



10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

November 6, 2018

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

Notice of Exempt Modification
438 Bridgeport Ave., Milford, CT 06460
Latitude- 41.20661111
Longitude- -73.0934

Dear Ms. Bachman,

T-Mobile currently maintains (6) existing antennas at the 73' level of the existing 100' monopole at 438 Bridgeport Ave. in Milford, Connecticut. The tower is owned by American Tower Corporation. The property is owned by Henry and Genevieve Charchenko. T-Mobile now intends to remove (3) existing antennas and add (3) new 600/700/1900/2100 MHz antennas. These antennas would be installed at the same 73' level of the tower. T-Mobile also intends to add (3) remote radio heads and add (1) hybrid cable. Please note, a supplementary passing structural letter is being provided in addition to the passing structural analysis. The structural letter includes minor changes to reflect the correct loading.

This tower facility was originally approved by the Council in Docket No. 44 on July 24, 1984. This modification complies with the original approval.

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 Benjamin G. Blake, Mayor of the City of Milford, David Sulkis, City Planner for the City of Milford, as well as the tower owner. A separate copy is not being sent to the property owner, as their listed address is an address for American Tower Corporation, the tower 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

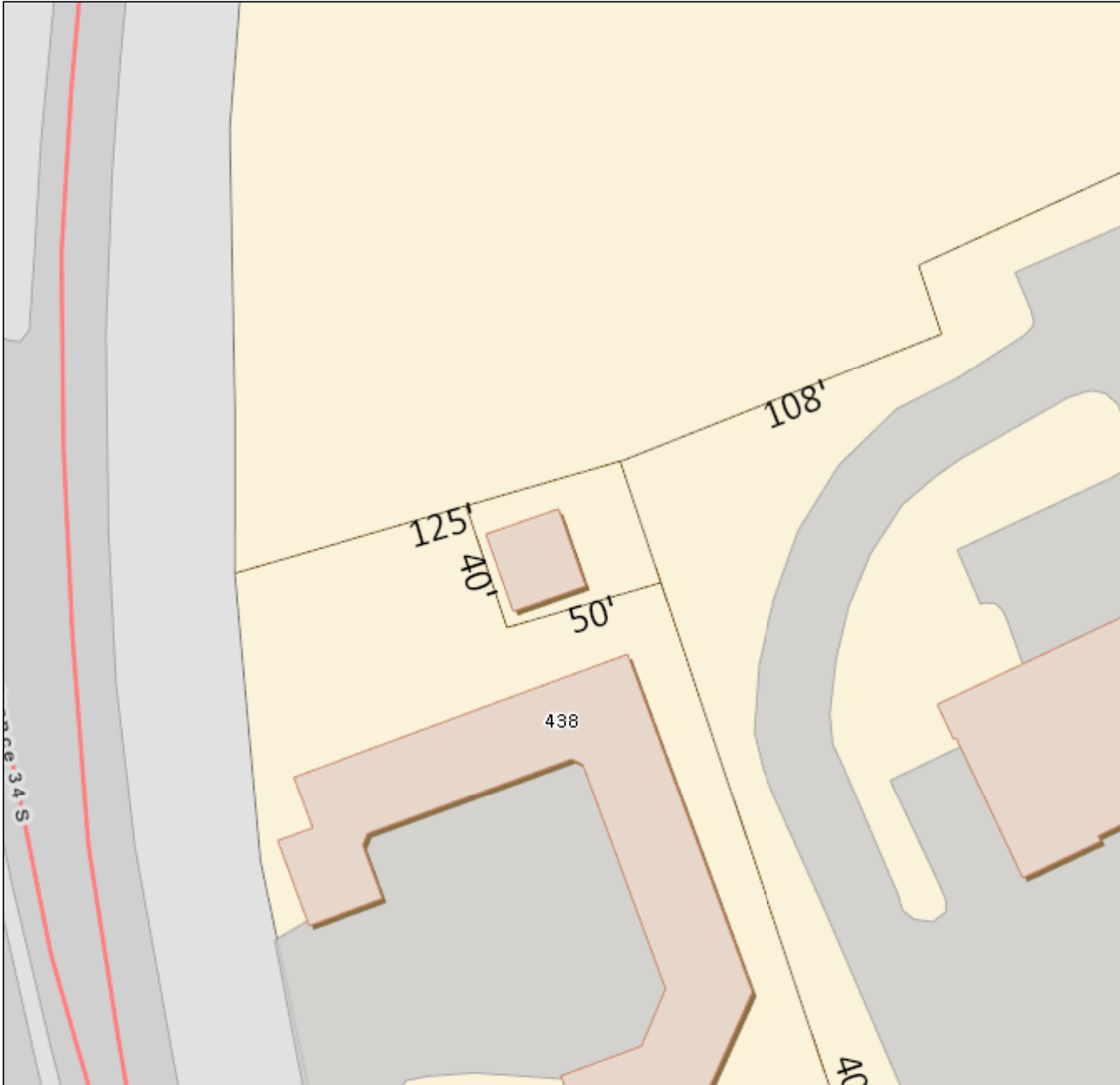
cc: Benjamin G. Blake- as elected official
David Sulkis- as zoning official
American Tower- as tower owner

City of Milford

Geographic Information System (GIS)



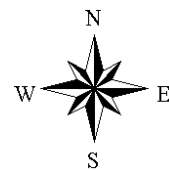
Date Printed: 11/5/2018



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The City of Milford and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 50 feet



438 BRIDGEPORT AVE

Location 438 BRIDGEPORT AVE

Mblu 24/ 385/ 3/A /

Acct# 003195

Owner CHARCHENKO HENRY & GENEVIEVE &

Assessment \$318,090

Appraisal \$454,410

PID 4835

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$426,060	\$28,350	\$454,410
Assessment			
Valuation Year	Improvements	Land	Total
2016	\$298,240	\$19,850	\$318,090

Owner of Record

Owner CHARCHENKO HENRY & GENEVIEVE &
Other C/O SPECTRASITE COMMUNICATIONS
Address P O BOX 723597 PROP TAX DEPT
 ATLANTA, GA 31139

Sale Price \$0
Certificate
Book & Page 00549/1620
Sale Date 05/18/1965

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
CHARCHENKO HENRY & GENEVIEVE &	\$0		00549/1620	05/18/1965

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: \$0
Building Percent
Good:
Replacement Cost
Less Depreciation: \$0

Building Attributes	
Field	Description

Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Description:	
Kitchen Descrip:	
Int Condition:	
Solar Panels	
House Generator	

Building Photo



(<http://images.vgsi.com/photos/MilfordCTPhotos//\00\05\48\32.j>)

Building Layout

Building Layout

(<http://images.vgsi.com/photos/MilfordCTPhotos//Sketches/4835>)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	434V
Description	CELL TOWER MDL-00
Zone	CDD3
Neighborhood	B
Alt Land Appr Category	No

Land Line Valuation

Size (Acres)	0.05
Frontage	0
Depth	0
Assessed Value	\$19,850
Appraised Value	\$28,350

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN4	FENCE-8' CHAIN			176 L.F.	\$1,060	1
	RADBLD			550	\$55,000	1
	RADELD			200	\$20,000	1
CEL1	CEL TWR SITE			1 UNITS	\$350,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$426,060	\$28,350	\$454,410
2016	\$412,760	\$28,350	\$441,110
2013	\$412,760	\$28,350	\$441,110

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$298,240	\$19,850	\$318,090
2016	\$288,930	\$19,850	\$308,780
2013	\$288,930	\$19,850	\$308,780

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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Tuesday, November 6, 2018 9:21 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11318F CSC mayor



You have a package coming.

Scheduled Delivery Date: Wednesday, 11/07/2018

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From: TRANSCEND WIRELESS

Tracking Number: [1ZV257424297403553](#)

Ship To: Benjamin G. Blake
City of Milford
110 River Street
MILFORD, CT 064603318
US

UPS Service: UPS GROUND

Number of Packages: 1

Scheduled Delivery: 11/07/2018

Signature Required: A signature is required for package delivery

Weight: 1.0 LBS

Reference Number 1: CT11318F CSC mayor



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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Tuesday, November 6, 2018 9:23 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11318F CSC TO



You have a package coming.

Scheduled Delivery Date: Wednesday, 11/07/2018

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Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424295293542
Ship To:	American Tower Corporation 10 Presidential Way WOBURN, MA 018011053 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	11/07/2018
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11318F CSC TO



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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Tuesday, November 6, 2018 9:25 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11318F CSC ZO



You have a package coming.

Scheduled Delivery Date: Wednesday, 11/07/2018

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From: TRANSCEND WIRELESS

Tracking Number: [1ZV257424299533561](#)

Ship To: David Sulkis
City of Milford
70 W. River Street
MILFORD, CT 064603317
US

UPS Service: UPS GROUND

Number of Packages: 1

Scheduled Delivery: 11/07/2018

Signature Required: A signature is required for package delivery

Weight: 1.0 LBS

Reference Number 1: CT11318F CSC ZO



[Download the UPS mobile app](#)



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

T-Mobile Existing Facility

Site ID: CT11318F

CT318/Spectra_Devon
438 Bridgeport Avenue
Milford, CT 06460

October 4, 2018

EBI Project Number: 6218006511

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	27.55 %



October 4, 2018

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

Emissions Analysis for Site: **CT11318F – CT318/Spectra_Devon**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **438 Bridgeport Avenue, Milford, 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 **438 Bridgeport Avenue, Milford, 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 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.
- 2) 1 UMTS channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 1 UMTS channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) 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.
- 5) 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.
- 6) 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.



- 7) 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.
- 8) 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.
- 9) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-A20 & RFS APXVAARR24_43-U-NA20** for 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) 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.
- 10) The antenna mounting height centerline of the proposed antennas is **73 feet** above ground level (AGL).
- 11) 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.
- 12) 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:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	73 feet	Height (AGL):	73 feet	Height (AGL):	73 feet
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	5,118.95	ERP (W):	5,118.95	ERP (W):	5,118.95
Antenna A1 MPE%	4.10	Antenna B1 MPE%	4.10	Antenna C1 MPE%	4.10
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	16.35 / 15.65 / 12.95 / 13/35 dBd	Gain:	16.35 / 15.65 / 12.95 / 13/35 dBd	Gain:	16.35 / 15.65 / 12.95 / 13/35 dBd
Height (AGL):	73 feet	Height (AGL):	73 feet	Height (AGL):	73 feet
Frequency Bands	2100 MHz / 1900 MHz (PCS) / 600 MHz / 700 MHz	Frequency Bands	2100 MHz / 1900 MHz (PCS) / 600 MHz / 700 MHz	Frequency Bands	2100 MHz / 1900 MHz (PCS) / 600 MHz / 700 MHz
Channel Count	7	Channel Count	7	Channel Count	7
Total TX Power(W):	215	Total TX Power(W):	215	Total TX Power(W):	215
ERP (W):	6,189.15	ERP (W):	6,189.15	ERP (W):	6,189.15
Antenna A2 MPE%	7.64	Antenna B2 MPE%	7.64	Antenna C2 MPE%	7.64

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	11.74 %
AT&T	11.84 %
Sprint	3.97 %
Site Total MPE %:	27.55 %

T-Mobile Sector A Total:	11.74 %
T-Mobile Sector B Total:	11.74 %
T-Mobile Sector C Total:	11.74 %
Site Total:	27.55 %

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 AWS - 2100 MHz LTE	2	2,559.48	73	41.00	AWS - 2100 MHz	1000.00	4.10%
T-Mobile PCS - 1900 MHz GSM	1	550.92	73	4.41	PCS - 1900 MHz	1000.00	0.44%
T-Mobile PCS - 1900 MHz UMTS	1	1,469.13	73	11.77	PCS - 1900 MHz	1000.00	1.18%
T-Mobile AWS - 2100 MHz UMTS	1	1,726.08	73	13.82	AWS - 2100 MHz	1000.00	1.38%
T-Mobile 600 MHz LTE	2	788.97	73	12.64	600 MHz	400.00	3.16%
T-Mobile 700 MHz LTE	2	432.54	73	6.93	700 MHz	467.00	1.48%
						Total:	11.74%



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:	11.74 %
Sector B:	11.74 %
Sector C:	11.74 %
T-Mobile Maximum MPE % (Per Sector):	11.74 %
Site Total:	27.55 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **27.55%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by



**TOWER
ENGINEERING
PROFESSIONALS**

Structural Analysis Report

Structure : 100.6 ft Monopole
ATC Site Name : Mlfd - Milford, CT
ATC Site Number : 302516
Engineering Number : OAA736470_C3_01
Proposed Carrier : T-Mobile
Carrier Site Name : N/A
Carrier Site Number : CT11318F
Site Location : 438 Bridgeport Ave
Milford, CT 06460-4105
41.206600,-73.093400
County : New Haven
Date : July 17, 2018
Max Usage : 88%
Result : Pass

Prepared By:
Zac Mueller
TEP

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, Twist, 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 100.6 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	Mapping by Smith Cullum, SpectraSite #CT-0052, dated May 31, 2002 ITT Meyer Specification #AT-8935, Type D, dated April 13, 1984
Foundation Drawing	Mapping by FDH Project #02-1210, dated January 9, 2003
Geotechnical Report	AET Job #002GT03, dated January 7, 2003
Modifications	American Tower #27094034, dated April 21, 2008 SpectraSite file #CT-0052, dated January 14, 2003

