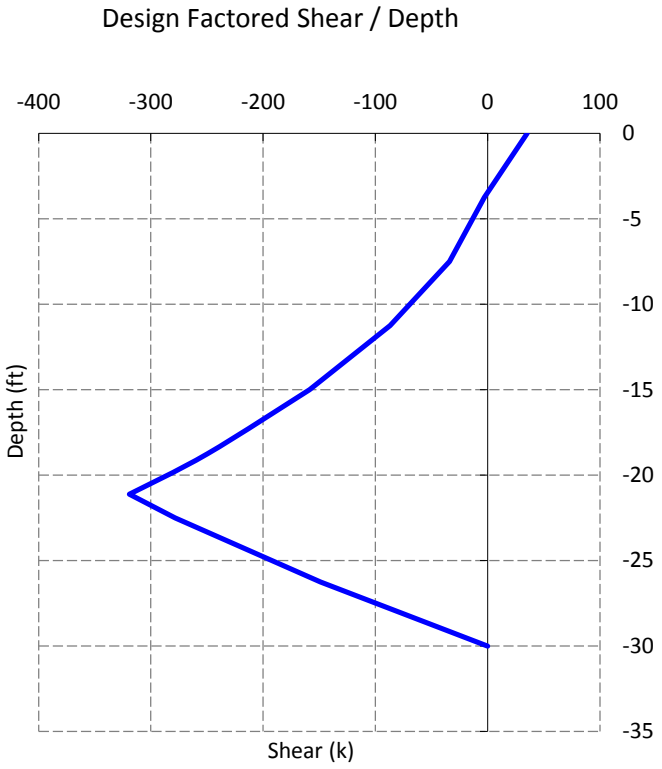
Soil Mechanical Properties

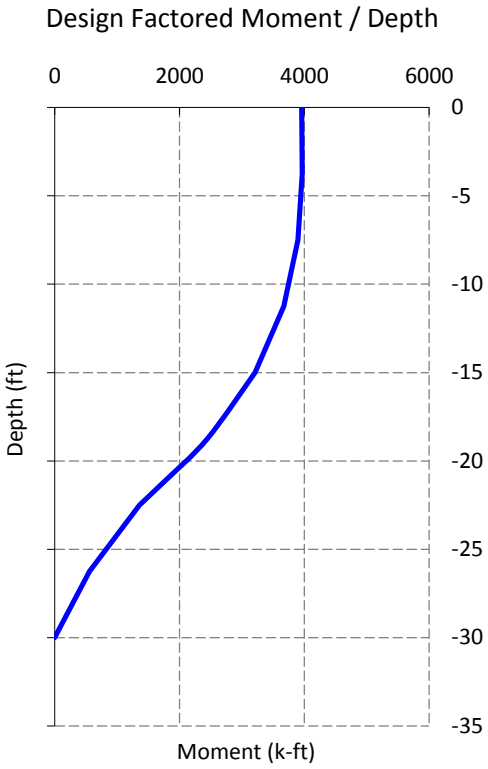
Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	3.0	105	0	0	0	0
3.0	5.0	127	0	37	0	0
5.0	10.0	133	0	40	832	0
10.0	31.0	137	0	40	1668	34021

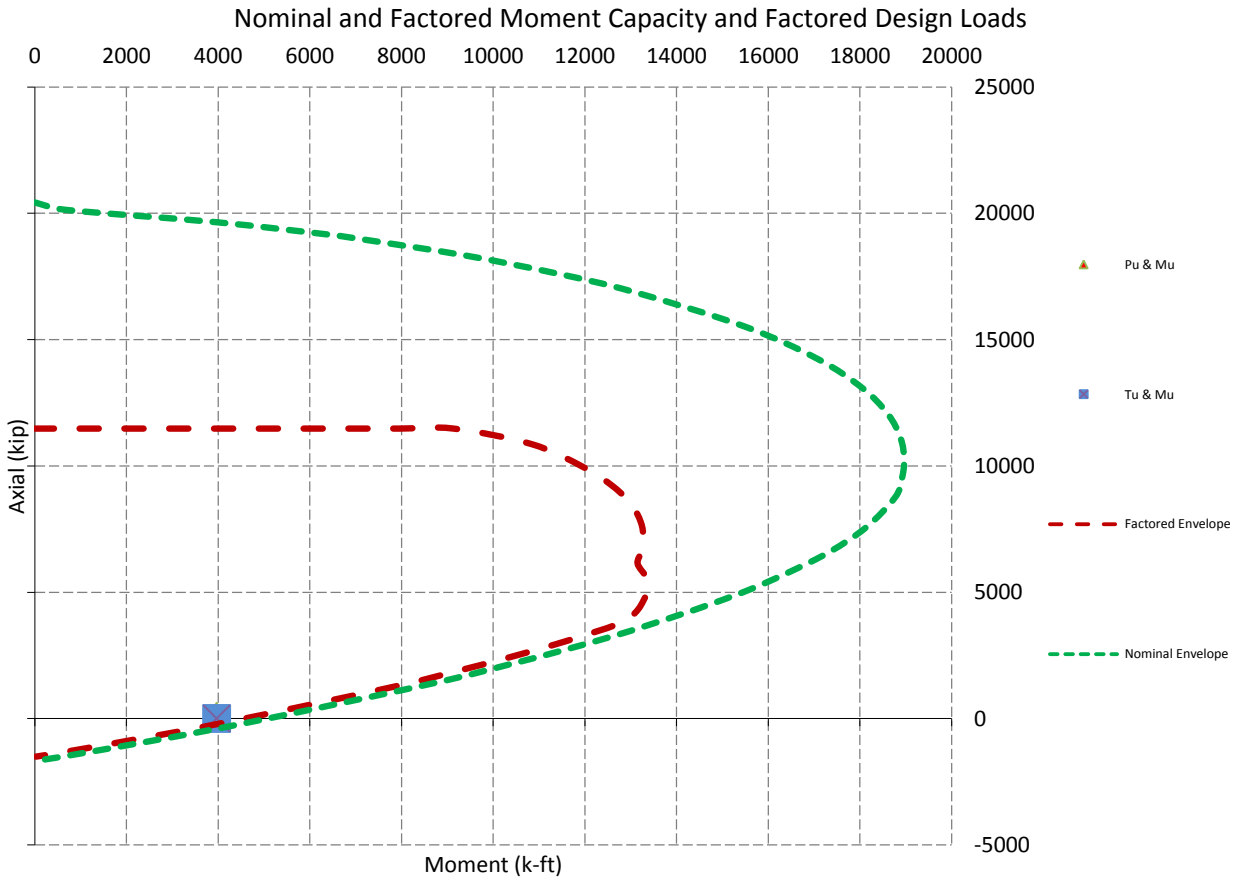
Volume of Concrete:	1173.8	ft^3 =	43.5 yd^3
Weight of Concrete (Buoyancy Effect Considered):	111.2	k	
Average Soil Unit Weight:	76.3	pcf	
Skin Friction Resistance:	825.1	k	
Compressive Bearing Resistance:	1309.3	k	
Pullout Weight (Minus Concrete Weight):	1155.1	k	
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	547.5	k	
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	1600.8	k	
P_u:	77.8	k	
$T_u/\phi_s T_n$:	0.00	Result:	OK
$P_u/\phi_s P_n$:	0.05	Result:	OK
Total Lateral Resistance:	2862.3	k	
Inflection Point (Below Ground Surface):	21.1	ft	
Design Overturning Moment At Inflection Point (M_D):	4701.5	k-ft	
Nominal Moment Capacity ($\phi_s M_n$):	12424.5	k-ft	
$M_D/\phi_s M_n$:	0.38	Result:	OK
ϕ_s:	0.75		

