AIROSMITH DEVELOPMENT
We do it right the first time.

March 06th, 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 1725 Stafford Road, Mansfield, CONNECTICUT – CT33XC557 (lat. 41° 50' 9.43" N, long. -72° 18' 28.25" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (130-foot level) on an existing (170-foot tower) at the above-referenced address. The tower is owned by the Town of Mansfield and managed by American Tower Corporation.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to install three (3) antennas and add three (3) RRHs on 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 JOHN CARRINGTON, INTERIM TOWN MANAGER and LINDA PAINTER, DIRECTOR of PLANNING & DEVELOPMENT for the Town of MANSFIELD. A copy of this letter is also being sent to the Town of Mansfield the owner of the property on which the tower is located.

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 an addition of three (3) new facility components.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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

AIROSMITH DEVELOPMENT
We do it right the first time.

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).

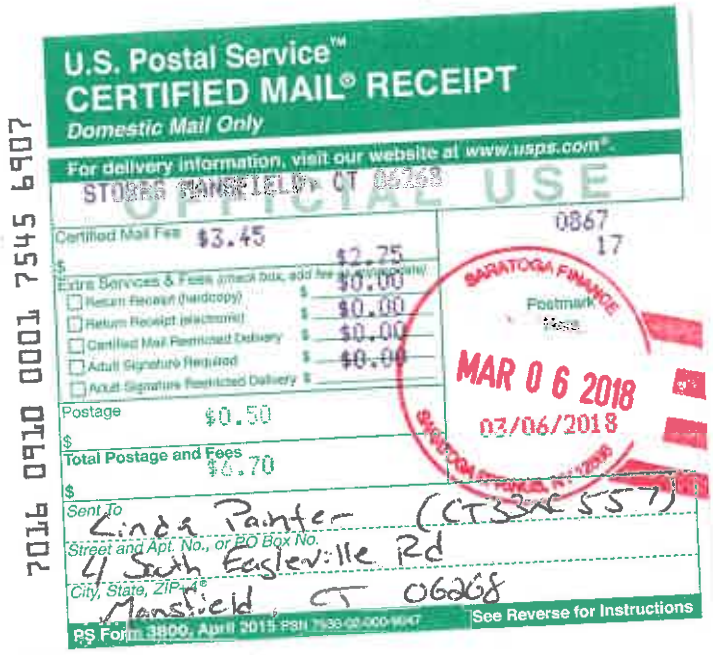
If you have any questions or require any additional information regarding this request, please do not hesitate to give me a call at (518) 350-4222 or email me to aperkowski@airosmithdevelopment.com

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: TOWN OF MANSFIELD (Land/TOWER Owner)
JOHN CARRINGTON (Interim Town Manager, MANSFIELD, CT)
LINDA PAINTER (Director of Planning & Development, MANSFIELD, CT)



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

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

STORRS MANSFIELD CT 06268

OFFICIAL USE

Certified Mail Fee $3.45
$2.75
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.50

Total Postage and Fees $6.70

Sent To Linda Painter (CT3xx557)

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

City, State, ZIP+4® Mansfield CT 06268

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

0867 17

SARATOGA FINANCE

Postmark Here

MAR 06 2018

03/06/2018

7016 0910 0001 7545 6907

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

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

STORRS MANSFIELD CT 06268

OFFICIAL USE

Certified Mail Fee $3.45
$2.75
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.50

Total Postage and Fees $6.70

Sent To John Carrington (CT33xx57)

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

City, State, ZIP+4® Mansfield CT 06268

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

SARATOGA FINANCE

Postmark Here

MAR 06 2018

7016 0910 0001 7545 6891

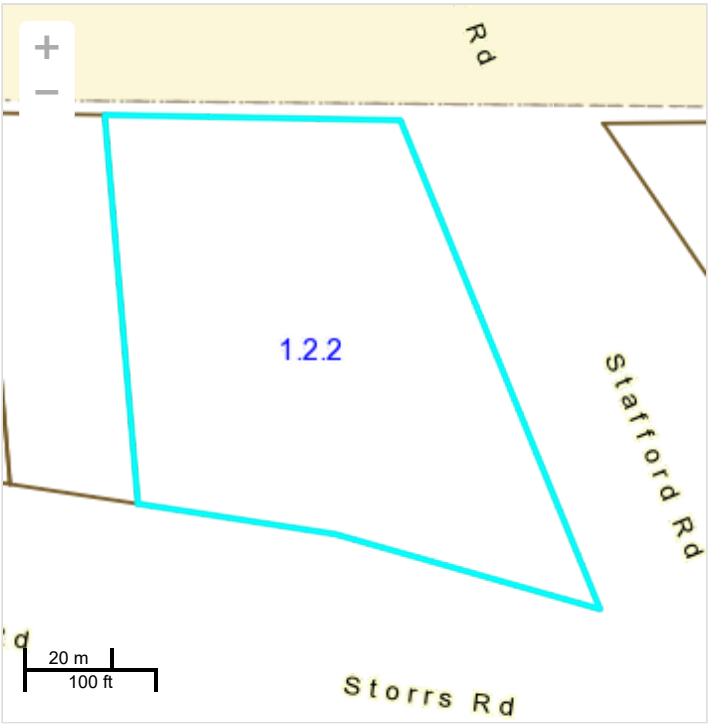
Town of Mansfield, Connecticut

Property Record Card

Card 1 of 1

1725 STAFFORD RD

ID: **1.2.2** Account #: **1 2 2**



Owner: MANSFIELD TOWN OF
Co-Owner: BUS GARAGE
Address: 4 SO EAGLEVILLE RD
STORRS MANSFIELD CT 06268

Assessment: Total: 338400, Assessed Value:
Building: 151400 Land: 179900 Yard: 7100

Sales History

Grantor	Book / Page	Sale Date	Sale Price
SMYTH F EDWIN RHODA G+RICHARD	173/ 9	1979-07-23	
PROBATE CERTIFICATE	350/ 479	1994-05-06	
SMYTH RICHARD E &	359/ 389	1995-03-13	
SMYTH RICHARD E	362/ 498	1995-06-22	55817
MANSFIELD TOWN OF	391/ 486	1997-10-17	

MainStreetGIS

MainStreetGIS, LLC
www.mainstreetgis.com

Land Information
Land Area: 1.1 AC Zoning: (See Official Zoning Map)
Land Use: 9AC2 - Excess Front
Neighborhood:

Building Information
Style:
Year Built: 1980
Stories:
Rooms: Bedrooms:
Baths: Half Baths:
Living Area:
Finished Basement:

Heat Fuel:
Heat Type:
AC Type:
Roof Structure:
Roof Covering:
Exterior Wall 1:
Exterior Wall 2:
Interior Floor 1:
Interior Floor 2:

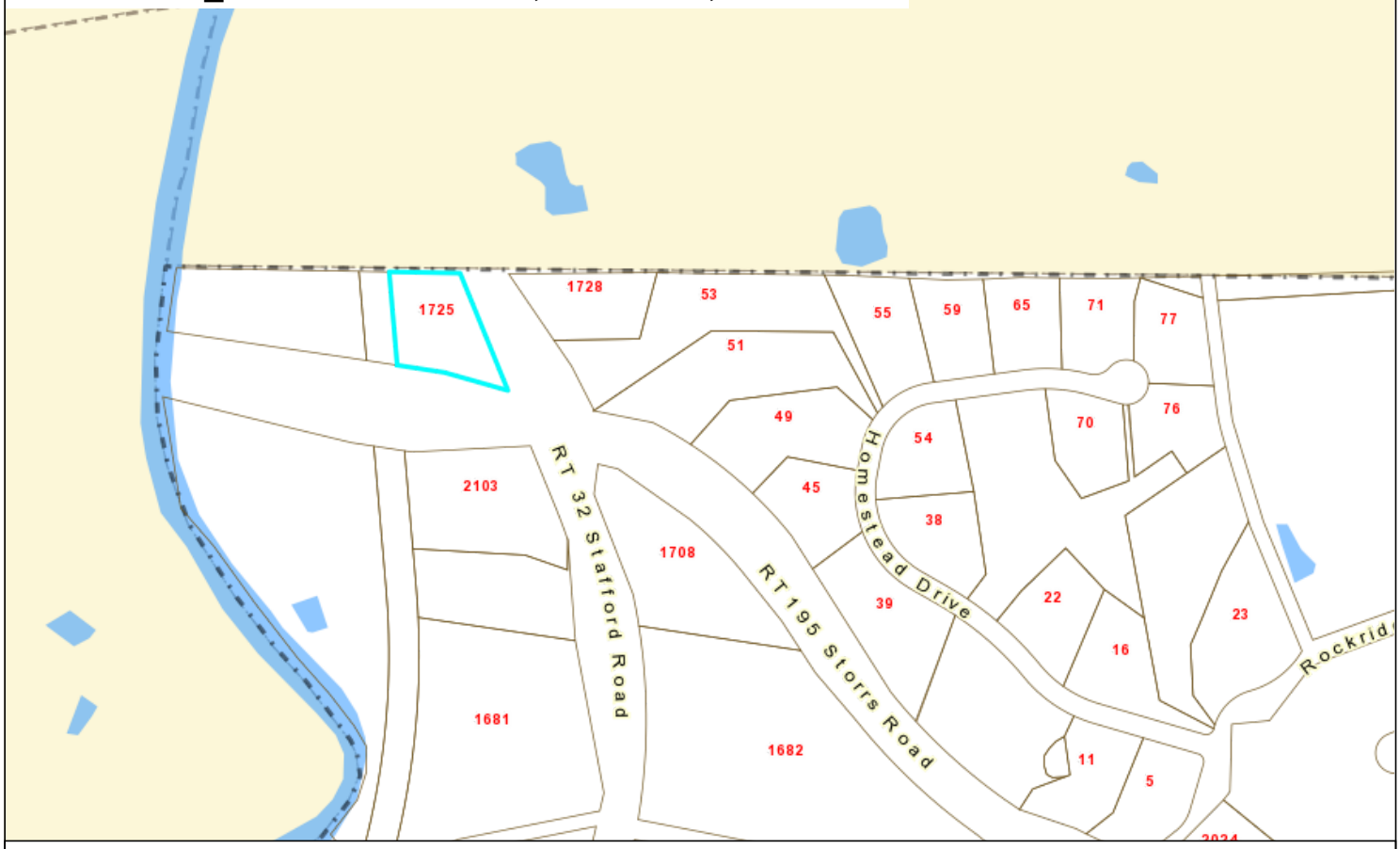
Extra Features

Description	Area / Units	Assessment
Paving	8000	7100
Mezz-Part Fin	400	3700

Sub Areas

Description	Living Area	Gross Area
BAS - First Floor	6300	6300

CT33XC557_1725 Stafford Road, Mansfield, CT 066268



Town of Mansfield, Connecticut

Selected Parcel: 1725 STAFFORD RD ID: 1.2.2

Printed 3/6/2018 from http://www.mainstreetmaps.com/ct/mansfield/public.asp

100 m
200 ft

N

MainStreetGIS
MainStreetGIS, LLC
www.mainstreetgis.com

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT33XC557

TCP/Mansfield
1725 Stafford Road
Mansfield, CT 06268

August 30, 2017

EBI Project Number: 6217003873

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	9.43 %

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

EBI Consulting
environmental | engineering | due diligence

August 30, 2017

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

Emissions Analysis for Site: **CT33XC557 – TCP/Mansfield**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **1725 Stafford Road, Mansfield, 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.

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **1725 Stafford Road, Mansfield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

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

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20 and the RFS APXV9TM14-C-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **130 feet** above ground level (AGL) for **Sector A**, **130 feet** above ground level (AGL) for **Sector B** and **130 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**130 feet**	Height (AGL):	**130 feet**	Height (AGL):	**130 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):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**2.00 %**	Antenna B1 MPE%	**2.00 %**	Antenna C1 MPE%	**2.00 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXV9TM14-C-I20	Make / Model:	RFS APXV9TM14-C-I20	Make / Model:	RFS APXV9TM14-C-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**130 feet**	Height (AGL):	**130 feet**	Height (AGL):	**130 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%	**1.45 %**	Antenna B2 MPE%	**1.45 %**	Antenna C2 MPE%	**1.45 %**

Site Composite MPE%	
Carrier	**MPE %**
SPRINT – Max per sector	**3.45 %**
Town	0.40 %
T-Mobile	2.33 %
AT&T	1.66 %
Verizon Wireless	1.59 %
0	0.00 %
0	0.00 %
Site Total MPE %:	**9.43 %**

SPRINT Sector A Total:	3.45 %
SPRINT Sector B Total:	3.45 %
SPRINT Sector C Total:	3.45 %
Site Total:	9.43 %

SPRINT _ Max Values per Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	130	1.02	850 MHz	567	0.18%
Sprint 850 MHz LTE	2	437.55	130	2.05	850 MHz	567	0.36%
Sprint 1900 MHz (PCS) CDMA	5	622.47	130	7.28	1900 MHz (PCS)	1000	0.73%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	130	7.28	1900 MHz (PCS)	1000	0.73%
Sprint 2500 MHz (BRS) LTE	8	778.09	130	14.55	2500 MHz (BRS)	1000	1.46%
						Total*:	**3.45%**

*NOTE: Totals may vary by 0.01% due to summing of remainders

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:	3.45 %
Sector B:	3.45 %
Sector C:	3.45 %
SPRINT Maximum Total (per sector):	3.45 %
Site Total:	9.43 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.43 %** 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.

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

TOWER ENGINEERING PROFESSIONALS

Structural Analysis Report

Structure	:	**170 ft Monopole**
ATC Site Name	:	**Mansfield Center 2 CT, CT**
ATC Site Number	:	**376047**
Engineering Number	:	**OAA716740_C3_01**
Proposed Carrier	:	**Sprint Nextel**
Carrier Site Name	:	**TCP/Mansfield**
Carrier Site Number	:	**CT33XC557**
Site Location	:	**1725 Stafford Road** **Storrs Mansfield, CT 06268-1138** **41.836000,-72.307800**
County	:	**Tolland**
Date	:	**November 15, 2017**
Max Usage	:	**48%**
Result	:	**Pass**

Prepared By:
Jordan Russ
TEP

Reviewed By:

STATE OF CONNECTICUT
AARON THOMAS RUCKER
32608
LICENSED
PROFESSIONAL ENGINEER

11/15/2017

COA: PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 170 ft monopole to reflect the change in loading by Sprint Nextel.

Supporting Documents

Tower Drawings	PennSummit, PJF Job #29202-0365, dated December 6, 2002
Foundation Drawing	PennSummit, PJF Job #29202-0365, dated December 6, 2002
Geotechnical Report	GEOServices Project #31-151383K, dated December 21, 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:	101 mph (3-Second Gust, V_{asd}) / 130 mph (3-second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$Ss = 0.17$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
170.0	172.0	6	RFS FD9R6004/2C-3L (3.1 lbs)	Low Profile Platform	(12) 1 5/8" Coax (1) 1 5/8" Hybriflex	Verizon
		6	Alcatel-Lucent RRH2X60-AWS			
		3	Antel BXA-70080-4BF-EDIN-X			
		1	RFS DB-T1-6Z-8AB-0Z			
		3	Andrew LNX-6514DS-A1M			
		6	Commscope HBXX-6517DS-A2M			
162.0	162.0	3	Andrew HBX-6516DS-VTM	T-Arms	(6) 1 5/8" Coax (1) 3/8" RET Control Cable	Metro PCS
148.0	148.0	6	Powerwave LGP21901	Low Profile Platform	(2) 3" Conduit (12) 1/2" Coax (12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk	AT&T Mobility
		6	Powerwave LGP21401			
		6	Ericsson RRUS 11 (Band 12)			
		1	SSB (27 lb)			
		6	Powerwave 7770.00			
		2	KMW AM-X-CD-16-65-00T-RET			
		1	Powerwave P65-17-XLH-RR			
143.0	143.0	3	Ericsson KRY 112 144/1	Low Profile Platform	(12) 1 5/8" Coax	T-Mobile
		3	RFS APXV18-203219-C (54.1" x 11.3")			
		3	Commscope LNX-6515DS-VTM			
	136.0	3	Andrew ATSBT-BOTTOM-MF			
130.0	130.0	3	Alcatel-Lucent RRH 1900MHz	Low Profile Platform	(3) 1 1/4" Hybriflex (1) 1 5/8" Hybriflex	Sprint Nextel
		3	Alcatel-Lucent 800MHz RRH			
		3	Alcatel-Lucent TD-RRH8x20-25			
		3	RFS APXV9TM14-ALU-I20			
		3	RFS APXV9ERR18-C (62 lbs)			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as proposed						

[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).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	47%	Pass
Shaft	48%	Pass
Base Plate	36%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	5,555.0	7,499.3	3,489.2	47%
Shear (Kips)	45.0	60.8	29.5	49%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
No loading considered as proposed				

***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 are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

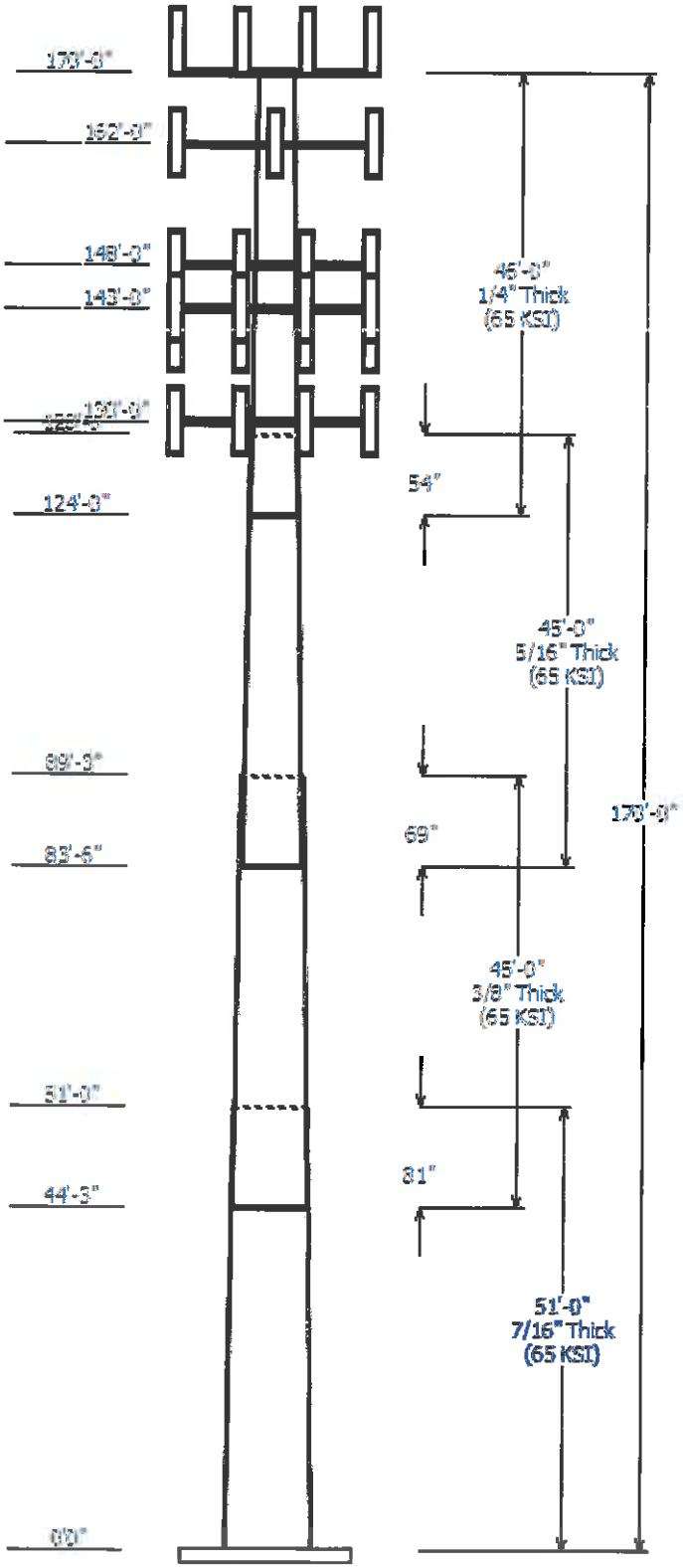
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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 we supply.



Job Information

Pole :	376047	Code:	ANSI/TIA-222-G
Description :			
Client :	SPRINT NEXTEL	Struct Class :	II
Location :	MANSFIELD CENTER 2 CT, CT		
Shape :	18 Sides	Exposure :	B
Height :	170.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.247029 (in/ft)		

Sections Properties

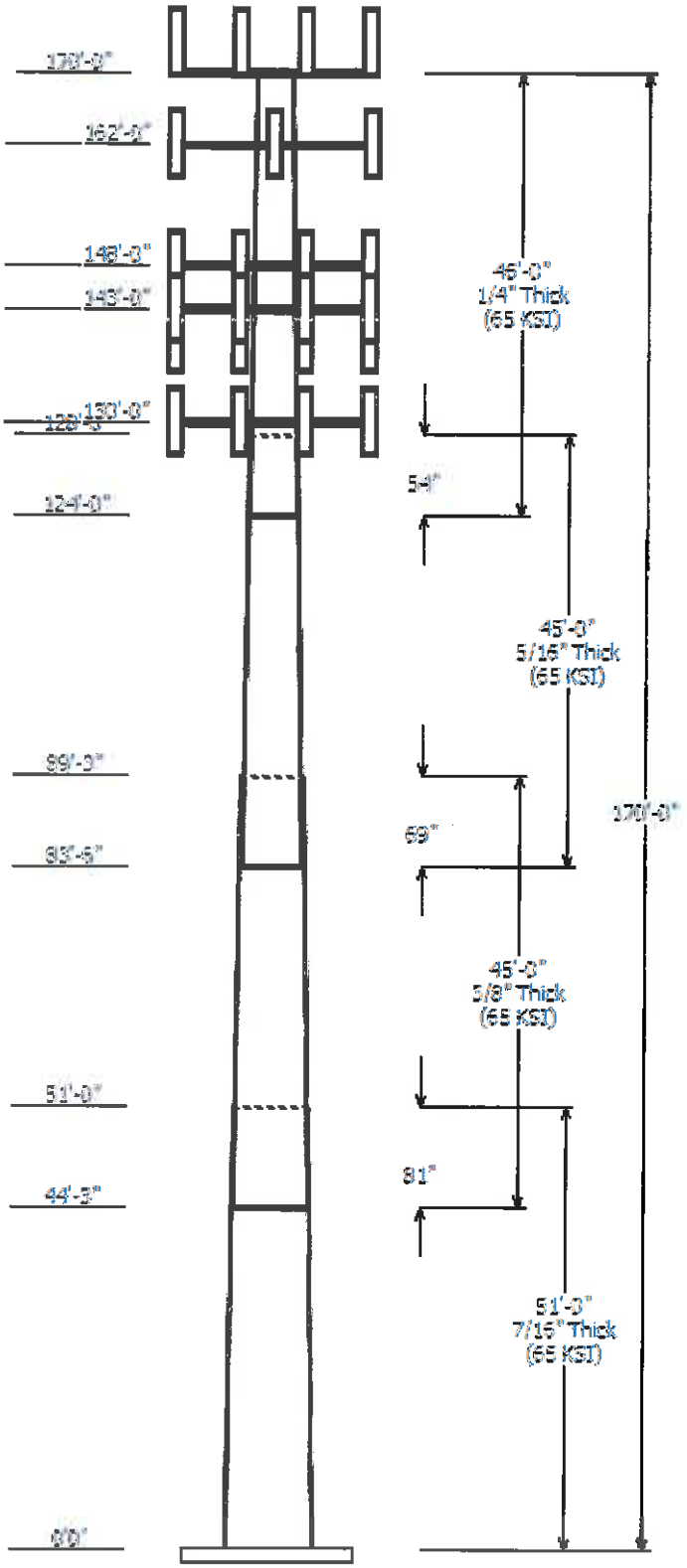
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	51.000	51.52	64.12	0.438		0.000	0.247000	65
2	45.000	42.82	53.93	0.375	Slip Joint	81.000	0.247000	65
3	45.000	33.75	44.86	0.313	Slip Joint	69.000	0.247000	65
4	46.000	24.00	35.36	0.250	Slip Joint	54.000	0.247000	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
170.000	172.000	6	Commscope HBXX-6517DS-
170.000	172.000	1	RFS DB-T1-6Z-8AB-0Z
170.000	172.000	3	Antel BXA-70080-4BF-EDIN-X
170.000	172.000	6	Alcatel-Lucent RRH2X60-AWS
170.000	172.000	6	RFS FD9R6004/2C-3L (3.1 lbs)
170.000	172.000	3	Andrew LNX-6514DS-A1M
170.000	170.000	1	Flat Low Profile Platform
162.000	162.000	3	Round T-Arm
162.000	162.000	3	Andrew HBX-6516DS-VTM
148.000	148.000	1	SSB (27 lb)
148.000	148.000	1	Flat Low Profile Platform
148.000	148.000	1	Powerwave P65-17-XLH-RR
148.000	148.000	2	KMW AM-X-CD-16-65-00T-RET
148.000	148.000	6	Powerwave 7770.00
148.000	148.000	6	Ericsson RRUS 11 (Band 12)
148.000	148.000	6	Powerwave LGP21401
148.000	148.000	6	Powerwave LGP21901
143.000	136.000	3	Andrew ATSBT-BOTTOM-MF
143.000	143.000	1	Round Low Profile Platform
143.000	143.000	3	Commscope LNX-6515DS-VTM
143.000	143.000	3	RFS APXV18-203219-C (54.1" x 1
143.000	143.000	3	Ericsson KRY 112 144/1
130.000	130.000	1	Flat Low Profile Platform
130.000	130.000	3	RFS APXV9ERR18-C (62 lbs)
130.000	130.000	3	RFS APXV9TM14-ALU-I20
130.000	130.000	3	Alcatel-Lucent TD-RRH8x20-25
130.000	130.000	3	Alcatel-Lucent 800MHz RRH
130.000	130.000	3	Alcatel-Lucent RRH 1900 MHz

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
5.000	130.0	1 1/4" Hybriflex	No
5.000	130.0	1 5/8" Hybriflex	No
5.000	143.0	1 5/8" Coax	No
5.000	148.0	0.39" (10mm)	No
5.000	148.0	0.78" (19.7mm) 8	No
5.000	148.0	1 5/8" Coax	No
5.000	148.0	1/2" Coax	No
5.000	148.0	3" Conduit	No



5.000	162.0	1 5/8" Coax	No
5.000	162.0	3/8" (0.38"-	No
5.000	170.0	1 5/8" Coax	No
5.000	170.0	1 5/8" Hybriflex	No

Load Cases

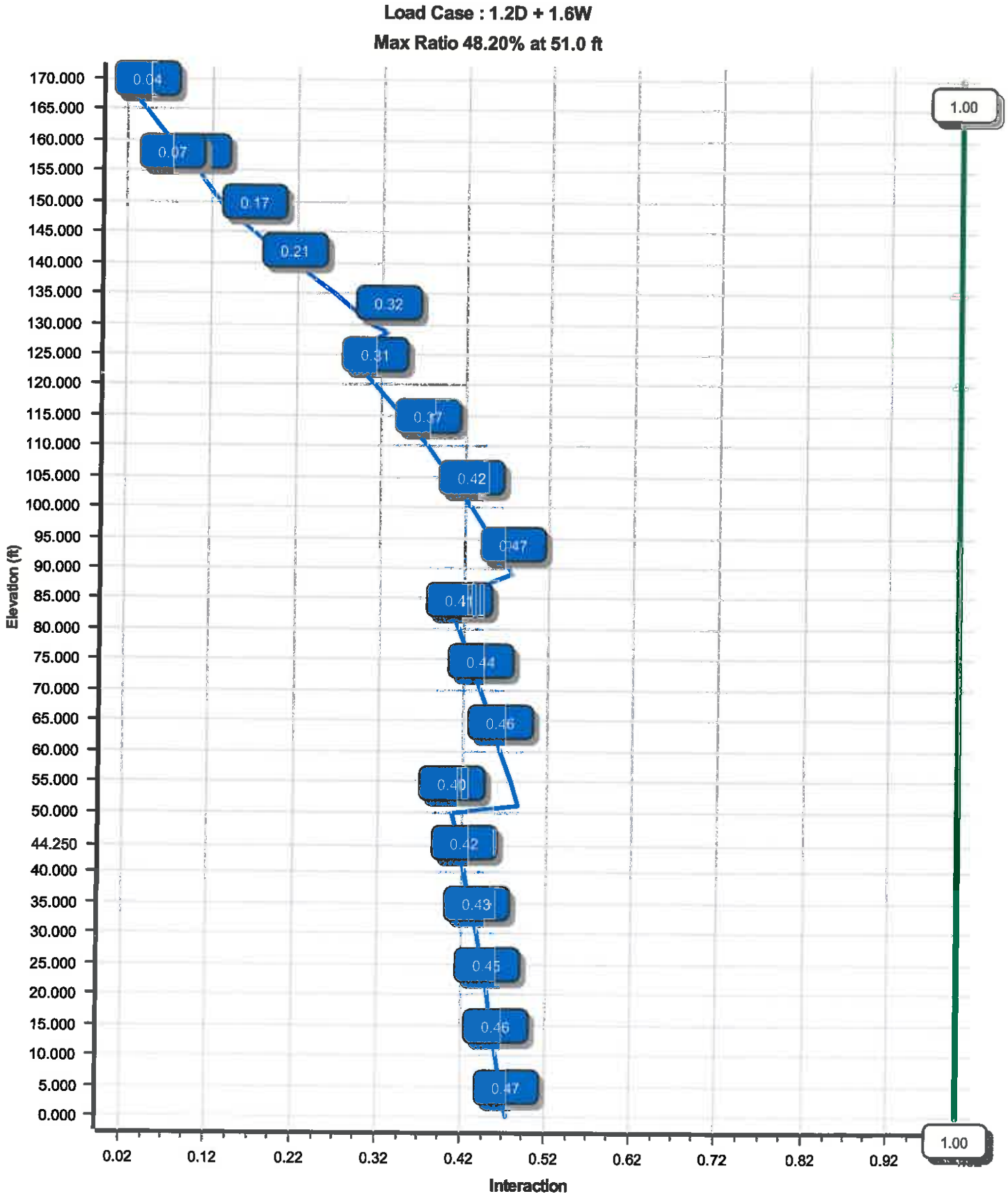
1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3489.25	29.51	60.17
0.9D + 1.6W	3456.87	29.50	45.12
1.2D + 1.0Di + 1.0Wi	988.05	8.32	94.83
(1.2 + 0.2Sds) * DL + E ELFM	263.13	2.00	60.23
(1.2 + 0.2Sds) * DL + E EMAM	297.10	2.42	60.23
(0.9 - 0.2Sds) * DL + E ELFM	260.21	2.00	41.99
(0.9 - 0.2Sds) * DL + E EMAM	293.57	2.42	41.99
1.0D + 1.0W	765.21	6.51	50.17

