AIROSMITH DEVELOPMENT
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August 2nd, 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 15 DWIGHT STREET, NORTH HAVEN, CT 06473 – CT52XC119 (lat. 41° 25' 14.9" N, long. -72° 50' 55.7" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (142-foot level) on an existing (150-foot monopole tower) at the above-referenced address. The property is owned by 15 DWIGHT STREET LLC and the tower is owned by American Tower Corporation.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace three (3) antennas, and add three (3) new antennas, and add twelve (12) RRHs onto the tower. All the proposed work is contained within the existing fenced area. Please refer to the attached drawings for site plans prepared by Infinigy Engineering.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Michael J. Freda, First Selectman, and Alan Fredricksen, Land Use Administrator the Town of North Haven. A copy of this letter is also being sent to AMERICAN TOWER CORPOATION the owner of the tower, and 15 DWIGHT STREET LLC who owns the property.

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: Michael J. Freda (First Selectman, NORTH HAVEN, CT)
Alan Fredricksen (Land Use Administrator, NORTH HAVEN, CT)
JUSTINE PAUL (Tower Owner - American Tower Corporation)
15 DWIGHT STREET LLC (Property Owner)

7018 0680 0002 1201 6118

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City, State, ZIP+4®: Westbrook CT 06498

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

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Total Postage and Fees	$6.70

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City, State, ZIP+4®: Woburn MA 01801

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

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Street and Apt. No., or PO Box No.: 18 Church ST
City, State, ZIP+4®: North Haven CT 06473

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

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08/02/2018

Sent To: Michael Freda CT52xc119
Street and Apt. No., or PO Box No.: 18 Church ST
City, State, ZIP+4®: North Haven CT 06473

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

15 DWIGHT ST

Location	15 DWIGHT ST	**Mblu**	100/ / 001/ /
Acct#	338330	**Owner**	15 DWIGHT STREET LLC
Assessment	$3,523,590	**Appraisal**	$5,033,700
PID	9010	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$3,451,000	$1,582,700	$5,033,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$2,415,700	$1,107,890	$3,523,590

Owner of Record

Owner	15 DWIGHT STREET LLC	**Sale Price**	$0
Co-Owner	C/O NEIL F CARRANO	**Certificate**	1
Address	11 SAGAMORE TERR SO WESTBROOK, CT 06498-2107	**Book & Page**	529/ 23
		Sale Date	09/28/1998

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
15 DWIGHT STREET LLC	$0	1	529/ 23	09/28/1998
V J C REALTY % CARRANOS	$0	3	318/ 434	10/02/1981
V J C REALTY	$0	4	310/ 253	11/15/1979

Building Information

Building 1 : Section 1

Year Built:	1981
Living Area:	171,555
Replacement Cost:	$4,921,913
Building Percent Good:	67
Replacement Cost Less Depreciation:	$3,297,700

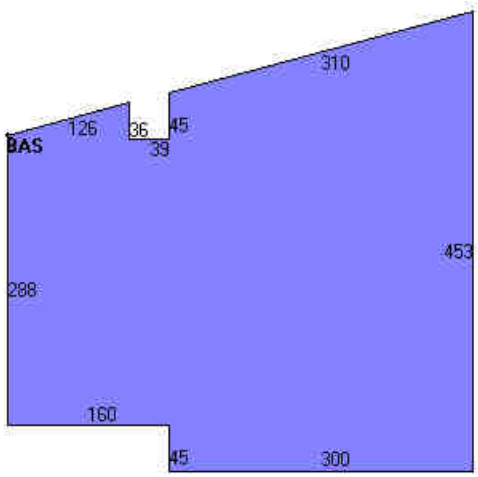
Building Attributes

Field	Description
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Metal
Exterior Wall 2	Concr/Cinder
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Average
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Unit Heat
AC Type	None
Bldg Use	IND WHSES M96
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	HEAT/AC PKGS
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	22
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/NorthHavenCTPhotos//\00\01\81

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	171,555	171,555
		171,555	171,555

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
SPR1	SPRINKLERS-WET	172908 S.F.	$104,300	1
OVHD	OVER HEADDOOR	2320 S.F.	$0	1
LDL1	LOAD LEVELERS	29 UNITS	$56,300	1
A/C	AIR CONDITION	2780 S.F.	$3,700	1
OVHD	OVER HEADDOOR	140 S.F.	$0	1
MEZ2	FINISHED	2500 S.F.	$25,100	1

Land

Land Use

Use Code	4010
Description	IND WHSES M96
Zone	IL80
Neighborhood	307
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	11.99
Frontage	
Depth	
Assessed Value	$1,107,890
Appraised Value	$1,582,700

Outbuildings

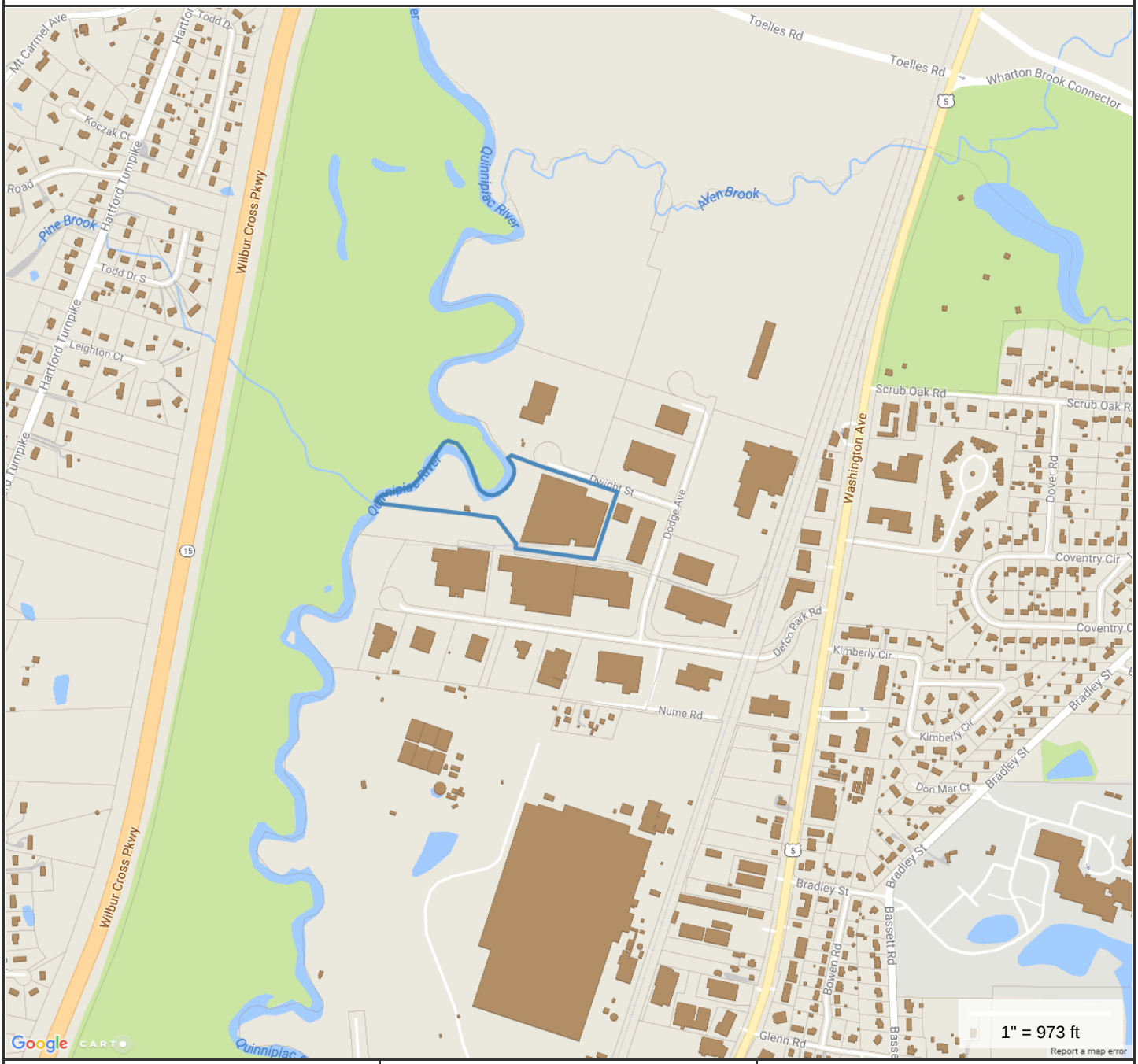
Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN1	FENCE-4' CHAIN			16000 L.F.	$48,000	1
PAV1	PAVING-ASPHALT			80000 S.F.	$54,000	1
TWR1	COMMU-TOWER			1 UNITS	$112,500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$4,359,100	$1,678,700	$6,037,800
2008	$4,011,900	$1,217,600	$5,229,500
2007		$852,320	$3,660,650

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$3,051,370	$1,175,090	$4,226,460
2008	$2,808,330	$852,320	$3,660,650
2007		$852,320	$3,660,650

CT52XC119



Property Information

Property ID	100/1
Location	15 DWIGHT ST
Owner	15 DWIGHT STREET LLC

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

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

Parcels updated 07/01/2018
Properties updated 08/01/2018

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

SPRINT Existing Facility

Site ID: CT52XC119

North Haven CT-1
15 Dwight Street
North Haven, CT 06473

July 30, 2018

EBI Project Number: 6218005220

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	9.18 %

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

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July 30, 2018

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

Emissions Analysis for Site: **CT52XC119 – North Haven CT-1**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **15 Dwight Street, North Haven, 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), 2500 MHz (BRS) as well as 11 GHz and 23 GHz microwave 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 **15 Dwight Street, North Haven, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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) 1 microwave channel (23 GHz) was considered for Sector A of the proposed installation. This channel has a transmit power of 1 Watt.

7) 1 microwave channel (11 GHz) was considered for both Sectors B & C of the proposed installation. These channels have a transmit power of 1 Watt.

8) 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.

9) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

10) 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 as well as the **Dragonwave A-ANT-23G-1-C** for microwave transmission in the 23 GHz band and **Dragonwave A-ANT-11G-2-C** & **Dragonwave A-ANT-11G-2.5G-C** for microwave transmission in the 11 GHz band. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

11) The antenna mounting height centerlines of the proposed panel antennas and microwave dishes are **142 feet** above ground level (AGL) for **Sector A**, **142 feet** above ground level (AGL) for **Sector B** and **142 feet** above ground level (AGL) for Sector C.

12) 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.

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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):	**142 feet**	Height (AGL):	**142 feet**	Height (AGL):	**142 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.77 %**	Antenna B1 MPE%	**1.77 %**	Antenna C1 MPE%	**1.77 %**
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):	**142 feet**	Height (AGL):	**142 feet**	Height (AGL):	**142 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%	**1.21 %**	Antenna B2 MPE%	**1.21 %**	Antenna C2 MPE%	**1.21 %**

Microwave Backhaul Data

Antenna Type:	Gain (dBd)	Height (feet AGL):	Frequency Bands	Channel Count	Total TX Power(W)	ERP (W)	MPE %	Sector
Dragonwave A-ANT-23G-1-C	33.15 dBd	142	23 GHz	1	1	2,065.38	**0.04**	A
Dragonwave A-ANT-11G-2-C	32.35 dBd	142	11 GHz	1	1	1,717.91	**0.03**	B
Dragonwave A-ANT-11G-2.5-C	35.35 dBd	142	11 GHz	1	1	3,427.68	**0.07**	C

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Sector C	**3.05 %**
AT&T	2.66 %
Verizon Wireless	3.47 %
Site Total MPE %:	**9.18 %**

SPRINT Sector A Total:	3.02 %
SPRINT Sector B Total:	3.01 %
SPRINT Sector C Total:	3.05 %
Site Total:	9.18 %

SPRINT _ Frequency Band / Technology (Sector C)	# 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	142	0.73	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	941.82	142	3.66	850 MHz	567	0.65%
Sprint 1900 MHz (PCS) CDMA	5	511.82	142	4.97	1900 MHz (PCS)	1000	0.50%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	142	4.97	1900 MHz (PCS)	1000	0.50%
Sprint 2500 MHz (BRS) LTE	8	778.09	142	12.10	2500 MHz (BRS)	1000	1.21%
Sprint 11 GHz Microwave	1	3,427.68	142	0.67	11 GHz	1000	0.07%
						Total:	**3.05%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	3.02 %
Sector B:	3.01 %
Sector C:	3.05 %
SPRINT Maximum MPE % (Sector C):	3.05 %
Site Total:	9.18 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.18 %** 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

June 18, 2018

Site Number	CT52XC119
Site Name	North Haven CT-1
Client	Airosmith
Carrier	Sprint
Infinigy Job Number	526-104
Site Location	15 Dwight Street North Haven, CT 06473 41° 25' 14.90" N NAD83 72° 50' 55.70" W NAD83
Mount Centerline EL.	142.0 ft
Mount Classification	Sector Frame
Failing Mount Usage	**154.1%**
Passing Mount Usage	**72.2%**
Overall Result	**Contingent Pass**
Note	**Install (1) SitePro 1 RMQP-496 platform prior to installation of appurtenances**

Upon reviewing the results of this analysis, it is our opinion that the mount 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.

Jessica Kipp
Structural Engineer Intern

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 Asset #302482, dated March 14, 2018
Construction Drawings	Infinigy Job #526-104, dated January 31, 2018

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust, V_{ASD}) / 125 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust, V_{ASD}) w/ 3/4" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC/ 2016 Connecticut State Building Code
Structure Class	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the mount 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:

Jessica Kipp
Structural Engineer Intern | Infinigy
1033 Watervliet Shaker Road, Albany, NY 12205
(O) (518) 690-0790
jkipp@infinigy.com | www.infinigy.com

Final Configuration Loading

Mount CL (ft)	Rad. HT (ft)	Horiz. O/S (ft)[1]	Qty	Appurtenance[2]	Carrier
142.0	142.0	0.0	3	Commscope NNVV-65B-R4	Sprint
		10.0	3	RFS APXVTM14-ALU-I20	
		6.66	3	Alcatel Lucent TD-RRH8x20-25	
		3.33	6	Alcatel Lucent RRH2x50-08	
		0.0	3	Alcatel Lucent 1900 MHz 4x45 RRH	
		--	1	DragonWave A-ANT-11G-2.5-C	
		--	1	DragonWave A-ANT-23G-1-C	
		--	1	DragonWave A-ANT-11G-2-C	
		6.66	3	DragonWave Horizon Compact	

(1) Horizontal Offset is defined as the distance from the left most edge of the mount face horizontal when viewed facing the tower
(2) Radios are mounted behind antennas at respective locations. See appended documents for vertical locations

Structure Usages

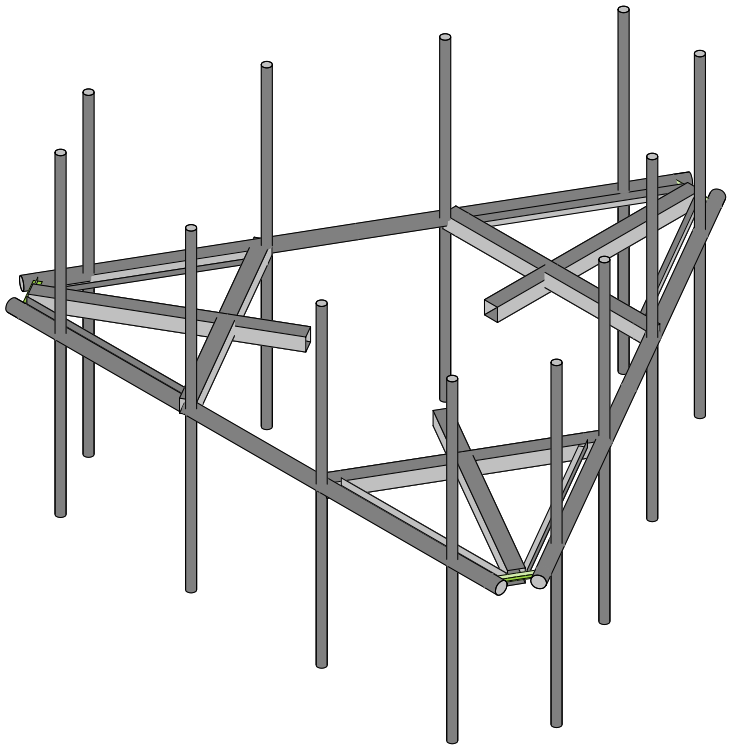
Mount Pipe	72.2%	Pass
Standoff	36.1%	Pass
Horizontal	14.4%	Pass
RATING =	**72.2%**	**Pass**

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.



Infinigy Engineering	CT52XC119	Proposed Configuration
JNK		June 18, 2018 at 4:11 PM
526-104		RMQP-496.r3d

Site Name:	CT52XC119
Client:	Airosmith
Carrier:	Sprint
Engineer:	JNK
Date:	6/18/2018

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

INFINIGY WIND LOAD CALCULATOR 3.0

Site Information Inputs:

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

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	97	mph (nominal 3-second gust)
Wind Centerline 1 (z_1):	142.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	C	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
31.18	1.00	**37.42**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
8.28	1.00	**22.37**

Ice Loading Inputs:

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

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
Commscope NNVV-65B-R4	142.0	3	1.00	Flat	Flat	31.18	12.27	382.61	179.28	230.11	331.78
RFS APXVTM14-ALU-I20	142.0	3	1.00	Flat	Flat	31.18	6.34	197.75	112.48	133.80	176.44
Alcatel Lucent TD-RRH8x20-25	142.0	3	1.00	Flat	Flat	31.18	4.05	126.14	47.78	67.37	106.55
Alcatel Lucent RRH2x50-08	142.0	3	1.00	Flat	Flat	31.18	1.70	53.03	39.98	43.24	49.77
Alcatel Lucent 1900 MHz 4x45 RRH	142.0	3	1.00	Flat	Flat	31.18	2.32	72.39	69.78	70.43	71.74
DragonWave A-ANT-11G-2.5-C	142.0	1	1.00	Round	Round	31.18	8.68	270.64	92.29	136.88	226.05
DragonWave A-ANT-23G-1-C	142.0	1	1.00	Round	Round	31.18	1.62	50.51	19.95	27.59	42.87
DragonWave A-ANT-11G-2-C	142.0	1	1.00	Round	Round	31.18	4.71	146.86	67.97	87.69	127.13
DragonWave Horizon Compact	142.0	3	1.00	Flat	Flat	31.18	0.72	22.47	11.48	14.23	19.72
Alcatel Lucent RRH2x50-08	142.0	3	1.00	Flat	Flat	31.18	1.70	53.03	39.98	43.24	49.77

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			HSS 4"x4"x1/2"	Beam	None	A53 Gr.B	Typical
2	M2	N3	N4			RIGID	None	None	RIGID	Typical
3	M3	N5	N8			HSS 4"x4"x1/2"	Beam	None	A53 Gr.B	Typical
4	M4	N9	N10			RIGID	None	None	RIGID	Typical
5	M5	N6	N11			HSS 4"x4"x1/2"	Beam	None	A53 Gr.B	Typical
6	M6	N12	N13			RIGID	None	None	RIGID	Typical
7	M7	N16	N15			3" STD Pipe	Beam	None	A53 Gr.B	Typical
8	M8	N19	N18			3" STD Pipe	Beam	None	A53 Gr.B	Typical
9	M9	N22	N21			3" STD Pipe	Beam	None	A53 Gr.B	Typical
10	M10	N26	N27			HSS 4"x4"x1/2"	Beam	None	A53 Gr.B	Typical
11	M11	N28	N29			HSS 4"x4"x1/2"	Beam	None	A53 Gr.B	Typical
12	M12	N30	N31			HSS 4"x4"x1/2"	Beam	None	A53 Gr.B	Typical
13	M13	N33	N34			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
14	M14	N32	N35		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
15	M15	N37	N38			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
16	M16	N36	N39		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
17	M17	N41	N42			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
18	M18	N40	N43		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
19	MP1	N100	N101			2" STD Pipe	Beam	None	A53 Gr.B	Typical
20	MP2	N102	N103			2" STD Pipe	Beam	None	A53 Gr.B	Typical
21	MP3	N104	N105			2" STD Pipe	Beam	None	A53 Gr.B	Typical
22	MP4	N106	N107			2" STD Pipe	Beam	None	A53 Gr.B	Typical
23	MP9	N116	N117			2" STD Pipe	Beam	None	A53 Gr.B	Typical
24	MP10	N118	N119			2" STD Pipe	Beam	None	A53 Gr.B	Typical
25	MP11	N120	N121			2" STD Pipe	Beam	None	A53 Gr.B	Typical
26	MP12	N122	N123			2" STD Pipe	Beam	None	A53 Gr.B	Typical
27	MP5	N108	N109			2" STD Pipe	Beam	None	A53 Gr.B	Typical
28	MP6	N110	N111			2" STD Pipe	Beam	None	A53 Gr.B	Typical
29	MP7	N112	N113			2" STD Pipe	Beam	None	A53 Gr.B	Typical
30	MP8	N114	N115			2" STD Pipe	Beam	None	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		3	36	0
3	Total General		3	36	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L2x2x2	6	303.1	0
7	A53 Gr.B	HSS4x4x8	6	374.3	.6
8	A53 Gr.B	PIPE_2.0	12	1152	.3
9	A53 Gr.B	PIPE_3.0	3	450	.3
10	Total HR Steel		27	2279.4	1.3

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			30		3	
2	Wind Load AZI 000	WLZ					30		1	
3	Wind Load AZI 090	WLX					30		1	
4	Ice Weight	OL1					30	30	3	
5	Wind + Ice Load AZI ...	OL2					30		1	
6	Wind + Ice Load AZI ...	OL3					30		1	
7	Service Live 1	LL				6				

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
8	BLC 1 Transient Area...	None						45		
9	BLC 2 Transient Area...	None						29		
10	BLC 3 Transient Area...	None						25		
11	BLC 4 Transient Area...	None						45		
12	BLC 5 Transient Area...	None						29		
13	BLC 6 Transient Area...	None						25		

Load Combinations

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
1	1.4D	Yes	Y		DL	1.4																		
2	1.2D + 1.6W AZI 000	Yes	Y		DL	1.2	W...	1.6																
3	1.2D + 1.6W AZI 030	Yes	Y		DL	1.2	W...	1.3...	W...	.8														
4	1.2D + 1.6W AZI 060	Yes	Y		DL	1.2	W...	.8	W...	1.3...														
5	1.2D + 1.6W AZI 090	Yes	Y		DL	1.2			W...	1.6														
6	1.2D + 1.6W AZI 120	Yes	Y		DL	1.2	W...	-.8	W...	1.3...														
7	1.2D + 1.6W AZI 150	Yes	Y		DL	1.2	W...	-1....	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....	W...	-.8														
10	1.2D + 1.6W AZI 240	Yes	Y		DL	1.2	W...	-.8	W...	-1....														
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....														
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....	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....	W...	-.8														
22	0.9D + 1.6W AZI 240	Yes	Y		DL	.9	W...	-.8	W...	-1....														
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....														
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 AZI...	Yes	Y		DL	1.2	OL1	1	OL2	1														
28	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	.5												
29	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	.866												
30	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1			OL3	1												
31	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	.866												
32	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	.5												
33	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	-1														
34	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	-.5												
35	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	-.866												
36	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1			OL3	-1												
37	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	-.866												
38	1.2D + 1.0Di + 1.0Wi AZI...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	-.5												
39	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	.111														
40	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	.096	W...	.056												
41	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	.056	W...	.096												
42	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5			W...	.111												
43	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	-.056	W...	.096												
44	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	-.096	W...	.056												
45	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	-.111														
46	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	-.096	W...	-.056												

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
47	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	-.056	W...	-.096												
48	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5			W...	-.111												
49	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	.056	W...	-.096												
50	1.2D + 1.5L + 1.0WL (30 ...	Yes	Y		DL	1.2	LL	1.5	W...	.096	W...	-.056												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N6	max	1256.183	5	2591.973	27	2495.467	14	6582.154	27	1467.239	11	106.122	24
2		min	-1256.135	23	605.707	20	-2504.27	8	1512.762	20	-1467.228	5	-236.901	31
3	N5	max	2197.778	4	2711.979	35	1795.832	3	-250.247	14	1106.21	8	6160.791	35
4		min	-2190.051	22	681.793	16	-1791.517	21	-3471.714	34	-1106.529	14	1217.696	16
5	N1	max	2148.978	18	2650.443	31	1752.078	13	-568.669	25	931.243	2	-1091.54	23
6		min	-2156.716	12	649.352	24	-1747.719	19	-3558.424	32	-930.947	20	-5807.784	31
7	Totals:	max	5456.033	5	7844.12	34	5719.343	2						
8		min	-5456.033	23	2379.768	15	-5719.343	20						

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

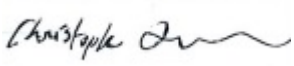
	Member	Shape	Code Check	Loc[i...	LC	Shear...	Loc[i...	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M1	HSS4x4x8	.348	0	32	.069	0	y	34	171527...	189630	20212.5	20212.5	2...	H1-1b
2	M3	HSS4x4x8	.361	0	33	.071	0	y	38	171526...	189630	20212.5	20212.5	2...	H1-1b
3	M5	HSS4x4x8	.341	0	29	.068	0	y	30	171526...	189630	20212.5	20212.5	2...	H1-1b
4	M7	PIPE_3.0	.138	95.3...	34	.091	145....		4	28250....	65205	5748.75	5748.75	1...	H1-1b
5	M8	PIPE_3.0	.141	95.3...	38	.187	145....		8	28250....	65205	5748.75	5748.75	1...	H1-1b
6	M9	PIPE_3.0	.137	95.3...	27	.048	54.6...		6	28250....	65205	5748.75	5748.75	1...	H1-1b
7	M10	HSS4x4x8	.097	31.26	29	.023	31.26	y	29	171377...	189630	20212.5	20212.5	1...	H1-1b
8	M11	HSS4x4x8	.100	31.26	33	.025	31.26	y	34	171377...	189630	20212.5	20212.5	1...	H1-1b
9	M12	HSS4x4x8	.098	31.26	33	.032	58.6...	z	2	171377...	189630	20212.5	20212.5	1...	H1-1b
10	M13	L2x2x2	.156	50.52	33	.010	50.52	y	38	6508.508	15908.4	402.563	797.463	2...	H2-1
11	M14	L2x2x2	.152	50.52	37	.010	50.52	z	30	6508.508	15908.4	402.563	811.731	2...	H2-1
12	M15	L2x2x2	.148	50.52	37	.010	50.52	y	30	6508.508	15908.4	402.563	799.316	2...	H2-1
13	M16	L2x2x2	.144	50.52	29	.010	50.52	z	35	6508.508	15908.4	402.563	816.987	2...	H2-1
14	M17	L2x2x2	.152	50.52	29	.010	50.52	y	34	6508.508	15908.4	402.563	798.247	2...	H2-1
15	M18	L2x2x2	.148	50.52	33	.010	50.52	z	27	6508.508	15908.4	402.563	810.748	2...	H2-1
16	MP1	PIPE_2.0	.722	48	8	.065	48		8	14916....	32130	1871.625	1871.625	1...	H1-1b
17	MP2	PIPE_2.0	.063	48	8	.025	48		8	14916....	32130	1871.625	1871.625	1...	H1-1b
18	MP3	PIPE_2.0	.173	48	8	.025	48		8	14916....	32130	1871.625	1871.625	1...	H1-1b
19	MP4	PIPE_2.0	.548	48	8	.048	48		8	14916....	32130	1871.625	1871.625	1...	H1-1b
20	MP9	PIPE_2.0	.264	48	5	.026	48		5	14916....	32130	1871.625	1871.625	1...	H1-1b
21	MP10	PIPE_2.0	.060	48	11	.022	48		11	14916....	32130	1871.625	1871.625	1...	H1-1b
22	MP11	PIPE_2.0	.163	48	11	.024	48		11	14916....	32130	1871.625	1871.625	1...	H1-1b
23	MP12	PIPE_2.0	.483	48	11	.044	48		11	14916....	32130	1871.625	1871.625	1...	H1-1b
24	MP5	PIPE_2.0	.427	48	5	.040	48		5	14916....	32130	1871.625	1871.625	1...	H1-1b
25	MP6	PIPE_2.0	.060	48	5	.022	48		5	14916....	32130	1871.625	1871.625	1...	H1-1b
26	MP7	PIPE_2.0	.163	48	5	.024	48		5	14916....	32130	1871.625	1871.625	1...	H1-1b
27	MP8	PIPE_2.0	.483	48	5	.043	48		5	14916....	32130	1871.625	1871.625	1...	H1-1b

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**North Haven CT 1, CT**
ATC Site Number	:	**302482**
Engineering Number	:	**OAA715176_C3_04**
Proposed Carrier	:	**Clearwire**
Carrier Site Name	:	**North Haven CT 1**
Carrier Site Number	:	**CT52XC119**
Site Location	:	**15 Dewight Street** **North Haven, CT 06473-1198** **41.420800,-72.848800**
County	:	**New Haven**
Date	:	**June 25, 2018**
Max Usage	:	**92%**
Result	:	**Pass**

Prepared By:
Christophe S. Quenum
Structural Engineer I



Reviewed By:

COA: PEC.0001553

AMERICAN TOWER®
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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by Clearwire.

