



10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

October 16, 2018

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

Notice of Exempt Modification
50 Devine Street, North Haven, CT 06472
Latitude- 41.3777778
Longitude- -72.8761583

Dear Ms. Bachman,

T-Mobile currently maintains (9) existing antennas at the 119' level of the existing 130' monopole at 50 Devine Street in North Haven, Connecticut. The tower is owned by American Tower. The property is owned by 424 Chapel Street LLC. T-Mobile now intends to remove (6) of the existing antennas and add (6) new 600/700/1900/2100 MHz antennas. These antennas would be installed at the same 119' level of the tower. T-Mobile also intends to add (3) remote radio heads and add (2) hybrid cables.

This tower facility was originally approved by the Siting Council through Docket No. 384 dated February 25, 2010. This approval did not come with conditions that would be violated by this proposed modification.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. 16-50j-72(b)(2). In accordance with R.C.S.A. 16-50j-73, a copy of this letter is being sent to Michael Freda, First Selectmen of the Town of North Haven, Laura Magaraci, Zoning Enforcement Officer for the Town of North Haven, as well as the tower owner and property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2).

1. The proposed modification will not result in an increase in the height of the existing structure
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A. 16-50j-72(b)(2).

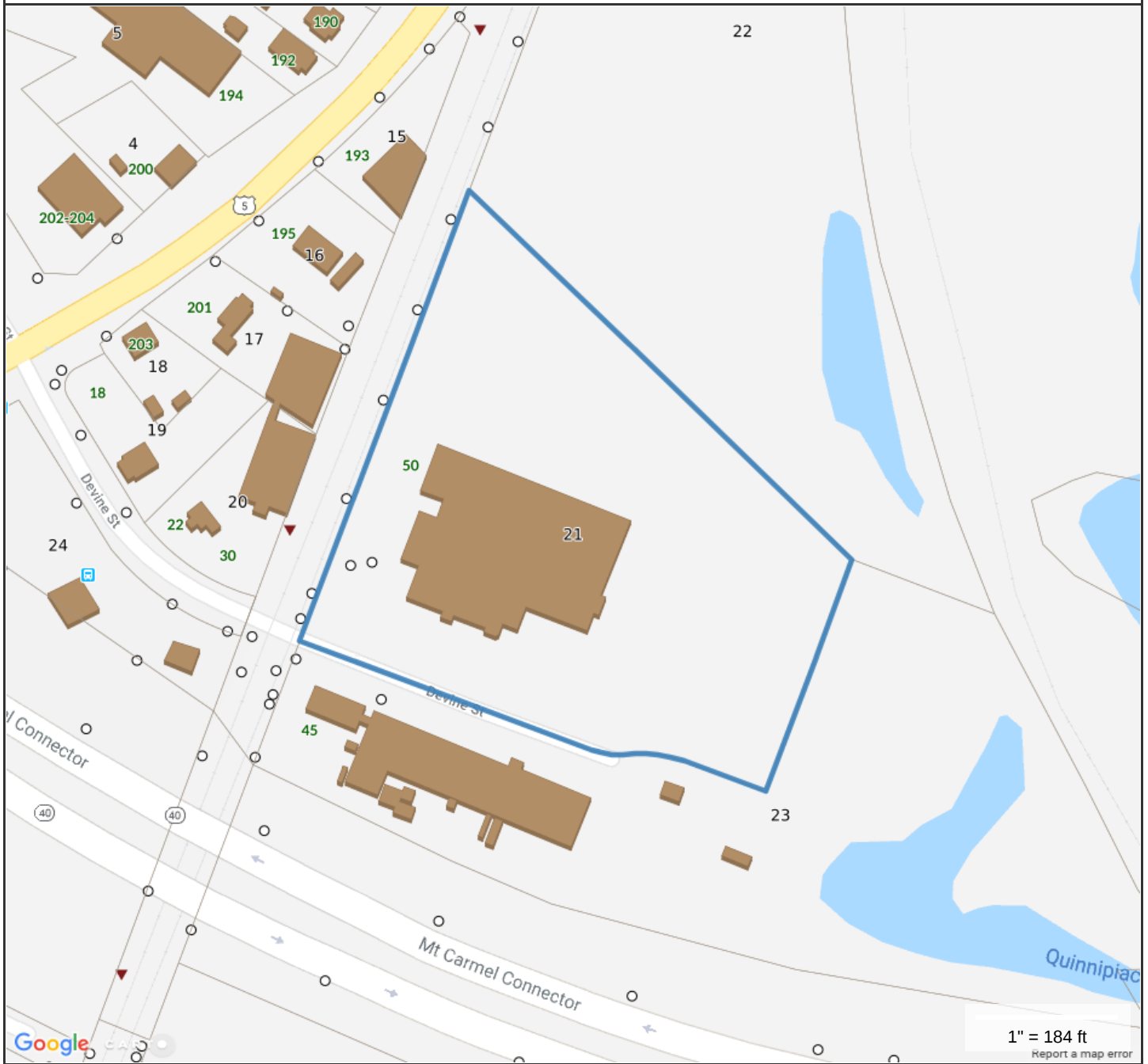
Sincerely,

Kyle Richers

Kyle Richers
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
908-447-4716
krichers@transcendwireless.com

cc: Michael Freda- as elected official
Laura Magaraci- as zoning official
American Tower- as tower owner
424 Chapel Street LLC- as property owner

CTNH522A



Property Information

Property ID 51/21
Location 50 DEVINE ST
Owner 424 CHAPEL STREET LLC



**MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT**

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

Parcels updated 07/01/2018
Properties updated 10/16/2018

50 DEVINE ST

Location 50 DEVINE ST

Mblu 051/ / 021/ /

Acct# 256482

Owner 424 CHAPEL STREET LLC

Assessment \$1,287,160

Appraisal \$1,838,800

PID 8849

Building Count 2

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2014	\$1,255,400	\$583,400	\$1,838,800

Assessment			
Valuation Year	Improvements	Land	Total
2014	\$878,780	\$408,380	\$1,287,160

Owner of Record

Owner 424 CHAPEL STREET LLC
Co-Owner
Address 50 DEVINE ST
NORTH HAVEN, CT 06473

Sale Price \$0
Certificate
Book & Page 832/ 52
Sale Date 08/02/2010

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
424 CHAPEL STREET LLC	\$0		832/ 52	08/02/2010
424 CHAPEL STREET LLC	\$0	1	772/ 943	08/02/2007
PAPA ANTHONY S (RET ANN TRUST 1,2,3) &	\$0	2	427/ 372	02/11/1992
PAPA ANTHONY S	\$0	3	410/ 102	07/24/1990
PAPA ANTHONY S	\$0	4	410/ 87	07/24/1990

Building Information

Building 1 : Section 1

Year Built: 1949
Living Area: 24,300
Replacement Cost: \$807,225
Building Percent 80
Good:

Replacement Cost
Less Depreciation: \$645,800

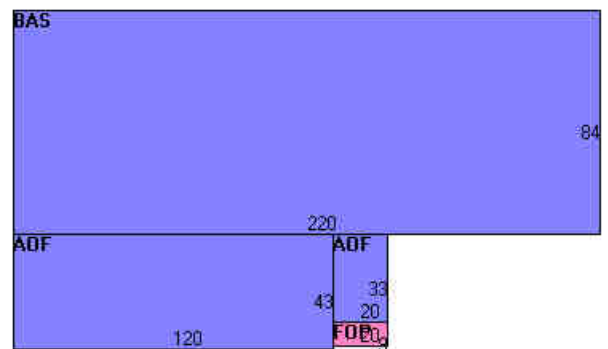
Building Attributes	
Field	Description
STYLE	Lt. Industrial
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Brick
Exterior Wall 2	Metal
Roof Structure	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	Minim/Masonry
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Unit Heat
AC Type	Central
Bldg Use	MANUFAC M96
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL/MN WL
Rooms/Prtns	AVERAGE
Wall Height	10
% Comn Wall	

Building Photo



(<http://images.vgsi.com/photos/NorthHavenCTPhotos//\00\01\54>)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	18,480	18,480
AOF	Office	5,820	5,820
FOP	Porch, Open	180	0
		24,480	24,300

Building 2 : Section 1

Year Built: 1984
Living Area: 18,228
Replacement Cost: \$671,884
Building Percent Good: 80
Replacement Cost Less Depreciation: \$537,500

Building Attributes : Bldg 2 of 2	
Field	Description

STYLE	Lt. Industrial
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Metal
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Unit Heat
AC Type	Partial
Bldg Use	MANUFAC M96
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	HEAT/AC PKGS
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL/MN WL
Rooms/Prtns	AVERAGE
Wall Height	22
% Comn Wall	

Building Photo



(<http://images.vgsi.com/photos/NorthHavenCTPhotos//\00\01\54>)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	11,772	11,772
AOF	Office	6,456	6,456
		18,228	18,228

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
A/C	AIR CONDITION	52800 S.F.	\$82,400	2
SPR1	SPRINKLERS-WET	0 S.F.	\$0	2
SPR1	SPRINKLERS-WET	19202 S.F.	\$13,800	1
LDL1	LOAD LEVELERS	3 UNITS	\$7,000	1
MEZ1	MEZZANINE-UNF	2959 S.F.	\$21,300	1

Land

Land Use

Use Code 4000
Description MANUFAC M96
Zone IG80
Neighborhood 305
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 5.97
Frontage
Depth
Assessed Value \$408,380
Appraised Value \$583,400

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			45000 S.F.	\$6,100	1
TWR1	COMMU-TOWER			1 UNITS	\$112,500	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2013	\$1,332,500	\$657,800	\$1,990,300
2008	\$733,200	\$688,200	\$1,421,400
2007		\$481,740	\$994,980

Assessment			
Valuation Year	Improvements	Land	Total
2013	\$932,750	\$460,460	\$1,393,210
2008	\$526,390	\$481,740	\$1,008,130
2007		\$481,740	\$994,980

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

T-Mobile Existing Facility

Site ID: CTNH522A

Florida Partners North Haven Monopole
98 Devine Street
North Haven, CT 06473

August 20, 2018

EBI Project Number: 6218005635

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



August 20, 2018

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTNH522A – Florida Partners North Haven Monopole**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **98 Devine Street, North Haven, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands is $1000 \mu\text{W}/\text{cm}^2$. 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 T-Mobile Wireless antenna facility located at **98 Devine Street, North Haven, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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 UMTS channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 2 LTE channels (700 MHz Band) 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 for directional panel antennas, 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 **Ericsson AIR21 B2A/B4P** & **Ericsson AIR-32 B2A/B66Aa** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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 **117 feet & 119 feet** above ground level (AGL).
- 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.
- 11) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	117 feet	Height (AGL):	117 feet	Height (AGL):	117 feet
Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	40	Total TX Power(W):	40	Total TX Power(W):	40
ERP (W):	1,556.18	ERP (W):	1,556.18	ERP (W):	1,556.18
Antenna A1 MPE%	0.45	Antenna B1 MPE%	0.45	Antenna C1 MPE%	0.45
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR-32 B2A/B66Aa	Make / Model:	Ericsson AIR-32 B2A/B66Aa	Make / Model:	Ericsson AIR-32 B2A/B66Aa
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	119 feet	Height (AGL):	119 feet	Height (AGL):	119 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A2 MPE%	2.19	Antenna B2 MPE%	2.19	Antenna C2 MPE%	2.19
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd
Height (AGL):	119 feet	Height (AGL):	119 feet	Height (AGL):	119 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,483.80	ERP (W):	2,483.80	ERP (W):	2,483.80
Antenna A3 MPE%	1.66	Antenna B3 MPE%	1.66	Antenna C3 MPE%	1.66

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	4.30 %
Verizon Wireless	3.07 %
AT&T	5.66 %
Site Total MPE %:	13.03 %

T-Mobile Sector A Total:	4.30 %
T-Mobile Sector B Total:	4.30 %
T-Mobile Sector C Total:	4.30 %
Site Total:	13.03 %



T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile_Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile PCS - 1900 MHz UMTS	1	1,556.18	117	4.54	PCS - 1900 MHz	1000.00	0.45%
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	119	8.76	PCS - 1900 MHz	1000.00	0.88%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	119	13.14	AWS - 2100 MHz	1000.00	1.31%
T-Mobile 600 MHz LTE	2	788.97	119	4.44	600 MHz	400.00	1.11%
T-Mobile 700 MHz LTE	2	452.93	119	2.55	700 MHz	467.00	0.55%
						Total:	4.30%



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 T-Mobile 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:

T-Mobile Sector	Power Density Value (%)
Sector A:	4.30 %
Sector B:	4.30 %
Sector C:	4.30 %
T-Mobile Maximum MPE % (Per Sector):	4.30 %
Site Total:	13.03 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **13.03%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 129 ft Monopole
ATC Site Name : North Haven CT, CT
ATC Site Number : 283418
Engineering Number : OAA736468_C3_02
Proposed Carrier : Metro PCS
Carrier Site Name : CTNH522A
Carrier Site Number : CTNH522A
Site Location : 50 Devine Street
North Haven, CT 06473-2204
41.377800,-72.876200
County : New Haven
Date : August 3, 2018
Max Usage : 61%
Result : Pass

Prepared By:
Christiana Lancaster
Structural Engineer I

Reviewed By:

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment	2
Structure Usages	3
Foundations	3
Deflection and Sway	3
Standard Conditions	4
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 129 ft monopole to reflect the change in loading by Metro PCS.

Supporting Documents

Tower Drawings	Sabre, FTP Job #11-05062, dated May 12, 2010
Foundation Drawing	Sabre, FTP Job #11-05062, dated May 12, 2010
Geotechnical Report	Terracon Project #J2105136, dated April 20, 2010
Modifications	TransAmerican Order #TP-12133, dated February 12, 2014

Analysis

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

Basic Wind Speed:	97 mph (3-Second Gust, V_{asd}) / 125 mph (3-second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.18$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

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

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



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
129.0	132.0	3	Nokia B5 RRH4x40-850	Low Profile Platform	(8) 1 5/8" Coax (4) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent PCS B25 RRH2x60/4x30			
		3	Alcatel-Lucent B66A RRH 4x45			
		3	Antel BXA-171063-12CF			
		2	RFS DB-T1-6Z-8AB-0Z			
		3	Antel BXA-80080-6CF-EDIN-X			
		6	Commscope JAHH-65B-R3B			
119.0	-	-	-	T-Arms	(11) 1 5/8" Coax (1) 1 5/8" Hybriflex	Metro PCS
114.0	116.0	6	Ericsson RRUS-11 (50 lbs.)	Platform w/ Handrails	(8) 0.78" 8 AWG 6 (6) 3" Conduit (3) 3/8" Coax (3) 3/8" RET Control Cable (2) 0.39" Fiber Trunk	AT&T Mobility
		6	Ericsson RRUS 32 (50.8 lbs)			
		6	Ericsson RRUS 32 B2			
	109.0	4	Raycap DC6-48-60-18-8F			
	109.0	12	CCI CCI-HPA-65R-BUU-H8			

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
117.0	117.0	6	Ericsson AIR 21	-	-	Metro PCS

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
119.0	119.0	3	Ericsson Radio 4449 B12,B71	T-Arms	(2) 1 1/4" Fiber	Metro PCS
		3	Ericsson AIR-32 B2A/B66Aa			
		3	RFS APXVAARR24_43-U-NA20			
	117.0	3	Ericsson AIR 21, 1.3 M, B2A B4P			

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

Install proposed coax inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	46%	Pass
Shaft	57%	Pass
Base Plate	35%	Pass
Flanges	18%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	4,535.0	2,730.4	60%
Shear (Kips)	44.0	26.9	61%

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) (°)
119.0	Ericsson Radio 4449 B12,B71	Metro PCS	1.272	1.222
	Ericsson AIR 21, 1.3 M, B2A B4P			
	Ericsson AIR-32 B2A/B66Aa			
	RFS APXVAARR24_43-U-NA20			

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



Standard Conditions

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

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

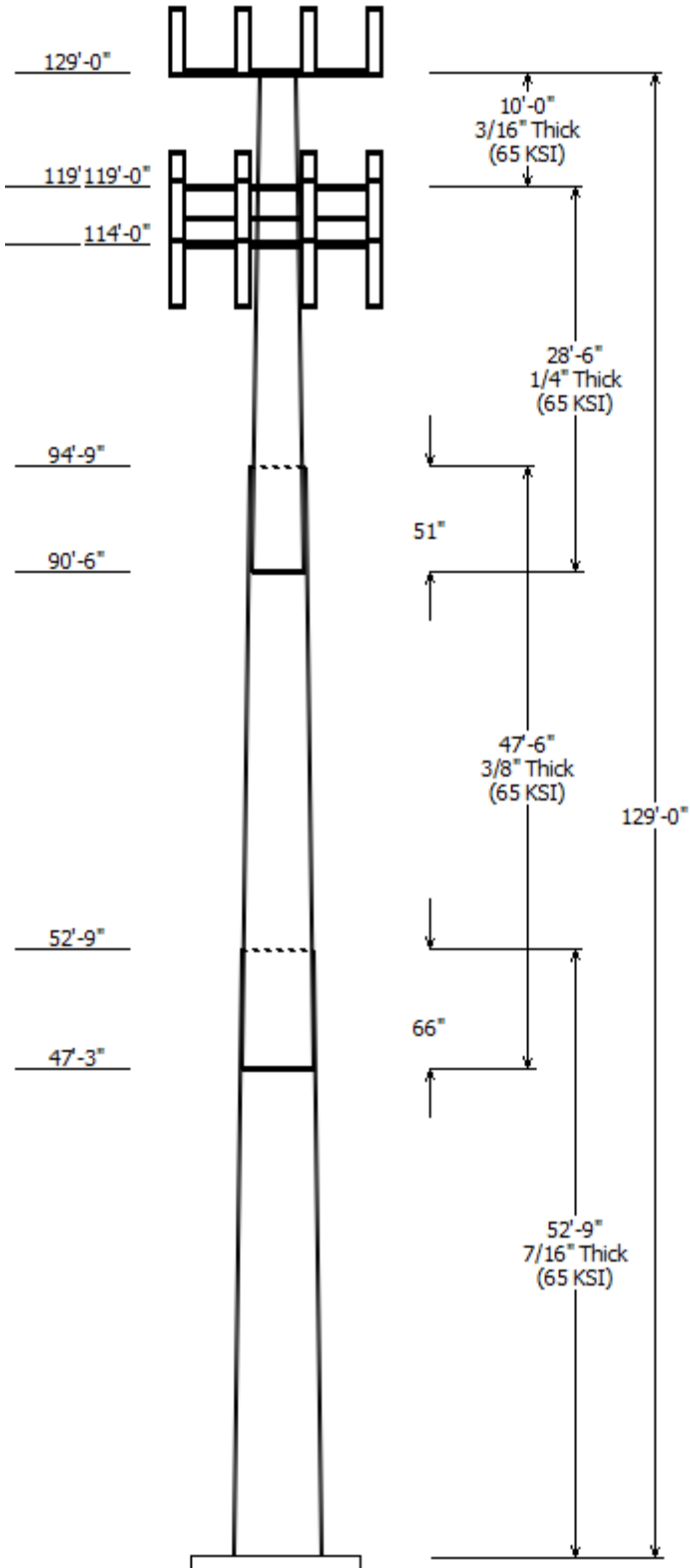
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