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.6W
Max Ratio 48.20% at 51.0 ft
Elevation (ft)
170.000
165.000
160.000
155.000
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
44.250
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.04
0.07
0.17
0.21
0.32
0.31
0.37
0.42
0.47
0.41
0.44
0.46
0.40
0.42
0.43
0.45
0.46
0.47
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 376047 Code: ANSI/TIA-222-G

Site Name: MANSFIELD CENTER 2 CT, CT Engineering Number:OAA716740_C3_01 11/15/2017 11:33:51 AM

Customer: SPRINT NEXTEL

Analysis Parameters

Location:	TOLLAND County, CT	Height (ft):	170
Code:	ANSI/TIA-222-G	Base Diameter (in):	64.12
Shape:	18 Sides	Top Diameter (in):	24.00
Pole Type:	Taper	Taper (in/ft) :	0.247
Pole Manfacturer:		Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	101 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.20				
T_L (sec):	6	p:	1.3	C_s:	0.031
S_s:	0.175	S_1:	0.063	C_s Max:	0.031
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.187	S_{d1}:	0.101		

Load Cases

1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

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)
1-18	51.000	0.4375	65		0.00	13,828	64.12	0.00	88.43	45308.8	24.43	146.56	51.52	51.00	70.93	23387.1	19.35	117.76	0.247029
2-18	45.000	0.3750	65	Slip	81.00	8,749	53.93	44.25	63.75	23109.7	23.95	143.84	42.82	89.25	50.52	11501.0	18.72	114.19	0.247029
3-18	45.000	0.3125	65	Slip	69.00	5,923	44.86	83.50	44.19	11084.1	23.91	143.58	33.75	128.50	33.17	4685.6	17.63	108.01	0.247029
4-18	46.000	0.2500	65	Slip	54.00	3,655	35.36	124.00	27.86	4340.1	23.53	141.45	24.00	170.00	18.84	1343.0	15.52	96.00	0.247029
				Shaft Weight		32,155													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
170.00	Alcatel-Lucent RRH2X60-	6	44.00	1.880	0.50	145.68	2.693	0.50	0.000	2.000
170.00	Andrew LNX-6514DS-A1M	3	38.80	8.170	0.69	276.48	11.976	0.69	0.000	2.000
170.00	Antel BXA-70080-4BF-EDIN-X	3	9.90	3.290	0.72	156.08	4.460	0.72	0.000	2.000
170.00	Commscope HBXX-6517DS-	6	40.80	8.530	0.68	278.44	11.765	0.68	0.000	2.000
170.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,375.23	51.891	1.00	0.000	0.000
170.00	RFS DB-T1-6Z-8AB-0Z	1	44.00	4.800	0.67	250.03	6.006	0.67	0.000	2.000
170.00	RFS FD9R6004/2C-3L (3.1 lbs)	6	3.10	0.360	0.50	24.86	0.700	0.50	0.000	2.000
162.00	Andrew HBX-6516DS-VTM	3	9.90	3.360	0.67	137.39	4.622	0.67	0.000	0.000
162.00	Round T-Arm	3	250.00	9.700	0.67	531.22	20.793	0.67	0.000	0.000
148.00	Ericsson RRUS 11 (Band 12)	6	50.00	2.570	0.67	167.15	3.463	0.67	0.000	0.000
148.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,363.59	51.548	1.00	0.000	0.000
148.00	KMW AM-X-CD-16-65-00T-	2	48.50	8.020	0.67	316.64	9.780	0.67	0.000	0.000
148.00	Powerwave 7770.00	6	35.00	5.510	0.65	228.53	6.948	0.65	0.000	0.000
148.00	Powerwave LGP21401	6	14.10	1.100	0.50	64.81	1.741	0.50	0.000	0.000
148.00	Powerwave LGP21901	6	5.50	0.230	0.50	25.95	0.530	0.50	0.000	0.000
148.00	Powerwave P65-17-XLH-RR	1	59.00	11.470	0.67	412.72	13.690	0.67	0.000	0.000
148.00	SSB (27 lb)	1	27.00	3.200	0.67	164.97	4.787	0.67	0.000	0.000
143.00	Andrew ATSBT-BOTTOM-MF	3	1.80	0.200	0.50	18.81	0.488	0.50	0.000	-7.000
143.00	Commscope LNX-6515DS-	3	50.30	11.450	0.70	420.73	13.663	0.70	0.000	0.000
143.00	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	36.80	0.752	0.50	0.000	0.000
143.00	RFS APXV18-203219-C (54.1"	3	39.00	5.530	0.64	227.61	6.956	0.64	0.000	0.000
143.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,360.59	47.202	1.00	0.000	0.000
130.00	Alcatel-Lucent 800MHz RRH	3	53.00	2.130	0.67	176.21	2.963	0.67	0.000	0.000
130.00	Alcatel-Lucent RRH 1900 MHz	3	46.00	2.080	0.67	159.75	2.548	0.67	0.000	0.000
130.00	Alcatel-Lucent TD-RRH8x20-	3	66.00	3.700	0.67	183.29	5.298	0.67	0.000	0.000
130.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,352.83	51.231	1.00	0.000	0.000
130.00	RFS APXV9ERR18-C (62 lbs)	3	62.00	8.020	0.71	352.22	9.756	0.71	0.000	0.000
130.00	RFS APXV9TM14-ALU-I20	3	55.10	6.380	0.66	243.87	9.264	0.66	0.000	0.000
	Totals	90	9460.40			25,287.18			Number of Loadings :	28

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	170.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon
5.00	170.00	1	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon
5.00	162.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Metro PCS
5.00	162.00	1	3/8" (0.38"- 9.5mm)	0.38	0.23	N	0.00	N	Metro PCS
5.00	148.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T Mobility
5.00	148.00	2	0.78" (19.7mm) 8	0.78	0.59	N	0.00	N	AT&T Mobility
5.00	148.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility

5.00	148.00	12	1/2" Coax	0.63	0.15	N	0.00	N	AT&T Mobility
5.00	148.00	2	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
5.00	143.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
5.00	130.00	3	1 1/4" Hybriflex	1.54	1.00	N	0.00	N	Sprint Nextel
5.00	130.00	1	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Sprint Nextel

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)
0.00		0.4375	64.120	88.428	45,308.8	24.43	146.56	72.7	1391.	0.0	0.0
5.00		0.4375	62.885	86.713	42,723.3	23.93	143.74	73.3	1338.	0.0	1,489.9
10.00		0.4375	61.650	84.998	40,238.0	23.44	140.91	73.8	1285.	0.0	1,460.7
15.00		0.4375	60.415	83.283	37,851.1	22.94	138.09	74.4	1234.	0.0	1,431.6
20.00		0.4375	59.179	81.568	35,560.4	22.44	135.27	75.0	1183.	0.0	1,402.4
25.00		0.4375	57.944	79.852	33,364.1	21.94	132.44	75.6	1134.	0.0	1,373.2
30.00		0.4375	56.709	78.137	31,260.1	21.45	129.62	76.2	1085.	0.0	1,344.0
35.00		0.4375	55.474	76.422	29,246.5	20.95	126.80	76.8	1038.	0.0	1,314.8
40.00		0.4375	54.239	74.707	27,321.3	20.45	123.97	77.3	992.1	0.0	1,285.6
44.25	Bot - Section 2	0.4375	53.189	73.249	25,752.9	20.03	121.57	77.8	953.6	0.0	1,069.9
45.00		0.4375	53.004	72.992	25,482.5	19.95	121.15	77.9	946.9	0.0	349.0
50.00		0.4375	51.769	71.277	23,728.1	19.45	118.33	78.5	902.8	0.0	2,295.7
51.00	Top - Section 1	0.3750	52.272	61.768	21,017.9	23.17	139.39	74.2	792.0	0.0	452.6
55.00		0.3750	51.283	60.592	19,840.1	22.70	136.76	74.7	762.0	0.0	832.7
60.00		0.3750	50.048	59.121	18,430.8	22.12	133.46	75.4	725.3	0.0	1,018.4
65.00		0.3750	48.813	57.651	17,089.8	21.54	130.17	76.1	689.6	0.0	993.4
70.00		0.3750	47.578	56.181	15,815.5	20.96	126.87	76.7	654.7	0.0	968.4
75.00		0.3750	46.343	54.711	14,606.2	20.38	123.58	77.4	620.8	0.0	943.4
80.00		0.3750	45.108	53.241	13,460.1	19.80	120.29	78.1	587.7	0.0	918.3
83.50	Bot - Section 3	0.3750	44.243	52.212	12,694.6	19.39	117.98	78.6	565.1	0.0	628.0
85.00		0.3750	43.873	51.771	12,375.7	19.22	116.99	78.8	555.6	0.0	490.0
89.25	Top - Section 2	0.3125	43.448	42.783	10,057.4	23.10	139.03	74.2	455.9	0.0	1,365.9
90.00		0.3125	43.262	42.599	9,928.4	23.00	138.44	74.3	452.0	0.0	109.0
95.00		0.3125	42.027	41.374	9,096.2	22.30	134.49	75.2	426.3	0.0	714.4
100.0		0.3125	40.792	40.149	8,311.9	21.61	130.53	76.0	401.3	0.0	693.5
105.0		0.3125	39.557	38.924	7,574.0	20.91	126.58	76.8	377.1	0.0	672.7
110.0		0.3125	38.322	37.699	6,881.2	20.21	122.63	77.6	353.7	0.0	651.8
115.0		0.3125	37.087	36.474	6,231.9	19.52	118.68	78.4	331.0	0.0	631.0
120.0		0.3125	35.851	35.249	5,624.8	18.82	114.72	79.3	309.0	0.0	610.1
124.0	Bot - Section 4	0.3125	34.863	34.269	5,168.6	18.26	111.56	79.9	292.0	0.0	473.1
125.0		0.3125	34.616	34.024	5,058.5	18.12	110.77	80.1	287.8	0.0	210.7
128.5	Top - Section 3	0.2500	34.252	26.979	3,940.8	22.75	137.01	74.6	226.6	0.0	725.5
130.0		0.2500	33.881	26.685	3,813.4	22.49	135.52	75.0	221.7	0.0	137.0
135.0		0.2500	32.646	25.705	3,408.5	21.61	130.58	76.0	205.6	0.0	445.7
140.0		0.2500	31.411	24.725	3,033.3	20.74	125.64	77.0	190.2	0.0	429.0
143.0		0.2500	30.670	24.137	2,822.0	20.22	122.68	77.6	181.2	0.0	249.4
145.0		0.2500	30.176	23.745	2,686.7	19.87	120.70	78.0	175.4	0.0	162.9
148.0		0.2500	29.435	23.157	2,492.0	19.35	117.74	78.6	166.8	0.0	239.4
150.0		0.2500	28.941	22.765	2,367.6	19.00	115.76	79.1	161.1	0.0	156.3
155.0		0.2500	27.705	21.785	2,074.8	18.13	110.82	80.1	147.5	0.0	379.0
160.0		0.2500	26.470	20.805	1,807.2	17.26	105.88	81.1	134.5	0.0	362.3
162.0		0.2500	25.976	20.413	1,706.9	16.91	103.90	81.5	129.4	0.0	140.3
165.0		0.2500	25.235	19.825	1,563.6	16.39	100.94	82.1	122.0	0.0	205.4
170.0		0.2500	24.000	18.845	1,343.0	15.52	96.00	82.6	110.2	0.0	329.0
											32,155.2

Site Number: 376047 Code: ANSI/TIA-222-G

Site Name: MANSFIELD CENTER 2 CT, CT Engineering Number:OAA716740_C3_01 11/15/2017 11:33:51 AM

Customer: SPRINT NEXTEL

Load Case: 1.2D + 1.6W 101 mph with No Ice 23 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		266.9	0.0					0.0	0.0	266.9	0.0	0.0	0.0
5.00		528.6	1,787.9					0.0	0.0	528.6	1,787.9	0.0	0.0
10.00		518.2	1,752.9					0.0	350.8	518.2	2,103.7	0.0	0.0
15.00		507.8	1,717.9					0.0	350.8	507.8	2,068.7	0.0	0.0
20.00		497.4	1,682.8					0.0	350.8	497.4	2,033.7	0.0	0.0
25.00		487.1	1,647.8					0.0	350.8	487.1	1,998.6	0.0	0.0
30.00		482.3	1,612.8					0.0	350.8	482.3	1,963.6	0.0	0.0
35.00		487.3	1,577.8					0.0	350.8	487.3	1,928.6	0.0	0.0
40.00		457.5	1,542.8					0.0	350.8	457.5	1,893.6	0.0	0.0
44.25	Bot - Section 2	249.7	1,283.8					0.0	298.2	249.7	1,582.0	0.0	0.0
45.00		292.9	418.8					0.0	52.6	292.9	471.5	0.0	0.0
50.00		306.0	2,754.8					0.0	350.8	306.0	3,105.7	0.0	0.0
51.00	Top - Section 1	256.1	543.2					0.0	70.2	256.1	613.3	0.0	0.0
55.00		461.7	999.3					0.0	280.7	461.7	1,279.9	0.0	0.0
60.00		513.1	1,222.1					0.0	350.8	513.1	1,572.9	0.0	0.0
65.00		512.0	1,192.1					0.0	350.8	512.0	1,542.9	0.0	0.0
70.00		509.8	1,162.0					0.0	350.8	509.8	1,512.9	0.0	0.0
75.00		506.4	1,132.0					0.0	350.8	506.4	1,482.8	0.0	0.0
80.00		427.4	1,102.0					0.0	350.8	427.4	1,452.8	0.0	0.0
83.50	Bot - Section 3	250.9	753.6					0.0	245.6	250.9	999.1	0.0	0.0
85.00		288.9	588.0					0.0	105.2	288.9	693.2	0.0	0.0
89.25	Top - Section 2	250.6	1,639.1					0.0	298.2	250.6	1,937.3	0.0	0.0
90.00		284.8	130.7					0.0	52.6	284.8	183.4	0.0	0.0
95.00		491.4	857.2					0.0	350.8	491.4	1,208.1	0.0	0.0
100.00		484.0	832.2					0.0	350.8	484.0	1,183.0	0.0	0.0
105.00		475.9	807.2					0.0	350.8	475.9	1,158.0	0.0	0.0
110.00		467.2	782.2					0.0	350.8	467.2	1,133.0	0.0	0.0
115.00		458.0	757.2					0.0	350.8	458.0	1,108.0	0.0	0.0
120.00		404.2	732.2					0.0	350.8	404.2	1,083.0	0.0	0.0
124.00	Bot - Section 4	222.2	567.7					0.0	280.7	222.2	848.4	0.0	0.0
125.00		198.7	252.8					0.0	70.2	198.7	323.0	0.0	0.0
128.50	Top - Section 3	219.4	870.6					0.0	245.6	219.4	1,116.2	0.0	0.0
130.00	Appertunance(s)	279.1	164.3	2,911.0	0.0	0.0	2,815.6	0.0	105.2	3,190.2	3,085.2	0.0	0.0
135.00		422.0	534.8					0.0	325.0	422.0	859.8	0.0	0.0
140.00		330.2	514.8					0.0	325.0	330.2	839.8	0.0	0.0
143.00	Appertunance(s)	202.2	299.3	2,397.2	0.0	-79.1	2,167.6	0.0	195.0	2,599.4	2,661.9	0.0	0.0
145.00		198.5	195.5					0.0	106.4	198.5	301.9	0.0	0.0
148.00	Appertunance(s)	196.0	287.3	3,436.8	0.0	0.0	2,772.7	0.0	159.6	3,632.8	3,219.6	0.0	0.0
150.00		267.2	187.5					0.0	39.1	267.2	226.6	0.0	0.0
155.00		372.6	454.8					0.0	97.7	372.6	552.5	0.0	0.0
160.00		254.3	434.8					0.0	97.7	254.3	532.5	0.0	0.0
162.00	Appertunance(s)	176.2	168.3	991.8	0.0	0.0	935.6	0.0	39.1	1,168.0	1,143.0	0.0	0.0
165.00		274.2	246.5					0.0	40.1	274.2	286.6	0.0	0.0
170.00	Appertunance(s)	169.3	394.8	4,081.8	0.0	5,542.5	2,661.0	0.0	66.8	4,251.1	3,122.6	0.0	0.0
								Totals:		29,724.8	60,200.8	0.00	0.00

Load Case: 1.2D + 1.6W 101 mph with No Ice 23 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	-60.17	-29.51	0.00	-3,489.25	0.00	3,489.25	5,783.02	2,891.51	15,147.4	7,584.98	0.00	0.00	0.471
5.00	-58.33	-29.09	0.00	-3,341.68	0.00	3,341.68	5,716.54	2,858.27	14,680.9	7,351.38	0.06	-0.11	0.465
10.00	-56.17	-28.68	0.00	-3,196.21	0.00	3,196.21	5,648.27	2,824.13	14,216.6	7,118.91	0.23	-0.22	0.459
15.00	-54.05	-28.27	0.00	-3,052.82	0.00	3,052.82	5,578.18	2,789.09	13,754.9	6,887.71	0.51	-0.33	0.453
20.00	-51.97	-27.86	0.00	-2,911.50	0.00	2,911.50	5,506.29	2,753.14	13,296.0	6,657.91	0.92	-0.44	0.447
25.00	-49.92	-27.45	0.00	-2,772.22	0.00	2,772.22	5,432.58	2,716.29	12,840.2	6,429.65	1.44	-0.55	0.440
30.00	-47.90	-27.05	0.00	-2,634.96	0.00	2,634.96	5,357.08	2,678.54	12,387.7	6,203.08	2.08	-0.67	0.434
35.00	-45.93	-26.63	0.00	-2,499.73	0.00	2,499.73	5,279.76	2,639.88	11,938.9	5,978.32	2.84	-0.78	0.427
40.00	-43.99	-26.23	0.00	-2,366.59	0.00	2,366.59	5,200.64	2,600.32	11,493.9	5,755.53	3.73	-0.90	0.420
44.25	-42.39	-26.00	0.00	-2,255.13	0.00	2,255.13	5,131.96	2,565.98	11,119.0	5,567.80	4.58	-1.01	0.413
45.00	-41.89	-25.75	0.00	-2,235.63	0.00	2,235.63	5,119.71	2,559.85	11,053.2	5,534.84	4.74	-1.02	0.412
50.00	-38.76	-25.43	0.00	-2,106.90	0.00	2,106.90	5,036.97	2,518.48	10,616.9	5,316.39	5.87	-1.14	0.404
51.00	-38.12	-25.20	0.00	-2,081.47	0.00	2,081.47	4,122.13	2,061.07	8,795.72	4,404.40	6.12	-1.17	0.482
55.00	-36.80	-24.79	0.00	-1,980.66	0.00	1,980.66	4,073.45	2,036.72	8,525.16	4,268.91	7.14	-1.27	0.473
60.00	-35.18	-24.33	0.00	-1,856.70	0.00	1,856.70	4,010.96	2,005.48	8,189.23	4,100.70	8.54	-1.41	0.462
65.00	-33.59	-23.86	0.00	-1,735.07	0.00	1,735.07	3,946.67	1,973.34	7,856.10	3,933.89	10.09	-1.54	0.450
70.00	-32.04	-23.38	0.00	-1,615.79	0.00	1,615.79	3,880.57	1,940.29	7,526.04	3,768.61	11.78	-1.68	0.437
75.00	-30.52	-22.91	0.00	-1,498.88	0.00	1,498.88	3,812.66	1,906.33	7,199.33	3,605.01	13.62	-1.82	0.424
80.00	-29.03	-22.49	0.00	-1,384.36	0.00	1,384.36	3,742.95	1,871.47	6,876.24	3,443.23	15.61	-1.96	0.410
83.50	-28.01	-22.24	0.00	-1,305.64	0.00	1,305.64	3,693.07	1,846.54	6,652.39	3,331.14	17.09	-2.06	0.400
85.00	-27.30	-21.97	0.00	-1,272.28	0.00	1,272.28	3,671.43	1,835.71	6,557.06	3,283.41	17.74	-2.11	0.395
89.25	-25.35	-21.67	0.00	-1,178.93	0.00	1,178.93	2,858.04	1,429.02	5,068.78	2,538.16	19.67	-2.23	0.474
90.00	-25.14	-21.42	0.00	-1,162.68	0.00	1,162.68	2,850.48	1,425.24	5,033.50	2,520.49	20.03	-2.25	0.470
95.00	-23.90	-20.95	0.00	-1,055.57	0.00	1,055.57	2,799.03	1,399.52	4,799.47	2,403.30	22.47	-2.41	0.448
100.00	-22.68	-20.47	0.00	-950.84	0.00	950.84	2,745.77	1,372.89	4,567.71	2,287.25	25.07	-2.56	0.424
105.00	-21.49	-20.00	0.00	-848.48	0.00	848.48	2,690.71	1,345.35	4,338.48	2,172.47	27.84	-2.72	0.399
110.00	-20.33	-19.53	0.00	-748.47	0.00	748.47	2,633.83	1,316.92	4,112.06	2,059.09	30.77	-2.87	0.371
115.00	-19.20	-19.07	0.00	-650.81	0.00	650.81	2,575.15	1,287.58	3,888.73	1,947.26	33.85	-3.01	0.342
120.00	-18.11	-18.64	0.00	-555.48	0.00	555.48	2,514.66	1,257.33	3,668.77	1,837.11	37.08	-3.15	0.310
124.00	-17.25	-18.39	0.00	-480.92	0.00	480.92	2,464.97	1,232.48	3,495.41	1,750.30	39.77	-3.26	0.282
125.00	-16.92	-18.19	0.00	-462.53	0.00	462.53	2,452.37	1,226.18	3,452.45	1,728.79	40.45	-3.28	0.275
128.50	-15.80	-17.92	0.00	-398.86	0.00	398.86	1,812.51	906.25	2,533.59	1,268.68	42.89	-3.37	0.323
130.00	-12.89	-14.58	0.00	-371.97	0.00	371.97	1,800.14	900.07	2,488.68	1,246.19	43.96	-3.40	0.306
135.00	-12.03	-14.13	0.00	-299.09	0.00	299.09	1,757.73	878.86	2,340.15	1,171.81	47.59	-3.53	0.262
140.00	-11.19	-13.76	0.00	-228.46	0.00	228.46	1,713.51	856.76	2,193.64	1,098.45	51.34	-3.64	0.215
143.00	-8.69	-11.00	0.00	-187.17	0.00	187.17	1,686.12	843.06	2,106.82	1,054.98	53.64	-3.70	0.183
145.00	-8.39	-10.79	0.00	-165.16	0.00	165.16	1,667.49	833.74	2,049.43	1,026.24	55.20	-3.73	0.166
148.00	-5.42	-6.96	0.00	-132.78	0.00	132.78	1,639.01	819.50	1,964.13	983.52	57.56	-3.78	0.138
150.00	-5.20	-6.68	0.00	-118.86	0.00	118.86	1,619.66	809.83	1,907.80	955.32	59.15	-3.81	0.128
155.00	-4.67	-6.28	0.00	-85.45	0.00	85.45	1,570.02	785.01	1,769.03	885.83	63.16	-3.87	0.099
160.00	-4.15	-5.99	0.00	-54.05	0.00	54.05	1,518.58	759.29	1,633.39	817.91	67.24	-3.92	0.069
162.00	-3.09	-4.75	0.00	-42.07	0.00	42.07	1,497.49	748.75	1,580.08	791.21	68.88	-3.93	0.055
165.00	-2.82	-4.46	0.00	-27.82	0.00	27.82	1,465.32	732.66	1,501.17	751.70	71.36	-3.95	0.039
170.00	0.00	-4.25	0.00	-5.54	0.00	5.54	1,400.09	700.04	1,362.73	682.38	75.50	-3.96	0.008

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 23 Iterations

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

Wind Importance Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		266.9	0.0					0.0	0.0	266.9	0.0	0.0	0.0
5.00		528.6	1,340.9					0.0	0.0	528.6	1,340.9	0.0	0.0
10.00		518.2	1,314.7					0.0	263.1	518.2	1,577.8	0.0	0.0
15.00		507.8	1,288.4					0.0	263.1	507.8	1,551.5	0.0	0.0
20.00		497.4	1,262.1					0.0	263.1	497.4	1,525.2	0.0	0.0
25.00		487.1	1,235.9					0.0	263.1	487.1	1,499.0	0.0	0.0
30.00		482.3	1,209.6					0.0	263.1	482.3	1,472.7	0.0	0.0
35.00		487.3	1,183.3					0.0	263.1	487.3	1,446.5	0.0	0.0
40.00		457.5	1,157.1					0.0	263.1	457.5	1,420.2	0.0	0.0
44.25	Bot - Section 2	249.7	962.9					0.0	223.6	249.7	1,186.5	0.0	0.0
45.00		292.9	314.1					0.0	39.5	292.9	353.6	0.0	0.0
50.00		306.0	2,066.1					0.0	263.1	306.0	2,329.2	0.0	0.0
51.00	Top - Section 1	256.1	407.4					0.0	52.6	256.1	460.0	0.0	0.0
55.00		461.7	749.4					0.0	210.5	461.7	959.9	0.0	0.0
60.00		513.1	916.6					0.0	263.1	513.1	1,179.7	0.0	0.0
65.00		512.0	894.0					0.0	263.1	512.0	1,157.2	0.0	0.0
70.00		509.8	871.5					0.0	263.1	509.8	1,134.6	0.0	0.0
75.00		506.4	849.0					0.0	263.1	506.4	1,112.1	0.0	0.0
80.00		427.4	826.5					0.0	263.1	427.4	1,089.6	0.0	0.0
83.50	Bot - Section 3	250.9	565.2					0.0	184.2	250.9	749.3	0.0	0.0
85.00		288.9	441.0					0.0	78.9	288.9	519.9	0.0	0.0
89.25	Top - Section 2	250.6	1,229.3					0.0	223.6	250.6	1,453.0	0.0	0.0
90.00		284.8	98.1					0.0	39.5	284.8	137.5	0.0	0.0
95.00		491.4	642.9					0.0	263.1	491.4	906.0	0.0	0.0
100.00		484.0	624.2					0.0	263.1	484.0	887.3	0.0	0.0
105.00		475.9	605.4					0.0	263.1	475.9	868.5	0.0	0.0
110.00		467.2	586.6					0.0	263.1	467.2	849.8	0.0	0.0
115.00		458.0	567.9					0.0	263.1	458.0	831.0	0.0	0.0
120.00		404.2	549.1					0.0	263.1	404.2	812.2	0.0	0.0
124.00	Bot - Section 4	222.2	425.8					0.0	210.5	222.2	636.3	0.0	0.0
125.00		198.7	189.6					0.0	52.6	198.7	242.2	0.0	0.0
128.50	Top - Section 3	219.4	653.0					0.0	184.2	219.4	837.1	0.0	0.0
130.00	Appertunance(s)	279.1	123.3	2,911.0	0.0	0.0	2,111.7	0.0	78.9	3,190.2	2,313.9	0.0	0.0
135.00		422.0	401.1					0.0	243.8	422.0	644.9	0.0	0.0
140.00		330.2	386.1					0.0	243.8	330.2	629.9	0.0	0.0
143.00	Appertunance(s)	202.2	224.5	2,397.2	0.0	-79.1	1,625.7	0.0	146.3	2,599.4	1,996.4	0.0	0.0
145.00		198.5	146.6					0.0	79.8	198.5	226.4	0.0	0.0
148.00	Appertunance(s)	196.0	215.5	3,436.8	0.0	0.0	2,079.5	0.0	119.7	3,632.8	2,414.7	0.0	0.0
150.00		267.2	140.6					0.0	29.3	267.2	170.0	0.0	0.0
155.00		372.6	341.1					0.0	73.3	372.6	414.4	0.0	0.0
160.00		254.3	326.1					0.0	73.3	254.3	399.4	0.0	0.0
162.00	Appertunance(s)	176.2	126.2	991.8	0.0	0.0	701.7	0.0	29.3	1,168.0	857.3	0.0	0.0
165.00		274.2	184.8					0.0	30.1	274.2	214.9	0.0	0.0
170.00	Appertunance(s)	169.3	296.1	4,081.8	0.0	5,542.5	1,995.7	0.0	50.1	4,251.1	2,341.9	0.0	0.0
								Totals:		29,724.8	45,150.6	0.00	0.00