Supporting Documents

Tower Drawings	ITT Meyer, Type "B", Spec. AT-8935, dated April 13, 1984
Foundation Drawing	Southern New England Telephone Job #3C032, dated September 18, 1984
Geotechnical Report	S&ME Job #1261-08-049O, dated April 24, 2008
Modifications	Spectrasite Communications File #CT-0018-M1, Rev. 4, dated October 15, 2002 ATC Project #41732832, dated June 30, 2008 ATC Project #43874133, dated September 1, 2009 ATC Project #60261734, dated January 19, 2015

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/ 3/4" 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 = 0.18, 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					
150.0	153.0	6	Powerwave 7020.00 Dual Band RET	Platform w/ Handrails	(6) 1 1/4" Coax (4) 0.78" 8 AWG 6 (2) 0.51" Hybrid	AT&T Mobility
		3	Kaelus DBC0061F1V51-2			
		6	Powerwave LGP21401			
		2	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS A2 B2			
		3	Ericsson RRUS 32 (50.8 lbs)			
		3	Ericsson RRUS 11 (Band 7)			
		3	Ericsson RRUS 12			
		3	Powerwave 7770.00			
		3	Quintel QS66512-2			
		3	CCI OPA-65R-LCUU-H6			
142.0	142.0	3	DragonWave Horizon Compact	-	(3) 1/2" Coax	Clearwire
		1	DragonWave A-ANT-23G-1-C			
		1	DragonWave A-ANT-11G-2-C			
		1	DragonWave A-ANT-11G-2.5-C			
108.0	108.0	6	RFS FD9R6004/1C-3L	Low Profile Platform	(9) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon
		6	RFS FD9R6004/2C-3L			
		3	Nokia B5 RRH4x40-850			
		3	Alcatel-Lucent RRH 2X60-1900			
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent B66 RRH4x45			
		3	Commscope HBX-6516DS-VTM			
		2	RFS DB-T1-6Z-8AB-0Z			
		3	Commscope LNX-6514DS-VTM			
		6	Commscope JAHH-65B-R3B			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
146.0	146.0	3	Argus LLPX310R	Side Arms	(6) 5/16" Coax	Clearwire
		3	NextNet BTS-2500			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
142.0	142.0	6	Alcatel-Lucent RRH2x50-08	SitePro 1 RMQP-496-HK Platform w/ Handrails	(4) 1 1/4" Hybriflex (1) 2" conduit	Clearwire
		3	Alcatel-Lucent 1900MHz 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	87%	Pass
Shaft	87%	Pass
Base Plate	61%	Pass
Flanges	30%	Pass
Reinforcement	85%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,699.8	92%
Axial (Kips)	40.5	68%
Shear (Kips)	25.9	92%

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) (°)
142.0	DragonWave A-ANT-23G-1-C	Clearwire	2.434	1.969
	Alcatel-Lucent RRH2x50-08			
	Alcatel-Lucent 1900 MHz 4x45 RRH			
	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	DragonWave A-ANT-11G-2-C			
	RFS APXVTM14-ALU-I20			
	DragonWave A-ANT-11G-2.5-C			
	Commscope NNVV-65B-R4			

***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:

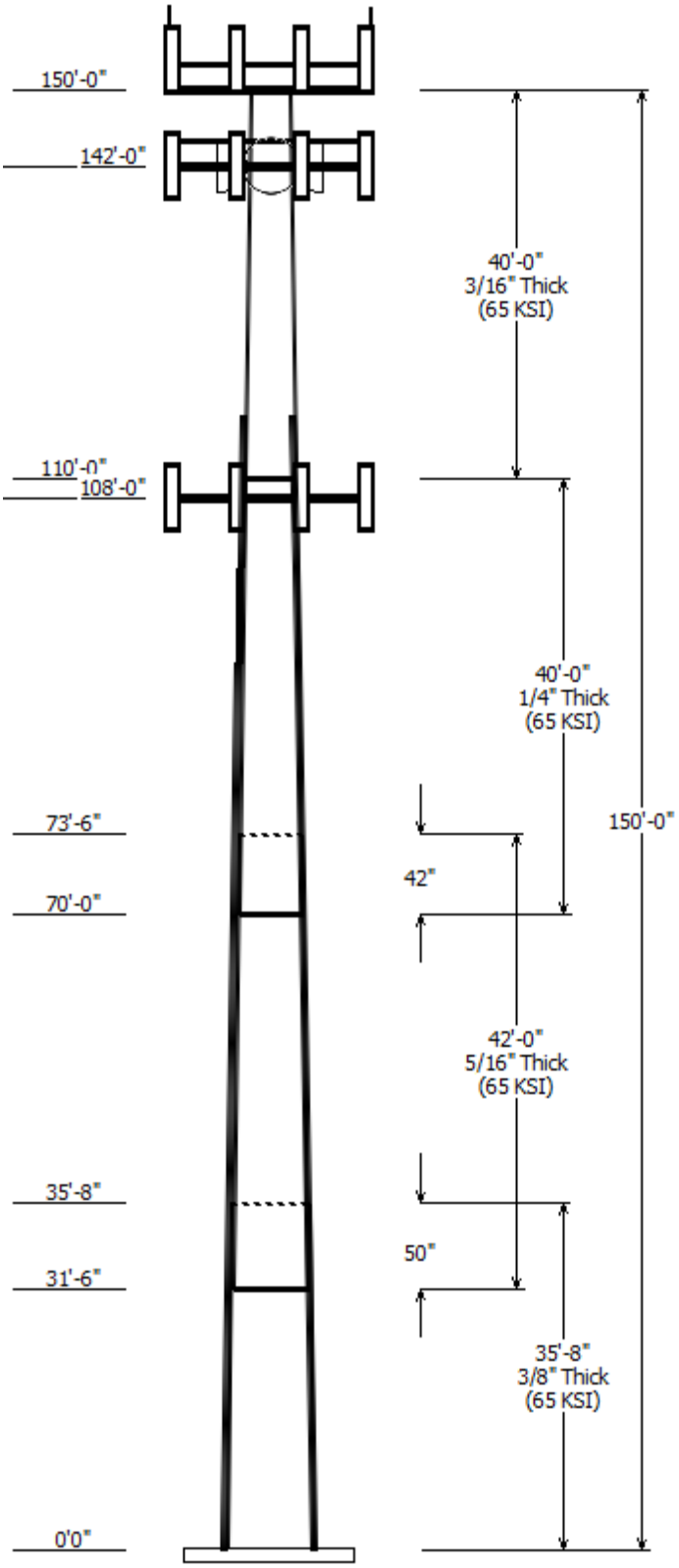
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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 :	302482	Code:	ANSI/TIA-222-G
Location :	North Haven CT 1, CT		
Description :	150' ITT Meyer Type B Monopole		
Client :	CLEARWIRE CORPORATION	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.156667 (in/ft)		

Sections Properties

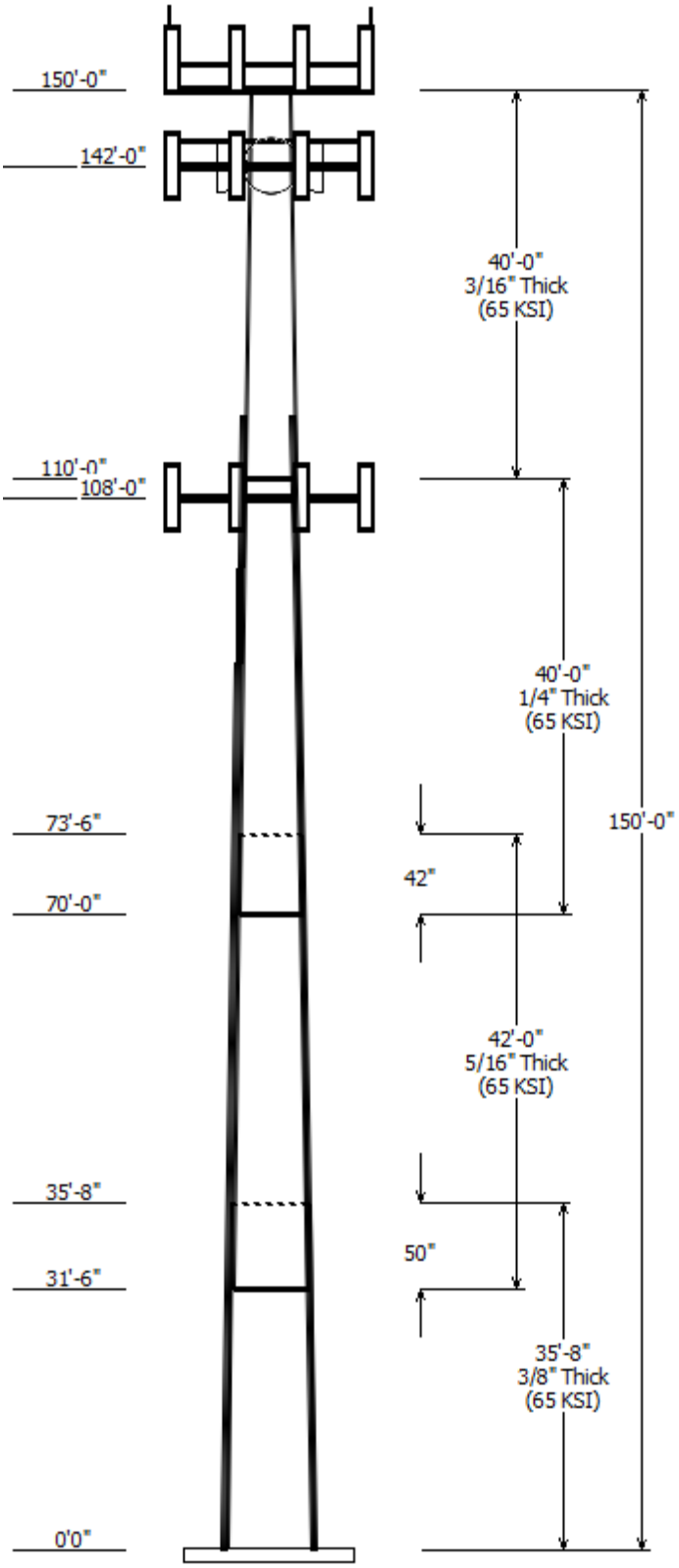
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.667	31.78	37.37	0.375		0.000	12 Sides	65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	12 Sides	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	12 Sides	65
4	40.000	15.00	21.26	0.188	Butt Joint	0.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	153.000	1	Raycap DC6-48-60-18-8F
150.000	153.000	1	Raycap DC6-48-60-18-8F
150.000	153.000	3	Quintel QS66512-2
150.000	153.000	3	Ericsson RRUS 32 (50.8 lbs)
150.000	153.000	3	Kaelus DBC0061F1V51-2
150.000	153.000	6	Powerwave Allgon 7020.00
150.000	153.000	3	CCI OPA-65R-LCUU-H6
150.000	153.000	3	Ericsson RRUS 12
150.000	153.000	3	Ericsson RRUS 11 (Band 7)
150.000	153.000	3	Ericsson RRUS A2 B2
150.000	153.000	6	Powerwave LGP21401
150.000	153.000	3	Powerwave Allgon 7770.00
150.000	150.000	1	Round Platform w/ Handrails
142.000	142.000	1	Platform with Handrails RMQP-
142.000	142.000	3	Commscope NNVV-65B-R4
142.000	142.000	3	RFS APXVTM14-ALU-I20
142.000	142.000	3	Alcatel-Lucent 1900 MHz 4x45
142.000	142.000	6	Alcatel-Lucent RRH2x50-08
142.000	142.000	1	DragonWave A-ANT-11G-2.5-C
142.000	142.000	1	DragonWave A-ANT-11G-2-C
142.000	142.000	3	Alcatel-Lucent TD-RRH8x20-25
142.000	142.000	1	DragonWave A-ANT-23G-1-C
142.000	142.000	3	DragonWave Horizon Compact
108.000	108.000	1	Round Low Profile Platform
108.000	108.000	6	Commscope JAHH-65B-R3B
108.000	108.000	3	Commscope LNX-6514DS-VTM
108.000	108.000	2	RFS DB-T1-6Z-8AB-0Z
108.000	108.000	3	Commscope HBX-6516DS-VTM
108.000	108.000	3	Alcatel-Lucent B66 RRH4x45
108.000	108.000	3	Alcatel-Lucent RRH2x60 700
108.000	108.000	3	Alcatel-Lucent RRH 2X60-1900
108.000	108.000	3	Nokia B5 RRH4x40-850
108.000	108.000	6	RFS FD9R6004/1C-3L
108.000	108.000	6	RFS FD9R6004/2C-3L

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
101.0	121.0	#20 All Thread Bar	Yes
5.000	142.0	1 1/4" Hybriflex	No
5.000	142.0	1/2" Coax	Yes



5.000	142.0	2" conduit	No
5.000	150.0	0.51" (13mm)	Yes
5.000	150.0	0.51" (13mm)	Yes
5.000	150.0	0.78" (19.7mm) 8	Yes
5.000	150.0	0.78" (19.7mm) 8	Yes
5.000	150.0	1 1/4" Coax	Yes
5.000	150.0	1 1/4" Coax	No
5.000	108.0	1 5/8" Hybriflex	No
0.000	101.0	#20 All Thread Bar	Yes
0.000	108.0	1 5/8" Coax	No

Load Cases

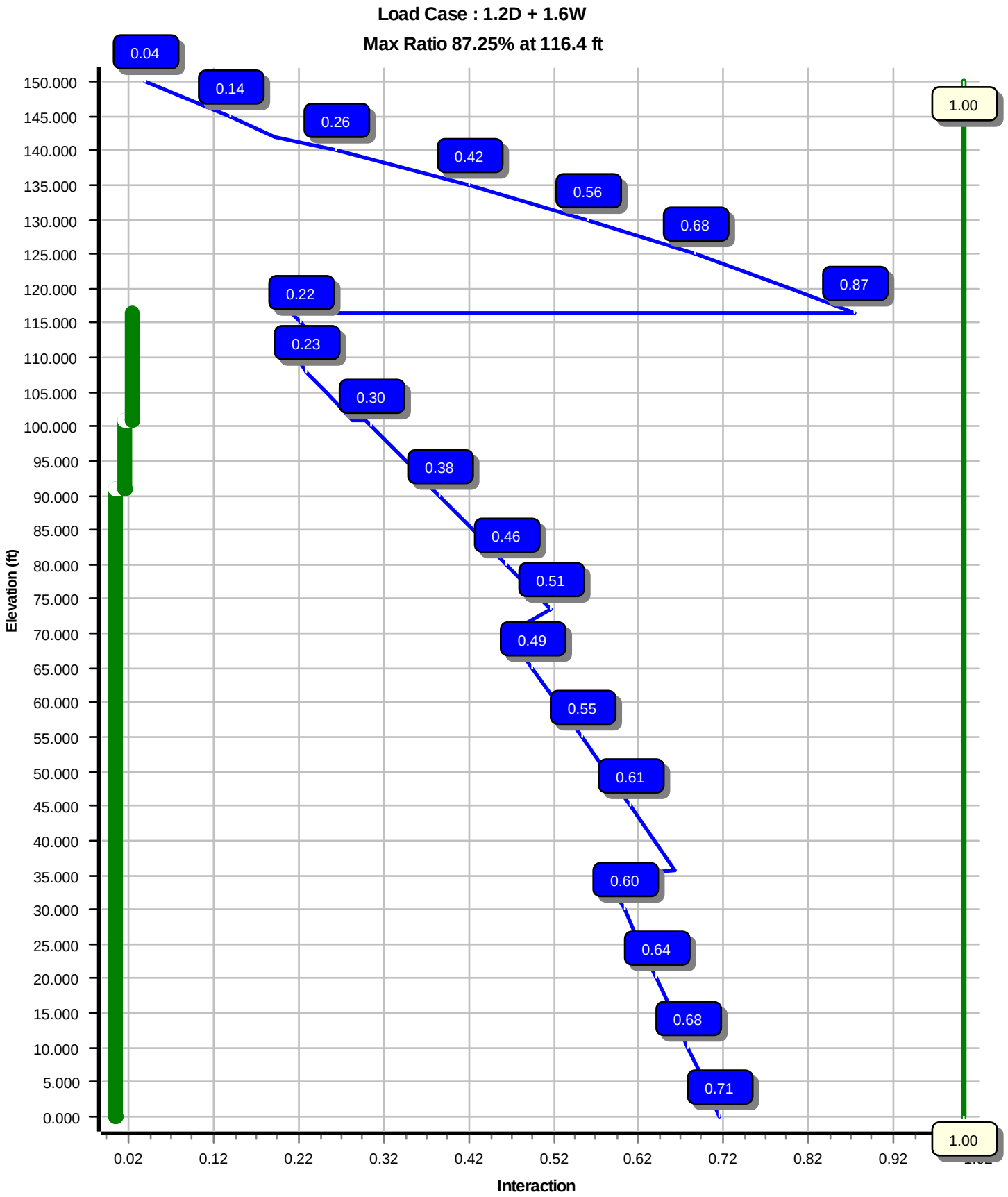
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	2699.83	25.98	40.53
0.9D + 1.6W	2610.99	24.91	30.39
1.2D + 1.0Di + 1.0Wi	664.11	5.68	67.54
(1.2 + 0.2Sds) * DL + E ELFM	173.53	1.33	40.54
(1.2 + 0.2Sds) * DL + E EMAM	318.42	2.42	40.54
(0.9 - 0.2Sds) * DL + E ELFM	169.42	1.32	28.16
(0.9 - 0.2Sds) * DL + E EMAM	310.25	2.42	28.16
1.0D + 1.0W	632.43	5.99	33.83

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	142.00	28.532	1.936
1.0D + 1.0W	142.00	28.532	1.936
1.0D + 1.0W	142.00	28.532	1.936


Load Case : 1.2D + 1.6W
Max Ratio 87.25% at 116.4 ft
0.04
0.14
0.26
0.42
0.56
0.68
0.87
0.22
0.23
0.30
0.38
0.46
0.51
0.49
0.55
0.61
0.60
0.64
0.68
0.71
1.00
1.00
Elevation (ft)
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 302482 Code: ANSI/TIA-222-G

Site Name: North Haven CT 1, CT Engineering Number:OAA715176_C3_04 6/26/2018 8:31:43 PM

Customer: CLEARWIRE

Analysis Parameters

Location :	NEW HAVEN County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	37.38
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.157
Pole Manfacturer :	ITT Meyer	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:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.98				
T_L (sec):	6	p:	1.3	C_s:	0.030
S_s:	0.184	S_1:	0.062	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.196	S_{d1}:	0.099		

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 0.75 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: 302482 Code: ANSI/TIA-222-G

Site Name: North Haven CT 1, CT Engineering Number:OAA715176_C3_04 6/26/2018 8:31:43 PM

Customer: CLEARWIRE

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	35.667	0.3750	65		0.00	5,013	37.37	0.00	44.68	7806.9	24.03	99.67	31.78	35.67	37.93	4777.2	20.03	84.77	0.156667
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4512.6	25.67	105.81	26.48	73.50	26.34	2302.6	20.03	84.75	0.156667
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.96	2086.8	26.83	110.13	21.26	110.00	16.92	953.8	20.11	85.07	0.156667
4-12	40.000	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.8	27.71	113.42	15.00	150.00	8.94	250.5	18.76	80.00	0.156667
				Shaft Weight		13,371													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
150.00	CCI OPA-65R-LCUU-H6	3	0.000	3.000	73.00	9.660	0.66
150.00	Ericsson RRUS 11 (Band 7)	3	0.000	3.000	50.70	2.790	0.50
150.00	Ericsson RRUS 12	3	0.000	3.000	50.00	3.150	0.50
150.00	Ericsson RRUS 32 (50.8 lbs)	3	0.000	3.000	50.80	2.690	0.50
150.00	Ericsson RRUS A2 B2	3	0.000	3.000	22.00	2.060	0.50
150.00	Kaelus DBC0061F1V51-2	3	0.000	3.000	25.50	0.510	0.50
150.00	Powerwave Allgon 7020.00 Dual	6	0.000	3.000	2.20	0.400	0.50
150.00	Powerwave Allgon 7770.00	3	0.000	3.000	35.00	5.510	0.65
150.00	Powerwave LGP21401	6	0.000	3.000	14.10	1.100	0.50
150.00	Quintel QS66512-2	3	0.000	3.000	111.00	8.130	0.74
150.00	Raycap DC6-48-60-18-8F	1	0.000	3.000	20.00	1.110	1.00
150.00	Raycap DC6-48-60-18-8F	1	0.000	3.000	20.00	1.110	1.00
150.00	Round Platform w/ Handrails	1	0.000	0.000	2000.00	27.200	1.00
142.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	0.000	60.00	2.320	0.67
142.00	Alcatel-Lucent RRH2x50-08	6	0.000	0.000	52.90	1.700	0.50
142.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	0.000	70.00	4.050	0.50
142.00	Commscope NNVV-65B-R4	3	0.000	0.000	77.40	12.270	0.64
142.00	DragonWave A-ANT-11G-2-C	1	0.000	0.000	27.00	4.690	0.71
142.00	DragonWave A-ANT-11G-2.5-C	1	0.000	0.000	47.60	8.670	0.98
142.00	DragonWave A-ANT-23G-1-C	1	0.000	0.000	15.00	1.610	0.60
142.00	DragonWave Horizon Compact	3	0.000	0.000	10.60	0.430	0.50
142.00	Platform with Handrails RMQP-4	1	0.000	0.000	2448.72	27.200	1.00
142.00	RFS APXVTM14-ALU-I20	3	0.000	0.000	56.20	6.340	0.66
108.00	Alcatel-Lucent B66 RRH4x45	3	0.000	0.000	67.00	2.580	0.50
108.00	Alcatel-Lucent RRH 2X60-1900	3	0.000	0.000	39.60	1.880	0.50
108.00	Alcatel-Lucent RRH2x60 700	3	0.000	0.000	56.70	2.150	0.50
108.00	Commscope HBX-6516DS-VTM	3	0.000	0.000	10.40	3.320	0.68
108.00	Commscope JAHH-65B-R3B	6	0.000	0.000	60.60	9.110	0.69
108.00	Commscope LNX-6514DS-VTM	3	0.000	0.000	38.80	8.170	0.69
108.00	Nokia B5 RRH4x40-850	3	0.000	0.000	48.50	1.320	0.50
108.00	RFS DB-T1-6Z-8AB-0Z	2	0.000	0.000	44.00	4.800	0.50
108.00	RFS FD9R6004/1C-3L	6	0.000	0.000	3.10	0.370	0.50
108.00	RFS FD9R6004/2C-3L	6	0.000	0.000	2.60	0.370	0.50
108.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
Totals	Num Loadings:34	103			9838.92		

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
5.00	150.00	1	0.51" (13mm) Hybrid	0.51	0.14	N	0.00	Y	AT&T Mobility
5.00	150.00	1	0.51" (13mm) Hybrid	0.51	0.14	N	0.00	Y	AT&T Mobility
5.00	150.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	1.56	Y	AT&T Mobility

5.00	150.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	Y	AT&T Mobility
5.00	150.00	1	1 1/4" Coax	1.55	0.63	N	0.00	Y	AT&T Mobility
5.00	150.00	5	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
5.00	142.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	Clearwire
5.00	142.00	3	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire
5.00	142.00	1	2" conduit	2.38	3.65	N	0.00	N	Clearwire
101.00	121.00	3	#20 All Thread Bar	2.72	0.00	N	2.89	Y	-
0.00	108.00	9	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon
5.00	108.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon
0.00	101.00	4	#20 All Thread Bar	2.72	0.00	N	4.89	Y	-

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections			Connectors	Continuation?
						Description	Spacing (in)	Len (in)		
0.00	91.00	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No
91.00	101.0	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	18.0	3.31	5/8" A36 U-Bolt	Yes
101.0	116.4	3	SOL #20 All Thread	80	5.15	6" T Bracket	30.0	3.31	5/8" A36 U-Bolt	No

Segment Properties (Max Len : 5. 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)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.375	44.678	7,806.9	24.03	99.67	78.5	403.5	0.0	0.0	19.64	4,815	0.0
5.00		0.3750	36.592	43.732	7,321.5	23.47	97.58	79.1	386.5	0.0	752.1	19.64	4,647	334.0
10.00		0.3750	35.808	42.786	6,856.6	22.91	95.49	79.7	369.9	0.0	736.0	19.64	4,481	334.0
15.00		0.3750	35.025	41.840	6,411.8	22.35	93.40	80.3	353.7	0.0	719.9	19.64	4,318	334.0
20.00		0.3750	34.242	40.894	5,986.7	21.79	91.31	81.0	337.8	0.0	703.8	19.64	4,159	334.0
25.00		0.3750	33.458	39.948	5,580.9	21.23	89.22	81.6	322.2	0.0	687.7	19.64	4,002	334.0
30.00		0.3750	32.675	39.002	5,193.7	20.67	87.13	81.9	307.1	0.0	671.6	19.64	3,848	334.0
31.50	Bot - Section 2	0.3750	32.440	38.718	5,081.2	20.50	86.51	81.9	302.6	0.0	198.4	19.64	3,803	100.2
35.00		0.3750	31.892	38.056	4,825.0	20.11	85.04	81.9	292.3	0.0	846.4	19.64	3,818	233.8
35.67	Top - Section 1	0.3125	32.412	32.300	4,248.1	25.11	103.72	77.3	253.2	0.0	159.6	19.64	3,797	44.5
40.00		0.3125	31.733	31.617	3,984.2	24.53	101.55	78.0	242.6	0.0	471.2	19.64	3,668	289.5
45.00		0.3125	30.950	30.829	3,693.6	23.86	99.04	78.7	230.5	0.0	531.2	19.64	3,521	334.0
50.00		0.3125	30.167	30.041	3,417.5	23.19	96.53	79.4	218.9	0.0	517.8	19.64	3,377	334.0
55.00		0.3125	29.383	29.253	3,155.5	22.51	94.03	80.2	207.5	0.0	504.4	19.64	3,236	334.0
60.00		0.3125	28.600	28.464	2,907.2	21.84	91.52	80.9	196.4	0.0	491.0	19.64	3,098	334.0
65.00		0.3125	27.817	27.676	2,672.3	21.17	89.01	81.6	185.6	0.0	477.6	19.64	2,963	334.0
70.00	Bot - Section 3	0.3125	27.033	26.888	2,450.4	20.50	86.51	81.9	175.1	0.0	464.2	19.64	2,831	334.0
73.50	Top - Section 2	0.2500	26.985	21.522	1,963.5	26.24	107.94	76.1	140.6	0.0	575.9	19.64	2,823	233.8
75.00		0.2500	26.750	21.333	1,912.1	25.99	107.00	76.4	138.1	0.0	109.4	19.64	2,784	100.2
80.00		0.2500	25.967	20.702	1,747.5	25.15	103.87	77.3	130.0	0.0	357.6	19.64	2,656	334.0
85.00		0.2500	25.183	20.071	1,592.7	24.31	100.73	78.2	122.2	0.0	346.9	19.64	2,531	334.0
90.00		0.2500	24.400	19.441	1,447.2	23.47	97.60	79.1	114.6	0.0	336.1	19.64	2,409	334.0
91.00	Reinf. Top Reinf	0.2500	24.243	19.315	1,419.2	23.30	96.97	79.3	113.1	0.0	65.9	19.64	2,385	66.8
95.00		0.2500	23.617	18.810	1,310.9	22.63	94.47	80.0	107.2	0.0	259.5	19.64	2,290	267.2
100.0		0.2500	22.833	18.180	1,183.4	21.79	91.33	80.9	100.1	0.0	314.7	19.64	2,175	334.0
101.0	Reinf. Top Reinf	0.2500	22.677	18.053	1,159.0	21.63	90.71	81.1	98.7	0.0	61.6	19.64	2,152	66.8
105.0		0.2500	22.050	17.549	1,064.5	20.95	88.20	81.9	93.3	0.0	242.3	14.73	2,242	200.4
108.0		0.2500	21.580	17.171	997.1	20.45	86.32	81.9	89.3	0.0	177.2	14.73	2,182	150.3
110.0	Top - Section 3	0.2500	21.267	16.918	953.8	20.11	85.07	81.9	86.6	0.0	116.0	14.73	2,142	100.2
110.0	Bot - Section 4	0.1875	21.267	12.727	721.8	27.71	113.42	74.5	65.6	0.0		14.73	2,142	
115.0		0.1875	20.483	12.254	644.3	26.59	109.24	75.7	60.8	0.0	212.5	14.73	2,045	250.5
116.4	Reinf. Top	0.1875	20.261	12.120	623.4	26.28	108.06	76.1	59.4	0.0	58.7	14.73	2,018	71.0
120.0		0.1875	19.700	11.781	572.5	25.47	105.07	76.9	56.1	0.0	145.7			
125.0		0.1875	18.917	11.308	506.3	24.35	100.89	78.2	51.7	0.0	196.4			
130.0		0.1875	18.133	10.835	445.4	23.23	96.71	79.4	47.4	0.0	188.4			
135.0		0.1875	17.350	10.362	389.6	22.11	92.53	80.6	43.4	0.0	180.3			
140.0		0.1875	16.567	9.889	338.6	21.00	88.36	81.8	39.5	0.0	172.3			
142.0		0.1875	16.253	9.700	319.6	20.55	86.68	81.9	38.0	0.0	66.7			
145.0		0.1875	15.783	9.416	292.3	19.88	84.18	81.9	35.8	0.0	97.6			
150.0		0.1875	15.000	8.943	250.5	18.76	80.00	81.9	32.3	0.0	156.2			
											13,370.7			7,519.1