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

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Job Information	
Pole : 283418	Code: ANSI/TIA-222-G
Location : NORTH HAVEN CT, CT	
Description :	
Client : METRO PCS INC	Struct Class : II
Shape : 18 Sides	Exposure : C
Height : 129.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.22596in/ft	

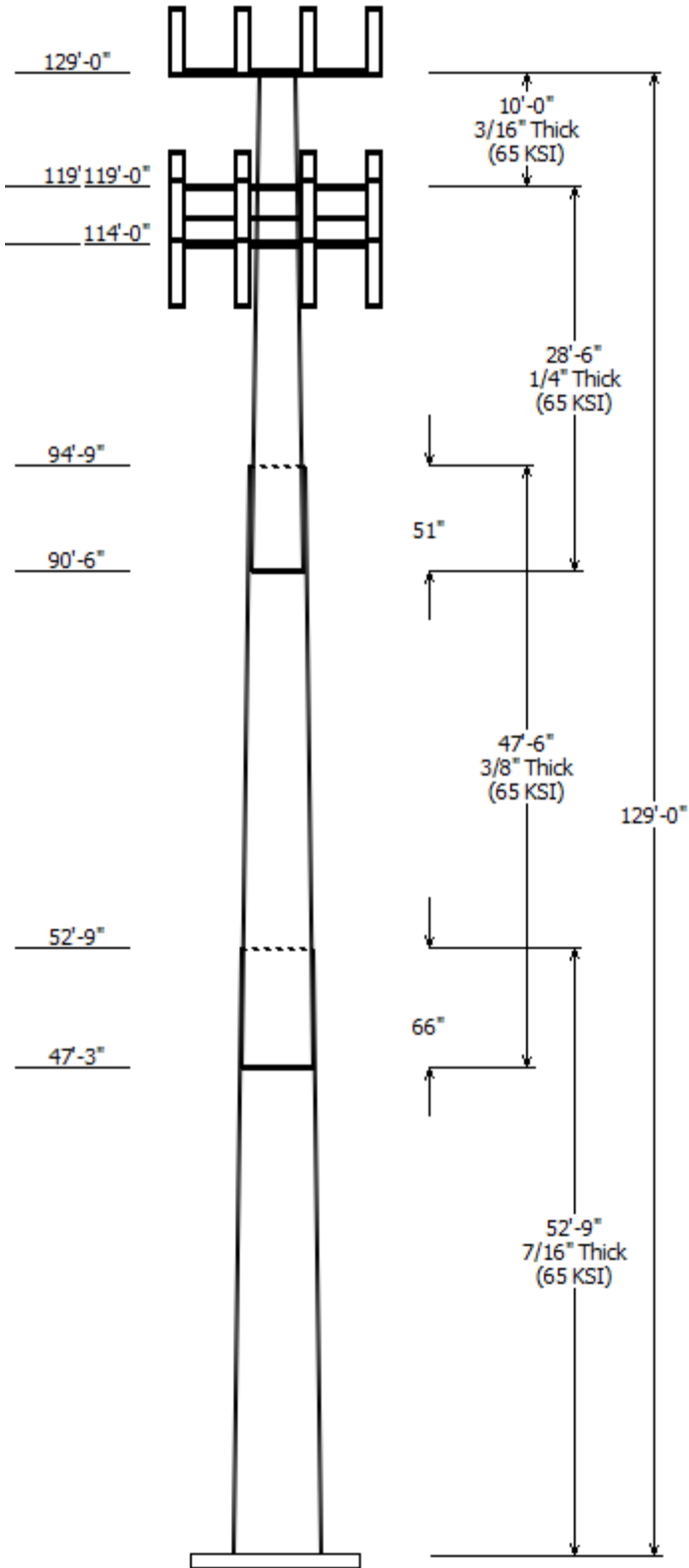
Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade (ksi)
		Top	Bottom				
1	52.750	36.88	48.80	0.438		0.000	18 Sides 65
2	47.500	28.13	38.87	0.375	Slip Joint	66.000	18 Sides 65
3	28.500	23.16	29.60	0.250	Slip Joint	51.000	18 Sides 65
4	10.000	20.90	23.16	0.188	Butt Joint	0.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
129.000	132.000	3	Alcatel-Lucent PCS B25
129.000	132.000	3	Alcatel-Lucent RRH2x60 700
129.000	132.000	3	Nokia B5 RRH4x40-850
129.000	129.000	1	Round Low Profile Platform
129.000	132.000	6	Commscope JAHH-65B-R3B
129.000	132.000	3	Amphenol Antel BXA-80080-
129.000	132.000	3	Amphenol Antel BXA-171063-
129.000	132.000	2	RFS DB-T1-6Z-8AB-0Z
129.000	132.000	3	Alcatel-Lucent B66A RRH 4x45
119.000	117.000	3	Ericsson AIR 21, 1.3 M, B2A B4
119.000	119.000	3	RFS APXVAARR24_43-U-NA20
119.000	119.000	3	Ericsson AIR-32 B2A/B66Aa
119.000	119.000	3	Ericsson Radio 4449 B12,B71
119.000	119.000	3	Round T-Arm
114.000	114.000	1	Round Platform w/ Handrails
114.000	109.000	12	CCI CCI-HPA-65R-BUU-H8
114.000	116.000	6	Ericsson RRUS 32 (50.8 lbs)
114.000	116.000	6	Ericsson RRUS-11 (50 lbs.)
114.000	109.000	4	Raycap DC6-48-60-18-8F
114.000	116.000	6	Ericsson RRUS 32 B2

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
11.000	114.0	0.39" (10mm)	No
11.000	114.0	0.78" 8 AWG 6	No
11.000	114.0	3" Conduit	No
11.000	114.0	3/8" Coax	No
11.000	114.0	3/8" RET Control	No
7.000	129.0	1 5/8" Coax	No
7.000	129.0	1 5/8" Hybriflex	No
3.000	119.0	1 1/4" Fiber	No
3.000	119.0	1 5/8" Coax	No
3.000	119.0	1 5/8" Hybriflex	No

Load Cases	
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice

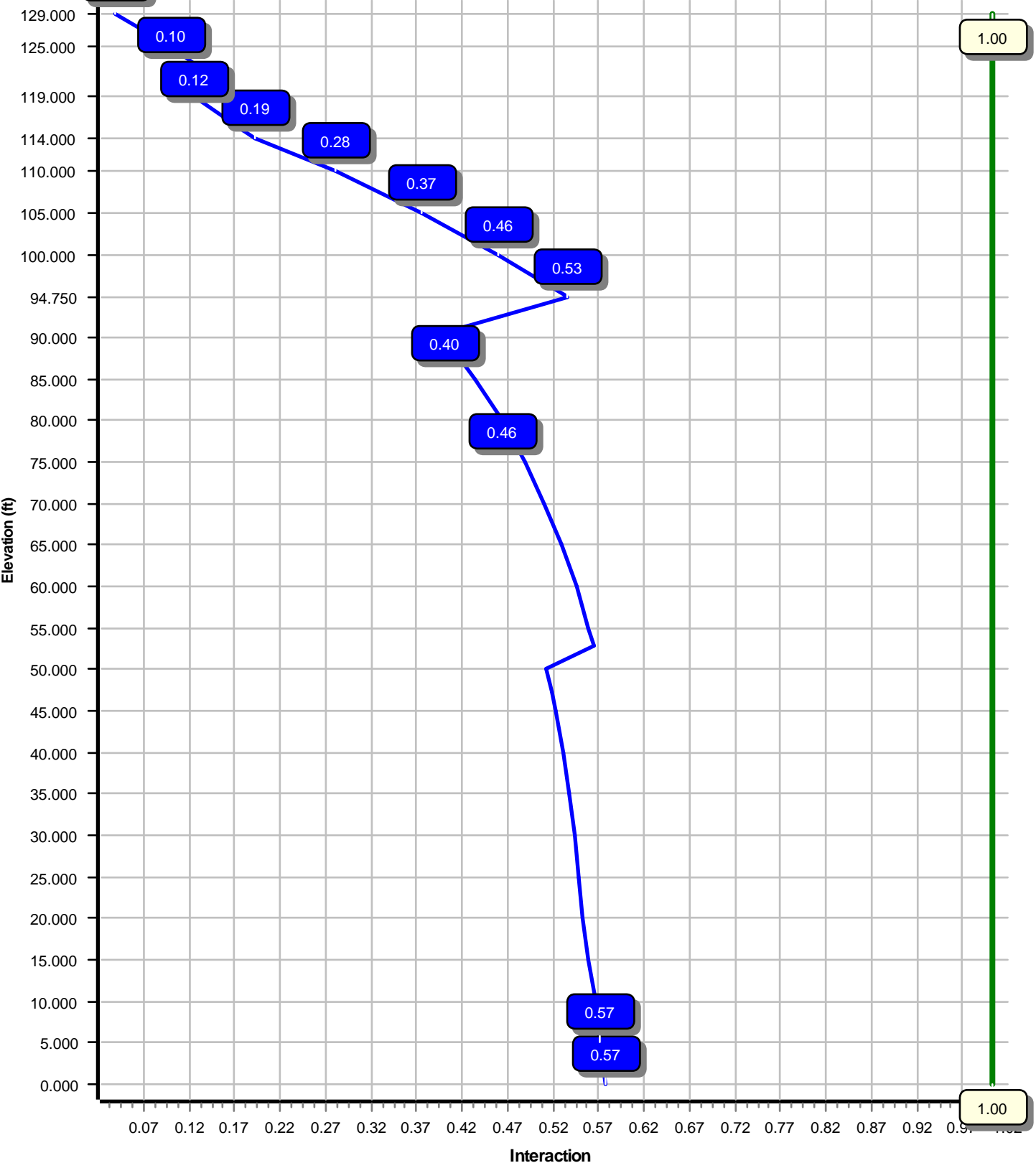
$(1.2 + 0.2Sds) * DL + E$	Seismic Equivalent Lateral Forces Method
$(1.2 + 0.2Sds) * DL + E$	Seismic Equivalent Modal Analysis Method
$(0.9 - 0.2Sds) * DL + E$	Seismic (Reduced DL) Equivalent Lateral
$(0.9 - 0.2Sds) * DL + E$	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph



Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2730.37	26.87	43.27
0.9D + 1.6W	2702.52	26.85	32.44
1.2D + 1.0Di + 1.0Wi	710.20	7.18	64.84
$(1.2 + 0.2Sds) * DL + E$ ELFM	160.99	1.54	43.30
$(1.2 + 0.2Sds) * DL + E$ EMAM	266.40	2.52	43.30
$(0.9 - 0.2Sds) * DL + E$ ELFM	159.08	1.54	30.08
$(0.9 - 0.2Sds) * DL + E$ EMAM	263.04	2.52	30.07
1.0D + 1.0W	649.20	6.42	36.09

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 57.48% at 0.0 ft



Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:24 PM

Customer: METRO PCS INC

Analysis Parameters

Location :	NEW HAVEN County, CT	Height (ft) :	129
Code :	ANSI/TIA-222-G	Base Diameter (in) :	48.80
Shape :	18 Sides	Top Diameter (in) :	20.90
Pole Type :	Taper	Taper (in/ft) :	0.226
Pole Manufacturer :		Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.02		
T _L (sec):	6	p:	1.3
S _s :	0.184	S ₁ :	0.062
F _a :	1.600	F _v :	2.400
S _{ds} :	0.196	S _{d1} :	0.099
		C _s :	0.033
		C _s Max:	0.033
		C _s Min:	0.030

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2S _{ds}) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S _{ds}) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S _{ds}) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S _{ds}) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:24 PM

Customer: METRO PCS INC

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	52.750	0.4375	65		0.00	10,569	48.80	0.00	67.15	19844.9	17.90	111.54	36.88	52.75	50.60	8490.9	13.10	84.30	0.225969
2-18	47.500	0.3750	65	Slip	66.00	6,374	38.87	47.25	45.82	8580.0	16.52	103.66	28.13	94.75	33.05	3218.4	11.47	75.04	0.225969
3-18	28.500	0.2500	65	Slip	51.00	2,011	29.60	90.50	23.29	2534.5	19.11	118.40	23.16	119.00	18.18	1205.4	14.57	92.64	0.225969
4-18	10.000	0.1875	65	Butt	0.00	442	23.16	119.00	13.67	911.5	20.02	123.52	20.90	129.00	12.33	668.1	17.89	111.47	0.225969
Shaft Weight						19,395													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
129.00	Alcatel-Lucent B66A RRH 4x45	3	0.000	3.000	67.00	2.580	0.67
129.00	Alcatel-Lucent PCS B25 RRH2x60	3	0.000	3.000	55.00	2.200	0.67
129.00	Alcatel-Lucent RRH2x60 700	3	0.000	3.000	56.70	2.150	0.67
129.00	Amphenol Antel BXA-171063-	3	0.000	3.000	12.80	4.800	0.72
129.00	Amphenol Antel BXA-80080-6CF-	3	0.000	3.000	18.00	5.770	0.73
129.00	Commscope JAHH-65B-R3B	6	0.000	3.000	60.60	9.110	0.69
129.00	Nokia B5 RRH4x40-850	3	0.000	3.000	48.50	1.320	0.50
129.00	RFS DB-T1-6Z-8AB-0Z	2	0.000	3.000	44.00	4.800	0.67
129.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
119.00	Ericsson AIR 21, 1.3 M, B2A B4	3	0.000	-2.000	83.00	6.050	0.71
119.00	Ericsson AIR-32 B2A/B66Aa	3	0.000	0.000	132.20	6.510	0.71
119.00	Ericsson Radio 4449 B12,B71	3	0.000	0.000	74.00	1.640	0.50
119.00	RFS APXVAARR24_43-U-NA20	3	0.000	0.000	127.90	20.240	0.63
119.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
114.00	Ericsson RRUS-11 (50 lbs.)	6	0.000	2.000	50.00	2.570	0.67
114.00	CCI CCI-HPA-65R-BUU-H8	12	0.000	-5.000	68.00	12.980	0.67
114.00	Ericsson RRUS 32 (50.8 lbs)	6	0.000	2.000	50.80	2.690	0.67
114.00	Ericsson RRUS 32 B2	6	0.000	2.000	53.00	2.740	0.67
114.00	Raycap DC6-48-60-18-8F	4	0.000	-5.000	20.00	1.110	1.00
114.00	Round Platform w/ Handrails	1	0.000	0.000	2000.00	27.200	1.00
Totals	Num Loadings:20	77			8545.70		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Flat	Projected Width (in)	Exposed To Wind	Carrier
7.00	129.00	8	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
7.00	129.00	4	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon Wireless
3.00	119.00	2	1 1/4" Fiber	1.25	1.05	N	0.00	N	Metro PCS
3.00	119.00	11	1 5/8" Coax	1.98	0.82	N	0.00	N	Metro PCS
3.00	119.00	1	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Metro PCS
11.00	114.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T Mobility
11.00	114.00	8	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
11.00	114.00	6	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
11.00	114.00	3	3/8" Coax	0.44	0.08	N	0.00	N	AT&T Mobility
11.00	114.00	3	3/8" RET Control Cable	0.38	0.23	N	0.00	N	AT&T Mobility

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:24 PM

Customer: METRO PCS INC

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	48.800	67.155	19,844.9	17.90	111.54	80.3	801.0	0.0	0.0
5.00		0.4375	47.670	65.586	18,486.3	17.45	108.96	80.9	763.8	0.0	1,129.2
10.00		0.4375	46.540	64.017	17,191.1	16.99	106.38	81.4	727.5	0.0	1,102.5
15.00		0.4375	45.410	62.448	15,957.9	16.54	103.80	81.9	692.2	0.0	1,075.8
20.00		0.4375	44.281	60.879	14,785.2	16.08	101.21	82.5	657.6	0.0	1,049.1
25.00		0.4375	43.151	59.311	13,671.3	15.63	98.63	82.6	624.0	0.0	1,022.5
30.00		0.4375	42.021	57.742	12,614.9	15.17	96.05	82.6	591.3	0.0	995.8
35.00		0.4375	40.891	56.173	11,614.3	14.72	93.47	82.6	559.4	0.0	969.1
40.00		0.4375	39.761	54.604	10,668.1	14.26	90.88	82.6	528.5	0.0	942.4
45.00		0.4375	38.631	53.035	9,774.7	13.81	88.30	82.6	498.4	0.0	915.7
47.25	Bot - Section 2	0.4375	38.123	52.329	9,389.5	13.60	87.14	82.6	485.1	0.0	403.3
50.00		0.4375	37.502	51.466	8,932.7	13.35	85.72	82.6	469.2	0.0	911.0
52.75	Top - Section 1	0.3750	37.630	44.341	7,775.6	15.93	100.35	82.6	407.0	0.0	896.0
55.00		0.3750	37.122	43.736	7,461.6	15.69	98.99	82.6	395.9	0.0	337.2
60.00		0.3750	35.992	42.391	6,794.3	15.16	95.98	82.6	371.8	0.0	732.7
65.00		0.3750	34.862	41.047	6,168.0	14.63	92.97	82.6	348.5	0.0	709.8
70.00		0.3750	33.732	39.702	5,581.4	14.10	89.95	82.6	325.9	0.0	686.9
75.00		0.3750	32.602	38.357	5,033.2	13.57	86.94	82.6	304.1	0.0	664.0
80.00		0.3750	31.472	37.012	4,522.2	13.04	83.93	82.6	283.0	0.0	641.2
85.00		0.3750	30.343	35.668	4,047.0	12.50	80.91	82.6	262.7	0.0	618.3
90.00		0.3750	29.213	34.323	3,606.3	11.97	77.90	82.6	243.1	0.0	595.4
90.50	Bot - Section 3	0.3750	29.100	34.188	3,564.1	11.92	77.60	82.6	241.2	0.0	58.3
94.75	Top - Section 2	0.2500	28.639	22.526	2,293.8	18.44	114.56	79.7	157.8	0.0	817.4
95.00		0.2500	28.583	22.481	2,280.1	18.40	114.33	79.8	157.1	0.0	19.1
100.0		0.2500	27.453	21.585	2,018.1	17.60	109.81	80.7	144.8	0.0	374.9
105.0		0.2500	26.323	20.688	1,776.9	16.80	105.29	81.6	133.0	0.0	359.6
110.0		0.2500	25.193	19.792	1,555.8	16.01	100.77	82.6	121.6	0.0	344.4
114.0		0.2500	24.290	19.075	1,392.7	15.37	97.16	82.6	112.9	0.0	264.5
115.0		0.2500	24.064	18.895	1,353.8	15.21	96.25	82.6	110.8	0.0	64.6
119.0	Top - Section 3	0.2500	23.160	18.178	1,205.4	14.57	92.64	82.6	102.5	0.0	252.3
119.0	Bot - Section 4	0.1875	23.160	13.671	911.5	20.02	123.52	77.9	77.5	0.0	
120.0		0.1875	22.934	13.536	884.9	19.80	122.31	78.1	76.0	0.0	46.3
125.0		0.1875	21.804	12.864	759.4	18.74	116.29	79.4	68.6	0.0	224.6
129.0		0.1875	20.900	12.326	668.1	17.89	111.47	80.4	63.0	0.0	171.4
											19,395.2