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	4000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	18	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	5	
Horizontal Tie / Stirrup Area:	0.31	in^2
Design Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	76.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	3967.3	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	4700.7	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.84	Result: OK
Design Shear (V_u):	319.1	k
Nominal Shear Capacity ($\phi_V V_n$):	528.3	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.60	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	1516.3	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	77.8	k
Nominal Compression Capacity ($\phi_P P_n$):	9748.2	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.01	Result: OK
Bending Reinforcement Ratio:	0.005	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.84	Result: OK


Design Factored Shear / Depth
-400
-300
-200
-100
0
100
0
-5
-10
-15
-20
-25
-30
-35
Depth (ft)
Shear (k)


Design Factored Moment / Depth
0
2000
4000
6000
0
-5
-10
-15
-20
-25
-30
-35
Depth (ft)
Moment (k-ft)


Nominal and Factored Moment Capacity and Factored Design Loads
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
25000
20000
15000
10000
5000
0
-5000
Axial (kip)
Moment (k-ft)
Pu & Mu
Tu & Mu
Factored Envelope
Nominal Envelope

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	SNET - TOLLAND
SITE CASCADE:	CT03XC207
SITE ADDRESS:	1 EAGLE HILL TOLLAND, CT 06084
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

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

LATITUDE (NAD83):
42° 52' 24.43" N
42.872619°

LONGITUDE (NAD83):
72° 20' 18.66" W
-72.338517°

COUNTY:
TOLLAND COUNTY

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

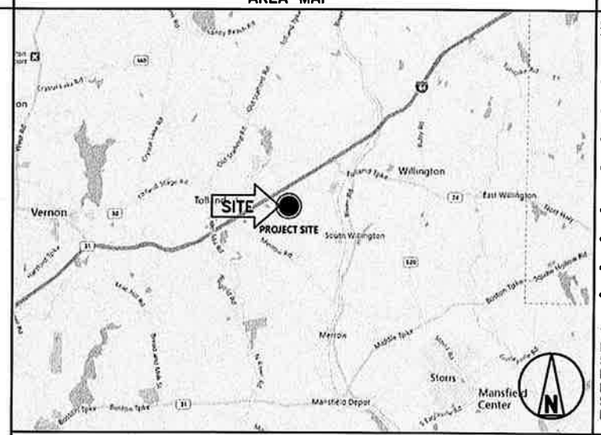
ZONING DISTRICT:
TBD

POWER COMPANY:
CONNECTICUT LIGHT & POWER
PHONE: (800) 322-3223

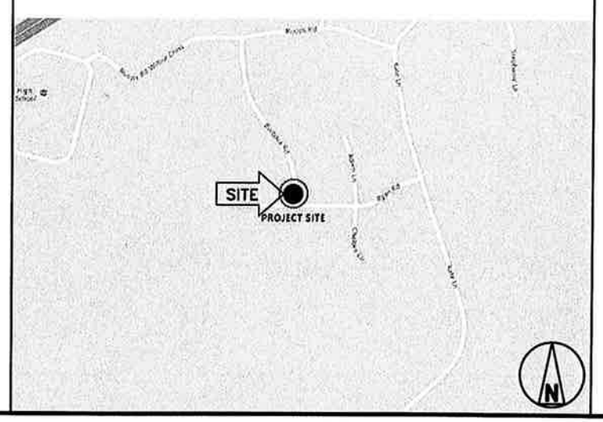
AAV PROVIDER:
FRONTIER COMMUNICATIONS
PHONE: (866) 502-7167

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 RRH'S BEHIND PROPOSED ANTENNAS
- INSTALL (3) 2.5 GHz & (3) 800 MHz RRH'S BEHIND PROPOSED ANTENNAS
- INSTALL (3) 800 MHz RRH'S BEHIND EXISTING PIPE MOUNT
- INSTALL (48) JUMPER CABLES
- INSTALL (4) HYBRID CABLE
- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS CABINET

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

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

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

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

PLANS PREPARED FOR:
Sprint

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

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
MAY 30 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:
SNET - TOLLAND

SITE NUMBER:
CT03XC207

SITE ADDRESS:
1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
7. AMERICAN CONCRETE INSTITUTE (ACI)
8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.

B. COMPANY: SPRINT CORPORATION

C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.

D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.

E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

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

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

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

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

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.

C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

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

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

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

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

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

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.

4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

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

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

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

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 NOTICE TO PROCEED

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

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

PROJECT MANAGER:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#: (516) 306-3740

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
MAY 30 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:

SNET - TOLLAND

SITE NUMBER:

CT03XC207

SITE ADDRESS:

1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

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

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

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

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

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

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

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

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

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

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

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

SECTION 01 400 - SUBMITTALS & TESTS

PART 1 - GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 SUBMITTALS:

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

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

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

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

1.4 TESTS AND INSPECTIONS:

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

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

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

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

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

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

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

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS - ANTENNALIGN ALIGNMENT TOOL (AAT)

PLANS PREPARED FOR:

Sprint

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

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 21708
MAY 30 2018
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:
SNET - TOLLAND

SITE NUMBER:
CT03XC207

SITE ADDRESS:
1 EAGLE HILL
TOLLAND, CT 06084

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 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 21063
LICENSED PROFESSIONAL ENGINEER
MAY 3 1 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:

SNET - TOLLAND

SITE NUMBER:

CT03XC207

SITE ADDRESS:

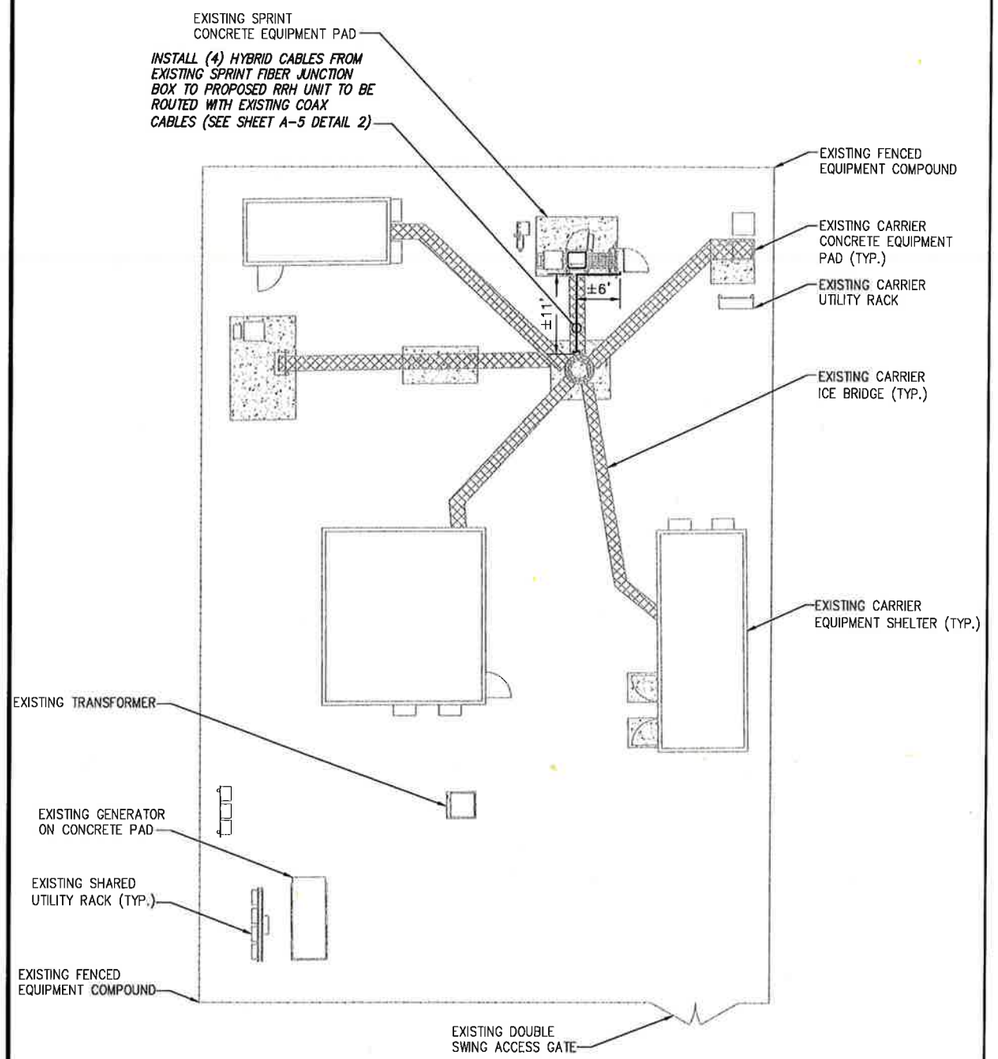
1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3

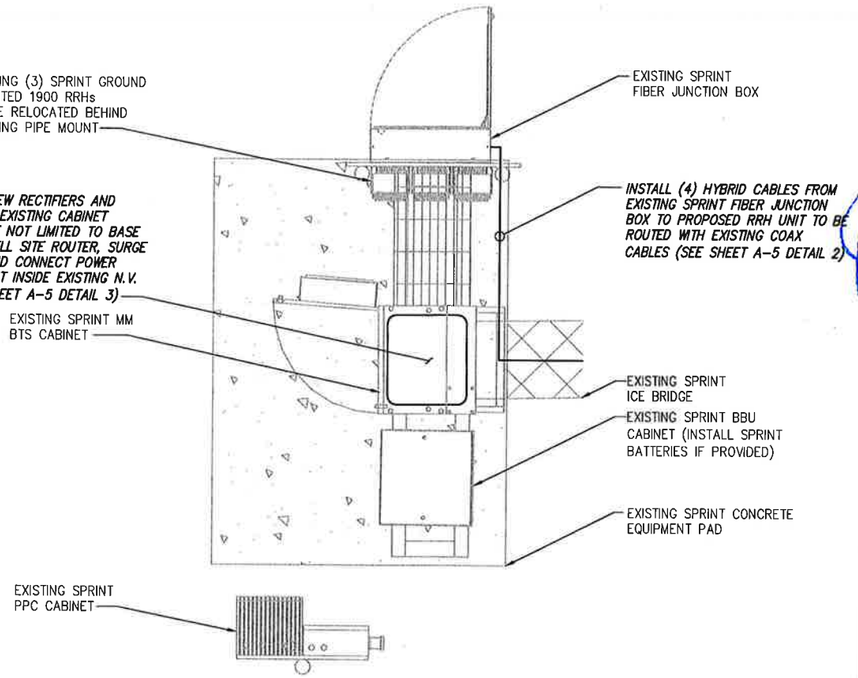


INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

N

GRAPHIC SCALE:
20' 10' 0 10' 20'
SCALE (11x17): 1" = 20'-0"
SCALE (22x34): 1" = 10'-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 526-104

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
MAY 31 2018
No. 24705
LICENSED
PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:
SNET - TOLLAND

SITE NUMBER:
CT03XC207

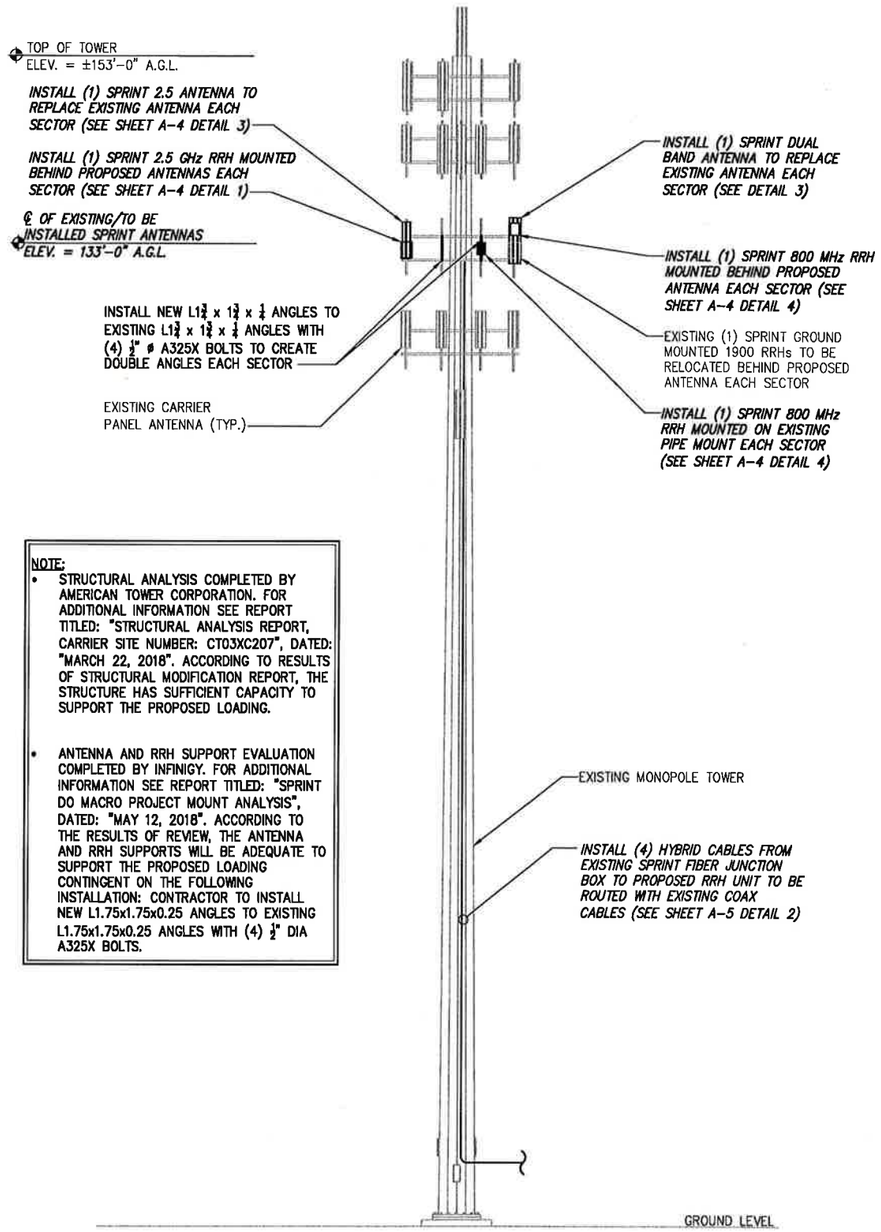
SITE ADDRESS:
1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

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:
SEE DETAIL 2 ON A-3 FOR ANTENNA LAYOUT



NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT03XC207", DATED: "MARCH 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: "MAY 12, 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 INSTALL NEW L1.75x1.75x0.25 ANGLES TO EXISTING L1.75x1.75x0.25 ANGLES WITH (4) ½" DIA A325X BOLTS.