Site Number: 376047 Code: ANSI/TIA-222-G

Site Name: MANSFIELD CENTER 2 CT, CT Engineering Number:OAA716740_C3_01 11/15/2017 11:33:56 AM

Customer: SPRINT NEXTEL

Load Case: 0.9D + 1.6W 101 mph with No Ice (Reduced DL) 23 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	-45.12	-29.50	0.00	-3,456.87	0.00	3,456.87	5,783.02	2,891.51	15,147.4	7,584.98	0.00	0.00	0.464
5.00	-43.73	-29.05	0.00	-3,309.37	0.00	3,309.37	5,716.54	2,858.27	14,680.9	7,351.38	0.06	-0.11	0.458
10.00	-42.10	-28.61	0.00	-3,164.11	0.00	3,164.11	5,648.27	2,824.13	14,216.6	7,118.91	0.23	-0.21	0.452
15.00	-40.49	-28.17	0.00	-3,021.07	0.00	3,021.07	5,578.18	2,789.09	13,754.9	6,887.71	0.51	-0.32	0.446
20.00	-38.92	-27.74	0.00	-2,880.22	0.00	2,880.22	5,506.29	2,753.14	13,296.0	6,657.91	0.91	-0.43	0.440
25.00	-37.37	-27.31	0.00	-2,741.52	0.00	2,741.52	5,432.58	2,716.29	12,840.2	6,429.65	1.42	-0.55	0.433
30.00	-35.85	-26.89	0.00	-2,604.95	0.00	2,604.95	5,357.08	2,678.54	12,387.7	6,203.08	2.06	-0.66	0.427
35.00	-34.35	-26.45	0.00	-2,470.51	0.00	2,470.51	5,279.76	2,639.88	11,938.9	5,978.32	2.81	-0.78	0.420
40.00	-32.89	-26.04	0.00	-2,338.25	0.00	2,338.25	5,200.64	2,600.32	11,493.9	5,755.53	3.69	-0.89	0.413
44.25	-31.68	-25.80	0.00	-2,227.60	0.00	2,227.60	5,131.96	2,565.98	11,119.0	5,567.80	4.53	-0.99	0.406
45.00	-31.30	-25.54	0.00	-2,208.25	0.00	2,208.25	5,119.71	2,559.85	11,053.2	5,534.84	4.69	-1.01	0.405
50.00	-28.95	-25.23	0.00	-2,080.55	0.00	2,080.55	5,036.97	2,518.48	10,616.9	5,316.39	5.81	-1.13	0.397
51.00	-28.47	-24.99	0.00	-2,055.33	0.00	2,055.33	4,122.13	2,061.07	8,795.72	4,404.40	6.05	-1.16	0.474
55.00	-27.47	-24.57	0.00	-1,955.36	0.00	1,955.36	4,073.45	2,036.72	8,525.16	4,268.91	7.06	-1.25	0.465
60.00	-26.24	-24.09	0.00	-1,832.54	0.00	1,832.54	4,010.96	2,005.48	8,189.23	4,100.70	8.45	-1.39	0.454
65.00	-25.04	-23.61	0.00	-1,712.10	0.00	1,712.10	3,946.67	1,973.34	7,856.10	3,933.89	9.98	-1.53	0.442
70.00	-23.87	-23.12	0.00	-1,594.07	0.00	1,594.07	3,880.57	1,940.29	7,526.04	3,768.61	11.65	-1.66	0.429
75.00	-22.72	-22.64	0.00	-1,478.45	0.00	1,478.45	3,812.66	1,906.33	7,199.33	3,605.01	13.47	-1.80	0.416
80.00	-21.59	-22.22	0.00	-1,365.26	0.00	1,365.26	3,742.95	1,871.47	6,876.24	3,443.23	15.44	-1.94	0.402
83.50	-20.83	-21.97	0.00	-1,287.50	0.00	1,287.50	3,693.07	1,846.54	6,652.39	3,331.14	16.90	-2.04	0.392
85.00	-20.29	-21.69	0.00	-1,254.54	0.00	1,254.54	3,671.43	1,835.71	6,557.06	3,283.41	17.54	-2.08	0.388
89.25	-18.82	-21.41	0.00	-1,162.36	0.00	1,162.36	2,858.04	1,429.02	5,068.78	2,538.16	19.45	-2.20	0.465
90.00	-18.66	-21.15	0.00	-1,146.31	0.00	1,146.31	2,850.48	1,425.24	5,033.50	2,520.49	19.80	-2.22	0.462
95.00	-17.72	-20.67	0.00	-1,040.57	0.00	1,040.57	2,799.03	1,399.52	4,799.47	2,403.30	22.21	-2.38	0.440
100.00	-16.80	-20.19	0.00	-937.23	0.00	937.23	2,745.77	1,372.89	4,567.71	2,287.25	24.78	-2.53	0.416
105.00	-15.90	-19.72	0.00	-836.28	0.00	836.28	2,690.71	1,345.35	4,338.48	2,172.47	27.52	-2.68	0.391
110.00	-15.03	-19.25	0.00	-737.69	0.00	737.69	2,633.83	1,316.92	4,112.06	2,059.09	30.41	-2.83	0.364
115.00	-14.17	-18.78	0.00	-641.44	0.00	641.44	2,575.15	1,287.58	3,888.73	1,947.26	33.45	-2.98	0.335
120.00	-13.35	-18.36	0.00	-547.53	0.00	547.53	2,514.66	1,257.33	3,668.77	1,837.11	36.64	-3.11	0.304
124.00	-12.70	-18.12	0.00	-474.07	0.00	474.07	2,464.97	1,232.48	3,495.41	1,750.30	39.29	-3.21	0.276
125.00	-12.45	-17.92	0.00	-455.95	0.00	455.95	2,452.37	1,226.18	3,452.45	1,728.79	39.97	-3.24	0.269
128.50	-11.61	-17.67	0.00	-393.22	0.00	393.22	1,812.51	906.25	2,533.59	1,268.68	42.38	-3.32	0.317
130.00	-9.47	-14.36	0.00	-366.72	0.00	366.72	1,800.14	900.07	2,488.68	1,246.19	43.43	-3.36	0.300
135.00	-8.82	-13.92	0.00	-294.92	0.00	294.92	1,757.73	878.86	2,340.15	1,171.81	47.01	-3.48	0.257
140.00	-8.20	-13.56	0.00	-225.32	0.00	225.32	1,713.51	856.76	2,193.64	1,098.45	50.71	-3.59	0.210
143.00	-6.36	-10.85	0.00	-184.64	0.00	184.64	1,686.12	843.06	2,106.82	1,054.98	52.99	-3.65	0.179
145.00	-6.14	-10.64	0.00	-162.94	0.00	162.94	1,667.49	833.74	2,049.43	1,026.24	54.52	-3.68	0.163
148.00	-3.96	-6.86	0.00	-131.03	0.00	131.03	1,639.01	819.50	1,964.13	983.52	56.85	-3.73	0.136
150.00	-3.80	-6.59	0.00	-117.31	0.00	117.31	1,619.66	809.83	1,907.80	955.32	58.42	-3.76	0.125
155.00	-3.41	-6.19	0.00	-84.38	0.00	84.38	1,570.02	785.01	1,769.03	885.83	62.39	-3.82	0.097
160.00	-3.02	-5.91	0.00	-53.43	0.00	53.43	1,518.58	759.29	1,633.39	817.91	66.41	-3.87	0.067
162.00	-2.24	-4.69	0.00	-41.61	0.00	41.61	1,497.49	748.75	1,580.08	791.21	68.03	-3.88	0.054
165.00	-2.05	-4.40	0.00	-27.55	0.00	27.55	1,465.32	732.66	1,501.17	751.70	70.47	-3.90	0.038
170.00	0.00	-4.25	0.00	-5.54	0.00	5.54	1,400.09	700.04	1,362.73	682.38	74.56	-3.91	0.008

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 23 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

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		79.1	0.0					0.0	0.0	79.1	0.0	0.0	0.0
5.00		157.1	2,411.5					0.0	0.0	157.1	2,411.5	0.0	0.0
10.00		154.8	2,437.5					0.0	350.8	154.8	2,788.3	0.0	0.0
15.00		152.2	2,425.3					0.0	350.8	152.2	2,776.2	0.0	0.0
20.00		149.6	2,400.7					0.0	350.8	149.6	2,751.5	0.0	0.0
25.00		146.8	2,369.6					0.0	350.8	146.8	2,720.5	0.0	0.0
30.00		145.8	2,334.5					0.0	350.8	145.8	2,685.3	0.0	0.0
35.00		147.7	2,296.6					0.0	350.8	147.7	2,647.4	0.0	0.0
40.00		138.9	2,256.6					0.0	350.8	138.9	2,607.5	0.0	0.0
44.25	Bot - Section 2	75.9	1,886.5					0.0	298.2	75.9	2,184.7	0.0	0.0
45.00		89.2	526.9					0.0	52.6	89.2	579.5	0.0	0.0
50.00		93.2	3,464.0					0.0	350.8	93.2	3,814.9	0.0	0.0
51.00	Top - Section 1	78.2	685.3					0.0	70.2	78.2	755.4	0.0	0.0
55.00		141.1	1,560.1					0.0	280.7	141.1	1,840.8	0.0	0.0
60.00		157.2	1,912.7					0.0	350.8	157.2	2,263.6	0.0	0.0
65.00		157.3	1,872.2					0.0	350.8	157.3	2,223.1	0.0	0.0
70.00		157.0	1,831.1					0.0	350.8	157.0	2,181.9	0.0	0.0
75.00		156.4	1,789.3					0.0	350.8	156.4	2,140.1	0.0	0.0
80.00		132.3	1,747.0					0.0	350.8	132.3	2,097.9	0.0	0.0
83.50	Bot - Section 3	77.8	1,199.3					0.0	245.6	77.8	1,444.9	0.0	0.0
85.00		89.7	780.7					0.0	105.2	89.7	885.9	0.0	0.0
89.25	Top - Section 2	77.9	2,174.6					0.0	298.2	77.9	2,472.8	0.0	0.0
90.00		88.8	225.1					0.0	52.6	88.8	277.8	0.0	0.0
95.00		153.4	1,471.5					0.0	350.8	153.4	1,822.3	0.0	0.0
100.00		151.6	1,432.6					0.0	350.8	151.6	1,783.5	0.0	0.0
105.00		149.6	1,393.4					0.0	350.8	149.6	1,744.3	0.0	0.0
110.00		147.4	1,354.0					0.0	350.8	147.4	1,704.8	0.0	0.0
115.00		145.1	1,314.2					0.0	350.8	145.1	1,665.0	0.0	0.0
120.00		128.5	1,274.2					0.0	350.8	128.5	1,625.0	0.0	0.0
124.00	Bot - Section 4	70.8	991.8					0.0	280.7	70.8	1,272.4	0.0	0.0
125.00		63.4	359.8					0.0	70.2	63.4	429.9	0.0	0.0
128.50	Top - Section 3	70.2	1,237.0					0.0	245.6	70.2	1,482.6	0.0	0.0
130.00	Appertunance(s)	89.6	320.1	711.7	0.0	0.0	5,784.2	0.0	105.2	801.4	6,209.6	0.0	0.0
135.00		135.9	1,037.6					0.0	325.0	135.9	1,362.6	0.0	0.0
140.00		106.8	1,001.7					0.0	325.0	106.8	1,326.7	0.0	0.0
143.00	Appertunance(s)	65.6	585.9	602.6	0.0	-29.6	4,633.7	0.0	195.0	668.2	5,414.6	0.0	0.0
145.00		64.7	384.1					0.0	106.4	64.7	490.5	0.0	0.0
148.00	Appertunance(s)	64.0	564.2	814.7	0.0	0.0	6,725.6	0.0	159.6	878.7	7,449.4	0.0	0.0
150.00		87.7	369.6					0.0	39.1	87.7	408.7	0.0	0.0
155.00		122.8	893.0					0.0	97.7	122.8	990.7	0.0	0.0
160.00		84.3	856.4					0.0	97.7	84.3	954.1	0.0	0.0
162.00	Appertunance(s)	58.7	334.5	294.2	0.0	0.0	1,969.8	0.0	39.1	352.9	2,343.3	0.0	0.0
165.00		91.9	489.6					0.0	40.1	91.9	529.7	0.0	0.0
170.00	Appertunance(s)	56.9	782.8	995.6	0.0	1,193.1	6,420.8	0.0	66.8	1,052.5	7,270.5	0.0	0.0
								Totals:		8,372.03	94,831.5	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 23 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	-94.83	-8.32	0.00	-988.05	0.00	988.05	5,783.02	2,891.51	15,147.4	7,584.98	0.00	0.00	0.147
5.00	-92.41	-8.21	0.00	-946.46	0.00	946.46	5,716.54	2,858.27	14,680.9	7,351.38	0.02	-0.03	0.145
10.00	-89.62	-8.10	0.00	-905.41	0.00	905.41	5,648.27	2,824.13	14,216.6	7,118.91	0.06	-0.06	0.143
15.00	-86.84	-7.99	0.00	-864.91	0.00	864.91	5,578.18	2,789.09	13,754.9	6,887.71	0.15	-0.09	0.141
20.00	-84.08	-7.89	0.00	-824.94	0.00	824.94	5,506.29	2,753.14	13,296.0	6,657.91	0.26	-0.12	0.139
25.00	-81.36	-7.78	0.00	-785.52	0.00	785.52	5,432.58	2,716.29	12,840.2	6,429.65	0.41	-0.16	0.137
30.00	-78.67	-7.67	0.00	-746.63	0.00	746.63	5,357.08	2,678.54	12,387.7	6,203.08	0.59	-0.19	0.135
35.00	-76.02	-7.56	0.00	-708.28	0.00	708.28	5,279.76	2,639.88	11,938.9	5,978.32	0.80	-0.22	0.133
40.00	-73.41	-7.45	0.00	-670.50	0.00	670.50	5,200.64	2,600.32	11,493.9	5,755.53	1.06	-0.26	0.131
44.25	-71.22	-7.38	0.00	-638.86	0.00	638.86	5,131.96	2,565.98	11,119.0	5,567.80	1.30	-0.28	0.129
45.00	-70.64	-7.31	0.00	-633.32	0.00	633.32	5,119.71	2,559.85	11,053.2	5,534.84	1.34	-0.29	0.128
50.00	-66.82	-7.22	0.00	-596.75	0.00	596.75	5,036.97	2,518.48	10,616.9	5,316.39	1.66	-0.32	0.126
51.00	-66.07	-7.16	0.00	-589.53	0.00	589.53	4,122.13	2,061.07	8,795.72	4,404.40	1.73	-0.33	0.150
55.00	-64.22	-7.05	0.00	-560.88	0.00	560.88	4,073.45	2,036.72	8,525.16	4,268.91	2.02	-0.36	0.147
60.00	-61.96	-6.92	0.00	-525.64	0.00	525.64	4,010.96	2,005.48	8,189.23	4,100.70	2.42	-0.40	0.144
65.00	-59.73	-6.79	0.00	-491.06	0.00	491.06	3,946.67	1,973.34	7,856.10	3,933.89	2.86	-0.44	0.140
70.00	-57.54	-6.65	0.00	-457.13	0.00	457.13	3,880.57	1,940.29	7,526.04	3,768.61	3.34	-0.48	0.136
75.00	-55.40	-6.51	0.00	-423.88	0.00	423.88	3,812.66	1,906.33	7,199.33	3,605.01	3.86	-0.52	0.132
80.00	-53.30	-6.39	0.00	-391.31	0.00	391.31	3,742.95	1,871.47	6,876.24	3,443.23	4.42	-0.56	0.128
83.50	-51.85	-6.32	0.00	-368.94	0.00	368.94	3,693.07	1,846.54	6,652.39	3,331.14	4.84	-0.58	0.125
85.00	-50.97	-6.24	0.00	-359.46	0.00	359.46	3,671.43	1,835.71	6,557.06	3,283.41	5.03	-0.60	0.123
89.25	-48.49	-6.15	0.00	-332.94	0.00	332.94	2,858.04	1,429.02	5,068.78	2,538.16	5.57	-0.63	0.148
90.00	-48.21	-6.08	0.00	-328.32	0.00	328.32	2,850.48	1,425.24	5,033.50	2,520.49	5.67	-0.64	0.147
95.00	-46.39	-5.95	0.00	-297.90	0.00	297.90	2,799.03	1,399.52	4,799.47	2,403.30	6.36	-0.68	0.141
100.00	-44.60	-5.81	0.00	-268.18	0.00	268.18	2,745.77	1,372.89	4,567.71	2,287.25	7.10	-0.73	0.134
105.00	-42.86	-5.67	0.00	-239.15	0.00	239.15	2,690.71	1,345.35	4,338.48	2,172.47	7.89	-0.77	0.126
110.00	-41.15	-5.52	0.00	-210.83	0.00	210.83	2,633.83	1,316.92	4,112.06	2,059.09	8.71	-0.81	0.118
115.00	-39.48	-5.38	0.00	-183.21	0.00	183.21	2,575.15	1,287.58	3,888.73	1,947.26	9.59	-0.85	0.109
120.00	-37.86	-5.25	0.00	-156.30	0.00	156.30	2,514.66	1,257.33	3,668.77	1,837.11	10.50	-0.89	0.100
124.00	-36.58	-5.17	0.00	-135.29	0.00	135.29	2,464.97	1,232.48	3,495.41	1,750.30	11.26	-0.92	0.092
125.00	-36.15	-5.11	0.00	-130.12	0.00	130.12	2,452.37	1,226.18	3,452.45	1,728.79	11.45	-0.93	0.090
128.50	-34.67	-5.03	0.00	-112.23	0.00	112.23	1,812.51	906.25	2,533.59	1,268.68	12.14	-0.95	0.108
130.00	-28.47	-4.13	0.00	-104.69	0.00	104.69	1,800.14	900.07	2,488.68	1,246.19	12.44	-0.96	0.100
135.00	-27.11	-3.99	0.00	-84.02	0.00	84.02	1,757.73	878.86	2,340.15	1,171.81	13.47	-1.00	0.087
140.00	-25.79	-3.87	0.00	-64.07	0.00	64.07	1,713.51	856.76	2,193.64	1,098.45	14.53	-1.03	0.073
143.00	-20.38	-3.11	0.00	-52.46	0.00	52.46	1,686.12	843.06	2,106.82	1,054.98	15.18	-1.04	0.062
145.00	-19.89	-3.04	0.00	-46.24	0.00	46.24	1,667.49	833.74	2,049.43	1,026.24	15.62	-1.05	0.057
148.00	-12.46	-2.03	0.00	-37.12	0.00	37.12	1,639.01	819.50	1,964.13	983.52	16.29	-1.07	0.045
150.00	-12.05	-1.93	0.00	-33.07	0.00	33.07	1,619.66	809.83	1,907.80	955.32	16.74	-1.08	0.042
155.00	-11.07	-1.79	0.00	-23.41	0.00	23.41	1,570.02	785.01	1,769.03	885.83	17.87	-1.09	0.033
160.00	-10.11	-1.69	0.00	-14.44	0.00	14.44	1,518.58	759.29	1,633.39	817.91	19.02	-1.11	0.024
162.00	-7.78	-1.30	0.00	-11.05	0.00	11.05	1,497.49	748.75	1,580.08	791.21	19.49	-1.11	0.019
165.00	-7.25	-1.19	0.00	-7.16	0.00	7.16	1,465.32	732.66	1,501.17	751.70	20.19	-1.11	0.014
170.00	0.00	-1.05	0.00	-1.19	0.00	1.19	1,400.09	700.04	1,362.73	682.38	21.36	-1.12	0.002

Load Case: 1.0D + 1.0W — Serviceability 60 mph — 22 Iterations

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

Wind Importance Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		58.9	0.0					0.0	0.0	58.9	0.0	0.0	0.0
5.00		116.6	1,489.9					0.0	0.0	116.6	1,489.9	0.0	0.0
10.00		114.3	1,460.7					0.0	292.4	114.3	1,753.1	0.0	0.0
15.00		112.0	1,431.6					0.0	292.4	112.0	1,723.9	0.0	0.0
20.00		109.7	1,402.4					0.0	292.4	109.7	1,694.7	0.0	0.0
25.00		107.4	1,373.2					0.0	292.4	107.4	1,665.5	0.0	0.0
30.00		106.4	1,344.0					0.0	292.4	106.4	1,636.4	0.0	0.0
35.00		107.5	1,314.8					0.0	292.4	107.5	1,607.2	0.0	0.0
40.00		100.9	1,285.6					0.0	292.4	100.9	1,578.0	0.0	0.0
44.25	Bot - Section 2	55.1	1,069.9					0.0	248.5	55.1	1,318.4	0.0	0.0
45.00		64.6	349.0					0.0	43.9	64.6	392.9	0.0	0.0
50.00		67.5	2,295.7					0.0	292.4	67.5	2,588.1	0.0	0.0
51.00	Top - Section 1	56.5	452.6					0.0	58.5	56.5	511.1	0.0	0.0
55.00		101.8	832.7					0.0	233.9	101.8	1,066.6	0.0	0.0
60.00		113.2	1,018.4					0.0	292.4	113.2	1,310.7	0.0	0.0
65.00		112.9	993.4					0.0	292.4	112.9	1,285.7	0.0	0.0
70.00		112.4	968.4					0.0	292.4	112.4	1,260.7	0.0	0.0
75.00		111.7	943.4					0.0	292.4	111.7	1,235.7	0.0	0.0
80.00		94.3	918.3					0.0	292.4	94.3	1,210.7	0.0	0.0
83.50	Bot - Section 3	55.3	628.0					0.0	204.6	55.3	832.6	0.0	0.0
85.00		63.7	490.0					0.0	87.7	63.7	577.7	0.0	0.0
89.25	Top - Section 2	55.3	1,365.9					0.0	248.5	55.3	1,614.4	0.0	0.0
90.00		62.8	109.0					0.0	43.9	62.8	152.8	0.0	0.0
95.00		108.4	714.4					0.0	292.4	108.4	1,006.7	0.0	0.0
100.00		106.8	693.5					0.0	292.4	106.8	985.9	0.0	0.0
105.00		105.0	672.7					0.0	292.4	105.0	965.0	0.0	0.0
110.00		103.1	651.8					0.0	292.4	103.1	944.2	0.0	0.0
115.00		101.0	631.0					0.0	292.4	101.0	923.3	0.0	0.0
120.00		89.2	610.1					0.0	292.4	89.2	902.5	0.0	0.0
124.00	Bot - Section 4	49.0	473.1					0.0	233.9	49.0	707.0	0.0	0.0
125.00		43.8	210.7					0.0	58.5	43.8	269.1	0.0	0.0
128.50	Top - Section 3	48.4	725.5					0.0	204.6	48.4	930.2	0.0	0.0
130.00	Appertunance(s)	61.6	137.0	642.1	0.0	0.0	2,346.3	0.0	87.7	703.6	2,571.0	0.0	0.0
135.00		93.1	445.7					0.0	270.9	93.1	716.5	0.0	0.0
140.00		72.8	429.0					0.0	270.9	72.8	699.9	0.0	0.0
143.00	Appertunance(s)	44.6	249.4	528.7	0.0	-17.5	1,806.3	0.0	162.5	573.3	2,218.2	0.0	0.0
145.00		43.8	162.9					0.0	88.7	43.8	251.6	0.0	0.0
148.00	Appertunance(s)	43.2	239.4	758.0	0.0	0.0	2,310.6	0.0	133.0	801.3	2,683.0	0.0	0.0
150.00		58.9	156.3					0.0	32.6	58.9	188.8	0.0	0.0
155.00		82.2	379.0					0.0	81.5	82.2	460.4	0.0	0.0
160.00		56.1	362.3					0.0	81.5	56.1	443.8	0.0	0.0
162.00	Appertunance(s)	38.9	140.3	218.8	0.0	0.0	779.7	0.0	32.6	257.6	952.5	0.0	0.0
165.00		60.5	205.4					0.0	33.4	60.5	238.8	0.0	0.0
170.00	Appertunance(s)	37.3	329.0	900.3	0.0	1,222.5	2,217.5	0.0	55.7	937.6	2,602.2	0.0	0.0
								Totals:		6,556.30	50,167.4	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 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	-50.17	-6.51	0.00	-765.21	0.00	765.21	5,783.02	2,891.51	15,147.4	7,584.98	0.00	0.00	0.110
5.00	-48.67	-6.41	0.00	-732.67	0.00	732.67	5,716.54	2,858.27	14,680.9	7,351.38	0.01	-0.02	0.108
10.00	-46.92	-6.31	0.00	-700.62	0.00	700.62	5,648.27	2,824.13	14,216.6	7,118.91	0.05	-0.05	0.107
15.00	-45.19	-6.22	0.00	-669.05	0.00	669.05	5,578.18	2,789.09	13,754.9	6,887.71	0.11	-0.07	0.105
20.00	-43.49	-6.13	0.00	-637.95	0.00	637.95	5,506.29	2,753.14	13,296.0	6,657.91	0.20	-0.10	0.104
25.00	-41.83	-6.03	0.00	-607.32	0.00	607.32	5,432.58	2,716.29	12,840.2	6,429.65	0.32	-0.12	0.102
30.00	-40.19	-5.94	0.00	-577.15	0.00	577.15	5,357.08	2,678.54	12,387.7	6,203.08	0.46	-0.15	0.101
35.00	-38.58	-5.85	0.00	-547.44	0.00	547.44	5,279.76	2,639.88	11,938.9	5,978.32	0.62	-0.17	0.099
40.00	-37.00	-5.76	0.00	-518.20	0.00	518.20	5,200.64	2,600.32	11,493.9	5,755.53	0.82	-0.20	0.097
44.25	-35.68	-5.71	0.00	-493.73	0.00	493.73	5,131.96	2,565.98	11,119.0	5,567.80	1.00	-0.22	0.096
45.00	-35.28	-5.65	0.00	-489.46	0.00	489.46	5,119.71	2,559.85	11,053.2	5,534.84	1.04	-0.22	0.095
50.00	-32.69	-5.58	0.00	-461.21	0.00	461.21	5,036.97	2,518.48	10,616.9	5,316.39	1.29	-0.25	0.093
51.00	-32.18	-5.53	0.00	-455.63	0.00	455.63	4,122.13	2,061.07	8,795.72	4,404.40	1.34	-0.26	0.111
55.00	-31.11	-5.44	0.00	-433.52	0.00	433.52	4,073.45	2,036.72	8,525.16	4,268.91	1.56	-0.28	0.109
60.00	-29.80	-5.33	0.00	-406.34	0.00	406.34	4,010.96	2,005.48	8,189.23	4,100.70	1.87	-0.31	0.107
65.00	-28.51	-5.23	0.00	-379.69	0.00	379.69	3,946.67	1,973.34	7,856.10	3,933.89	2.21	-0.34	0.104
70.00	-27.25	-5.12	0.00	-353.55	0.00	353.55	3,880.57	1,940.29	7,526.04	3,768.61	2.58	-0.37	0.101
75.00	-26.01	-5.01	0.00	-327.95	0.00	327.95	3,812.66	1,906.33	7,199.33	3,605.01	2.98	-0.40	0.098
80.00	-24.80	-4.92	0.00	-302.88	0.00	302.88	3,742.95	1,871.47	6,876.24	3,443.23	3.42	-0.43	0.095
83.50	-23.97	-4.87	0.00	-285.65	0.00	285.65	3,693.07	1,846.54	6,652.39	3,331.14	3.74	-0.45	0.092
85.00	-23.39	-4.81	0.00	-278.35	0.00	278.35	3,671.43	1,835.71	6,557.06	3,283.41	3.89	-0.46	0.091
89.25	-21.77	-4.74	0.00	-257.92	0.00	257.92	2,858.04	1,429.02	5,068.78	2,538.16	4.31	-0.49	0.109
90.00	-21.62	-4.69	0.00	-254.36	0.00	254.36	2,850.48	1,425.24	5,033.50	2,520.49	4.39	-0.49	0.109
95.00	-20.61	-4.58	0.00	-230.92	0.00	230.92	2,799.03	1,399.52	4,799.47	2,403.30	4.92	-0.53	0.103
100.00	-19.62	-4.48	0.00	-208.01	0.00	208.01	2,745.77	1,372.89	4,567.71	2,287.25	5.49	-0.56	0.098
105.00	-18.66	-4.37	0.00	-185.62	0.00	185.62	2,690.71	1,345.35	4,338.48	2,172.47	6.10	-0.60	0.092
110.00	-17.71	-4.27	0.00	-163.75	0.00	163.75	2,633.83	1,316.92	4,112.06	2,059.09	6.74	-0.63	0.086
115.00	-16.79	-4.17	0.00	-142.39	0.00	142.39	2,575.15	1,287.58	3,888.73	1,947.26	7.42	-0.66	0.080
120.00	-15.88	-4.08	0.00	-121.55	0.00	121.55	2,514.66	1,257.33	3,668.77	1,837.11	8.12	-0.69	0.072
124.00	-15.18	-4.02	0.00	-105.25	0.00	105.25	2,464.97	1,232.48	3,495.41	1,750.30	8.71	-0.71	0.066
125.00	-14.91	-3.98	0.00	-101.22	0.00	101.22	2,452.37	1,226.18	3,452.45	1,728.79	8.86	-0.72	0.065
128.50	-13.98	-3.92	0.00	-87.30	0.00	87.30	1,812.51	906.25	2,533.59	1,268.68	9.39	-0.74	0.077
130.00	-11.41	-3.19	0.00	-81.42	0.00	81.42	1,800.14	900.07	2,488.68	1,246.19	9.63	-0.74	0.072
135.00	-10.70	-3.09	0.00	-65.47	0.00	65.47	1,757.73	878.86	2,340.15	1,171.81	10.42	-0.77	0.062
140.00	-10.00	-3.01	0.00	-50.02	0.00	50.02	1,713.51	856.76	2,193.64	1,098.45	11.25	-0.80	0.051
143.00	-7.79	-2.41	0.00	-40.99	0.00	40.99	1,686.12	843.06	2,106.82	1,054.98	11.75	-0.81	0.043
145.00	-7.54	-2.36	0.00	-36.17	0.00	36.17	1,667.49	833.74	2,049.43	1,026.24	12.09	-0.82	0.040
148.00	-4.86	-1.52	0.00	-29.09	0.00	29.09	1,639.01	819.50	1,964.13	983.52	12.61	-0.83	0.033
150.00	-4.68	-1.46	0.00	-26.04	0.00	26.04	1,619.66	809.83	1,907.80	955.32	12.96	-0.83	0.030
155.00	-4.22	-1.37	0.00	-18.73	0.00	18.73	1,570.02	785.01	1,769.03	885.83	13.84	-0.85	0.024
160.00	-3.77	-1.31	0.00	-11.85	0.00	11.85	1,518.58	759.29	1,633.39	817.91	14.73	-0.86	0.017
162.00	-2.83	-1.04	0.00	-9.23	0.00	9.23	1,497.49	748.75	1,580.08	791.21	15.09	-0.86	0.014
165.00	-2.59	-0.98	0.00	-6.11	0.00	6.11	1,465.32	732.66	1,501.17	751.70	15.63	-0.86	0.010
170.00	0.00	-0.94	0.00	-1.22	0.00	1.22	1,400.09	700.04	1,362.73	682.38	16.54	-0.87	0.002