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:24 PM

Customer: METRO PCS INC

Load Case: 1.2D + 1.6W

97 mph with No Ice

22 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

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		227.1	0.0					0.0	0.0	227.1	0.0	0.0	0.0
5.00		448.8	1,355.1					0.0	29.8	448.8	1,384.9	0.0	0.0
10.00		438.1	1,323.0					0.0	116.9	438.1	1,439.9	0.0	0.0
15.00		434.2	1,291.0					0.0	391.1	434.2	1,682.1	0.0	0.0
20.00		441.6	1,259.0					0.0	452.6	441.6	1,711.6	0.0	0.0
25.00		451.3	1,226.9					0.0	452.6	451.3	1,679.5	0.0	0.0
30.00		456.8	1,194.9					0.0	452.6	456.8	1,647.5	0.0	0.0
35.00		459.2	1,162.9					0.0	452.6	459.2	1,615.5	0.0	0.0
40.00		459.3	1,130.8					0.0	452.6	459.3	1,583.4	0.0	0.0
45.00		332.3	1,098.8					0.0	452.6	332.3	1,551.4	0.0	0.0
47.25	Bot - Section 2	230.6	484.0					0.0	203.7	230.6	687.7	0.0	0.0
50.00		254.8	1,093.1					0.0	248.9	254.8	1,342.1	0.0	0.0
52.75	Top - Section 1	230.6	1,075.1					0.0	248.9	230.6	1,324.1	0.0	0.0
55.00		331.5	404.6					0.0	203.7	331.5	608.3	0.0	0.0
60.00		452.9	879.2					0.0	452.6	452.9	1,331.8	0.0	0.0
65.00		446.2	851.8					0.0	452.6	446.2	1,304.3	0.0	0.0
70.00		438.5	824.3					0.0	452.6	438.5	1,276.9	0.0	0.0
75.00		430.1	796.9					0.0	452.6	430.1	1,249.4	0.0	0.0
80.00		420.8	769.4					0.0	452.6	420.8	1,222.0	0.0	0.0
85.00		410.9	741.9					0.0	452.6	410.9	1,194.5	0.0	0.0
90.00		222.9	714.5					0.0	452.6	222.9	1,167.1	0.0	0.0
90.50	Bot - Section 3	190.7	69.9					0.0	45.3	190.7	115.2	0.0	0.0
94.75	Top - Section 2	180.6	980.9					0.0	384.7	180.6	1,365.6	0.0	0.0
95.00		205.2	23.0					0.0	22.6	205.2	45.6	0.0	0.0
100.00		384.8	449.8					0.0	452.6	384.8	902.4	0.0	0.0
105.00		372.7	431.5					0.0	452.6	372.7	884.1	0.0	0.0
110.00		325.4	413.2					0.0	452.6	325.4	865.8	0.0	0.0
114.00	Appurtenance(s)	176.9	317.4	6,929.0	0.0	-18,639.8	4,582.6	0.0	362.1	7,105.9	5,262.0	0.0	0.0
115.00		171.7	77.5					0.0	29.0	171.7	106.5	0.0	0.0
119.00	Top - Section 3	170.4	302.8	3,624.9	0.0	-1,086.3	2,401.6	0.0	116.1	3,795.2	2,820.4	0.0	0.0
120.00		197.2	55.5					0.0	14.1	197.2	69.7	0.0	0.0
125.00		289.5	269.5					0.0	70.6	289.5	340.1	0.0	0.0
129.00	Appurtenance(s)	125.9	205.7	5,655.5	0.0	13,465.6	3,270.7	0.0	56.4	5,781.4	3,532.9	0.0	0.0
Totals:										27,019.0	43,314.1	0.00	0.00

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:27 PM

Customer: METRO PCS INC

Load Case: 1.2D + 1.6W

97 mph with No Ice

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-43.27	-26.87	0.00	-2,730.37	0.00	2,730.37	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.575
5.00	-41.80	-26.56	0.00	-2,596.05	0.00	2,596.05	4,773.96	2,386.98	9,252.42	4,633.09	0.10	-0.19	0.569
10.00	-40.27	-26.25	0.00	-2,463.27	0.00	2,463.27	4,690.62	2,345.31	8,871.44	4,442.31	0.41	-0.39	0.563
15.00	-38.50	-25.93	0.00	-2,332.04	0.00	2,332.04	4,605.77	2,302.89	8,495.47	4,254.05	0.92	-0.58	0.557
20.00	-36.70	-25.60	0.00	-2,202.37	0.00	2,202.37	4,519.41	2,259.70	8,124.73	4,068.40	1.64	-0.79	0.550
25.00	-34.94	-25.25	0.00	-2,074.36	0.00	2,074.36	4,406.48	2,203.24	7,715.56	3,863.51	2.57	-0.99	0.545
30.00	-33.21	-24.89	0.00	-1,948.10	0.00	1,948.10	4,289.92	2,144.96	7,310.76	3,660.81	3.72	-1.20	0.540
35.00	-31.51	-24.51	0.00	-1,823.67	0.00	1,823.67	4,173.36	2,086.68	6,916.87	3,463.58	5.09	-1.41	0.534
40.00	-29.85	-24.12	0.00	-1,701.12	0.00	1,701.12	4,056.80	2,028.40	6,533.89	3,271.80	6.69	-1.63	0.527
45.00	-28.24	-23.82	0.00	-1,580.52	0.00	1,580.52	3,940.24	1,970.12	6,161.81	3,085.49	8.51	-1.85	0.520
47.25	-27.52	-23.62	0.00	-1,526.93	0.00	1,526.93	3,887.79	1,943.89	5,997.94	3,003.43	9.41	-1.95	0.516
50.00	-26.13	-23.38	0.00	-1,461.97	0.00	1,461.97	3,823.68	1,911.84	5,800.65	2,904.64	10.57	-2.07	0.510
52.75	-24.77	-23.15	0.00	-1,397.69	0.00	1,397.69	3,294.34	1,647.17	5,032.03	2,519.75	11.80	-2.20	0.562
55.00	-24.11	-22.87	0.00	-1,345.61	0.00	1,345.61	3,249.38	1,624.69	4,894.94	2,451.11	12.86	-2.30	0.557
60.00	-22.70	-22.45	0.00	-1,231.29	0.00	1,231.29	3,149.47	1,574.74	4,597.09	2,301.96	15.41	-2.55	0.542
65.00	-21.32	-22.04	0.00	-1,119.02	0.00	1,119.02	3,049.56	1,524.78	4,308.58	2,157.49	18.21	-2.79	0.526
70.00	-19.98	-21.62	0.00	-1,008.83	0.00	1,008.83	2,949.66	1,474.83	4,029.43	2,017.71	21.27	-3.04	0.507
75.00	-18.67	-21.20	0.00	-900.72	0.00	900.72	2,849.75	1,424.87	3,759.63	1,882.61	24.58	-3.28	0.485
80.00	-17.39	-20.78	0.00	-794.71	0.00	794.71	2,749.84	1,374.92	3,499.17	1,752.19	28.15	-3.52	0.460
85.00	-16.14	-20.36	0.00	-690.81	0.00	690.81	2,649.93	1,324.97	3,248.06	1,626.45	31.96	-3.76	0.431
90.00	-14.95	-20.09	0.00	-589.01	0.00	589.01	2,550.02	1,275.01	3,006.31	1,505.39	36.02	-3.98	0.397
90.50	-14.81	-19.92	0.00	-578.97	0.00	578.97	2,540.03	1,270.02	2,982.64	1,493.54	36.44	-4.00	0.394
94.75	-13.43	-19.66	0.00	-494.31	0.00	494.31	1,616.13	808.07	1,883.49	943.15	40.08	-4.19	0.533
95.00	-13.35	-19.49	0.00	-489.39	0.00	489.39	1,613.86	806.93	1,877.08	939.93	40.30	-4.20	0.530
100.00	-12.39	-19.09	0.00	-391.95	0.00	391.95	1,567.71	783.86	1,750.05	876.33	44.85	-4.47	0.456
105.00	-11.47	-18.70	0.00	-296.47	0.00	296.47	1,520.05	760.03	1,625.73	814.07	49.66	-4.72	0.372
110.00	-10.58	-18.33	0.00	-202.99	0.00	202.99	1,470.44	735.22	1,503.87	753.05	54.71	-4.92	0.277
114.00	-5.94	-10.80	0.00	-129.68	0.00	129.68	1,417.15	708.58	1,396.33	699.20	58.88	-5.04	0.190
115.00	-5.84	-10.63	0.00	-118.88	0.00	118.88	1,403.83	701.92	1,370.07	686.05	59.93	-5.06	0.178
119.00	-3.36	-6.60	0.00	-76.38	0.00	76.38	1,350.55	675.27	1,267.52	634.70	64.21	-5.14	0.123
119.00	-3.36	-6.60	0.00	-76.38	0.00	76.38	957.94	478.97	903.96	452.65	64.21	-5.14	0.172
120.00	-3.31	-6.40	0.00	-69.78	0.00	69.78	951.57	475.78	889.04	445.18	65.29	-5.16	0.160
125.00	-2.99	-6.08	0.00	-37.79	0.00	37.79	918.77	459.38	815.41	408.31	70.74	-5.25	0.096
129.00	0.00	-5.78	0.00	-13.47	0.00	13.47	891.44	445.72	757.79	379.46	75.15	-5.29	0.036

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:28 PM

Customer: METRO PCS INC

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		227.1	0.0					0.0	0.0	227.1	0.0	0.0	0.0
5.00		448.8	1,016.3					0.0	22.4	448.8	1,038.7	0.0	0.0
10.00		438.1	992.3					0.0	87.6	438.1	1,079.9	0.0	0.0
15.00		434.2	968.3					0.0	293.3	434.2	1,261.6	0.0	0.0
20.00		441.6	944.2					0.0	339.4	441.6	1,283.7	0.0	0.0
25.00		451.3	920.2					0.0	339.4	451.3	1,259.6	0.0	0.0
30.00		456.8	896.2					0.0	339.4	456.8	1,235.6	0.0	0.0
35.00		459.2	872.2					0.0	339.4	459.2	1,211.6	0.0	0.0
40.00		459.3	848.1					0.0	339.4	459.3	1,187.6	0.0	0.0
45.00		332.3	824.1					0.0	339.4	332.3	1,163.5	0.0	0.0
47.25	Bot - Section 2	230.6	363.0					0.0	152.7	230.6	515.8	0.0	0.0
50.00		254.8	819.9					0.0	186.7	254.8	1,006.5	0.0	0.0
52.75	Top - Section 1	230.6	806.4					0.0	186.7	230.6	993.0	0.0	0.0
55.00		331.5	303.5					0.0	152.7	331.5	456.2	0.0	0.0
60.00		452.9	659.4					0.0	339.4	452.9	998.8	0.0	0.0
65.00		446.2	638.8					0.0	339.4	446.2	978.3	0.0	0.0
70.00		438.5	618.2					0.0	339.4	438.5	957.7	0.0	0.0
75.00		430.1	597.6					0.0	339.4	430.1	937.1	0.0	0.0
80.00		420.8	577.0					0.0	339.4	420.8	916.5	0.0	0.0
85.00		410.9	556.5					0.0	339.4	410.9	895.9	0.0	0.0
90.00		222.9	535.9					0.0	339.4	222.9	875.3	0.0	0.0
90.50	Bot - Section 3	190.7	52.5					0.0	33.9	190.7	86.4	0.0	0.0
94.75	Top - Section 2	180.6	735.7					0.0	288.5	180.6	1,024.2	0.0	0.0
95.00		205.2	17.2					0.0	17.0	205.2	34.2	0.0	0.0
100.00		384.8	337.4					0.0	339.4	384.8	676.8	0.0	0.0
105.00		372.7	323.7					0.0	339.4	372.7	663.1	0.0	0.0
110.00		325.4	309.9					0.0	339.4	325.4	649.4	0.0	0.0
114.00	Appurtenance(s)	176.9	238.1	6,929.0	0.0	-18,639.8	3,436.9	0.0	271.5	7,105.9	3,946.5	0.0	0.0
115.00		171.7	58.1					0.0	21.8	171.7	79.9	0.0	0.0
119.00	Top - Section 3	170.4	227.1	3,624.9	0.0	-1,086.3	1,801.2	0.0	87.0	3,795.2	2,115.3	0.0	0.0
120.00		197.2	41.7					0.0	10.6	197.2	52.2	0.0	0.0
125.00		289.5	202.1					0.0	52.9	289.5	255.0	0.0	0.0
129.00	Appurtenance(s)	125.9	154.3	5,655.5	0.0	13,465.6	2,453.0	0.0	42.3	5,781.4	2,649.7	0.0	0.0
Totals:										27,019.0	32,485.6	0.00	0.00

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:31 PM

Customer: METRO PCS INC

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

22 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	-32.44	-26.85	0.00	-2,702.52	0.00	2,702.52	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.567
5.00	-31.31	-26.50	0.00	-2,568.29	0.00	2,568.29	4,773.96	2,386.98	9,252.42	4,633.09	0.10	-0.19	0.561
10.00	-30.15	-26.16	0.00	-2,435.79	0.00	2,435.79	4,690.62	2,345.31	8,871.44	4,442.31	0.40	-0.38	0.555
15.00	-28.80	-25.81	0.00	-2,305.00	0.00	2,305.00	4,605.77	2,302.89	8,495.47	4,254.05	0.91	-0.58	0.548
20.00	-27.43	-25.45	0.00	-2,175.93	0.00	2,175.93	4,519.41	2,259.70	8,124.73	4,068.40	1.62	-0.78	0.541
25.00	-26.09	-25.08	0.00	-2,048.66	0.00	2,048.66	4,406.48	2,203.24	7,715.56	3,863.51	2.54	-0.98	0.536
30.00	-24.77	-24.69	0.00	-1,923.28	0.00	1,923.28	4,289.92	2,144.96	7,310.76	3,660.81	3.68	-1.19	0.531
35.00	-23.48	-24.29	0.00	-1,799.85	0.00	1,799.85	4,173.36	2,086.68	6,916.87	3,463.58	5.04	-1.40	0.525
40.00	-22.22	-23.88	0.00	-1,678.41	0.00	1,678.41	4,056.80	2,028.40	6,533.89	3,271.80	6.61	-1.61	0.519
45.00	-21.00	-23.57	0.00	-1,559.01	0.00	1,559.01	3,940.24	1,970.12	6,161.81	3,085.49	8.42	-1.83	0.511
47.25	-20.45	-23.36	0.00	-1,505.98	0.00	1,505.98	3,887.79	1,943.89	5,997.94	3,003.43	9.30	-1.93	0.507
50.00	-19.40	-23.12	0.00	-1,441.73	0.00	1,441.73	3,823.68	1,911.84	5,800.65	2,904.64	10.45	-2.05	0.502
52.75	-18.37	-22.88	0.00	-1,378.16	0.00	1,378.16	3,294.34	1,647.17	5,032.03	2,519.75	11.66	-2.17	0.553
55.00	-17.86	-22.59	0.00	-1,326.67	0.00	1,326.67	3,249.38	1,624.69	4,894.94	2,451.11	12.71	-2.27	0.547
60.00	-16.79	-22.17	0.00	-1,213.73	0.00	1,213.73	3,149.47	1,574.74	4,597.09	2,301.96	15.22	-2.52	0.533
65.00	-15.74	-21.74	0.00	-1,102.89	0.00	1,102.89	3,049.56	1,524.78	4,308.58	2,157.49	17.99	-2.76	0.517
70.00	-14.72	-21.32	0.00	-994.18	0.00	994.18	2,949.66	1,474.83	4,029.43	2,017.71	21.01	-3.00	0.498
75.00	-13.72	-20.90	0.00	-887.59	0.00	887.59	2,849.75	1,424.87	3,759.63	1,882.61	24.28	-3.24	0.476
80.00	-12.74	-20.47	0.00	-783.11	0.00	783.11	2,749.84	1,374.92	3,499.17	1,752.19	27.80	-3.48	0.452
85.00	-11.80	-20.05	0.00	-680.74	0.00	680.74	2,649.93	1,324.97	3,248.06	1,626.45	31.56	-3.71	0.423
90.00	-10.90	-19.80	0.00	-580.47	0.00	580.47	2,550.02	1,275.01	3,006.31	1,505.39	35.56	-3.93	0.390
90.50	-10.79	-19.62	0.00	-570.57	0.00	570.57	2,540.03	1,270.02	2,982.64	1,493.54	35.98	-3.95	0.387
94.75	-9.75	-19.38	0.00	-487.19	0.00	487.19	1,616.13	808.07	1,883.49	943.15	39.58	-4.13	0.523
95.00	-9.68	-19.20	0.00	-482.35	0.00	482.35	1,613.86	806.93	1,877.08	939.93	39.79	-4.14	0.520
100.00	-8.95	-18.81	0.00	-386.34	0.00	386.34	1,567.71	783.86	1,750.05	876.33	44.28	-4.41	0.447
105.00	-8.25	-18.41	0.00	-292.31	0.00	292.31	1,520.05	760.03	1,625.73	814.07	49.03	-4.65	0.365
110.00	-7.58	-18.06	0.00	-200.24	0.00	200.24	1,470.44	735.22	1,503.87	753.05	54.01	-4.85	0.272
114.00	-4.24	-10.64	0.00	-128.02	0.00	128.02	1,417.15	708.58	1,396.33	699.20	58.12	-4.97	0.186
115.00	-4.17	-10.47	0.00	-117.37	0.00	117.37	1,403.83	701.92	1,370.07	686.05	59.16	-4.99	0.174
119.00	-2.39	-6.51	0.00	-75.50	0.00	75.50	1,350.55	675.27	1,267.52	634.70	63.38	-5.08	0.121
119.00	-2.39	-6.51	0.00	-75.50	0.00	75.50	957.94	478.97	903.96	452.65	63.38	-5.08	0.169
120.00	-2.35	-6.31	0.00	-68.99	0.00	68.99	951.57	475.78	889.04	445.18	64.44	-5.09	0.158
125.00	-2.11	-6.00	0.00	-37.46	0.00	37.46	918.77	459.38	815.41	408.31	69.82	-5.18	0.094
129.00	0.00	-5.78	0.00	-13.47	0.00	13.47	891.44	445.72	757.79	379.46	74.17	-5.22	0.036