Analysis

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

Basic Wind Speed:	97 mph (3-Second Gust V_{asd}) / 125 mph (3-Second Gust V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Spectral Response:	$S_s = 0.20$, $S_1 = 0.06$
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					
100.0	104.0	2	Commscope WCS-IMFQ-AMT	Platform w/ Handrails	(12) 1 5/8" Coax (6) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk (3) 3" Conduit (1) 2" Conduit	AT&T Mobility
		6	Powerwave LGP21401			
		2	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS 4478 B14			
		3	Ericsson RRUS 11 (Band 12)			
		3	Ericsson RRUS 32 (50.8 lbs)			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS 32 B66			
		1	Raycap DC6-48-60-18-8C			
		3	Powerwave 7770.00			
		3	Commscope SBNHH-1D65A			
		3	CCI OPA-65R-LCUU-H4			
		3	Kathrein 80010964			
	102.0	3	Kaelus DBC0061F1V51-2			
100.0	1	10' Omni			Other	
93.0	93.0	3	48" x 12" Panel	Flush	(6) 7/8" Coax	Sprint Nextel
83.0	83.0	6	RFS APX86-909014L-CT0-00	Flush	(9) 7/8" Coax	
73.0	73.0	3	Kathrein Smart Bias Tee	T-Arms	(18) 7/8" Coax	T-Mobile
		3	Ericsson KRY 112 489/2			
		3	RFS ATMAA1412D-1A20			

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
73.0	73.0	3	Commscope LNX-6515DS-VTM	-	-	T-Mobile
		3	RFS APX16PV-16PVL-A			

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
73.0	73.0	3	Ericsson Radio 4449 B12,B71	T-Arms	(1) 1 1/4" Fiber	T-Mobile
		3	RFS APX16DWV-16DWVS-E-A20			
		3	RFS APXVAARR24_43-U-NA20			

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	32%	Pass
Shaft	61%	Pass
Base Plate	48%	Pass
Reinforcement	67%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,338.8	88%
Axial (Kips)	47.6	2%
Shear (Kips)	18.7	47%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
73.0	Ericsson Radio 4449 B12,B71	T-Mobile	0.521	0.738
	RFS APX16DWV-16DWVS-E-A20			
	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

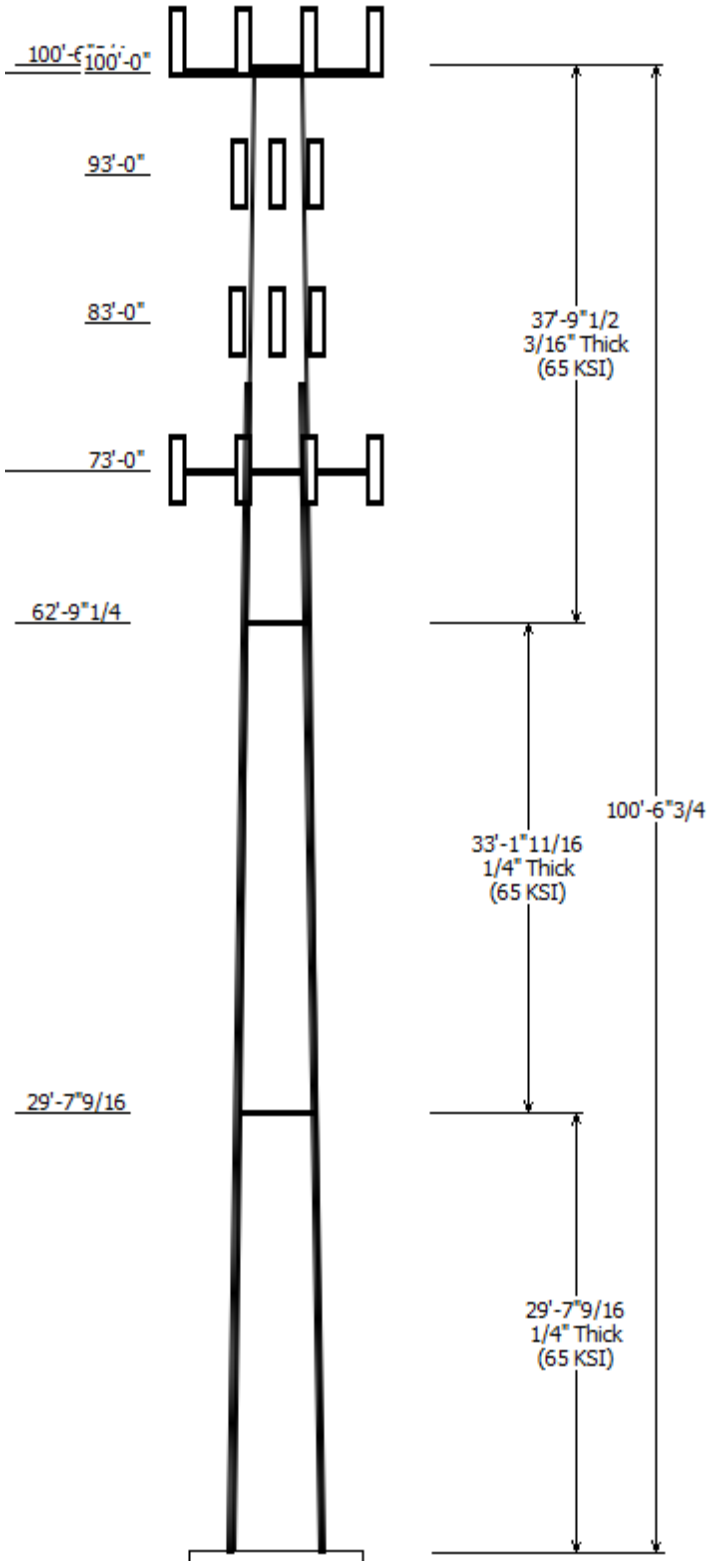
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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 : 302516	Code: ANSI/TIA-222-G
Location : Mlfd - Milford, CT	
Description : 100 ft ITT Meyer Type "D" Monopole	
Client : T-MOBILE	Struct Class : II
Shape : 12 Sides	Exposure : B
Height : 100.56 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.169053in/ft	

Sections Properties						
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Overlap Length (in)	Steel Grade
		Top	Bottom			
1	29.630	26.99	32.00	0.250	0.000	12 Sides 65
2	33.140	21.38	26.99	0.250	0.000	12 Sides 65
3	37.790	15.00	21.38	0.188	0.000	12 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
100.000	100.000	1	Heavy Platform w/ Handrails
100.000	104.000	3	Ericsson RRUS 11 (Band 12)
100.000	104.000	3	Commscope SBNHH-1D65A
100.000	104.000	3	Kathrein Scala 80010964
100.000	104.000	3	Ericsson RRUS 32 B66
100.000	104.000	3	Ericsson RRUS 4478 B14
100.000	102.000	3	Kaelus DBC0061F1V51-2
100.000	104.000	3	Ericsson RRUS 32 B2
100.000	104.000	1	Raycap DC6-48-60-18-8C
100.000	104.000	2	Commscope WCS-IMFQ-AMT
100.000	100.000	1	10' Omni
100.000	104.000	3	CCI OPA-65R-LCUU-H4
100.000	104.000	3	Ericsson RRUS 32 (50.8 lbs)
100.000	104.000	3	Powerwave Allgon 7770.00
100.000	104.000	6	Powerwave Allgon LGP21401
100.000	104.000	2	Raycap DC6-48-60-18-8F
93.000	93.000	3	48" x 12" Panel
83.000	83.000	6	RFS APX86-909014L-CT0-00
73.000	73.000	3	Round T-Arm
73.000	73.000	3	RFS APXVAARR24_43-U-NA20
73.000	73.000	3	RFS APX16DWV-16DWVS-E-A20
73.000	73.000	3	Ericsson Radio 4449 B12,B71
73.000	73.000	3	RFS ATMAA1412D-1A20
73.000	73.000	3	Ericsson KRY 112 489/2
73.000	73.000	3	Kathrein Scala Smart Bias Tee

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	73.000	1 1/4" Fiber	Yes
0.000	73.000	7/8" Coax	Yes
0.000	83.000	7/8" Coax	Yes
0.000	85.000	#20 DYWIDAG	Yes
0.000	93.000	7/8" Coax	Yes
0.000	100.0	0.39" Fiber Trunk	No
0.000	100.0	0.78" 8 AWG 6	No
0.000	100.0	1 5/8" Coax	No
0.000	100.0	2" Conduit	No
0.000	100.0	3" Conduit	No

Load Cases

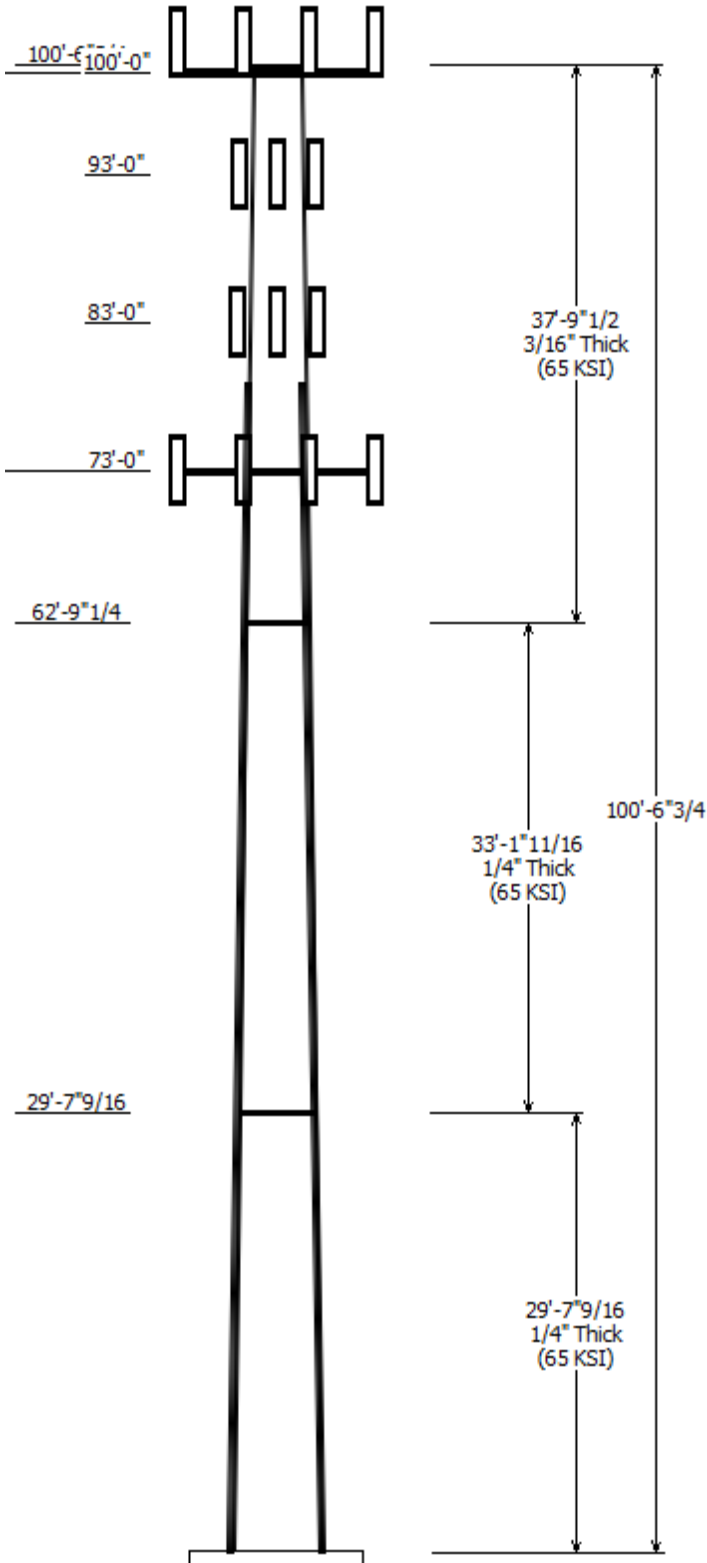
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL)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