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.20
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.85
Total Unfactored Dead Load:	50.17 k
Seismic Base Shear (E):	1.99 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)
43	167.50	385	4,982	0.022	43	476
42	163.50	239	2,957	0.013	26	295
41	161.00	173	2,080	0.009	18	214
40	157.50	444	5,129	0.022	44	549
39	152.50	460	5,013	0.022	43	570
38	149.00	189	1,970	0.009	17	234
37	146.50	372	3,764	0.016	33	461
36	144.00	252	2,464	0.011	21	311
35	141.50	412	3,905	0.017	34	510
34	137.50	700	6,292	0.027	55	866
33	132.50	717	6,016	0.026	52	887
32	129.25	225	1,802	0.008	16	278
31	126.75	930	7,194	0.031	62	1,151
30	124.50	269	2,014	0.009	17	333
29	122.00	707	5,095	0.022	44	875
28	117.50	902	6,068	0.026	53	1,117
27	112.50	923	5,728	0.025	50	1,142
26	107.50	944	5,385	0.023	47	1,168
25	102.50	965	5,040	0.022	44	1,194
24	97.50	986	4,694	0.020	41	1,220
23	92.50	1,007	4,349	0.019	38	1,246
22	89.63	153	623	0.003	5	189
21	87.13	1,614	6,243	0.027	54	1,998

20	84.25	578	2,100	0.009	18	715
19	81.75	833	2,862	0.012	25	1,030
18	77.50	1,211	3,771	0.016	33	1,498
17	72.50	1,236	3,402	0.015	30	1,529
16	67.50	1,261	3,041	0.013	26	1,560
15	62.50	1,286	2,690	0.012	23	1,591
14	57.50	1,311	2,351	0.010	20	1,622
13	53.00	1,067	1,645	0.007	14	1,320
12	50.50	511	721	0.003	6	632
11	47.50	2,588	3,260	0.014	28	3,202
10	44.63	393	441	0.002	4	486
9	42.13	1,318	1,330	0.006	12	1,631
8	37.50	1,578	1,284	0.006	11	1,953
7	32.50	1,607	1,004	0.004	9	1,989
6	27.50	1,636	750	0.003	7	2,025
5	22.50	1,666	527	0.002	5	2,061
4	17.50	1,695	337	0.001	3	2,097
3	12.50	1,724	184	0.001	2	2,133
2	7.50	1,753	73	0.000	1	2,169
1	2.50	1,490	8	0.000	0	1,844
RFS FD9R6004/2C-3L (	170.00	19	248	0.001	2	23
Alcatel-Lucent RRH2X	170.00	264	3,514	0.015	30	327
Antel BXA-70080-4BF-	170.00	30	395	0.002	3	37
RFS DB-T1-6Z-8AB-0Z	170.00	44	586	0.003	5	54
Andrew LNX-6514DS-A1	170.00	116	1,549	0.007	13	144
Commscope HBXX-6517D	170.00	245	3,258	0.014	28	303
Flat Low Profile Pla	170.00	1,500	19,965	0.087	173	1,856
Andrew HBX-6516DS-VT	162.00	30	362	0.002	3	37
Round T-Arm	162.00	750	9,131	0.040	79	928
Powerwave LGP21901	148.00	33	340	0.001	3	41
Powerwave LGP21401	148.00	85	871	0.004	8	105
Ericsson RRUS 11 (Ba	148.00	300	3,090	0.013	27	371
SSB (27 lb)	148.00	27	278	0.001	2	33
Powerwave 7770.00	148.00	210	2,163	0.009	19	260
KMW AM-X-CD-16-65-00	148.00	97	999	0.004	9	120
Powerwave P65-17-XLH	148.00	59	608	0.003	5	73
Flat Low Profile Pla	148.00	1,500	15,452	0.067	134	1,856
Andrew ATSBT-BOTTOM-	143.00	5	52	0.000	0	7
Ericsson KRY 112 144	143.00	33	319	0.001	3	41
RFS APXV18-203219-C	143.00	117	1,131	0.005	10	145
Commscope LNX-6515DS	143.00	151	1,459	0.006	13	187
Round Low Profile Pl	143.00	1,500	14,501	0.063	126	1,856
Alcatel-Lucent RRH 1	130.00	138	1,119	0.005	10	171
Alcatel-Lucent 800MH	130.00	159	1,289	0.006	11	197
Alcatel-Lucent TD-RR	130.00	198	1,605	0.007	14	245
RFS APXV9TM14-ALU-I2	130.00	165	1,340	0.006	12	205
RFS APXV9ERR18-C (62	130.00	186	1,508	0.007	13	230
Flat Low Profile Pla	130.00	1,500	12,158	0.053	105	1,856
		50,167	229,877	1.000	1,994	62,074

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)
43	167.50	385	4,982	0.022	43	332
42	163.50	239	2,957	0.013	26	206
41	161.00	173	2,080	0.009	18	149
40	157.50	444	5,129	0.022	44	383
39	152.50	460	5,013	0.022	43	397
38	149.00	189	1,970	0.009	17	163

37	146.50	372	3,764	0.016	33	321
36	144.00	252	2,464	0.011	21	217
35	141.50	412	3,905	0.017	34	355
34	137.50	700	6,292	0.027	55	604
33	132.50	717	6,016	0.026	52	618
32	129.25	225	1,802	0.008	16	194
31	126.75	930	7,194	0.031	62	802
30	124.50	269	2,014	0.009	17	232
29	122.00	707	5,095	0.022	44	610
28	117.50	902	6,068	0.026	53	779
27	112.50	923	5,728	0.025	50	797
26	107.50	944	5,385	0.023	47	815
25	102.50	965	5,040	0.022	44	832
24	97.50	986	4,694	0.020	41	850
23	92.50	1,007	4,349	0.019	38	868
22	89.63	153	623	0.003	5	132
21	87.13	1,614	6,243	0.027	54	1,393
20	84.25	578	2,100	0.009	18	498
19	81.75	833	2,862	0.012	25	718
18	77.50	1,211	3,771	0.016	33	1,044
17	72.50	1,236	3,402	0.015	30	1,066
16	67.50	1,261	3,041	0.013	26	1,088
15	62.50	1,286	2,690	0.012	23	1,109
14	57.50	1,311	2,351	0.010	20	1,131
13	53.00	1,067	1,645	0.007	14	920
12	50.50	511	721	0.003	6	441
11	47.50	2,588	3,260	0.014	28	2,233
10	44.63	393	441	0.002	4	339
9	42.13	1,318	1,330	0.006	12	1,137
8	37.50	1,578	1,284	0.006	11	1,361
7	32.50	1,607	1,004	0.004	9	1,386
6	27.50	1,636	750	0.003	7	1,412
5	22.50	1,666	527	0.002	5	1,437
4	17.50	1,695	337	0.001	3	1,462
3	12.50	1,724	184	0.001	2	1,487
2	7.50	1,753	73	0.000	1	1,512
1	2.50	1,490	8	0.000	0	1,285
RFS FD9R6004/2C-3L (	170.00	19	248	0.001	2	16
Alcatel-Lucent RRH2X	170.00	264	3,514	0.015	30	228
Antel BXA-70080-4BF-	170.00	30	395	0.002	3	26
RFS DB-T1-6Z-8AB-0Z	170.00	44	586	0.003	5	38
Andrew LNX-6514DS-A1	170.00	116	1,549	0.007	13	100
Commscope HBXX-6517D	170.00	245	3,258	0.014	28	211
Flat Low Profile Pla	170.00	1,500	19,965	0.087	173	1,294
Andrew HBX-6516DS-VT	162.00	30	362	0.002	3	26
Round T-Arm	162.00	750	9,131	0.040	79	647
Powerwave LGP21901	148.00	33	340	0.001	3	28
Powerwave LGP21401	148.00	85	871	0.004	8	73
Ericsson RRUS 11 (Ba	148.00	300	3,090	0.013	27	259
SSB (27 lb)	148.00	27	278	0.001	2	23
Powerwave 7770.00	148.00	210	2,163	0.009	19	181
KMW AM-X-CD-16-65-00	148.00	97	999	0.004	9	84
Powerwave P65-17-XLH	148.00	59	608	0.003	5	51
Flat Low Profile Pla	148.00	1,500	15,452	0.067	134	1,294
Andrew ATSBT-BOTTOM-	143.00	5	52	0.000	0	5
Ericsson KRY 112 144	143.00	33	319	0.001	3	28
RFS APXV18-203219-C	143.00	117	1,131	0.005	10	101
Commscope LNX-6515DS	143.00	151	1,459	0.006	13	130
Round Low Profile Pl	143.00	1,500	14,501	0.063	126	1,294
Alcatel-Lucent RRH 1	130.00	138	1,119	0.005	10	119
Alcatel-Lucent 800MH	130.00	159	1,289	0.006	11	137
Alcatel-Lucent TD-RR	130.00	198	1,605	0.007	14	171
RFS APXV9TM14-ALU-I2	130.00	165	1,340	0.006	12	143
RFS APXV9ERR18-C (62	130.00	186	1,508	0.007	13	160

Flat Low Profile Pla	130.00	1,500	12,158	0.053	105	1,294
		50,167	229,877	1.000	1,994	43,278

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	-60.23	-2.00	0.00	-263.13	0.00	263.13	5,783.02	2,891.51	15,147.4	7,584.98	0.00	0.00	0.045
5.00	-58.06	-2.00	0.00	-253.15	0.00	253.15	5,716.54	2,858.27	14,680.9	7,351.38	0.00	-0.01	0.045
10.00	-55.93	-2.01	0.00	-243.12	0.00	243.12	5,648.27	2,824.13	14,216.6	7,118.91	0.02	-0.02	0.044
15.00	-53.83	-2.01	0.00	-233.07	0.00	233.07	5,578.18	2,789.09	13,754.9	6,887.71	0.04	-0.02	0.043
20.00	-51.77	-2.02	0.00	-223.00	0.00	223.00	5,506.29	2,753.14	13,296.0	6,657.91	0.07	-0.03	0.043
25.00	-49.74	-2.02	0.00	-212.91	0.00	212.91	5,432.58	2,716.29	12,840.2	6,429.65	0.11	-0.04	0.042
30.00	-47.76	-2.01	0.00	-202.83	0.00	202.83	5,357.08	2,678.54	12,387.7	6,203.08	0.16	-0.05	0.042
35.00	-45.80	-2.01	0.00	-192.76	0.00	192.76	5,279.76	2,639.88	11,938.9	5,978.32	0.22	-0.06	0.041
40.00	-44.17	-2.00	0.00	-182.72	0.00	182.72	5,200.64	2,600.32	11,493.9	5,755.53	0.28	-0.07	0.040
44.25	-43.68	-2.00	0.00	-174.21	0.00	174.21	5,131.96	2,565.98	11,119.0	5,567.80	0.35	-0.08	0.040
45.00	-40.48	-1.97	0.00	-172.71	0.00	172.71	5,119.71	2,559.85	11,053.2	5,534.84	0.36	-0.08	0.039
50.00	-39.85	-1.97	0.00	-162.85	0.00	162.85	5,036.97	2,518.48	10,616.9	5,316.39	0.45	-0.09	0.039
51.00	-38.53	-1.96	0.00	-160.88	0.00	160.88	4,122.13	2,061.07	8,795.72	4,404.40	0.47	-0.09	0.046
55.00	-36.91	-1.94	0.00	-153.06	0.00	153.06	4,073.45	2,036.72	8,525.16	4,268.91	0.55	-0.10	0.045
60.00	-35.32	-1.92	0.00	-143.37	0.00	143.37	4,010.96	2,005.48	8,189.23	4,100.70	0.65	-0.11	0.044
65.00	-33.76	-1.90	0.00	-133.77	0.00	133.77	3,946.67	1,973.34	7,856.10	3,933.89	0.77	-0.12	0.043
70.00	-32.23	-1.87	0.00	-124.30	0.00	124.30	3,880.57	1,940.29	7,526.04	3,768.61	0.90	-0.13	0.041
75.00	-30.73	-1.84	0.00	-114.95	0.00	114.95	3,812.66	1,906.33	7,199.33	3,605.01	1.04	-0.14	0.040
80.00	-29.70	-1.82	0.00	-105.76	0.00	105.76	3,742.95	1,871.47	6,876.24	3,443.23	1.20	-0.15	0.039
83.50	-28.98	-1.80	0.00	-99.41	0.00	99.41	3,693.07	1,846.54	6,652.39	3,331.14	1.31	-0.16	0.038
85.00	-26.99	-1.74	0.00	-96.71	0.00	96.71	3,671.43	1,835.71	6,557.06	3,283.41	1.36	-0.16	0.037
89.25	-26.80	-1.74	0.00	-89.31	0.00	89.31	2,858.04	1,429.02	5,068.78	2,538.16	1.51	-0.17	0.045
90.00	-25.55	-1.70	0.00	-88.00	0.00	88.00	2,850.48	1,425.24	5,033.50	2,520.49	1.54	-0.17	0.044
95.00	-24.33	-1.66	0.00	-79.51	0.00	79.51	2,799.03	1,399.52	4,799.47	2,403.30	1.72	-0.18	0.042
100.00	-23.14	-1.62	0.00	-71.20	0.00	71.20	2,745.77	1,372.89	4,567.71	2,287.25	1.92	-0.20	0.040
105.00	-21.97	-1.57	0.00	-63.12	0.00	63.12	2,690.71	1,345.35	4,338.48	2,172.47	2.13	-0.21	0.037
110.00	-20.83	-1.52	0.00	-55.26	0.00	55.26	2,633.83	1,316.92	4,112.06	2,059.09	2.36	-0.22	0.035
115.00	-19.71	-1.47	0.00	-47.66	0.00	47.66	2,575.15	1,287.58	3,888.73	1,947.26	2.59	-0.23	0.032
120.00	-18.83	-1.42	0.00	-40.32	0.00	40.32	2,514.66	1,257.33	3,668.77	1,837.11	2.84	-0.24	0.029
124.00	-18.50	-1.41	0.00	-34.63	0.00	34.63	2,464.97	1,232.48	3,495.41	1,750.30	3.04	-0.25	0.027
125.00	-17.35	-1.34	0.00	-33.23	0.00	33.23	2,452.37	1,226.18	3,452.45	1,728.79	3.10	-0.25	0.026
128.50	-17.07	-1.32	0.00	-28.54	0.00	28.54	1,812.51	906.25	2,533.59	1,268.68	3.28	-0.26	0.032
130.00	-13.28	-1.09	0.00	-26.56	0.00	26.56	1,800.14	900.07	2,488.68	1,246.19	3.36	-0.26	0.029
135.00	-12.42	-1.03	0.00	-21.10	0.00	21.10	1,757.73	878.86	2,340.15	1,171.81	3.64	-0.27	0.025
140.00	-11.91	-1.00	0.00	-15.93	0.00	15.93	1,713.51	856.76	2,193.64	1,098.45	3.92	-0.27	0.021
143.00	-9.36	-0.81	0.00	-12.93	0.00	12.93	1,686.12	843.06	2,106.82	1,054.98	4.09	-0.28	0.018
145.00	-8.90	-0.78	0.00	-11.30	0.00	11.30	1,667.49	833.74	2,049.43	1,026.24	4.21	-0.28	0.016
148.00	-5.81	-0.54	0.00	-8.96	0.00	8.96	1,639.01	819.50	1,964.13	983.52	4.39	-0.28	0.013
150.00	-5.24	-0.50	0.00	-7.88	0.00	7.88	1,619.66	809.83	1,907.80	955.32	4.51	-0.29	0.011
155.00	-4.69	-0.45	0.00	-5.40	0.00	5.40	1,570.02	785.01	1,769.03	885.83	4.81	-0.29	0.009
160.00	-4.48	-0.43	0.00	-3.16	0.00	3.16	1,518.58	759.29	1,633.39	817.91	5.11	-0.29	0.007
162.00	-3.22	-0.32	0.00	-2.30	0.00	2.30	1,497.49	748.75	1,580.08	791.21	5.24	-0.29	0.005
165.00	-2.74	-0.27	0.00	-1.35	0.00	1.35	1,465.32	732.66	1,501.17	751.70	5.42	-0.29	0.004
170.00	0.00	-0.26	0.00	0.00	0.00	0.00	1,400.09	700.04	1,362.73	682.38	5.73	-0.30	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	-41.99	-2.00	0.00	-260.21	0.00	260.21	5,783.02	2,891.51	15,147.4	7,584.98	0.00	0.00	0.042
5.00	-40.48	-2.00	0.00	-250.23	0.00	250.23	5,716.54	2,858.27	14,680.9	7,351.38	0.00	-0.01	0.041
10.00	-38.99	-2.00	0.00	-240.23	0.00	240.23	5,648.27	2,824.13	14,216.6	7,118.91	0.02	-0.02	0.041
15.00	-37.53	-2.01	0.00	-230.21	0.00	230.21	5,578.18	2,789.09	13,754.9	6,887.71	0.04	-0.02	0.040
20.00	-36.09	-2.01	0.00	-220.18	0.00	220.18	5,506.29	2,753.14	13,296.0	6,657.91	0.07	-0.03	0.040
25.00	-34.68	-2.00	0.00	-210.14	0.00	210.14	5,432.58	2,716.29	12,840.2	6,429.65	0.11	-0.04	0.039
30.00	-33.29	-2.00	0.00	-200.12	0.00	200.12	5,357.08	2,678.54	12,387.7	6,203.08	0.16	-0.05	0.038
35.00	-31.93	-1.99	0.00	-190.12	0.00	190.12	5,279.76	2,639.88	11,938.9	5,978.32	0.21	-0.06	0.038
40.00	-30.80	-1.98	0.00	-180.16	0.00	180.16	5,200.64	2,600.32	11,493.9	5,755.53	0.28	-0.07	0.037
44.25	-30.46	-1.98	0.00	-171.73	0.00	171.73	5,131.96	2,565.98	11,119.0	5,567.80	0.34	-0.08	0.037
45.00	-28.22	-1.95	0.00	-170.24	0.00	170.24	5,119.71	2,559.85	11,053.2	5,534.84	0.36	-0.08	0.036
50.00	-27.78	-1.95	0.00	-160.48	0.00	160.48	5,036.97	2,518.48	10,616.9	5,316.39	0.44	-0.09	0.036
51.00	-26.86	-1.94	0.00	-158.53	0.00	158.53	4,122.13	2,061.07	8,795.72	4,404.40	0.46	-0.09	0.043
55.00	-25.73	-1.92	0.00	-150.78	0.00	150.78	4,073.45	2,036.72	8,525.16	4,268.91	0.54	-0.10	0.042
60.00	-24.62	-1.90	0.00	-141.19	0.00	141.19	4,010.96	2,005.48	8,189.23	4,100.70	0.64	-0.11	0.041
65.00	-23.53	-1.87	0.00	-131.71	0.00	131.71	3,946.67	1,973.34	7,856.10	3,933.89	0.76	-0.12	0.039
70.00	-22.47	-1.85	0.00	-122.35	0.00	122.35	3,880.57	1,940.29	7,526.04	3,768.61	0.89	-0.13	0.038
75.00	-21.42	-1.81	0.00	-113.12	0.00	113.12	3,812.66	1,906.33	7,199.33	3,605.01	1.03	-0.14	0.037
80.00	-20.70	-1.79	0.00	-104.05	0.00	104.05	3,742.95	1,871.47	6,876.24	3,443.23	1.18	-0.15	0.036
83.50	-20.21	-1.77	0.00	-97.78	0.00	97.78	3,693.07	1,846.54	6,652.39	3,331.14	1.29	-0.16	0.035
85.00	-18.81	-1.72	0.00	-95.12	0.00	95.12	3,671.43	1,835.71	6,557.06	3,283.41	1.34	-0.16	0.034
89.25	-18.68	-1.71	0.00	-87.83	0.00	87.83	2,858.04	1,429.02	5,068.78	2,538.16	1.49	-0.17	0.041
90.00	-17.81	-1.67	0.00	-86.54	0.00	86.54	2,850.48	1,425.24	5,033.50	2,520.49	1.51	-0.17	0.041
95.00	-16.96	-1.64	0.00	-78.17	0.00	78.17	2,799.03	1,399.52	4,799.47	2,403.30	1.70	-0.18	0.039
100.00	-16.13	-1.59	0.00	-69.99	0.00	69.99	2,745.77	1,372.89	4,567.71	2,287.25	1.90	-0.19	0.036
105.00	-15.31	-1.55	0.00	-62.03	0.00	62.03	2,690.71	1,345.35	4,338.48	2,172.47	2.10	-0.20	0.034
110.00	-14.52	-1.50	0.00	-54.31	0.00	54.31	2,633.83	1,316.92	4,112.06	2,059.09	2.33	-0.22	0.032
115.00	-13.74	-1.44	0.00	-46.83	0.00	46.83	2,575.15	1,287.58	3,888.73	1,947.26	2.56	-0.23	0.029
120.00	-13.13	-1.40	0.00	-39.62	0.00	39.62	2,514.66	1,257.33	3,668.77	1,837.11	2.80	-0.24	0.027
124.00	-12.90	-1.38	0.00	-34.03	0.00	34.03	2,464.97	1,232.48	3,495.41	1,750.30	3.00	-0.24	0.025
125.00	-12.09	-1.32	0.00	-32.65	0.00	32.65	2,452.37	1,226.18	3,452.45	1,728.79	3.05	-0.25	0.024
128.50	-11.90	-1.30	0.00	-28.05	0.00	28.05	1,812.51	906.25	2,533.59	1,268.68	3.23	-0.25	0.029
130.00	-9.26	-1.07	0.00	-26.10	0.00	26.10	1,800.14	900.07	2,488.68	1,246.19	3.31	-0.25	0.026
135.00	-8.66	-1.02	0.00	-20.74	0.00	20.74	1,757.73	878.86	2,340.15	1,171.81	3.58	-0.26	0.023
140.00	-8.30	-0.98	0.00	-15.66	0.00	15.66	1,713.51	856.76	2,193.64	1,098.45	3.86	-0.27	0.019
143.00	-6.53	-0.80	0.00	-12.71	0.00	12.71	1,686.12	843.06	2,106.82	1,054.98	4.03	-0.27	0.016
145.00	-6.21	-0.77	0.00	-11.11	0.00	11.11	1,667.49	833.74	2,049.43	1,026.24	4.15	-0.28	0.015
148.00	-4.05	-0.53	0.00	-8.81	0.00	8.81	1,639.01	819.50	1,964.13	983.52	4.32	-0.28	0.011
150.00	-3.65	-0.49	0.00	-7.75	0.00	7.75	1,619.66	809.83	1,907.80	955.32	4.44	-0.28	0.010
155.00	-3.27	-0.44	0.00	-5.31	0.00	5.31	1,570.02	785.01	1,769.03	885.83	4.74	-0.29	0.008
160.00	-3.12	-0.42	0.00	-3.10	0.00	3.10	1,518.58	759.29	1,633.39	817.91	5.04	-0.29	0.006
162.00	-2.24	-0.31	0.00	-2.26	0.00	2.26	1,497.49	748.75	1,580.08	791.21	5.16	-0.29	0.004
165.00	-1.91	-0.27	0.00	-1.33	0.00	1.33	1,465.32	732.66	1,501.17	751.70	5.34	-0.29	0.003
170.00	0.00	-0.26	0.00	0.00	0.00	0.00	1,400.09	700.04	1,362.73	682.38	5.65	-0.29	0.000

Equivalent Modal Forces Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.20
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)
43	167.50	385	1.835	1.702	1.038	0.323	108	476
42	163.50	239	1.748	1.314	0.891	0.272	56	295
41	161.00	173	1.695	1.104	0.807	0.242	36	214
40	157.50	444	1.622	0.849	0.701	0.203	78	549
39	152.50	460	1.521	0.554	0.568	0.152	61	570
38	149.00	189	1.452	0.389	0.487	0.120	20	234
37	146.50	372	1.404	0.291	0.435	0.100	32	461
36	144.00	252	1.356	0.206	0.388	0.080	17	311
35	141.50	412	1.309	0.134	0.344	0.062	22	510
34	137.50	700	1.236	0.042	0.283	0.037	23	866
33	132.50	717	1.148	-0.039	0.218	0.011	7	887
32	129.25	225	1.093	-0.074	0.182	-0.003	-1	278
31	126.75	930	1.051	-0.094	0.158	-0.012	-10	1,151
30	124.50	269	1.014	-0.106	0.138	-0.019	-4	333
29	122.00	707	0.973	-0.116	0.119	-0.025	-15	875
28	117.50	902	0.903	-0.122	0.088	-0.033	-25	1,117
27	112.50	923	0.828	-0.116	0.062	-0.035	-28	1,142
26	107.50	944	0.756	-0.102	0.042	-0.033	-27	1,168
25	102.50	965	0.687	-0.083	0.027	-0.026	-22	1,194
24	97.50	986	0.622	-0.061	0.017	-0.016	-13	1,220
23	92.50	1,007	0.560	-0.038	0.011	-0.003	-3	1,246
22	89.63	153	0.525	-0.025	0.008	0.004	1	189
21	87.13	1,614	0.496	-0.015	0.007	0.011	15	1,998
20	84.25	578	0.464	-0.003	0.006	0.018	9	715
19	81.75	833	0.437	0.006	0.006	0.023	17	1,030
18	77.50	1,211	0.393	0.020	0.007	0.032	33	1,498
17	72.50	1,236	0.344	0.034	0.009	0.039	42	1,529
16	67.50	1,261	0.298	0.046	0.012	0.044	48	1,560
15	62.50	1,286	0.255	0.054	0.017	0.047	52	1,591
14	57.50	1,311	0.216	0.061	0.021	0.048	55	1,622
13	53.00	1,067	0.184	0.065	0.025	0.048	45	1,320
12	50.50	511	0.167	0.066	0.028	0.048	21	632
11	47.50	2,588	0.148	0.068	0.030	0.048	107	3,202
10	44.63	393	0.130	0.069	0.033	0.047	16	486