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:31 PM

Customer: METRO PCS INC

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

21 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		Discrete Forces			Linear Forces		Sum of Forces				
		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		72.9	0.0					0.0	0.0	72.9	0.0	0.0	0.0
5.00		144.6	1,709.5					0.0	29.8	144.6	1,739.4	0.0	0.0
10.00		141.9	1,710.6					0.0	116.9	141.9	1,827.4	0.0	0.0
15.00		141.1	1,689.8					0.0	391.1	141.1	2,080.9	0.0	0.0
20.00		144.0	1,661.9					0.0	452.6	144.0	2,114.4	0.0	0.0
25.00		147.6	1,630.2					0.0	452.6	147.6	2,082.8	0.0	0.0
30.00		149.8	1,596.2					0.0	452.6	149.8	2,048.7	0.0	0.0
35.00		151.0	1,560.5					0.0	452.6	151.0	2,013.1	0.0	0.0
40.00		151.5	1,523.7					0.0	452.6	151.5	1,976.2	0.0	0.0
45.00		109.8	1,485.9					0.0	452.6	109.8	1,938.4	0.0	0.0
47.25	Bot - Section 2	76.3	657.4					0.0	203.7	76.3	861.1	0.0	0.0
50.00		84.4	1,307.0					0.0	248.9	84.4	1,555.9	0.0	0.0
52.75	Top - Section 1	76.5	1,286.8					0.0	248.9	76.5	1,535.8	0.0	0.0
55.00		110.2	576.4					0.0	203.7	110.2	780.1	0.0	0.0
60.00		151.0	1,252.4					0.0	452.6	151.0	1,705.0	0.0	0.0
65.00		149.2	1,216.9					0.0	452.6	149.2	1,669.4	0.0	0.0
70.00		147.1	1,180.9					0.0	452.6	147.1	1,633.5	0.0	0.0
75.00		144.8	1,144.7					0.0	452.6	144.8	1,597.2	0.0	0.0
80.00		142.3	1,108.1					0.0	452.6	142.3	1,560.7	0.0	0.0
85.00		139.5	1,071.2					0.0	452.6	139.5	1,523.8	0.0	0.0
90.00		75.8	1,034.1					0.0	452.6	75.8	1,486.7	0.0	0.0
90.50	Bot - Section 3	65.0	101.9					0.0	45.3	65.0	147.1	0.0	0.0
94.75	Top - Section 2	61.6	1,249.1					0.0	384.7	61.6	1,633.8	0.0	0.0
95.00		70.3	38.8					0.0	22.6	70.3	61.4	0.0	0.0
100.00		132.1	754.7					0.0	452.6	132.1	1,207.3	0.0	0.0
105.00		128.7	726.1					0.0	452.6	128.7	1,178.7	0.0	0.0
110.00		112.9	697.3					0.0	452.6	112.9	1,149.9	0.0	0.0
114.00	Appurtenance(s)	61.6	538.0	1,566.6	0.0	-3,626.6	10,648.6	0.0	362.1	1,628.2	11,548.7	0.0	0.0
115.00		60.1	132.3					0.0	29.0	60.1	161.3	0.0	0.0
119.00	Top - Section 3	59.7	514.7	771.0	0.0	-212.3	5,302.0	0.0	116.1	830.7	5,932.8	0.0	0.0
120.00		69.5	108.2					0.0	14.1	69.5	122.3	0.0	0.0
125.00		102.4	521.2					0.0	70.6	102.4	591.8	0.0	0.0
129.00	Appurtenance(s)	44.7	400.1	1,262.3	0.0	2,698.7	6,925.8	0.0	56.4	1,307.0	7,382.4	0.0	0.0
Totals:										7,219.89	64,847.9	0.00	0.00

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:35 PM

Customer: METRO PCS INC

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

21 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	-64.84	-7.18	0.00	-710.20	0.00	710.20	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.161
5.00	-63.10	-7.08	0.00	-674.32	0.00	674.32	4,773.96	2,386.98	9,252.42	4,633.09	0.03	-0.05	0.159
10.00	-61.27	-7.00	0.00	-638.90	0.00	638.90	4,690.62	2,345.31	8,871.44	4,442.31	0.11	-0.10	0.157
15.00	-59.18	-6.90	0.00	-603.93	0.00	603.93	4,605.77	2,302.89	8,495.47	4,254.05	0.24	-0.15	0.155
20.00	-57.06	-6.81	0.00	-569.41	0.00	569.41	4,519.41	2,259.70	8,124.73	4,068.40	0.43	-0.20	0.153
25.00	-54.97	-6.70	0.00	-535.39	0.00	535.39	4,406.48	2,203.24	7,715.56	3,863.51	0.67	-0.26	0.151
30.00	-52.92	-6.59	0.00	-501.89	0.00	501.89	4,289.92	2,144.96	7,310.76	3,660.81	0.97	-0.31	0.149
35.00	-50.90	-6.48	0.00	-468.93	0.00	468.93	4,173.36	2,086.68	6,916.87	3,463.58	1.32	-0.37	0.148
40.00	-48.92	-6.36	0.00	-436.55	0.00	436.55	4,056.80	2,028.40	6,533.89	3,271.80	1.73	-0.42	0.145
45.00	-46.97	-6.27	0.00	-404.75	0.00	404.75	3,940.24	1,970.12	6,161.81	3,085.49	2.20	-0.48	0.143
47.25	-46.11	-6.21	0.00	-390.65	0.00	390.65	3,887.79	1,943.89	5,997.94	3,003.43	2.44	-0.50	0.142
50.00	-44.55	-6.13	0.00	-373.58	0.00	373.58	3,823.68	1,911.84	5,800.65	2,904.64	2.74	-0.54	0.140
52.75	-43.01	-6.06	0.00	-356.71	0.00	356.71	3,294.34	1,647.17	5,032.03	2,519.75	3.05	-0.57	0.155
55.00	-42.23	-5.98	0.00	-343.07	0.00	343.07	3,249.38	1,624.69	4,894.94	2,451.11	3.33	-0.59	0.153
60.00	-40.52	-5.85	0.00	-313.17	0.00	313.17	3,149.47	1,574.74	4,597.09	2,301.96	3.98	-0.66	0.149
65.00	-38.85	-5.73	0.00	-283.91	0.00	283.91	3,049.56	1,524.78	4,308.58	2,157.49	4.70	-0.72	0.144
70.00	-37.21	-5.60	0.00	-255.27	0.00	255.27	2,949.66	1,474.83	4,029.43	2,017.71	5.49	-0.78	0.139
75.00	-35.61	-5.47	0.00	-227.28	0.00	227.28	2,849.75	1,424.87	3,759.63	1,882.61	6.34	-0.84	0.133
80.00	-34.05	-5.34	0.00	-199.93	0.00	199.93	2,749.84	1,374.92	3,499.17	1,752.19	7.25	-0.90	0.127
85.00	-32.52	-5.21	0.00	-173.24	0.00	173.24	2,649.93	1,324.97	3,248.06	1,626.45	8.23	-0.96	0.119
90.00	-31.03	-5.12	0.00	-147.21	0.00	147.21	2,550.02	1,275.01	3,006.31	1,505.39	9.27	-1.02	0.110
90.50	-30.88	-5.07	0.00	-144.65	0.00	144.65	2,540.03	1,270.02	2,982.64	1,493.54	9.38	-1.02	0.109
94.75	-29.25	-4.99	0.00	-123.11	0.00	123.11	1,616.13	808.07	1,883.49	943.15	10.31	-1.07	0.149
95.00	-29.19	-4.94	0.00	-121.86	0.00	121.86	1,613.86	806.93	1,877.08	939.93	10.36	-1.07	0.148
100.00	-27.98	-4.81	0.00	-97.18	0.00	97.18	1,567.71	783.86	1,750.05	876.33	11.52	-1.14	0.129
105.00	-26.80	-4.69	0.00	-73.12	0.00	73.12	1,520.05	760.03	1,625.73	814.07	12.75	-1.20	0.107
110.00	-25.64	-4.57	0.00	-49.69	0.00	49.69	1,470.44	735.22	1,503.87	753.05	14.04	-1.25	0.083
114.00	-14.13	-2.69	0.00	-31.43	0.00	31.43	1,417.15	708.58	1,396.33	699.20	15.10	-1.28	0.055
115.00	-13.97	-2.63	0.00	-28.74	0.00	28.74	1,403.83	701.92	1,370.07	686.05	15.37	-1.28	0.052
119.00	-8.06	-1.66	0.00	-18.24	0.00	18.24	1,350.55	675.27	1,267.52	634.70	16.45	-1.30	0.035
119.00	-8.06	-1.66	0.00	-18.24	0.00	18.24	957.94	478.97	903.96	452.65	16.45	-1.30	0.049
120.00	-7.94	-1.59	0.00	-16.58	0.00	16.58	951.57	475.78	889.04	445.18	16.72	-1.31	0.046
125.00	-7.35	-1.48	0.00	-8.61	0.00	8.61	918.77	459.38	815.41	408.31	18.11	-1.33	0.029
129.00	0.00	-1.31	0.00	-2.70	0.00	2.70	891.44	445.72	757.79	379.46	19.22	-1.34	0.007

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:35 PM

Customer: METRO PCS INC

Load Case: 1.0D + 1.0W

Serviceability 60 mph

21 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		54.3	0.0					0.0	0.0	54.3	0.0	0.0	0.0
5.00		107.3	1,129.2					0.0	24.8	107.3	1,154.1	0.0	0.0
10.00		104.8	1,102.5					0.0	97.4	104.8	1,199.9	0.0	0.0
15.00		103.8	1,075.8					0.0	325.9	103.8	1,401.7	0.0	0.0
20.00		105.6	1,049.1					0.0	377.1	105.6	1,426.3	0.0	0.0
25.00		107.9	1,022.5					0.0	377.1	107.9	1,399.6	0.0	0.0
30.00		109.2	995.8					0.0	377.1	109.2	1,372.9	0.0	0.0
35.00		109.8	969.1					0.0	377.1	109.8	1,346.2	0.0	0.0
40.00		109.8	942.4					0.0	377.1	109.8	1,319.5	0.0	0.0
45.00		79.5	915.7					0.0	377.1	79.5	1,292.8	0.0	0.0
47.25	Bot - Section 2	55.1	403.3					0.0	169.7	55.1	573.1	0.0	0.0
50.00		60.9	911.0					0.0	207.4	60.9	1,118.4	0.0	0.0
52.75	Top - Section 1	55.1	896.0					0.0	207.4	55.1	1,103.4	0.0	0.0
55.00		79.3	337.2					0.0	169.7	79.3	506.9	0.0	0.0
60.00		108.3	732.7					0.0	377.1	108.3	1,109.8	0.0	0.0
65.00		106.7	709.8					0.0	377.1	106.7	1,087.0	0.0	0.0
70.00		104.9	686.9					0.0	377.1	104.9	1,064.1	0.0	0.0
75.00		102.8	664.0					0.0	377.1	102.8	1,041.2	0.0	0.0
80.00		100.6	641.2					0.0	377.1	100.6	1,018.3	0.0	0.0
85.00		98.3	618.3					0.0	377.1	98.3	995.4	0.0	0.0
90.00		53.3	595.4					0.0	377.1	53.3	972.6	0.0	0.0
90.50	Bot - Section 3	45.6	58.3					0.0	37.7	45.6	96.0	0.0	0.0
94.75	Top - Section 2	43.2	817.4					0.0	320.6	43.2	1,138.0	0.0	0.0
95.00		49.1	19.1					0.0	18.9	49.1	38.0	0.0	0.0
100.00		92.0	374.9					0.0	377.1	92.0	752.0	0.0	0.0
105.00		89.1	359.6					0.0	377.1	89.1	736.8	0.0	0.0
110.00		77.8	344.4					0.0	377.1	77.8	721.5	0.0	0.0
114.00	Appurtenance(s)	42.3	264.5	1,656.9	0.0	-4,457.4	3,818.8	0.0	301.7	1,699.3	4,385.0	0.0	0.0
115.00		41.1	64.6					0.0	24.2	41.1	88.8	0.0	0.0
119.00	Top - Section 3	40.7	252.3	866.8	0.0	-259.8	2,001.3	0.0	96.7	907.6	2,350.3	0.0	0.0
120.00		47.1	46.3					0.0	11.8	47.1	58.1	0.0	0.0
125.00		69.2	224.6					0.0	58.8	69.2	283.4	0.0	0.0
129.00	Appurtenance(s)	30.1	171.4	1,352.4	0.0	3,220.1	2,725.6	0.0	47.0	1,382.5	2,944.1	0.0	0.0
Totals:										6,461.14	36,095.1	0.00	0.00

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:38 PM

Customer: METRO PCS INC

Load Case: 1.0D + 1.0W

Serviceability 60 mph

21 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	-36.09	-6.42	0.00	-649.20	0.00	649.20	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.142
5.00	-34.93	-6.34	0.00	-617.09	0.00	617.09	4,773.96	2,386.98	9,252.42	4,633.09	0.02	-0.05	0.141
10.00	-33.73	-6.26	0.00	-585.39	0.00	585.39	4,690.62	2,345.31	8,871.44	4,442.31	0.10	-0.09	0.139
15.00	-32.32	-6.18	0.00	-554.08	0.00	554.08	4,605.77	2,302.89	8,495.47	4,254.05	0.22	-0.14	0.137
20.00	-30.89	-6.10	0.00	-523.16	0.00	523.16	4,519.41	2,259.70	8,124.73	4,068.40	0.39	-0.19	0.135
25.00	-29.49	-6.01	0.00	-492.67	0.00	492.67	4,406.48	2,203.24	7,715.56	3,863.51	0.61	-0.24	0.134
30.00	-28.11	-5.92	0.00	-462.61	0.00	462.61	4,289.92	2,144.96	7,310.76	3,660.81	0.88	-0.29	0.133
35.00	-26.76	-5.83	0.00	-433.01	0.00	433.01	4,173.36	2,086.68	6,916.87	3,463.58	1.21	-0.34	0.131
40.00	-25.43	-5.73	0.00	-403.87	0.00	403.87	4,056.80	2,028.40	6,533.89	3,271.80	1.59	-0.39	0.130
45.00	-24.14	-5.66	0.00	-375.21	0.00	375.21	3,940.24	1,970.12	6,161.81	3,085.49	2.02	-0.44	0.128
47.25	-23.56	-5.61	0.00	-362.48	0.00	362.48	3,887.79	1,943.89	5,997.94	3,003.43	2.24	-0.46	0.127
50.00	-22.44	-5.55	0.00	-347.05	0.00	347.05	3,823.68	1,911.84	5,800.65	2,904.64	2.51	-0.49	0.125
52.75	-21.34	-5.50	0.00	-331.79	0.00	331.79	3,294.34	1,647.17	5,032.03	2,519.75	2.80	-0.52	0.138
55.00	-20.83	-5.43	0.00	-319.42	0.00	319.42	3,249.38	1,624.69	4,894.94	2,451.11	3.06	-0.55	0.137
60.00	-19.71	-5.33	0.00	-292.28	0.00	292.28	3,149.47	1,574.74	4,597.09	2,301.96	3.66	-0.61	0.133
65.00	-18.62	-5.23	0.00	-265.63	0.00	265.63	3,049.56	1,524.78	4,308.58	2,157.49	4.33	-0.66	0.129
70.00	-17.55	-5.13	0.00	-239.49	0.00	239.49	2,949.66	1,474.83	4,029.43	2,017.71	5.05	-0.72	0.125
75.00	-16.51	-5.03	0.00	-213.84	0.00	213.84	2,849.75	1,424.87	3,759.63	1,882.61	5.84	-0.78	0.119
80.00	-15.49	-4.93	0.00	-188.70	0.00	188.70	2,749.84	1,374.92	3,499.17	1,752.19	6.69	-0.84	0.113
85.00	-14.49	-4.83	0.00	-164.05	0.00	164.05	2,649.93	1,324.97	3,248.06	1,626.45	7.59	-0.89	0.106
90.00	-13.51	-4.77	0.00	-139.90	0.00	139.90	2,550.02	1,275.01	3,006.31	1,505.39	8.56	-0.95	0.098
90.50	-13.42	-4.73	0.00	-137.52	0.00	137.52	2,540.03	1,270.02	2,982.64	1,493.54	8.66	-0.95	0.097
94.75	-12.28	-4.67	0.00	-117.43	0.00	117.43	1,616.13	808.07	1,883.49	943.15	9.52	-0.99	0.132
95.00	-12.24	-4.63	0.00	-116.26	0.00	116.26	1,613.86	806.93	1,877.08	939.93	9.58	-1.00	0.131
100.00	-11.48	-4.53	0.00	-93.13	0.00	93.13	1,567.71	783.86	1,750.05	876.33	10.66	-1.06	0.114
105.00	-10.74	-4.44	0.00	-70.47	0.00	70.47	1,520.05	760.03	1,625.73	814.07	11.80	-1.12	0.094
110.00	-10.02	-4.35	0.00	-48.26	0.00	48.26	1,470.44	735.22	1,503.87	753.05	13.00	-1.17	0.071
114.00	-5.67	-2.57	0.00	-30.85	0.00	30.85	1,417.15	708.58	1,396.33	699.20	13.99	-1.20	0.048
115.00	-5.58	-2.53	0.00	-28.28	0.00	28.28	1,403.83	701.92	1,370.07	686.05	14.24	-1.20	0.045
119.00	-3.25	-1.57	0.00	-18.18	0.00	18.18	1,350.55	675.27	1,267.52	634.70	15.26	-1.22	0.031
119.00	-3.25	-1.57	0.00	-18.18	0.00	18.18	957.94	478.97	903.96	452.65	15.26	-1.22	0.044
120.00	-3.20	-1.52	0.00	-16.61	0.00	16.61	951.57	475.78	889.04	445.18	15.52	-1.23	0.041
125.00	-2.91	-1.45	0.00	-9.01	0.00	9.01	918.77	459.38	815.41	408.31	16.81	-1.25	0.025
129.00	0.00	-1.38	0.00	-3.22	0.00	3.22	891.44	445.72	757.79	379.46	17.86	-1.26	0.008

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
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):	2.02
Redundancy Factor (ρ):	1.30
Seismic Force Distribution Exponent (k):	1.76
Total Unfactored Dead Load:	36.10 k
Seismic Base Shear (E):	1.53 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)
32	127.00	218	1,114	0.014	22	271
31	122.50	283	1,356	0.017	26	351
30	119.50	58	266	0.003	5	72
29	117.00	349	1,540	0.020	30	433
28	114.50	89	377	0.005	7	110
27	112.00	566	2,313	0.029	45	702
26	107.50	722	2,742	0.035	54	894
25	102.50	737	2,575	0.033	50	913
24	97.50	752	2,406	0.031	47	932
23	94.88	38	116	0.001	2	47
22	92.63	1,138	3,327	0.042	65	1,410
21	90.25	96	268	0.003	5	119
20	87.50	973	2,572	0.033	50	1,205
19	82.50	995	2,373	0.030	46	1,234
18	77.50	1,018	2,174	0.028	42	1,262
17	72.50	1,041	1,977	0.025	39	1,290
16	67.50	1,064	1,781	0.023	35	1,319
15	62.50	1,087	1,589	0.020	31	1,347
14	57.50	1,110	1,400	0.018	27	1,375
13	53.88	507	570	0.007	11	628
12	51.38	1,103	1,142	0.015	22	1,367
11	48.63	1,118	1,050	0.013	20	1,386
10	46.13	573	490	0.006	10	710