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	45°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER (1) TD-RRH8X20-25 W/ SOLAR SHIELD (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1	±168'*	±133' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	45°	1	–		SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980H90A-KL	DECIBEL	30°	2	REMOVE		EXISTING COAX		
BETA	PROPOSED	APXVTM14-ALU-120	RFS	150°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER (1) TD-RRH8X20-25 W/ SOLAR SHIELD (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1		±133' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	150°	1	–		SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980H90A-KL	DECIBEL	150°	2	REMOVE		EXISTING COAX		
GAMMA	PROPOSED	APXVTM14-ALU-120	RFS	260°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER (1) TD-RRH8X20-25 W/ SOLAR SHIELD (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1		±133' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	260°	1	–		SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980H90A-KL	DECIBEL	270°	2	REMOVE		EXISTING COAX		

PROJECT SCOPE:

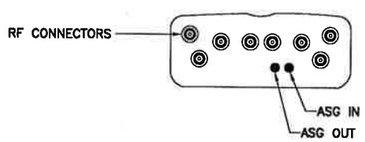
REMOVE: (6) PANEL ANTENNAS INSTALL: (6) PANEL ANTENNAS AND (9) RRH'S RELOCATE: (3) EXISTING RRH'S

* 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

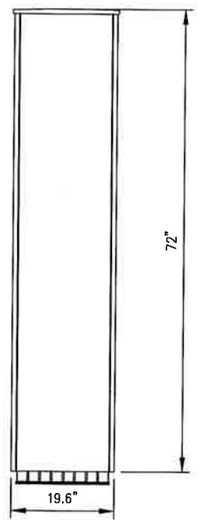
ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.In(mlm):	72"x19.6"x7.8" (1829x498x198mm)
WEIGHT:	77.4 lbs
CONNECTORS:	(8) PIN DIN FEMALE (8) 8 PIN DIN MALE



PLAN VIEW

SIDE VIEW



FRONT VIEW

DUAL BAND ANTENNA 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 526-104

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#. (516) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24405
REGISTERED PROFESSIONAL ENGINEER
MAY 30 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

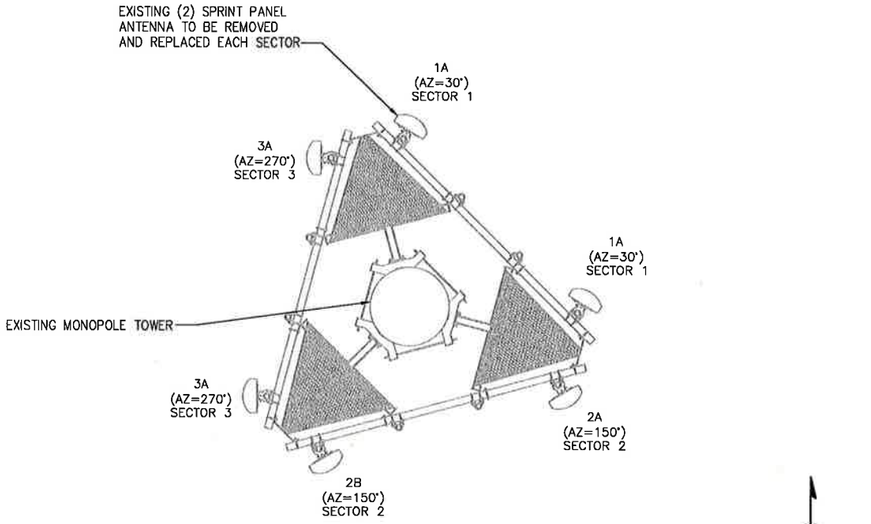
SITE NAME:
SNET - TOLLAND

SITE NUMBER:
CT03XC207

SITE ADDRESS:
1 EAGLE HILL
TOLLAND, CT 06084

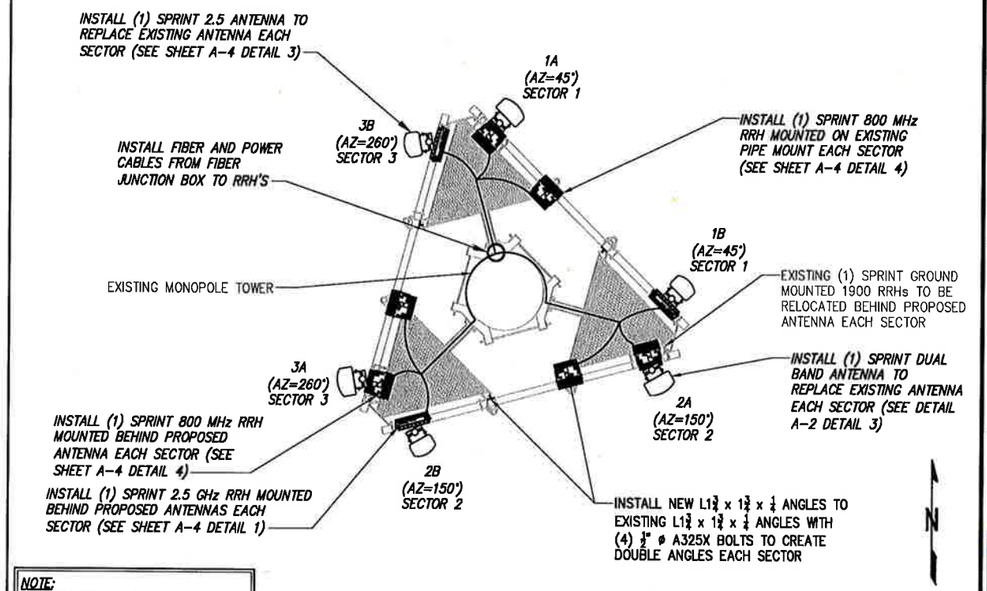
SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



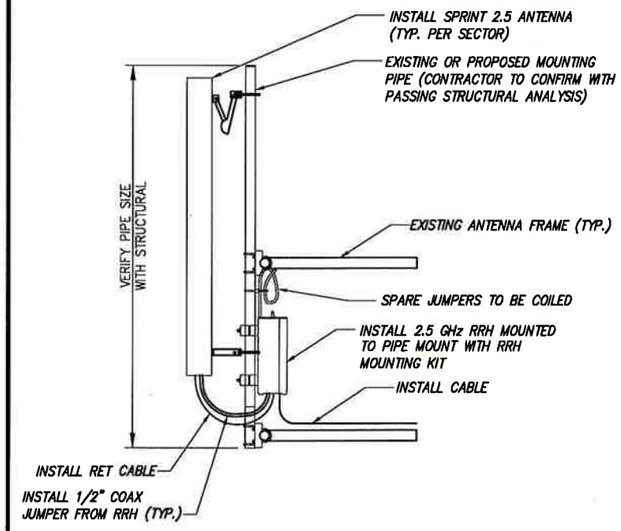
EXISTING ANTENNA & RRH LAYOUT | NO SCALE | 1