9	42.13	1,318	0.116	0.070	0.035	0.047	53	1,631
8	37.50	1,578	0.092	0.071	0.038	0.046	62	1,953
7	32.50	1,607	0.069	0.072	0.041	0.045	62	1,989
6	27.50	1,636	0.049	0.071	0.042	0.043	61	2,025
5	22.50	1,666	0.033	0.069	0.041	0.042	60	2,061
4	17.50	1,695	0.020	0.064	0.038	0.039	57	2,097
3	12.50	1,724	0.010	0.055	0.032	0.034	51	2,133
2	7.50	1,753	0.004	0.040	0.022	0.026	40	2,169
1	2.50	1,490	0.000	0.016	0.009	0.012	15	1,844
RFS FD9R6004/2C-3L (	170.00	19	1.890	1.980	1.140	0.357	6	23
Alcatel-Lucent RRH2X	170.00	264	1.890	1.980	1.140	0.357	82	327
Antel BXA-70080-4BF-	170.00	30	1.890	1.980	1.140	0.357	9	37
RFS DB-T1-6Z-8AB-0Z	170.00	44	1.890	1.980	1.140	0.357	14	54
Andrew LNX-6514DS-A1	170.00	116	1.890	1.980	1.140	0.357	36	144
Commscope HBXX-	170.00	245	1.890	1.980	1.140	0.357	76	303
Flat Low Profile Pla	170.00	1,500	1.890	1.980	1.140	0.357	464	1,856
Andrew HBX-6516DS-VT	162.00	30	1.716	1.185	0.840	0.254	7	37
Round T-Arm	162.00	750	1.716	1.185	0.840	0.254	165	928
Powerwave LGP21901	148.00	33	1.432	0.348	0.466	0.112	3	41
Powerwave LGP21401	148.00	85	1.432	0.348	0.466	0.112	8	105
Ericsson RRUS 11 (Ba	148.00	300	1.432	0.348	0.466	0.112	29	371
SSB (27 lb)	148.00	27	1.432	0.348	0.466	0.112	3	33
Powerwave 7770.00	148.00	210	1.432	0.348	0.466	0.112	20	260
KMW AM-X-CD-16-65-00	148.00	97	1.432	0.348	0.466	0.112	9	120
Powerwave P65-17-XLH	148.00	59	1.432	0.348	0.466	0.112	6	73
Flat Low Profile Pla	148.00	1,500	1.432	0.348	0.466	0.112	145	1,856
Andrew ATSBT-	143.00	5	1.337	0.176	0.370	0.073	0	7
Ericsson KRY 112 144	143.00	33	1.337	0.176	0.370	0.073	2	41
RFS APXV18-203219-C	143.00	117	1.337	0.176	0.370	0.073	7	145
Commscope LNX-	143.00	151	1.337	0.176	0.370	0.073	10	187
Round Low Profile Pl	143.00	1,500	1.337	0.176	0.370	0.073	95	1,856
Alcatel-Lucent RRH 1	130.00	138	1.105	-0.067	0.190	0.000	0	171
Alcatel-Lucent 800MH	130.00	159	1.105	-0.067	0.190	0.000	0	197
Alcatel-Lucent TD-RR	130.00	198	1.105	-0.067	0.190	0.000	0	245
RFS APXV9TM14-ALU-I2	130.00	165	1.105	-0.067	0.190	0.000	0	205
RFS APXV9ERR18-C (62	130.00	186	1.105	-0.067	0.190	0.000	0	230
Flat Low Profile Pla	130.00	1,500	1.105	-0.067	0.190	0.000	0	1,856
		50,167	70.704	26.100	23.892	6.450	2,429	62,074

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)
43	167.50	385	1.835	1.702	1.038	0.323	108	332
42	163.50	239	1.748	1.314	0.891	0.272	56	206
41	161.00	173	1.695	1.104	0.807	0.242	36	149
40	157.50	444	1.622	0.849	0.701	0.203	78	383
39	152.50	460	1.521	0.554	0.568	0.152	61	397
38	149.00	189	1.452	0.389	0.487	0.120	20	163
37	146.50	372	1.404	0.291	0.435	0.100	32	321
36	144.00	252	1.356	0.206	0.388	0.080	17	217
35	141.50	412	1.309	0.134	0.344	0.062	22	355
34	137.50	700	1.236	0.042	0.283	0.037	23	604
33	132.50	717	1.148	-0.039	0.218	0.011	7	618
32	129.25	225	1.093	-0.074	0.182	-0.003	-1	194
31	126.75	930	1.051	-0.094	0.158	-0.012	-10	802
30	124.50	269	1.014	-0.106	0.138	-0.019	-4	232
29	122.00	707	0.973	-0.116	0.119	-0.025	-15	610
28	117.50	902	0.903	-0.122	0.088	-0.033	-25	779

27	112.50	923	0.828	-0.116	0.062	-0.035	-28	797
26	107.50	944	0.756	-0.102	0.042	-0.033	-27	815
25	102.50	965	0.687	-0.083	0.027	-0.026	-22	832
24	97.50	986	0.622	-0.061	0.017	-0.016	-13	850
23	92.50	1,007	0.560	-0.038	0.011	-0.003	-3	868
22	89.63	153	0.525	-0.025	0.008	0.004	1	132
21	87.13	1,614	0.496	-0.015	0.007	0.011	15	1,393
20	84.25	578	0.464	-0.003	0.006	0.018	9	498
19	81.75	833	0.437	0.006	0.006	0.023	17	718
18	77.50	1,211	0.393	0.020	0.007	0.032	33	1,044
17	72.50	1,236	0.344	0.034	0.009	0.039	42	1,066
16	67.50	1,261	0.298	0.046	0.012	0.044	48	1,088
15	62.50	1,286	0.255	0.054	0.017	0.047	52	1,109
14	57.50	1,311	0.216	0.061	0.021	0.048	55	1,131
13	53.00	1,067	0.184	0.065	0.025	0.048	45	920
12	50.50	511	0.167	0.066	0.028	0.048	21	441
11	47.50	2,588	0.148	0.068	0.030	0.048	107	2,233
10	44.63	393	0.130	0.069	0.033	0.047	16	339
9	42.13	1,318	0.116	0.070	0.035	0.047	53	1,137
8	37.50	1,578	0.092	0.071	0.038	0.046	62	1,361
7	32.50	1,607	0.069	0.072	0.041	0.045	62	1,386
6	27.50	1,636	0.049	0.071	0.042	0.043	61	1,412
5	22.50	1,666	0.033	0.069	0.041	0.042	60	1,437
4	17.50	1,695	0.020	0.064	0.038	0.039	57	1,462
3	12.50	1,724	0.010	0.055	0.032	0.034	51	1,487
2	7.50	1,753	0.004	0.040	0.022	0.026	40	1,512
1	2.50	1,490	0.000	0.016	0.009	0.012	15	1,285
RFS FD9R6004/2C-3L (	170.00	19	1.890	1.980	1.140	0.357	6	16
Alcatel-Lucent RRH2X	170.00	264	1.890	1.980	1.140	0.357	82	228
Antel BXA-70080-4BF-	170.00	30	1.890	1.980	1.140	0.357	9	26
RFS DB-T1-6Z-8AB-0Z	170.00	44	1.890	1.980	1.140	0.357	14	38
Andrew LNX-6514DS-A1	170.00	116	1.890	1.980	1.140	0.357	36	100
Commscope HBXX-	170.00	245	1.890	1.980	1.140	0.357	76	211
Flat Low Profile Pla	170.00	1,500	1.890	1.980	1.140	0.357	464	1,294
Andrew HBX-6516DS-VT	162.00	30	1.716	1.185	0.840	0.254	7	26
Round T-Arm	162.00	750	1.716	1.185	0.840	0.254	165	647
Powerwave LGP21901	148.00	33	1.432	0.348	0.466	0.112	3	28
Powerwave LGP21401	148.00	85	1.432	0.348	0.466	0.112	8	73
Ericsson RRUS 11 (Ba	148.00	300	1.432	0.348	0.466	0.112	29	259
SSB (27 lb)	148.00	27	1.432	0.348	0.466	0.112	3	23
Powerwave 7770.00	148.00	210	1.432	0.348	0.466	0.112	20	181
KMW AM-X-CD-16-65-00	148.00	97	1.432	0.348	0.466	0.112	9	84
Powerwave P65-17-XLH	148.00	59	1.432	0.348	0.466	0.112	6	51
Flat Low Profile Pla	148.00	1,500	1.432	0.348	0.466	0.112	145	1,294
Andrew ATSBT-	143.00	5	1.337	0.176	0.370	0.073	0	5
Ericsson KRY 112 144	143.00	33	1.337	0.176	0.370	0.073	2	28
RFS APXV18-203219-C	143.00	117	1.337	0.176	0.370	0.073	7	101
Commscope LNX-	143.00	151	1.337	0.176	0.370	0.073	10	130
Round Low Profile Pl	143.00	1,500	1.337	0.176	0.370	0.073	95	1,294
Alcatel-Lucent RRH 1	130.00	138	1.105	-0.067	0.190	0.000	0	119
Alcatel-Lucent 800MH	130.00	159	1.105	-0.067	0.190	0.000	0	137
Alcatel-Lucent TD-RR	130.00	198	1.105	-0.067	0.190	0.000	0	171
RFS APXV9TM14-ALU-I2	130.00	165	1.105	-0.067	0.190	0.000	0	143
RFS APXV9ERR18-C (62	130.00	186	1.105	-0.067	0.190	0.000	0	160
Flat Low Profile Pla	130.00	1,500	1.105	-0.067	0.190	0.000	0	1,294
		50,167	70.704	26.100	23.892	6.450	2,429	43,278

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	-60.23	-2.42	0.00	-297.10	0.00	297.10	5,783.02	2,891.51	15,147.4	7,584.98	0.00	0.00	0.050
5.00	-58.06	-2.39	0.00	-285.01	0.00	285.01	5,716.54	2,858.27	14,680.9	7,351.38	0.00	-0.01	0.049
10.00	-55.93	-2.34	0.00	-273.07	0.00	273.07	5,648.27	2,824.13	14,216.6	7,118.91	0.02	-0.02	0.048
15.00	-53.83	-2.30	0.00	-261.35	0.00	261.35	5,578.18	2,789.09	13,754.9	6,887.71	0.04	-0.03	0.048
20.00	-51.77	-2.24	0.00	-249.88	0.00	249.88	5,506.29	2,753.14	13,296.0	6,657.91	0.08	-0.04	0.047
25.00	-49.74	-2.19	0.00	-238.66	0.00	238.66	5,432.58	2,716.29	12,840.2	6,429.65	0.12	-0.05	0.046
30.00	-47.75	-2.13	0.00	-227.72	0.00	227.72	5,357.08	2,678.54	12,387.7	6,203.08	0.18	-0.06	0.046
35.00	-45.80	-2.08	0.00	-217.05	0.00	217.05	5,279.76	2,639.88	11,938.9	5,978.32	0.24	-0.07	0.045
40.00	-44.17	-2.03	0.00	-206.67	0.00	206.67	5,200.64	2,600.32	11,493.9	5,755.53	0.32	-0.08	0.044
44.25	-43.68	-2.02	0.00	-198.05	0.00	198.05	5,131.96	2,565.98	11,119.0	5,567.80	0.39	-0.09	0.044
45.00	-40.48	-1.91	0.00	-196.53	0.00	196.53	5,119.71	2,559.85	11,053.2	5,534.84	0.41	-0.09	0.043
50.00	-39.85	-1.89	0.00	-186.99	0.00	186.99	5,036.97	2,518.48	10,616.9	5,316.39	0.50	-0.10	0.043
51.00	-38.53	-1.85	0.00	-185.10	0.00	185.10	4,122.13	2,061.07	8,795.72	4,404.40	0.53	-0.10	0.051
55.00	-36.91	-1.80	0.00	-177.71	0.00	177.71	4,073.45	2,036.72	8,525.16	4,268.91	0.61	-0.11	0.051
60.00	-35.32	-1.75	0.00	-168.73	0.00	168.73	4,010.96	2,005.48	8,189.23	4,100.70	0.74	-0.12	0.050
65.00	-33.76	-1.70	0.00	-159.98	0.00	159.98	3,946.67	1,973.34	7,856.10	3,933.89	0.87	-0.14	0.049
70.00	-32.23	-1.67	0.00	-151.46	0.00	151.46	3,880.57	1,940.29	7,526.04	3,768.61	1.02	-0.15	0.048
75.00	-30.73	-1.64	0.00	-143.13	0.00	143.13	3,812.66	1,906.33	7,199.33	3,605.01	1.18	-0.16	0.048
80.00	-29.70	-1.62	0.00	-134.95	0.00	134.95	3,742.95	1,871.47	6,876.24	3,443.23	1.36	-0.17	0.047
83.50	-28.98	-1.61	0.00	-129.27	0.00	129.27	3,693.07	1,846.54	6,652.39	3,331.14	1.49	-0.18	0.047
85.00	-26.99	-1.60	0.00	-126.85	0.00	126.85	3,671.43	1,835.71	6,557.06	3,283.41	1.55	-0.19	0.046
89.25	-26.80	-1.60	0.00	-120.06	0.00	120.06	2,858.04	1,429.02	5,068.78	2,538.16	1.72	-0.20	0.057
90.00	-25.55	-1.60	0.00	-118.86	0.00	118.86	2,850.48	1,425.24	5,033.50	2,520.49	1.75	-0.20	0.056
95.00	-24.33	-1.62	0.00	-110.85	0.00	110.85	2,799.03	1,399.52	4,799.47	2,403.30	1.97	-0.22	0.055
100.00	-23.14	-1.64	0.00	-102.77	0.00	102.77	2,745.77	1,372.89	4,567.71	2,287.25	2.21	-0.24	0.053
105.00	-21.97	-1.67	0.00	-94.56	0.00	94.56	2,690.71	1,345.35	4,338.48	2,172.47	2.47	-0.25	0.052
110.00	-20.82	-1.70	0.00	-86.21	0.00	86.21	2,633.83	1,316.92	4,112.06	2,059.09	2.74	-0.27	0.050
115.00	-19.71	-1.73	0.00	-77.72	0.00	77.72	2,575.15	1,287.58	3,888.73	1,947.26	3.04	-0.29	0.048
120.00	-18.83	-1.74	0.00	-69.09	0.00	69.09	2,514.66	1,257.33	3,668.77	1,837.11	3.35	-0.30	0.045
124.00	-18.50	-1.75	0.00	-62.13	0.00	62.13	2,464.97	1,232.48	3,495.41	1,750.30	3.61	-0.32	0.043
125.00	-17.35	-1.75	0.00	-60.38	0.00	60.38	2,452.37	1,226.18	3,452.45	1,728.79	3.67	-0.32	0.042
128.50	-17.07	-1.75	0.00	-54.25	0.00	54.25	1,812.51	906.25	2,533.59	1,268.68	3.91	-0.33	0.052
130.00	-13.28	-1.73	0.00	-51.62	0.00	51.62	1,800.14	900.07	2,488.68	1,246.19	4.02	-0.34	0.049
135.00	-12.41	-1.70	0.00	-42.98	0.00	42.98	1,757.73	878.86	2,340.15	1,171.81	4.38	-0.35	0.044
140.00	-11.90	-1.68	0.00	-34.47	0.00	34.47	1,713.51	856.76	2,193.64	1,098.45	4.76	-0.37	0.038
143.00	-9.36	-1.53	0.00	-29.43	0.00	29.43	1,686.12	843.06	2,106.82	1,054.98	5.00	-0.38	0.033
145.00	-8.90	-1.50	0.00	-26.36	0.00	26.36	1,667.49	833.74	2,049.43	1,026.24	5.16	-0.39	0.031
148.00	-5.80	-1.24	0.00	-21.86	0.00	21.86	1,639.01	819.50	1,964.13	983.52	5.40	-0.39	0.026
150.00	-5.23	-1.17	0.00	-19.39	0.00	19.39	1,619.66	809.83	1,907.80	955.32	5.57	-0.40	0.024
155.00	-4.69	-1.09	0.00	-13.54	0.00	13.54	1,570.02	785.01	1,769.03	885.83	5.99	-0.41	0.018
160.00	-4.47	-1.05	0.00	-8.08	0.00	8.08	1,518.58	759.29	1,633.39	817.91	6.42	-0.41	0.013
162.00	-3.21	-0.82	0.00	-5.98	0.00	5.98	1,497.49	748.75	1,580.08	791.21	6.59	-0.42	0.010
165.00	-2.74	-0.71	0.00	-3.53	0.00	3.53	1,465.32	732.66	1,501.17	751.70	6.86	-0.42	0.007
170.00	0.00	-0.69	0.00	0.00	0.00	0.00	1,400.09	700.04	1,362.73	682.38	7.30	-0.42	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	-41.99	-2.42	0.00	-293.57	0.00	293.57	5,783.02	2,891.51	15,147.4	7,584.98	0.00	0.00	0.046
5.00	-40.48	-2.38	0.00	-281.49	0.00	281.49	5,716.54	2,858.27	14,680.9	7,351.38	0.00	-0.01	0.045
10.00	-38.99	-2.34	0.00	-269.57	0.00	269.57	5,648.27	2,824.13	14,216.6	7,118.91	0.02	-0.02	0.045
15.00	-37.53	-2.29	0.00	-257.89	0.00	257.89	5,578.18	2,789.09	13,754.9	6,887.71	0.04	-0.03	0.044
20.00	-36.09	-2.23	0.00	-246.46	0.00	246.46	5,506.29	2,753.14	13,296.0	6,657.91	0.08	-0.04	0.044
25.00	-34.68	-2.17	0.00	-235.30	0.00	235.30	5,432.58	2,716.29	12,840.2	6,429.65	0.12	-0.05	0.043
30.00	-33.29	-2.12	0.00	-224.43	0.00	224.43	5,357.08	2,678.54	12,387.7	6,203.08	0.18	-0.06	0.042
35.00	-31.93	-2.06	0.00	-213.84	0.00	213.84	5,279.76	2,639.88	11,938.9	5,978.32	0.24	-0.07	0.042
40.00	-30.79	-2.01	0.00	-203.55	0.00	203.55	5,200.64	2,600.32	11,493.9	5,755.53	0.31	-0.08	0.041
44.25	-30.46	-2.00	0.00	-195.01	0.00	195.01	5,131.96	2,565.98	11,119.0	5,567.80	0.39	-0.09	0.041
45.00	-28.22	-1.89	0.00	-193.51	0.00	193.51	5,119.71	2,559.85	11,053.2	5,534.84	0.40	-0.09	0.040
50.00	-27.78	-1.87	0.00	-184.07	0.00	184.07	5,036.97	2,518.48	10,616.9	5,316.39	0.50	-0.10	0.040
51.00	-26.86	-1.83	0.00	-182.21	0.00	182.21	4,122.13	2,061.07	8,795.72	4,404.40	0.52	-0.10	0.048
55.00	-25.73	-1.77	0.00	-174.90	0.00	174.90	4,073.45	2,036.72	8,525.16	4,268.91	0.61	-0.11	0.047
60.00	-24.62	-1.72	0.00	-166.04	0.00	166.04	4,010.96	2,005.48	8,189.23	4,100.70	0.73	-0.12	0.047
65.00	-23.53	-1.68	0.00	-157.42	0.00	157.42	3,946.67	1,973.34	7,856.10	3,933.89	0.86	-0.13	0.046
70.00	-22.47	-1.64	0.00	-149.02	0.00	149.02	3,880.57	1,940.29	7,526.04	3,768.61	1.00	-0.15	0.045
75.00	-21.42	-1.61	0.00	-140.83	0.00	140.83	3,812.66	1,906.33	7,199.33	3,605.01	1.16	-0.16	0.045
80.00	-20.70	-1.59	0.00	-132.79	0.00	132.79	3,742.95	1,871.47	6,876.24	3,443.23	1.34	-0.17	0.044
83.50	-20.21	-1.59	0.00	-127.21	0.00	127.21	3,693.07	1,846.54	6,652.39	3,331.14	1.47	-0.18	0.044
85.00	-18.81	-1.57	0.00	-124.83	0.00	124.83	3,671.43	1,835.71	6,557.06	3,283.41	1.53	-0.19	0.043
89.25	-18.68	-1.57	0.00	-118.17	0.00	118.17	2,858.04	1,429.02	5,068.78	2,538.16	1.70	-0.20	0.053
90.00	-17.81	-1.57	0.00	-116.99	0.00	116.99	2,850.48	1,425.24	5,033.50	2,520.49	1.73	-0.20	0.053
95.00	-16.96	-1.59	0.00	-109.13	0.00	109.13	2,799.03	1,399.52	4,799.47	2,403.30	1.95	-0.22	0.051
100.00	-16.13	-1.61	0.00	-101.20	0.00	101.20	2,745.77	1,372.89	4,567.71	2,287.25	2.18	-0.23	0.050
105.00	-15.31	-1.64	0.00	-93.15	0.00	93.15	2,690.71	1,345.35	4,338.48	2,172.47	2.43	-0.25	0.049
110.00	-14.52	-1.67	0.00	-84.95	0.00	84.95	2,633.83	1,316.92	4,112.06	2,059.09	2.70	-0.27	0.047
115.00	-13.74	-1.69	0.00	-76.62	0.00	76.62	2,575.15	1,287.58	3,888.73	1,947.26	2.99	-0.28	0.045
120.00	-13.13	-1.71	0.00	-68.15	0.00	68.15	2,514.66	1,257.33	3,668.77	1,837.11	3.30	-0.30	0.042
124.00	-12.89	-1.71	0.00	-61.31	0.00	61.31	2,464.97	1,232.48	3,495.41	1,750.30	3.55	-0.31	0.040
125.00	-12.09	-1.72	0.00	-59.60	0.00	59.60	2,452.37	1,226.18	3,452.45	1,728.79	3.62	-0.32	0.039
128.50	-11.90	-1.72	0.00	-53.58	0.00	53.58	1,812.51	906.25	2,533.59	1,268.68	3.86	-0.33	0.049
130.00	-9.25	-1.70	0.00	-51.00	0.00	51.00	1,800.14	900.07	2,488.68	1,246.19	3.96	-0.33	0.046
135.00	-8.65	-1.68	0.00	-42.48	0.00	42.48	1,757.73	878.86	2,340.15	1,171.81	4.32	-0.35	0.041
140.00	-8.29	-1.66	0.00	-34.09	0.00	34.09	1,713.51	856.76	2,193.64	1,098.45	4.69	-0.37	0.036
143.00	-6.52	-1.51	0.00	-29.12	0.00	29.12	1,686.12	843.06	2,106.82	1,054.98	4.92	-0.37	0.031
145.00	-6.20	-1.48	0.00	-26.10	0.00	26.10	1,667.49	833.74	2,049.43	1,026.24	5.08	-0.38	0.029
148.00	-4.04	-1.22	0.00	-21.65	0.00	21.65	1,639.01	819.50	1,964.13	983.52	5.32	-0.39	0.024
150.00	-3.65	-1.16	0.00	-19.21	0.00	19.21	1,619.66	809.83	1,907.80	955.32	5.49	-0.39	0.022
155.00	-3.26	-1.08	0.00	-13.41	0.00	13.41	1,570.02	785.01	1,769.03	885.83	5.90	-0.40	0.017
160.00	-3.12	-1.04	0.00	-8.01	0.00	8.01	1,518.58	759.29	1,633.39	817.91	6.33	-0.41	0.012
162.00	-2.24	-0.81	0.00	-5.92	0.00	5.92	1,497.49	748.75	1,580.08	791.21	6.50	-0.41	0.009
165.00	-1.91	-0.70	0.00	-3.50	0.00	3.50	1,465.32	732.66	1,501.17	751.70	6.76	-0.41	0.006
170.00	0.00	-0.69	0.00	0.00	0.00	0.00	1,400.09	700.04	1,362.73	682.38	7.19	-0.42	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	29.51	0.00	60.17	0.00	0.00	3489.25	51.00	0.48
0.9D + 1.6W	29.50	0.00	45.12	0.00	0.00	3456.87	51.00	0.47
1.2D + 1.0Di + 1.0Wi	8.32	0.00	94.83	0.00	0.00	988.05	51.00	0.15
(1.2 + 0.2Sds) * DL + E ELFM	2.00	0.00	60.23	0.00	0.00	263.13	51.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.42	0.00	60.23	0.00	0.00	297.10	89.25	0.06
(0.9 - 0.2Sds) * DL + E ELFM	2.00	0.00	41.99	0.00	0.00	260.21	51.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.42	0.00	41.99	0.00	0.00	293.57	89.25	0.05
1.0D + 1.0W	6.51	0.00	50.17	0.00	0.00	765.21	51.00	0.11

Site Number:	376047	*Last Updated:*	*9/1/2017*
Site Name:	MANSFIELD CENTER 2 CT, CT		
Job Number:	OAA716740		
Engineer:	Jordan.Russ		
Date:	11/15/2017		

Base Plate and Bolt Analysis

Moment:	3489.3 k-ft
Shear/Leg:	29.5 k
Compression/Leg:	60.2 k

TIA-222 Code Revision (F/G):	G
Anchor Bolt Arrangement:	Corners
Monopole Shaft Diameter (Across Flats):	64.1 in
Lower Monopole Thickness:	0.438 in
# of Sides of Pole:	18
Monopole Shaft Yield Strength:	65 ksi
Baseplate Diameter / Length:	70.00
Base Plate Thickness:	3.25 in
Base Plate Yield Strength:	55 ksi
Baseplate Detail Type:	D
Include Plate Thickness Beyond Bolt Circle:	Y
Stress Increase:	1.00
Fillet Weld Size:	0.313 in
Weld Type (CJP or F/F):	CJP
Weld Strength:	70 ksi

Anchor Bolts

Anchor Bolt Yield Strength:	75 ksi
Anchor Bolt Ultimate Strength:	100 ksi
Anchor Bolt Diameter:	2.25 in
Anchor Bolt Circle:	72.00 in
# of Anchor Bolts:	20
Minimum Anchor Bolt Separation:	6.00 in
Additional Anchor Bolts Installed:	N

	Baseplate Flexural Capacity					Baseplate Shear Capacity			
Failure Mode:	Effective Width (in)	Moment (k-in)	S/Z (in^3)	Capacity (k-in)	Usage	Shear (k)	Area (in^4)	Capacity (k)	Usage
AA	37.24	1434.8	98.3	4867.4	**0.29**	580.3	121.0	3594.4	**0.16**
BA	39.25	1721.8	103.6	5130.5	**0.34**	580.3	127.6	3788.7	**0.15**

Anchor Bolt Capacity

Area of Bolt:	3.25 in^2
Inertia of Bolt:	0.84 in^4
Total Bolt Inertia:	42106.7 in^4
Maximum Bolt Tension:	113.3 k
Maximum Bolt Compression:	119.3 k
Bolt Shear:	1.5 k
Tensile Bolt Capacity:	259.8 k
Compressive Bolt Capacity:	259.8 k
Shear Bolt Capacity:	140.3 k
Interaction Equation:	**0.47** Result: OK

Base Weld Capacity

Force / Weld:	10.3 k/in
Weld Capacity:	28.5 k/in
Interaction Equation:	**0.36** Result: OK

Sprint®

PROJECT: 2.5 EQUIPMENT DEPLOYMENT

SITE NAME: TCP/MANSFIELD

SITE CASCADE: CT33XC557-A

SITE ADDRESS: 1725 STAFFORD ROAD
MANSFIELD, CT 06268

SITE TYPE: 170'-0" MONOPOLE

SITE INFORMATION

PROPERTY OWNER:
TOWN OF MANSFIELD
4 SOUTH EAGLEVILLE ROAD
STORRS, CT 06268

SITE ADDRESS:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

GEOGRAPHIC COORDINATES:
LATITUDE: 41.835953° (41° 50' 09.43" N)
LONGITUDE: -72.307847° (72° 18' 28.25" W)

ZONING JURISDICTION:
TOWN OF MANSFIELD

ZONING DISTRICT:
RAR-90 - RURAL AGRICULTURAL RESIDENCE

POWER COMPANY:
CONN. LIGHT & POWER
PH.: (800) 286-2000

AAV PROVIDER:
AT&T
PH.: (888) 944-0447

SPRINT CONSTRUCTION MANAGER:
NAME: GARY WOOD
PHONE: (860) 940-9168
E-MAIL: gary.wood@sprint.com

EQUIPMENT SUPPLIER:
ALCATEL-LUCENT
600-700 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974
PH.: (908) 508-8080

PLANS PREPARED BY:
RAMAKER & ASSOCIATES, INC.
CONTACT: KEITH BOHNSACK, PROJECT MANAGER
PH.: (608) 643-4100
EMAIL: kbohnsack@ramaker.com

AREA MAP

LOCATION MAP

PROJECT DESCRIPTION

- INSTALL NEW 9929 ALU GROWTH CABINET
- INSTALL (2) NEW BATTERY STRINGS IN EXISTING BATTERY CABINET
- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) RRH'S ON TOWER
- INSTALL (1) FIBER CABLE AND (2) FIBER SECTOR JUMPERS
- INSTALL (27) ANTENNA / RRH JUMPERS

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED 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
2. ANSI/TIA-222 STRUCTURAL STANDARD FOR ANTENNA STRUCTURES
3. NFPA 780 - LIGHTNING PROTECTION CODE
4. NATIONAL ELECTRIC CODE

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

SHEET INDEX

SHT NO:	SHEET TITLE:	REV:	ENGINEER:
T-1	TITLE SHEET	A	JRS
SP-1	SPRINT SPECIFICATIONS	A	JRS
SP-2	SPRINT SPECIFICATIONS	A	JRS
SP-3	SPRINT SPECIFICATIONS	A	JRS
A-1	SITE PLAN	A	JRS
A-2	EQUIPMENT PLAN	A	JRS
A-3	BUILDING ELEVATION & ANTENNA DETAILS	A	JRS
A-4	RF DATA SHEET	A	JRS
A-5	FIBER PLUMBING DIAGRAM	A	JRS
A-6	CABLE COLOR CODING	A	JRS
A-7	ANTENNA & HYBRID CABLE DETAILS	A	JRS
A-8	EQUIPMENT DETAILS	A	JRS
A-9	CABINET DETAILS	A	JRS
E-1	EQUIPMENT UTILITY & GROUNDING PLAN	A	JRS
E-2	GROUNDING DETAILS	A	JRS
E-3	DC POWER DETAILS & PANEL SCHEDULES	A	JRS

Sprint®
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

James R. Skowronski 3/05/2018
Signature: Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL DATE ISSUED: 03/05/2018

PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
TITLE SHEET

SCALE: NONE

PROJECT NUMBER: 29264
SHEET NUMBER: T-1

I:\29200\29264\CAD\29264_CT33XC557_CDs.dwg Printed by: bwitmer on Mar 05, 2018 - 10:13am

DRAWN BY: TJN CHECKED BY: KAB

SECTION 01 100 - SCOPE OF WORK

THE WORK:
THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS AND ASSOCIATED OUTLINE SPECIFICATIONS AND THE SITE SPECIFIC WORK ORDER, DESCRIBE THE WORK TO BE PERFORMED BY THIS CONSTRUCTION CONTRACTOR (SUPPLIER).