Reactions

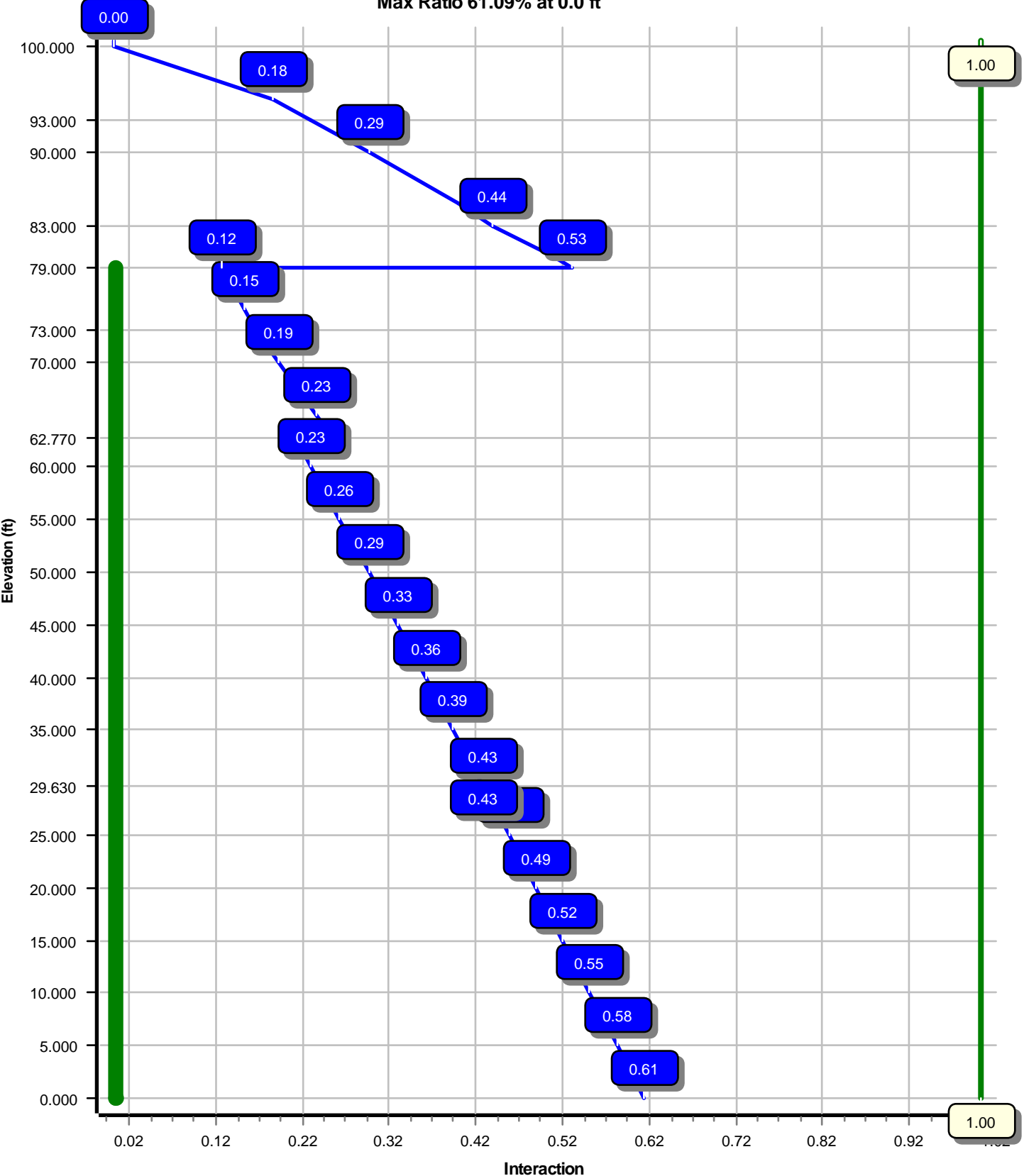
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1338.79	18.68	27.17
0.9D + 1.6W	1315.32	18.54	20.37
1.2D + 1.0Di + 1.0Wi	306.35	4.06	47.60
(1.2 + 0.2Sds) * DL + E ELFM	70.66	0.84	26.91
(1.2 + 0.2Sds) * DL + E EMAM	149.91	1.64	26.90
(0.9 - 0.2Sds) * DL + E ELFM	69.81	0.84	18.58
(0.9 - 0.2Sds) * DL + E EMAM	147.95	1.64	18.58
1.0D + 1.0W	316.98	4.45	22.68

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 61.09% at 0.0 ft



Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

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Customer: T-MOBILE

Analysis Parameters

Location :	NEW HAVEN County, CT	Height (ft) :	100.56
Code :	ANSI/TIA-222-G	Base Diameter (in) :	32.00
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.169
Pole Manufacturer :	ITT Meyer	Rotation (deg) :	0.00

Ice & Wind Parameters

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

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.81		
T _L (sec):	6	p:	1
S _s :	0.198	S ₁ :	0.063
F _a :	1.600	F _v :	2.400
S _{ds} :	0.211	S _{d1} :	0.101
		C _s :	0.037
		C _s Max:	0.037
		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: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

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Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip 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)
1-12	29.630	0.2500	65		0.00	2,374	32.00	0.00	25.56	3288.6	31.62	128.00	26.99	29.63	21.53	1964.8	26.25	107.96	0.169053
2-12	33.140	0.2500	65	Butt	0.00	2,173	26.99	29.63	21.53	1964.8	26.25	107.96	21.38	62.77	17.02	970.5	20.24	85.55	0.169053
3-12	37.790	0.1875	65	Butt	0.00	1,398	21.38	62.77	12.80	734.4	27.89	114.07	15.00	100.56	8.94	250.5	18.76	80.00	0.169053
Shaft Weight						5,945													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
100.00	10' Omni	1	0.000	0.000	25.00	3.000	1.00
100.00	CCI OPA-65R-LCUU-H4	3	0.000	4.000	57.00	6.080	0.66
100.00	Commscope SBNHH-1D65A	3	0.000	4.000	33.50	5.880	0.69
100.00	Commscope WCS-IMFQ-AMT	2	0.000	4.000	29.50	0.990	0.50
100.00	Ericsson RRUS 11 (Band 12)	3	0.000	4.000	50.00	2.570	0.67
100.00	Ericsson RRUS 32 (50.8 lbs)	3	0.000	4.000	50.80	2.690	0.67
100.00	Ericsson RRUS 32 B2	3	0.000	4.000	53.00	2.740	0.67
100.00	Ericsson RRUS 32 B66	3	0.000	4.000	53.00	2.740	0.67
100.00	Ericsson RRUS 4478 B14	3	0.000	4.000	59.40	2.020	0.67
100.00	Heavy Platform w/ Handrails	1	0.000	0.000	3000.00	59.800	1.00
100.00	Kaelus DBC0061F1V51-2	3	0.000	2.000	25.50	0.510	0.50
100.00	Kathrein Scala 80010964	3	0.000	4.000	81.60	10.000	0.62
100.00	Powerwave Allgon 7770.00	3	0.000	4.000	35.00	5.510	0.65
100.00	Powerwave Allgon LGP21401	6	0.000	4.000	14.10	1.100	0.50
100.00	Raycap DC6-48-60-18-8C	1	0.000	4.000	16.00	3.050	0.67
100.00	Raycap DC6-48-60-18-8F	2	0.000	4.000	20.00	1.110	1.00
93.00	48" x 12" Panel	3	0.000	0.000	30.00	5.070	0.66
83.00	RFS APX86-909014L-CT0-00	6	0.000	0.000	24.20	8.470	0.68
73.00	Ericsson KRY 112 489/2	3	0.000	0.000	15.40	0.650	0.50
73.00	Ericsson Radio 4449 B12,B71	3	0.000	0.000	74.00	1.640	0.50
73.00	Kathrein Scala Smart Bias Tee	3	0.000	0.000	3.30	0.090	0.50
73.00	RFS APX16DWV-16DWVS-E-A20	3	0.000	0.000	40.70	6.590	0.60
73.00	RFS APXVAARR24_43-U-NA20	3	0.000	0.000	127.90	20.240	0.63
73.00	RFS ATMAA1412D-1A20	3	0.000	0.000	13.00	1.000	0.50
73.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
Totals	Num Loadings:25	73			6529.10		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	100.00	2	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	100.00	6	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	100.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	100.00	1	2" Conduit	2.38	3.65	N	0.00	N	AT&T Mobility
0.00	100.00	3	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	93.00	6	7/8" Coax	1.09	0.33	N	3.27	Y	Sprint Nextel
0.00	85.00	4	#20 DYWIDAG	2.50	0.00	N	4.73	Y	--
0.00	83.00	9	7/8" Coax	1.09	0.33	N	0.00	Y	Sprint Nextel
0.00	73.00	1	1 1/4" Fiber	1.25	1.05	N	0.00	Y	T-Mobile
0.00	73.00	18	7/8" Coax	1.09	0.33	N	0.00	Y	T-Mobile

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

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Customer: T-MOBILE

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	— Intermediate Connections— Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	79.00	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

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Customer: T-MOBILE

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)	Additional Reinforcing		
												Area (in ²)	Ix (in ⁴)	Weight (lb)
0.00		0.2500	32.000	25.559	3,288.6	31.62	128.00	70.2	198.5	0.0	0.0	19.64	3,718	0.0
5.00		0.2500	31.155	24.878	3,032.9	30.71	124.62	71.2	188.1	0.0	429.1	19.64	3,559	334.0
10.00		0.2500	30.309	24.198	2,790.8	29.81	121.24	72.2	177.9	0.0	417.5	19.64	3,403	334.0
15.00		0.2500	29.464	23.517	2,561.9	28.90	117.86	73.2	168.0	0.0	405.9	19.64	3,250	334.0
20.00		0.2500	28.619	22.837	2,345.9	27.99	114.48	74.2	158.4	0.0	394.3	19.64	3,101	334.0
25.00		0.2500	27.774	22.157	2,142.4	27.09	111.09	75.2	149.0	0.0	382.8	19.64	2,955	334.0
29.63	Top - Section 1	0.2500	26.991	21.526	1,964.8	26.25	107.96	76.1	140.6	0.0	344.1	19.64	2,824	309.3
29.63	Bot - Section 2	0.2500	26.991	21.526	1,964.8	26.25	107.96	76.1	140.6	0.0		19.64	2,824	
30.00		0.2500	26.928	21.476	1,951.0	26.18	107.71	76.2	140.0	0.0	27.1	19.64	2,813	24.7
35.00		0.2500	26.083	20.796	1,771.4	25.28	104.33	77.1	131.2	0.0	359.6	19.64	2,675	334.0
40.00		0.2500	25.238	20.115	1,603.1	24.37	100.95	78.1	122.7	0.0	348.0	19.64	2,540	334.0
45.00		0.2500	24.393	19.435	1,445.9	23.46	97.57	79.1	114.5	0.0	336.4	19.64	2,408	334.0
50.00		0.2500	23.547	18.754	1,299.3	22.56	94.19	80.1	106.6	0.0	324.9	19.64	2,280	334.0
55.00		0.2500	22.702	18.074	1,162.9	21.65	90.81	81.1	99.0	0.0	313.3	19.64	2,156	334.0
60.00		0.2500	21.857	17.393	1,036.5	20.75	87.43	81.9	91.6	0.0	301.7	19.64	2,035	334.0
62.77	Top - Section 2	0.2500	21.389	17.017	970.5	20.24	85.55	81.9	87.7	0.0	162.2	19.64	1,969	185.0
62.77	Bot - Section 3	0.1875	21.389	12.800	734.4	27.89	114.07	74.3	66.3	0.0		19.64	1,969	
65.00		0.1875	21.012	12.573	695.9	27.35	112.06	74.9	64.0	0.0	96.3	19.64	1,917	149.0
70.00		0.1875	20.166	12.062	614.5	26.14	107.55	76.2	58.9	0.0	209.6	19.64	1,803	334.0
73.00		0.1875	19.659	11.756	568.9	25.41	104.85	77.0	55.9	0.0	121.6	19.64	1,736	200.4
75.00		0.1875	19.321	11.552	539.8	24.93	103.05	77.5	54.0	0.0	79.3	19.64	1,693	133.6
79.00	Reinf. Top	0.1875	18.645	11.144	484.6	23.97	99.44	78.6	50.2	0.0	154.5	19.64	1,607	267.2
80.00		0.1875	18.476	11.042	471.4	23.72	98.54	78.8	49.3	0.0	37.7			
83.00		0.1875	17.969	10.735	433.2	23.00	95.83	79.6	46.6	0.0	111.2			
85.00		0.1875	17.630	10.531	409.0	22.52	94.03	80.2	44.8	0.0	72.4			
90.00		0.1875	16.785	10.021	352.4	21.31	89.52	81.5	40.6	0.0	174.8			
93.00		0.1875	16.278	9.715	321.0	20.58	86.82	81.9	38.1	0.0	100.7			
95.00		0.1875	15.940	9.511	301.2	20.10	85.01	81.9	36.5	0.0	65.4			
100.0		0.1875	15.095	9.000	255.3	18.89	80.50	81.9	32.7	0.0	157.5			
100.5		0.1875	15.000	8.943	250.5	18.76	80.00	81.9	32.3	0.0	17.1			
											5,944.9			5,277.2

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

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Customer: T-MOBILE

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		230.4	0.0					0.0	0.0	230.4	0.0	0.0	0.0
5.00		454.6	514.9					112.8	711.8	567.4	1,226.7	0.0	0.0
10.00		442.3	501.0					112.8	711.8	555.1	1,212.8	0.0	0.0
15.00		430.0	487.1					112.8	711.8	542.7	1,198.9	0.0	0.0
20.00		417.6	473.2					112.8	711.8	530.4	1,185.0	0.0	0.0
25.00		390.7	459.3					112.8	711.8	503.5	1,171.1	0.0	0.0
29.63	Top - Section 1	199.6	412.9					104.4	659.1	304.0	1,072.0	0.0	0.0
30.00		212.6	32.5					8.3	52.7	220.9	85.2	0.0	0.0
35.00		397.8	431.5					114.7	711.8	512.5	1,143.3	0.0	0.0
40.00		399.9	417.6					118.1	711.8	518.0	1,129.4	0.0	0.0
45.00		399.8	403.7					121.1	711.8	520.9	1,115.5	0.0	0.0
50.00		397.8	389.8					123.9	711.8	521.6	1,101.6	0.0	0.0
55.00		394.1	376.0					126.4	711.8	520.5	1,087.7	0.0	0.0
60.00		303.3	362.1					128.8	711.8	432.0	1,073.8	0.0	0.0
62.77	Top - Section 2	193.0	194.6					72.3	394.3	265.3	588.9	0.0	0.0
65.00		275.2	115.5					58.7	317.5	333.9	433.0	0.0	0.0
70.00		301.4	251.5					133.1	711.8	434.5	963.3	0.0	0.0
73.00	Appurtenance(s)	185.5	145.9	2,137.9	0.0	0.0	1,887.5	80.8	427.1	2,404.2	2,460.4	0.0	0.0
75.00		218.9	95.2					54.2	267.9	273.1	363.1	0.0	0.0
79.00	Reinf. Top	181.0	185.3					109.4	535.9	290.4	721.2	0.0	0.0
80.00		142.0	45.3					27.5	53.8	169.6	99.1	0.0	0.0
83.00	Appurtenance(s)	176.0	133.4	1,304.1	0.0	0.0	174.2	83.0	161.4	1,563.1	469.0	0.0	0.0
85.00		247.6	86.8					55.7	100.5	303.3	187.3	0.0	0.0
90.00		283.5	209.8					0.0	251.2	283.5	461.0	0.0	0.0
93.00	Appurtenance(s)	160.0	120.9	391.3	0.0	0.0	108.0	0.0	150.7	551.4	379.6	0.0	0.0
95.00		186.6	78.5					0.0	95.7	186.6	174.2	0.0	0.0
100.00	Appurtenance(s)	146.7	189.0	5,141.5	0.0	10,641.9	5,665.2	0.0	239.3	5,288.2	6,093.5	0.0	0.0
100.56		14.5	20.5					0.0	0.0	14.5	20.5	0.0	0.0
Totals:										18,841.4	27,217.2	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:19:52 AM