Site Number: 302482 Code: ANSI/TIA-222-G

Site Name: North Haven CT 1, CT Engineering Number:OAA715176_C3_04 6/26/2018 8:31:43 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 27 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		243.6	0.0					0.0	0.0	243.6	0.0	0.0	0.0
5.00		511.3	902.5					0.0	445.1	511.3	1,347.6	0.0	0.0
10.00		532.1	883.2					0.0	547.8	532.1	1,431.0	0.0	0.0
15.00		525.4	863.9					0.0	547.8	525.4	1,411.7	0.0	0.0
20.00		518.8	844.6					0.0	547.8	518.8	1,392.4	0.0	0.0
25.00		512.1	825.3					0.0	547.8	512.1	1,373.1	0.0	0.0
30.00		330.7	806.0					0.0	547.8	330.7	1,353.7	0.0	0.0
31.50	Bot - Section 2	260.5	238.0					0.0	164.3	260.5	402.4	0.0	0.0
35.00		219.8	1,015.7					0.0	383.5	219.8	1,399.1	0.0	0.0
35.67	Top - Section 1	267.4	191.5					0.0	73.0	267.4	264.5	0.0	0.0
40.00		505.0	565.5					0.0	474.8	505.0	1,040.2	0.0	0.0
45.00		527.6	637.5					0.0	547.8	527.6	1,185.3	0.0	0.0
50.00		509.6	621.4					96.3	547.8	605.9	1,169.2	0.0	0.0
55.00		510.1	605.3					98.1	547.8	608.2	1,153.1	0.0	0.0
60.00		509.0	589.2					99.7	547.8	608.7	1,137.0	0.0	0.0
65.00		506.6	573.1					101.2	547.8	607.8	1,120.9	0.0	0.0
70.00	Bot - Section 3	431.3	557.0					102.7	547.8	533.9	1,104.8	0.0	0.0
73.50	Top - Section 2	255.0	691.1					72.7	383.5	327.7	1,074.5	0.0	0.0
75.00		328.7	131.2					31.3	164.3	360.0	295.6	0.0	0.0
80.00		501.8	429.1					105.3	547.8	607.1	976.9	0.0	0.0
85.00		495.2	416.2					106.5	547.8	601.7	964.0	0.0	0.0
90.00		294.5	403.4					107.6	547.8	402.1	951.1	0.0	0.0
91.00	Reinf. Top Reinf	241.9	79.1					21.7	109.6	263.5	188.7	0.0	0.0
95.00		430.7	311.4					87.1	438.2	517.7	749.6	0.0	0.0
100.00		284.5	377.6					109.8	547.8	394.2	925.4	0.0	0.0
101.00	Reinf. Top Reinf	244.7	74.0					22.1	109.6	266.7	183.5	0.0	0.0
105.00		345.4	290.8					0.0	358.1	345.4	648.8	0.0	0.0
108.00	Appurtenance(s)	238.2	212.7	3,496.9	0.0	0.0	3,322.6	0.0	268.6	3,735.1	3,803.8	0.0	0.0
110.00	Top - Section 3	312.9	139.2					36.3	155.1	349.2	294.3	0.0	0.0
115.00		284.4	255.0					91.6	387.7	376.0	642.7	0.0	0.0
116.42	Reinf. Top	216.7	70.5					26.2	109.9	242.9	180.4	0.0	0.0
120.00		334.0	174.9					66.6	62.4	400.6	237.3	0.0	0.0
125.00		349.8	235.7					0.0	87.1	349.8	322.8	0.0	0.0
130.00		335.5	226.0					0.0	87.1	335.5	313.2	0.0	0.0
135.00		324.5	216.4					0.0	87.1	324.5	303.5	0.0	0.0
140.00		221.6	206.7					0.0	87.1	221.6	293.8	0.0	0.0
142.00	Appurtenance(s)	153.6	80.0	3,610.5	0.0	0.0	4,414.0	0.0	34.8	3,764.1	4,528.8	0.0	0.0
145.00		239.1	117.1					0.0	23.1	239.1	140.2	0.0	0.0
150.00	Appurtenance(s)	147.6	187.4	3,623.5	0.0	7,223.9	4,070.2	0.0	38.5	3,771.1	4,296.1	0.0	0.0
								Totals:		26,114.5	40,600.9	0.00	0.00

Site Number: 302482 Code: ANSI/TIA-222-G

Site Name: North Haven CT 1, CT Engineering Number:OAA715176_C3_04 6/26/2018 8:31:48 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 27 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	-40.53	-25.98	0.00	-2,699.83	0.00	2,699.83	3,156.90	1,578.45	4,811.22	2,376.08	0.00	0.00	0.712
5.00	-39.05	-25.67	0.00	-2,569.95	0.00	2,569.95	3,114.09	1,557.04	4,644.49	2,293.74	0.16	-0.30	0.694
10.00	-37.50	-25.32	0.00	-2,441.62	0.00	2,441.62	3,070.24	1,535.12	4,479.04	2,212.03	0.63	-0.59	0.676
15.00	-35.96	-24.96	0.00	-2,315.03	0.00	2,315.03	3,025.35	1,512.68	4,314.96	2,131.00	1.41	-0.89	0.657
20.00	-34.45	-24.60	0.00	-2,190.22	0.00	2,190.22	2,979.43	1,489.71	4,152.36	2,050.69	2.51	-1.19	0.638
25.00	-32.96	-24.23	0.00	-2,067.23	0.00	2,067.23	2,932.46	1,466.23	3,991.34	1,971.17	3.92	-1.49	0.619
30.00	-31.54	-23.96	0.00	-1,946.10	0.00	1,946.10	2,874.86	1,437.43	3,819.25	1,886.18	5.64	-1.79	0.600
31.50	-31.08	-23.77	0.00	-1,910.16	0.00	1,910.16	2,853.94	1,426.97	3,763.56	1,858.68	6.21	-1.88	0.595
35.00	-29.64	-23.57	0.00	-1,826.96	0.00	1,826.96	2,805.14	1,402.57	3,635.21	1,795.29	7.67	-2.09	0.575
35.67	-29.33	-23.37	0.00	-1,811.25	0.00	1,811.25	2,247.90	1,123.95	2,973.33	1,468.42	7.96	-2.13	0.660
40.00	-28.20	-22.96	0.00	-1,710.00	0.00	1,710.00	2,218.43	1,109.21	2,871.69	1,418.22	10.01	-2.38	0.636
45.00	-26.92	-22.52	0.00	-1,595.20	0.00	1,595.20	2,183.45	1,091.72	2,755.25	1,360.71	12.67	-2.69	0.608
50.00	-25.66	-22.00	0.00	-1,482.59	0.00	1,482.59	2,147.43	1,073.71	2,639.81	1,303.70	15.65	-2.99	0.580
55.00	-24.43	-21.45	0.00	-1,372.61	0.00	1,372.61	2,110.37	1,055.18	2,525.48	1,247.24	18.94	-3.29	0.551
60.00	-23.23	-20.89	0.00	-1,265.36	0.00	1,265.36	2,072.27	1,036.13	2,412.36	1,191.37	22.55	-3.58	0.521
65.00	-22.05	-20.32	0.00	-1,160.89	0.00	1,160.89	2,033.13	1,016.56	2,300.54	1,136.15	26.45	-3.87	0.491
70.00	-20.90	-19.80	0.00	-1,059.27	0.00	1,059.27	1,981.90	990.95	2,177.99	1,075.63	30.66	-4.15	0.463
73.50	-19.81	-19.44	0.00	-989.97	0.00	989.97	1,473.88	736.94	1,624.33	802.19	33.77	-4.35	0.514
75.00	-19.48	-19.12	0.00	-960.81	0.00	960.81	1,466.20	733.10	1,601.53	790.93	35.15	-4.43	0.502
80.00	-18.47	-18.53	0.00	-865.21	0.00	865.21	1,439.92	719.96	1,525.89	753.58	39.93	-4.70	0.463
85.00	-17.48	-17.92	0.00	-772.59	0.00	772.59	1,412.60	706.30	1,450.91	716.55	44.99	-4.97	0.423
90.00	-16.52	-17.48	0.00	-682.97	0.00	682.97	1,384.24	692.12	1,376.67	679.88	50.33	-5.22	0.384
91.00	-16.32	-17.24	0.00	-665.49	0.00	665.49	1,378.45	689.22	1,361.92	672.60	51.42	-5.27	0.376
91.00	-16.32	-17.24	0.00	-665.49	0.00	665.49	1,378.45	689.22	1,361.92	672.60	51.42	-5.27	0.376
95.00	-15.57	-16.71	0.00	-596.55	0.00	596.55	1,354.85	677.42	1,303.28	643.64	55.91	-5.46	0.344
100.00	-14.65	-16.26	0.00	-513.02	0.00	513.02	1,324.41	662.20	1,230.84	607.87	61.74	-5.68	0.303
101.00	-14.46	-16.00	0.00	-496.76	0.00	496.76	1,318.20	659.10	1,216.47	600.77	62.93	-5.72	0.295
101.00	-14.46	-16.00	0.00	-496.76	0.00	496.76	1,318.20	659.10	1,216.47	600.77	62.93	-5.72	0.282
105.00	-13.82	-15.62	0.00	-432.77	0.00	432.77	1,292.93	646.47	1,159.45	572.61	67.79	-5.88	0.250
108.00	-10.40	-11.53	0.00	-385.90	0.00	385.90	1,265.65	632.82	1,110.24	548.30	71.51	-5.98	0.226
110.00	-10.12	-11.17	0.00	-362.85	0.00	362.85	1,247.06	623.53	1,077.67	532.22	74.03	-6.05	0.215
110.00	-10.12	-11.17	0.00	-362.85	0.00	362.85	853.21	426.60	741.71	366.30	74.03	-6.05	0.256
115.00	-9.51	-10.74	0.00	-307.00	0.00	307.00	834.97	417.48	698.64	345.03	80.44	-6.21	0.219
116.42	-9.34	-10.50	0.00	-291.77	0.00	291.77	829.61	414.80	686.50	339.04	82.28	-6.25	0.209
116.42	-9.34	-10.50	0.00	-291.77	0.00	291.77	829.61	414.80	686.50	339.04	82.28	-6.25	0.872
120.00	-9.09	-10.13	0.00	-254.17	0.00	254.17	815.69	407.84	655.93	323.94	87.01	-6.36	0.796
125.00	-8.71	-9.82	0.00	-203.54	0.00	203.54	795.37	397.68	613.66	303.07	93.96	-6.92	0.683
130.00	-8.37	-9.52	0.00	-154.42	0.00	154.42	774.01	387.00	571.96	282.47	101.47	-7.43	0.558
135.00	-8.05	-9.21	0.00	-106.82	0.00	106.82	751.61	375.80	530.91	262.20	109.46	-7.84	0.419
140.00	-7.76	-8.97	0.00	-60.78	0.00	60.78	728.17	364.08	490.63	242.30	117.82	-8.15	0.262
142.00	-3.81	-4.61	0.00	-42.83	0.00	42.83	714.97	357.48	472.41	233.31	121.25	-8.24	0.189
145.00	-3.70	-4.36	0.00	-29.01	0.00	29.01	694.05	347.03	445.02	219.78	126.44	-8.33	0.137
150.00	0.00	-3.77	0.00	-7.22	0.00	7.22	659.19	329.60	401.19	198.13	135.19	-8.42	0.037

Site Number: 302482 Code: ANSI/TIA-222-G

Site Name: North Haven CT 1, CT Engineering Number:OAA715176_C3_04 6/26/2018 8:31:48 PM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

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		224.9	0.0					0.0	0.0	224.9	0.0	0.0	0.0
5.00		445.0	676.9					0.0	333.8	445.0	1,010.7	0.0	0.0
10.00		435.5	662.4					0.0	410.8	435.5	1,073.2	0.0	0.0
15.00		425.9	647.9					0.0	410.8	425.9	1,058.8	0.0	0.0
20.00		416.4	633.4					0.0	410.8	416.4	1,044.3	0.0	0.0
25.00		406.9	618.9					0.0	410.8	406.9	1,029.8	0.0	0.0
30.00		260.9	604.5					0.0	410.8	260.9	1,015.3	0.0	0.0
31.50	Bot - Section 2	203.7	178.5					0.0	123.3	203.7	301.8	0.0	0.0
35.00		171.5	761.8					0.0	287.6	171.5	1,049.4	0.0	0.0
35.67	Top - Section 1	208.4	143.6					0.0	54.8	208.4	198.4	0.0	0.0
40.00		391.4	424.1					0.0	356.1	391.4	780.2	0.0	0.0
45.00		465.2	478.1					0.0	410.8	465.2	888.9	0.0	0.0
50.00		509.6	466.0					96.3	410.8	605.9	876.9	0.0	0.0
55.00		510.1	454.0					98.1	410.8	608.2	864.8	0.0	0.0
60.00		509.0	441.9					99.7	410.8	608.7	852.7	0.0	0.0
65.00		506.6	429.8					101.2	410.8	607.8	840.7	0.0	0.0
70.00	Bot - Section 3	431.3	417.8					102.7	410.8	533.9	828.6	0.0	0.0
73.50	Top - Section 2	255.0	518.3					72.7	287.6	327.7	805.9	0.0	0.0
75.00		328.7	98.4					31.3	123.3	360.0	221.7	0.0	0.0
80.00		501.8	321.8					105.3	410.8	607.1	732.7	0.0	0.0
85.00		495.2	312.2					106.5	410.8	601.7	723.0	0.0	0.0
90.00		294.5	302.5					107.6	410.8	402.1	713.4	0.0	0.0
91.00	Reinf. Top Reinf	241.9	59.3					21.7	82.2	263.5	141.5	0.0	0.0
95.00		430.7	233.5					87.1	328.7	517.7	562.2	0.0	0.0
100.00		284.5	283.2					109.8	410.8	394.2	694.0	0.0	0.0
101.00	Reinf. Top Reinf	201.8	55.5					22.1	82.2	223.9	137.7	0.0	0.0
105.00		269.3	218.1					0.0	268.6	269.3	486.6	0.0	0.0
108.00	Appurtenance(s)	204.9	159.5	3,496.9	0.0	0.0	2,491.9	0.0	201.4	3,701.8	2,852.8	0.0	0.0
110.00	Top - Section 3	312.9	104.4					36.3	116.3	349.2	220.7	0.0	0.0
115.00		284.4	191.3					91.6	290.8	376.0	482.0	0.0	0.0
116.42	Reinf. Top	216.7	52.9					26.2	82.4	242.9	135.3	0.0	0.0
120.00		330.4	131.1					66.6	46.8	396.9	178.0	0.0	0.0
125.00		346.1	176.8					0.0	65.3	346.1	242.1	0.0	0.0
130.00		335.5	169.5					0.0	65.3	335.5	234.9	0.0	0.0
135.00		324.5	162.3					0.0	65.3	324.5	227.6	0.0	0.0
140.00		221.6	155.0					0.0	65.3	221.6	220.4	0.0	0.0
142.00	Appurtenance(s)	153.6	60.0	3,610.5	0.0	0.0	3,310.5	0.0	26.1	3,764.1	3,396.6	0.0	0.0
145.00		239.1	87.8					0.0	17.3	239.1	105.1	0.0	0.0
150.00	Appurtenance(s)	147.6	140.6	3,623.5	0.0	7,223.9	3,052.6	0.0	28.9	3,771.1	3,222.1	0.0	0.0
									Totals:	25,056.1	30,450.7	0.00	0.00

Site Number: 302482 Code: ANSI/TIA-222-G

Site Name: North Haven CT 1, CT Engineering Number:OAA715176_C3_04 6/26/2018 8:31:53 PM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 27 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	-30.39	-24.91	0.00	-2,610.99	0.00	2,610.99	3,156.90	1,578.45	4,811.22	2,376.08	0.00	0.00	0.687
5.00	-29.25	-24.61	0.00	-2,486.44	0.00	2,486.44	3,114.09	1,557.04	4,644.49	2,293.74	0.15	-0.29	0.670
10.00	-28.06	-24.31	0.00	-2,363.40	0.00	2,363.40	3,070.24	1,535.12	4,479.04	2,212.03	0.61	-0.58	0.653
15.00	-26.89	-24.00	0.00	-2,241.87	0.00	2,241.87	3,025.35	1,512.68	4,314.96	2,131.00	1.37	-0.86	0.635
20.00	-25.73	-23.70	0.00	-2,121.86	0.00	2,121.86	2,979.43	1,489.71	4,152.36	2,050.69	2.43	-1.15	0.617
25.00	-24.59	-23.39	0.00	-2,003.36	0.00	2,003.36	2,932.46	1,466.23	3,991.34	1,971.17	3.79	-1.44	0.598
30.00	-23.51	-23.18	0.00	-1,886.40	0.00	1,886.40	2,874.86	1,437.43	3,819.25	1,886.18	5.46	-1.73	0.580
31.50	-23.16	-23.03	0.00	-1,851.63	0.00	1,851.63	2,853.94	1,426.97	3,763.56	1,858.68	6.01	-1.82	0.575
35.00	-22.07	-22.87	0.00	-1,771.03	0.00	1,771.03	2,805.14	1,402.57	3,635.21	1,795.29	7.42	-2.02	0.556
35.67	-21.82	-22.71	0.00	-1,755.79	0.00	1,755.79	2,247.90	1,123.95	2,973.33	1,468.42	7.71	-2.06	0.638
40.00	-20.95	-22.39	0.00	-1,657.40	0.00	1,657.40	2,218.43	1,109.21	2,871.69	1,418.22	9.69	-2.31	0.615
45.00	-19.97	-21.99	0.00	-1,545.47	0.00	1,545.47	2,183.45	1,091.72	2,755.25	1,360.71	12.27	-2.60	0.587
50.00	-19.01	-21.44	0.00	-1,435.55	0.00	1,435.55	2,147.43	1,073.71	2,639.81	1,303.70	15.16	-2.90	0.560
55.00	-18.07	-20.87	0.00	-1,328.37	0.00	1,328.37	2,110.37	1,055.18	2,525.48	1,247.24	18.35	-3.19	0.531
60.00	-17.16	-20.30	0.00	-1,224.01	0.00	1,224.01	2,072.27	1,036.13	2,412.36	1,191.37	21.84	-3.47	0.503
65.00	-16.26	-19.72	0.00	-1,122.51	0.00	1,122.51	2,033.13	1,016.56	2,300.54	1,136.15	25.62	-3.75	0.474
70.00	-15.40	-19.19	0.00	-1,023.92	0.00	1,023.92	1,981.90	990.95	2,177.99	1,075.63	29.69	-4.02	0.447
73.50	-14.57	-18.84	0.00	-956.75	0.00	956.75	1,473.88	736.94	1,624.33	802.19	32.70	-4.21	0.495
75.00	-14.32	-18.51	0.00	-928.50	0.00	928.50	1,466.20	733.10	1,601.53	790.93	34.04	-4.29	0.484
80.00	-13.56	-17.91	0.00	-835.96	0.00	835.96	1,439.92	719.96	1,525.89	753.58	38.67	-4.55	0.446
85.00	-12.81	-17.31	0.00	-746.41	0.00	746.41	1,412.60	706.30	1,450.91	716.55	43.57	-4.81	0.407
90.00	-12.09	-16.87	0.00	-659.89	0.00	659.89	1,384.24	692.12	1,376.67	679.88	48.73	-5.05	0.369
91.00	-11.94	-16.62	0.00	-643.01	0.00	643.01	1,378.45	689.22	1,361.92	672.60	49.79	-5.10	0.361
91.00	-11.94	-16.62	0.00	-643.01	0.00	643.01	1,378.45	689.22	1,361.92	672.60	49.79	-5.10	0.361
95.00	-11.37	-16.10	0.00	-576.52	0.00	576.52	1,354.85	677.42	1,303.28	643.64	54.14	-5.28	0.331
100.00	-10.69	-15.66	0.00	-496.04	0.00	496.04	1,324.41	662.20	1,230.84	607.87	59.78	-5.49	0.292
101.00	-10.54	-15.44	0.00	-480.38	0.00	480.38	1,318.20	659.10	1,216.47	600.77	60.93	-5.53	0.284
101.00	-10.54	-15.44	0.00	-480.38	0.00	480.38	1,318.20	659.10	1,216.47	600.77	60.93	-5.53	0.271
105.00	-10.05	-15.15	0.00	-418.61	0.00	418.61	1,292.93	646.47	1,159.45	572.61	65.63	-5.69	0.240
108.00	-7.57	-11.19	0.00	-373.15	0.00	373.15	1,265.65	632.82	1,110.24	548.30	69.24	-5.79	0.217
110.00	-7.36	-10.84	0.00	-350.77	0.00	350.77	1,247.06	623.53	1,077.67	532.22	71.67	-5.86	0.206
110.00	-7.36	-10.84	0.00	-350.77	0.00	350.77	853.21	426.60	741.71	366.30	71.67	-5.86	0.246
115.00	-6.91	-10.42	0.00	-296.58	0.00	296.58	834.97	417.48	698.64	345.03	77.88	-6.00	0.210
116.42	-6.78	-10.18	0.00	-281.82	0.00	281.82	829.61	414.80	686.50	339.04	79.66	-6.05	0.200
116.42	-6.78	-10.18	0.00	-281.82	0.00	281.82	829.61	414.80	686.50	339.04	79.66	-6.05	0.840
120.00	-6.59	-9.80	0.00	-245.35	0.00	245.35	815.69	407.84	655.93	323.94	84.23	-6.15	0.766
125.00	-6.30	-9.49	0.00	-196.33	0.00	196.33	795.37	397.68	613.66	303.07	90.96	-6.70	0.656
130.00	-6.04	-9.17	0.00	-148.89	0.00	148.89	774.01	387.00	571.96	282.47	98.23	-7.18	0.535
135.00	-5.80	-8.86	0.00	-103.02	0.00	103.02	751.61	375.80	530.91	262.20	105.95	-7.59	0.401
140.00	-5.59	-8.63	0.00	-58.72	0.00	58.72	728.17	364.08	490.63	242.30	114.05	-7.88	0.251
142.00	-2.74	-4.43	0.00	-41.47	0.00	41.47	714.97	357.48	472.41	233.31	117.36	-7.97	0.182
145.00	-2.66	-4.19	0.00	-28.16	0.00	28.16	694.05	347.03	445.02	219.78	122.38	-8.06	0.132
150.00	0.00	-3.77	0.00	-7.22	0.00	7.22	659.19	329.60	401.19	198.13	130.84	-8.14	0.037

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 26 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		47.5	0.0					0.0	0.0	47.5	0.0	0.0	0.0
5.00		94.4	1,185.8					0.0	514.7	94.4	1,700.4	0.0	0.0
10.00		93.0	1,193.9					0.0	727.3	93.0	1,921.2	0.0	0.0
15.00		91.4	1,184.5					0.0	739.8	91.4	1,924.4	0.0	0.0
20.00		89.7	1,169.5					0.0	748.7	89.7	1,918.1	0.0	0.0
25.00		87.9	1,151.4					0.0	755.6	87.9	1,907.0	0.0	0.0
30.00		56.5	1,131.5					0.0	761.4	56.5	1,892.9	0.0	0.0
31.50	Bot - Section 2	44.2	336.1					0.0	229.4	44.2	565.5	0.0	0.0
35.00		37.2	1,247.0					0.0	536.9	37.2	1,783.9	0.0	0.0
35.67	Top - Section 1	45.3	235.7					0.0	102.5	45.3	338.2	0.0	0.0
40.00		85.3	849.1					0.0	668.1	85.3	1,517.3	0.0	0.0
45.00		92.4	960.9					0.0	774.5	92.4	1,735.4	0.0	0.0
50.00		93.1	940.7					33.9	778.0	127.0	1,718.8	0.0	0.0
55.00		93.5	920.0					35.0	781.2	128.5	1,701.3	0.0	0.0
60.00		93.6	898.9					36.1	784.2	129.7	1,683.1	0.0	0.0
65.00		93.5	877.4					37.1	787.0	130.6	1,664.4	0.0	0.0
70.00	Bot - Section 3	79.8	855.6					38.1	789.6	117.9	1,645.2	0.0	0.0
73.50	Top - Section 2	47.2	901.1					27.2	554.1	74.5	1,455.2	0.0	0.0
75.00		61.1	220.8					11.8	237.8	72.9	458.7	0.0	0.0
80.00		93.5	720.8					39.9	794.3	133.4	1,515.1	0.0	0.0
85.00		92.6	701.5					40.7	796.5	133.4	1,498.0	0.0	0.0
90.00		55.2	682.0					41.6	798.5	96.8	1,480.5	0.0	0.0
91.00	Reinf. Top Reinf	45.5	134.7					8.4	159.9	53.9	294.7	0.0	0.0
95.00		81.3	529.0					33.9	640.5	115.2	1,169.5	0.0	0.0
100.00		53.8	642.5					43.1	802.4	96.9	1,444.9	0.0	0.0
101.00	Reinf. Top Reinf	44.3	126.8					8.7	160.7	53.0	287.5	0.0	0.0
105.00		61.5	497.1					0.0	546.6	61.5	1,043.7	0.0	0.0
108.00	Appurtenance(s)	43.5	364.9	789.1	0.0	0.0	7,154.1	0.0	410.7	832.6	7,929.6	0.0	0.0
110.00	Top - Section 3	60.0	239.6					15.2	250.1	75.2	489.7	0.0	0.0
115.00		54.7	498.2					38.4	626.5	93.1	1,124.6	0.0	0.0
116.42	Reinf. Top	41.9	138.9					11.0	177.8	52.9	316.7	0.0	0.0
120.00		70.9	343.8					28.0	234.8	98.9	578.6	0.0	0.0
125.00		81.0	463.7					0.0	263.7	81.0	727.5	0.0	0.0
130.00		79.1	446.3					0.0	248.5	79.1	694.9	0.0	0.0
135.00		77.1	428.8					0.0	249.6	77.1	678.4	0.0	0.0
140.00		53.0	411.3					0.0	250.6	53.0	661.8	0.0	0.0
142.00	Appurtenance(s)	37.0	160.6	855.5	0.0	0.0	8,687.0	0.0	100.5	892.4	8,948.1	0.0	0.0
145.00		57.9	235.1					0.0	102.8	57.9	337.9	0.0	0.0
150.00	Appurtenance(s)	35.9	375.8	869.1	0.0	1,457.3	8,244.5	0.0	172.0	905.0	8,792.4	0.0	0.0
								Totals:		5,688.06	67,544.9	0.00	0.00