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:39 PM

Customer: METRO PCS INC

9	42.50	1,293	958	0.012	19	1,602
8	37.50	1,320	784	0.010	15	1,635
7	32.50	1,346	621	0.008	12	1,668
6	27.50	1,373	472	0.006	9	1,701
5	22.50	1,400	338	0.004	7	1,734
4	17.50	1,426	221	0.003	4	1,768
3	12.50	1,402	120	0.002	2	1,737
2	7.50	1,200	42	0.001	1	1,487
1	2.50	1,154	6	0.000	0	1,430
Nokia B5 RRH4x40-850	129.00	146	763	0.010	15	180
Alcatel-Lucent RRH2x	129.00	170	891	0.011	17	211
Alcatel-Lucent PCS B	129.00	165	865	0.011	17	204
Alcatel-Lucent B66A	129.00	201	1,053	0.013	21	249
RFS DB-T1-6Z-8AB-0Z	129.00	88	461	0.006	9	109
Amphenol Antel BXA-1	129.00	38	201	0.003	4	48
Amphenol Antel BXA-8	129.00	54	283	0.004	6	67
Commscope JAHH-65B-R	129.00	364	1,906	0.024	37	451
Round Low Profile PI	129.00	1,500	7,861	0.100	153	1,859
Ericsson Radio 4449	119.00	222	1,009	0.013	20	275
Ericsson AIR 21, 1.3	119.00	249	1,132	0.014	22	309
Ericsson AIR-32 B2A/	119.00	397	1,803	0.023	35	491
Round T-Arm	119.00	750	3,410	0.043	67	929
RFS APXVAARR24_43-U-	119.00	384	1,744	0.022	34	476
Raycap DC6-48-60-18-	114.00	80	337	0.004	7	99
Ericsson RRUS-11 (5	114.00	300	1,264	0.016	25	372
Ericsson RRUS 32 (50	114.00	305	1,285	0.016	25	378
Ericsson RRUS 32 B2	114.00	318	1,340	0.017	26	394
CCI CCI-HPA-65R-BUU-	114.00	816	3,439	0.044	67	1,011
Round Platform w/ Ha	114.00	2,000	8,430	0.107	164	2,479
		36,095	78,557	1.000	1,533	44,731

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)
32	127.00	218	1,114	0.014	22	188
31	122.50	283	1,356	0.017	26	244
30	119.50	58	266	0.003	5	50
29	117.00	349	1,540	0.020	30	300
28	114.50	89	377	0.005	7	76
27	112.00	566	2,313	0.029	45	487
26	107.50	722	2,742	0.035	54	621
25	102.50	737	2,575	0.033	50	634
24	97.50	752	2,406	0.031	47	647
23	94.88	38	116	0.001	2	33
22	92.63	1,138	3,327	0.042	65	980
21	90.25	96	268	0.003	5	83
20	87.50	973	2,572	0.033	50	837
19	82.50	995	2,373	0.030	46	857
18	77.50	1,018	2,174	0.028	42	877
17	72.50	1,041	1,977	0.025	39	896
16	67.50	1,064	1,781	0.023	35	916
15	62.50	1,087	1,589	0.020	31	936
14	57.50	1,110	1,400	0.018	27	955
13	53.88	507	570	0.007	11	436
12	51.38	1,103	1,142	0.015	22	950
11	48.63	1,118	1,050	0.013	20	963
10	46.13	573	490	0.006	10	493
9	42.50	1,293	958	0.012	19	1,113
8	37.50	1,320	784	0.010	15	1,136

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:39 PM

Customer: METRO PCS INC

7	32.50	1,346	621	0.008	12	1,159
6	27.50	1,373	472	0.006	9	1,182
5	22.50	1,400	338	0.004	7	1,205
4	17.50	1,426	221	0.003	4	1,228
3	12.50	1,402	120	0.002	2	1,207
2	7.50	1,200	42	0.001	1	1,033
1	2.50	1,154	6	0.000	0	993
Nokia B5 RRH4x40-850	129.00	146	763	0.010	15	125
Alcatel-Lucent RRH2x	129.00	170	891	0.011	17	146
Alcatel-Lucent PCS B	129.00	165	865	0.011	17	142
Alcatel-Lucent B66A	129.00	201	1,053	0.013	21	173
RFS DB-T1-6Z-8AB-0Z	129.00	88	461	0.006	9	76
Amphenol Antel BXA-1	129.00	38	201	0.003	4	33
Amphenol Antel BXA-8	129.00	54	283	0.004	6	46
Commscope JAHH-65B-R	129.00	364	1,906	0.024	37	313
Round Low Profile PI	129.00	1,500	7,861	0.100	153	1,291
Ericsson Radio 4449	119.00	222	1,009	0.013	20	191
Ericsson AIR 21, 1.3	119.00	249	1,132	0.014	22	214
Ericsson AIR-32 B2A/	119.00	397	1,803	0.023	35	341
Round T-Arm	119.00	750	3,410	0.043	67	646
RFS APXVAARR24_43-U-	119.00	384	1,744	0.022	34	330
Raycap DC6-48-60-18-	114.00	80	337	0.004	7	69
Ericsson RRUS-11 (5	114.00	300	1,264	0.016	25	258
Ericsson RRUS 32 (50	114.00	305	1,285	0.016	25	262
Ericsson RRUS 32 B2	114.00	318	1,340	0.017	26	274
CCI CCI-HPA-65R-BUU-	114.00	816	3,439	0.044	67	702
Round Platform w/ Ha	114.00	2,000	8,430	0.107	164	1,721
		36,095	78,557	1.000	1,533	31,069

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	-43.30	-1.54	0.00	-160.99	0.00	160.99	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.042
5.00	-41.81	-1.54	0.00	-153.31	0.00	153.31	4,773.96	2,386.98	9,252.42	4,633.09	0.01	-0.01	0.042
10.00	-40.08	-1.55	0.00	-145.59	0.00	145.59	4,690.62	2,345.31	8,871.44	4,442.31	0.02	-0.02	0.041
15.00	-38.31	-1.55	0.00	-137.84	0.00	137.84	4,605.77	2,302.89	8,495.47	4,254.05	0.05	-0.03	0.041
20.00	-36.57	-1.55	0.00	-130.08	0.00	130.08	4,519.41	2,259.70	8,124.73	4,068.40	0.10	-0.05	0.040
25.00	-34.87	-1.55	0.00	-122.32	0.00	122.32	4,406.48	2,203.24	7,715.56	3,863.51	0.15	-0.06	0.040
30.00	-33.20	-1.54	0.00	-114.58	0.00	114.58	4,289.92	2,144.96	7,310.76	3,660.81	0.22	-0.07	0.039
35.00	-31.57	-1.53	0.00	-106.87	0.00	106.87	4,173.36	2,086.68	6,916.87	3,463.58	0.30	-0.08	0.038
40.00	-29.96	-1.52	0.00	-99.22	0.00	99.22	4,056.80	2,028.40	6,533.89	3,271.80	0.39	-0.10	0.038
45.00	-29.25	-1.51	0.00	-91.63	0.00	91.63	3,940.24	1,970.12	6,161.81	3,085.49	0.50	-0.11	0.037
47.25	-27.87	-1.49	0.00	-88.23	0.00	88.23	3,887.79	1,943.89	5,997.94	3,003.43	0.55	-0.11	0.037
50.00	-26.50	-1.47	0.00	-84.14	0.00	84.14	3,823.68	1,911.84	5,800.65	2,904.64	0.62	-0.12	0.036
52.75	-25.87	-1.46	0.00	-80.10	0.00	80.10	3,294.34	1,647.17	5,032.03	2,519.75	0.70	-0.13	0.040
55.00	-24.50	-1.43	0.00	-76.81	0.00	76.81	3,249.38	1,624.69	4,894.94	2,451.11	0.76	-0.13	0.039
60.00	-23.15	-1.40	0.00	-69.65	0.00	69.65	3,149.47	1,574.74	4,597.09	2,301.96	0.91	-0.15	0.038
65.00	-21.83	-1.37	0.00	-62.63	0.00	62.63	3,049.56	1,524.78	4,308.58	2,157.49	1.07	-0.16	0.036
70.00	-20.54	-1.33	0.00	-55.77	0.00	55.77	2,949.66	1,474.83	4,029.43	2,017.71	1.25	-0.18	0.035
75.00	-19.28	-1.29	0.00	-49.11	0.00	49.11	2,849.75	1,424.87	3,759.63	1,882.61	1.44	-0.19	0.033
80.00	-18.04	-1.25	0.00	-42.65	0.00	42.65	2,749.84	1,374.92	3,499.17	1,752.19	1.65	-0.20	0.031
85.00	-16.84	-1.19	0.00	-36.42	0.00	36.42	2,649.93	1,324.97	3,248.06	1,626.45	1.86	-0.22	0.029
90.00	-16.72	-1.19	0.00	-30.45	0.00	30.45	2,550.02	1,275.01	3,006.31	1,505.39	2.10	-0.23	0.027
90.50	-15.31	-1.12	0.00	-29.86	0.00	29.86	2,540.03	1,270.02	2,982.64	1,493.54	2.12	-0.23	0.026
94.75	-15.26	-1.12	0.00	-25.09	0.00	25.09	1,616.13	808.07	1,883.49	943.15	2.33	-0.24	0.036
95.00	-14.33	-1.07	0.00	-24.81	0.00	24.81	1,613.86	806.93	1,877.08	939.93	2.34	-0.24	0.035
100.00	-13.42	-1.02	0.00	-19.46	0.00	19.46	1,567.71	783.86	1,750.05	876.33	2.60	-0.25	0.031
105.00	-12.52	-0.96	0.00	-14.36	0.00	14.36	1,520.05	760.03	1,625.73	814.07	2.87	-0.26	0.026
110.00	-11.82	-0.92	0.00	-9.53	0.00	9.53	1,470.44	735.22	1,503.87	753.05	3.15	-0.27	0.021
114.00	-6.98	-0.57	0.00	-5.86	0.00	5.86	1,417.15	708.58	1,396.33	699.20	3.38	-0.28	0.013
115.00	-6.55	-0.54	0.00	-5.29	0.00	5.29	1,403.83	701.92	1,370.07	686.05	3.44	-0.28	0.012
119.00	-4.00	-0.35	0.00	-3.12	0.00	3.12	1,350.55	675.27	1,267.52	634.70	3.68	-0.28	0.008
119.00	-4.00	-0.35	0.00	-3.12	0.00	3.12	957.94	478.97	903.96	452.65	3.68	-0.28	0.011
120.00	-3.65	-0.32	0.00	-2.78	0.00	2.78	951.57	475.78	889.04	445.18	3.73	-0.28	0.010
125.00	-3.38	-0.30	0.00	-1.18	0.00	1.18	918.77	459.38	815.41	408.31	4.03	-0.29	0.007
129.00	0.00	-0.28	0.00	0.00	0.00	0.00	891.44	445.72	757.79	379.46	4.28	-0.29	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELMF

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	-30.08	-1.54	0.00	-159.08	0.00	159.08	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.039
5.00	-29.04	-1.54	0.00	-151.41	0.00	151.41	4,773.96	2,386.98	9,252.42	4,633.09	0.01	-0.01	0.039
10.00	-27.84	-1.54	0.00	-143.70	0.00	143.70	4,690.62	2,345.31	8,871.44	4,442.31	0.02	-0.02	0.038
15.00	-26.61	-1.54	0.00	-135.99	0.00	135.99	4,605.77	2,302.89	8,495.47	4,254.05	0.05	-0.03	0.038
20.00	-25.40	-1.54	0.00	-128.27	0.00	128.27	4,519.41	2,259.70	8,124.73	4,068.40	0.10	-0.05	0.037
25.00	-24.22	-1.54	0.00	-120.57	0.00	120.57	4,406.48	2,203.24	7,715.56	3,863.51	0.15	-0.06	0.037
30.00	-23.06	-1.53	0.00	-112.89	0.00	112.89	4,289.92	2,144.96	7,310.76	3,660.81	0.22	-0.07	0.036
35.00	-21.93	-1.52	0.00	-105.25	0.00	105.25	4,173.36	2,086.68	6,916.87	3,463.58	0.30	-0.08	0.036
40.00	-20.81	-1.50	0.00	-97.67	0.00	97.67	4,056.80	2,028.40	6,533.89	3,271.80	0.39	-0.09	0.035
45.00	-20.32	-1.49	0.00	-90.17	0.00	90.17	3,940.24	1,970.12	6,161.81	3,085.49	0.50	-0.11	0.034
47.25	-19.36	-1.47	0.00	-86.81	0.00	86.81	3,887.79	1,943.89	5,997.94	3,003.43	0.55	-0.11	0.034
50.00	-18.41	-1.45	0.00	-82.77	0.00	82.77	3,823.68	1,911.84	5,800.65	2,904.64	0.61	-0.12	0.033
52.75	-17.97	-1.44	0.00	-78.78	0.00	78.78	3,294.34	1,647.17	5,032.03	2,519.75	0.69	-0.13	0.037
55.00	-17.01	-1.41	0.00	-75.54	0.00	75.54	3,249.38	1,624.69	4,894.94	2,451.11	0.75	-0.13	0.036
60.00	-16.08	-1.38	0.00	-68.47	0.00	68.47	3,149.47	1,574.74	4,597.09	2,301.96	0.89	-0.15	0.035
65.00	-15.16	-1.35	0.00	-61.55	0.00	61.55	3,049.56	1,524.78	4,308.58	2,157.49	1.05	-0.16	0.033
70.00	-14.27	-1.31	0.00	-54.79	0.00	54.79	2,949.66	1,474.83	4,029.43	2,017.71	1.23	-0.17	0.032
75.00	-13.39	-1.27	0.00	-48.23	0.00	48.23	2,849.75	1,424.87	3,759.63	1,882.61	1.42	-0.19	0.030
80.00	-12.53	-1.22	0.00	-41.88	0.00	41.88	2,749.84	1,374.92	3,499.17	1,752.19	1.62	-0.20	0.028
85.00	-11.69	-1.17	0.00	-35.76	0.00	35.76	2,649.93	1,324.97	3,248.06	1,626.45	1.84	-0.21	0.026
90.00	-11.61	-1.17	0.00	-29.89	0.00	29.89	2,550.02	1,275.01	3,006.31	1,505.39	2.07	-0.22	0.024
90.50	-10.63	-1.10	0.00	-29.30	0.00	29.30	2,540.03	1,270.02	2,982.64	1,493.54	2.09	-0.22	0.024
94.75	-10.60	-1.10	0.00	-24.62	0.00	24.62	1,616.13	808.07	1,883.49	943.15	2.29	-0.23	0.033
95.00	-9.95	-1.05	0.00	-24.35	0.00	24.35	1,613.86	806.93	1,877.08	939.93	2.31	-0.23	0.032
100.00	-9.32	-1.00	0.00	-19.09	0.00	19.09	1,567.71	783.86	1,750.05	876.33	2.56	-0.25	0.028
105.00	-8.70	-0.95	0.00	-14.08	0.00	14.08	1,520.05	760.03	1,625.73	814.07	2.82	-0.26	0.023
110.00	-8.21	-0.90	0.00	-9.35	0.00	9.35	1,470.44	735.22	1,503.87	753.05	3.10	-0.27	0.018
114.00	-4.85	-0.56	0.00	-5.75	0.00	5.75	1,417.15	708.58	1,396.33	699.20	3.33	-0.27	0.012
115.00	-4.55	-0.53	0.00	-5.19	0.00	5.19	1,403.83	701.92	1,370.07	686.05	3.39	-0.28	0.011
119.00	-2.78	-0.34	0.00	-3.07	0.00	3.07	1,350.55	675.27	1,267.52	634.70	3.62	-0.28	0.007
119.00	-2.78	-0.34	0.00	-3.07	0.00	3.07	957.94	478.97	903.96	452.65	3.62	-0.28	0.010
120.00	-2.53	-0.31	0.00	-2.73	0.00	2.73	951.57	475.78	889.04	445.18	3.68	-0.28	0.009
125.00	-2.34	-0.29	0.00	-1.16	0.00	1.16	918.77	459.38	815.41	408.31	3.97	-0.28	0.005
129.00	0.00	-0.28	0.00	0.00	0.00	0.00	891.44	445.72	757.79	379.46	4.21	-0.28	0.000

Equivalent Modal Forces Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.02
Redundancy Factor (ρ):	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)
32	127.00	218	1.832	1.687	1.033	0.338	64	271
31	122.50	283	1.704	1.139	0.821	0.260	64	351
30	119.50	58	1.622	0.848	0.700	0.213	11	72
29	117.00	349	1.555	0.645	0.610	0.178	54	433
28	114.50	89	1.489	0.474	0.530	0.145	11	110
27	112.00	566	1.425	0.332	0.458	0.115	56	702
26	107.50	722	1.312	0.138	0.347	0.067	42	894
25	102.50	737	1.193	-0.002	0.250	0.026	16	913
24	97.50	752	1.080	-0.081	0.175	-0.005	-4	932
23	94.88	38	1.022	-0.104	0.143	-0.017	-1	47
22	92.63	1,138	0.974	-0.115	0.119	-0.025	-25	1,410
21	90.25	96	0.925	-0.121	0.097	-0.031	-3	119
20	87.50	973	0.870	-0.121	0.076	-0.035	-30	1,205
19	82.50	995	0.773	-0.106	0.046	-0.035	-30	1,234
18	77.50	1,018	0.682	-0.081	0.027	-0.026	-23	1,262
17	72.50	1,041	0.597	-0.052	0.014	-0.010	-9	1,290
16	67.50	1,064	0.517	-0.023	0.008	0.007	7	1,319
15	62.50	1,087	0.444	0.004	0.006	0.024	22	1,347
14	57.50	1,110	0.376	0.026	0.007	0.036	35	1,375
13	53.88	507	0.330	0.038	0.010	0.043	19	628
12	51.38	1,103	0.300	0.045	0.012	0.046	44	1,367
11	48.63	1,118	0.269	0.052	0.015	0.048	47	1,386
10	46.13	573	0.242	0.057	0.018	0.050	25	710
9	42.50	1,293	0.205	0.062	0.023	0.050	57	1,602
8	37.50	1,320	0.160	0.067	0.029	0.050	57	1,635
7	32.50	1,346	0.120	0.070	0.034	0.049	57	1,668
6	27.50	1,373	0.086	0.071	0.039	0.047	56	1,701
5	22.50	1,400	0.057	0.071	0.041	0.046	55	1,734
4	17.50	1,426	0.035	0.069	0.041	0.044	54	1,768
3	12.50	1,402	0.018	0.063	0.037	0.040	48	1,737
2	7.50	1,200	0.006	0.048	0.027	0.032	33	1,487
1	2.50	1,154	0.001	0.021	0.011	0.015	15	1,430
Nokia B5 RRH4x40-850	129.00	146	1.890	1.980	1.140	0.375	47	180
Alcatel-Lucent RRH2x	129.00	170	1.890	1.980	1.140	0.375	55	211

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:39 PM

Customer: METRO PCS INC

Alcatel-Lucent PCS B	129.00	165	1.890	1.980	1.140	0.375	54	204
Alcatel-Lucent B66A	129.00	201	1.890	1.980	1.140	0.375	65	249
RFS DB-T1-6Z-8AB-0Z	129.00	88	1.890	1.980	1.140	0.375	29	109
Amphenol Antel BXA-1	129.00	38	1.890	1.980	1.140	0.375	12	48
Amphenol Antel BXA-8	129.00	54	1.890	1.980	1.140	0.375	18	67
Commscope JAHH-65B-	129.00	364	1.890	1.980	1.140	0.375	118	451
Round Low Profile PI	129.00	1,500	1.890	1.980	1.140	0.375	488	1,859
Ericsson Radio 4449	119.00	222	1.608	0.805	0.681	0.206	40	275
Ericsson AIR 21, 1.3	119.00	249	1.608	0.805	0.681	0.206	44	309
Ericsson AIR-32 B2A/	119.00	397	1.608	0.805	0.681	0.206	71	491
Round T-Arm	119.00	750	1.608	0.805	0.681	0.206	134	929
RFS APXVAARR24_43-U-	119.00	384	1.608	0.805	0.681	0.206	68	476
Raycap DC6-48-60-18-	114.00	80	1.476	0.444	0.515	0.138	10	99
Ericsson RRUS-11 (5	114.00	300	1.476	0.444	0.515	0.138	36	372
Ericsson RRUS 32 (50	114.00	305	1.476	0.444	0.515	0.138	37	378
Ericsson RRUS 32 B2	114.00	318	1.476	0.444	0.515	0.138	38	394
CCI CCI-HPA-65R-BUU-	114.00	816	1.476	0.444	0.515	0.138	98	1,011
Round Platform w/ Ha	114.00	2,000	1.476	0.444	0.515	0.138	240	2,479
		36,095	56.127	29.728	22.561	7.023	2,529	44,731