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



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

FINAL ANTENNA & RRH LAYOUT | NO SCALE | 2



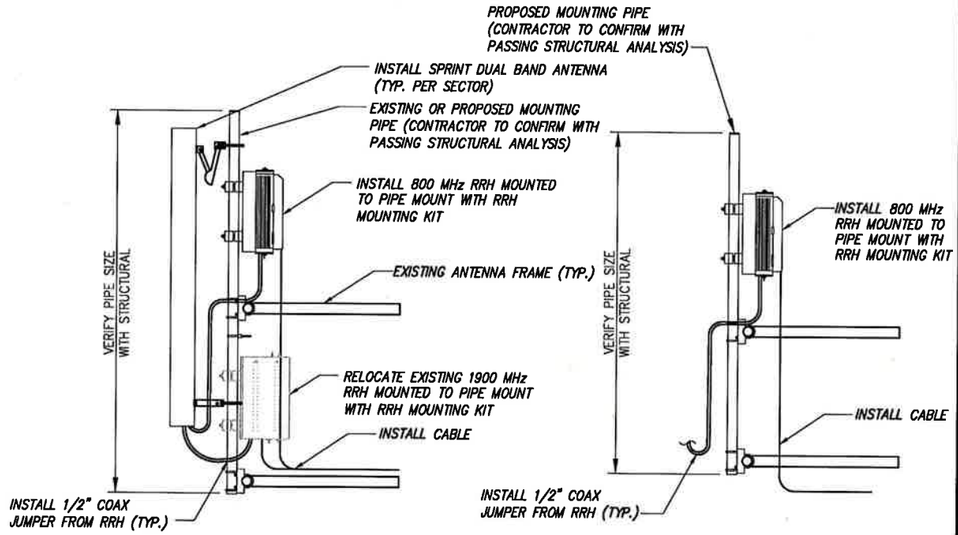
NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

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 ANTENNA & 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 526-104

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 31705
LICENSED PROFESSIONAL ENGINEER
MAY 29 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:
SNET - TOLLAND

SITE NUMBER:
CT03XC207

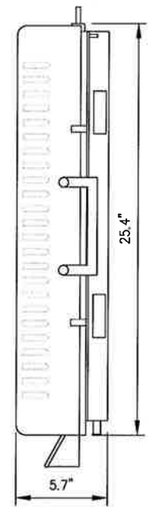
SITE ADDRESS:
1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

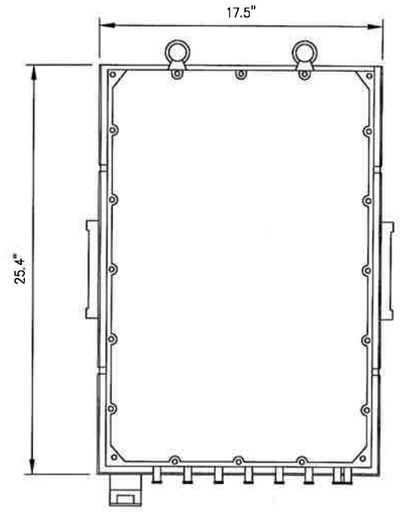
SHEET NUMBER:
A-3

RRH: ALCATEL LUCENT TD-RRH8X20

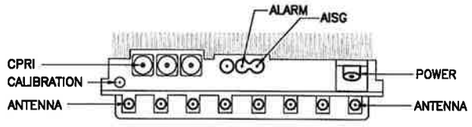
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

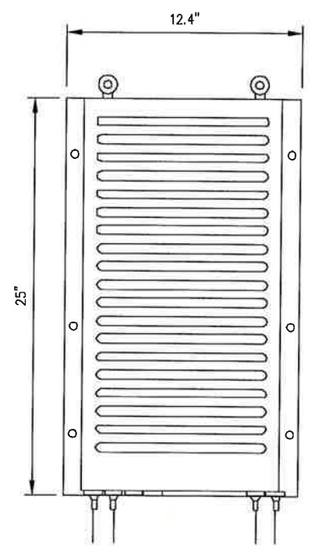
NOTES

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.

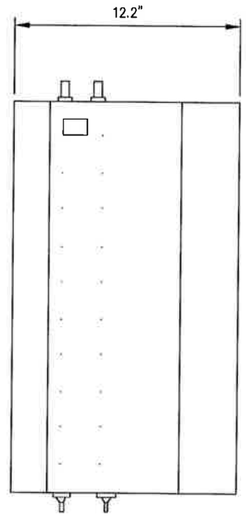
2.5 RRH'S | NO SCALE | 1

RRH: ALCATEL LUCENT 1900 MHz

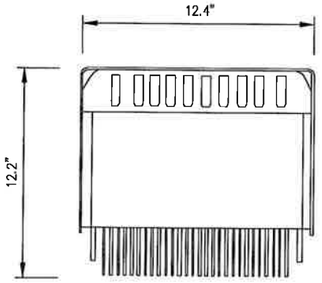
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW

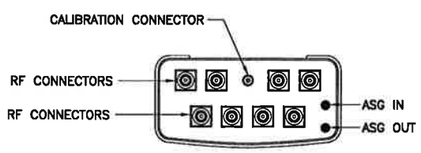


TOP VIEW

EXISTING 1900 MHz RRH | NO SCALE | 2

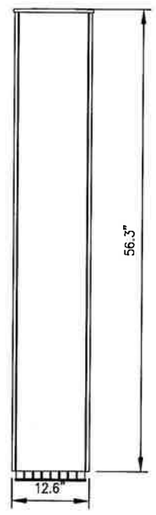
ANTENNA RFS APXVTM14-ALU-I20

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

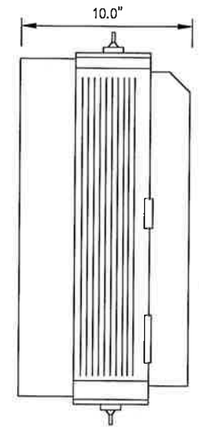
2.5 ANTENNA DETAIL | NO SCALE | 3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

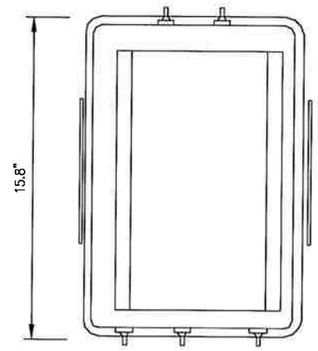
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

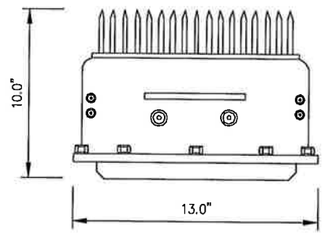
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