Customer: T-MOBILE

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 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	-27.17	-18.68	0.00	-1,338.79	0.00	1,338.79	1,615.50	807.75	2,117.47	1,045.74	0.00	0.00	0.611
5.00	-25.87	-18.22	0.00	-1,245.42	0.00	1,245.42	1,594.62	797.31	2,034.02	1,004.53	0.14	-0.26	0.580
10.00	-24.58	-17.77	0.00	-1,154.30	0.00	1,154.30	1,572.52	786.26	1,950.54	963.30	0.56	-0.52	0.549
15.00	-23.31	-17.32	0.00	-1,065.46	0.00	1,065.46	1,549.22	774.61	1,867.15	922.11	1.24	-0.78	0.518
20.00	-22.06	-16.86	0.00	-978.88	0.00	978.88	1,524.70	762.35	1,783.98	881.04	2.19	-1.03	0.487
25.00	-20.83	-16.42	0.00	-894.57	0.00	894.57	1,498.98	749.49	1,701.17	840.14	3.40	-1.27	0.455
29.63	-19.73	-16.13	0.00	-818.54	0.00	818.54	1,474.07	737.04	1,624.90	802.48	4.74	-1.49	0.426
29.63	-19.73	-16.13	0.00	-818.54	0.00	818.54	1,474.07	737.04	1,624.90	802.48	4.74	-1.49	0.426
30.00	-19.62	-15.95	0.00	-812.58	0.00	812.58	1,472.04	736.02	1,618.83	799.48	4.86	-1.51	0.424
35.00	-18.43	-15.48	0.00	-732.82	0.00	732.82	1,443.89	721.95	1,537.10	759.12	6.56	-1.74	0.392
40.00	-17.26	-14.99	0.00	-655.42	0.00	655.42	1,414.54	707.27	1,456.10	719.12	8.51	-1.96	0.359
45.00	-16.11	-14.49	0.00	-580.47	0.00	580.47	1,383.97	691.99	1,375.97	679.54	10.68	-2.18	0.327
50.00	-14.99	-13.97	0.00	-508.03	0.00	508.03	1,352.19	676.10	1,296.83	640.45	13.07	-2.38	0.294
55.00	-13.88	-13.45	0.00	-438.16	0.00	438.16	1,319.21	659.60	1,218.80	601.92	15.66	-2.56	0.261
60.00	-12.80	-13.00	0.00	-370.91	0.00	370.91	1,282.07	641.04	1,139.41	562.71	18.44	-2.74	0.228
62.77	-12.20	-12.72	0.00	-334.90	0.00	334.90	1,254.29	627.14	1,090.28	538.45	20.06	-2.83	0.210
62.77	-12.20	-12.72	0.00	-334.90	0.00	334.90	855.95	427.98	748.44	369.63	20.06	-2.83	0.253
65.00	-11.76	-12.39	0.00	-306.53	0.00	306.53	847.38	423.69	727.65	359.36	21.39	-2.90	0.233
70.00	-10.80	-11.93	0.00	-244.59	0.00	244.59	827.29	413.64	681.30	336.47	24.51	-3.05	0.191
73.00	-8.46	-9.40	0.00	-208.80	0.00	208.80	814.65	407.33	653.71	322.84	26.45	-3.13	0.164
75.00	-8.11	-9.12	0.00	-190.00	0.00	190.00	805.98	402.99	635.42	313.81	27.77	-3.18	0.151
79.00	-7.39	-8.80	0.00	-153.51	0.00	153.51	788.07	394.03	599.12	295.88	30.47	-3.26	0.124
79.00	-7.39	-8.80	0.00	-153.51	0.00	153.51	788.07	394.03	599.12	295.88	30.47	-3.26	0.529
80.00	-7.28	-8.64	0.00	-144.72	0.00	144.72	783.47	391.73	590.11	291.44	31.16	-3.28	0.506
83.00	-6.89	-7.07	0.00	-118.80	0.00	118.80	769.38	384.69	563.27	278.18	33.30	-3.52	0.436
85.00	-6.69	-6.79	0.00	-104.65	0.00	104.65	759.75	379.87	545.53	269.42	34.81	-3.67	0.398
90.00	-6.22	-6.50	0.00	-70.72	0.00	70.72	734.81	367.41	501.78	247.81	38.82	-3.97	0.294
93.00	-5.87	-5.93	0.00	-51.23	0.00	51.23	716.07	358.03	473.88	234.03	41.37	-4.12	0.227
95.00	-5.70	-5.74	0.00	-39.37	0.00	39.37	701.02	350.51	454.06	224.24	43.11	-4.20	0.184
100.00	-0.02	-0.02	0.00	-0.01	0.00	0.01	663.41	331.70	406.37	200.69	47.58	-4.32	0.000
100.56	0.00	-0.01	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	48.09	-4.32	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:19:52 AM

Customer: T-MOBILE

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		230.4	0.0					0.0	0.0	230.4	0.0	0.0	0.0
5.00		454.6	386.2					112.8	533.8	567.4	920.0	0.0	0.0
10.00		442.3	375.7					112.8	533.8	555.1	909.6	0.0	0.0
15.00		430.0	365.3					112.8	533.8	542.7	899.2	0.0	0.0
20.00		417.6	354.9					112.8	533.8	530.4	888.7	0.0	0.0
25.00		390.7	344.5					112.8	533.8	503.5	878.3	0.0	0.0
29.63	Top - Section 1	199.6	309.7					104.4	494.3	304.0	804.0	0.0	0.0
30.00		212.6	24.4					8.3	39.5	220.9	63.9	0.0	0.0
35.00		397.8	323.6					114.7	533.8	512.5	857.5	0.0	0.0
40.00		399.9	313.2					118.1	533.8	518.0	847.1	0.0	0.0
45.00		399.8	302.8					121.1	533.8	520.9	836.6	0.0	0.0
50.00		397.8	292.4					123.9	533.8	521.6	826.2	0.0	0.0
55.00		394.1	282.0					126.4	533.8	520.5	815.8	0.0	0.0
60.00		303.3	271.5					128.8	533.8	432.0	805.4	0.0	0.0
62.77	Top - Section 2	193.0	146.0					72.3	295.7	265.3	441.7	0.0	0.0
65.00		275.2	86.6					58.7	238.1	333.9	324.7	0.0	0.0
70.00		301.4	188.6					133.1	533.8	434.5	722.4	0.0	0.0
73.00	Appurtenance(s)	185.5	109.4	2,137.9	0.0	0.0	1,415.6	80.8	320.3	2,404.2	1,845.3	0.0	0.0
75.00		218.9	71.4					54.2	201.0	273.1	272.3	0.0	0.0
79.00	Reinf. Top	181.0	139.0					109.4	401.9	290.4	540.9	0.0	0.0
80.00		142.0	34.0					27.5	40.4	169.6	74.3	0.0	0.0
83.00	Appurtenance(s)	176.0	100.0	1,304.1	0.0	0.0	130.7	83.0	121.1	1,563.1	351.8	0.0	0.0
85.00		212.0	65.1					55.7	75.4	267.6	140.5	0.0	0.0
90.00		225.2	157.4					0.0	188.4	225.2	345.8	0.0	0.0
93.00	Appurtenance(s)	137.4	90.7	391.3	0.0	0.0	81.0	0.0	113.0	528.7	284.7	0.0	0.0
95.00		186.6	58.9					0.0	71.8	186.6	130.7	0.0	0.0
100.00	Appurtenance(s)	146.7	141.7	5,141.5	0.0	10,641.9	4,248.9	0.0	179.5	5,288.2	4,570.1	0.0	0.0
100.56		14.5	15.4					0.0	0.0	14.5	15.4	0.0	0.0
Totals:										18,724.8	20,412.9	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:19:54 AM

Customer: T-MOBILE

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	-20.37	-18.54	0.00	-1,315.32	0.00	1,315.32	1,615.50	807.75	2,117.47	1,045.74	0.00	0.00	0.598
5.00	-19.37	-18.06	0.00	-1,222.62	0.00	1,222.62	1,594.62	797.31	2,034.02	1,004.53	0.14	-0.26	0.567
10.00	-18.39	-17.58	0.00	-1,132.33	0.00	1,132.33	1,572.52	786.26	1,950.54	963.30	0.55	-0.51	0.537
15.00	-17.42	-17.10	0.00	-1,044.44	0.00	1,044.44	1,549.22	774.61	1,867.15	922.11	1.22	-0.76	0.506
20.00	-16.47	-16.63	0.00	-958.93	0.00	958.93	1,524.70	762.35	1,783.98	881.04	2.15	-1.01	0.475
25.00	-15.54	-16.17	0.00	-875.80	0.00	875.80	1,498.98	749.49	1,701.17	840.14	3.33	-1.25	0.444
29.63	-14.71	-15.87	0.00	-800.94	0.00	800.94	1,474.07	737.04	1,624.90	802.48	4.65	-1.46	0.415
29.63	-14.71	-15.87	0.00	-800.94	0.00	800.94	1,474.07	737.04	1,624.90	802.48	4.65	-1.46	0.415
30.00	-14.62	-15.68	0.00	-795.07	0.00	795.07	1,472.04	736.02	1,618.83	799.48	4.77	-1.48	0.413
35.00	-13.72	-15.20	0.00	-716.65	0.00	716.65	1,443.89	721.95	1,537.10	759.12	6.44	-1.71	0.381
40.00	-12.83	-14.70	0.00	-640.65	0.00	640.65	1,414.54	707.27	1,456.10	719.12	8.34	-1.92	0.350
45.00	-11.96	-14.20	0.00	-567.13	0.00	567.13	1,383.97	691.99	1,375.97	679.54	10.47	-2.13	0.318
50.00	-11.11	-13.68	0.00	-496.15	0.00	496.15	1,352.19	676.10	1,296.83	640.45	12.81	-2.33	0.286
55.00	-10.28	-13.16	0.00	-427.75	0.00	427.75	1,319.21	659.60	1,218.80	601.92	15.35	-2.51	0.253
60.00	-9.47	-12.71	0.00	-361.97	0.00	361.97	1,282.07	641.04	1,139.41	562.71	18.07	-2.68	0.221
62.77	-9.02	-12.44	0.00	-326.77	0.00	326.77	1,254.29	627.14	1,090.28	538.45	19.65	-2.77	0.204
62.77	-9.02	-12.44	0.00	-326.77	0.00	326.77	855.95	427.98	748.44	369.63	19.65	-2.77	0.245
65.00	-8.69	-12.10	0.00	-299.03	0.00	299.03	847.38	423.69	727.65	359.36	20.96	-2.84	0.226
70.00	-7.97	-11.65	0.00	-238.52	0.00	238.52	827.29	413.64	681.30	336.47	24.01	-2.98	0.185
73.00	-6.24	-9.16	0.00	-203.58	0.00	203.58	814.65	407.33	653.71	322.84	25.91	-3.06	0.159
75.00	-5.97	-8.88	0.00	-185.27	0.00	185.27	805.98	402.99	635.42	313.81	27.21	-3.11	0.146
79.00	-5.44	-8.56	0.00	-149.76	0.00	149.76	788.07	394.03	599.12	295.88	29.85	-3.19	0.120
79.00	-5.44	-8.56	0.00	-149.76	0.00	149.76	788.07	394.03	599.12	295.88	29.85	-3.19	0.514
80.00	-5.36	-8.40	0.00	-141.20	0.00	141.20	783.47	391.73	590.11	291.44	30.52	-3.21	0.492
83.00	-5.08	-6.84	0.00	-116.00	0.00	116.00	769.38	384.69	563.27	278.18	32.61	-3.45	0.424
85.00	-4.93	-6.58	0.00	-102.33	0.00	102.33	759.75	379.87	545.53	269.42	34.09	-3.59	0.387
90.00	-4.57	-6.35	0.00	-69.43	0.00	69.43	734.81	367.41	501.78	247.81	38.01	-3.89	0.287
93.00	-4.31	-5.81	0.00	-50.39	0.00	50.39	716.07	358.03	473.88	234.03	40.50	-4.03	0.222
95.00	-4.19	-5.62	0.00	-38.77	0.00	38.77	701.02	350.51	454.06	224.24	42.21	-4.11	0.179
100.00	-0.01	-0.02	0.00	-0.01	0.00	0.01	663.41	331.70	406.37	200.69	46.59	-4.23	0.000
100.56	0.00	-0.01	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	47.08	-4.23	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:19:55 AM