Site Number: 302482 Code: ANSI/TIA-222-G

Site Name: North Haven CT 1, CT Engineering Number:OAA715176_C3_04 6/26/2018 8:31:58 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 26 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	-67.54	-5.68	0.00	-664.11	0.00	664.11	3,156.90	1,578.45	4,811.22	2,376.08	0.00	0.00	0.188
5.00	-65.83	-5.67	0.00	-635.69	0.00	635.69	3,114.09	1,557.04	4,644.49	2,293.74	0.04	-0.07	0.184
10.00	-63.91	-5.66	0.00	-607.33	0.00	607.33	3,070.24	1,535.12	4,479.04	2,212.03	0.16	-0.15	0.180
15.00	-61.97	-5.64	0.00	-579.03	0.00	579.03	3,025.35	1,512.68	4,314.96	2,131.00	0.35	-0.22	0.176
20.00	-60.05	-5.62	0.00	-550.82	0.00	550.82	2,979.43	1,489.71	4,152.36	2,050.69	0.62	-0.30	0.172
25.00	-58.14	-5.60	0.00	-522.71	0.00	522.71	2,932.46	1,466.23	3,991.34	1,971.17	0.97	-0.37	0.168
30.00	-56.24	-5.58	0.00	-494.71	0.00	494.71	2,874.86	1,437.43	3,819.25	1,886.18	1.40	-0.45	0.164
31.50	-55.67	-5.57	0.00	-486.34	0.00	486.34	2,853.94	1,426.97	3,763.56	1,858.68	1.55	-0.47	0.163
35.00	-53.88	-5.54	0.00	-466.86	0.00	466.86	2,805.14	1,402.57	3,635.21	1,795.29	1.91	-0.52	0.158
35.67	-53.54	-5.53	0.00	-463.16	0.00	463.16	2,247.90	1,123.95	2,973.33	1,468.42	1.98	-0.53	0.181
40.00	-52.02	-5.50	0.00	-439.20	0.00	439.20	2,218.43	1,109.21	2,871.69	1,418.22	2.50	-0.60	0.176
45.00	-50.28	-5.45	0.00	-411.72	0.00	411.72	2,183.45	1,091.72	2,755.25	1,360.71	3.17	-0.68	0.169
50.00	-48.55	-5.37	0.00	-384.45	0.00	384.45	2,147.43	1,073.71	2,639.81	1,303.70	3.92	-0.76	0.162
55.00	-46.85	-5.28	0.00	-357.60	0.00	357.60	2,110.37	1,055.18	2,525.48	1,247.24	4.76	-0.83	0.155
60.00	-45.16	-5.19	0.00	-331.19	0.00	331.19	2,072.27	1,036.13	2,412.36	1,191.37	5.67	-0.91	0.147
65.00	-43.49	-5.09	0.00	-305.26	0.00	305.26	2,033.13	1,016.56	2,300.54	1,136.15	6.66	-0.99	0.140
70.00	-41.84	-4.98	0.00	-279.83	0.00	279.83	1,981.90	990.95	2,177.99	1,075.63	7.74	-1.06	0.133
73.50	-40.38	-4.91	0.00	-262.39	0.00	262.39	1,473.88	736.94	1,624.33	802.19	8.53	-1.11	0.149
75.00	-39.92	-4.86	0.00	-255.03	0.00	255.03	1,466.20	733.10	1,601.53	790.93	8.89	-1.13	0.146
80.00	-38.40	-4.74	0.00	-230.74	0.00	230.74	1,439.92	719.96	1,525.89	753.58	10.11	-1.21	0.135
85.00	-36.90	-4.62	0.00	-207.03	0.00	207.03	1,412.60	706.30	1,450.91	716.55	11.41	-1.28	0.125
90.00	-35.42	-4.52	0.00	-183.92	0.00	183.92	1,384.24	692.12	1,376.67	679.88	12.79	-1.34	0.114
91.00	-35.13	-4.47	0.00	-179.40	0.00	179.40	1,378.45	689.22	1,361.92	672.60	13.07	-1.36	0.112
91.00	-35.13	-4.47	0.00	-179.40	0.00	179.40	1,378.45	689.22	1,361.92	672.60	13.07	-1.36	0.112
95.00	-33.96	-4.36	0.00	-161.51	0.00	161.51	1,354.85	677.42	1,303.28	643.64	14.23	-1.41	0.104
100.00	-32.51	-4.25	0.00	-139.69	0.00	139.69	1,324.41	662.20	1,230.84	607.87	15.74	-1.47	0.093
101.00	-32.22	-4.21	0.00	-135.44	0.00	135.44	1,318.20	659.10	1,216.47	600.77	16.05	-1.48	0.091
101.00	-32.22	-4.21	0.00	-135.44	0.00	135.44	1,318.20	659.10	1,216.47	600.77	16.05	-1.48	0.089
105.00	-31.18	-4.14	0.00	-118.62	0.00	118.62	1,292.93	646.47	1,159.45	572.61	17.31	-1.52	0.080
108.00	-23.27	-3.10	0.00	-106.21	0.00	106.21	1,265.65	632.82	1,110.24	548.30	18.27	-1.55	0.071
110.00	-22.79	-3.02	0.00	-100.00	0.00	100.00	1,247.06	623.53	1,077.67	532.22	18.93	-1.57	0.068
110.00	-22.79	-3.02	0.00	-100.00	0.00	100.00	853.21	426.60	741.71	366.30	18.93	-1.57	0.081
115.00	-21.66	-2.91	0.00	-84.88	0.00	84.88	834.97	417.48	698.64	345.03	20.60	-1.61	0.071
116.42	-21.35	-2.86	0.00	-80.76	0.00	80.76	829.61	414.80	686.50	339.04	21.08	-1.63	0.068
116.42	-21.35	-2.86	0.00	-80.76	0.00	80.76	829.61	414.80	686.50	339.04	21.08	-1.63	0.264
120.00	-20.77	-2.78	0.00	-70.52	0.00	70.52	815.69	407.84	655.93	323.94	22.31	-1.66	0.243
125.00	-20.03	-2.73	0.00	-56.64	0.00	56.64	795.37	397.68	613.66	303.07	24.13	-1.81	0.212
130.00	-19.34	-2.67	0.00	-43.01	0.00	43.01	774.01	387.00	571.96	282.47	26.10	-1.95	0.177
135.00	-18.66	-2.60	0.00	-29.68	0.00	29.68	751.61	375.80	530.91	262.20	28.21	-2.07	0.138
140.00	-18.00	-2.54	0.00	-16.69	0.00	16.69	728.17	364.08	490.63	242.30	30.43	-2.15	0.094
142.00	-9.09	-1.31	0.00	-11.61	0.00	11.61	714.97	357.48	472.41	233.31	31.34	-2.18	0.062
145.00	-8.75	-1.24	0.00	-7.68	0.00	7.68	694.05	347.03	445.02	219.78	32.71	-2.20	0.048
150.00	0.00	-0.90	0.00	-1.46	0.00	1.46	659.19	329.60	401.19	198.13	35.04	-2.23	0.007

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 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		53.8	0.0					0.0	0.0	53.8	0.0	0.0	0.0
5.00		106.4	752.1					0.0	370.9	106.4	1,123.0	0.0	0.0
10.00		104.1	736.0					0.0	456.5	104.1	1,192.5	0.0	0.0
15.00		101.9	719.9					0.0	456.5	101.9	1,176.4	0.0	0.0
20.00		99.6	703.8					0.0	456.5	99.6	1,160.3	0.0	0.0
25.00		97.3	687.7					0.0	456.5	97.3	1,144.2	0.0	0.0
30.00		62.4	671.6					0.0	456.5	62.4	1,128.1	0.0	0.0
31.50	Bot - Section 2	48.7	198.4					0.0	136.9	48.7	335.3	0.0	0.0
35.00		41.0	846.4					0.0	319.5	41.0	1,166.0	0.0	0.0
35.67	Top - Section 1	49.8	159.6					0.0	60.9	49.8	220.4	0.0	0.0
40.00		93.6	471.2					0.0	395.6	93.6	866.9	0.0	0.0
45.00		111.2	531.2					0.0	456.5	111.2	987.7	0.0	0.0
50.00		121.9	517.8					24.8	456.5	146.7	974.3	0.0	0.0
55.00		122.0	504.4					25.5	456.5	147.5	960.9	0.0	0.0
60.00		121.7	491.0					26.2	456.5	147.9	947.5	0.0	0.0
65.00		121.1	477.6					26.8	456.5	148.0	934.1	0.0	0.0
70.00	Bot - Section 3	103.1	464.2					27.4	456.5	130.6	920.7	0.0	0.0
73.50	Top - Section 2	61.0	575.9					19.5	319.5	80.5	895.4	0.0	0.0
75.00		78.6	109.4					8.5	136.9	87.1	246.3	0.0	0.0
80.00		120.0	357.6					28.5	456.5	148.5	814.1	0.0	0.0
85.00		118.4	346.9					29.1	456.5	147.5	803.4	0.0	0.0
90.00		70.4	336.1					29.5	456.5	100.0	792.6	0.0	0.0
91.00	Reinf. Top Reinf	57.8	65.9					6.0	91.3	63.8	157.2	0.0	0.0
95.00		103.0	259.5					24.1	365.2	127.0	624.7	0.0	0.0
100.00		68.0	314.7					30.5	456.5	98.5	771.2	0.0	0.0
101.00	Reinf. Top Reinf	48.3	61.6					6.1	91.3	54.4	152.9	0.0	0.0
105.00		64.4	242.3					0.0	298.4	64.4	540.7	0.0	0.0
108.00	Appurtenance(s)	49.0	177.2	836.2	0.0	0.0	2,768.8	0.0	223.8	885.2	3,169.8	0.0	0.0
110.00	Top - Section 3	74.8	116.0					8.7	129.2	83.5	245.2	0.0	0.0
115.00		68.0	212.5					21.9	323.1	89.9	535.6	0.0	0.0
116.42	Reinf. Top	51.8	58.7					6.3	91.5	58.1	150.3	0.0	0.0
120.00		79.0	145.7					15.9	52.0	94.9	197.7	0.0	0.0
125.00		82.8	196.4					0.0	72.6	82.8	269.0	0.0	0.0
130.00		80.2	188.4					0.0	72.6	80.2	261.0	0.0	0.0
135.00		77.6	180.3					0.0	72.6	77.6	252.9	0.0	0.0
140.00		53.0	172.3					0.0	72.6	53.0	244.9	0.0	0.0
142.00	Appurtenance(s)	36.7	66.7	863.4	0.0	0.0	3,678.3	0.0	29.0	900.1	3,774.0	0.0	0.0
145.00		57.2	97.6					0.0	19.3	57.2	116.8	0.0	0.0
150.00	Appurtenance(s)	35.3	156.2	866.5	0.0	1,727.5	3,391.8	0.0	32.1	901.8	3,580.1	0.0	0.0
									Totals:	6,026.45	33,834.1	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 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	-33.83	-5.99	0.00	-632.43	0.00	632.43	3,156.90	1,578.45	4,811.22	2,376.08	0.00	0.00	0.172
5.00	-32.70	-5.93	0.00	-602.47	0.00	602.47	3,114.09	1,557.04	4,644.49	2,293.74	0.04	-0.07	0.168
10.00	-31.50	-5.86	0.00	-572.84	0.00	572.84	3,070.24	1,535.12	4,479.04	2,212.03	0.15	-0.14	0.164
15.00	-30.32	-5.79	0.00	-543.55	0.00	543.55	3,025.35	1,512.68	4,314.96	2,131.00	0.33	-0.21	0.159
20.00	-29.15	-5.72	0.00	-514.61	0.00	514.61	2,979.43	1,489.71	4,152.36	2,050.69	0.59	-0.28	0.155
25.00	-28.00	-5.65	0.00	-486.01	0.00	486.01	2,932.46	1,466.23	3,991.34	1,971.17	0.92	-0.35	0.150
30.00	-26.87	-5.60	0.00	-457.75	0.00	457.75	2,874.86	1,437.43	3,819.25	1,886.18	1.32	-0.42	0.146
31.50	-26.53	-5.57	0.00	-449.35	0.00	449.35	2,853.94	1,426.97	3,763.56	1,858.68	1.46	-0.44	0.144
35.00	-25.36	-5.53	0.00	-429.86	0.00	429.86	2,805.14	1,402.57	3,635.21	1,795.29	1.80	-0.49	0.140
35.67	-25.14	-5.49	0.00	-426.17	0.00	426.17	2,247.90	1,123.95	2,973.33	1,468.42	1.87	-0.50	0.160
40.00	-24.27	-5.42	0.00	-402.37	0.00	402.37	2,218.43	1,109.21	2,871.69	1,418.22	2.35	-0.56	0.154
45.00	-23.27	-5.33	0.00	-375.27	0.00	375.27	2,183.45	1,091.72	2,755.25	1,360.71	2.98	-0.63	0.148
50.00	-22.29	-5.20	0.00	-348.63	0.00	348.63	2,147.43	1,073.71	2,639.81	1,303.70	3.68	-0.70	0.141
55.00	-21.33	-5.06	0.00	-322.65	0.00	322.65	2,110.37	1,055.18	2,525.48	1,247.24	4.45	-0.77	0.134
60.00	-20.38	-4.93	0.00	-297.33	0.00	297.33	2,072.27	1,036.13	2,412.36	1,191.37	5.30	-0.84	0.127
65.00	-19.44	-4.79	0.00	-272.70	0.00	272.70	2,033.13	1,016.56	2,300.54	1,136.15	6.22	-0.91	0.119
70.00	-18.52	-4.66	0.00	-248.77	0.00	248.77	1,981.90	990.95	2,177.99	1,075.63	7.20	-0.98	0.113
73.50	-17.62	-4.57	0.00	-232.47	0.00	232.47	1,473.88	736.94	1,624.33	802.19	7.94	-1.02	0.125
75.00	-17.37	-4.49	0.00	-225.61	0.00	225.61	1,466.20	733.10	1,601.53	790.93	8.26	-1.04	0.122
80.00	-16.56	-4.35	0.00	-203.14	0.00	203.14	1,439.92	719.96	1,525.89	753.58	9.38	-1.11	0.113
85.00	-15.75	-4.20	0.00	-181.39	0.00	181.39	1,412.60	706.30	1,450.91	716.55	10.58	-1.17	0.103
90.00	-14.96	-4.09	0.00	-160.39	0.00	160.39	1,384.24	692.12	1,376.67	679.88	11.83	-1.23	0.094
91.00	-14.80	-4.03	0.00	-156.29	0.00	156.29	1,378.45	689.22	1,361.92	672.60	12.09	-1.24	0.092
91.00	-14.80	-4.03	0.00	-156.29	0.00	156.29	1,378.45	689.22	1,361.92	672.60	12.09	-1.24	0.092
95.00	-14.18	-3.91	0.00	-140.15	0.00	140.15	1,354.85	677.42	1,303.28	643.64	13.14	-1.28	0.084
100.00	-13.41	-3.80	0.00	-120.62	0.00	120.62	1,324.41	662.20	1,230.84	607.87	14.52	-1.33	0.075
101.00	-13.25	-3.74	0.00	-116.83	0.00	116.83	1,318.20	659.10	1,216.47	600.77	14.80	-1.34	0.073
101.00	-13.25	-3.74	0.00	-116.83	0.00	116.83	1,318.20	659.10	1,216.47	600.77	14.80	-1.34	0.070
105.00	-12.71	-3.67	0.00	-101.85	0.00	101.85	1,292.93	646.47	1,159.45	572.61	15.94	-1.38	0.063
108.00	-9.56	-2.72	0.00	-90.83	0.00	90.83	1,265.65	632.82	1,110.24	548.30	16.81	-1.41	0.056
110.00	-9.32	-2.63	0.00	-85.40	0.00	85.40	1,247.06	623.53	1,077.67	532.22	17.41	-1.42	0.053
110.00	-9.32	-2.63	0.00	-85.40	0.00	85.40	853.21	426.60	741.71	366.30	17.41	-1.42	0.064
115.00	-8.78	-2.53	0.00	-72.25	0.00	72.25	834.97	417.48	698.64	345.03	18.92	-1.46	0.055
116.42	-8.64	-2.47	0.00	-68.66	0.00	68.66	829.61	414.80	686.50	339.04	19.35	-1.47	0.053
116.42	-8.64	-2.47	0.00	-68.66	0.00	68.66	829.61	414.80	686.50	339.04	19.35	-1.47	0.213
120.00	-8.44	-2.38	0.00	-59.81	0.00	59.81	815.69	407.84	655.93	323.94	20.46	-1.49	0.195
125.00	-8.17	-2.31	0.00	-47.89	0.00	47.89	795.37	397.68	613.66	303.07	22.10	-1.63	0.168
130.00	-7.90	-2.24	0.00	-36.33	0.00	36.33	774.01	387.00	571.96	282.47	23.87	-1.75	0.139
135.00	-7.65	-2.16	0.00	-25.14	0.00	25.14	751.61	375.80	530.91	262.20	25.75	-1.84	0.106
140.00	-7.40	-2.11	0.00	-14.32	0.00	14.32	728.17	364.08	490.63	242.30	27.72	-1.92	0.069
142.00	-3.66	-1.08	0.00	-10.10	0.00	10.10	714.97	357.48	472.41	233.31	28.53	-1.94	0.048
145.00	-3.55	-1.02	0.00	-6.85	0.00	6.85	694.05	347.03	445.02	219.78	29.76	-1.96	0.036
150.00	0.00	-0.90	0.00	-1.73	0.00	1.73	659.19	329.60	401.19	198.13	31.82	-1.98	0.009

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18	
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}):	0.20	
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):	2.98	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	33.83	k
Seismic Base Shear (E):	1.32	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)
38	147.50	188	4,096	0.014	18	233
37	143.50	117	2,406	0.008	11	145
36	141.00	96	1,903	0.006	9	119
35	137.50	245	4,630	0.016	21	303
34	132.50	253	4,440	0.015	20	313
33	127.50	261	4,242	0.014	19	323
32	122.50	269	4,037	0.014	18	333
31	118.21	198	2,763	0.009	12	245
30	115.71	150	2,012	0.007	9	186
29	112.50	536	6,779	0.023	30	664
28	109.00	245	2,914	0.010	13	304
27	106.50	401	4,548	0.015	20	497
26	103.00	541	5,736	0.020	26	670
25	100.50	153	1,545	0.005	7	190
24	97.50	771	7,331	0.025	33	956
23	93.00	625	5,403	0.018	24	774
22	90.50	157	1,288	0.004	6	195
21	87.50	793	6,069	0.021	27	982
20	82.50	803	5,468	0.019	25	996
19	77.50	814	4,890	0.017	22	1,009
18	74.25	246	1,358	0.005	6	305
17	71.75	895	4,610	0.016	21	1,110
16	67.50	921	4,195	0.014	19	1,141

15	62.50	934	3,649	0.012	16	1,158
14	57.50	947	3,133	0.011	14	1,174
13	52.50	961	2,648	0.009	12	1,191
12	47.50	974	2,198	0.007	10	1,207
11	42.50	988	1,784	0.006	8	1,224
10	37.83	867	1,241	0.004	6	1,074
9	35.33	220	275	0.001	1	273
8	33.25	1,166	1,289	0.004	6	1,445
7	30.75	335	317	0.001	1	416
6	27.50	1,128	853	0.003	4	1,398
5	22.50	1,144	579	0.002	3	1,418
4	17.50	1,160	355	0.001	2	1,438
3	12.50	1,176	184	0.001	1	1,458
2	7.50	1,192	67	0.000	0	1,478
1	2.50	1,123	7	0.000	0	1,392
Powerwave Allgon 702	150.00	13	297	0.001	1	16
Kaelus DBC0061F1V51-	150.00	76	1,721	0.006	8	95
Powerwave LGP21401	150.00	85	1,904	0.006	9	105
Raycap DC6-48-60-18-	150.00	20	450	0.002	2	25
Raycap DC6-48-60-18-	150.00	20	450	0.002	2	25
Ericsson RRUS A2 B2	150.00	66	1,485	0.005	7	82
Ericsson RRUS 32 (50	150.00	152	3,429	0.012	15	189
Ericsson RRUS 11 (Ba	150.00	152	3,422	0.012	15	188
Ericsson RRUS 12	150.00	150	3,375	0.011	15	186
Powerwave Allgon 777	150.00	105	2,363	0.008	11	130
Quintel QS66512-2	150.00	333	7,493	0.025	34	413
CCI OPA-65R-LCUU-H6	150.00	219	4,928	0.017	22	271
Round Platform w/ Ha	150.00	2,000	45,000	0.153	202	2,479
DragonWave Horizon C	142.00	32	641	0.002	3	39
DragonWave A-ANT-23G	142.00	15	302	0.001	1	19
Alcatel-Lucent RRH2x	142.00	317	6,400	0.022	29	393
Alcatel-Lucent 1900	142.00	180	3,630	0.012	16	223
Alcatel-Lucent TD-RR	142.00	210	4,234	0.014	19	260
DragonWave A-ANT-11G	142.00	27	544	0.002	2	33
RFS APXVTM14-ALU-I20	142.00	169	3,400	0.012	15	209
DragonWave A-ANT-11G	142.00	48	960	0.003	4	59
Commscope NNVV-65B-R	142.00	232	4,682	0.016	21	288
Platform with Handra	142.00	2,449	49,376	0.168	222	3,035
RFS FD9R6004/2C-3L	108.00	16	182	0.001	1	19
RFS FD9R6004/1C-3L	108.00	19	217	0.001	1	23
Nokia B5 RRH4x40-850	108.00	146	1,697	0.006	8	180
Alcatel-Lucent RRH 2	108.00	119	1,386	0.005	6	147
Alcatel-Lucent RRH2x	108.00	170	1,984	0.007	9	211
Alcatel-Lucent B66 R	108.00	201	2,344	0.008	11	249
Commscope HBX-6516DS	108.00	31	364	0.001	2	39
RFS DB-T1-6Z-8AB-0Z	108.00	88	1,026	0.003	5	109
Commscope LNX-6514DS	108.00	116	1,358	0.005	6	144
Commscope JAHH-65B-R	108.00	364	4,241	0.014	19	451
Round Low Profile Pl	108.00	1,500	17,496	0.060	79	1,859
		33,834	294,020	1.000	1,320	41,929

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)
38	147.50	188	4,096	0.014	18	162
37	143.50	117	2,406	0.008	11	101
36	141.00	96	1,903	0.006	9	82
35	137.50	245	4,630	0.016	21	211
34	132.50	253	4,440	0.015	20	218

33	127.50	261	4,242	0.014	19	225
32	122.50	269	4,037	0.014	18	232
31	118.21	198	2,763	0.009	12	170
30	115.71	150	2,012	0.007	9	129
29	112.50	536	6,779	0.023	30	461
28	109.00	245	2,914	0.010	13	211
27	106.50	401	4,548	0.015	20	345
26	103.00	541	5,736	0.020	26	465
25	100.50	153	1,545	0.005	7	132
24	97.50	771	7,331	0.025	33	664
23	93.00	625	5,403	0.018	24	538
22	90.50	157	1,288	0.004	6	135
21	87.50	793	6,069	0.021	27	682
20	82.50	803	5,468	0.019	25	691
19	77.50	814	4,890	0.017	22	701
18	74.25	246	1,358	0.005	6	212
17	71.75	895	4,610	0.016	21	771
16	67.50	921	4,195	0.014	19	792
15	62.50	934	3,649	0.012	16	804
14	57.50	947	3,133	0.011	14	816
13	52.50	961	2,648	0.009	12	827
12	47.50	974	2,198	0.007	10	839
11	42.50	988	1,784	0.006	8	850
10	37.83	867	1,241	0.004	6	746
9	35.33	220	275	0.001	1	190
8	33.25	1,166	1,289	0.004	6	1,004
7	30.75	335	317	0.001	1	289
6	27.50	1,128	853	0.003	4	971
5	22.50	1,144	579	0.002	3	985
4	17.50	1,160	355	0.001	2	999
3	12.50	1,176	184	0.001	1	1,013
2	7.50	1,192	67	0.000	0	1,026
1	2.50	1,123	7	0.000	0	967
Powerwave Allgon 702	150.00	13	297	0.001	1	11
Kaelus DBC0061F1V51-	150.00	76	1,721	0.006	8	66
Powerwave LGP21401	150.00	85	1,904	0.006	9	73
Raycap DC6-48-60-18-	150.00	20	450	0.002	2	17
Raycap DC6-48-60-18-	150.00	20	450	0.002	2	17
Ericsson RRUS A2 B2	150.00	66	1,485	0.005	7	57
Ericsson RRUS 32 (50	150.00	152	3,429	0.012	15	131
Ericsson RRUS 11 (Ba	150.00	152	3,422	0.012	15	131
Ericsson RRUS 12	150.00	150	3,375	0.011	15	129
Powerwave Allgon 777	150.00	105	2,363	0.008	11	90
Quintel QS66512-2	150.00	333	7,493	0.025	34	287
CCI OPA-65R-LCUU-H6	150.00	219	4,928	0.017	22	189
Round Platform w/ Ha	150.00	2,000	45,000	0.153	202	1,721
DragonWave Horizon C	142.00	32	641	0.002	3	27
DragonWave A-ANT-23G	142.00	15	302	0.001	1	13
Alcatel-Lucent RRH2x	142.00	317	6,400	0.022	29	273
Alcatel-Lucent 1900	142.00	180	3,630	0.012	16	155
Alcatel-Lucent TD-RR	142.00	210	4,234	0.014	19	181
DragonWave A-ANT-11G	142.00	27	544	0.002	2	23
RFS APXVTM14-ALU-I20	142.00	169	3,400	0.012	15	145
DragonWave A-ANT-11G	142.00	48	960	0.003	4	41
Commscope NNVV-65B-R	142.00	232	4,682	0.016	21	200
Platform with Handra	142.00	2,449	49,376	0.168	222	2,108
RFS FD9R6004/2C-3L	108.00	16	182	0.001	1	13
RFS FD9R6004/1C-3L	108.00	19	217	0.001	1	16
Nokia B5 RRH4x40-850	108.00	146	1,697	0.006	8	125
Alcatel-Lucent RRH 2	108.00	119	1,386	0.005	6	102
Alcatel-Lucent RRH2x	108.00	170	1,984	0.007	9	146
Alcatel-Lucent B66 R	108.00	201	2,344	0.008	11	173
Commscope HBX-6516DS	108.00	31	364	0.001	2	27
RFS DB-T1-6Z-8AB-0Z	108.00	88	1,026	0.003	5	76

Commscope LNX-6514DS	108.00	116	1,358	0.005	6	100
Commscope JAHH-65B-R	108.00	364	4,241	0.014	19	313
Round Low Profile Pl	108.00	1,500	17,496	0.060	79	1,291
		33,834	294,020	1.000	1,320	29,123