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 526-104

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
MAY 31 2018
No. 24769
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:
SNET - TOLLAND

SITE NUMBER:
CT03XC207

SITE ADDRESS:
1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

RFS HYBRIFLEX RISER CABLE SCHEDULE

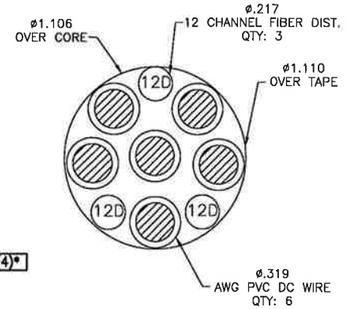
Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F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

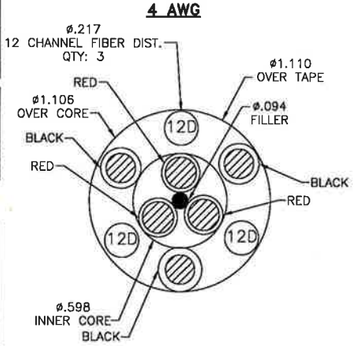
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1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

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

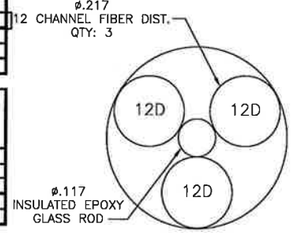
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

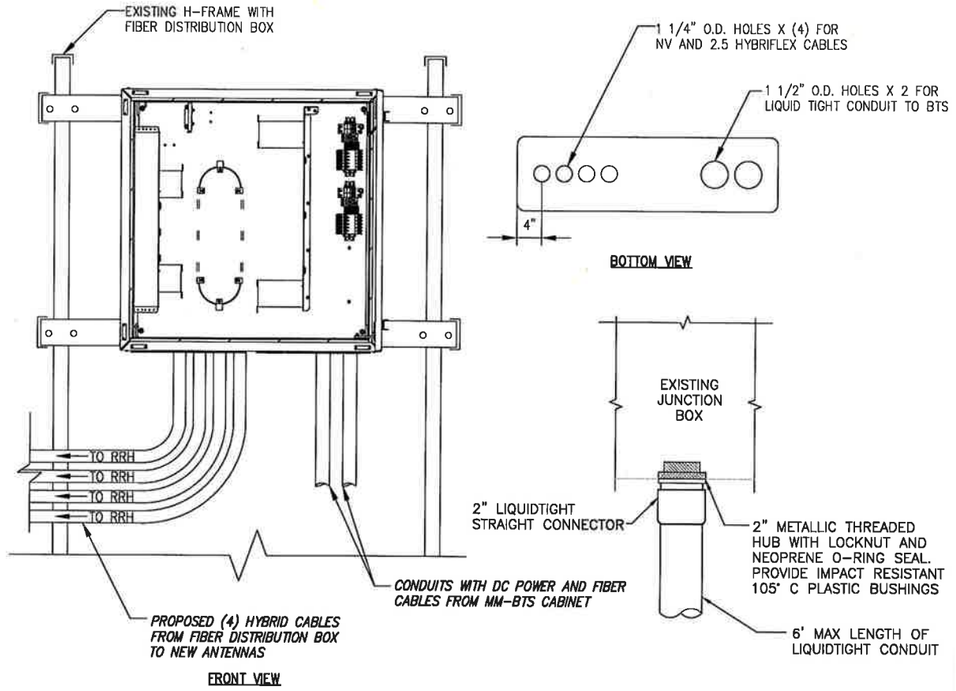


8 & 6 AWG



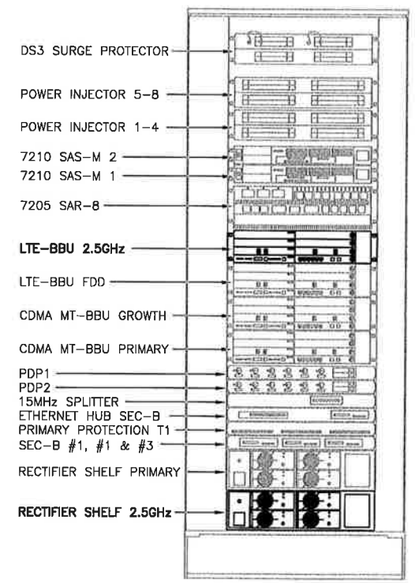
FIBER ONLY

800/1900/2500 CROSS SECTION DATA | NO SCALE | 1



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 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
MAY 30 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:
SNET - TOLLAND