Customer: T-MOBILE

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		41.0	0.0					0.0	0.0	41.0	0.0	0.0	0.0
5.00		81.2	757.3					29.6	993.0	110.8	1,750.4	0.0	0.0
10.00		79.7	765.6					30.8	1,027.8	110.5	1,793.4	0.0	0.0
15.00		77.9	758.7					31.5	1,045.8	109.4	1,804.5	0.0	0.0
20.00		76.0	746.8					31.9	1,058.3	107.9	1,805.0	0.0	0.0
25.00		71.5	732.3					32.2	1,068.0	103.7	1,800.2	0.0	0.0
29.63	Top - Section 1	36.6	664.0					30.1	996.1	66.7	1,660.0	0.0	0.0
30.00		39.2	52.7					2.4	79.9	41.6	132.5	0.0	0.0
35.00		73.4	698.8					33.5	1,082.8	107.0	1,781.6	0.0	0.0
40.00		74.2	680.6					35.2	1,088.7	109.3	1,769.3	0.0	0.0
45.00		74.5	661.8					36.6	1,094.0	111.2	1,755.8	0.0	0.0
50.00		74.5	642.4					38.0	1,098.8	112.5	1,741.2	0.0	0.0
55.00		74.2	622.6					39.3	1,103.2	113.5	1,725.8	0.0	0.0
60.00		57.4	602.5					40.5	1,107.2	97.8	1,709.6	0.0	0.0
62.77	Top - Section 2	36.7	326.0					22.9	615.0	59.6	941.0	0.0	0.0
65.00		52.5	220.0					18.7	495.9	71.2	715.9	0.0	0.0
70.00		57.7	478.4					42.7	1,114.4	100.4	1,592.8	0.0	0.0
73.00	Appurtenance(s)	35.7	279.7	459.0	0.0	0.0	4,212.2	26.1	670.2	520.8	5,162.0	0.0	0.0
75.00		42.3	183.3					17.6	361.1	59.9	544.4	0.0	0.0
79.00	Reinf. Top	35.1	356.5					35.7	723.1	70.7	1,079.6	0.0	0.0
80.00		27.7	87.9					9.0	100.8	36.7	188.7	0.0	0.0
83.00	Appurtenance(s)	34.4	258.3	250.5	0.0	0.0	1,255.4	27.2	302.7	312.1	1,816.4	0.0	0.0
85.00		47.3	168.9					18.3	161.5	65.6	330.4	0.0	0.0
90.00		53.3	406.8					0.0	313.0	53.3	719.8	0.0	0.0
93.00	Appurtenance(s)	32.7	236.4	87.9	0.0	0.0	522.1	0.0	188.0	120.6	946.5	0.0	0.0
95.00		44.8	154.3					0.0	95.7	44.8	250.0	0.0	0.0
100.00	Appurtenance(s)	35.3	370.0	1,177.9	0.0	2,321.6	11,439.3	0.0	239.3	1,213.3	12,048.7	0.0	0.0
100.56		3.5	40.7					0.0	0.0	3.5	40.7	0.0	0.0
Totals:										4,075.51	47,606.5	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:19:57 AM

Customer: T-MOBILE

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	-47.60	-4.06	0.00	-306.35	0.00	306.35	1,615.50	807.75	2,117.47	1,045.74	0.00	0.00	0.154
5.00	-45.85	-4.00	0.00	-286.05	0.00	286.05	1,594.62	797.31	2,034.02	1,004.53	0.03	-0.06	0.147
10.00	-44.05	-3.93	0.00	-266.07	0.00	266.07	1,572.52	786.26	1,950.54	963.30	0.13	-0.12	0.140
15.00	-42.24	-3.86	0.00	-246.43	0.00	246.43	1,549.22	774.61	1,867.15	922.11	0.28	-0.18	0.133
20.00	-40.44	-3.78	0.00	-227.15	0.00	227.15	1,524.70	762.35	1,783.98	881.04	0.50	-0.24	0.125
25.00	-38.63	-3.71	0.00	-208.23	0.00	208.23	1,498.98	749.49	1,701.17	840.14	0.78	-0.29	0.118
29.63	-36.97	-3.65	0.00	-191.07	0.00	191.07	1,474.07	737.04	1,624.90	802.48	1.09	-0.34	0.111
29.63	-36.97	-3.65	0.00	-191.07	0.00	191.07	1,474.07	737.04	1,624.90	802.48	1.09	-0.34	0.111
30.00	-36.84	-3.63	0.00	-189.72	0.00	189.72	1,472.04	736.02	1,618.83	799.48	1.12	-0.35	0.110
35.00	-35.05	-3.54	0.00	-171.59	0.00	171.59	1,443.89	721.95	1,537.10	759.12	1.51	-0.40	0.103
40.00	-33.28	-3.45	0.00	-153.89	0.00	153.89	1,414.54	707.27	1,456.10	719.12	1.96	-0.46	0.095
45.00	-31.52	-3.35	0.00	-136.65	0.00	136.65	1,383.97	691.99	1,375.97	679.54	2.47	-0.50	0.087
50.00	-29.78	-3.24	0.00	-119.91	0.00	119.91	1,352.19	676.10	1,296.83	640.45	3.02	-0.55	0.079
55.00	-28.05	-3.13	0.00	-103.70	0.00	103.70	1,319.21	659.60	1,218.80	601.92	3.63	-0.60	0.071
60.00	-26.34	-3.03	0.00	-88.03	0.00	88.03	1,282.07	641.04	1,139.41	562.71	4.27	-0.64	0.062
62.77	-25.40	-2.97	0.00	-79.64	0.00	79.64	1,254.29	627.14	1,090.28	538.45	4.65	-0.66	0.058
62.77	-25.40	-2.97	0.00	-79.64	0.00	79.64	855.95	427.98	748.44	369.63	4.65	-0.66	0.070
65.00	-24.69	-2.90	0.00	-73.02	0.00	73.02	847.38	423.69	727.65	359.36	4.96	-0.68	0.066
70.00	-23.09	-2.79	0.00	-58.51	0.00	58.51	827.29	413.64	681.30	336.47	5.69	-0.71	0.055
73.00	-17.94	-2.21	0.00	-50.13	0.00	50.13	814.65	407.33	653.71	322.84	6.15	-0.73	0.047
75.00	-17.39	-2.15	0.00	-45.71	0.00	45.71	805.98	402.99	635.42	313.81	6.45	-0.74	0.043
79.00	-16.31	-2.07	0.00	-37.11	0.00	37.11	788.07	394.03	599.12	295.88	7.09	-0.76	0.037
79.00	-16.31	-2.07	0.00	-37.11	0.00	37.11	788.07	394.03	599.12	295.88	7.09	-0.76	0.146
80.00	-16.13	-2.04	0.00	-35.05	0.00	35.05	783.47	391.73	590.11	291.44	7.25	-0.77	0.141
83.00	-14.31	-1.71	0.00	-28.93	0.00	28.93	769.38	384.69	563.27	278.18	7.75	-0.83	0.123
85.00	-13.98	-1.66	0.00	-25.51	0.00	25.51	759.75	379.87	545.53	269.42	8.10	-0.86	0.113
90.00	-13.26	-1.60	0.00	-17.23	0.00	17.23	734.81	367.41	501.78	247.81	9.05	-0.94	0.088
93.00	-12.32	-1.47	0.00	-12.42	0.00	12.42	716.07	358.03	473.88	234.03	9.65	-0.97	0.070
95.00	-12.07	-1.43	0.00	-9.47	0.00	9.47	701.02	350.51	454.06	224.24	10.06	-0.99	0.059
100.00	-0.04	0.00	0.00	0.00	0.00	0.00	663.41	331.70	406.37	200.69	11.12	-1.02	0.000
100.56	0.00	0.00	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	11.24	-1.02	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:19:57 AM

Customer: T-MOBILE

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		55.1	0.0					0.0	0.0	55.1	0.0	0.0	0.0
5.00		108.7	429.1					27.0	593.1	135.7	1,022.2	0.0	0.0
10.00		105.8	417.5					27.0	593.1	132.7	1,010.6	0.0	0.0
15.00		102.8	405.9					27.0	593.1	129.8	999.1	0.0	0.0
20.00		99.9	394.3					27.0	593.1	126.8	987.5	0.0	0.0
25.00		93.4	382.8					27.0	593.1	120.4	975.9	0.0	0.0
29.63	Top - Section 1	47.7	344.1					25.0	549.3	72.7	893.4	0.0	0.0
30.00		50.8	27.1					2.0	43.9	52.8	71.0	0.0	0.0
35.00		95.1	359.6					27.6	593.1	122.7	952.8	0.0	0.0
40.00		95.6	348.0					28.8	593.1	124.4	941.2	0.0	0.0
45.00		95.6	336.4					29.8	593.1	125.4	929.6	0.0	0.0
50.00		95.1	324.9					30.8	593.1	125.9	918.0	0.0	0.0
55.00		94.2	313.3					31.7	593.1	125.9	906.4	0.0	0.0
60.00		72.5	301.7					32.5	593.1	105.0	894.9	0.0	0.0
62.77	Top - Section 2	46.2	162.2					18.3	328.6	64.5	490.8	0.0	0.0
65.00		65.8	96.3					14.9	264.5	80.8	360.8	0.0	0.0
70.00		72.1	209.6					34.0	593.1	106.1	802.7	0.0	0.0
73.00	Appurtenance(s)	44.4	121.6	511.2	0.0	0.0	1,572.9	20.8	355.9	576.4	2,050.4	0.0	0.0
75.00		52.3	79.3					14.0	223.3	66.3	302.6	0.0	0.0
79.00	Reinf. Top	43.3	154.5					28.3	446.6	71.5	601.0	0.0	0.0
80.00		34.0	37.7					7.1	44.8	41.1	82.6	0.0	0.0
83.00	Appurtenance(s)	42.1	111.2	311.8	0.0	0.0	145.2	21.5	134.5	375.5	390.9	0.0	0.0
85.00		50.7	72.4					14.5	83.7	65.2	156.1	0.0	0.0
90.00		53.9	174.8					0.0	209.3	53.9	384.2	0.0	0.0
93.00	Appurtenance(s)	32.8	100.7	93.6	0.0	0.0	90.0	0.0	125.6	126.4	316.3	0.0	0.0
95.00		44.6	65.4					0.0	79.8	44.6	145.2	0.0	0.0
100.00	Appurtenance(s)	35.1	157.5	1,229.5	0.0	2,544.8	4,721.0	0.0	199.4	1,264.6	5,077.9	0.0	0.0
100.56		3.5	17.1					0.0	0.0	3.5	17.1	0.0	0.0
Totals:										4,495.71	22,681.0	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