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	-40.54	-1.33	0.00	-173.53	0.00	173.53	3,156.90	1,578.45	4,811.22	2,376.08	0.00	0.00	0.054
5.00	-39.06	-1.34	0.00	-166.91	0.00	166.91	3,114.09	1,557.04	4,644.49	2,293.74	0.01	-0.02	0.053
10.00	-37.60	-1.35	0.00	-160.22	0.00	160.22	3,070.24	1,535.12	4,479.04	2,212.03	0.04	-0.04	0.052
15.00	-36.16	-1.36	0.00	-153.47	0.00	153.47	3,025.35	1,512.68	4,314.96	2,131.00	0.09	-0.06	0.051
20.00	-34.74	-1.37	0.00	-146.67	0.00	146.67	2,979.43	1,489.71	4,152.36	2,050.69	0.16	-0.08	0.050
25.00	-33.35	-1.37	0.00	-139.84	0.00	139.84	2,932.46	1,466.23	3,991.34	1,971.17	0.26	-0.10	0.049
30.00	-32.93	-1.38	0.00	-132.98	0.00	132.98	2,874.86	1,437.43	3,819.25	1,886.18	0.37	-0.12	0.048
31.50	-31.48	-1.37	0.00	-130.91	0.00	130.91	2,853.94	1,426.97	3,763.56	1,858.68	0.41	-0.12	0.048
35.00	-31.21	-1.38	0.00	-126.10	0.00	126.10	2,805.14	1,402.57	3,635.21	1,795.29	0.50	-0.14	0.047
35.67	-30.14	-1.37	0.00	-125.18	0.00	125.18	2,247.90	1,123.95	2,973.33	1,468.42	0.52	-0.14	0.053
40.00	-28.91	-1.37	0.00	-119.22	0.00	119.22	2,218.43	1,109.21	2,871.69	1,418.22	0.66	-0.16	0.052
45.00	-27.70	-1.37	0.00	-112.35	0.00	112.35	2,183.45	1,091.72	2,755.25	1,360.71	0.84	-0.18	0.050
50.00	-26.51	-1.36	0.00	-105.50	0.00	105.50	2,147.43	1,073.71	2,639.81	1,303.70	1.04	-0.20	0.048
55.00	-25.34	-1.36	0.00	-98.68	0.00	98.68	2,110.37	1,055.18	2,525.48	1,247.24	1.26	-0.22	0.046
60.00	-24.18	-1.34	0.00	-91.90	0.00	91.90	2,072.27	1,036.13	2,412.36	1,191.37	1.51	-0.25	0.044
65.00	-23.04	-1.33	0.00	-85.19	0.00	85.19	2,033.13	1,016.56	2,300.54	1,136.15	1.78	-0.27	0.042
70.00	-21.93	-1.31	0.00	-78.55	0.00	78.55	1,981.90	990.95	2,177.99	1,075.63	2.07	-0.29	0.040
73.50	-21.62	-1.30	0.00	-73.97	0.00	73.97	1,473.88	736.94	1,624.33	802.19	2.28	-0.30	0.045
75.00	-20.61	-1.28	0.00	-72.01	0.00	72.01	1,466.20	733.10	1,601.53	790.93	2.38	-0.31	0.044
80.00	-19.62	-1.26	0.00	-65.60	0.00	65.60	1,439.92	719.96	1,525.89	753.58	2.71	-0.33	0.042
85.00	-18.64	-1.23	0.00	-59.31	0.00	59.31	1,412.60	706.30	1,450.91	716.55	3.07	-0.35	0.039
90.00	-18.44	-1.23	0.00	-53.14	0.00	53.14	1,384.24	692.12	1,376.67	679.88	3.44	-0.37	0.036
91.00	-17.67	-1.20	0.00	-51.91	0.00	51.91	1,378.45	689.22	1,361.92	672.60	3.52	-0.37	0.035
91.00	-17.67	-1.20	0.00	-51.91	0.00	51.91	1,378.45	689.22	1,361.92	672.60	3.52	-0.37	0.035
95.00	-16.71	-1.17	0.00	-47.10	0.00	47.10	1,354.85	677.42	1,303.28	643.64	3.84	-0.39	0.033
100.00	-16.52	-1.16	0.00	-41.26	0.00	41.26	1,324.41	662.20	1,230.84	607.87	4.25	-0.40	0.030
101.00	-15.85	-1.14	0.00	-40.10	0.00	40.10	1,318.20	659.10	1,216.47	600.77	4.34	-0.41	0.029
101.00	-15.85	-1.14	0.00	-40.10	0.00	40.10	1,318.20	659.10	1,216.47	600.77	4.34	-0.41	0.029
105.00	-15.35	-1.11	0.00	-35.55	0.00	35.55	1,292.93	646.47	1,159.45	572.61	4.68	-0.42	0.026
108.00	-11.62	-0.93	0.00	-32.21	0.00	32.21	1,265.65	632.82	1,110.24	548.30	4.95	-0.43	0.023
110.00	-10.96	-0.90	0.00	-30.35	0.00	30.35	1,247.06	623.53	1,077.67	532.22	5.13	-0.43	0.022
110.00	-10.96	-0.90	0.00	-30.35	0.00	30.35	853.21	426.60	741.71	366.30	5.13	-0.43	0.027
115.00	-10.77	-0.89	0.00	-25.87	0.00	25.87	834.97	417.48	698.64	345.03	5.59	-0.45	0.024
116.42	-10.53	-0.87	0.00	-24.61	0.00	24.61	829.61	414.80	686.50	339.04	5.73	-0.45	0.023
116.42	-10.53	-0.87	0.00	-24.61	0.00	24.61	829.61	414.80	686.50	339.04	5.73	-0.45	0.085
120.00	-10.19	-0.86	0.00	-21.48	0.00	21.48	815.69	407.84	655.93	323.94	6.07	-0.46	0.079
125.00	-9.87	-0.84	0.00	-17.19	0.00	17.19	795.37	397.68	613.66	303.07	6.58	-0.51	0.069
130.00	-9.55	-0.83	0.00	-12.96	0.00	12.96	774.01	387.00	571.96	282.47	7.13	-0.55	0.058
135.00	-9.25	-0.81	0.00	-8.82	0.00	8.82	751.61	375.80	530.91	262.20	7.73	-0.59	0.046
140.00	-9.13	-0.80	0.00	-4.77	0.00	4.77	728.17	364.08	490.63	242.30	8.36	-0.61	0.032
142.00	-4.43	-0.41	0.00	-3.17	0.00	3.17	714.97	357.48	472.41	233.31	8.61	-0.62	0.020
145.00	-4.20	-0.39	0.00	-1.94	0.00	1.94	694.05	347.03	445.02	219.78	9.00	-0.62	0.015
150.00	0.00	-0.34	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	9.66	-0.63	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	-28.16	-1.32	0.00	-169.42	0.00	169.42	3,156.90	1,578.45	4,811.22	2,376.08	0.00	0.00	0.050
5.00	-27.13	-1.33	0.00	-162.81	0.00	162.81	3,114.09	1,557.04	4,644.49	2,293.74	0.01	-0.02	0.049
10.00	-26.12	-1.34	0.00	-156.15	0.00	156.15	3,070.24	1,535.12	4,479.04	2,212.03	0.04	-0.04	0.049
15.00	-25.12	-1.35	0.00	-149.45	0.00	149.45	3,025.35	1,512.68	4,314.96	2,131.00	0.09	-0.06	0.048
20.00	-24.13	-1.35	0.00	-142.73	0.00	142.73	2,979.43	1,489.71	4,152.36	2,050.69	0.16	-0.08	0.047
25.00	-23.16	-1.35	0.00	-135.98	0.00	135.98	2,932.46	1,466.23	3,991.34	1,971.17	0.25	-0.10	0.045
30.00	-22.87	-1.36	0.00	-129.22	0.00	129.22	2,874.86	1,437.43	3,819.25	1,886.18	0.36	-0.12	0.045
31.50	-21.87	-1.35	0.00	-127.18	0.00	127.18	2,853.94	1,426.97	3,763.56	1,858.68	0.40	-0.12	0.044
35.00	-21.68	-1.35	0.00	-122.45	0.00	122.45	2,805.14	1,402.57	3,635.21	1,795.29	0.49	-0.14	0.043
35.67	-20.93	-1.35	0.00	-121.55	0.00	121.55	2,247.90	1,123.95	2,973.33	1,468.42	0.51	-0.14	0.049
40.00	-20.08	-1.35	0.00	-115.70	0.00	115.70	2,218.43	1,109.21	2,871.69	1,418.22	0.64	-0.16	0.048
45.00	-19.24	-1.34	0.00	-108.98	0.00	108.98	2,183.45	1,091.72	2,755.25	1,360.71	0.82	-0.18	0.046
50.00	-18.41	-1.33	0.00	-102.27	0.00	102.27	2,147.43	1,073.71	2,639.81	1,303.70	1.01	-0.20	0.045
55.00	-17.60	-1.32	0.00	-95.61	0.00	95.61	2,110.37	1,055.18	2,525.48	1,247.24	1.23	-0.22	0.043
60.00	-16.79	-1.31	0.00	-89.00	0.00	89.00	2,072.27	1,036.13	2,412.36	1,191.37	1.47	-0.24	0.041
65.00	-16.00	-1.29	0.00	-82.46	0.00	82.46	2,033.13	1,016.56	2,300.54	1,136.15	1.73	-0.26	0.039
70.00	-15.23	-1.27	0.00	-76.00	0.00	76.00	1,981.90	990.95	2,177.99	1,075.63	2.01	-0.28	0.037
73.50	-15.02	-1.27	0.00	-71.55	0.00	71.55	1,473.88	736.94	1,624.33	802.19	2.22	-0.29	0.042
75.00	-14.32	-1.25	0.00	-69.65	0.00	69.65	1,466.20	733.10	1,601.53	790.93	2.31	-0.30	0.041
80.00	-13.62	-1.22	0.00	-63.42	0.00	63.42	1,439.92	719.96	1,525.89	753.58	2.64	-0.32	0.038
85.00	-12.94	-1.19	0.00	-57.32	0.00	57.32	1,412.60	706.30	1,450.91	716.55	2.98	-0.34	0.036
90.00	-12.81	-1.19	0.00	-51.34	0.00	51.34	1,384.24	692.12	1,376.67	679.88	3.35	-0.36	0.033
91.00	-12.27	-1.16	0.00	-50.15	0.00	50.15	1,378.45	689.22	1,361.92	672.60	3.42	-0.36	0.032
91.00	-12.27	-1.16	0.00	-50.15	0.00	50.15	1,378.45	689.22	1,361.92	672.60	3.42	-0.36	0.032
95.00	-11.61	-1.13	0.00	-45.49	0.00	45.49	1,354.85	677.42	1,303.28	643.64	3.73	-0.37	0.030
100.00	-11.47	-1.13	0.00	-39.84	0.00	39.84	1,324.41	662.20	1,230.84	607.87	4.13	-0.39	0.027
101.00	-11.01	-1.10	0.00	-38.71	0.00	38.71	1,318.20	659.10	1,216.47	600.77	4.21	-0.39	0.027
101.00	-11.01	-1.10	0.00	-38.71	0.00	38.71	1,318.20	659.10	1,216.47	600.77	4.21	-0.39	0.026
105.00	-10.66	-1.08	0.00	-34.32	0.00	34.32	1,292.93	646.47	1,159.45	572.61	4.55	-0.41	0.024
108.00	-8.07	-0.90	0.00	-31.09	0.00	31.09	1,265.65	632.82	1,110.24	548.30	4.81	-0.42	0.021
110.00	-7.61	-0.87	0.00	-29.29	0.00	29.29	1,247.06	623.53	1,077.67	532.22	4.98	-0.42	0.020
110.00	-7.61	-0.87	0.00	-29.29	0.00	29.29	853.21	426.60	741.71	366.30	4.98	-0.42	0.024
115.00	-7.48	-0.86	0.00	-24.94	0.00	24.94	834.97	417.48	698.64	345.03	5.43	-0.43	0.021
116.42	-7.31	-0.85	0.00	-23.73	0.00	23.73	829.61	414.80	686.50	339.04	5.56	-0.44	0.020
116.42	-7.31	-0.85	0.00	-23.73	0.00	23.73	829.61	414.80	686.50	339.04	5.56	-0.44	0.079
120.00	-7.08	-0.83	0.00	-20.69	0.00	20.69	815.69	407.84	655.93	323.94	5.89	-0.45	0.073
125.00	-6.85	-0.81	0.00	-16.54	0.00	16.54	795.37	397.68	613.66	303.07	6.39	-0.49	0.063
130.00	-6.63	-0.80	0.00	-12.46	0.00	12.46	774.01	387.00	571.96	282.47	6.92	-0.53	0.053
135.00	-6.42	-0.78	0.00	-8.48	0.00	8.48	751.61	375.80	530.91	262.20	7.50	-0.57	0.041
140.00	-6.34	-0.77	0.00	-4.59	0.00	4.59	728.17	364.08	490.63	242.30	8.11	-0.59	0.028
142.00	-3.08	-0.39	0.00	-3.05	0.00	3.05	714.97	357.48	472.41	233.31	8.36	-0.60	0.017
145.00	-2.92	-0.37	0.00	-1.87	0.00	1.87	694.05	347.03	445.02	219.78	8.73	-0.60	0.013
150.00	0.00	-0.34	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	9.37	-0.61	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):	0.18
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}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.98
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)
38	147.50	188	1.828	1.667	1.025	0.329	54	233
37	143.50	117	1.730	1.238	0.861	0.268	27	145
36	141.00	96	1.670	1.012	0.769	0.233	19	119
35	137.50	245	1.588	0.742	0.654	0.187	40	303
34	132.50	253	1.475	0.441	0.513	0.129	28	313
33	127.50	261	1.366	0.222	0.397	0.078	18	323
32	122.50	269	1.261	0.069	0.302	0.036	8	333
31	118.21	198	1.174	-0.019	0.236	0.006	1	245
30	115.71	150	1.125	-0.055	0.202	-0.009	-1	186
29	112.50	536	1.063	-0.088	0.165	-0.026	-12	664
28	109.00	245	0.998	-0.110	0.130	-0.040	-9	304
27	106.50	401	0.953	-0.119	0.109	-0.048	-17	497
26	103.00	541	0.891	-0.122	0.084	-0.056	-26	670
25	100.50	153	0.848	-0.119	0.069	-0.059	-8	190
24	97.50	771	0.799	-0.112	0.053	-0.061	-41	956
23	93.00	625	0.727	-0.095	0.035	-0.057	-31	774
22	90.50	157	0.688	-0.083	0.028	-0.052	-7	195
21	87.50	793	0.643	-0.068	0.020	-0.044	-30	982
20	82.50	803	0.572	-0.043	0.012	-0.026	-18	996
19	77.50	814	0.505	-0.018	0.007	-0.003	-2	1,009
18	74.25	246	0.463	-0.003	0.006	0.011	2	305
17	71.75	895	0.432	0.008	0.006	0.021	16	1,110
16	67.50	921	0.383	0.023	0.007	0.036	28	1,141
15	62.50	934	0.328	0.039	0.010	0.048	39	1,158
14	57.50	947	0.278	0.050	0.014	0.055	45	1,174
13	52.50	961	0.232	0.058	0.019	0.058	49	1,191
12	47.50	974	0.190	0.064	0.025	0.059	50	1,207
11	42.50	988	0.152	0.068	0.030	0.058	50	1,224
10	37.83	867	0.120	0.070	0.034	0.057	43	1,074
9	35.33	220	0.105	0.071	0.037	0.057	11	273
8	33.25	1,166	0.093	0.071	0.038	0.056	57	1,445
7	30.75	335	0.079	0.072	0.040	0.055	16	416
6	27.50	1,128	0.064	0.072	0.041	0.055	53	1,398
5	22.50	1,144	0.043	0.070	0.042	0.053	53	1,418

4	17.50	1,160	0.026	0.067	0.040	0.051	51	1,438
3	12.50	1,176	0.013	0.059	0.034	0.046	47	1,458
2	7.50	1,192	0.005	0.044	0.025	0.037	39	1,478
1	2.50	1,123	0.001	0.018	0.010	0.018	18	1,392
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.369	4	16
Kaelus DBC0061F1V51-	150.00	76	1.890	1.980	1.140	0.369	24	95
Powerwave LGP21401	150.00	85	1.890	1.980	1.140	0.369	27	105
Raycap DC6-48-60-18-	150.00	20	1.890	1.980	1.140	0.369	6	25
Raycap DC6-48-60-18-	150.00	20	1.890	1.980	1.140	0.369	6	25
Ericsson RRUS A2 B2	150.00	66	1.890	1.980	1.140	0.369	21	82
Ericsson RRUS 32 (50	150.00	152	1.890	1.980	1.140	0.369	49	189
Ericsson RRUS 11 (Ba	150.00	152	1.890	1.980	1.140	0.369	49	188
Ericsson RRUS 12	150.00	150	1.890	1.980	1.140	0.369	48	186
Powerwave Allgon 777	150.00	105	1.890	1.980	1.140	0.369	34	130
Quintel QS66512-2	150.00	333	1.890	1.980	1.140	0.369	107	413
CCI OPA-65R-LCUU-H6	150.00	219	1.890	1.980	1.140	0.369	70	271
Round Platform w/ Ha	150.00	2,000	1.890	1.980	1.140	0.369	640	2,479
DragonWave Horizon C	142.00	32	1.694	1.099	0.805	0.247	7	39
DragonWave A-ANT-23G	142.00	15	1.694	1.099	0.805	0.247	3	19
Alcatel-Lucent RRH2x	142.00	317	1.694	1.099	0.805	0.247	68	393
Alcatel-Lucent 1900	142.00	180	1.694	1.099	0.805	0.247	38	223
Alcatel-Lucent TD-RR	142.00	210	1.694	1.099	0.805	0.247	45	260
DragonWave A-ANT-11G	142.00	27	1.694	1.099	0.805	0.247	6	33
RFS APXVTM14-ALU-I20	142.00	169	1.694	1.099	0.805	0.247	36	209
DragonWave A-ANT-11G	142.00	48	1.694	1.099	0.805	0.247	10	59
Commscope NNVV-	142.00	232	1.694	1.099	0.805	0.247	50	288
Platform with Handra	142.00	2,449	1.694	1.099	0.805	0.247	523	3,035
RFS FD9R6004/2C-3L	108.00	16	0.980	-0.114	0.122	-0.044	-1	19
RFS FD9R6004/1C-3L	108.00	19	0.980	-0.114	0.122	-0.044	-1	23
Nokia B5 RRH4x40-850	108.00	146	0.980	-0.114	0.122	-0.044	-6	180
Alcatel-Lucent RRH 2	108.00	119	0.980	-0.114	0.122	-0.044	-4	147
Alcatel-Lucent RRH2x	108.00	170	0.980	-0.114	0.122	-0.044	-6	211
Alcatel-Lucent B66 R	108.00	201	0.980	-0.114	0.122	-0.044	-8	249
Commscope HBX-	108.00	31	0.980	-0.114	0.122	-0.044	-1	39
RFS DB-T1-6Z-8AB-0Z	108.00	88	0.980	-0.114	0.122	-0.044	-3	109
Commscope LNX-	108.00	116	0.980	-0.114	0.122	-0.044	-4	144
Commscope JAHH-65B-	108.00	364	0.980	-0.114	0.122	-0.044	-14	451
Round Low Profile Pl	108.00	1,500	0.980	-0.114	0.122	-0.044	-57	1,859
		33,834	77.190	40.731	30.338	8.402	2,427	41,929

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)
38	147.50	188	1.828	1.667	1.025	0.329	54	162
37	143.50	117	1.730	1.238	0.861	0.268	27	101
36	141.00	96	1.670	1.012	0.769	0.233	19	82
35	137.50	245	1.588	0.742	0.654	0.187	40	211
34	132.50	253	1.475	0.441	0.513	0.129	28	218
33	127.50	261	1.366	0.222	0.397	0.078	18	225
32	122.50	269	1.261	0.069	0.302	0.036	8	232
31	118.21	198	1.174	-0.019	0.236	0.006	1	170
30	115.71	150	1.125	-0.055	0.202	-0.009	-1	129
29	112.50	536	1.063	-0.088	0.165	-0.026	-12	461
28	109.00	245	0.998	-0.110	0.130	-0.040	-9	211
27	106.50	401	0.953	-0.119	0.109	-0.048	-17	345
26	103.00	541	0.891	-0.122	0.084	-0.056	-26	465
25	100.50	153	0.848	-0.119	0.069	-0.059	-8	132
24	97.50	771	0.799	-0.112	0.053	-0.061	-41	664

23	93.00	625	0.727	-0.095	0.035	-0.057	-31	538
22	90.50	157	0.688	-0.083	0.028	-0.052	-7	135
21	87.50	793	0.643	-0.068	0.020	-0.044	-30	682
20	82.50	803	0.572	-0.043	0.012	-0.026	-18	691
19	77.50	814	0.505	-0.018	0.007	-0.003	-2	701
18	74.25	246	0.463	-0.003	0.006	0.011	2	212
17	71.75	895	0.432	0.008	0.006	0.021	16	771
16	67.50	921	0.383	0.023	0.007	0.036	28	792
15	62.50	934	0.328	0.039	0.010	0.048	39	804
14	57.50	947	0.278	0.050	0.014	0.055	45	816
13	52.50	961	0.232	0.058	0.019	0.058	49	827
12	47.50	974	0.190	0.064	0.025	0.059	50	839
11	42.50	988	0.152	0.068	0.030	0.058	50	850
10	37.83	867	0.120	0.070	0.034	0.057	43	746
9	35.33	220	0.105	0.071	0.037	0.057	11	190
8	33.25	1,166	0.093	0.071	0.038	0.056	57	1,004
7	30.75	335	0.079	0.072	0.040	0.055	16	289
6	27.50	1,128	0.064	0.072	0.041	0.055	53	971
5	22.50	1,144	0.043	0.070	0.042	0.053	53	985
4	17.50	1,160	0.026	0.067	0.040	0.051	51	999
3	12.50	1,176	0.013	0.059	0.034	0.046	47	1,013
2	7.50	1,192	0.005	0.044	0.025	0.037	39	1,026
1	2.50	1,123	0.001	0.018	0.010	0.018	18	967
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.369	4	11
Kaelus DBC0061F1V51-	150.00	76	1.890	1.980	1.140	0.369	24	66
Powerwave LGP21401	150.00	85	1.890	1.980	1.140	0.369	27	73
Raycap DC6-48-60-18-	150.00	20	1.890	1.980	1.140	0.369	6	17
Raycap DC6-48-60-18-	150.00	20	1.890	1.980	1.140	0.369	6	17
Ericsson RRUS A2 B2	150.00	66	1.890	1.980	1.140	0.369	21	57
Ericsson RRUS 32 (50	150.00	152	1.890	1.980	1.140	0.369	49	131
Ericsson RRUS 11 (Ba	150.00	152	1.890	1.980	1.140	0.369	49	131
Ericsson RRUS 12	150.00	150	1.890	1.980	1.140	0.369	48	129
Powerwave Allgon 777	150.00	105	1.890	1.980	1.140	0.369	34	90
Quintel QS66512-2	150.00	333	1.890	1.980	1.140	0.369	107	287
CCI OPA-65R-LCUU-H6	150.00	219	1.890	1.980	1.140	0.369	70	189
Round Platform w/ Ha	150.00	2,000	1.890	1.980	1.140	0.369	640	1,721
DragonWave Horizon C	142.00	32	1.694	1.099	0.805	0.247	7	27
DragonWave A-ANT-23G	142.00	15	1.694	1.099	0.805	0.247	3	13
Alcatel-Lucent RRH2x	142.00	317	1.694	1.099	0.805	0.247	68	273
Alcatel-Lucent 1900	142.00	180	1.694	1.099	0.805	0.247	38	155
Alcatel-Lucent TD-RR	142.00	210	1.694	1.099	0.805	0.247	45	181
DragonWave A-ANT-11G	142.00	27	1.694	1.099	0.805	0.247	6	23
RFS APXVTM14-ALU-I20	142.00	169	1.694	1.099	0.805	0.247	36	145
DragonWave A-ANT-11G	142.00	48	1.694	1.099	0.805	0.247	10	41
Commscope NNVV-	142.00	232	1.694	1.099	0.805	0.247	50	200
Platform with Handra	142.00	2,449	1.694	1.099	0.805	0.247	523	2,108
RFS FD9R6004/2C-3L	108.00	16	0.980	-0.114	0.122	-0.044	-1	13
RFS FD9R6004/1C-3L	108.00	19	0.980	-0.114	0.122	-0.044	-1	16
Nokia B5 RRH4x40-850	108.00	146	0.980	-0.114	0.122	-0.044	-6	125
Alcatel-Lucent RRH 2	108.00	119	0.980	-0.114	0.122	-0.044	-4	102
Alcatel-Lucent RRH2x	108.00	170	0.980	-0.114	0.122	-0.044	-6	146
Alcatel-Lucent B66 R	108.00	201	0.980	-0.114	0.122	-0.044	-8	173
Commscope HBX-	108.00	31	0.980	-0.114	0.122	-0.044	-1	27
RFS DB-T1-6Z-8AB-0Z	108.00	88	0.980	-0.114	0.122	-0.044	-3	76
Commscope LNX-	108.00	116	0.980	-0.114	0.122	-0.044	-4	100
Commscope JAHH-65B-	108.00	364	0.980	-0.114	0.122	-0.044	-14	313
Round Low Profile Pl	108.00	1,500	0.980	-0.114	0.122	-0.044	-57	1,291
		33,834	77.190	40.731	30.338	8.402	2,427	29,123