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)
32	127.00	218	1.832	1.687	1.033	0.338	64	188
31	122.50	283	1.704	1.139	0.821	0.260	64	244
30	119.50	58	1.622	0.848	0.700	0.213	11	50
29	117.00	349	1.555	0.645	0.610	0.178	54	300
28	114.50	89	1.489	0.474	0.530	0.145	11	76
27	112.00	566	1.425	0.332	0.458	0.115	56	487
26	107.50	722	1.312	0.138	0.347	0.067	42	621
25	102.50	737	1.193	-0.002	0.250	0.026	16	634
24	97.50	752	1.080	-0.081	0.175	-0.005	-4	647
23	94.88	38	1.022	-0.104	0.143	-0.017	-1	33
22	92.63	1,138	0.974	-0.115	0.119	-0.025	-25	980
21	90.25	96	0.925	-0.121	0.097	-0.031	-3	83
20	87.50	973	0.870	-0.121	0.076	-0.035	-30	837
19	82.50	995	0.773	-0.106	0.046	-0.035	-30	857
18	77.50	1,018	0.682	-0.081	0.027	-0.026	-23	877
17	72.50	1,041	0.597	-0.052	0.014	-0.010	-9	896
16	67.50	1,064	0.517	-0.023	0.008	0.007	7	916
15	62.50	1,087	0.444	0.004	0.006	0.024	22	936
14	57.50	1,110	0.376	0.026	0.007	0.036	35	955
13	53.88	507	0.330	0.038	0.010	0.043	19	436
12	51.38	1,103	0.300	0.045	0.012	0.046	44	950
11	48.63	1,118	0.269	0.052	0.015	0.048	47	963
10	46.13	573	0.242	0.057	0.018	0.050	25	493
9	42.50	1,293	0.205	0.062	0.023	0.050	57	1,113
8	37.50	1,320	0.160	0.067	0.029	0.050	57	1,136
7	32.50	1,346	0.120	0.070	0.034	0.049	57	1,159
6	27.50	1,373	0.086	0.071	0.039	0.047	56	1,182
5	22.50	1,400	0.057	0.071	0.041	0.046	55	1,205
4	17.50	1,426	0.035	0.069	0.041	0.044	54	1,228
3	12.50	1,402	0.018	0.063	0.037	0.040	48	1,207
2	7.50	1,200	0.006	0.048	0.027	0.032	33	1,033
1	2.50	1,154	0.001	0.021	0.011	0.015	15	993
Nokia B5 RRH4x40-850	129.00	146	1.890	1.980	1.140	0.375	47	125
Alcatel-Lucent RRH2x	129.00	170	1.890	1.980	1.140	0.375	55	146
Alcatel-Lucent PCS B	129.00	165	1.890	1.980	1.140	0.375	54	142

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:39 PM

Customer: METRO PCS INC

Alcatel-Lucent B66A	129.00	201	1.890	1.980	1.140	0.375	65	173
RFS DB-T1-6Z-8AB-0Z	129.00	88	1.890	1.980	1.140	0.375	29	76
Amphenol Antel BXA-1	129.00	38	1.890	1.980	1.140	0.375	12	33
Amphenol Antel BXA-8	129.00	54	1.890	1.980	1.140	0.375	18	46
Commscope JAHH-65B-	129.00	364	1.890	1.980	1.140	0.375	118	313
Round Low Profile PI	129.00	1,500	1.890	1.980	1.140	0.375	488	1,291
Ericsson Radio 4449	119.00	222	1.608	0.805	0.681	0.206	40	191
Ericsson AIR 21, 1.3	119.00	249	1.608	0.805	0.681	0.206	44	214
Ericsson AIR-32 B2A/	119.00	397	1.608	0.805	0.681	0.206	71	341
Round T-Arm	119.00	750	1.608	0.805	0.681	0.206	134	646
RFS APXVAARR24_43-U-	119.00	384	1.608	0.805	0.681	0.206	68	330
Raycap DC6-48-60-18-	114.00	80	1.476	0.444	0.515	0.138	10	69
Ericsson RRUS-11 (5	114.00	300	1.476	0.444	0.515	0.138	36	258
Ericsson RRUS 32 (50	114.00	305	1.476	0.444	0.515	0.138	37	262
Ericsson RRUS 32 B2	114.00	318	1.476	0.444	0.515	0.138	38	274
CCI CCI-HPA-65R-BUU-	114.00	816	1.476	0.444	0.515	0.138	98	702
Round Platform w/ Ha	114.00	2,000	1.476	0.444	0.515	0.138	240	1,721
		36,095	56.127	29.728	22.561	7.023	2,529	31,069

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	-43.30	-2.52	0.00	-266.40	0.00	266.40	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.064
5.00	-41.81	-2.50	0.00	-253.80	0.00	253.80	4,773.96	2,386.98	9,252.42	4,633.09	0.01	-0.02	0.064
10.00	-40.07	-2.46	0.00	-241.30	0.00	241.30	4,690.62	2,345.31	8,871.44	4,442.31	0.04	-0.04	0.063
15.00	-38.31	-2.42	0.00	-228.98	0.00	228.98	4,605.77	2,302.89	8,495.47	4,254.05	0.09	-0.06	0.062
20.00	-36.57	-2.38	0.00	-216.86	0.00	216.86	4,519.41	2,259.70	8,124.73	4,068.40	0.16	-0.08	0.061
25.00	-34.87	-2.33	0.00	-204.97	0.00	204.97	4,406.48	2,203.24	7,715.56	3,863.51	0.25	-0.10	0.061
30.00	-33.20	-2.28	0.00	-193.32	0.00	193.32	4,289.92	2,144.96	7,310.76	3,660.81	0.36	-0.12	0.061
35.00	-31.56	-2.23	0.00	-181.90	0.00	181.90	4,173.36	2,086.68	6,916.87	3,463.58	0.50	-0.14	0.060
40.00	-29.96	-2.19	0.00	-170.73	0.00	170.73	4,056.80	2,028.40	6,533.89	3,271.80	0.66	-0.16	0.060
45.00	-29.25	-2.17	0.00	-159.80	0.00	159.80	3,940.24	1,970.12	6,161.81	3,085.49	0.84	-0.18	0.059
47.25	-27.86	-2.12	0.00	-154.93	0.00	154.93	3,887.79	1,943.89	5,997.94	3,003.43	0.93	-0.19	0.059
50.00	-26.50	-2.08	0.00	-149.10	0.00	149.10	3,823.68	1,911.84	5,800.65	2,904.64	1.04	-0.21	0.058
52.75	-25.87	-2.06	0.00	-143.38	0.00	143.38	3,294.34	1,647.17	5,032.03	2,519.75	1.16	-0.22	0.065
55.00	-24.49	-2.03	0.00	-138.74	0.00	138.74	3,249.38	1,624.69	4,894.94	2,451.11	1.27	-0.23	0.064
60.00	-23.14	-2.01	0.00	-128.60	0.00	128.60	3,149.47	1,574.74	4,597.09	2,301.96	1.52	-0.25	0.063
65.00	-21.82	-2.01	0.00	-118.54	0.00	118.54	3,049.56	1,524.78	4,308.58	2,157.49	1.80	-0.28	0.062
70.00	-20.53	-2.02	0.00	-108.49	0.00	108.49	2,949.66	1,474.83	4,029.43	2,017.71	2.11	-0.31	0.061
75.00	-19.27	-2.05	0.00	-98.39	0.00	98.39	2,849.75	1,424.87	3,759.63	1,882.61	2.45	-0.33	0.059
80.00	-18.04	-2.08	0.00	-88.16	0.00	88.16	2,749.84	1,374.92	3,499.17	1,752.19	2.81	-0.36	0.057
85.00	-16.83	-2.11	0.00	-77.78	0.00	77.78	2,649.93	1,324.97	3,248.06	1,626.45	3.20	-0.39	0.054
90.00	-16.71	-2.11	0.00	-67.25	0.00	67.25	2,550.02	1,275.01	3,006.31	1,505.39	3.62	-0.41	0.051
90.50	-15.30	-2.13	0.00	-66.20	0.00	66.20	2,540.03	1,270.02	2,982.64	1,493.54	3.66	-0.41	0.050
94.75	-15.25	-2.13	0.00	-57.15	0.00	57.15	1,616.13	808.07	1,883.49	943.15	4.04	-0.43	0.070
95.00	-14.32	-2.13	0.00	-56.62	0.00	56.62	1,613.86	806.93	1,877.08	939.93	4.06	-0.44	0.069
100.00	-13.41	-2.12	0.00	-45.95	0.00	45.95	1,567.71	783.86	1,750.05	876.33	4.54	-0.47	0.061
105.00	-12.51	-2.07	0.00	-35.37	0.00	35.37	1,520.05	760.03	1,625.73	814.07	5.04	-0.50	0.052
110.00	-11.81	-2.01	0.00	-25.00	0.00	25.00	1,470.44	735.22	1,503.87	753.05	5.58	-0.52	0.041
114.00	-6.97	-1.50	0.00	-16.95	0.00	16.95	1,417.15	708.58	1,396.33	699.20	6.02	-0.54	0.029
115.00	-6.54	-1.44	0.00	-15.44	0.00	15.44	1,403.83	701.92	1,370.07	686.05	6.13	-0.54	0.027
119.00	-3.99	-1.05	0.00	-9.66	0.00	9.66	1,350.55	675.27	1,267.52	634.70	6.59	-0.55	0.018
119.00	-3.99	-1.05	0.00	-9.66	0.00	9.66	957.94	478.97	903.96	452.65	6.59	-0.55	0.026
120.00	-3.64	-0.99	0.00	-8.61	0.00	8.61	951.57	475.78	889.04	445.18	6.70	-0.55	0.023
125.00	-3.37	-0.92	0.00	-3.68	0.00	3.68	918.77	459.38	815.41	408.31	7.29	-0.56	0.013
129.00	0.00	-0.89	0.00	0.00	0.00	0.00	891.44	445.72	757.79	379.46	7.76	-0.56	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	-30.07	-2.52	0.00	-263.04	0.00	263.04	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.061
5.00	-29.04	-2.49	0.00	-250.45	0.00	250.45	4,773.96	2,386.98	9,252.42	4,633.09	0.01	-0.02	0.060
10.00	-27.83	-2.45	0.00	-237.98	0.00	237.98	4,690.62	2,345.31	8,871.44	4,442.31	0.04	-0.04	0.060
15.00	-26.61	-2.41	0.00	-225.71	0.00	225.71	4,605.77	2,302.89	8,495.47	4,254.05	0.09	-0.06	0.059
20.00	-25.40	-2.36	0.00	-213.66	0.00	213.66	4,519.41	2,259.70	8,124.73	4,068.40	0.16	-0.08	0.058
25.00	-24.22	-2.31	0.00	-201.86	0.00	201.86	4,406.48	2,203.24	7,715.56	3,863.51	0.25	-0.10	0.058
30.00	-23.06	-2.26	0.00	-190.31	0.00	190.31	4,289.92	2,144.96	7,310.76	3,660.81	0.36	-0.12	0.057
35.00	-21.92	-2.21	0.00	-179.01	0.00	179.01	4,173.36	2,086.68	6,916.87	3,463.58	0.49	-0.14	0.057
40.00	-20.81	-2.16	0.00	-167.97	0.00	167.97	4,056.80	2,028.40	6,533.89	3,271.80	0.65	-0.16	0.056
45.00	-20.31	-2.14	0.00	-157.18	0.00	157.18	3,940.24	1,970.12	6,161.81	3,085.49	0.83	-0.18	0.056
47.25	-19.35	-2.09	0.00	-152.38	0.00	152.38	3,887.79	1,943.89	5,997.94	3,003.43	0.91	-0.19	0.056
50.00	-18.40	-2.05	0.00	-146.63	0.00	146.63	3,823.68	1,911.84	5,800.65	2,904.64	1.03	-0.20	0.055
52.75	-17.96	-2.03	0.00	-141.00	0.00	141.00	3,294.34	1,647.17	5,032.03	2,519.75	1.15	-0.22	0.061
55.00	-17.01	-2.00	0.00	-136.43	0.00	136.43	3,249.38	1,624.69	4,894.94	2,451.11	1.25	-0.23	0.061
60.00	-16.07	-1.98	0.00	-126.45	0.00	126.45	3,149.47	1,574.74	4,597.09	2,301.96	1.50	-0.25	0.060
65.00	-15.16	-1.97	0.00	-116.56	0.00	116.56	3,049.56	1,524.78	4,308.58	2,157.49	1.78	-0.28	0.059
70.00	-14.26	-1.98	0.00	-106.70	0.00	106.70	2,949.66	1,474.83	4,029.43	2,017.71	2.08	-0.30	0.058
75.00	-13.38	-2.01	0.00	-96.77	0.00	96.77	2,849.75	1,424.87	3,759.63	1,882.61	2.41	-0.33	0.056
80.00	-12.52	-2.04	0.00	-86.73	0.00	86.73	2,749.84	1,374.92	3,499.17	1,752.19	2.77	-0.35	0.054
85.00	-11.69	-2.07	0.00	-76.53	0.00	76.53	2,649.93	1,324.97	3,248.06	1,626.45	3.15	-0.38	0.051
90.00	-11.60	-2.07	0.00	-66.19	0.00	66.19	2,550.02	1,275.01	3,006.31	1,505.39	3.56	-0.40	0.049
90.50	-10.62	-2.09	0.00	-65.16	0.00	65.16	2,540.03	1,270.02	2,982.64	1,493.54	3.61	-0.41	0.048
94.75	-10.59	-2.10	0.00	-56.26	0.00	56.26	1,616.13	808.07	1,883.49	943.15	3.98	-0.43	0.066
95.00	-9.94	-2.10	0.00	-55.73	0.00	55.73	1,613.86	806.93	1,877.08	939.93	4.00	-0.43	0.065
100.00	-9.31	-2.08	0.00	-45.25	0.00	45.25	1,567.71	783.86	1,750.05	876.33	4.47	-0.46	0.058
105.00	-8.68	-2.04	0.00	-34.84	0.00	34.84	1,520.05	760.03	1,625.73	814.07	4.96	-0.49	0.049
110.00	-8.20	-1.98	0.00	-24.66	0.00	24.66	1,470.44	735.22	1,503.87	753.05	5.49	-0.51	0.038
114.00	-4.84	-1.48	0.00	-16.74	0.00	16.74	1,417.15	708.58	1,396.33	699.20	5.93	-0.53	0.027
115.00	-4.54	-1.43	0.00	-15.25	0.00	15.25	1,403.83	701.92	1,370.07	686.05	6.04	-0.53	0.025
119.00	-2.77	-1.04	0.00	-9.55	0.00	9.55	1,350.55	675.27	1,267.52	634.70	6.49	-0.54	0.017
119.00	-2.77	-1.04	0.00	-9.55	0.00	9.55	957.94	478.97	903.96	452.65	6.49	-0.54	0.024
120.00	-2.52	-0.98	0.00	-8.51	0.00	8.51	951.57	475.78	889.04	445.18	6.60	-0.54	0.022
125.00	-2.34	-0.91	0.00	-3.64	0.00	3.64	918.77	459.38	815.41	408.31	7.18	-0.55	0.011
129.00	0.00	-0.89	0.00	0.00	0.00	0.00	891.44	445.72	757.79	379.46	7.64	-0.56	0.000

Site Number: 283418

Code: ANSI/TIA-222-G

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Site Name: NORTH HAVEN CT, CT

Engineering Number: OAA736468_C3_02

8/3/2018 2:37:39 PM

Customer: METRO PCS INC

Analysis Summary

Load Case	Reactions						Max Usage	
	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	26.87	0.00	43.27	0.00	0.00	2730.37	0.00	0.57
0.9D + 1.6W	26.85	0.00	32.44	0.00	0.00	2702.52	0.00	0.57
1.2D + 1.0Di + 1.0Wi	7.18	0.00	64.84	0.00	0.00	710.20	0.00	0.16
(1.2 + 0.2Sds) * DL + E ELFM	1.54	0.00	43.30	0.00	0.00	160.99	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	2.52	0.00	43.30	0.00	0.00	266.40	94.75	0.07
(0.9 - 0.2Sds) * DL + E ELFM	1.54	0.00	30.08	0.00	0.00	159.08	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.52	0.00	30.07	0.00	0.00	263.04	94.75	0.07
1.0D + 1.0W	6.42	0.00	36.09	0.00	0.00	649.20	0.00	0.14



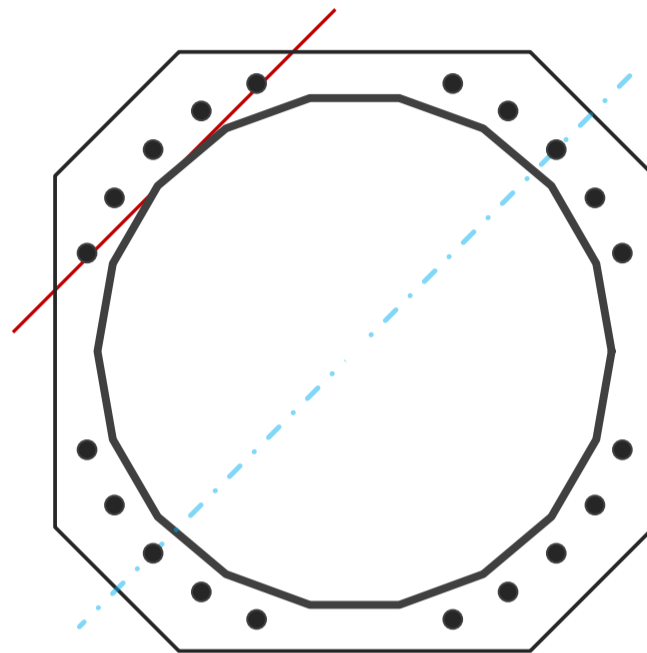
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	48.8	in
Thickness	0.4375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2730.4	k-ft
Axial, Pu	43.3	k
Shear, Vu	26.9	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	35%	Pass
Anchor Rods	46%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	58	in
Thickness	2 3/4	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	12	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	1	in
Applied Moment, Mu	1069.3	k
Bending Stress, φMn	3039.4	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	20	-
Diameter, φ	2 1/4	in
Bolt Circle	55.25	in
Grade	A615-75	-
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	120.7	k
Anchor Rods, φPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	26.9	2730.4	1.00
Anchor Rod Forces	26.9	2730.4	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	66.1347	3.6742	0.2355		19339.81
Bolt	3.9761	3.2477	0.8393	4.5	24801.22
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	58	in
Thickness, t	2.75	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	31.346	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	1	-

Anchor Rods		
Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	55.25	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	120.7	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	259.8	k
Tensile Capacity, φRnt	0.465	OK
Interaction Capacity	0.465	OK

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

Vertical Weld		
Vert.-to-Stiffener a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, φPn	#DIV/0!	k
Vert.-to-Plate a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P _u /φ _p P _n + V _u /φ _v V _n	-	-