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	-22.68	-4.45	0.00	-316.98	0.00	316.98	1,615.50	807.75	2,117.47	1,045.74	0.00	0.00	0.150
5.00	-21.65	-4.34	0.00	-294.72	0.00	294.72	1,594.62	797.31	2,034.02	1,004.53	0.03	-0.06	0.143
10.00	-20.64	-4.23	0.00	-273.02	0.00	273.02	1,572.52	786.26	1,950.54	963.30	0.13	-0.12	0.135
15.00	-19.63	-4.12	0.00	-251.88	0.00	251.88	1,549.22	774.61	1,867.15	922.11	0.29	-0.18	0.127
20.00	-18.64	-4.00	0.00	-231.31	0.00	231.31	1,524.70	762.35	1,783.98	881.04	0.52	-0.24	0.120
25.00	-17.66	-3.90	0.00	-211.29	0.00	211.29	1,498.98	749.49	1,701.17	840.14	0.80	-0.30	0.112
29.63	-16.77	-3.83	0.00	-193.25	0.00	193.25	1,474.07	737.04	1,624.90	802.48	1.12	-0.35	0.105
29.63	-16.77	-3.83	0.00	-193.25	0.00	193.25	1,474.07	737.04	1,624.90	802.48	1.12	-0.35	0.105
30.00	-16.70	-3.78	0.00	-191.83	0.00	191.83	1,472.04	736.02	1,618.83	799.48	1.15	-0.36	0.104
35.00	-15.74	-3.67	0.00	-172.92	0.00	172.92	1,443.89	721.95	1,537.10	759.12	1.55	-0.41	0.096
40.00	-14.80	-3.55	0.00	-154.59	0.00	154.59	1,414.54	707.27	1,456.10	719.12	2.01	-0.46	0.088
45.00	-13.87	-3.43	0.00	-136.84	0.00	136.84	1,383.97	691.99	1,375.97	679.54	2.53	-0.51	0.081
50.00	-12.95	-3.30	0.00	-119.71	0.00	119.71	1,352.19	676.10	1,296.83	640.45	3.09	-0.56	0.073
55.00	-12.04	-3.18	0.00	-103.19	0.00	103.19	1,319.21	659.60	1,218.80	601.92	3.70	-0.61	0.064
60.00	-11.14	-3.07	0.00	-87.31	0.00	87.31	1,282.07	641.04	1,139.41	562.71	4.36	-0.65	0.056
62.77	-10.65	-3.00	0.00	-78.81	0.00	78.81	1,254.29	627.14	1,090.28	538.45	4.74	-0.67	0.052
62.77	-10.65	-3.00	0.00	-78.81	0.00	78.81	855.95	427.98	748.44	369.63	4.74	-0.67	0.063
65.00	-10.29	-2.92	0.00	-72.12	0.00	72.12	847.38	423.69	727.65	359.36	5.06	-0.68	0.058
70.00	-9.49	-2.81	0.00	-57.51	0.00	57.51	827.29	413.64	681.30	336.47	5.79	-0.72	0.048
73.00	-7.45	-2.21	0.00	-49.08	0.00	49.08	814.65	407.33	653.71	322.84	6.25	-0.74	0.041
75.00	-7.14	-2.14	0.00	-44.66	0.00	44.66	805.98	402.99	635.42	313.81	6.56	-0.75	0.038
79.00	-6.54	-2.06	0.00	-36.10	0.00	36.10	788.07	394.03	599.12	295.88	7.20	-0.77	0.031
79.00	-6.54	-2.06	0.00	-36.10	0.00	36.10	788.07	394.03	599.12	295.88	7.20	-0.77	0.130
80.00	-6.46	-2.02	0.00	-34.03	0.00	34.03	783.47	391.73	590.11	291.44	7.36	-0.77	0.125
83.00	-6.07	-1.65	0.00	-27.96	0.00	27.96	769.38	384.69	563.27	278.18	7.87	-0.83	0.108
85.00	-5.92	-1.59	0.00	-24.67	0.00	24.67	759.75	379.87	545.53	269.42	8.22	-0.87	0.099
90.00	-5.53	-1.53	0.00	-16.73	0.00	16.73	734.81	367.41	501.78	247.81	9.17	-0.94	0.075
93.00	-5.22	-1.40	0.00	-12.14	0.00	12.14	716.07	358.03	473.88	234.03	9.77	-0.97	0.059
95.00	-5.07	-1.36	0.00	-9.33	0.00	9.33	701.02	350.51	454.06	224.24	10.18	-0.99	0.049
100.00	-0.02	0.00	0.00	0.00	0.00	0.00	663.41	331.70	406.37	200.69	11.24	-1.02	0.000
100.56	0.00	0.00	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	11.36	-1.02	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s	0.04
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.81
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	1.66
Total Unfactored Dead Load:	22.68 k
Seismic Base Shear (E):	0.84 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)
27	100.28	17	35	0.002	1	21
26	97.50	357	702	0.032	27	443
25	94.00	145	269	0.012	10	180
24	91.50	226	401	0.018	15	281
23	87.50	384	632	0.029	24	477
22	84.00	156	240	0.011	9	194
21	81.50	246	359	0.016	14	305
20	79.50	83	116	0.005	4	103
19	77.00	601	800	0.037	31	747
18	74.00	303	377	0.017	15	376
17	71.50	477	562	0.026	22	593
16	67.50	803	859	0.039	33	997
15	63.88	361	352	0.016	14	448
14	61.38	491	449	0.021	17	610
13	57.50	895	734	0.034	28	1,112
12	52.50	906	640	0.029	25	1,126
11	47.50	918	549	0.025	21	1,140
10	42.50	930	462	0.021	18	1,155
9	37.50	941	381	0.017	15	1,169
8	32.50	953	304	0.014	12	1,184
7	29.81	71	20	0.001	1	88
6	27.31	893	214	0.010	8	1,110
5	22.50	976	169	0.008	7	1,212

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

4	17.50	987	113	0.005	4	1,227
3	12.50	999	65	0.003	3	1,241
2	7.50	1,011	28	0.001	1	1,255
1	2.50	1,022	5	0.000	0	1,270
Kaelus DBC0061F1V51-	100.00	76	157	0.007	6	95
Commscope WCS-IMFQ-A	100.00	59	121	0.006	5	73
Powerwave Allgon LGP	100.00	85	174	0.008	7	105
Raycap DC6-48-60-18-	100.00	40	82	0.004	3	50
Ericsson RRUS 4478 B	100.00	178	366	0.017	14	221
Ericsson RRUS 11 (Ba	100.00	150	308	0.014	12	186
Ericsson RRUS 32 (50	100.00	152	313	0.014	12	189
Ericsson RRUS 32 B66	100.00	159	326	0.015	13	198
Ericsson RRUS 32 B2	100.00	159	326	0.015	13	198
10' Omni	100.00	25	51	0.002	2	31
Raycap DC6-48-60-18-	100.00	16	33	0.002	1	20
Powerwave Allgon 777	100.00	105	215	0.010	8	130
Commscope SBNHH-1D65	100.00	101	206	0.009	8	125
CCI OPA-65R-LCUU-H4	100.00	171	351	0.016	14	212
Kathrein Scala 80010	100.00	245	502	0.023	19	304
Heavy Platform w/ Ha	100.00	3,000	6,155	0.282	237	3,727
48" x 12" Panel	93.00	90	164	0.008	6	112
RFS APX86-909014L-CT	83.00	145	219	0.010	8	180
Kathrein Scala Smart	73.00	10	12	0.001	0	12
Ericsson KRY 112 489	73.00	46	56	0.003	2	57
RFS ATMAA1412D-1A20	73.00	39	48	0.002	2	48
Ericsson Radio 4449	73.00	222	270	0.012	10	276
RFS APX16DWV-16DWVS-	73.00	122	149	0.007	6	152
Round T-Arm	73.00	750	914	0.042	35	932
RFS APXVAARR24_43-U-	73.00	384	467	0.021	18	477
		22,681	21,823	1.000	841	28,175

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

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)
27	100.28	17	35	0.002	1	15
26	97.50	357	702	0.032	27	306
25	94.00	145	269	0.012	10	125
24	91.50	226	401	0.018	15	194
23	87.50	384	632	0.029	24	330
22	84.00	156	240	0.011	9	134
21	81.50	246	359	0.016	14	211
20	79.50	83	116	0.005	4	71
19	77.00	601	800	0.037	31	516
18	74.00	303	377	0.017	15	260
17	71.50	477	562	0.026	22	410
16	67.50	803	859	0.039	33	689
15	63.88	361	352	0.016	14	309
14	61.38	491	449	0.021	17	421
13	57.50	895	734	0.034	28	768
12	52.50	906	640	0.029	25	778
11	47.50	918	549	0.025	21	787
10	42.50	930	462	0.021	18	797
9	37.50	941	381	0.017	15	807
8	32.50	953	304	0.014	12	817
7	29.81	71	20	0.001	1	61
6	27.31	893	214	0.010	8	766
5	22.50	976	169	0.008	7	837
4	17.50	987	113	0.005	4	847
3	12.50	999	65	0.003	3	857

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

2	7.50	1,011	28	0.001	1	867
1	2.50	1,022	5	0.000	0	877
Kaelus DBC0061F1V51-	100.00	76	157	0.007	6	66
Commscope WCS-IMFQ-A	100.00	59	121	0.006	5	51
Powerwave Allgon LGP	100.00	85	174	0.008	7	73
Raycap DC6-48-60-18-	100.00	40	82	0.004	3	34
Ericsson RRUS 4478 B	100.00	178	366	0.017	14	153
Ericsson RRUS 11 (Ba	100.00	150	308	0.014	12	129
Ericsson RRUS 32 (50	100.00	152	313	0.014	12	131
Ericsson RRUS 32 B66	100.00	159	326	0.015	13	136
Ericsson RRUS 32 B2	100.00	159	326	0.015	13	136
10' Omni	100.00	25	51	0.002	2	21
Raycap DC6-48-60-18-	100.00	16	33	0.002	1	14
Powerwave Allgon 777	100.00	105	215	0.010	8	90
Commscope SBNHH-1D65	100.00	101	206	0.009	8	86
CCI OPA-65R-LCUU-H4	100.00	171	351	0.016	14	147
Kathrein Scala 80010	100.00	245	502	0.023	19	210
Heavy Platform w/ Ha	100.00	3,000	6,155	0.282	237	2,573
48" x 12" Panel	93.00	90	164	0.008	6	77
RFS APX86-909014L-CT	83.00	145	219	0.010	8	125
Kathrein Scala Smart	73.00	10	12	0.001	0	8
Ericsson KRY 112 489	73.00	46	56	0.003	2	40
RFS ATMAA1412D-1A20	73.00	39	48	0.002	2	33
Ericsson Radio 4449	73.00	222	270	0.012	10	190
RFS APX16DWV-16DWVS-	73.00	122	149	0.007	6	105
Round T-Arm	73.00	750	914	0.042	35	643
RFS APXVAARR24_43-U-	73.00	384	467	0.021	18	329
		22,681	21,823	1.000	841	19,455

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

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	-26.91	-0.84	0.00	-70.66	0.00	70.66	1,615.50	807.75	2,117.47	1,045.74	0.00	0.00	0.041
5.00	-25.65	-0.85	0.00	-66.44	0.00	66.44	1,594.62	797.31	2,034.02	1,004.53	0.01	-0.01	0.039
10.00	-24.41	-0.85	0.00	-62.20	0.00	62.20	1,572.52	786.26	1,950.54	963.30	0.03	-0.03	0.038
15.00	-23.18	-0.85	0.00	-57.95	0.00	57.95	1,549.22	774.61	1,867.15	922.11	0.07	-0.04	0.036
20.00	-21.97	-0.85	0.00	-53.69	0.00	53.69	1,524.70	762.35	1,783.98	881.04	0.12	-0.06	0.034
25.00	-20.86	-0.84	0.00	-49.44	0.00	49.44	1,498.98	749.49	1,701.17	840.14	0.18	-0.07	0.032
29.63	-20.77	-0.85	0.00	-45.53	0.00	45.53	1,474.07	737.04	1,624.90	802.48	0.26	-0.08	0.031
29.63	-20.77	-0.85	0.00	-45.53	0.00	45.53	1,474.07	737.04	1,624.90	802.48	0.26	-0.08	0.031
30.00	-19.59	-0.84	0.00	-45.22	0.00	45.22	1,472.04	736.02	1,618.83	799.48	0.26	-0.08	0.030
35.00	-18.42	-0.82	0.00	-41.04	0.00	41.04	1,443.89	721.95	1,537.10	759.12	0.35	-0.09	0.028
40.00	-17.26	-0.81	0.00	-36.93	0.00	36.93	1,414.54	707.27	1,456.10	719.12	0.46	-0.11	0.026
45.00	-16.12	-0.79	0.00	-32.90	0.00	32.90	1,383.97	691.99	1,375.97	679.54	0.58	-0.12	0.024
50.00	-15.00	-0.76	0.00	-28.97	0.00	28.97	1,352.19	676.10	1,296.83	640.45	0.71	-0.13	0.022
55.00	-13.88	-0.73	0.00	-25.16	0.00	25.16	1,319.21	659.60	1,218.80	601.92	0.85	-0.14	0.020
60.00	-13.27	-0.72	0.00	-21.49	0.00	21.49	1,282.07	641.04	1,139.41	562.71	1.01	-0.15	0.018
62.77	-12.83	-0.70	0.00	-19.50	0.00	19.50	1,254.29	627.14	1,090.28	538.45	1.10	-0.16	0.017
62.77	-12.83	-0.70	0.00	-19.50	0.00	19.50	855.95	427.98	748.44	369.63	1.10	-0.16	0.020
65.00	-11.83	-0.67	0.00	-17.93	0.00	17.93	847.38	423.69	727.65	359.36	1.17	-0.16	0.019
70.00	-11.24	-0.65	0.00	-14.59	0.00	14.59	827.29	413.64	681.30	336.47	1.34	-0.17	0.016
73.00	-8.91	-0.55	0.00	-12.65	0.00	12.65	814.65	407.33	653.71	322.84	1.45	-0.17	0.014
75.00	-8.16	-0.52	0.00	-11.55	0.00	11.55	805.98	402.99	635.42	313.81	1.53	-0.18	0.013
79.00	-8.06	-0.51	0.00	-9.47	0.00	9.47	788.07	394.03	599.12	295.88	1.68	-0.18	0.011
79.00	-8.06	-0.51	0.00	-9.47	0.00	9.47	788.07	394.03	599.12	295.88	1.68	-0.18	0.042
80.00	-7.75	-0.50	0.00	-8.96	0.00	8.96	783.47	391.73	590.11	291.44	1.72	-0.18	0.041
83.00	-7.38	-0.48	0.00	-7.45	0.00	7.45	769.38	384.69	563.27	278.18	1.84	-0.20	0.036
85.00	-6.90	-0.46	0.00	-6.49	0.00	6.49	759.75	379.87	545.53	269.42	1.92	-0.21	0.033
90.00	-6.62	-0.44	0.00	-4.19	0.00	4.19	734.81	367.41	501.78	247.81	2.15	-0.23	0.026
93.00	-6.33	-0.43	0.00	-2.85	0.00	2.85	716.07	358.03	473.88	234.03	2.30	-0.24	0.021
95.00	-5.88	-0.40	0.00	-2.00	0.00	2.00	701.02	350.51	454.06	224.24	2.40	-0.24	0.017
100.00	0.00	0.00	0.00	0.00	0.00	0.00	663.41	331.70	406.37	200.69	2.65	-0.24	0.000
100.56	0.00	0.00	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	2.68	-0.24	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