RELATED DOCUMENTS:
A. THE REQUIREMENTS OF EACH SECTION OF THIS SPECIFICATION APPLY TO ALL SECTIONS, INDIVIDUALLY AND COLLECTIVELY.
B. RELATED DOCUMENTS: THE CONTRACTOR SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE FOLLOWING SUPPLEMENTAL REQUIREMENTS FOR INSTALLATION AND TESTING.
   1. EN-2012-001: (FIBER OPTIC, DC CABLE, AND DC CIRCUIT BREAKER TAGGING STANDARDS)
   2. TS-0200 - (TRANSMISSION ANTENNA LINE ACCEPTANCE STANDARDS)
   3. EL-0568: (FIBER TESTING POLICY)
   4. NP-312-201: (EXTERIOR GROUNDING SYSTEM TESTING)
   5. NP-760-500: ETHERNET, MICROWAVE, TESTING AND ACCEPTANCE

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

NATIONALLY RECOGNIZED CODES AND STANDARDS:
THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
C. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
D. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE - "NEC") AND NFPA 101 (LIFE SAFETY CODE).
E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
G. AMERICAN CONCRETE INSTITUTE (ACI)
H. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
I. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
J. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
K. PORTLAND CEMENT ASSOCIATION (PCA)
L. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
M. BRICK INDUSTRY ASSOCIATION (BIA)
N. AMERICAN WELDING SOCIETY (AWS)
O. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
P. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
Q. DOOR AND HARDWARE INSTITUTE (DHI)
R. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
S. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

DEFINITIONS:
A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: "SPRINT"; SPRINT NEXTEL CORPORATION AND IT'S OPERATING ENTITIES.
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D. CONTRACTOR: CONSTRUCTION CONTRACTOR, SUPPLIER, 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. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT.

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.

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

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.

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

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.

UTILITY 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:

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.

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

USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:
CONTRACTOR WILL UTILIZE ITS BEST EFFORTS TO WORK WITH SPRINT ELECTRONIC PROJECT MANAGEMENT SYSTEMS. CONTRACTOR UNDERSTANDS THAT SUFFICIENT INTERNET ACCESS, EQUIVALENT TO "BROADBAND" OR BETTER, IS REQUIRED TO TIMELY AND EFFECTIVELY UTILIZE SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS AND AGREES TO MAINTAIN APPROPRIATE CONNECTIONS FOR CONTRACTOR'S STAFF AND OFFICES THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS

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 LESSOR'S OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

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.

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

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

FURNISHED MATERIALS:
COMPANY FURNISHED MATERIALS AND EQUIPMENT TO BE INSTALLED BY THE CONTRACTOR (OFIC) IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

RECEIPT OF MATERIAL AND EQUIPMENT:
A. 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.
B. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
C. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
D. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

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.

SECTION 01 300 - CELL SITE CONSTRUCTION

NOTICE TO PROCEED:
A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S 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.

GENERAL REQUIREMENTS FOR 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

FUNCTIONAL REQUIREMENTS:
A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. CONTRACTOR SHALL TAKE 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:
   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 BACKHAUL (FIBER, COPPER, OR MICROWAVE).
   4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
   5. INSTALL ABOVE GROUND GROUNDING SYSTEMS, CONDUIT AND BOXES.
   6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
   7. INSTALL "H-FRAMES", CABINETS AND PADS AND PLATFORMS 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. CONDUCT ALL REQUIRED TESTS AND INSPECTIONS
   19. PERFORM, DOCUMENT, AND CLOSE OUT ALL JURISDICTIONAL PERMITTING REQUIREMENTS AND ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
   20. PERFORM ALL ADDITIONAL WORK AS IDENTIFIED IN SCOPE OF SERVICES ATTACHED TO THE SUPPLIER AGREEMENT FOR THIS PROJECT. THIS WORK MAY INCLUDE COMMISSIONING, INTEGRATION, SPECIAL WAREHOUSING, REVERSE LOGISTICS ACTIVITIES, ETC. PERFORM COMMISSIONING AND INTEGRATION ACTIVITIES PER APPLICABLE MOPS.

DELIVERABLES:
A. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEST REPORTS AND DOCUMENTATION INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
   1. PRODUCT SPECIFICATIONS FOR MATERIALS OR SPECIAL CONSTRUCTION IF REQUESTED BY SPRINT
   2. ACTUALIZE ALL CONSTRUCTION RELATED MILESTONES IN SITERRA AND COMPLETE ALL ON-LINE FORMS AND COMPLETE DOCUMENT UP-LOADS. UPLOAD ALL REQUIRED CLOSEOUT DOCUMENTS AND FINAL SITE PHOTOS
   3. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT LEFT ON SITE INSIDE BASE OF MAIN RF CABINET IN A PROTECTIVE POUCH.
   4. ALL REQUIRED TEST REPORTS.
   5. REQUIRED CLOSEOUT DOCUMENTATION INCLUDING BUT NOT LIMITED TO:
      a. ALL JURISDICTIONAL PERMITTING AND OCCUPANCY INFORMATION
      b. PDF SCAN OF REDLINES PRODUCED IN THE FIELD
      c. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS
      d. LIEN WAIVERS
      e. FINAL PAYMENT APPLICATION
      f. REQUIRED FINAL CONSTRUCTION PHOTOS
      g. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
      h. LISTS OF SUBCONTRACTORS
B. PROVIDE ADDITIONAL 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. PRE-CONSTRUCTION MEETING NOTES.

SECTION 01 400 - TESTS, INSPECTIONS, SUBMITTALS, AND PROJECT CLOSEOUT

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 (CURRENT VERSION) ANTENNA LINE ACCEPTANCE STANDARDS
   2. POST CONSTRUCTION HEIGHT VERIFICATION, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
   3. CONCRETE BREAK TESTS
   4. SITE RESISTANCE TO EARTH TEST
   5. STRUCTURAL BACKFILL COMPACTION TESTS
   6. 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.
   7. ADDITIONAL TESTING AS REQUIRED ELSEWHERE IN THIS SPECIFICATION.

SUBMITTALS:
A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
B. UPLOAD THE FOLLOWING TO SITERRA AS APPLICABLE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
   2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
   3. CHEMICAL GROUNDING SYSTEM .
   4. REINFORCEMENT CERTIFICATIONS
   5. STRUCTURAL BACKFILL TEST RESULTS
   6. SWEEP AND FIBER TESTS
   7. ANTENNA AZIMUTH AND DOWN-TILT VERIFICATION
   8. POST CONSTRUCTION HEIGHT VERIFICATION
   9. ADDITIONAL SUBMITTALS MAY BE REQUIRED FOR SPECIAL CONSTRUCTION OR MINOR MATERIALS
C. 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.

TESTING BY THIRD PARTY AGENCY:
A. EMPLOY AN AGENCY OF ENGINEERS AND SCIENTISTS WHO IS REGULARLY ENGAGED IN FIELD AND LABORATORY TESTING AND ANALYSIS. AGENCY SHALL HAVE BEEN IN BUSINESS A MINIMUM OF FIVE YEARS, AND BE LICENSED AS PROFESSIONAL ENGINEERS IN THE STATE WHERE THE PROJECT IS LOCATED. AGENCY IS SUBJECT TO APPROVAL BY COMPANY.
   1. AGENCY MUST HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
   2. 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.
B. REQUIRED THIRD PARTY TESTS:
   1. SITE RESISTANCE TO EARTH TEST PER NP-312-201
   2. CONCRETE CYLINDER BREAK TESTS FOR TOWER PIER AND ANCHORS PER NATIONALLY RECOGNIZED STANDARDS
   3. STRUCTURAL SOILS COMPACTION TESTS PER NATIONALLY RECOGNIZED STANDARDS
   4. REBAR PLACEMENT VERIFICATION WITH REPORT
   5. TESTING TENSION STUDY FOR ROCK ANCHORS
   6. ALL THIRD PARTY TESTS AS REQUIRED BY LOCAL JURISDICTION
C. REQUIRED TESTS BY CONTRACTOR
   1. COAX SWEEP TESTS PER SPRINT STANDARD TS-0200
   2. FIBER TESTS PER SPRINT STANDARD EL-0568
   3. MICROWAVE LINK TESTS PER NP-760-500
   4. ANTENNA AZIMUTHS AND DOWN TILT USING ELECTRONIC ALIGNMENT TOOL PER ANTENNA INSTALLATION SPECIFICATION HEREIN.

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: James R. Skowronski Date: 3/05/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL DATE ISSUED: 03/05/2018

PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
SPRINT SPECIFICATIONS

SCALE: NONE

PROJECT NUMBER: 29264
SHEET NUMBER: SP-1

DRAWN BY: TJN CHECKED BY: KAB

5. POST CONSTRUCTION HEIGHT VERIFICATION AS REQUIRED HEREWITH IN THE TOWER INSTALLATION SPECIFICATIONS.
6. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED HEREWITH IN THE ASPHALT PAVING SPECIFICATIONS.
7. FIELD QUALITY CONTROL TESTING AS SPECIFIED HEREWITH IN THE CONCRETE PAVING SPECIFICATIONS.
8. TESTING REQUIRED HEREWITH UNDER SPECIFICATIONS FOR AGGREGATE BASE FOR ROADWAYS
9. ALL OTHER TESTS REQUIRED BY LOCAL JURISDICTION

D. INSPECTIONS BY COMPANY: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN INSPECTION ACTIVITIES, FINAL ACCEPTANCE / PUNCH WALK REVIEW, AND/OR AS A RESULT OF TESTING

E. SPRINT RESERVES THE RIGHT TO INSPECT THE CONSTRUCTION SITE AT ANY TIME VIA SITE WALKS AND/OR PHOTO REVIEWS. CONTRACTOR SHALL GIVE SPRINT 24 HOURS NOTICE PRIOR TO THE COMMENCEMENT OF THE FOLLOWING CONSTRUCTION ACTIVITIES AND PHOTOGRAPHS OF THE IN-PROGRESS WORK.

1. GROUNDING SYSTEM AND BURIED UTILITIES 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. PRIOR TO CONSTRUCTION ACTIVITIES AND AFTER CONSTRUCTION IS COMPLETE, PROVIDE PHOTOGRAPHIC DOCUMENTATION OF ROOF, FLASHINGS, AND PARAPETS, BOTH BEFORE AND AFTER CONSTRUCTION IS COMPLETE.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. TOWER TOP AND INACCESSIBLE EQUIPMENT (RRUS, ANTENNAS, AND CABLING): PROVIDE PHOTOS OF THE BACKS OF ALL ANTENNAS, RRUS, COMBINERS, FILTERS, FIBER AND DC CABLING, CABLE COLOR CODING, EQUIPMENT GROUNDING AND CONNECTOR WATER PROOFING INCLUDING NAME PLATE AND SERIAL NUMBER FOR ALL SERIALIZED EQUIPMENT.

PROJECT CLOSEOUT:

A. FINAL ACCEPTANCE PUNCH WALK AND INSPECTION: AS IDENTIFIED IN THE SCOPE OF SERVICES, SPRINT WILL CONDUCT A FINAL PUNCH WALK OR FINAL DESK TOP PHOTO REVIEW (SITE MODIFICATIONS). PUNCH WALKS MUST BE SCHEDULED IN ADVANCE AS REQUIRED. AT THE PUNCH WALK / REVIEW, SPRINT MAY IDENTIFY CRITICAL DEFICIENCIES WHICH MUST BE CORRECTED PRIOR TO PUTTING SITE ON AIR. MINOR DEFICIENCIES MUST BE CORRECTED WITHIN 30 DAYS EXCEPT AS OTHERWISE REQUIRED. VERIFICATIONS OF CORRECTIONS MAY BE MADE BY COMPANY DURING A REPEAT SITE WALK OR DESK TOP PHOTO REVIEW AT COMPANY'S SOLE DISCRETION.

B. CLOSEOUT DOCUMENTATION: ALL CLOSEOUT DOCUMENTATION AND PHOTOGRAPHS SHALL BE UPLOADED PRIOR TO FINAL ACCEPTANCE. SPRINT WILL REVIEW CLOSEOUT DOCUMENTATION FOR PRESENCE AND CONTENT. CLOSEOUT DOCUMENTATION SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING AS APPLICABLE:

1. COAX SWEEP TESTS:
2. FIBER TESTS:
3. JURISDICTION FINAL INSPECTION DOCUMENTATION
4. REINFORCEMENT CERTIFICATION (MILL CERTIFICATION)
5. CONCRETE MIX DESIGN AND PRODUCT DATA (TOWER FOUNDATION)
6. LIEN WAIVERS AND RELEASES.
7. POST -CONSTRUCTION HEIGHT VERIFICATION
8. JURISDICTION CERTIFICATE OF OCCUPANCY
9. ELECTRONIC ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
10. STRUCTURAL BACKFILL TEST RESULTS (IF APPLICABLE)
11. CELL SITE UTILITY SETUP
12. AS-BUILT REDLINE CONSTRUCTION DRAWINGS (PDF SCAN OF FIELD MARKS)
13. AS-BUILT CONSTRUCTION DRAWINGS IN DWG AND PDF FORMATS
14. LIST OF SUB CONTRACTORS
15. APPROVED PERMITTING DOCUMENTS
16. FINAL SITE PHOTOS UP-LOADED TO SITERRA. INCLUDE THE FOLLOWING AS APPLICABLE:
    a. TOWER, ANTENNAS, RRUS, 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/CABLE 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.
    b. 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;
    c. SITE LAYOUT - PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
    d. 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.

PROJECT PHOTOGRAPHS:

A. PROVIDE PROJECT CLOSEOUT GENERAL ARRANGEMENT PHOTOS OF ALL NEW WORK. THE FOLLOWING LIST REPRESENTS MINIMUM REQUIREMENTS AND MINIMUM QUANTITY. ADDITIONAL PHOTOS MAY BE REQUIRED TO ADEQUATELY DOCUMENT THE WORK.

1. ASR AND RF MPE SIGNAGE (IF NOT IN PLACE, SUPPLIER NOTIFIES EMS FIELD REPRESENTATIVE)
2. BACK OF ANTENNAS AND RRUS (1 EACH SECTOR)
3. BACK OF ANTENNAS AND RRUS (1 EACH SECTOR) CLOSE UP SHOWING WEATHERPROOFING AND GROUNDING (AS REQUIRED). CLOSE-UP OF BACK SIDE OF EACH PERMANENT RRU SHOWING SERIAL NUMBER/BAR CODE.
4. VIEW (1 EACH SECTOR) ALONG THE AZIMUTH AND TILT OF THE ANTENNAS
5. TOP OF TOWER FROM GROUND, 1 EACH SECTOR
6. MAINLINE HYBRID CABLE ROUTE DOWN TOWER SHOWING FASTENERS AND SUPPORT
7. MAINLINE/HYBRID CABLE ROUTE ALONG ICE BRIDGE OR IN CABLE TRAY SHOWING FASTENERS AND SUPPORT
8. GROUND MOUNTED RRU RACKS (FRONT AND BACK)
9. FRONT, SIDE AND BACK ELEVATIONS OF ALL GROUND CABINETS
10. VIEW OF COMPOUND FROM A DISTANCE
11. VIEW OF EACH GROUND CABINET (POWER, RF, FIBER SPOOL, PPC POWER, PPC TELCO WITH DOOR OPEN)
12. BACKHAUL FIBER MEET-ME-POINT AND CONDUIT ROUTE (MICROWAVE INSTALLATION IF NOT FIBER)
13. AAV NETWORK INTERFACE DEVICE OR MICROWAVE RADIO INSTALLATION

DEFICIENCY CORRECTIONS:

CONTRACTOR IS RESPONSIBLE FOR ALL CORRECTIONS TO DEFICIENCIES IDENTIFIED THROUGH TESTING, REVIEW OF SUBMITTALS, INSPECTIONS AND CLOSEOUT REVIEWS.

SECTION 01 500 - PROJECT REPORTING

WEEKLY REPORTS:

A. CONTRACTOR SHALL REPORT TO SPRINT AT MINIMUM ON A WEEKLY BASIS VIA SITERRA BY UPDATING ALL APPLICABLE POST END KEEPING MILESTONES WITH ACTUAL AND FORECASTED COMPLETION DATES.

B. ADDITIONAL REQUIREMENTS FOR REPORTING MAY BE IDENTIFIED ELSEWHERE OR REQUIRED BY THE SCOPE OF SERVICES OR SPRINTS LOCAL MARKET CONSTRUCTION MANAGER. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

PROJECT CONFERENCE CALLS:

SPRINT MAY HOLD PERIODIC 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.

FINAL PROJECT ACCEPTANCE: PRIOR TO SPRINTS FINAL PROJECT ACCEPTANCE. ALL REQUIRED MILESTONE ACTUALS MUST BE UPDATED IN SITERRA AND ALL REQUIRED REPORTING TASKS MUST BE COMPLETE.

SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION

SUMMARY:

THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRU'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRU'S:

THE NUMBER AND TYPE OF ANTENNAS AND RRU'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

HYBRID CABLE:

HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURERS REQUIREMENTS.

JUMPERS AND CONNECTORS:

FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRU'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRU'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE, MIN. LENGTH FOR JUMPER SHALL BE 10'-0".

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:

INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

ANTENNA INSTALLATION:

THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.

A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.

B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

HYBRID CABLE INSTALLATION:

A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.

C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.

1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE INSTALLED INSIDE MONOPOLE WITH CABLE SUPPORT GRIPS AS REQUIRED BY THE MANUFACTURER.
2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
    a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH AT 18" O.C. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
    b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
4. CABLE INSTALLATION:
    a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
    b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.
    c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM BEND RADIUS.
5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 (CURRENT VERSION).
7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.

B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.

1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.
2. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF-AMALGAMATING TAPE.
3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRED BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURER'S INSTALLATION AND START-UP REQUIREMENTS.

DC CIRCUIT BREAKER LABELING

A. NEW DC CIRCUIT IS REQUIRED IN MMBS CABINET SHALL BE CLEARLY IDENTIFIED AS TO RRU BEING SERVICED.

SECTION 26 100 - BASIC ELECTRICAL REQUIREMENTS

SUMMARY:

THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS

QUALITY ASSURANCE:

A. ALL EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTINGS ARE AVAILABLE IN THE INDUSTRY.

B. MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE PROPOSED USE FOR THIS PROJECT.

C. MATERIALS AND EQUIPMENT: ALL MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM DEFECTS.

SUPPORTING DEVICES:

A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:

1. ALLIED TUBE AND CONDUIT.
2. B-LINE SYSTEM.
3. UNISTRUT DIVERSIFIED PRODUCTS.
4. THOMAS & BETTS.

B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:

1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL.
7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: 3/05/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL DATE ISSUED: 03/05/2018

PROJECT TITLE:

TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:

SPRINT SPECIFICATIONS

SCALE: NONE

PROJECT NUMBER: 29264

SHEET NUMBER: SP-2

SUPPORTING DEVICES:

A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.

B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.

C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:

1. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.

2. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.

B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR UNDERGROUND RUNS. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.

B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.

C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.

D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.

E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRED BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.

F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

HUBS AND BOXES:

A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.

B. CABLE TERMINATION FITTINGS FOR CONDUIT

1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL BY ROXTEC.

2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO - CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.

C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.

D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKET COVERS. OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE-HINDS FORM 8 OR EQUAL.

E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM:

A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM TO THE EXTENT INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS EXCEPT AS OTHERWISE NOTED.

B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO-OX.

C. STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:

A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: Date: 3/05/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

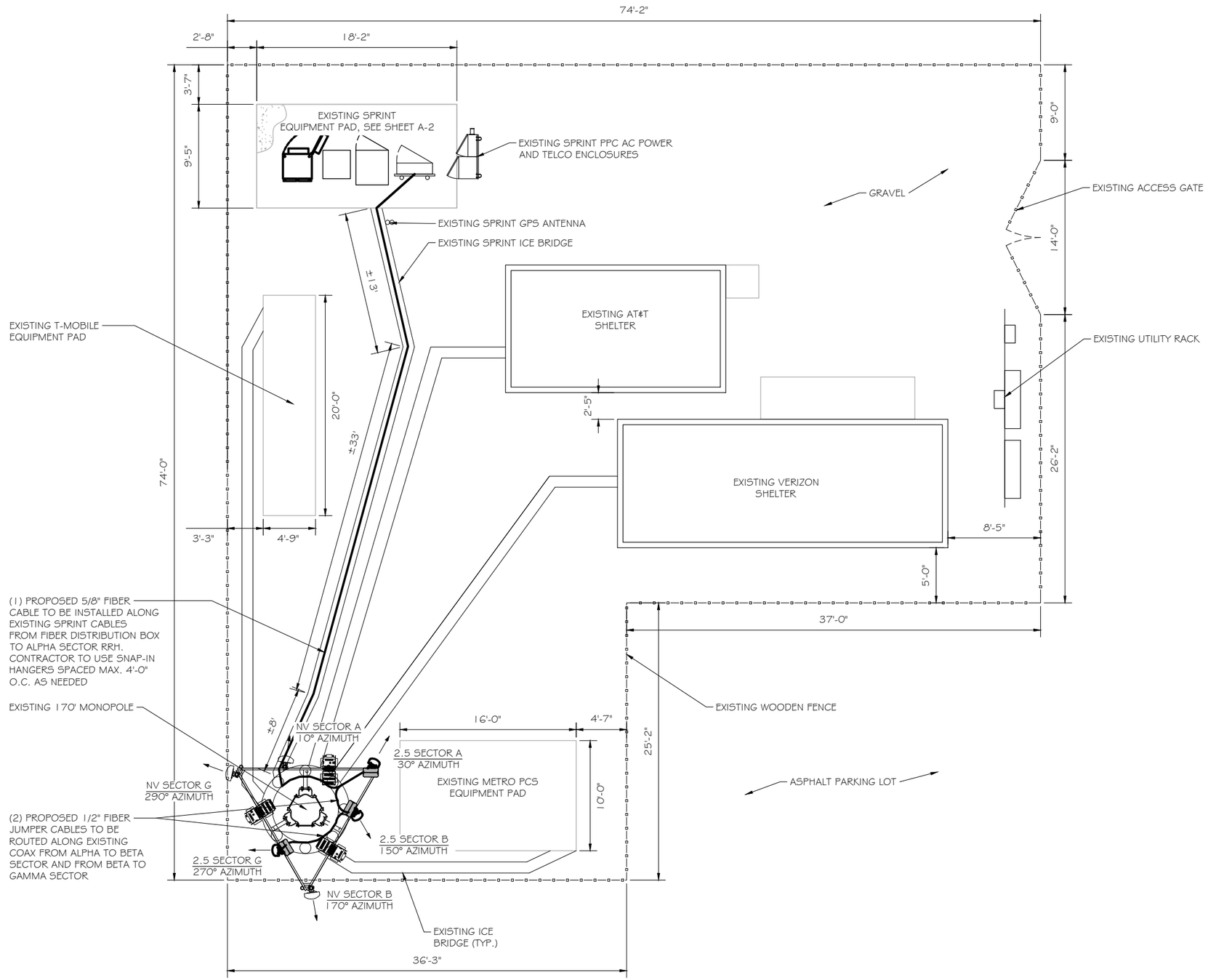
PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
SPRINT SPECIFICATIONS

SCALE: NONE

PROJECT NUMBER: 29264
SHEET NUMBER: SP-3



SITE PLAN
SCALE: 1" = 10'

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

Signature: 3/05/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

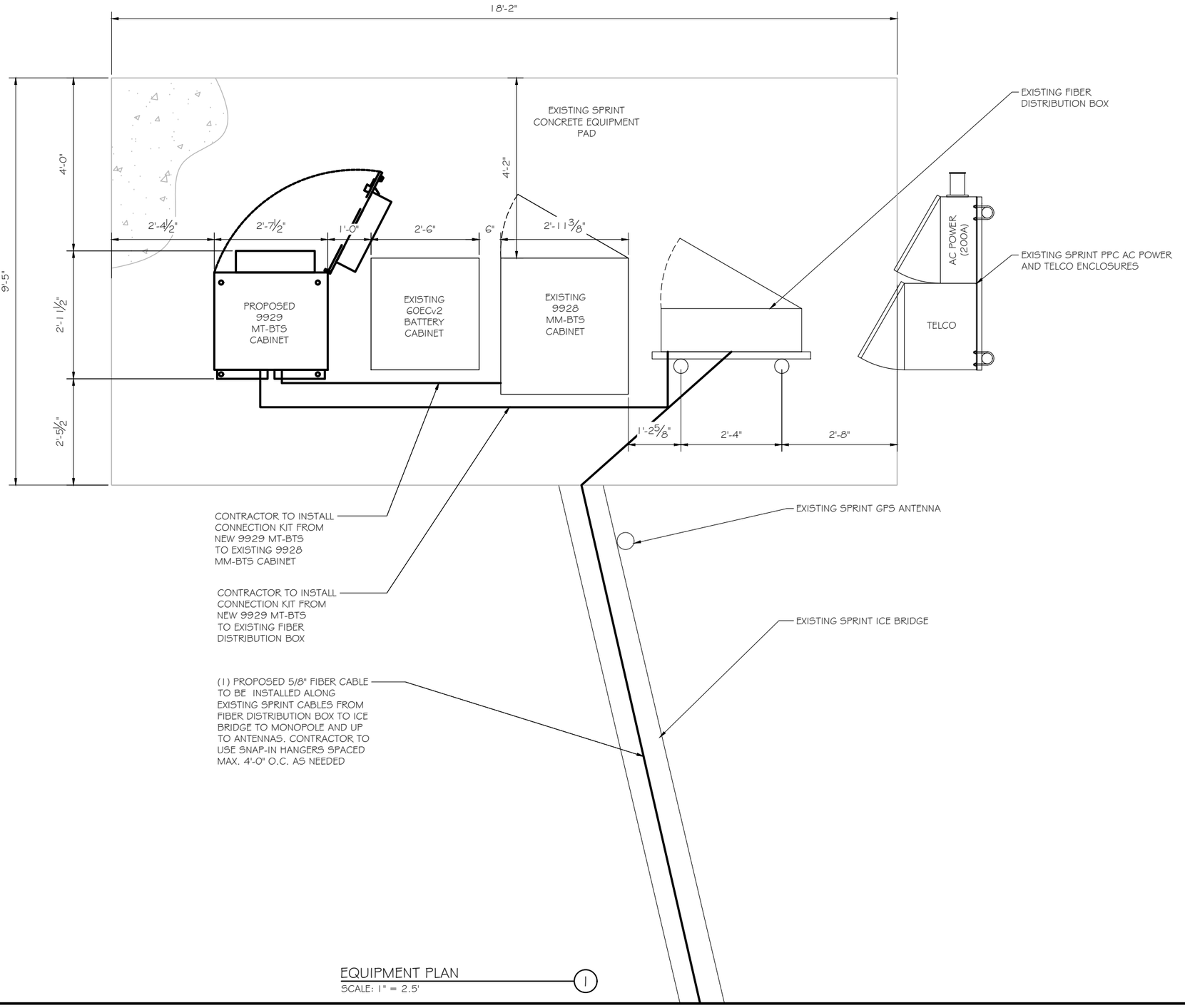
PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
SITE PLAN

0 5' 10' 20'
11" x 17" - 1" = 10'
22" x 34" - 1" = 5'

PROJECT NUMBER: 29264
SHEET NUMBER: A-1



EQUIPMENT PLAN
SCALE: 1" = 2.5'
1

NORTH

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED PROFESSIONAL ENGINEER

Signature: 3/05/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

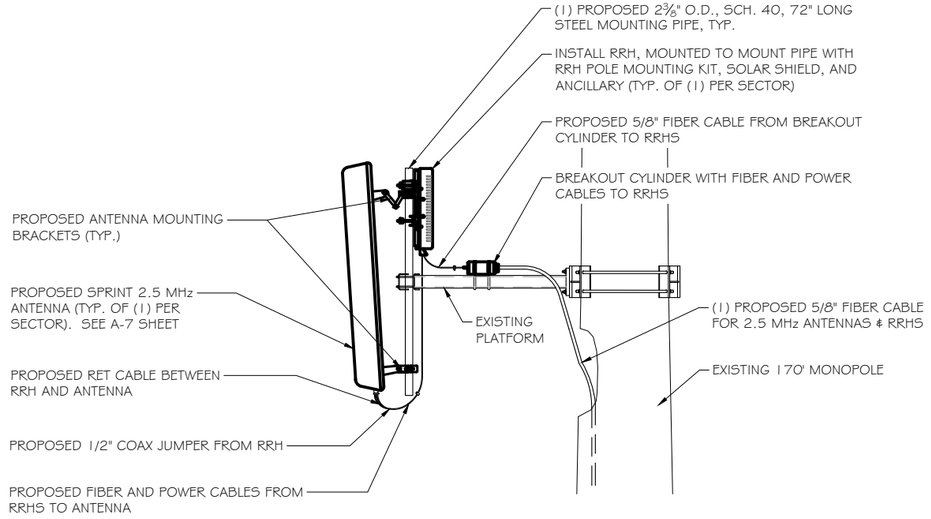
PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
EQUIPMENT PLAN

0 1.25' 2.5' 5'
11" x 17" - 1" = 2.5'
22" x 34" - 1" = 1.25'

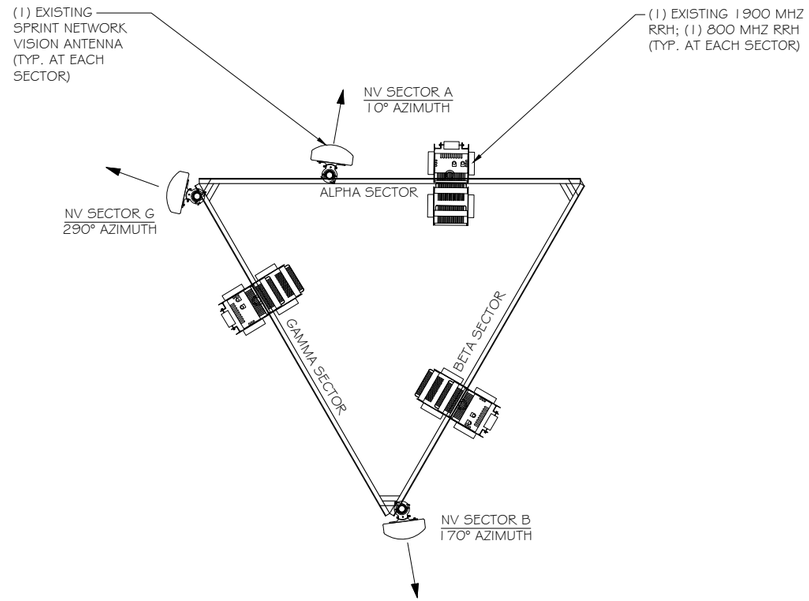
PROJECT NUMBER: 29264
SHEET NUMBER: A-2



NOTE:

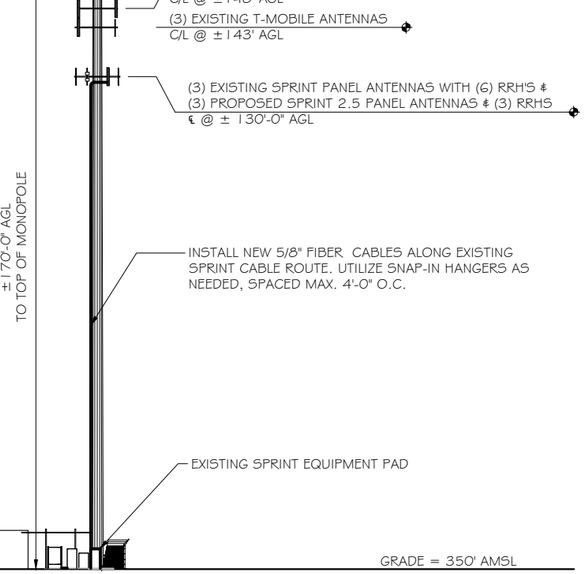
CONTRACTOR TO ENSURE THAT EXISTING AND PROPOSED ANTENNAS AND NV RRH'S ARE CENTERED VERTICALLY ON EXISTING MOUNT PLATFORM AND THAT ALL PREVIOUSLY PROPOSED STRUCTURAL MODIFICATIONS HAVE BEEN COMPLETED PER PLAN.