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	-40.54	-2.42	0.00	-318.42	0.00	318.42	3,156.90	1,578.45	4,811.22	2,376.08	0.00	0.00	0.092
5.00	-39.06	-2.41	0.00	-306.31	0.00	306.31	3,114.09	1,557.04	4,644.49	2,293.74	0.02	-0.04	0.090
10.00	-37.60	-2.38	0.00	-294.28	0.00	294.28	3,070.24	1,535.12	4,479.04	2,212.03	0.07	-0.07	0.089
15.00	-36.16	-2.35	0.00	-282.37	0.00	282.37	3,025.35	1,512.68	4,314.96	2,131.00	0.17	-0.11	0.087
20.00	-34.74	-2.32	0.00	-270.62	0.00	270.62	2,979.43	1,489.71	4,152.36	2,050.69	0.30	-0.14	0.086
25.00	-33.34	-2.28	0.00	-259.03	0.00	259.03	2,932.46	1,466.23	3,991.34	1,971.17	0.47	-0.18	0.084
30.00	-32.92	-2.28	0.00	-247.62	0.00	247.62	2,874.86	1,437.43	3,819.25	1,886.18	0.68	-0.22	0.083
31.50	-31.48	-2.23	0.00	-244.20	0.00	244.20	2,853.94	1,426.97	3,763.56	1,858.68	0.75	-0.23	0.082
35.00	-31.20	-2.22	0.00	-236.41	0.00	236.41	2,805.14	1,402.57	3,635.21	1,795.29	0.93	-0.26	0.081
35.67	-30.13	-2.19	0.00	-234.93	0.00	234.93	2,247.90	1,123.95	2,973.33	1,468.42	0.97	-0.26	0.093
40.00	-28.90	-2.15	0.00	-225.45	0.00	225.45	2,218.43	1,109.21	2,871.69	1,418.22	1.22	-0.30	0.091
45.00	-27.70	-2.11	0.00	-214.71	0.00	214.71	2,183.45	1,091.72	2,755.25	1,360.71	1.55	-0.34	0.089
50.00	-26.50	-2.08	0.00	-204.15	0.00	204.15	2,147.43	1,073.71	2,639.81	1,303.70	1.92	-0.38	0.086
55.00	-25.33	-2.04	0.00	-193.78	0.00	193.78	2,110.37	1,055.18	2,525.48	1,247.24	2.34	-0.42	0.084
60.00	-24.17	-2.01	0.00	-183.58	0.00	183.58	2,072.27	1,036.13	2,412.36	1,191.37	2.80	-0.46	0.082
65.00	-23.03	-1.99	0.00	-173.53	0.00	173.53	2,033.13	1,016.56	2,300.54	1,136.15	3.31	-0.50	0.079
70.00	-21.92	-1.98	0.00	-163.58	0.00	163.58	1,981.90	990.95	2,177.99	1,075.63	3.86	-0.55	0.077
73.50	-21.61	-1.98	0.00	-156.66	0.00	156.66	1,473.88	736.94	1,624.33	802.19	4.27	-0.58	0.088
75.00	-20.60	-1.98	0.00	-153.69	0.00	153.69	1,466.20	733.10	1,601.53	790.93	4.45	-0.59	0.086
80.00	-19.60	-2.00	0.00	-143.78	0.00	143.78	1,439.92	719.96	1,525.89	753.58	5.09	-0.63	0.083
85.00	-18.62	-2.04	0.00	-133.75	0.00	133.75	1,412.60	706.30	1,450.91	716.55	5.78	-0.68	0.079
90.00	-18.42	-2.05	0.00	-123.56	0.00	123.56	1,384.24	692.12	1,376.67	679.88	6.52	-0.72	0.075
91.00	-17.65	-2.08	0.00	-121.51	0.00	121.51	1,378.45	689.22	1,361.92	672.60	6.67	-0.73	0.074
91.00	-17.65	-2.08	0.00	-121.51	0.00	121.51	1,378.45	689.22	1,361.92	672.60	6.67	-0.73	0.074
95.00	-16.69	-2.12	0.00	-113.19	0.00	113.19	1,354.85	677.42	1,303.28	643.64	7.30	-0.77	0.070
100.00	-16.50	-2.13	0.00	-102.60	0.00	102.60	1,324.41	662.20	1,230.84	607.87	8.12	-0.81	0.065
101.00	-15.83	-2.15	0.00	-100.46	0.00	100.46	1,318.20	659.10	1,216.47	600.77	8.30	-0.82	0.064
101.00	-15.83	-2.15	0.00	-100.46	0.00	100.46	1,318.20	659.10	1,216.47	600.77	8.30	-0.82	0.062
105.00	-15.33	-2.17	0.00	-91.85	0.00	91.85	1,292.93	646.47	1,159.45	572.61	9.00	-0.85	0.058
108.00	-11.59	-2.23	0.00	-85.33	0.00	85.33	1,265.65	632.82	1,110.24	548.30	9.54	-0.87	0.054
110.00	-10.93	-2.24	0.00	-80.87	0.00	80.87	1,247.06	623.53	1,077.67	532.22	9.91	-0.89	0.052
110.00	-10.93	-2.24	0.00	-80.87	0.00	80.87	853.21	426.60	741.71	366.30	9.91	-0.89	0.062
115.00	-10.74	-2.24	0.00	-69.67	0.00	69.67	834.97	417.48	698.64	345.03	10.86	-0.92	0.054
116.42	-10.50	-2.24	0.00	-66.50	0.00	66.50	829.61	414.80	686.50	339.04	11.13	-0.93	0.052
116.42	-10.50	-2.24	0.00	-66.50	0.00	66.50	829.61	414.80	686.50	339.04	11.13	-0.93	0.209
120.00	-10.16	-2.24	0.00	-58.47	0.00	58.47	815.69	407.84	655.93	323.94	11.85	-0.96	0.193
125.00	-9.83	-2.24	0.00	-47.27	0.00	47.27	795.37	397.68	613.66	303.07	12.92	-1.09	0.168
130.00	-9.52	-2.22	0.00	-36.09	0.00	36.09	774.01	387.00	571.96	282.47	14.13	-1.21	0.140
135.00	-9.21	-2.19	0.00	-24.98	0.00	24.98	751.61	375.80	530.91	262.20	15.45	-1.30	0.108
140.00	-9.09	-2.17	0.00	-14.04	0.00	14.04	728.17	364.08	490.63	242.30	16.85	-1.38	0.070
142.00	-4.41	-1.25	0.00	-9.69	0.00	9.69	714.97	357.48	472.41	233.31	17.43	-1.40	0.048
145.00	-4.17	-1.19	0.00	-5.95	0.00	5.95	694.05	347.03	445.02	219.78	18.32	-1.42	0.033
150.00	0.00	-1.09	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	19.81	-1.43	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	-28.16	-2.42	0.00	-310.25	0.00	310.25	3,156.90	1,578.45	4,811.22	2,376.08	0.00	0.00	0.087
5.00	-27.13	-2.39	0.00	-298.16	0.00	298.16	3,114.09	1,557.04	4,644.49	2,293.74	0.02	-0.03	0.086
10.00	-26.11	-2.36	0.00	-286.19	0.00	286.19	3,070.24	1,535.12	4,479.04	2,212.03	0.07	-0.07	0.084
15.00	-25.11	-2.33	0.00	-274.38	0.00	274.38	3,025.35	1,512.68	4,314.96	2,131.00	0.16	-0.10	0.083
20.00	-24.13	-2.29	0.00	-262.75	0.00	262.75	2,979.43	1,489.71	4,152.36	2,050.69	0.29	-0.14	0.081
25.00	-23.15	-2.24	0.00	-251.32	0.00	251.32	2,932.46	1,466.23	3,991.34	1,971.17	0.46	-0.18	0.080
30.00	-22.87	-2.24	0.00	-240.10	0.00	240.10	2,874.86	1,437.43	3,819.25	1,886.18	0.66	-0.21	0.078
31.50	-21.86	-2.18	0.00	-236.74	0.00	236.74	2,853.94	1,426.97	3,763.56	1,858.68	0.73	-0.22	0.078
35.00	-21.67	-2.18	0.00	-229.10	0.00	229.10	2,805.14	1,402.57	3,635.21	1,795.29	0.90	-0.25	0.076
35.67	-20.92	-2.14	0.00	-227.65	0.00	227.65	2,247.90	1,123.95	2,973.33	1,468.42	0.94	-0.25	0.088
40.00	-20.07	-2.10	0.00	-218.39	0.00	218.39	2,218.43	1,109.21	2,871.69	1,418.22	1.18	-0.29	0.086
45.00	-19.23	-2.06	0.00	-207.90	0.00	207.90	2,183.45	1,091.72	2,755.25	1,360.71	1.51	-0.33	0.084
50.00	-18.41	-2.02	0.00	-197.62	0.00	197.62	2,147.43	1,073.71	2,639.81	1,303.70	1.87	-0.37	0.081
55.00	-17.59	-1.98	0.00	-187.55	0.00	187.55	2,110.37	1,055.18	2,525.48	1,247.24	2.27	-0.41	0.079
60.00	-16.78	-1.94	0.00	-177.67	0.00	177.67	2,072.27	1,036.13	2,412.36	1,191.37	2.72	-0.45	0.077
65.00	-15.99	-1.92	0.00	-167.95	0.00	167.95	2,033.13	1,016.56	2,300.54	1,136.15	3.21	-0.49	0.075
70.00	-15.22	-1.91	0.00	-158.34	0.00	158.34	1,981.90	990.95	2,177.99	1,075.63	3.75	-0.53	0.073
73.50	-15.01	-1.91	0.00	-151.67	0.00	151.67	1,473.88	736.94	1,624.33	802.19	4.14	-0.56	0.083
75.00	-14.30	-1.91	0.00	-148.81	0.00	148.81	1,466.20	733.10	1,601.53	790.93	4.32	-0.57	0.082
80.00	-13.61	-1.93	0.00	-139.26	0.00	139.26	1,439.92	719.96	1,525.89	753.58	4.94	-0.61	0.078
85.00	-12.93	-1.96	0.00	-129.60	0.00	129.60	1,412.60	706.30	1,450.91	716.55	5.61	-0.66	0.074
90.00	-12.79	-1.98	0.00	-119.78	0.00	119.78	1,384.24	692.12	1,376.67	679.88	6.32	-0.70	0.071
91.00	-12.25	-2.00	0.00	-117.80	0.00	117.80	1,378.45	689.22	1,361.92	672.60	6.47	-0.71	0.070
91.00	-12.25	-2.00	0.00	-117.80	0.00	117.80	1,378.45	689.22	1,361.92	672.60	6.47	-0.71	0.070
95.00	-11.59	-2.04	0.00	-109.79	0.00	109.79	1,354.85	677.42	1,303.28	643.64	7.08	-0.74	0.066
100.00	-11.45	-2.06	0.00	-99.57	0.00	99.57	1,324.41	662.20	1,230.84	607.87	7.88	-0.79	0.062
101.00	-10.99	-2.08	0.00	-97.51	0.00	97.51	1,318.20	659.10	1,216.47	600.77	8.05	-0.79	0.061
101.00	-10.99	-2.08	0.00	-97.51	0.00	97.51	1,318.20	659.10	1,216.47	600.77	8.05	-0.79	0.059
105.00	-10.64	-2.10	0.00	-89.20	0.00	89.20	1,292.93	646.47	1,159.45	572.61	8.73	-0.83	0.055
108.00	-8.04	-2.17	0.00	-82.91	0.00	82.91	1,265.65	632.82	1,110.24	548.30	9.25	-0.85	0.051
110.00	-7.58	-2.18	0.00	-78.56	0.00	78.56	1,247.06	623.53	1,077.67	532.22	9.61	-0.86	0.049
110.00	-7.58	-2.18	0.00	-78.56	0.00	78.56	853.21	426.60	741.71	366.30	9.61	-0.86	0.058
115.00	-7.45	-2.18	0.00	-67.65	0.00	67.65	834.97	417.48	698.64	345.03	10.53	-0.90	0.051
116.42	-7.28	-2.18	0.00	-64.55	0.00	64.55	829.61	414.80	686.50	339.04	10.80	-0.91	0.049
116.42	-7.28	-2.18	0.00	-64.55	0.00	64.55	829.61	414.80	686.50	339.04	10.80	-0.91	0.199
120.00	-7.05	-2.18	0.00	-56.73	0.00	56.73	815.69	407.84	655.93	323.94	11.49	-0.93	0.184
125.00	-6.82	-2.17	0.00	-45.83	0.00	45.83	795.37	397.68	613.66	303.07	12.53	-1.06	0.160
130.00	-6.60	-2.15	0.00	-34.97	0.00	34.97	774.01	387.00	571.96	282.47	13.70	-1.17	0.132
135.00	-6.38	-2.12	0.00	-24.20	0.00	24.20	751.61	375.80	530.91	262.20	14.98	-1.26	0.101
140.00	-6.30	-2.10	0.00	-13.62	0.00	13.62	728.17	364.08	490.63	242.30	16.35	-1.33	0.065
142.00	-3.05	-1.21	0.00	-9.42	0.00	9.42	714.97	357.48	472.41	233.31	16.91	-1.35	0.045
145.00	-2.89	-1.16	0.00	-5.78	0.00	5.78	694.05	347.03	445.02	219.78	17.77	-1.37	0.030
150.00	0.00	-1.09	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	19.21	-1.39	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	25.98	0.00	40.53	0.00	0.00	2699.83	116.42	0.87
0.9D + 1.6W	24.91	0.00	30.39	0.00	0.00	2610.99	116.42	0.84
1.2D + 1.0Di + 1.0Wi	5.68	0.00	67.54	0.00	0.00	664.11	116.42	0.26
(1.2 + 0.2Sds) * DL + E ELFM	1.33	0.00	40.54	0.00	0.00	173.53	116.42	0.09
(1.2 + 0.2Sds) * DL + E EMAM	2.42	0.00	40.54	0.00	0.00	318.42	116.42	0.21
(0.9 - 0.2Sds) * DL + E ELFM	1.32	0.00	28.16	0.00	0.00	169.42	116.42	0.08
(0.9 - 0.2Sds) * DL + E EMAM	2.42	0.00	28.16	0.00	0.00	310.25	116.42	0.20
1.0D + 1.0W	5.99	0.00	33.83	0.00	0.00	632.43	116.42	0.21

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	91.0	(4) SOL-#20 All Thre	348.0	10.4	16.8	0.0	12.0	0	12	0.0	12.0	0	0	282.0	330.5	0.853
91.0	101.	(4) SOL-#20 All Thre	353.1	6.4	16.8	130.6	12.0	11	16	0.0	12.0	0	0	162.4	345.0	0.471
101.	116.	(3) SOL-#20 All Thre	404.2	12.1	16.8	107.6	12.0	9	12	149.1	12.0	13	14	151.3	330.5	0.458

Base Plate & Anchor Rod Analysis

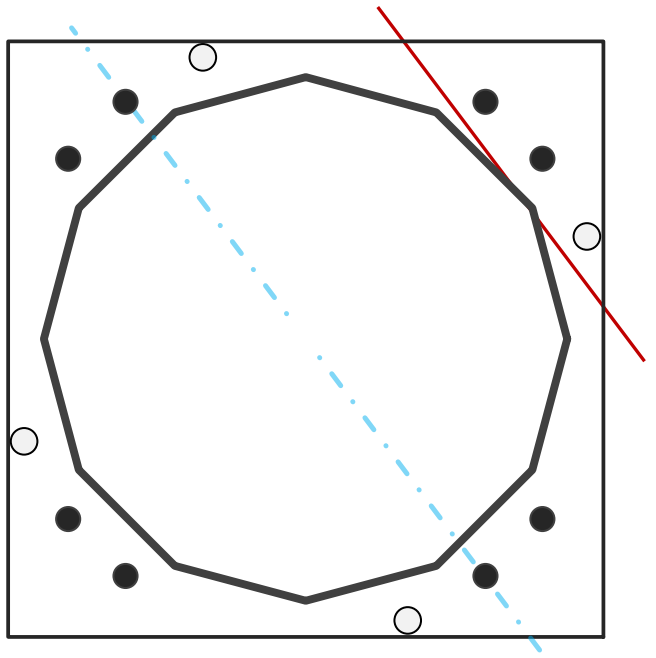
Pole Dimensions		
Number of Sides	12	-
Diameter	37.38	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2699.8	k-ft
Axial, Pu	40.5	k
Shear, Vu	26.0	k
Neutral Axis	307	°

Report Capacities		
Component	Capacity	Result
Base Plate	61%	Pass
Anchor Rods	87%	Pass
Dwyidag	71%	Pass

Base Plate		
Shape	Square	-
Width	44	in
Thickness	2 1/2	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1285.8	k
Bending Stress, ϕMn	2096.8	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	225.6	k
Anchor Rods, ϕPn	259.8	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	44.26	in
Orientation Offset	20	°
Applied Force, Pu	280.0	k
Dywidag Bar, ϕPn	392.7	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	26.0	1633.6	0.61
Anchor Rod Forces	26.0	1633.6	0.61
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1066.2	0.39
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	43.0934	3.5911	0.1692		7376.38
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		4814.56
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	44	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	23.219	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	24.850	in
Additional AA	0.000	in
Section Modulus, Z	38.829	in^3
Applied Moment, Mu	1285.8	k-ft
Bending Capacity, ϕMn	2096.8	k-ft
Capacity, Mu/ϕMn	0.613	OK
Chord Length AB	23.532	in
Additional AB	0.000	in
Section Modulus, Z	36.769	in^3
Applied Moment, Mu	993.9	k-ft
Bending Capacity, ϕMn	1985.5	k-ft
Capacity, Mu/ϕMn	0.501	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

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	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	225.6	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.868	OK
Interaction Capacity	0.868	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	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	44.255	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	280.0	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.713	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	0.0	k
Applied Horizontal Force, Vu	0.00	k

Vertical Weld		
Vert.-to-Stiffener a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, ϕPn	#DIV/0!	k
Vert.-to-Plate a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$		

Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	0.000	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, ϕPn	#DIV/0!	k
Horz.-to-Pole a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$		

Plate Tension		
Gross Cross Section	0.000	in^2
Net Cross Section	0.000	in^2
Tensile Capacity, ϕTn	0.0	k
Capacity, Tu/ϕTn		

Plate Compression		
Radius of Gyration	#DIV/0!	in^3
kl/r	#DIV/0!	-
4.71 √(E/Fy)	0.00	-
Buckling Stress(Fe)	0.0	-
Crit. Buckling Stress(Fcr)	0.0	ksi
Compressive Capacity, ϕPn	0.0	k
Capacity, Pu/ϕPn		

Base/Flange Plate			
	Plate Type	***Flange***	***@ 110.0 ft***
	Pole Diameter	21.25	in
	Pole Thickness	0.1875	in
	Plate Diameter	28.5	in
	Plate Thickness	1	in
	Plate Fy	50	ksi
	Weld Length	0.1875	in
	ϕ_s Resistance	117.26	k-in
	Applied	22.49	k-in

Stiffeners			
	#	***12***	***Show***
	Thickness	0.5	in
	Length	4	in
	Height	3	in
	Chamfer	0.25	in
	Offset Angle	0	°
	Fy	36	ksi

Bolts			
	#	***12***	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
●	Diameter	1	in
	Hole Diameter	1.25	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	ϕ_s Resistance	54.52	k
	Applied	15.65	k

Reinforcement			
	#	***3***	
●	DYW. Circle	30	in
	Offset Angle		°
	Type	#20	
	Diameter	2.5	in
	Fu	100	ksi
	ϕ_s Resistance	392.70	k
	Applied	118.12	k

Extra Bolts O		
#	***0***	

Code Rev. ***G***

Moment 362.9 k-ft

Axial 10.1 k

Date 6/26/2018

Engineer Christophe.Quenum

Site # 302482

Carrier CLEARWIRE CORPORATION

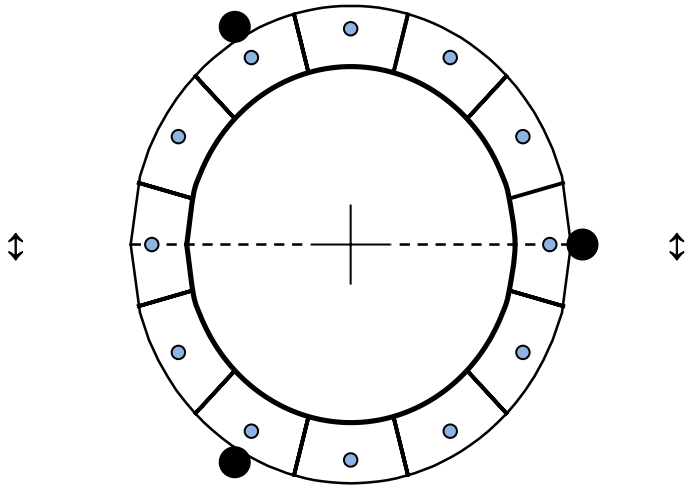


Plate Stress Ratio:

0.19 (Pass)

Bolt Stress Ratio:

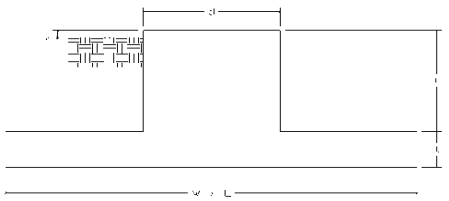
0.29 (Pass)

Reinforcement Stress Ratio:

0.30 (Pass)

Site Name:	North Haven CT 1, CT
Site Number:	302482
Engineering Number:	OAA715176
Engineer:	Christophe.Quenum
Date:	06/26/18
Tower Type:	MP

Program Last Updated: *5/13/2014*



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

Design / Analysis / Mapping:	Analysis				
Compression/Leg:	40.5	k	Concrete Strength (f'_c):	3000	psi
Uplift/Leg:	0.0	k	Pad Tension Steel Depth:	32.00	in
Total Shear:	26.0	k	ϕ_{Shear}:	0.75	
Moment:	2699.8	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	33.8	k	$\phi_{Compression:}$	0.65	
Depth to Base of Foundation (l + t - h):	8.00	ft	β:	0.85	
Diameter of Pier (d):	6.00	ft	Bottom Pad Rebar Size #:	10	
Height of Pier above Ground (h):	0.50		# of Bottom Pad Rebar:	36	
Width of Pad (W):	18.00	ft	Pad Bottom Steel Area:	45.72	in^2
Length of Pad (L):	22.00	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	3.00	ft	Top Pad Rebar Size #:	5	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	36	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	11.16	in^2
Tower Center from Mat Center:	0.00	ft	Pier Rebar Size #:	11	
Depth Below Ground Surface to Water Table:	7.00	ft	Pier Steel Area (Single Bar):	1.56	in^2
Unit Weight of Concrete:	150.0	pcf	# of Pier Rebar:	14	
Unit Weight of Soil Above Water Table:	125.0	pcf	Pier Steel F_y:	60000	psi
Unit Weight of Water:	62.4	pcf	Pier Cage Diameter:	64.0	in
Unit Weight of Soil Below Water Table:	62.6	pcf	Rebar Strain Limit:	0.008	
Friction Angle of Uplift:	15.0	Degrees	Steel Elastic Modulus:	29000	ksi
Ultimate Coefficient of Shear Friction:	0.35		Tie Rebar Size #:	4	
Ultimate Compressive Bearing Pressure:	8000.0	psf	Tie Steel Area (Single Bar):	0.20	in^2
Ultimate Passive Pressure on Pad Face:	0.0	psf	Tie Spacing:	12	in
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9		Tie Steel F_y:	60000	psi
ϕ_{Soil}:	0.75				

Overturning Moment Usage

Design OTM:	2920.7	k-ft
OTM Resistance:	3916.2	k-ft
Design OTM / OTM Resistance:	0.75	Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	4052	psf
Factored Nominal Bearing Pressure:	6000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.68	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

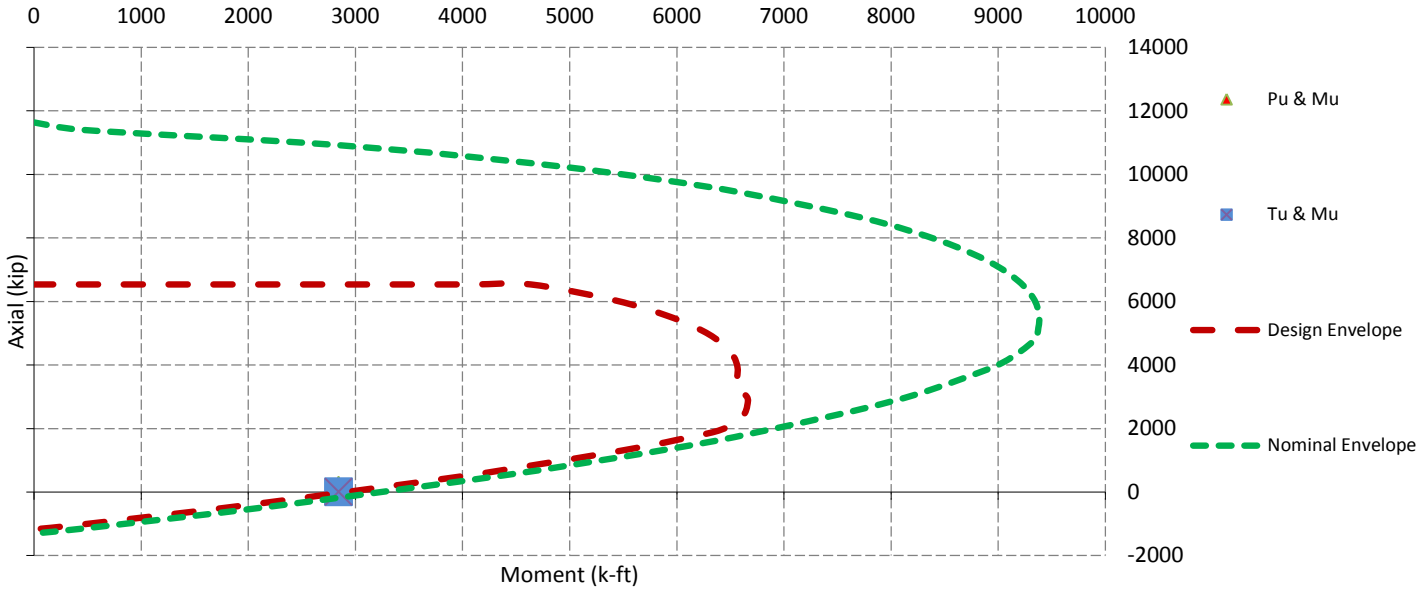
Sliding Factor of Safety

Total Factored Sliding Resistance:	114.1	k
Sliding Design / Sliding Resistance:	0.23	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	129.6	k
One Way Shear Capacity (ϕV_c):	445.5	k - ACI11.3.1.1
V_u / ϕV_c:	0.29	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Steel Pad Factored Moment (M_u):	782.9	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	5335.9	k-ft - ACI10.3
M_u / ϕM_n:	0.15	Result: OK
Load Direction Controling Flexural Capacity:	Diagonal to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	623.2	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	1585.8	k-ft
M_u / ϕM_n:	0.39	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0054	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0013	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	7	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	7	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1718.0	k - ACI11.12.2.1
V_u / ϕV_c:	0.00	Result: OK
Factored Moment in Pier (M_u):	2842.7	k-ft
Pier Moment Capacity (ϕM_n):	3087.5	k-ft
M_u / ϕM_n:	0.92	Result: OK
Factored Shear in Pier (V_u):	26.0	k
Pier Shear Capacity (ϕV_n):	336.2	k
V_u / ϕV_c:	0.08	Result: OK
Pier Shear Reinforcement Ratio:	0.0005	No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k
Pier Tension Capacity (ϕT_n):	1179.4	k
T_u / ϕT_n:	0.00	Result: OK
Factored Compression in Pier (P_u):	40.5	k
Pier Compression Capacity (ϕP_n):	5369.9	k - ACI10.3.6.2
P_u / ϕP_n:	0.01	Result: OK
Pier Compression Reinforcement Ratio:	0.005	OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.92	Result: OK

Nominal and Design Moment Capacity and Factored Design Loads



Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	NORTH HAVEN CT-1
SITE CASCADE:	CT52XC119
SITE ADDRESS:	15 DWIGHT STREET NORTH HAVEN, CT 06473
SITE TYPE:	MONOPOLE TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

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

LATITUDE (NAD83):
41° 25' 14.9" N
41.420811

LONGITUDE (NAD83):
72° 50' 55.7" W
-72.848801

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

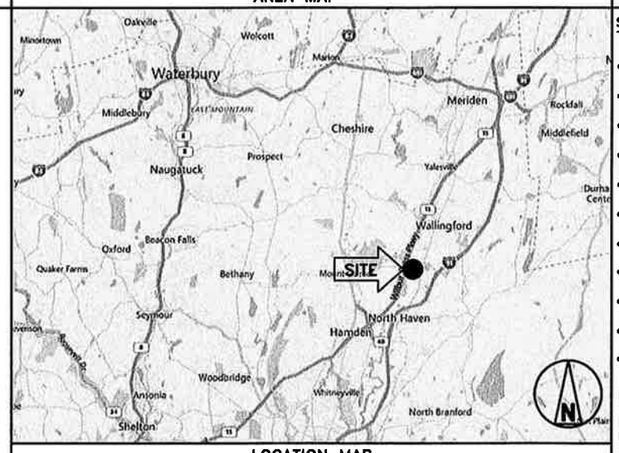
ZONING DISTRICT:
TBD

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

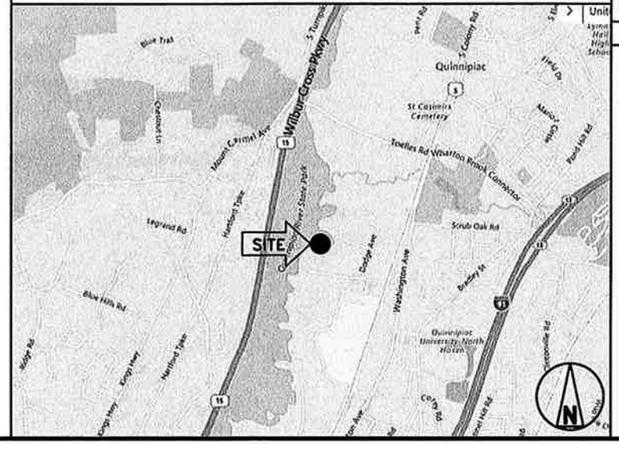
AAV PROVIDER:
TBD

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 (3) PANEL ANTENNAS AND RRH'S
- INSTALL (6) PANEL ANTENNAS
- INSTALL (6) 800 MHz RRH'S BEHIND ANTENNAS
- INSTALL (3) 1900 MHz RRH'S BEHIND ANTENNAS
- INSTALL (3) 2500 MHz RRH'S BEHIND ANTENNAS
- INSTALL (48) JUMPER CABLES
- INSTALL (4) HYBRID CABLES
- REMOVE EXISTING CLEARWIRE GROUND EQUIPMENT
- INSTALL (2) EQUIPMENT CABINETS WITHIN EXISTING LEASE AREA
- INSTALL 7'x7' CONCRETE EQUIPMENT PAD
- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS CABINET

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

APPLICABLE CODES

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

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

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

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	EQUIPMENT & MOUNTING DETAILS	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	EQUIPMENT DETAILS	0
A-7	CIVIL DETAILS	0
A-8	PLUMBING DIAGRAM	0
E-1	ONE LINE & NOTES	0
E-2	ELECTRICAL & GROUNDING DETAILS	0
E-3	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) 308-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
LICENSED PROFESSIONAL ENGINEER
JUL 12 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	07/09/18	ETC	0

SITE NAME:
NORTH HAVEN CT-1

SITE NUMBER:
CT52XC119

SITE ADDRESS:
15 DWIGHT STREET
NORTH HAVEN, CT 06473

SHEET DESCRIPTION:
TITLE SHEET
& PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

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

1.5 DEFINITIONS:

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

B. COMPANY: SPRINT CORPORATION

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

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

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

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

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

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

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

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

3.2 DELIVERABLES:

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

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

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

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 NOTICE TO PROCEED

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

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

PROJECT MANAGER:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED PROFESSIONAL ENGINEER
JUL 18 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	07/09/18	ETC	0

SITE NAME:

NORTH HAVEN CT-1

SITE NUMBER:

CT52XC119

SITE ADDRESS:

15 DWIGHT STREET
NORTH HAVEN, CT 06473

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)

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JOB NUMBER 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	07/09/18	ETC	0

SITE NAME:

NORTH HAVEN CT-1

SITE NUMBER:

CT52XC119

SITE ADDRESS:

15 DWIGHT STREET
NORTH HAVEN, CT 06473

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.

8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.

9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.

10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT

11. ALL AVAILABLE JURISDICTIONAL INFORMATION

12. PDF SCAN OF REDLINES PRODUCED IN FIELD

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

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

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

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.

2. STRUCTURAL BACKFILL COMPACTION REPORTS.

3. SITE RESISTANCE TO EARTH TEST.

4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION

5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.

6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.

2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;

3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.

4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;

6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.

7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.

8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.

9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

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

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

3.2 PROJECT CONFERENCE CALLS:

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

3.3 PROJECT TRACKING IN SMS:

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

3.4 ADDITIONAL REPORTING:

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

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. 1SHELTER AND TOWER OVERVIEW.

2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).

3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).

4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).

5. PHOTOS OF TOWER SECTION STACKING.

6. CONCRETE TESTING / SAMPLES.

7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.

8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.

9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.

10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.

11. COAX CABLE ENTRY INTO SHELTER.

12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.

14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.

15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.

16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.

17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.

18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.

19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.

21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

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

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

25. ALL BTS GROUND CONNECTIONS.

26. ALL GROUND TEST WELLS.

27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.

28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.

29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.

30. GPS ANTENNAS.

31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.

32. DOGHOUSE/CABLE EXIT FROM ROOF.

33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.

34. MASTER BUS BAR.

35. TELCO BOARD AND NIU.

36. ELECTRICAL DISTRIBUTION WALL.

37. CABLE ENTRY WITH SURGE SUPPRESSION.

38. ENTRANCE TO EQUIPMENT ROOM.

39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.

40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.