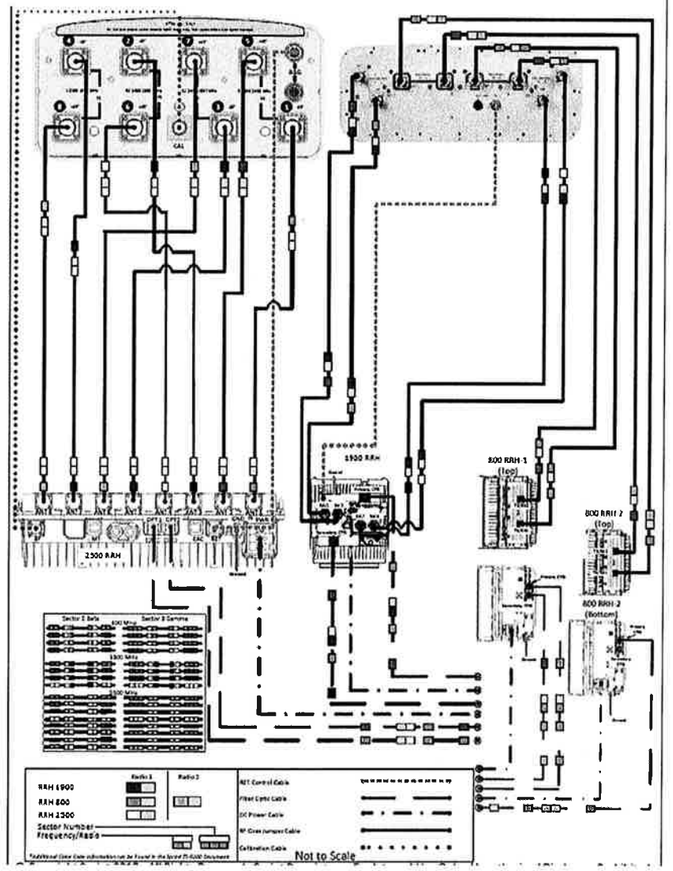
SITE NUMBER:
CT03XC207

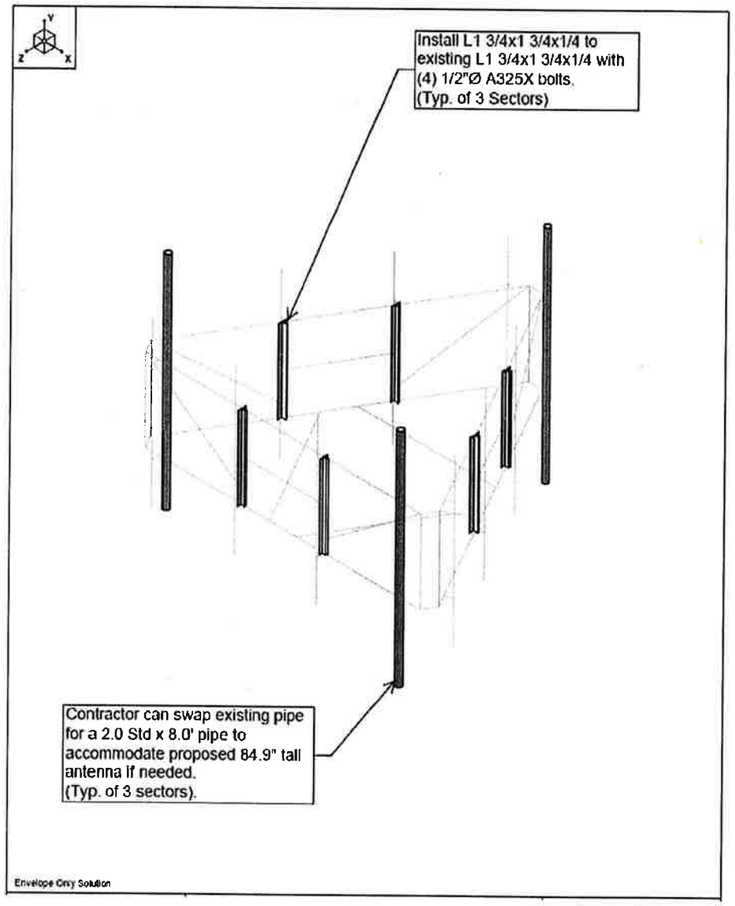
SITE ADDRESS:
1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5

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





PLUMBING DIAGRAM | NO SCALE | 1

MOUNT MODIFICATION DETAIL | NO SCALE | 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 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
MAY 30 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:

SNET - TOLLAND

SITE NUMBER:

CT03XC207

SITE ADDRESS:

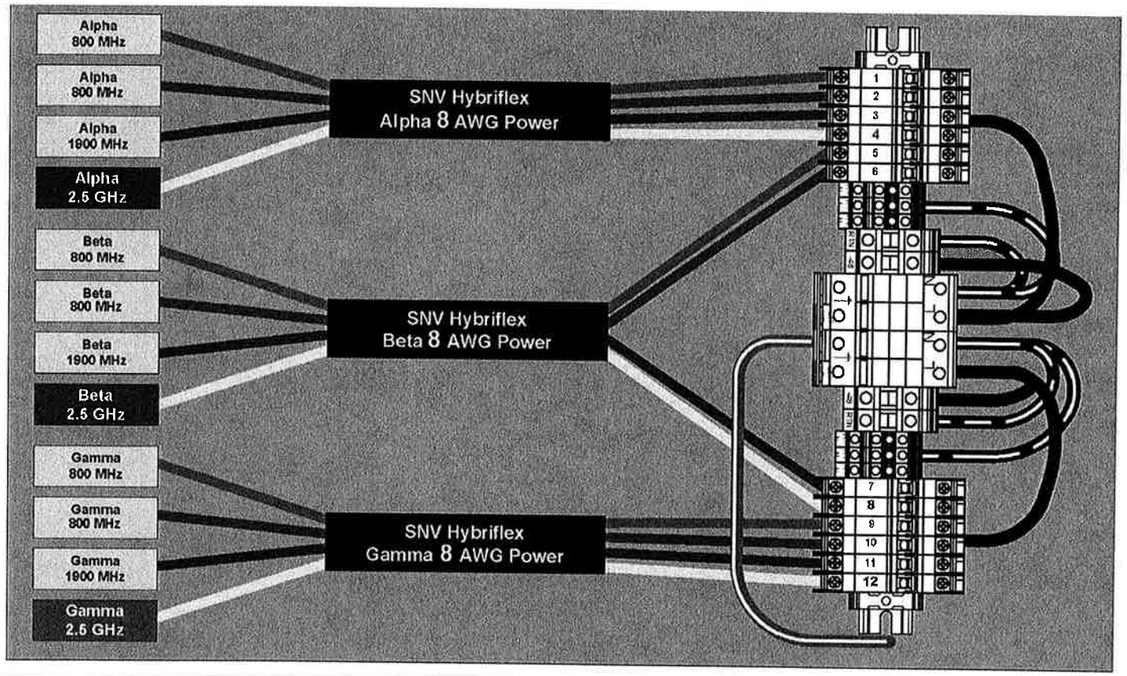
1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

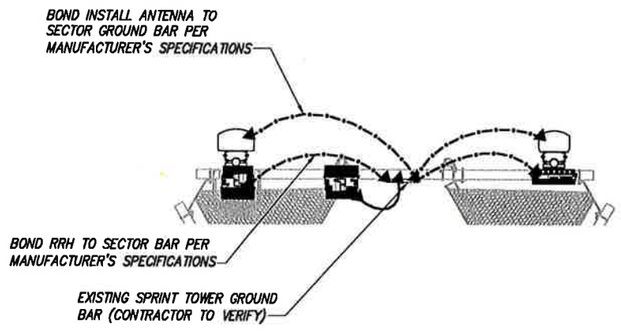
A-6



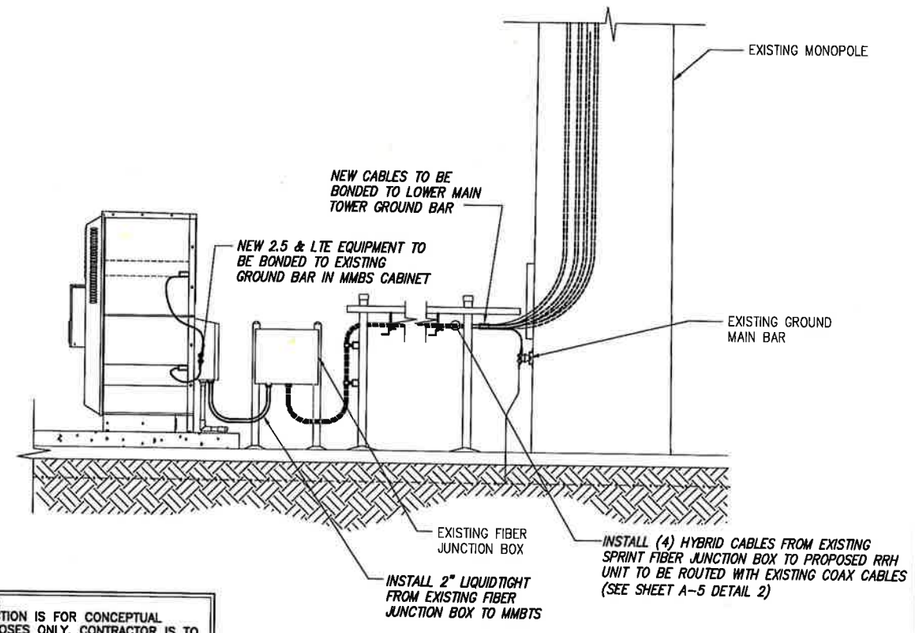
RRH TO DISTRIBUTION BOX POWER CONNECTIVITY | NO SCALE | 1

LEGEND:

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



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

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

PLANS PREPARED FOR:
Sprint

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

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED PROFESSIONAL ENGINEER
MAY 30 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:
SNET - TOLLAND