External Base Plate		
Chord Length AA	32.974	in
Additional AA	2.750	in
Section Modulus, Z	67.541	in ³
Applied Moment, Mu	1069.3	k-ft
Bending Capacity, φMn	3039.4	k-ft
Capacity, Mu/φMn	0.352	OK
Chord Length AB	32.218	in
Additional AB	2.750	in
Section Modulus, Z	66.111	in ³
Applied Moment, Mu	851.4	k-ft
Bending Capacity, φMn	2975.0	k-ft
Capacity, Mu/φMn	0.286	OK

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

Horizontal Weld		
Horz.-to-Stiffener a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, φPn	#DIV/0!	k
Horz.-to-Pole a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P _u /φ _p P _n + V _u /φ _v V _n	-	-

Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in ³
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

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

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

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

Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	55.68	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		

Plate Compression		
Radius of Gyration	#DIV/0!	in ³
kl/r	#DIV/0!	-
4.71 √(E/Fy)	0.00	-
Buckling Stress(F _e)	0.0	-
Crit. Buckling Stress(F _{cr})	0.0	ksi
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn	-	-

Base/Flange Plate	Plate Type	Flange @ 119.0 ft
	Pole Diameter	23.16 in
	Pole Thickness	0.1875 in
	Plate Diameter	30.375 in
	Plate Thickness	1.25 in
	Plate Fy	60 ksi
	Weld Length	0.1875 in
	ϕ_s Resistance	94.63 k-in
	Applied	7.16 k-in
	Stiffeners	#

Code Rev. **G**

Date **8/3/2018**
 Engineer **Christiana.Lancaster**
 Site # **283418**
 Carrier **METRO PCS INC**

Moment **76.4 k-ft**
 Axial **3.4 k**

Required Flange Thickness:
0.34 in OK

Bolts	#	14
	Bolt Circle (R)adial / (S)quare	26.125 in R
	Diameter	1 in
	Hole Diameter	1.125 in
	Type	A325
	Fy	92 ksi
	Fu	120 ksi
	ϕ_s Resistance	54.52 k
	Applied	9.78 k
	Reinforcement	#
Extra Bolts	#	0

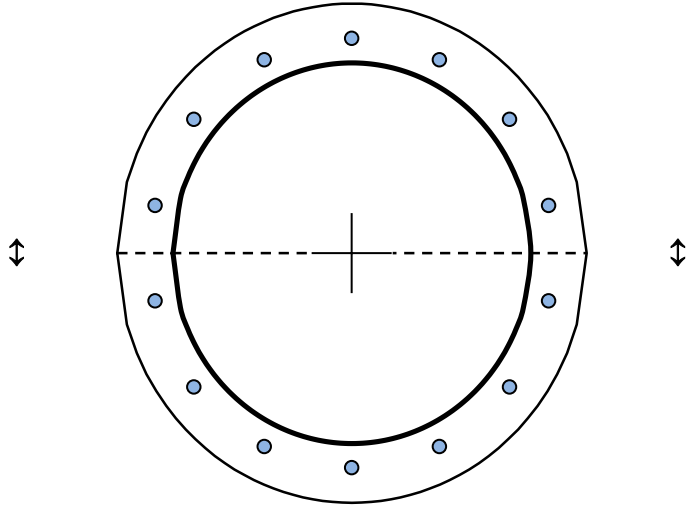


Plate Stress Ratio:
0.08 (Pass)

Bolt Stress Ratio:
0.18 (Pass)

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSIEIA/TIA-222, AND COMPLY WITH ATC MASTER SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE WIRELESS REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE WIRELESS REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH T-MOBILE WIRELESS WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY T-MOBILE WIRELESS REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE WIRELESS REP. ANY WORK FOUND BY THE T-MOBILE WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
 - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
 - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
 - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
 - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
 - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
 - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
 - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
 - C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
 - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
 - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
 - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
 - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.



THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	08/29/18

ATC SITE NUMBER:
283418

ATC SITE NAME:
NORTH HAVEN CT

SITE ADDRESS:
50 DEVINE STREET
NORTH HAVEN, CT 06473

SEAL:



DRAWN BY:	TC
APPROVED BY:	KRF
DATE DRAWN:	09/25/18
ATC JOB NO:	12607182

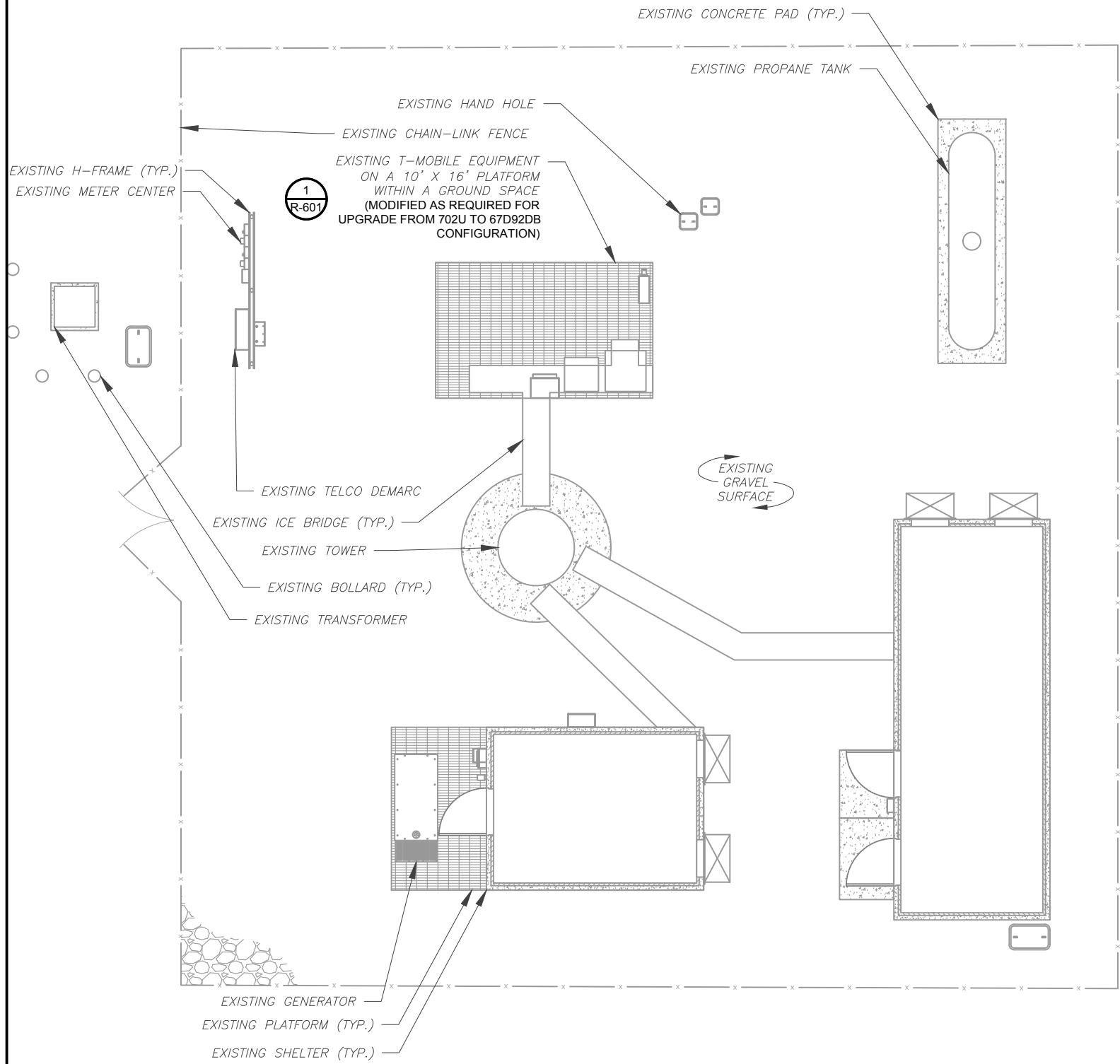
GENERAL NOTES

SHEET NUMBER: G-002	REVISION: 0
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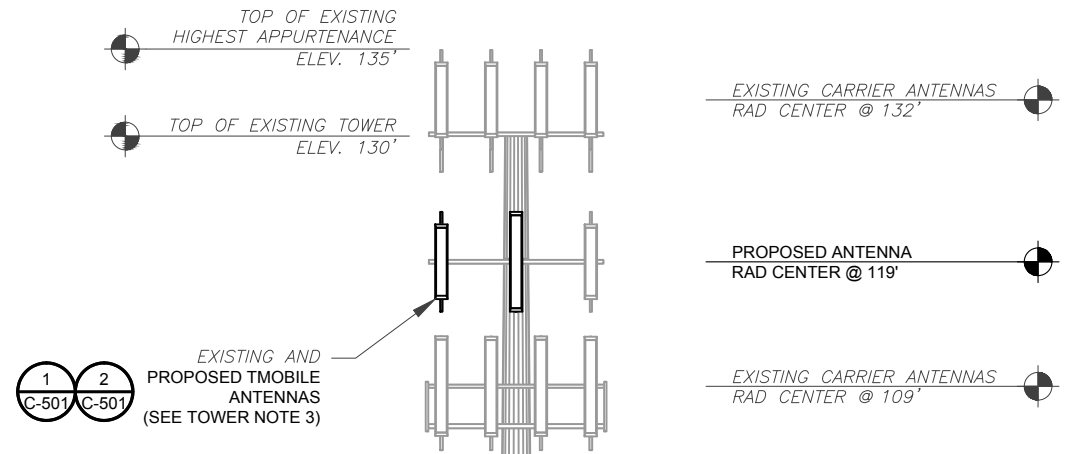
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SITE PLAN NOTES:

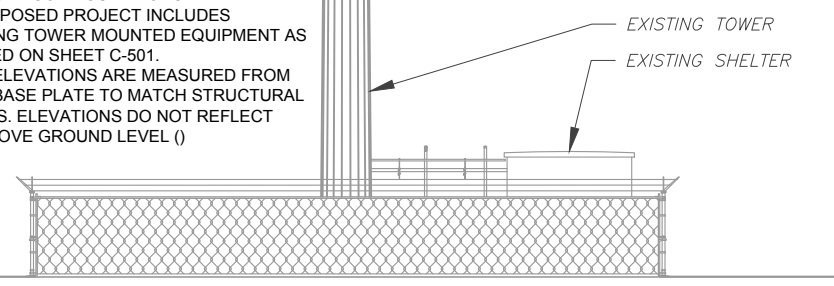
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.



1 DETAILED SITE PLAN
 SCALE: 1"=10' (11X17)
 1"=5' (22X34)



- TOWER NOTE:**
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
 2. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
 3. THE PROPOSED PROJECT INCLUDES MODIFYING TOWER MOUNTED EQUIPMENT AS INDICATED ON SHEET C-501.
 4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL ()



2 TOWER ELEVATION
 SCALE: NOT TO SCALE

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
 3500 REGENCY PARKWAY
 SUITE 100
 CARY, NC 27518
 PHONE: (919) 468-0112
 COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	08/29/18

ATC SITE NUMBER:
283418

ATC SITE NAME:
NORTH HAVEN CT

SITE ADDRESS:
 50 DEVINE STREET
 NORTH HAVEN, CT 06473

SEAL:

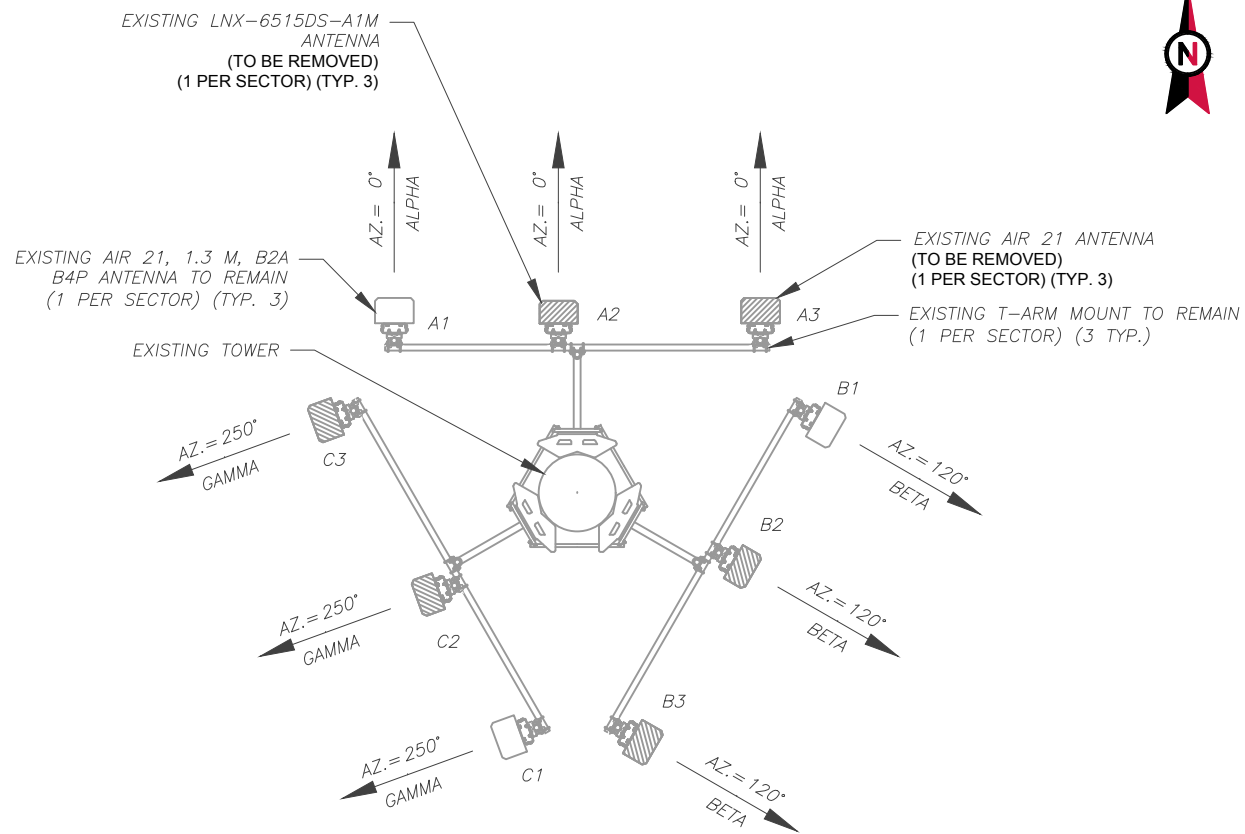


DRAWN BY:	TC
APPROVED BY:	KRF
DATE DRAWN:	09/25/18
ATC JOB NO:	12607182

DETAILED SITE PLAN & TOWER ELEVATION

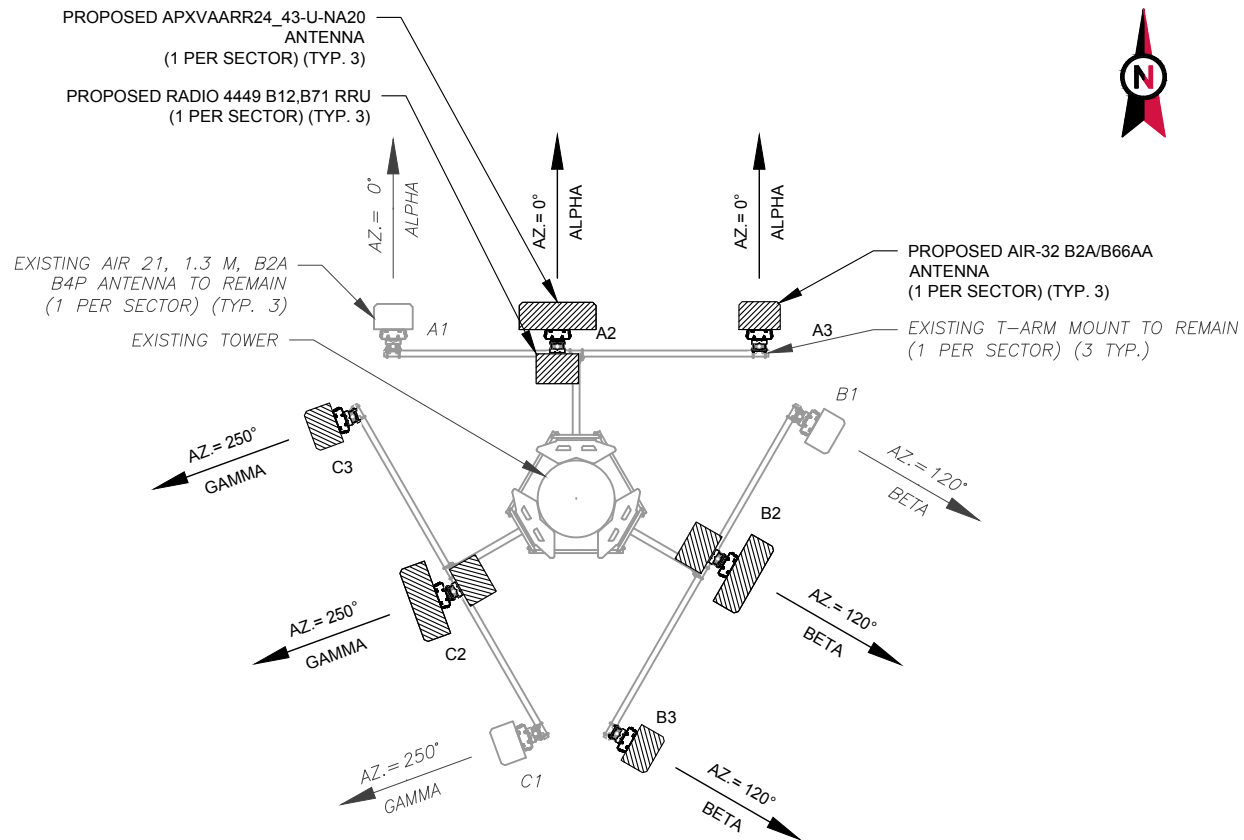
SHEET NUMBER:	REVISION:
C-101	0

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1 EXISTING ANTENNA PLAN

- NOTES:**
- ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIGURATION OR MOUNT CONFIGURATION. CONTRACTOR TO VERIFY MOUNT CONFIGURATION HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (I.E. CLEARANCES, MOUNT PIPE OR SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.



2 FINAL ANTENNA PLAN

- NOTES:**
- ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH THE ATC CM.
 - SPACING OF PROPOSED EQUIPMENT SHALL BE CONFIRMED FOR TOWER CONFLICTS AND PROPOSED MOUNTS SHALL NOT IMPEDE TOWER CLIMBING PEGS.