41. ANTENNA AND MAST GROUNDING.

42. LANDSCAPING – WHERE APPLICABLE.

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

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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
JUL 18 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	07/09/18	ETC	0

SITE NAME:

NORTH HAVEN CT-1

SITE NUMBER:

CT52XC119

SITE ADDRESS:

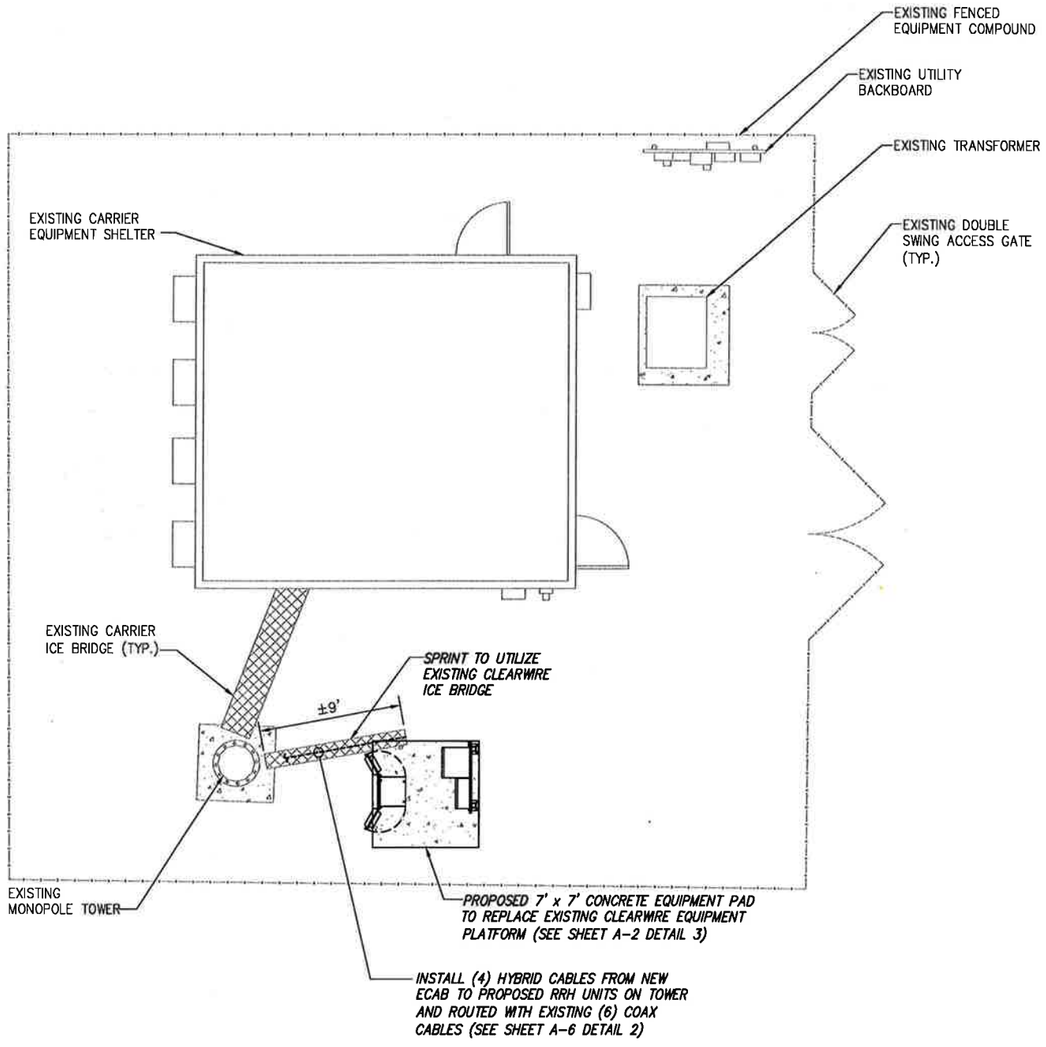
15 DWIGHT STREET
NORTH HAVEN, CT 06473

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3



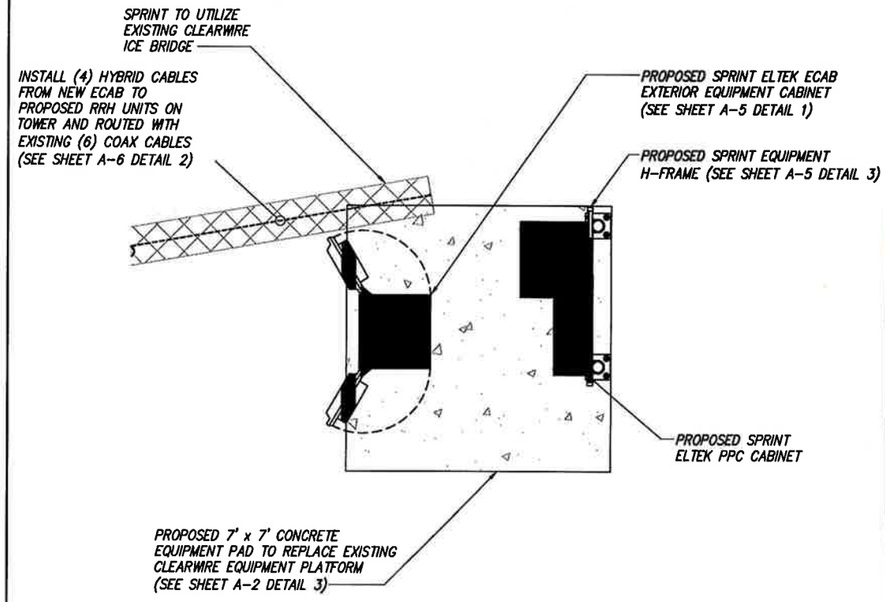
GRAPHIC SCALE:

10' 5' 0 5' 10'

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

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

OVERALL SITE PLAN | SCALE: AS NOTED | 1



GRAPHIC SCALE:

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:

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CT52XC119

SITE ADDRESS:

15 DWIGHT STREET
NORTH HAVEN, CT 06473

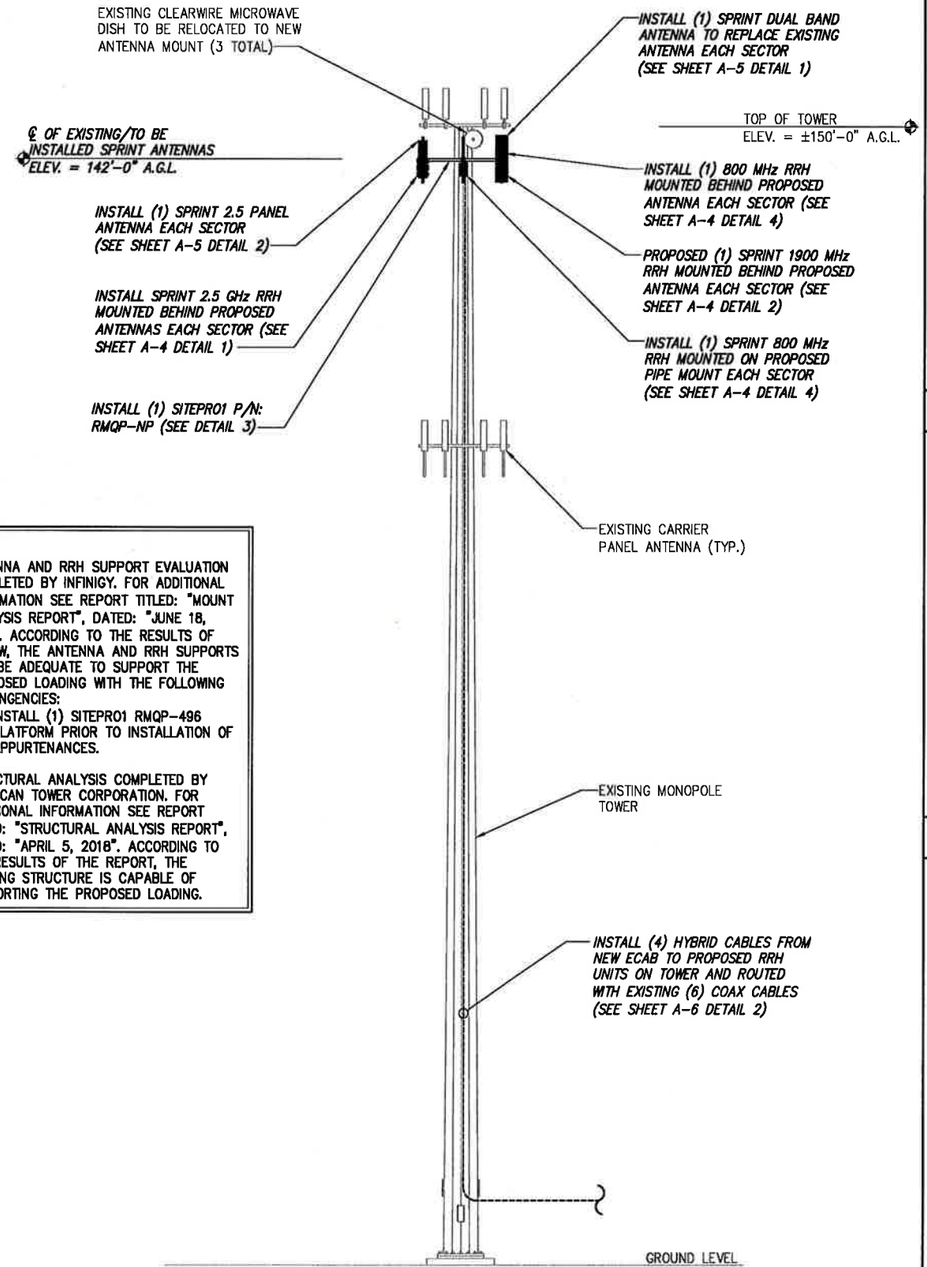
SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

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



NOTE:
- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "MOUNT ANALYSIS REPORT", DATED: "JUNE 18, 2018". ACCORDING TO THE RESULTS OF REVIEW, THE ANTENNA AND RRH SUPPORTS WILL BE ADEQUATE TO SUPPORT THE PROPOSED LOADING WITH THE FOLLOWING CONTINGENCIES:
  - INSTALL (1) SITEPRO1 RMQP-496 PLATFORM PRIOR TO INSTALLATION OF APPURTENANCES.
- STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT", DATED: "APRIL 5, 2016". ACCORDING TO THE RESULTS OF THE REPORT, THE EXISTING STRUCTURE IS CAPABLE OF SUPPORTING THE PROPOSED LOADING.

TOWER ELEVATION | NO SCALE | 1

SITE LOADING CHART

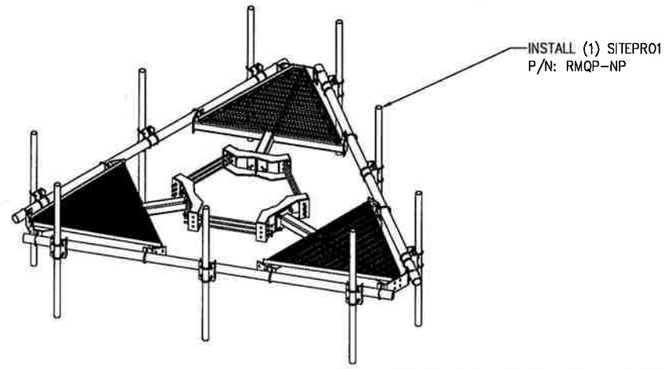
SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	NNVV-65B-R4	COMMSCOPE	0°	1	-	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1	±182'*	±142' AGL
	PROPOSED	APXVTM14-ALU-120	RFS	0°	1	-	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	0°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
BETA	PROPOSED	NNVV-65B-R4	COMMSCOPE	120°	1	-	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1		±142' AGL
	PROPOSED	APXVTM14-ALU-120	RFS	120°	1	-	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	120°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
GAMMA	PROPOSED	NNVV-65B-R4	COMMSCOPE	240°	1	-	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1		142' AGL
	PROPOSED	APXVTM14-ALU-120	RFS	240°	1	-	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	240°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		

PROJECT SCOPE:

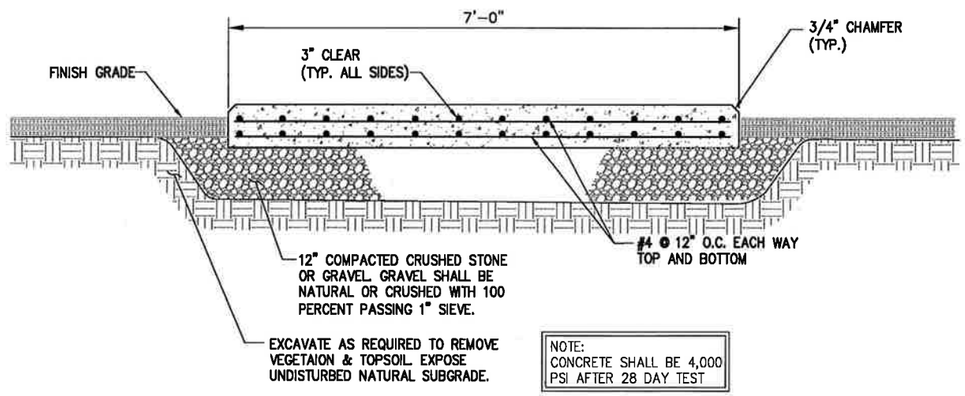
REMOVE: (3) PANEL ANTENNAS AND (3) RRH'S INSTALL: (6) PANEL ANTENNAS AND (12) RRH'S

* 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



MOUNT DETAIL | NO SCALE | 3



EQUIPMENT CABINET FOUNDATION | NO SCALE | 4

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www.infinigy.com
JOB NUMBER 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24795
LICENSED PROFESSIONAL ENGINEER
JUL 18 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	07/09/18	ETC	0

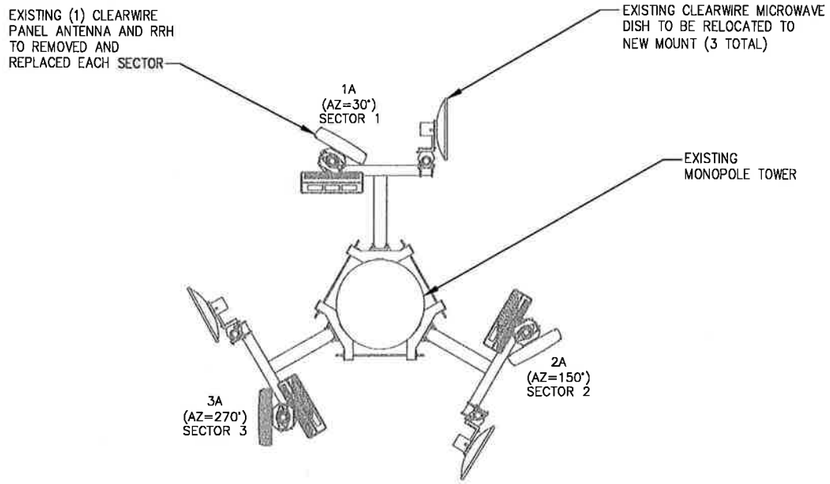
SITE NAME:
NORTH HAVEN CT-1

SITE NUMBER:
CT52XC119

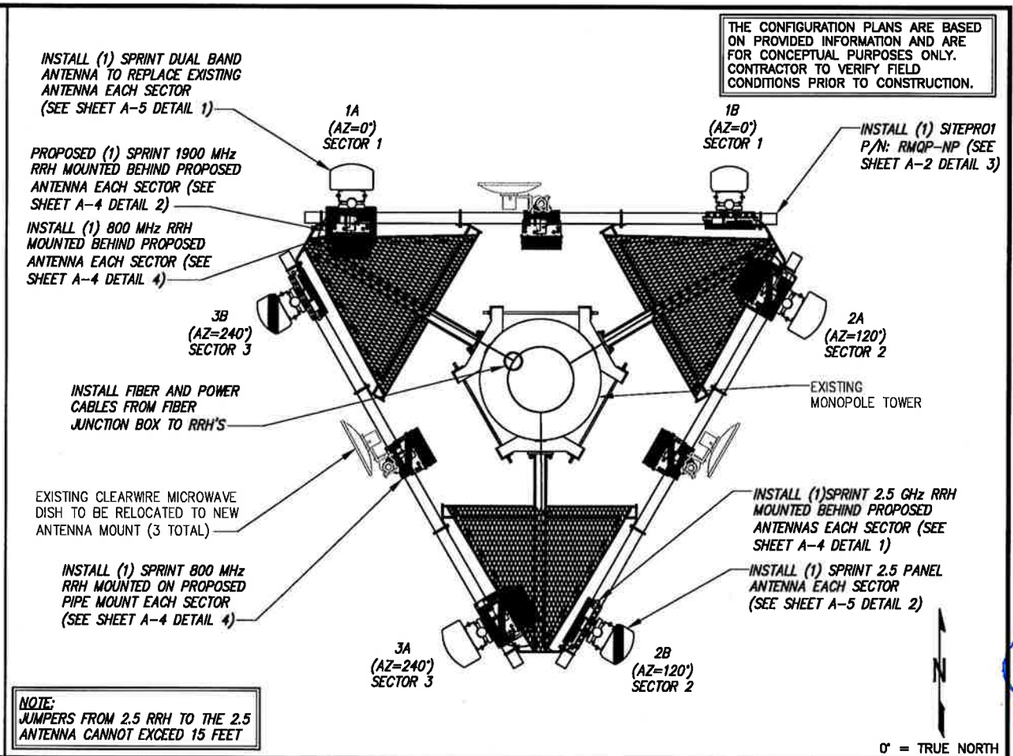
SITE ADDRESS:
15 DWIGHT STREET
NORTH HAVEN, CT 06473

SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



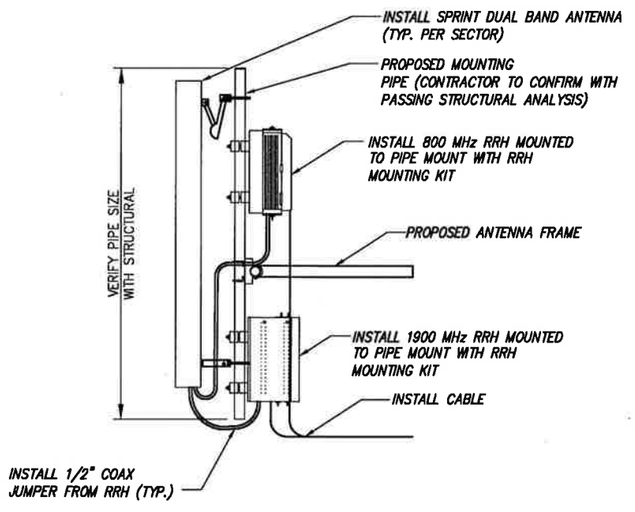
EXISTING ANTENNA LAYOUT | NO SCALE | 1



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

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

FINAL ANTENNA & RRH LAYOUT | NO SCALE | 2



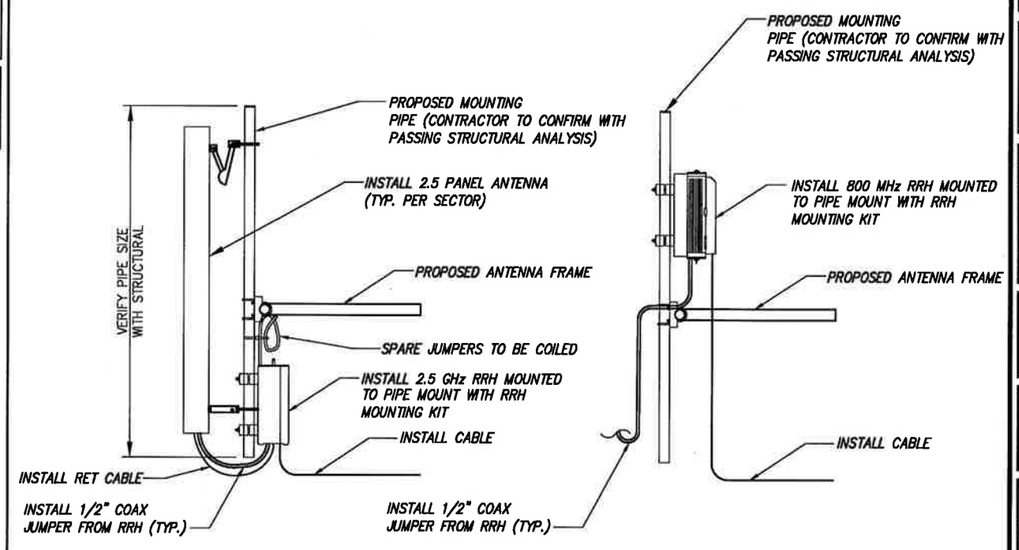
NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

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

NOTES:

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

TYPICAL DUAL BAND 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.

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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 | 4

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
JUL 18 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	07/09/18	ETC	0

SITE NAME:
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SITE NUMBER:
CT52XC119

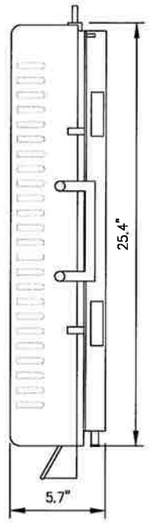
SITE ADDRESS:
15 DWIGHT STREET
NORTH HAVEN, CT 06473

SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

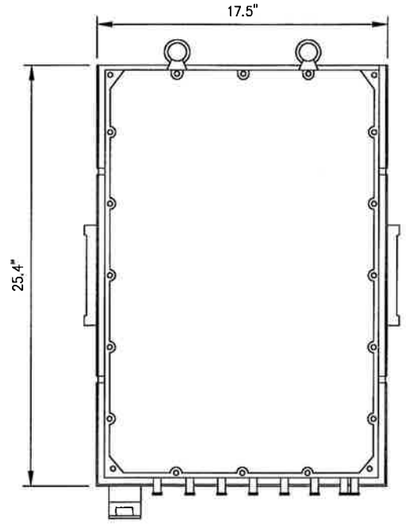
SHEET NUMBER:
A-3

RRH: ALCATEL LUCENT TD-RRH8X20

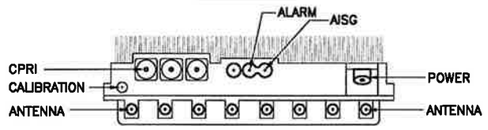
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

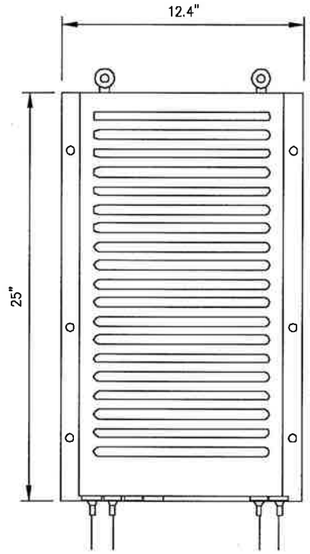
NOTES

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.

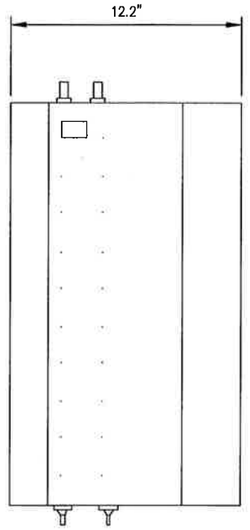
2.5 RRH'S	NO SCALE	1

RRH: ALCATEL LUCENT 1900 MHz

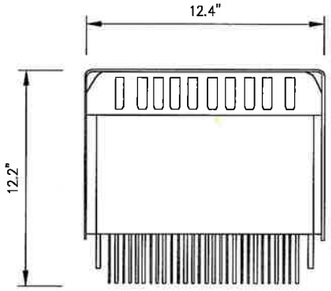
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW



TOP VIEW

1900 MHz RRH	NO SCALE	2

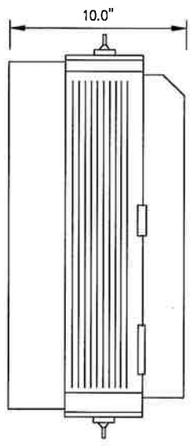
DETAIL NOT USED	NO SCALE	3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

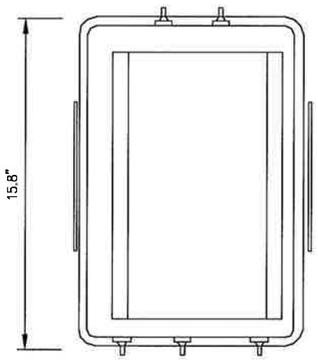
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

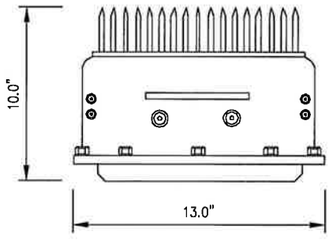
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW



PLAN VIEW

800 MHz RRH	NO SCALE	4

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JOB NUMBER 528-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

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JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
Jn 1 8 2018

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SITE NUMBER:

CT52XC119

SITE ADDRESS:

15 DWIGHT STREET
NORTH HAVEN, CT 06473

SHEET DESCRIPTION:

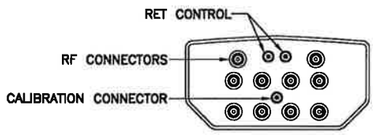
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-4

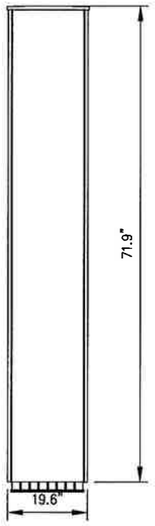
ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	71.9"x19.6"x7.8" (1826x498x198mm)
WEIGHT:	77.4 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE (8) 4.1/9.5 DIN FEMALE



PLAN VIEW

SIDE VIEW

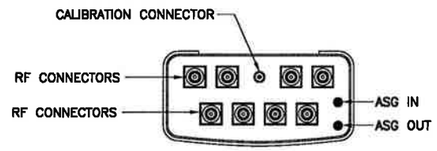


FRONT VIEW

DUAL BAND ANTENNA	NO SCALE	1

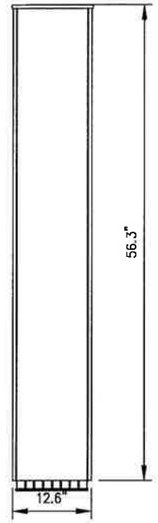
ANTENNA RFS APXVTM14-ALU-I20

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	2

DETAIL NOT USED	NO SCALE	3

DETAIL NOT USED	NO SCALE	4

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CT52XC119

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15 DWIGHT STREET
NORTH HAVEN, CT 06473

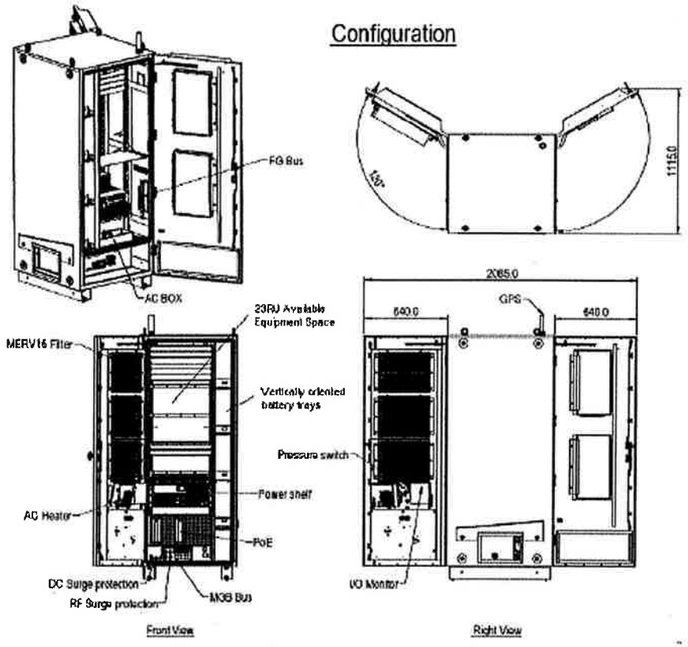
SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