SITE NUMBER:
CT03XC207

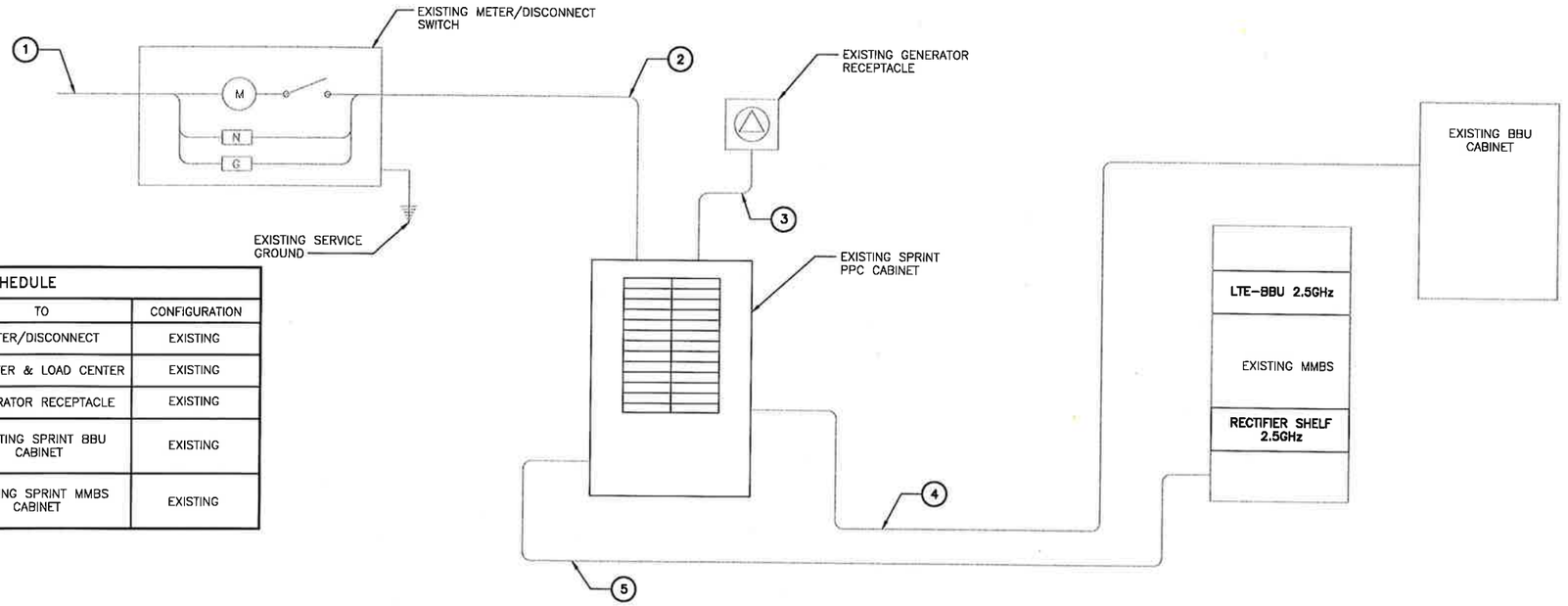
SITE ADDRESS:
1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1

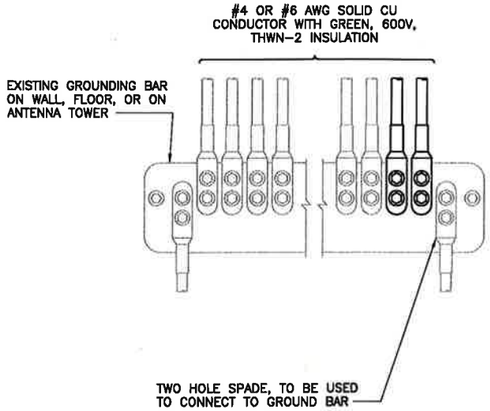
NOTES

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

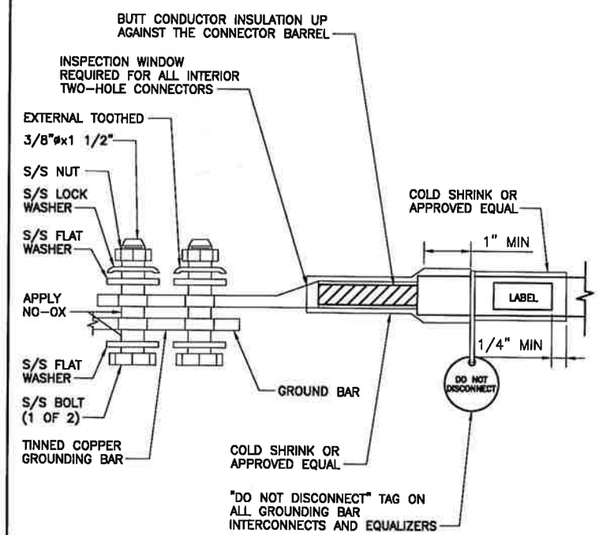
ELECTRICAL ONE–LINE DIAGRAM — NO SCALE — 1



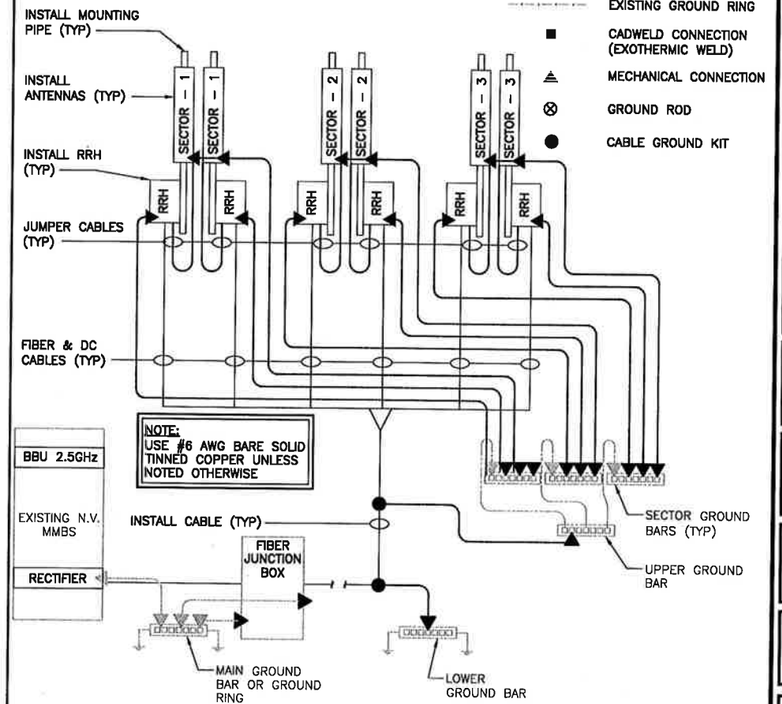
NOTES

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 526–104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT — JOHN S. STEVENS — LICENSED PROFESSIONAL ENGINEER — MAY 23 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	05/29/18	ETC	0

SITE NAME:

SNET - TOLLAND

SITE NUMBER:

CT03XC207

SITE ADDRESS:

1 EAGLE HILL
TOLLAND, CT 06084

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2