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	-18.58	-0.84	0.00	-69.81	0.00	69.81	1,615.50	807.75	2,117.47	1,045.74	0.00	0.00	0.038
5.00	-17.71	-0.85	0.00	-65.60	0.00	65.60	1,594.62	797.31	2,034.02	1,004.53	0.01	-0.01	0.036
10.00	-16.85	-0.85	0.00	-61.38	0.00	61.38	1,572.52	786.26	1,950.54	963.30	0.03	-0.03	0.035
15.00	-16.01	-0.85	0.00	-57.14	0.00	57.14	1,549.22	774.61	1,867.15	922.11	0.07	-0.04	0.033
20.00	-15.17	-0.84	0.00	-52.92	0.00	52.92	1,524.70	762.35	1,783.98	881.04	0.12	-0.05	0.031
25.00	-14.40	-0.84	0.00	-48.71	0.00	48.71	1,498.98	749.49	1,701.17	840.14	0.18	-0.07	0.029
29.63	-14.34	-0.84	0.00	-44.84	0.00	44.84	1,474.07	737.04	1,624.90	802.48	0.25	-0.08	0.028
29.63	-14.34	-0.84	0.00	-44.84	0.00	44.84	1,474.07	737.04	1,624.90	802.48	0.25	-0.08	0.028
30.00	-13.52	-0.83	0.00	-44.53	0.00	44.53	1,472.04	736.02	1,618.83	799.48	0.26	-0.08	0.028
35.00	-12.72	-0.81	0.00	-40.40	0.00	40.40	1,443.89	721.95	1,537.10	759.12	0.35	-0.09	0.026
40.00	-11.92	-0.80	0.00	-36.34	0.00	36.34	1,414.54	707.27	1,456.10	719.12	0.45	-0.11	0.024
45.00	-11.13	-0.78	0.00	-32.36	0.00	32.36	1,383.97	691.99	1,375.97	679.54	0.57	-0.12	0.022
50.00	-10.35	-0.75	0.00	-28.49	0.00	28.49	1,352.19	676.10	1,296.83	640.45	0.70	-0.13	0.020
55.00	-9.59	-0.72	0.00	-24.73	0.00	24.73	1,319.21	659.60	1,218.80	601.92	0.84	-0.14	0.018
60.00	-9.17	-0.71	0.00	-21.12	0.00	21.12	1,282.07	641.04	1,139.41	562.71	0.99	-0.15	0.016
62.77	-8.86	-0.69	0.00	-19.17	0.00	19.17	1,254.29	627.14	1,090.28	538.45	1.08	-0.15	0.015
62.77	-8.86	-0.69	0.00	-19.17	0.00	19.17	855.95	427.98	748.44	369.63	1.08	-0.15	0.018
65.00	-8.17	-0.66	0.00	-17.62	0.00	17.62	847.38	423.69	727.65	359.36	1.15	-0.16	0.017
70.00	-7.76	-0.64	0.00	-14.34	0.00	14.34	827.29	413.64	681.30	336.47	1.33	-0.17	0.014
73.00	-6.15	-0.54	0.00	-12.43	0.00	12.43	814.65	407.33	653.71	322.84	1.43	-0.17	0.012
75.00	-5.63	-0.51	0.00	-11.34	0.00	11.34	805.98	402.99	635.42	313.81	1.50	-0.17	0.011
79.00	-5.56	-0.51	0.00	-9.30	0.00	9.30	788.07	394.03	599.12	295.88	1.65	-0.18	0.010
79.00	-5.56	-0.51	0.00	-9.30	0.00	9.30	788.07	394.03	599.12	295.88	1.65	-0.18	0.038
80.00	-5.35	-0.49	0.00	-8.79	0.00	8.79	783.47	391.73	590.11	291.44	1.69	-0.18	0.037
83.00	-5.09	-0.48	0.00	-7.31	0.00	7.31	769.38	384.69	563.27	278.18	1.81	-0.20	0.033
85.00	-4.76	-0.45	0.00	-6.36	0.00	6.36	759.75	379.87	545.53	269.42	1.89	-0.20	0.030
90.00	-4.57	-0.44	0.00	-4.10	0.00	4.10	734.81	367.41	501.78	247.81	2.12	-0.22	0.023
93.00	-4.37	-0.42	0.00	-2.80	0.00	2.80	716.07	358.03	473.88	234.03	2.26	-0.23	0.018
95.00	-4.06	-0.39	0.00	-1.96	0.00	1.96	701.02	350.51	454.06	224.24	2.36	-0.24	0.015
100.00	0.00	0.00	0.00	0.00	0.00	0.00	663.41	331.70	406.37	200.69	2.61	-0.24	0.000
100.56	0.00	0.00	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	2.64	-0.24	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

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):	0.20
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}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.81
Redundancy Factor (ρ):	1.00

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)
27	100.28	17	1.879	1.925	1.120	0.398	5	21
26	97.50	357	1.777	1.435	0.938	0.328	78	443
25	94.00	145	1.651	0.947	0.742	0.249	24	180
24	91.50	226	1.565	0.674	0.623	0.198	30	281
23	87.50	384	1.431	0.345	0.464	0.128	33	477
22	84.00	156	1.319	0.147	0.353	0.078	8	194
21	81.50	246	1.241	0.047	0.287	0.047	8	305
20	79.50	83	1.181	-0.012	0.241	0.026	1	103
19	77.00	601	1.108	-0.065	0.192	0.005	2	747
18	74.00	303	1.023	-0.103	0.143	-0.015	-3	376
17	71.50	477	0.955	-0.118	0.110	-0.026	-8	593
16	67.50	803	0.852	-0.119	0.070	-0.034	-18	997
15	63.88	361	0.763	-0.104	0.044	-0.032	-8	448
14	61.38	491	0.704	-0.088	0.031	-0.026	-9	610
13	57.50	895	0.618	-0.059	0.017	-0.012	-7	1,112
12	52.50	906	0.515	-0.022	0.008	0.011	6	1,126
11	47.50	918	0.422	0.011	0.006	0.031	19	1,140
10	42.50	930	0.338	0.036	0.009	0.045	28	1,155
9	37.50	941	0.263	0.053	0.016	0.052	32	1,169
8	32.50	953	0.197	0.063	0.024	0.053	34	1,184
7	29.81	71	0.166	0.066	0.028	0.053	3	88
6	27.31	893	0.139	0.069	0.032	0.052	31	1,110
5	22.50	976	0.095	0.071	0.038	0.050	33	1,212
4	17.50	987	0.057	0.071	0.041	0.048	32	1,227
3	12.50	999	0.029	0.068	0.040	0.045	30	1,241
2	7.50	1,011	0.011	0.056	0.032	0.037	25	1,255
1	2.50	1,022	0.001	0.026	0.014	0.019	13	1,270
Kaelus DBC0061F1V51-	100.00	76	1.869	1.871	1.101	0.391	20	95
Commscope WCS-	100.00	59	1.869	1.871	1.101	0.391	15	73
Powerwave Allgon LGP	100.00	85	1.869	1.871	1.101	0.391	22	105
Raycap DC6-48-60-18-	100.00	40	1.869	1.871	1.101	0.391	10	50
Ericsson RRUS 4478 B	100.00	178	1.869	1.871	1.101	0.391	46	221
Ericsson RRUS 11 (Ba	100.00	150	1.869	1.871	1.101	0.391	39	186
Ericsson RRUS 32 (50	100.00	152	1.869	1.871	1.101	0.391	40	189

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

Ericsson RRUS 32 B66	100.00	159	1.869	1.871	1.101	0.391	41	198
Ericsson RRUS 32 B2	100.00	159	1.869	1.871	1.101	0.391	41	198
10' Omni	100.00	25	1.869	1.871	1.101	0.391	7	31
Raycap DC6-48-60-18-	100.00	16	1.869	1.871	1.101	0.391	4	20
Powerwave Allgon 777	100.00	105	1.869	1.871	1.101	0.391	27	130
Commscope SBNHH-	100.00	101	1.869	1.871	1.101	0.391	26	125
CCI OPA-65R-LCUU-H4	100.00	171	1.869	1.871	1.101	0.391	45	212
Kathrein Scala 80010	100.00	245	1.869	1.871	1.101	0.391	64	304
Heavy Platform w/ Ha	100.00	3,000	1.869	1.871	1.101	0.391	781	3,727
48" x 12" Panel	93.00	90	1.617	0.830	0.693	0.228	14	112
RFS APX86-909014L-CT	83.00	145	1.288	0.104	0.325	0.065	6	180
Kathrein Scala Smart	73.00	10	0.996	-0.111	0.129	-0.020	0	12
Ericsson KRY 112 489	73.00	46	0.996	-0.111	0.129	-0.020	-1	57
RFS ATMAA1412D-1A20	73.00	39	0.996	-0.111	0.129	-0.020	-1	48
Ericsson Radio 4449	73.00	222	0.996	-0.111	0.129	-0.020	-3	276
RFS APX16DWV-	73.00	122	0.996	-0.111	0.129	-0.020	-2	152
Round T-Arm	73.00	750	0.996	-0.111	0.129	-0.020	-10	932
RFS APXVAARR24_43-U-	73.00	384	0.996	-0.111	0.129	-0.020	-5	477
		22,681	60.082	35.514	25.197	8.213	1,649	28,175

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)
27	100.28	17	1.879	1.925	1.120	0.398	5	15
26	97.50	357	1.777	1.435	0.938	0.328	78	306
25	94.00	145	1.651	0.947	0.742	0.249	24	125
24	91.50	226	1.565	0.674	0.623	0.198	30	194
23	87.50	384	1.431	0.345	0.464	0.128	33	330
22	84.00	156	1.319	0.147	0.353	0.078	8	134
21	81.50	246	1.241	0.047	0.287	0.047	8	211
20	79.50	83	1.181	-0.012	0.241	0.026	1	71
19	77.00	601	1.108	-0.065	0.192	0.005	2	516
18	74.00	303	1.023	-0.103	0.143	-0.015	-3	260
17	71.50	477	0.955	-0.118	0.110	-0.026	-8	410
16	67.50	803	0.852	-0.119	0.070	-0.034	-18	689
15	63.88	361	0.763	-0.104	0.044	-0.032	-8	309
14	61.38	491	0.704	-0.088	0.031	-0.026	-9	421
13	57.50	895	0.618	-0.059	0.017	-0.012	-7	768
12	52.50	906	0.515	-0.022	0.008	0.011	6	778
11	47.50	918	0.422	0.011	0.006	0.031	19	787
10	42.50	930	0.338	0.036	0.009	0.045	28	797
9	37.50	941	0.263	0.053	0.016	0.052	32	807
8	32.50	953	0.197	0.063	0.024	0.053	34	817
7	29.81	71	0.166	0.066	0.028	0.053	3	61
6	27.31	893	0.139	0.069	0.032	0.052	31	766
5	22.50	976	0.095	0.071	0.038	0.050	33	837
4	17.50	987	0.057	0.071	0.041	0.048	32	847
3	12.50	999	0.029	0.068	0.040	0.045	30	857
2	7.50	1,011	0.011	0.056	0.032	0.037	25	867
1	2.50	1,022	0.001	0.026	0.014	0.019	13	877
Kaelus DBC0061F1V51-	100.00	76	1.869	1.871	1.101	0.391	20	66
Commscope WCS-	100.00	59	1.869	1.871	1.101	0.391	15	51
Powerwave Allgon LGP	100.00	85	1.869	1.871	1.101	0.391	22	73
Raycap DC6-48-60-18-	100.00	40	1.869	1.871	1.101	0.391	10	34
Ericsson RRUS 4478 B	100.00	178	1.869	1.871	1.101	0.391	46	153
Ericsson RRUS 11 (Ba	100.00	150	1.869	1.871	1.101	0.391	39	129
Ericsson RRUS 32 (50	100.00	152	1.869	1.871	1.101	0.391	40	131
Ericsson RRUS 32 B66	100.00	159	1.869	1.871	1.101	0.391	41	136

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

Ericsson RRUS 32 B2	100.00	159	1.869	1.871	1.101	0.391	41	136
10' Omni	100.00	25	1.869	1.871	1.101	0.391	7	21
Raycap DC6-48-60-18-	100.00	16	1.869	1.871	1.101	0.391	4	14
Powerwave Allgon 777	100.00	105	1.869	1.871	1.101	0.391	27	90
Commscope SBNHH-	100.00	101	1.869	1.871	1.101	0.391	26	86
CCI OPA-65R-LCUU-H4	100.00	171	1.869	1.871	1.101	0.391	45	147
Kathrein Scala 80010	100.00	245	1.869	1.871	1.101	0.391	64	210
Heavy Platform w/ Ha	100.00	3,000	1.869	1.871	1.101	0.391	781	2,573
48" x 12" Panel	93.00	90	1.617	0.830	0.693	0.228	14	77
RFS APX86-909014L-CT	83.00	145	1.288	0.104	0.325	0.065	6	125
Kathrein Scala Smart	73.00	10	0.996	-0.111	0.129	-0.020	0	8
Ericsson KRY 112 489	73.00	46	0.996	-0.111	0.129	-0.020	-1	40
RFS ATMAA1412D-1A20	73.00	39	0.996	-0.111	0.129	-0.020	-1	33
Ericsson Radio 4449	73.00	222	0.996	-0.111	0.129	-0.020	-3	190
RFS APX16DWV-	73.00	122	0.996	-0.111	0.129	-0.020	-2	105
Round T-Arm	73.00	750	0.996	-0.111	0.129	-0.020	-10	643
RFS APXVAARR24_43-U-	73.00	384	0.996	-0.111	0.129	-0.020	-5	329
		22,681	60.082	35.514	25.197	8.213	1,649	19,455