EXISTING ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	AIR 21, 1.3 M, B2A B4P	119'-0"	0°	0°	2°	-	(2) 1-5/8"
ALPHA	A2	LNx-6515DS-A1M	119'-0"	0°	0°	2°	-	-
ALPHA	A3	AIR 21	119'-0"	0°	0°	2°	-	(2) 1-5/8"
BETA	B1	AIR 21, 1.3 M, B2A B4P	119'-0"	120°	0°	2°	-	(2) 1-5/8"
BETA	B2	LNx-6515DS-A1M	119'-0"	120°	0°	2°	-	-
BETA	B3	AIR 21	119'-0"	120°	0°	2°	-	(2) 1-5/8"
GAMMA	C1	AIR 21, 1.3 M, B2A B4P	119'-0"	250°	0°	2°	-	(2) 1-5/8"
GAMMA	C2	LNx-6515DS-A1M	119'-0"	250°	0°	2°	-	-
GAMMA	C3	AIR 21	119'-0"	250°	0°	2°	-	1-5/8"

3 ANTENNA SCHEDULE

- (1) EXISTING 1-5/8" HYBRID CABLE TO REMAIN

FINAL ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	AIR 21, 1.3 M, B2A B4P	119'-0"	0°	0°	2°	-	(2) 1-5/8"
ALPHA	A2	APXVAARR24_43-U-NA20	119'-0"	0°	0°	2°	RADIO 4449 B12,B71	(2) 1-5/8"
ALPHA	A3	AIR-32 B2A/B66Aa	119'-0"	0°	0°	2°	-	-
BETA	B1	AIR 21, 1.3 M, B2A B4P	119'-0"	120°	0°	2°	-	(2) 1-5/8"
BETA	B2	APXVAARR24_43-U-NA20	119'-0"	120°	0°	2°	RADIO 4449 B12,B71	(2) 1-5/8"
BETA	B3	AIR-32 B2A/B66Aa	119'-0"	120°	0°	2°	-	-
GAMMA	C1	AIR 21, 1.3 M, B2A B4P	119'-0"	250°	0°	2°	-	(2) 1-5/8"
GAMMA	C2	APXVAARR24_43-U-NA20	119'-0"	250°	0°	2°	RADIO 4449 B12,B71	1-5/8"
GAMMA	C3	AIR-32 B2A/B66Aa	119'-0"	250°	0°	2°	-	-

- BASED ON APPROVED ATC APPLICATION OAA736468, DATED 07-25-2018. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.
- (2) PROPOSED 1-1/4" HYBRID CABLES (148±)
- (1) EXISTING 1-5/8" HYBRID CABLE TO REMAIN

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
 3500 REGENCY PARKWAY
 SUITE 100
 CARY, NC 27518
 PHONE: (919) 468-0112
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	08/29/18
1	BREAKER AND ANTENNA	TC	09/25/18

ATC SITE NUMBER:
283418

ATC SITE NAME:
NORTH HAVEN CT

SITE ADDRESS:
 50 DEVINE STREET
 NORTH HAVEN, CT 06473

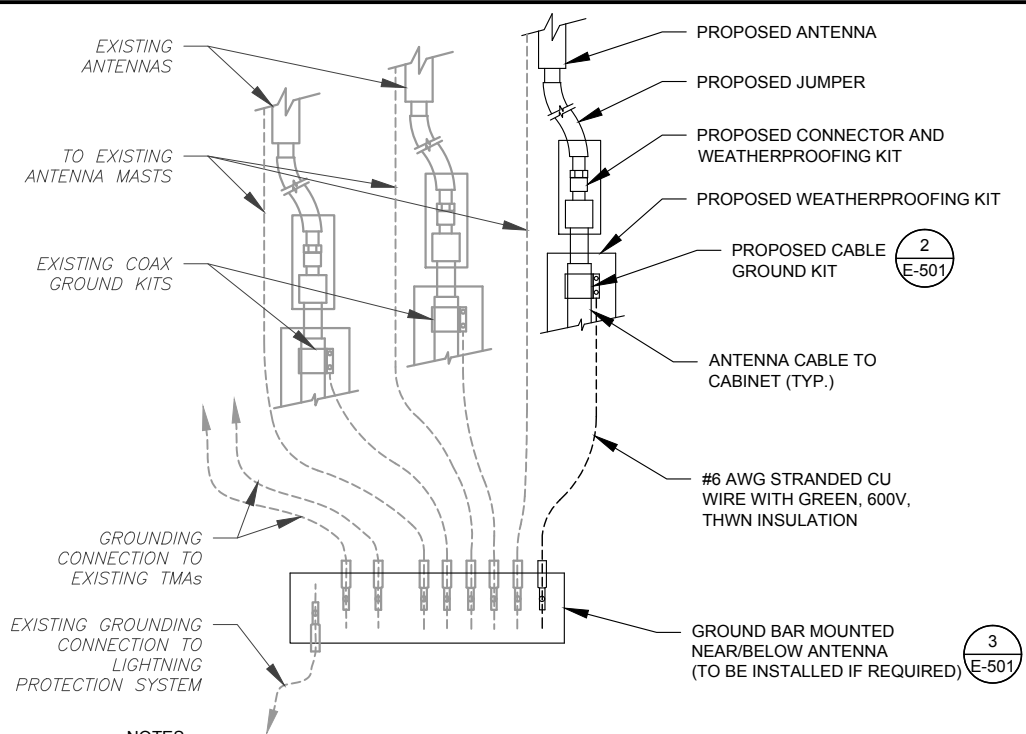
SEAL:

DRAWN BY: TC
 APPROVED BY: KRF
 DATE DRAWN: 09/25/18
 ATC JOB NO: 12607182

ANTENNA INFORMATION & SCHEDULE

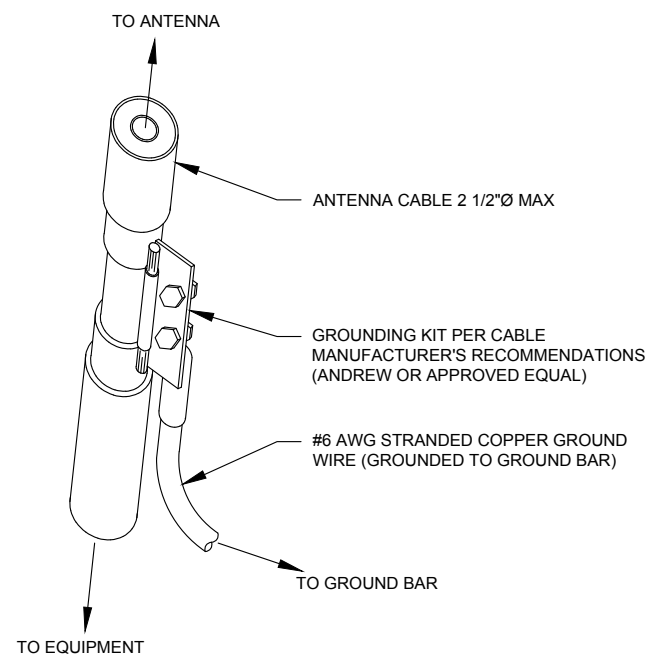
SHEET NUMBER: **C-501** REVISION: **1**

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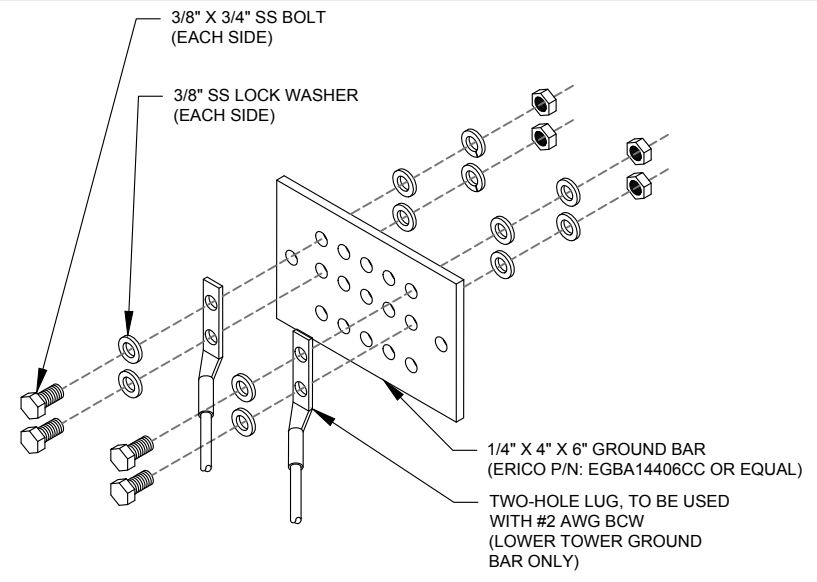
- NOTES:**
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
 2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



- GROUND KIT NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: NOT TO SCALE

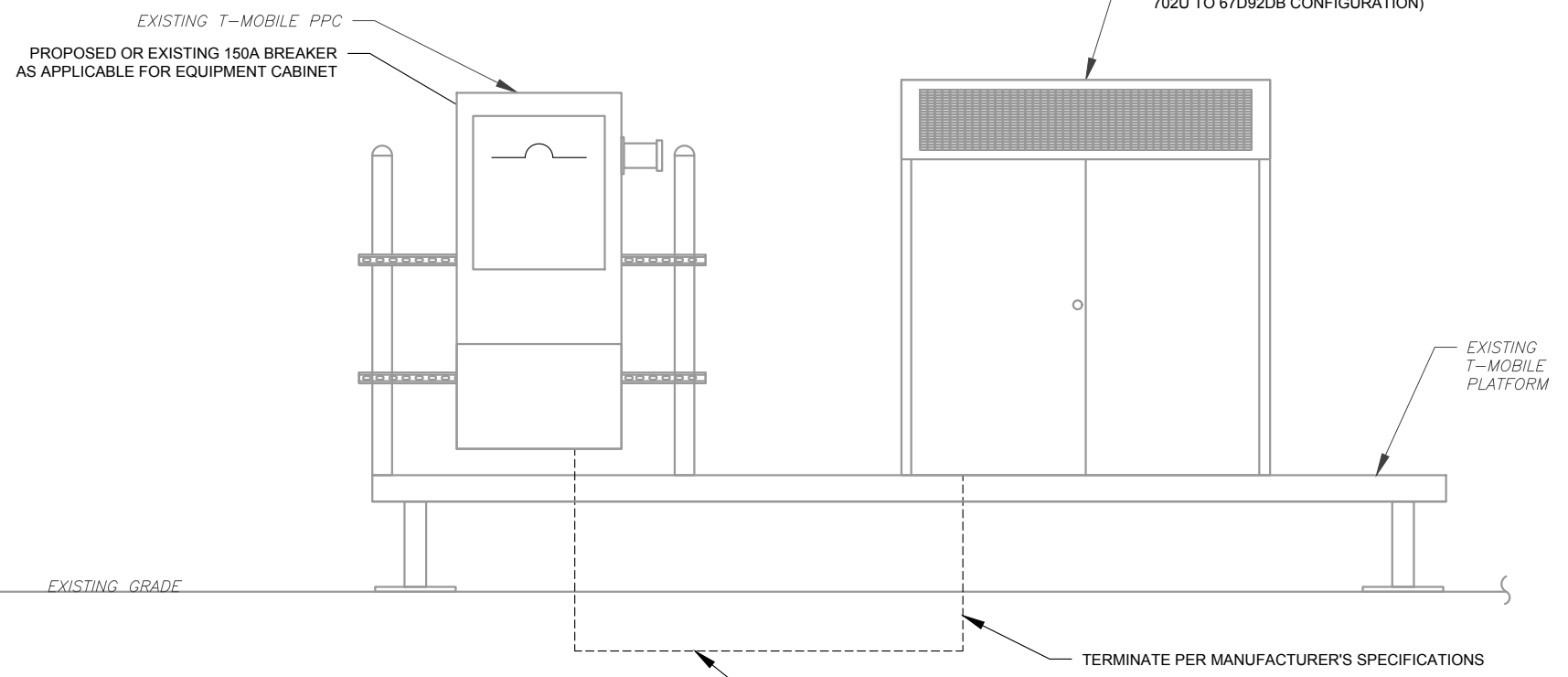


- GROUND BAR NOTES:**
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
 2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL
SCALE: NOT TO SCALE

ELECTRICAL NOTES:

1. THIS DIAGRAM REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
3. ATC HAS NOT YET VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER.



4 ELECTRICAL UPGRADE DIAGRAM
SCALE: NOT TO SCALE

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	08/29/18
1	BREAKER AND ANTENNA	TC	09/25/18

ATC SITE NUMBER:
283418

ATC SITE NAME:
NORTH HAVEN CT

SITE ADDRESS:
50 DEVINE STREET
NORTH HAVEN, CT 06473

SEAL:



DRAWN BY:	TC
APPROVED BY:	KRF
DATE DRAWN:	09/25/18
ATC JOB NO:	12607182

GROUNDING DETAILS

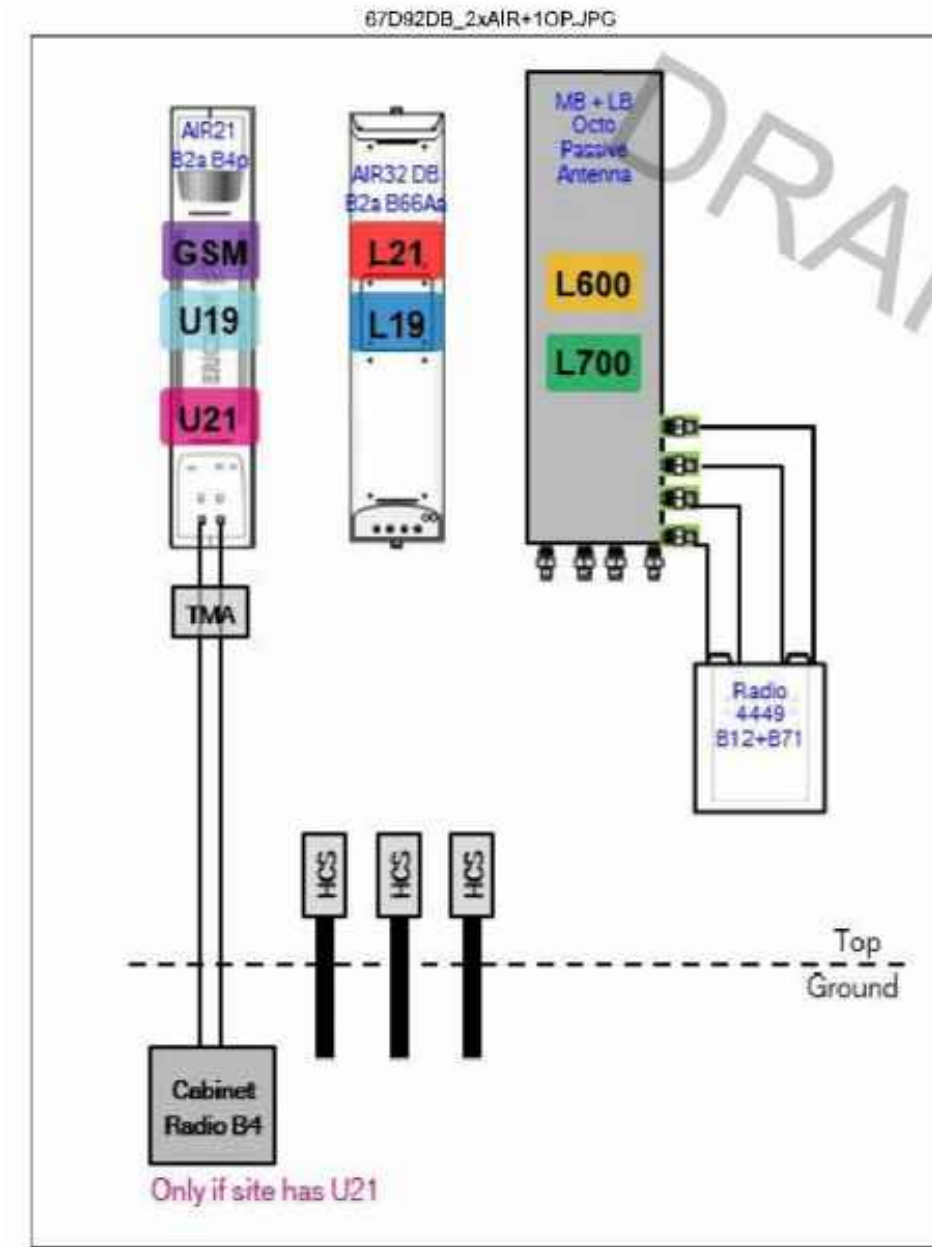
SHEET NUMBER: E-501	REVISION: 1
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Existing RAN Equipment	
Template: 702Cu	
Enclosure	1
Enclosure Type	Legacy ODE
Baseband	DUW30 DUS41
Hybrid Cable System	Ericsson 6x12 HCS "Select AWG & Length"
Radio	RUS01 B4 (x3)

Proposed RAN Equipment		
Template: 67D92DB Outdoor		
Enclosure	1	2
Enclosure Type	RBS 6102 MU AC	Ancillary Equipment
Baseband	DUW30 U1900 DUW30 U2100 DUG20 G1900 BB 5216 L2100 L1900 L700 L800	
Hybrid Cable System		Ericsson 6x12 HCS 6AWG 50m (x2) Ericsson 6x12 HCS "Select AWG & Length"
Multiplexer	XMU	
Radio	RU22 (x6) U2100	
RAN Scope of Work:		

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE



2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

SUPPLEMENTAL

SHEET NUMBER: R-601
REVISION: 0

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Thursday, October 18, 2018 11:43 AM
To: krichers@transcendwireless.com
Subject: UPS Delivery Notification, Reference Number 1: CTNH522 CSC ZO



Your package has been delivered.

Delivery Date: Thursday, 10/18/2018
Delivery Time: 11:37 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1ZV257424298483117
Ship To:	Laura Magaraci Town of North Haven 18 CHURCH ST NORTH HAVEN, CT 06473 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	OFFICE BOUTELLE
Signature Required:	A signature is required for package delivery
Reference Number 1:	CTNH522 CSC ZO



[Download the UPS mobile app](#)

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Thursday, October 18, 2018 11:43 AM
To: krichers@transcendwireless.com
Subject: UPS Delivery Notification, Reference Number 1: CTNH522A CSC FS



Your package has been delivered.

Delivery Date: Thursday, 10/18/2018
Delivery Time: 11:35 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number: [1ZV257424299733121](#)

Ship To: Michael Freda
Town of North Haven
18 CHURCH ST
NORTH HAVEN, CT 06473
US

UPS Service: UPS GROUND

Number of Packages: 1

Weight: 1.0 LBS

Delivery Location: OFFICE
OFFICE

Signature Required: A signature is required for package delivery

Reference Number 1: CTNH522A CSC FS



[Download the UPS mobile app](#)

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Thursday, October 18, 2018 11:48 AM
To: krichers@transcendwireless.com
Subject: UPS Delivery Notification, Reference Number 1: CTNH522A CSC PO



Your package has been delivered.

Delivery Date: Thursday, 10/18/2018
Delivery Time: 11:44 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1ZV257424297253108
Ship To:	424 Chapel Street LLC 50 DEVINE ST NORTH HAVEN, CT 06473 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	RECEIVER ANTONUCCI
Signature Required:	A signature is required for package delivery
Reference Number 1:	CTNH522A CSC PO



[Download the UPS mobile app](#)

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Friday, October 19, 2018 11:04 AM
To: krichers@transcendwireless.com
Subject: UPS Delivery Notification, Reference Number 1: CTNH522A CSC TO



Your package has been delivered.

Delivery Date: Friday, 10/19/2018
Delivery Time: 10:56 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	<u>1ZV257424296043097</u>
Ship To:	American Tower Corporation 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	RECEIVER LONG
Signature Required:	A signature is required for package delivery
Reference Number 1:	CTNH522A CSC TO



[Download the UPS mobile app](#)