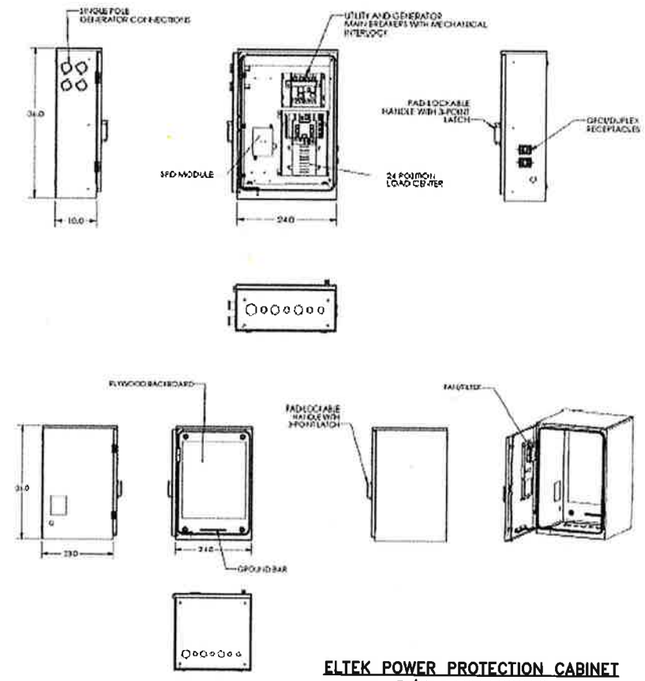
A-5

Configuration



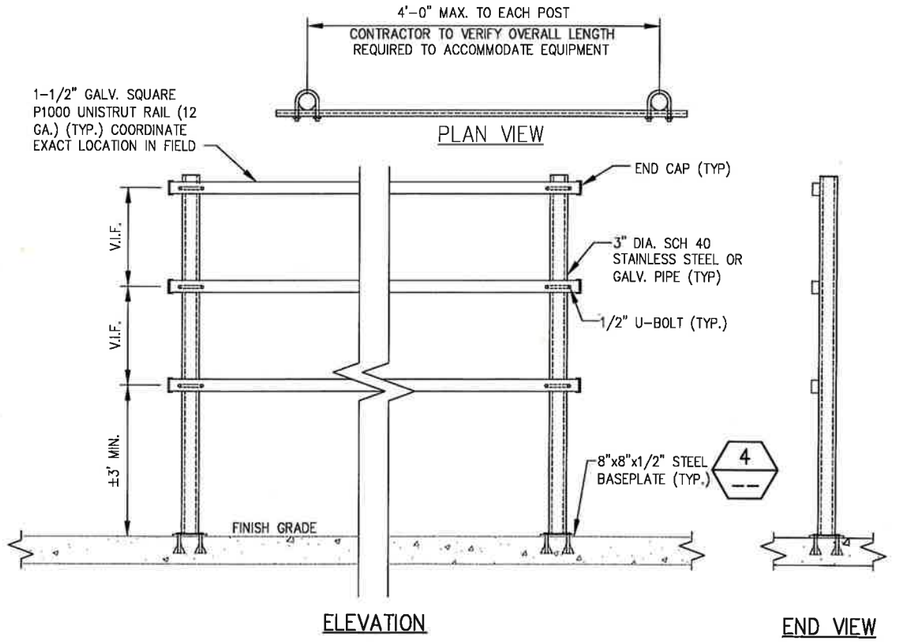
ELTEK ECAB EXTERIOR CABINET
P/N: ESOA220-SCA02

EQUIPMENT CABINET DETAIL | NO SCALE | 1

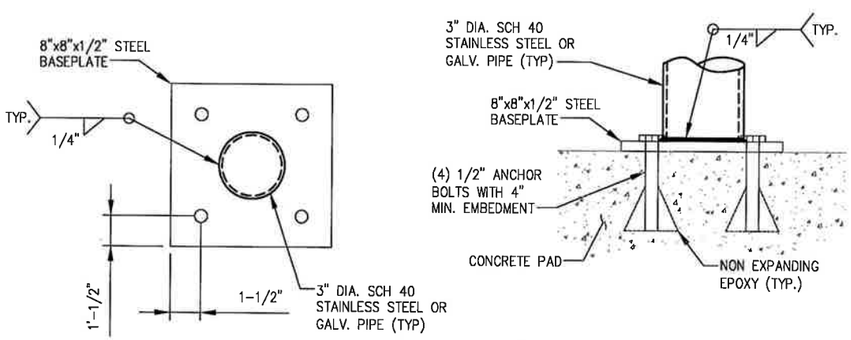


ELTEK POWER PROTECTION CABINET
P/N: 5811122212

EQUIPMENT CABINET DETAIL | NO SCALE | 2



H-FRAME DETAIL | NO SCALE | 3



SUPPORT POST MOUNTING DETAIL | NO SCALE | 4

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NORTH HAVEN, CT 06473

SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-6

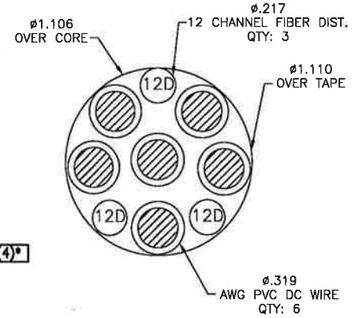
RFS HYBRIFLEX RISER CABLE SCHEDULE

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 (4)*
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	Hybrid cable MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	Hybrid cable MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

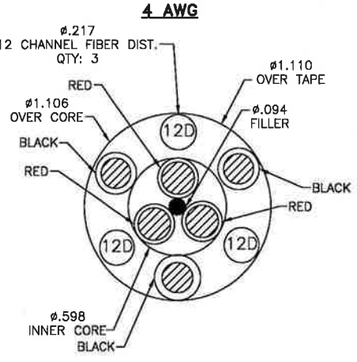
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

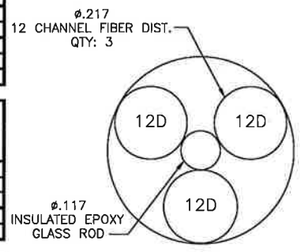
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG



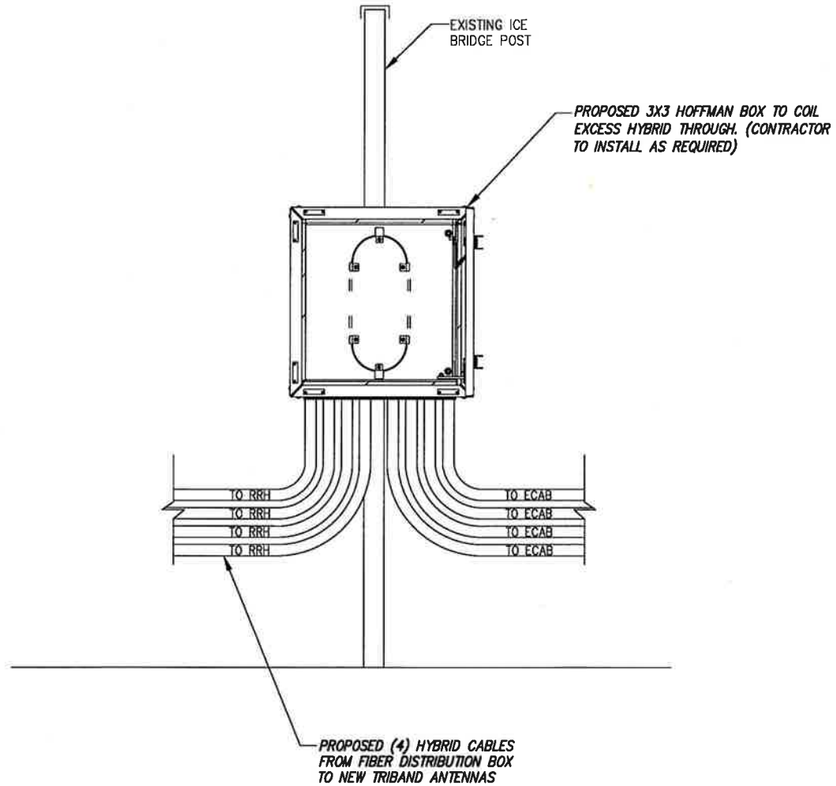
8 & 6 AWG



FIBER ONLY

* 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.

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



OPTIONAL HYBRID SLACK BOX | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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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
JUL 18 2018
PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	07/09/18	ETC	0

SITE NAME:
NORTH HAVEN CT-1

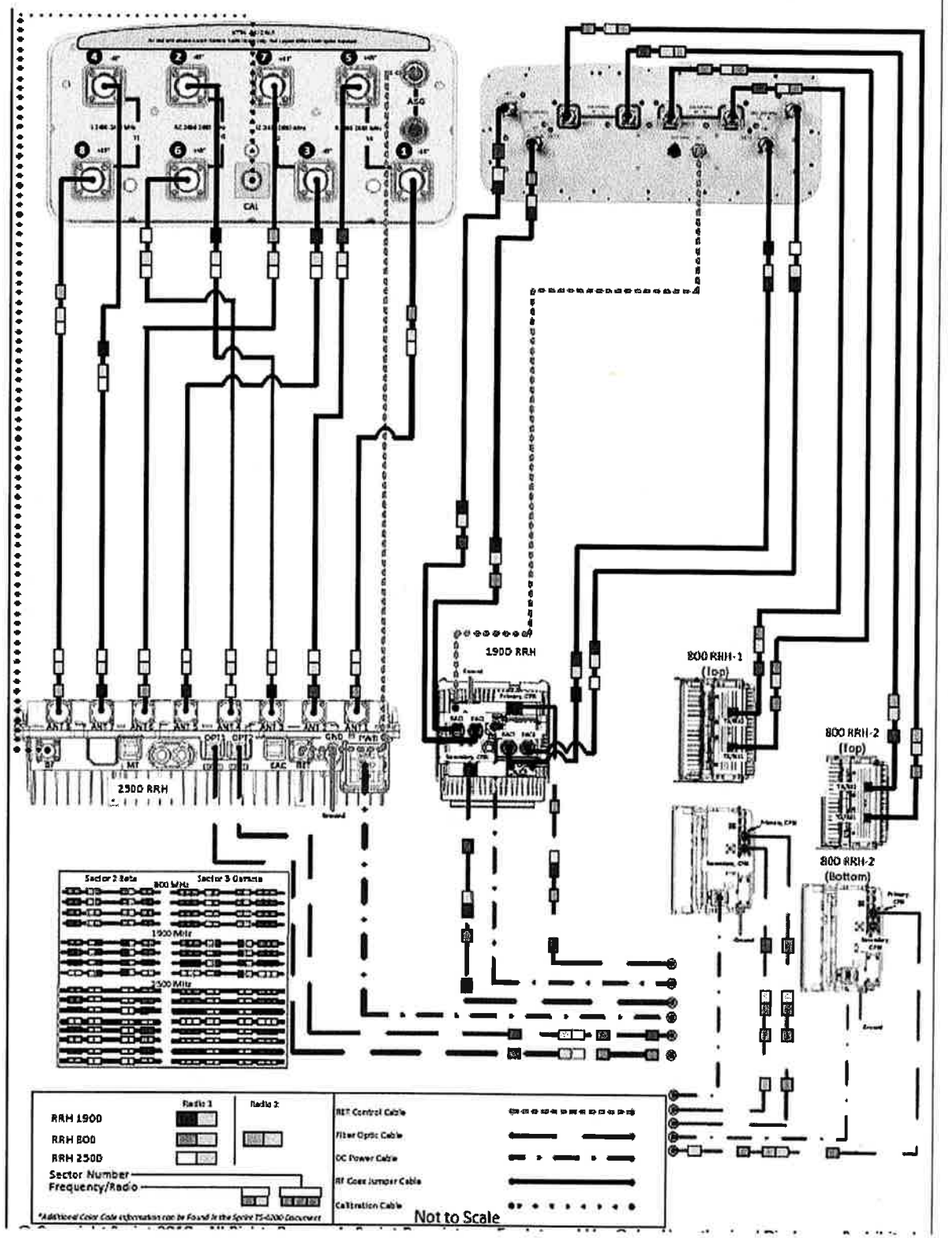
SITE NUMBER:
CT52XC119

SITE ADDRESS:
15 DWIGHT STREET
NORTH HAVEN, CT 06473

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-7

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



PLUMBING DIAGRAM | NO SCALE | 1

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24795
PROFESSIONAL ENGINEER
JUL 18 2018

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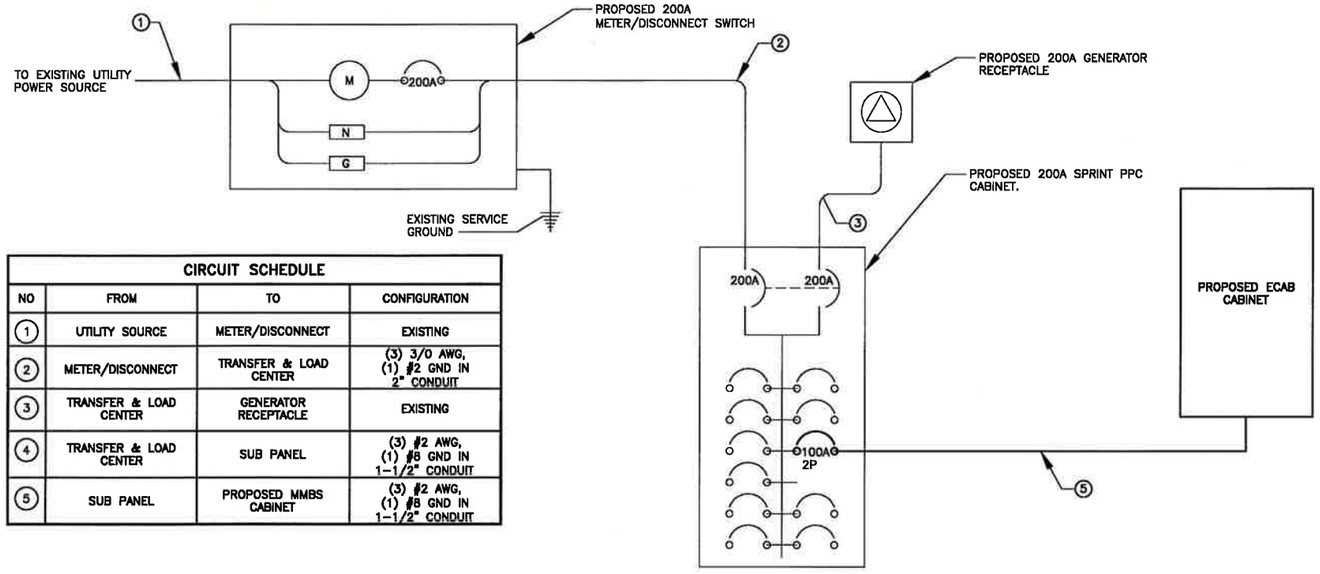
SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-8



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	(3) 3/0 AWG, (1) #2 GND IN 2" CONDUIT
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	SUB PANEL	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT
5	SUB PANEL	PROPOSED MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT

ONE LINE DIAGRAM | NO SCALE | 1

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED. CONDUITS EXPOSED ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL. ALL UNDERGROUND CONDUIT SHALL TRANSITION FROM PVC TO RIGID ABOVE GRADE. PROVIDE 36" SEPARATION BETWEEN UNDERGROUND POWER AND TELEPHONE CONDUITS. SUPPLY UTILITY MARKING TAPE BURIED 12" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
3. ALL CONDUCTORS SHALL BE COPPER WITH THHN/THWN INSULATION. CONTROL CONDUCTORS SHALL BE STRANDED, POWER & LIGHTING CONDUCTORS SHALL BE SOLID FOR #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL DRAWINGS ARE IN PART DIAGRAMMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONFLICTS ARISE, CONTACT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
6. ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF CAPS NOT DUCT TAPE.
7. PROVIDE 200 LB TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
8. PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC UTILITY REQUIREMENTS.

ELECTRICAL NOTES | NO SCALE | 2

GENERAL GROUNDING NOTES:

1. TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:
   – #2/0 BARE TINNED SOLID COPPER CONDUCTOR: CADWELD TO RODS OR GROUND RING
   – LUGS AND BUS BAR (UNLESS NOTED OTHERWISE): SANDED CLEAN, COATED WITH OXIDE INHIBITOR AND BOLTED FOR MAXIMUM SURFACE CONTACT. ALL LUGS SHALL BE COPPER (NO ALUMINUM SHALL BE PERMITTED). PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
2. ALL GROUNDING CABLE IN CONCRETE OR THROUGH WALLS SHALL BE IN 3/4" PVC CONDUIT. SEAL AROUND CONDUIT THROUGH WALLS. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS.
3. OWNER'S REPRESENTATIVE WILL INSPECT CADWELDS AND CONDUCT MEGGER TEST PRIOR TO BURIAL. MAXIMUM 5 OHMS RESISTANCE IS REQUIRED.
4. DO NOT INSTALL GROUND RING OUTSIDE OF LEASED AREA.
5. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS SHALL BE A MINIMUM 8" RADIUS AND NO GREATER THAN 90 DEGREES.
6. ALL CADWELDS TO BURIED GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE TEE TYPE.
7. BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS. DO NOT EXOTHERMICALLY WELD TO CONDUITS.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
9. THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'-0" (MAX. 15'-0").
10. BOND CIGBE TO EXTERNAL GROUND RING WITH 2 RUNS OF #2 BARE, TINNED, SOLID COPPER CONDUCTOR IN PVC. CONNECT BAR END WITH 2 HOLE LUG, AND "CADWELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
11. THE PREFERRED LOCATION FOR COAX GROUNDING IS AT THE BASE OF THE TOWER PRIOR TO THE COAX BEND. BONDING IS SHOWN ON THE ICE BRIDGE DUE TO DIFFICULTY WITH WELDING OR ATTACHING TO TOWER LEGS. CONTRACTOR SHALL ADVISE CONSTRUCTION MANAGER PRIOR TO PLACING CIGBE ON ICE BRIDGE IF MOUNTING TO TOWER LEG IS POSSIBLE.
12. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250-30.

GROUNDING NOTES | NO SCALE | 3

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JOB NUMBER 526-104

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

ENGINEER OF RECORD:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24070
LICENSED PROFESSIONAL ENGINEER
JUL 18 2018

REVISIONS:

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SITE NUMBER:
CT52XC119

SITE ADDRESS:
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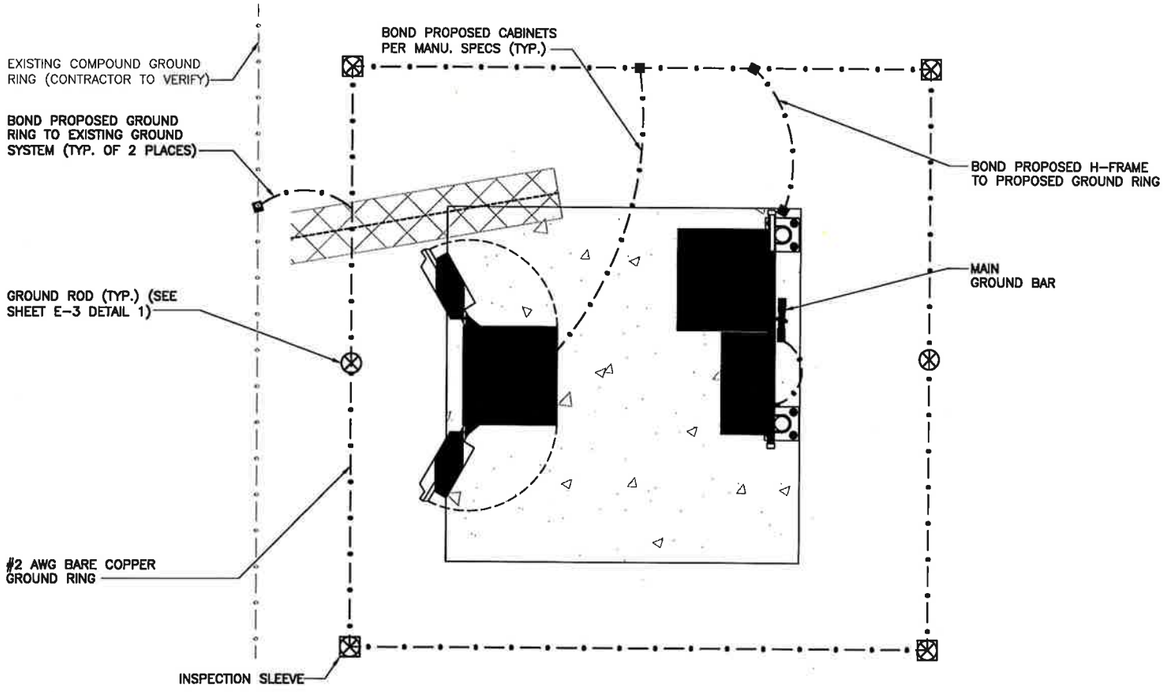
SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1



LEGEND:

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

GROUNDING PLAN

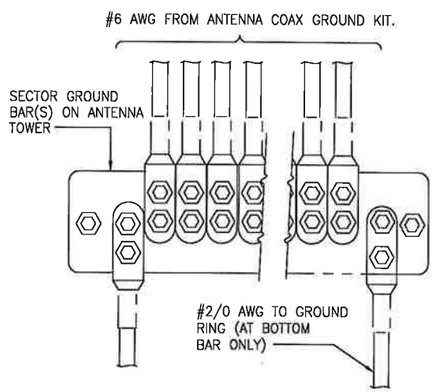
NO SCALE | 1

NOTE:
1. COPPER GROUND BAR 1/4"x4"x24" 2-HOLE CONTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. SIMILAR INSTALLATION FOR TOP AND BOTTOM TOWER GROUND BARS AND FOR COAX ENTRY PORT GROUND BARS.

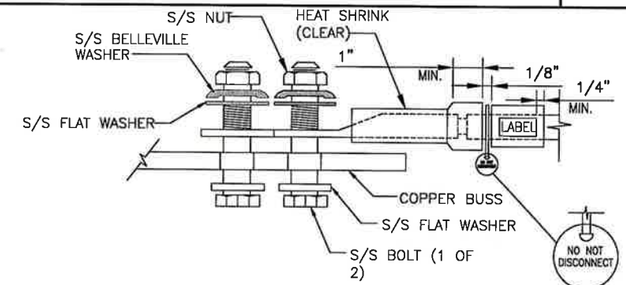
LEGEND

1 – TINNED COPPER GROUND BAR, 1/4"x 4"x 24"
2 – INSULATORS (NO INSULATORS ON TOWER)
3 – 5/8" LOCK WASHERS
4 – MOUNTING BRACKET (MOUNT HORIZONTAL ON VERTICAL CABLE LADDER)
5 – 5/8-11 X 1" H.H.C.S.BOLTS
6 – "LOCTITE" THREAD LOCK (RED) ON ALL REMOVABLE BOLTS

TINNED GROUND BAR DETAIL | NO SCALE | 2

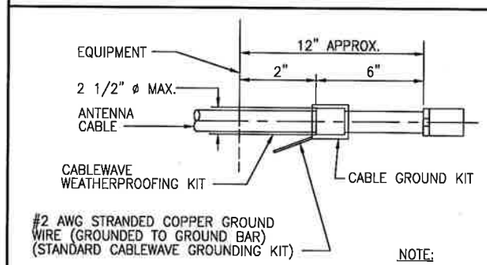


ANTENNA GROUND WIRE INSTALLATION | NO SCALE | 3



NOTE:
ALL MECHANICAL EXTERNAL TERMINATION SURFACES SHALL BE TREATED WITH T&B KOPR-SHIELD CP8 ANTI-OXIDATION COMPOUND.

EQUIPMENT GROUND CONNECTION | NO SCALE | 4



NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

CABLE GROUND KIT CONNECTION | NO SCALE | 5

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

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STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
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SHEET DESCRIPTION:
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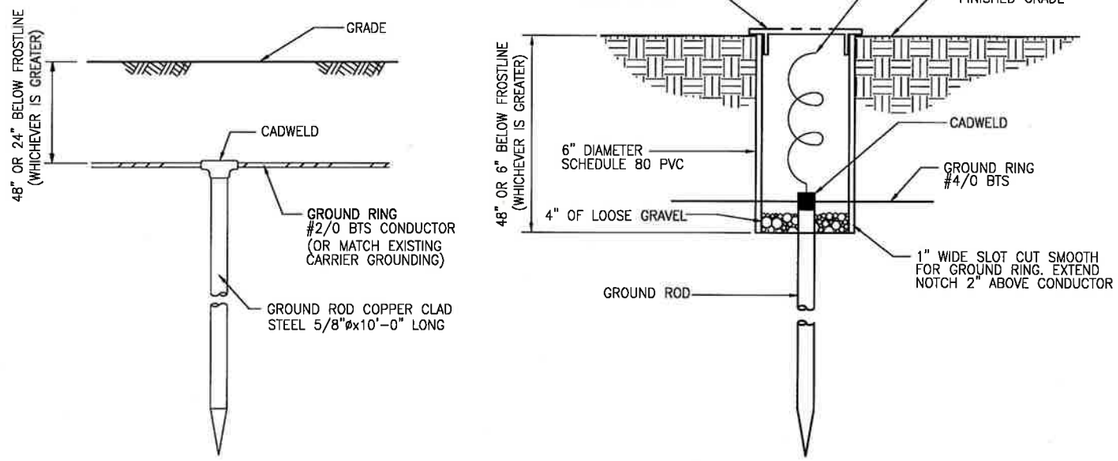
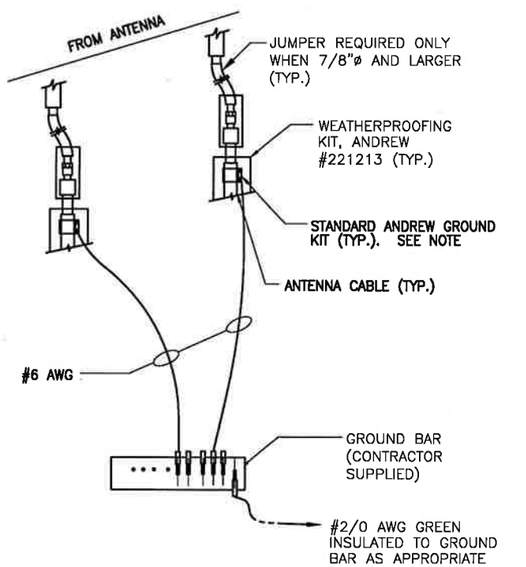
SHEET NUMBER:
E-2



GROUND ROD & INSPECTION SLEEVE DETAIL | NO SCALE | 1

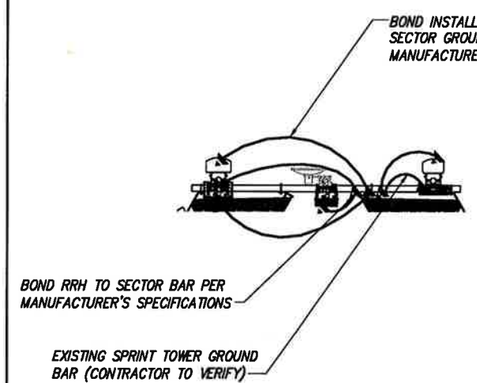


NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

CONNECTION OF GROUND WIRES TO GROUND BARS @ ANTENNAS | NO SCALE | 2

LEGEND:

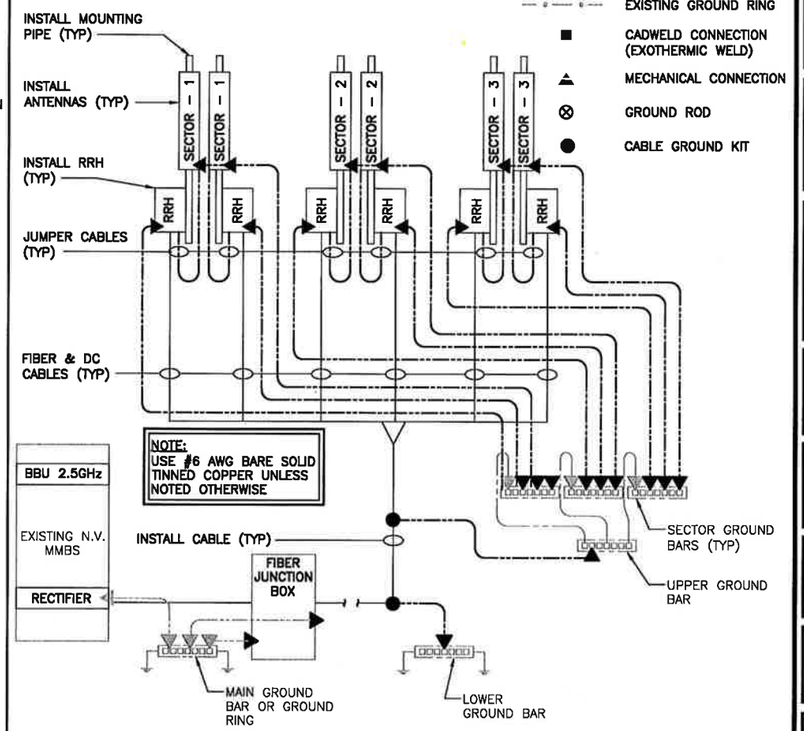
- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 3

LEGEND:

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



GROUNDING RISER DIAGRAM | NO SCALE | 4

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ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-3