ANTENNA & RRH MOUNTING DETAILS (1)
SCALE: NTS



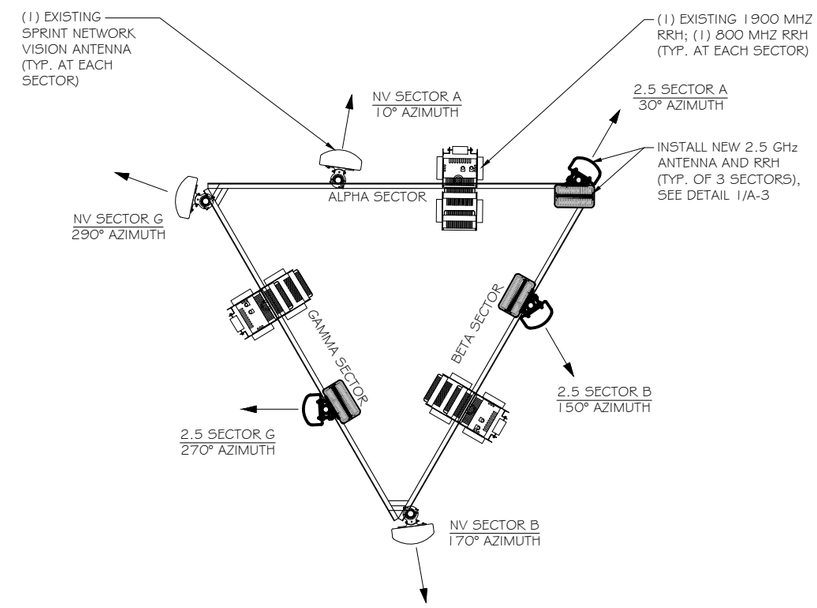
NORTH

EXISTING ANTENNA ARRAY (3)
SCALE: NTS



0 20' 40' 80'
11" x 17" - 1" = 40'
22" x 34" - 1" = 20'

BUILDING ELEVATION (2)
SCALE: 1" = 40'



NORTH

PROPOSED ANTENNA ARRAY (4)
SCALE: NTS

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: 3/05/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
BUILDING ELEVATIONS & ANTENNA DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: A-3

Sprint

RFDS Sheet

General Site Information

Site ID	CT33XC557	Equipment Vendor	Alcatel-Lucent
Market	Northern Connecticut	Lattitude	41.835953
Region	Northeast	Longitude	-72.307847
MLA	N/A	LL SITE ID	N/A
Structure Type	MONOPOLE		
BTS Type			

Solution ID		Siterra SR Equipment type		Incremental Power Draw needed by added Equipment
		Equipment Vendor	Alcatel-Lucent	40

Base Equipment

BBU Kit	ALU BBU Kit	Top Hat	None
BBU Kit Qty	1	Top Hat Qty	N/A
		Top Hat Dimenstions	N/A
Growth Cabinet	YES	Top Hat Weight (lbs)	N/A
Growth Cabinet Qty	1		
Growth Cabinet Dimensions	63.65" X 31.5" X 35.5"		
Growth Cabinet Weight	1600		

RF Path Information

RRH	TD-RRH8x20-25	
RRH Qty	3	
RRH Dimensions	26.1"x18.6"x6.7"	
RRH Weight. lbs.	70	
RRH Mount Weight. Lbs.	10	
Power and Fiber Cable	ALU Fiber only	
Cable Qty	1	
Weight per foot. Lbs.	0.242	
Diameter. Inches.	0.73	
Length Ft.	205	(calculated as antenna height plus 20%)
Coax Jumper	10'	
Coax Jumper Qty	27	
Coax Jumper Length. Feet.	8	
Coax Jumper Weight	1.7	
Coax Jumper Diameter. Inches	0.5	
AISG Cable	COMMSCOPE ATCB-B01-006	
AISG Cable Qty	3	
AISG Diameter. Inches.	0.315	
AISG Cable length.	8'	
Weight of entire AISG cable. Lbs.	1.3	

Antenna Sector Information

	Sector 1	Sector 2	Sector 3
Antenna make/model	RFS APXV9TM14-ALU-I20	RFS APXV9TM14-ALU-I20	RFS APXV9TM14-ALU-I20
Antenna qty	1	1	1
Antenna Dimensions. Inches	56.3"x12.6"x6.3"	56.3"x12.6"x6.3"	56.3"x12.6"x6.3"
Antenna Weight. Lbs	55.12	55.12	55.12
Antenna Mounting Kit Weight. Lbs.	11.5	11.5	11.5
CL Height	130	130	130
Antenna Azimuth	30	150	270
Antenna Mechanical Downtilt	0	0	0
Antenna etilt	-2	-2	-2

*RFDS SHEET WAS GENERATED BY RAMAKER & ASSOCIATES FROM PLAN OF RECORD (POR) PROVIDED BY SPRINT. CONTRACTOR SHALL VERIFY AND OBTAIN FINAL RFDS FROM SPRINT CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.

NOTES:

1. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND C/L HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR. CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5GHZ ANTENNA AT SAME C/L HEIGHT AS 1.9GHZ ANTENNA AND EMAIL CORRECT C/L HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILD DRAWING WITH CORRECT C/L HEIGHT. ALSO EMAIL CORRECT 1.9GHZ AND 800MHZ ANTENNA C/L HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
2. AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5GHZ. TEST TO INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
3. GENERAL CONTRACTOR MUST ENSURE THAT NO OBJECT IS LOCATED WITHIN 45 DEGREES OF LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5GHZ ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.
4. 2.5GHZ ANTENNA MUST BE AT LEAST 6' FROM 1.9GHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30" FROM DUAL BAND 1.9GHZ AND 800MHZ ANTENNA.
5. GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREE. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 32 RF ALIGNMENT TOOL OR EQUIVALENT TOOL.

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: Date: 3/05/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL DATE ISSUED: 03/05/2018

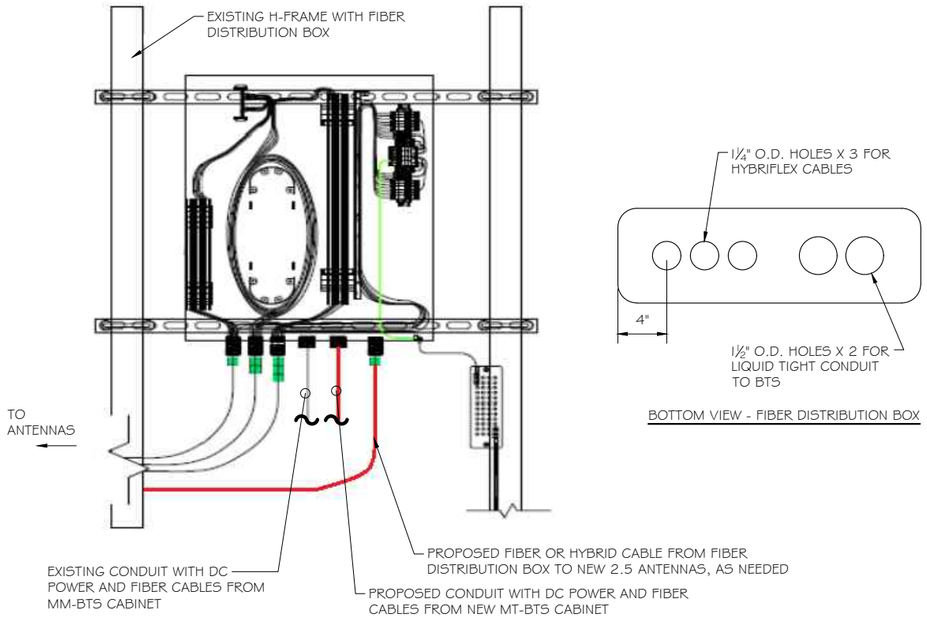
PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
RF DATA SHEET

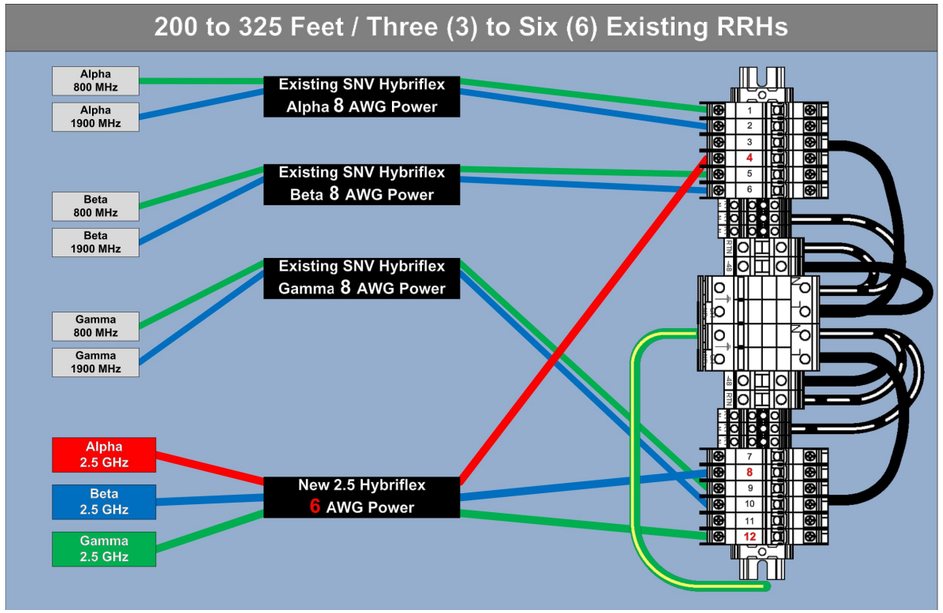
SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: A-4

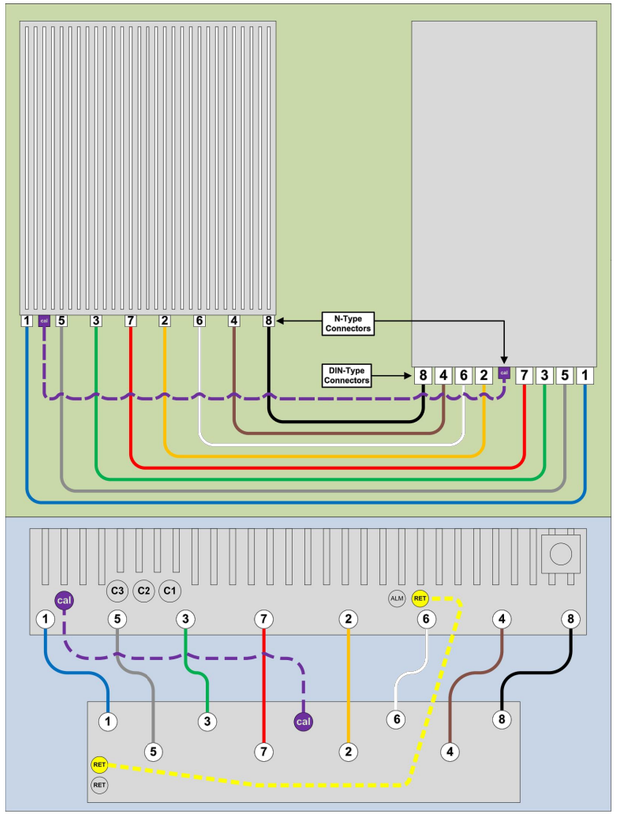


TYPICAL FIBER DISTRIBUTION BOX DETAIL (1)
SCALE: NTS

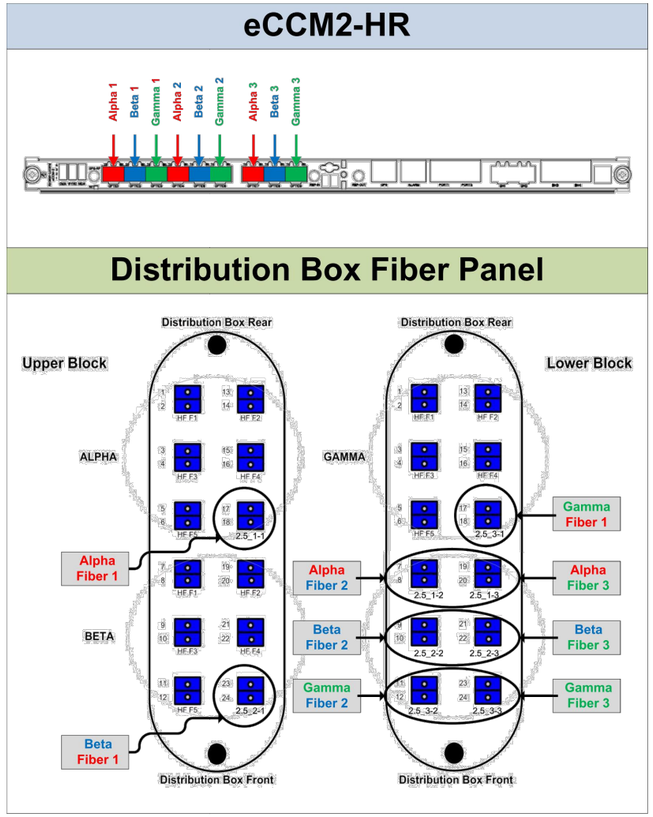
BOTTOM VIEW - FIBER DISTRIBUTION BOX



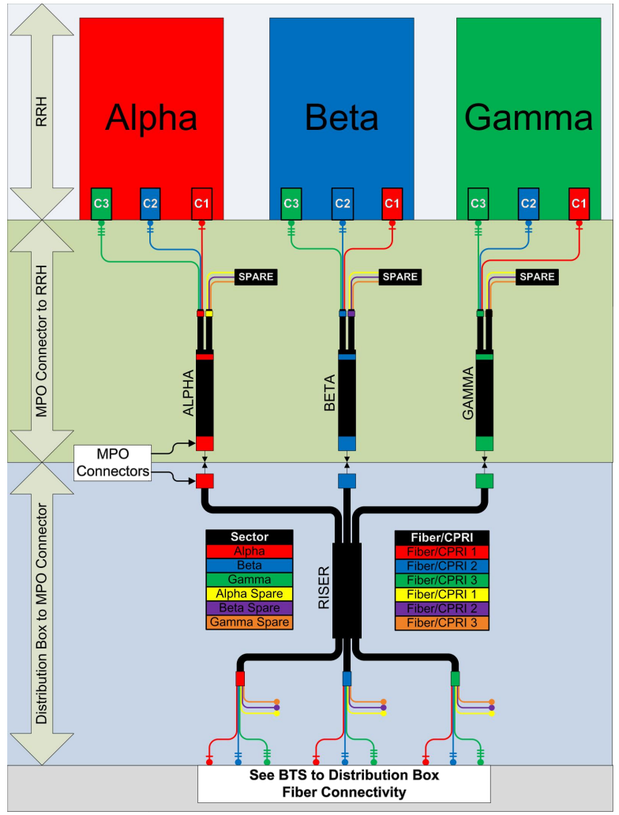
RRH TO DISTRIBUTION BOX POWER CONNECTIVITY DETAIL (2)
SCALE: NTS



8T8R DETAIL (3)
SCALE: NTS



BTS TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL (4)
SCALE: NTS



RRH TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL (5)
SCALE: NTS

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: 3/05/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

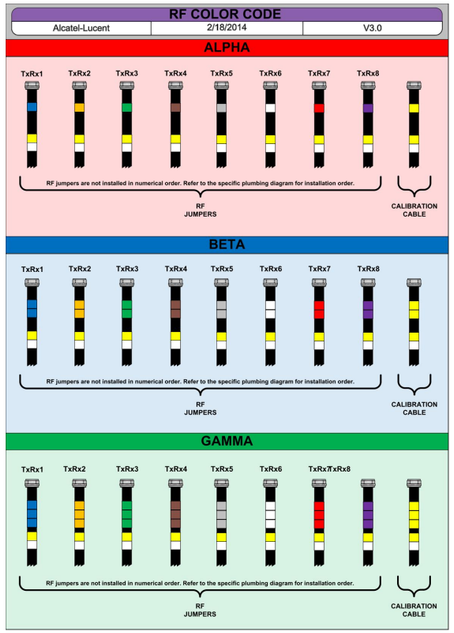
PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
FIBER PLUMBING DIAGRAM

SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: A-5

DRAWN BY: TJN CHECKED BY: KAB



SECTOR COLOR CODING AND BANDING (1)
SCALE: NTS

2.5 Coaxial Cable Color Code (Radio#1)

Sector	Cable	Start at Connector Side	Wrap2	Wrap3	Wrap4	Wrap5
1 Alpha	1	Blue			Yellow	White
1	2	Orange			Yellow	White
1	3	Green			Yellow	White
1	4	Brown			Yellow	White
1	5	Slate			Yellow	White
1	6	White			Yellow	White
1	7	Red			Yellow	White
1	8	Violet			Yellow	White
1	Calibration Cable	Yellow			Yellow	White
2 Beta	1	Blue	Blue		Yellow	White
2	2	Orange	Orange		Yellow	White
2	3	Green	Green		Yellow	White
2	4	Brown	Brown		Yellow	White
2	5	Slate	Slate		Yellow	White
2	6	White	White		Yellow	White
2	7	Red	Red		Yellow	White
2	8	Violet	Violet		Yellow	White
2	Calibration Cable	Yellow	Yellow		Yellow	White
3 Gamma	1	Blue	Blue	Blue	Yellow	White
3	2	Orange	Orange	Orange	Yellow	White
3	3	Green	Green	Green	Yellow	White
3	4	Brown	Brown	Brown	Yellow	White
3	5	Slate	Slate	Slate	Yellow	White
3	6	White	White	White	Yellow	White
3	7	Red	Red	Red	Yellow	White
3	8	Violet	Violet	Violet	Yellow	White
3	Calibration Cable	Yellow	Yellow	Yellow	Yellow	White

2.5 Coaxial Cable Color Code (Radio#2)

Sector	Cable	Start at Connector Side	Wrap2	Wrap3	Wrap4	Wrap5
1 Alpha	1	Blue			Yellow	Violet
1	2	Orange			Yellow	Violet
1	3	Green			Yellow	Violet
1	4	Brown			Yellow	Violet
1	5	Slate			Yellow	Violet
1	6	White			Yellow	Violet
1	7	Red			Yellow	Violet
1	8	Violet			Yellow	Violet
1	Calibration Cable	Yellow			Yellow	Violet
2 Beta	1	Blue	Blue		Yellow	Violet
2	2	Orange	Orange		Yellow	Violet
2	3	Green	Green		Yellow	Violet
2	4	Brown	Brown		Yellow	Violet
2	5	Slate	Slate		Yellow	Violet
2	6	White	White		Yellow	Violet
2	7	Red	Red		Yellow	Violet
2	8	Violet	Violet		Yellow	Violet
2	Calibration Cable	Yellow	Yellow		Yellow	Violet
3 Gamma	1	Blue	Blue	Blue	Yellow	Violet
3	2	Orange	Orange	Orange	Yellow	Violet
3	3	Green	Green	Green	Yellow	Violet
3	4	Brown	Brown	Brown	Yellow	Violet
3	5	Slate	Slate	Slate	Yellow	Violet
3	6	White	White	White	Yellow	Violet
3	7	Red	Red	Red	Yellow	Violet
3	8	Violet	Violet	Violet	Yellow	Violet
3	Calibration Cable	Yellow	Yellow	Yellow	Yellow	Violet

2.5 COAXIAL CABLE COLOR CODE (2)
SCALE: NTS

CABLE MARKING NOTES

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAKOUT UNIT. THERE SHALL BE 1" SPACE BETWEEN EACH RING.
3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
4. THE 2" COLORED TAPE(S) SHALL BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE SECOND CABLE IDENTIFIED BY BLUE BANDS OF TAPE
6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: 3/05/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
CABLE COLOR CODING

SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: A-6

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE
MANUF:RFS

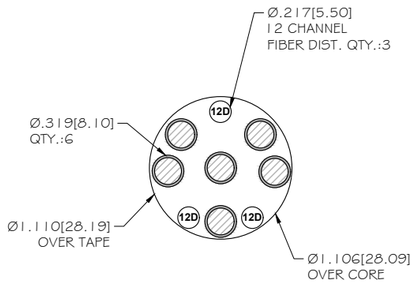
CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
Fiber Only	Varies	Use NV Hybriflex	5/8"
Hybriflex	<200'	8 AWG	1-1/4"
Hybriflex	225-300'	6 AWG	1-1/4"
Hybriflex	325-375'	4 AWG	1-1/4"

RFS HYBRIFLEX RISER CABLE SCHEDULE

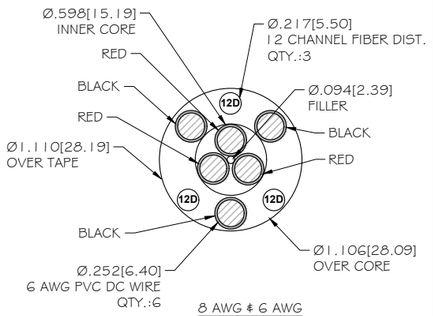
FIBER ONLY (EXISTING DC POWER)	Hybrid cable MN:HB058-M12-050F 12x multi-mode fiber pairs, Top:Outdoor protected connectors, Bottom:LC Connectors, 5/8 cable, 50 ft	50 ft
	MN:HB058-M12-075F	75 ft
	MN:HB058-M12-100F	100 ft
	MN:HB058-M12-125F	125 ft
	MN:HB058-M12-150F	150 ft
	MN:HB058-M12-175F	175 ft
	*MN:HB058-M12-200F	200 ft
8 AWG Power	Hybrid cable MN:HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC connectors. 1 1/4 cable, 50 ft	50 ft
	MN:HB114-08U3M12-075F	75 ft
	MN:HB114-08U3M12-100F	100 ft
	MN:HB114-08U3M12-125F	125 ft
	MN:HB114-08U3M12-150F	150 ft
	MN:HB114-08U3M12-175F	175 ft
	MN:HB114-08U3M12-200F	200 ft
6 AWG Power	Hybrid cable MN:HB114-13U3M12-225F 3x 6 AWG power pairs, 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 pairs, 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

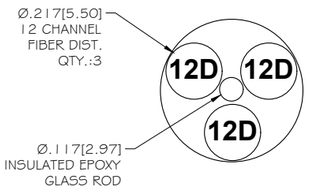
FIBER ONLY	Hybrid Jumper cable MN:HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	*MN:HBF012-M3-10F1	10 ft
	MN:HBF012-M3-15F1	15 ft
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15' NOTIFY SPRINT CM OF ANY DISCREPANCY	
8 AWG POWER	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
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15' NOTIFY SPRINT CM OF ANY DISCREPANCY	
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
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15' NOTIFY SPRINT CM OF ANY DISCREPANCY	
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
	SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15' NOTIFY SPRINT CM OF ANY DISCREPANCY	



4 AWG



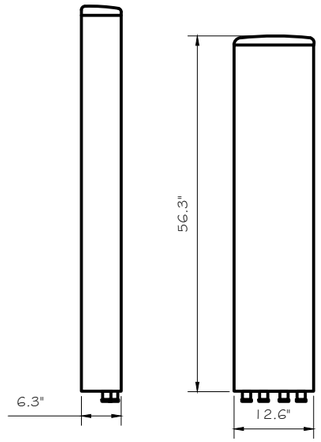
8 AWG & 6 AWG



FIBER ONLY

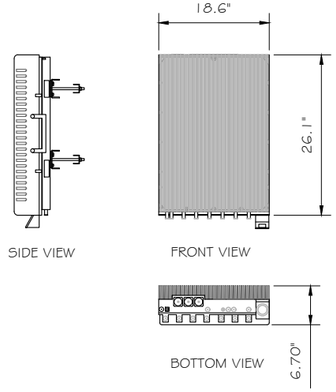
HYBRID CABLE CROSS SECTION & DATA
SCALE: NTS (1)

RFS: APXV9TM14-ALU-120



DIMENSIONS, HxWxD:	56.3" x 12.6" x 6.3"
WEIGHT, WITHOUT PRE-MOUNTED BRACKETS:	55.12 lbs.
CONNECTOR:	(9) XX" MINI-DIN FEMALE/BOTTOM

2.5 ANTENNA DETAIL
SCALE: NTS (2)



ALCATEL-LUCENT: TD-RRH8x20-25

HxWxD = (26.1" x 18.6" x 6.7")

WEIGHT = 70 lbs.

2.5 RRH DETAIL
SCALE: NTS (3)

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: 3/05/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL DATE ISSUED: 03/05/2018

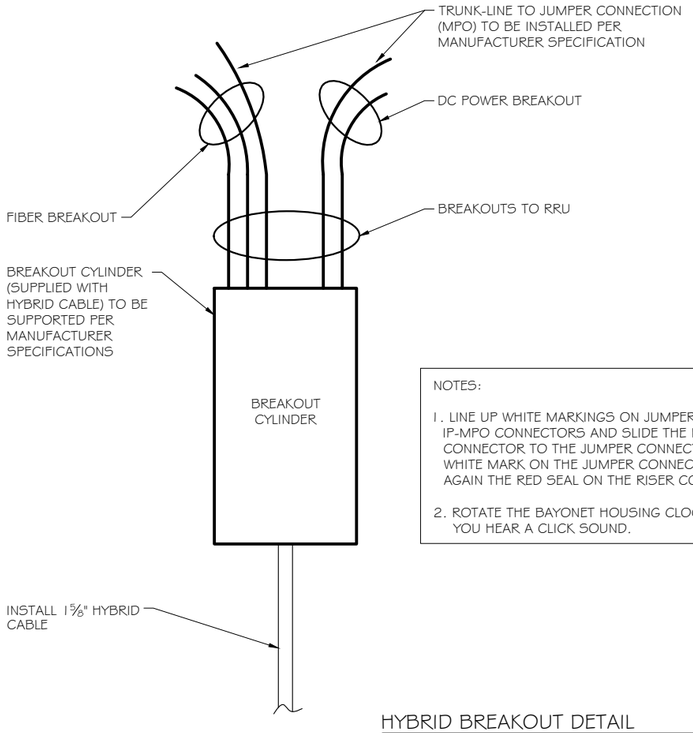
PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
ANTENNA & HYBRID CABLE DETAILS

SCALE:
AS NOTED

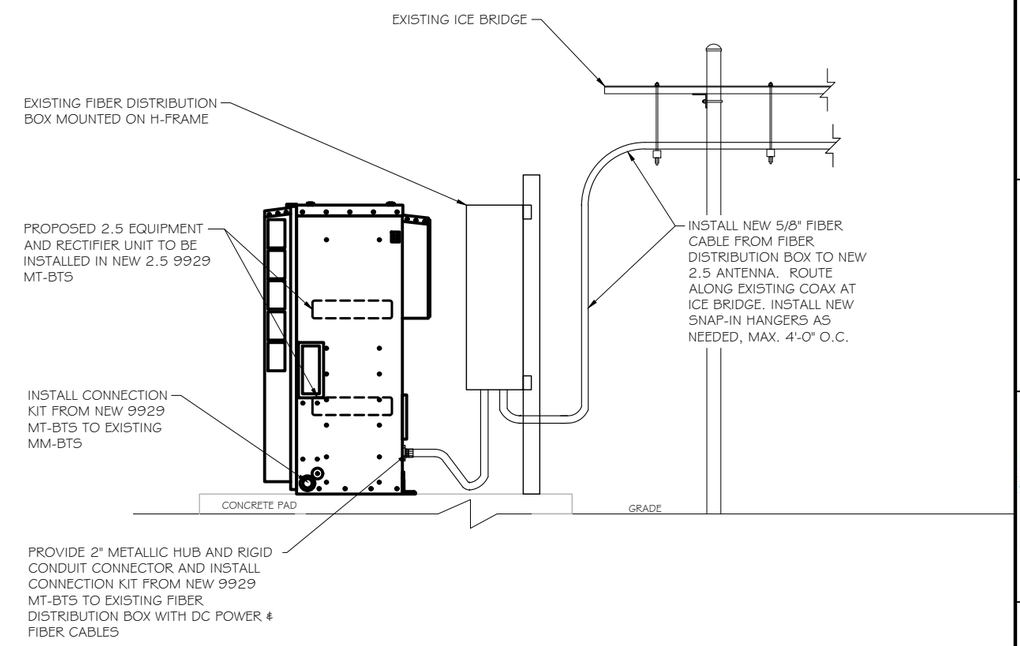
PROJECT NUMBER: 29264
SHEET NUMBER: A-7



NOTES:

1. LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.
2. ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND.

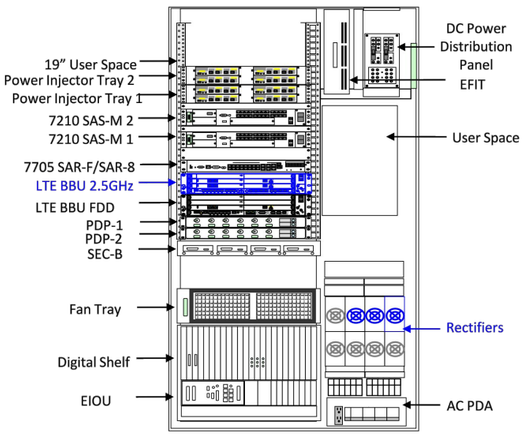
HYBRID BREAKOUT DETAIL ①
SCALE: NTS



CABLE ROUTE FROM CABINET ②
SCALE: NTS

EXISTING BBU CABINET ③
SCALE: NTS

EXISTING MMBS CABINET ④
SCALE: NTS



Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: James R. Skowronski Date: 3/05/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
EQUIPMENT DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: A-8

I:\29200\29264\CAD\29264_CT33XC557_CDs.dwg Printed by: bwitmer on Mar 05, 2018 - 10:13am

ALCATEL-LUCENT
9929 MULTI TECHNOLOGY BTS
OUTDOOR CABINET

In order to help network operators to improve TCO for distributed radio based sites with extended battery backup requirements, Alcatel-Lucent proposes the 9929 Multi Technology Outdoor Cabinet for CDMA/LTE/WCDMA multi-standard configurations

9929 MT-BTS OUTDOOR CABINET

- The 9929 MT-BTS cabinet is designed to provide, in a single footprint, a full site support with a capability to host 3G and 4G Telecom equipment with internal power and battery support.
- The 9929 MT-BTS Outdoor Cabinet offers 17.5 U of user space capable of hosting 19" rack based telecom equipment and rectification. The 9929 MT-BTS supports distributed RF deployment scenarios with the hosting of Digital base band unit and transport equipment.
- The 9929 MT-BTS cabinet can host up of 2 strings of batteries.
- The 9929 MT-BTS is AC powered and can deliver up to 10.5kW of -48V DC power thanks to its internal N+1 redundant rectifier.
- The 19" modules could have either front-back or side-side cooling. The cabinet uses direct air-cooling (fresh air filter) technology on front door to provide 8000 W of cooling capacity. A wide temperature operating range (-40°C to +50°C full operation) allows the deployment of this cabinet in various locations.
- The 9929 MT-BTS cabinet is compliant with Zone 4 earthquake regulations.
- As an matter of example the following configuration is supported by the cabinet:
  - ✓ Distributed configuration: AC configuration with up to 10.5kW DC Power, up to 3 baseband units, 2U service aggregation router, 2U of microwave transport equipment, up to 2 battery of 190AH.

FEATURES

- Can host BBU(s) for CDMA/WCDMA/LTE
- Supports standard 19" Telecom equipment
- Uses Direct Air Cooling (no air conditioning) with fan speed control based upon temperature
- Support of up to two 190 Ah or up to two 145AH battery strings that can provide backup for 8 hours for up to 2375 W, or 4 hour backup for up to 4150
- Convenience AC outlet (2)

TECHNICAL SPECIFICATIONS

INTERFACE:
¬ CPRI (up to 9 RRH modules)
¬ Backhaul (Gigabit Ethernet or T1)
¬ External user alarms (up to 32 user alarms)
¬ AC Power input
¬ DC Power input for RRH (up to 9 RRH's)

PHYSICAL DIMENSIONS
¬ Height: 1617 mm (63.65 in)
¬ Width: 800 mm (31.5 in)
¬ Depth: 900 mm (35.5 in)

WEIGHT
¬ 197 kg (434 lbs) unloaded
¬ Up to 725 kg (1600 lbs) fully loaded

POWER
Power supply:
¬ -48 VDC
¬ 230V AC (single phase or 3 phases)
Rectifier:
¬ up to 10.5kW DC -48V output power
¬ Rectifier redundancy N+1

OPERATING ENVIRONMENT
¬ Outdoor temperature range: -40°C to +50°C
¬ Direct Air Cooling
¬ Enclosure:
¬ IP55 (International Protection rating)
¬ Zone 4 Earthquake

STANDARDS COMPLIANCY
¬ UL 60950-1 / CAN/CSA C22.2 No. 60950-1-07
¬ UL 50/50E CSA C22.2 No. 94.1- 07/94.2-07
¬ EN50272-2
¬ EIA-310-D

EMC& ENVIRONNEMENTAL CONDITIONS
¬ FCC Part 15 class B
¬ GR-63-CORE,
¬ GR-487-CORE,
¬ GR-1089-CORE

SUPPORTED TELECOM EQUIPMENT
¬ LTE 9926 BBU
¬ CDMA 9926 BBU
¬ WDMA 9926 BBU
¬ SAR Aggregation router
¬ Microwave Indoor Unit

AT THE SPEED OF IDEAS™ Alcatel·Lucent

Alcatel·Lucent

PROPOSED 9929 MT-BTS OUTDOOR CABINET (1)
SCALE: NTS

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: 3/05/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL DATE ISSUED: 03/05/2018

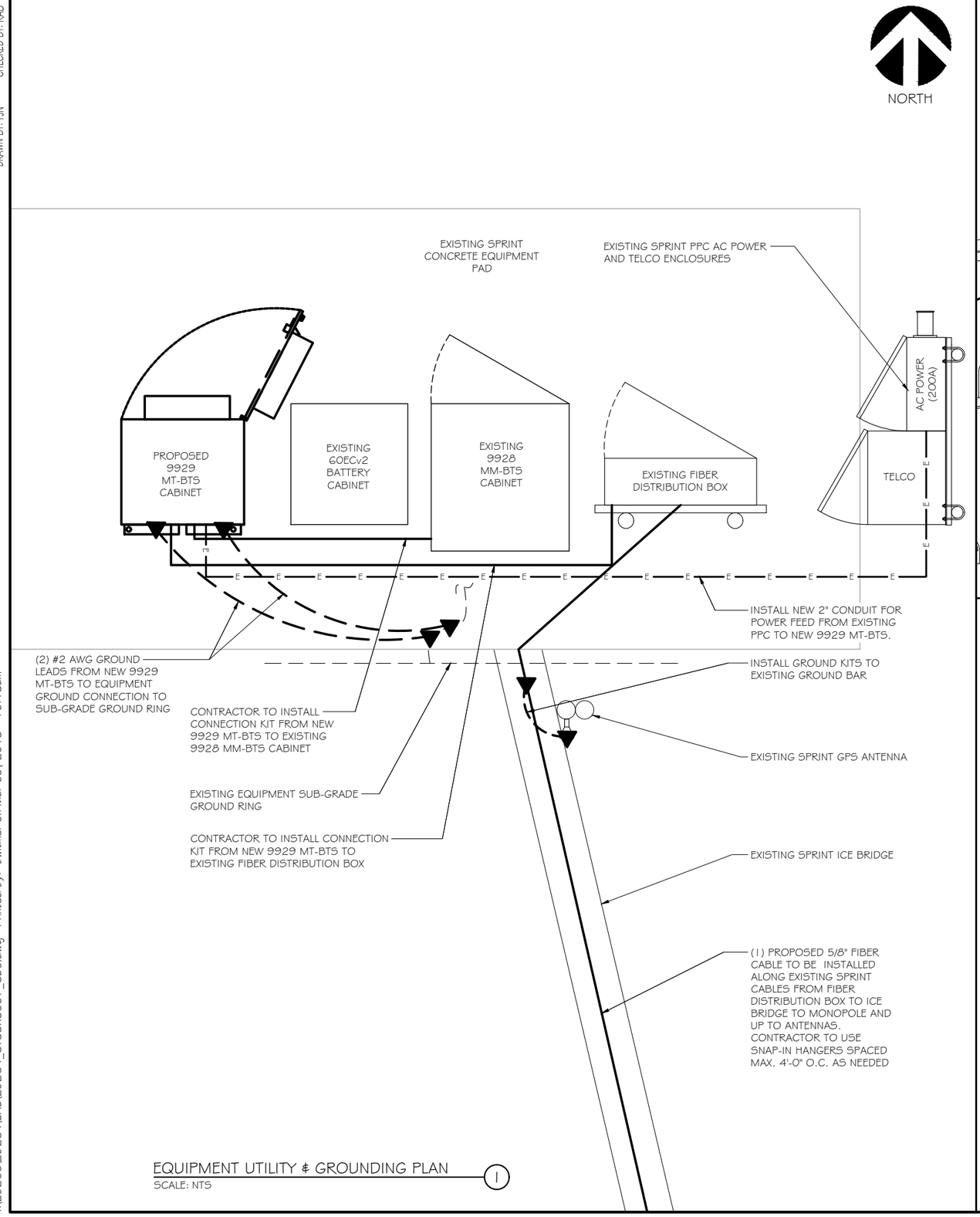
PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

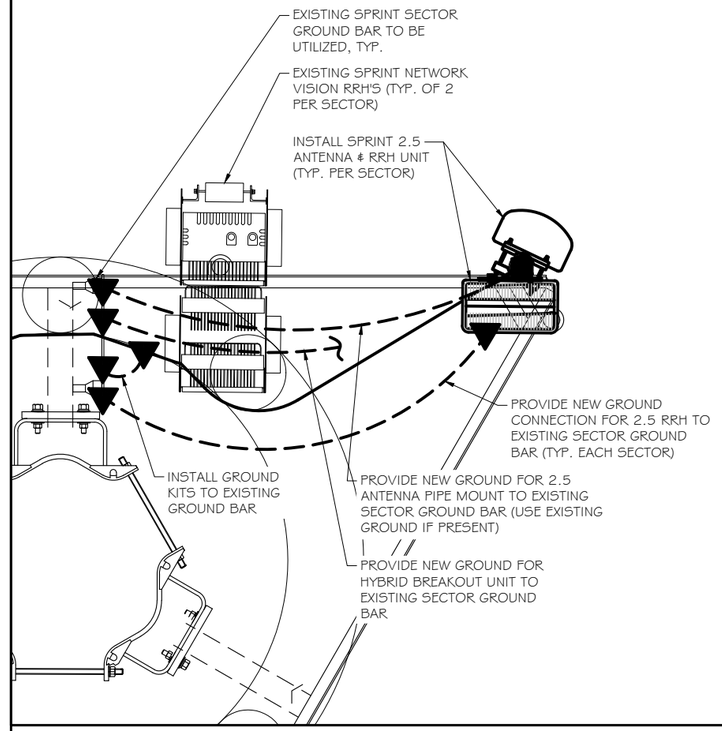
SHEET TITLE:
CABINET DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: A-9



EQUIPMENT UTILITY & GROUNDING PLAN (1)
SCALE: NTS



ANTENNA GROUNDING DETAIL (2)
SCALE: NTS

GROUNDING NOTES:

1. CONTRACTOR TO ENSURE PROPER SEQUENCING OF GROUNDING AND UNDERGROUND CONDUIT INSTALLATION TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM AND/OR DAMAGE TO THE CONDUIT.
2. ALL EXTERIOR GROUND CONDUCTORS SHALL BE #2 AWG SOLID TINNED COPPER UNLESS NOTED OTHERWISE.
3. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
4. ALL GROUND CONNECTIONS ABOVE GRADE AND/OR INTERIOR SHALL BE COMPRESSION TYPE, TWO-HOLE LUGS OR DOUBLE-CRIMP "C" TAPS.
5. CONTACT AREAS WHERE CONNECTIONS ARE MADE SHALL BE PREPARED TO A BARE BRIGHT FINISH AND COATED WITH AN ANTI-OXIDATION MATERIAL BEFORE CONNECTIONS ARE MADE.
6. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS.
7. WHERE GROUNDING CONNECTIONS ARE MADE TO PAINTED METAL SURFACES, PAINT SHALL BE REMOVED TO BEAR METAL TO ENSURE PROPER CONTACT AND RESTORED/PAINTED TO ORIGINAL FINISH.
8. GROUND DEPTH SHALL BE 30" MINIMUM BELOW FINISHED GRADE, OR 6" BELOW FROST LINE, WHICHEVER IS GREATER.

LEGEND:	
- - - - - - - - - - - - - -	EXISTING GROUND CABLE
▬▬▬▬▬▬▬▬▬▬▬▬	PROPOSED GROUND CABLE
▲	MECHANICAL CONNECTION
■	EXOTHERMIC CONNECTION
—E—E—E—E—	PROPOSED ELECTRIC

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: James R Skowronski Date: 3/05/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

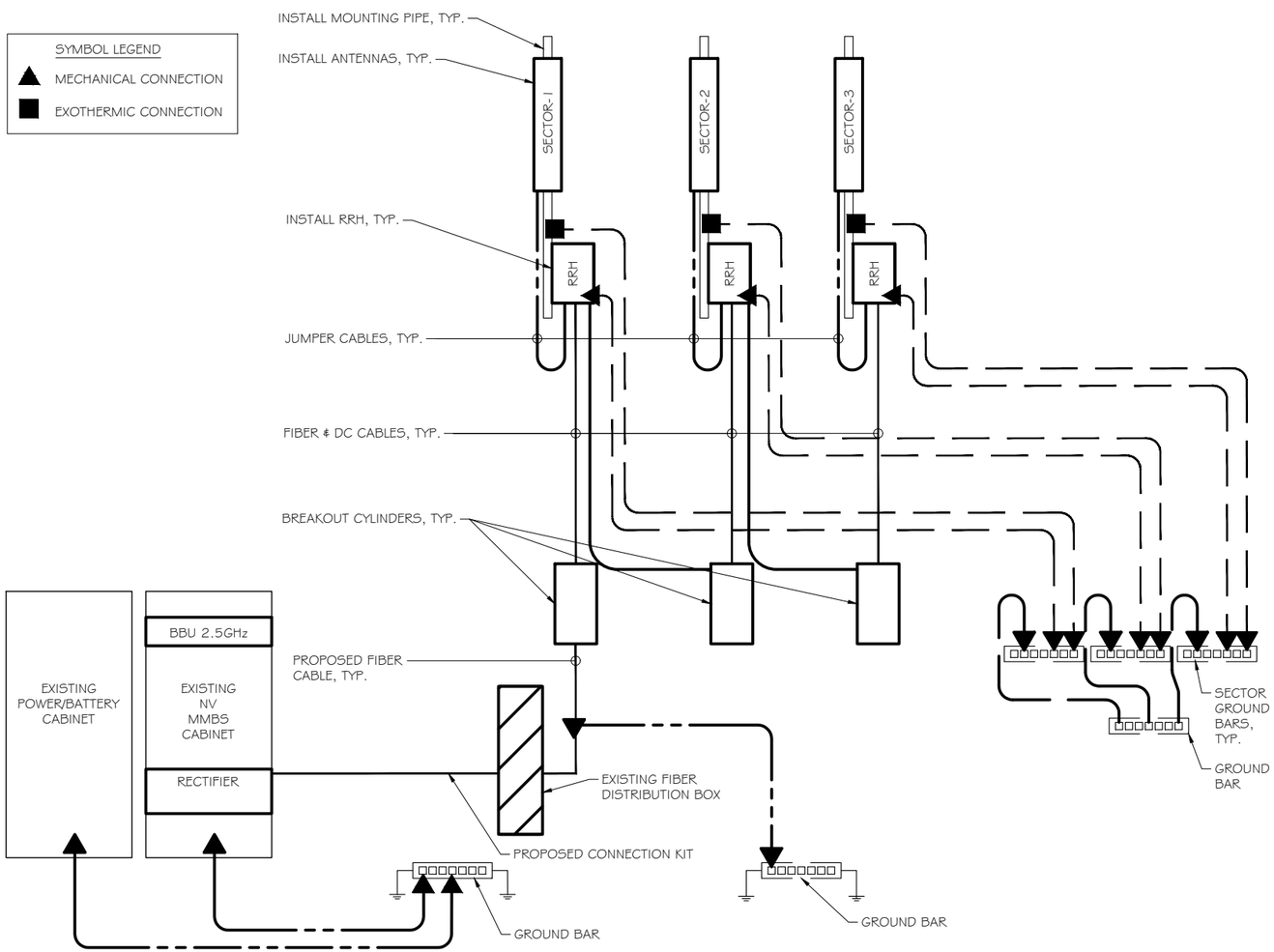
PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
EQUIPMENT UTILITY & GROUNDING PLAN

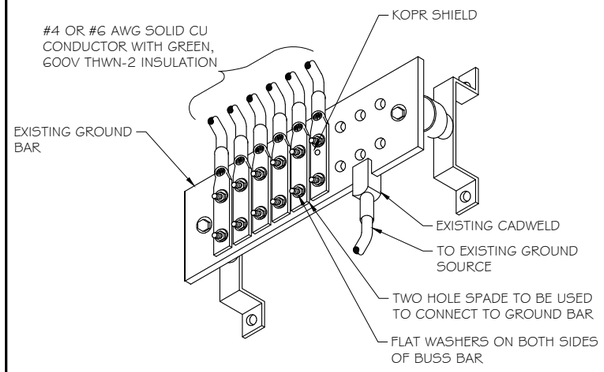
SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: E-1

I:\29200\29264\CAD\29264_CT33XC557_CDs.dwg Printed by: bwitmer on Mar 05, 2018 - 10:13am



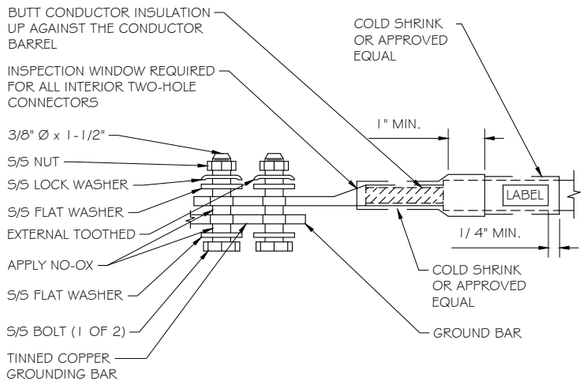
GROUNDING RISER DIAGRAM (1)
SCALE: NTS



NOTES:
1. APPLY NO-OX TO LUG AND GROUND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.

2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

GROUNDING CONDUCTOR INSTALLATION (2)
SCALE: NTS



TWO-HOLE LUG (3)
SCALE: NTS

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: Date: 3/05/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 03/05/2018

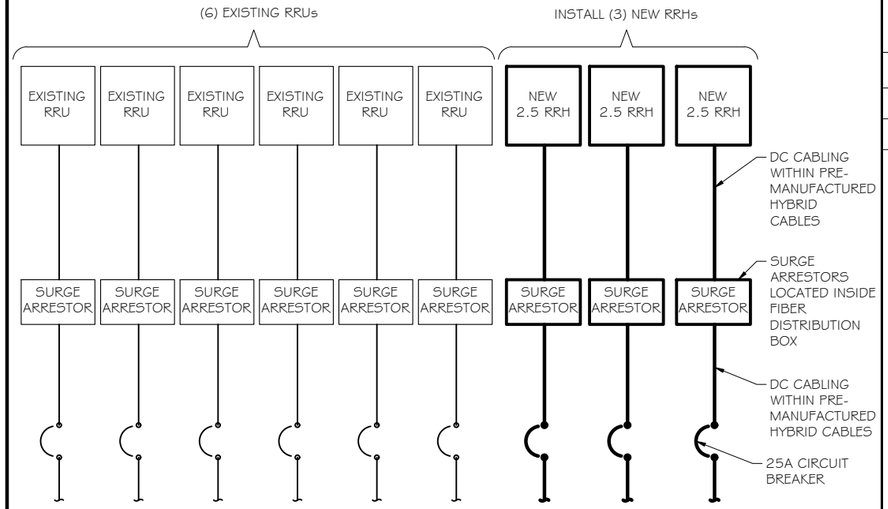
PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
GROUNDING DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: E-2



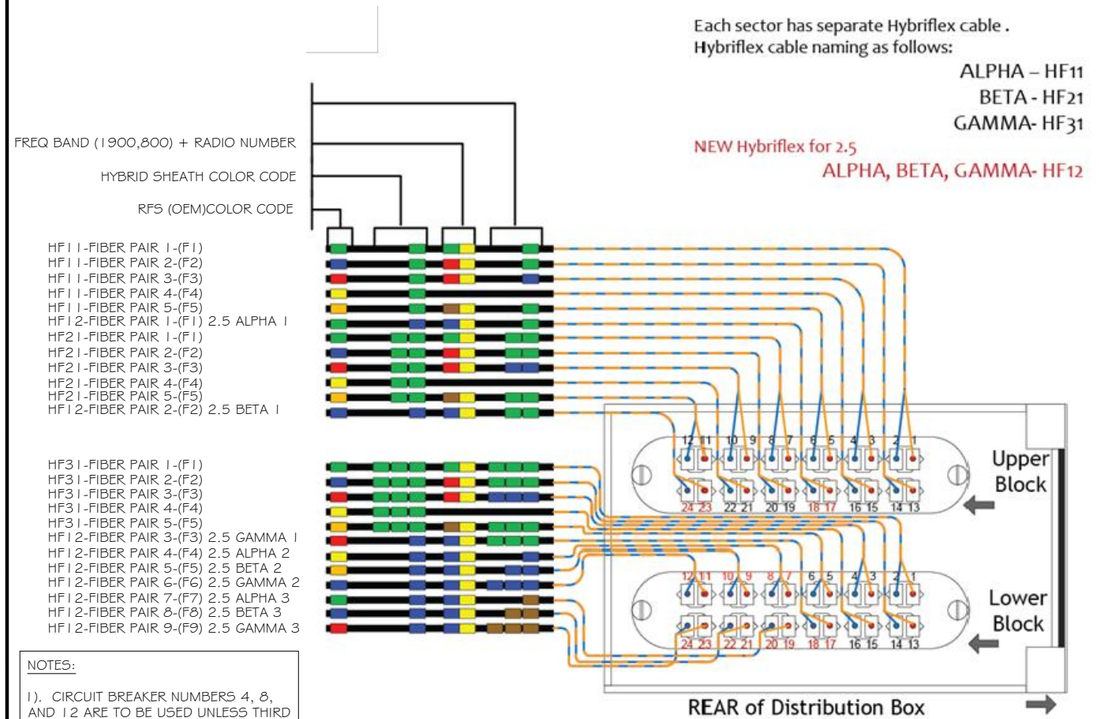
DC ONE-LINE DIAGRAM (1)
SCALE: NTS

A/C PANEL SCHEDULE

VOLTAGE:	240V/120	PANEL STATUS:	EXISTING	N TO GROUND BOND:	YES
MAIN BREAKER:	200 AMP	MODEL NUMBER:	NORTHERN TECHNOLOGIES	INTERNAL TVSS:	YES
MOUNT:	GROUND	PHASE:	1	WIRE:	3
ENCLOSURE TYPE:	NEMA 3R	BUSS RATING:	200 AMP	GROUND BAR:	YES
		NEUTRAL BAR:	YES		

CKT	DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	PHASE A VA	PHASE B VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	DESCRIPTION	CKT
1	SURGE SUPPRESSION	60	2	ON			OFF	1	10	TELCO FAN	13
2							ON	1	15	TELCO GFI	14
3	**NEW 2.5 CABINET**	**40**	**2**	**ON**			ON	2	80	PCS CABINET	15
4											16
5	BLANK (UNUSED)	-	-	-			ON	2	100	PCS CABINET	17
6	BLANK (UNUSED)	-	-	-							18
7	BLANK (UNUSED)	-	-	-			-	-	-	BLANK (UNUSED)	19
8	BLANK (UNUSED)	-	-	-			-	-	-	BLANK (UNUSED)	20
9	BLANK (UNUSED)	-	-	-			-	-	-	BLANK (UNUSED)	21
10	BLANK (UNUSED)	-	-	-			-	-	-	BLANK (UNUSED)	22
11	BLANK (UNUSED)	-	-	-			-	-	-	BLANK (UNUSED)	23
12	BLANK (UNUSED)	-	-	-			-	-	-	BLANK (UNUSED)	24

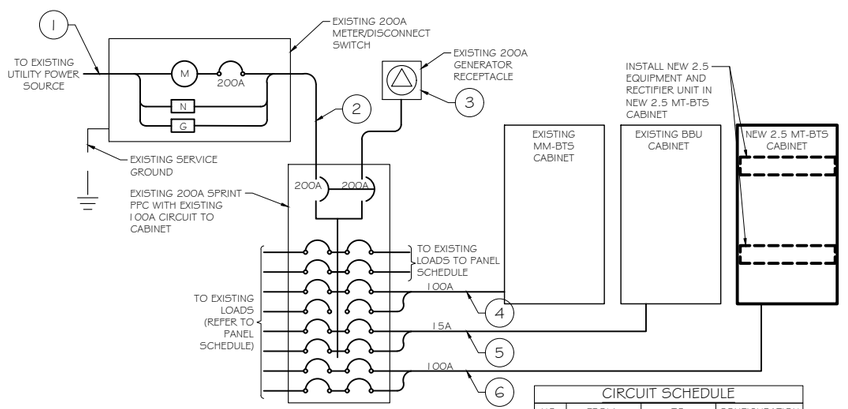
AC PANEL SCHEDULE (2)
SCALE: NTS



NOTES:

1). CIRCUIT BREAKER NUMBERS 4, 8, AND 12 ARE TO BE USED UNLESS THIRD DC RAIL IS REQUIRED FOR MICROWAVE.
2). USE DC POWER LOOP.
3). ALL UNUSED DC FEEDERS TO BE TERMINATED WITH WIRE NUTS AND TAPED.
4). REMOVE ALL DEBRIS FROM INTERIOR OF FIBER DISTRIBUTION BOX WHEN COMPLETE.

TYPICAL FIBER DISTRIBUTION (3)
SCALE: NTS



CIRCUIT SCHEDULE

NO.	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/ DISCONNECT	EXISTING
2	METER/ DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EX. MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1½" CONDUIT
5	TRANSFER & LOAD CENTER	EX. BBU CABINET	(2) #12 AWG, (1) #12 GND IN ¾" CONDUIT
6	**TRANSFER & LOAD CENTER**	**NEW 2.5 MMBS CABINET**	**(3) #2 AWG, (1) #8 GND IN 1¼" CONDUIT**

ELECTRICAL ONE-LINE DIAGRAM (4)
SCALE: NTS

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

AIROSMITH DEVELOPMENT
We do it right the first time.
32 CLINTON STREET
SARATOGA SPRINGS, NY 12866

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: James R. Skowronski Date: 3/05/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL DATE ISSUED: 03/05/2018

PROJECT TITLE:
TCP/MANSFIELD
SITE#:CT33XC557-A

PROJECT INFORMATION:
1725 STAFFORD ROAD
MANSFIELD, CT 06268
TOLLAND COUNTY

SHEET TITLE:
DC POWER DETAILS & PANEL SCHEDULES

SCALE:
AS NOTED

PROJECT NUMBER: 29264
SHEET NUMBER: E-3