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

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	-26.90	-1.64	0.00	-149.91	0.00	149.91	1,615.50	807.75	2,117.47	1,045.74	0.00	0.00	0.077
5.00	-25.65	-1.63	0.00	-141.69	0.00	141.69	1,594.62	797.31	2,034.02	1,004.53	0.02	-0.03	0.074
10.00	-24.41	-1.61	0.00	-133.54	0.00	133.54	1,572.52	786.26	1,950.54	963.30	0.06	-0.06	0.071
15.00	-23.18	-1.59	0.00	-125.48	0.00	125.48	1,549.22	774.61	1,867.15	922.11	0.14	-0.09	0.068
20.00	-21.97	-1.57	0.00	-117.52	0.00	117.52	1,524.70	762.35	1,783.98	881.04	0.25	-0.12	0.065
25.00	-20.86	-1.54	0.00	-109.68	0.00	109.68	1,498.98	749.49	1,701.17	840.14	0.39	-0.15	0.062
29.63	-20.77	-1.55	0.00	-102.52	0.00	102.52	1,474.07	737.04	1,624.90	802.48	0.55	-0.18	0.060
29.63	-20.77	-1.55	0.00	-102.52	0.00	102.52	1,474.07	737.04	1,624.90	802.48	0.55	-0.18	0.060
30.00	-19.58	-1.52	0.00	-101.95	0.00	101.95	1,472.04	736.02	1,618.83	799.48	0.56	-0.18	0.059
35.00	-18.41	-1.49	0.00	-94.38	0.00	94.38	1,443.89	721.95	1,537.10	759.12	0.76	-0.21	0.056
40.00	-17.26	-1.47	0.00	-86.93	0.00	86.93	1,414.54	707.27	1,456.10	719.12	1.00	-0.24	0.053
45.00	-16.12	-1.45	0.00	-79.61	0.00	79.61	1,383.97	691.99	1,375.97	679.54	1.26	-0.26	0.050
50.00	-14.99	-1.44	0.00	-72.36	0.00	72.36	1,352.19	676.10	1,296.83	640.45	1.55	-0.29	0.046
55.00	-13.88	-1.45	0.00	-65.14	0.00	65.14	1,319.21	659.60	1,218.80	601.92	1.87	-0.32	0.043
60.00	-13.27	-1.46	0.00	-57.88	0.00	57.88	1,282.07	641.04	1,139.41	562.71	2.22	-0.35	0.040
62.77	-12.82	-1.47	0.00	-53.83	0.00	53.83	1,254.29	627.14	1,090.28	538.45	2.43	-0.36	0.038
62.77	-12.82	-1.47	0.00	-53.83	0.00	53.83	855.95	427.98	748.44	369.63	2.43	-0.36	0.045
65.00	-11.82	-1.49	0.00	-50.56	0.00	50.56	847.38	423.69	727.65	359.36	2.60	-0.37	0.043
70.00	-11.23	-1.49	0.00	-43.13	0.00	43.13	827.29	413.64	681.30	336.47	3.01	-0.40	0.038
73.00	-8.90	-1.50	0.00	-38.65	0.00	38.65	814.65	407.33	653.71	322.84	3.26	-0.41	0.034
75.00	-8.15	-1.50	0.00	-35.64	0.00	35.64	805.98	402.99	635.42	313.81	3.44	-0.42	0.031
79.00	-8.05	-1.50	0.00	-29.65	0.00	29.65	788.07	394.03	599.12	295.88	3.80	-0.44	0.027
79.00	-8.05	-1.50	0.00	-29.65	0.00	29.65	788.07	394.03	599.12	295.88	3.80	-0.44	0.110
80.00	-7.74	-1.49	0.00	-28.16	0.00	28.16	783.47	391.73	590.11	291.44	3.89	-0.44	0.107
83.00	-7.37	-1.48	0.00	-23.69	0.00	23.69	769.38	384.69	563.27	278.18	4.18	-0.49	0.095
85.00	-6.89	-1.45	0.00	-20.73	0.00	20.73	759.75	379.87	545.53	269.42	4.39	-0.52	0.086
90.00	-6.61	-1.42	0.00	-13.51	0.00	13.51	734.81	367.41	501.78	247.81	4.97	-0.58	0.064
93.00	-6.31	-1.38	0.00	-9.25	0.00	9.25	716.07	358.03	473.88	234.03	5.34	-0.61	0.048
95.00	-5.87	-1.30	0.00	-6.49	0.00	6.49	701.02	350.51	454.06	224.24	5.60	-0.62	0.037
100.00	0.00	0.00	0.00	0.00	0.00	0.00	663.41	331.70	406.37	200.69	6.26	-0.63	0.000
100.56	0.00	0.00	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	6.33	-0.63	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

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	-18.58	-1.64	0.00	-147.95	0.00	147.95	1,615.50	807.75	2,117.47	1,045.74	0.00	0.00	0.073
5.00	-17.71	-1.62	0.00	-139.75	0.00	139.75	1,594.62	797.31	2,034.02	1,004.53	0.02	-0.03	0.070
10.00	-16.85	-1.60	0.00	-131.63	0.00	131.63	1,572.52	786.26	1,950.54	963.30	0.06	-0.06	0.067
15.00	-16.00	-1.58	0.00	-123.61	0.00	123.61	1,549.22	774.61	1,867.15	922.11	0.14	-0.09	0.065
20.00	-15.17	-1.55	0.00	-115.72	0.00	115.72	1,524.70	762.35	1,783.98	881.04	0.25	-0.12	0.062
25.00	-14.40	-1.53	0.00	-107.96	0.00	107.96	1,498.98	749.49	1,701.17	840.14	0.39	-0.15	0.059
29.63	-14.34	-1.53	0.00	-100.90	0.00	100.90	1,474.07	737.04	1,624.90	802.48	0.54	-0.17	0.057
29.63	-14.34	-1.53	0.00	-100.90	0.00	100.90	1,474.07	737.04	1,624.90	802.48	0.54	-0.17	0.057
30.00	-13.52	-1.49	0.00	-100.33	0.00	100.33	1,472.04	736.02	1,618.83	799.48	0.55	-0.18	0.056
35.00	-12.71	-1.47	0.00	-92.86	0.00	92.86	1,443.89	721.95	1,537.10	759.12	0.75	-0.20	0.053
40.00	-11.91	-1.44	0.00	-85.53	0.00	85.53	1,414.54	707.27	1,456.10	719.12	0.98	-0.23	0.050
45.00	-11.13	-1.42	0.00	-78.33	0.00	78.33	1,383.97	691.99	1,375.97	679.54	1.24	-0.26	0.047
50.00	-10.35	-1.42	0.00	-71.21	0.00	71.21	1,352.19	676.10	1,296.83	640.45	1.53	-0.29	0.044
55.00	-9.58	-1.43	0.00	-64.12	0.00	64.12	1,319.21	659.60	1,218.80	601.92	1.85	-0.32	0.041
60.00	-9.16	-1.44	0.00	-56.99	0.00	56.99	1,282.07	641.04	1,139.41	562.71	2.19	-0.34	0.038
62.77	-8.85	-1.44	0.00	-53.01	0.00	53.01	1,254.29	627.14	1,090.28	538.45	2.39	-0.36	0.036
62.77	-8.85	-1.44	0.00	-53.01	0.00	53.01	855.95	427.98	748.44	369.63	2.39	-0.36	0.043
65.00	-8.16	-1.46	0.00	-49.79	0.00	49.79	847.38	423.69	727.65	359.36	2.56	-0.37	0.041
70.00	-7.75	-1.47	0.00	-42.49	0.00	42.49	827.29	413.64	681.30	336.47	2.96	-0.39	0.036
73.00	-6.14	-1.48	0.00	-38.09	0.00	38.09	814.65	407.33	653.71	322.84	3.21	-0.41	0.032
75.00	-5.62	-1.48	0.00	-35.12	0.00	35.12	805.98	402.99	635.42	313.81	3.38	-0.41	0.030
79.00	-5.55	-1.48	0.00	-29.21	0.00	29.21	788.07	394.03	599.12	295.88	3.74	-0.43	0.025
79.00	-5.55	-1.48	0.00	-29.21	0.00	29.21	788.07	394.03	599.12	295.88	3.74	-0.43	0.106
80.00	-5.34	-1.47	0.00	-27.74	0.00	27.74	783.47	391.73	590.11	291.44	3.83	-0.44	0.102
83.00	-5.08	-1.46	0.00	-23.33	0.00	23.33	769.38	384.69	563.27	278.18	4.12	-0.48	0.090
85.00	-4.75	-1.42	0.00	-20.42	0.00	20.42	759.75	379.87	545.53	269.42	4.33	-0.51	0.082
90.00	-4.56	-1.40	0.00	-13.29	0.00	13.29	734.81	367.41	501.78	247.81	4.89	-0.57	0.060
93.00	-4.36	-1.36	0.00	-9.11	0.00	9.11	716.07	358.03	473.88	234.03	5.26	-0.60	0.045
95.00	-4.05	-1.28	0.00	-6.39	0.00	6.39	701.02	350.51	454.06	224.24	5.51	-0.61	0.034
100.00	0.00	0.00	0.00	0.00	0.00	0.00	663.41	331.70	406.37	200.69	6.16	-0.62	0.000
100.56	0.00	0.00	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	6.24	-0.62	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA736470_C3_01

7/17/2018 9:20:00 AM

Customer: T-MOBILE

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	18.68	0.00	27.17	0.00	0.00	1338.79	0.00	0.61
0.9D + 1.6W	18.54	0.00	20.37	0.00	0.00	1315.32	0.00	0.60
1.2D + 1.0Di + 1.0Wi	4.06	0.00	47.60	0.00	0.00	306.35	0.00	0.15
(1.2 + 0.2Sds) * DL + E ELFM	0.84	0.00	26.91	0.00	0.00	70.66	79.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.64	0.00	26.90	0.00	0.00	149.91	79.00	0.11
(0.9 - 0.2Sds) * DL + E ELFM	0.84	0.00	18.58	0.00	0.00	69.81	79.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.64	0.00	18.58	0.00	0.00	147.95	79.00	0.11
1.0D + 1.0W	4.45	0.00	22.68	0.00	0.00	316.98	0.00	0.15

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Upper Termination Connectors				Lower Termination Connectors				Max Member		
			VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Pu (kip)	phiPn (kip)	Ratio
0.00	79.0	(4) SOL-#20 All Thre	327.5	9.8	16.8	55.2	12.0	5	12	0.0	12.0	0	0	221.8	330.5	0.671

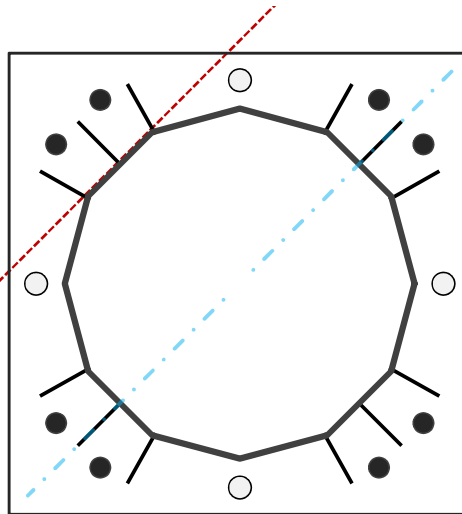
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	32	in
Thickness	0.25	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	1338.8	k-ft
Axial, Pu	27.2	k
Shear, Vu	18.7	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	48%	Pass
Anchor Rods	32%	Pass
Dwyidag	41%	Pass

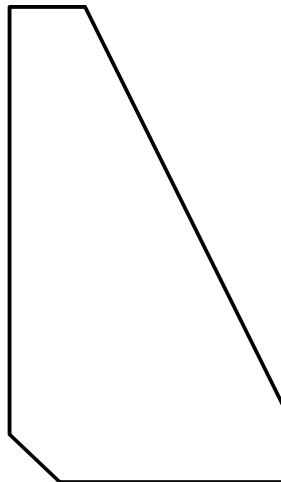
Base Plate		
Shape	Square	-
Width	44	in
Thickness	2	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	$\eta=0.55$
Clear Distance	N/A	in
Applied Moment, Mu	950.4	k
Bending Stress, ϕMn	1965.9	k



Dwyidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ϕ	2.5	in
Bracket Type	Angle	-
Circle	38.88	in
Orientation Offset	0	°
Applied Force, Pu	162.5	k
Dwyidag Bar, ϕPn	392.7	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ϕ	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	-
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	83.8	k
Anchor Rods, ϕPn	259.8	k

Stiffeners		
Arrangement	Cluster	-
Quantity	12	-
Height	10	in
Width	5.5	in
Effective Width	5.500	in
Thickness	1/2	in
Effective Thickness	0.500	in
Notch	1	in
Flat Edge	1.5	in
Grade	A36	-
Yield Strength, Fy	36	ksi
Tensile Strength, Fu	58	ksi
Horizontal Weld	Fillet	-
Horizontal Fillet Size	1/2	in
Bevel Depth	0	in
Vertical Weld	Fillet	-
Vertical Fillet Size	1/2	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	0	°
Vertical Weld, ϕRn	220.2	k
Horz. Weld, ϕRn	102.0	k
Ten. Capacity, ϕTn	72.9	k
Comp. Capacity, ϕPn	294.2	k



Individual Capacity Summary		
Component	Capacity	-
Base Plate	48%	Pass
Anchor Rods	32%	Pass
Dwyidag	41%	Pass
Bolt Group 1	-	-
Bolt Group 2	-	-
Stiffener Weld (V)	18%	Pass
Stiffener Weld (H)	40%	Pass
Stiffener Tension	26%	Pass
Stiffener Comp.	6%	Pass

Site Name:	Mlfd-Milford
Site Number:	302516
Engineering Number:	OAA736470_C3_01
Engineer:	Zachary.Mueller
Date:	7/17/2018

Design Base Loads (Factored) - Design per TIA-222-G Standard

Moment (Overturning) (M_u):	1338.8	k-ft
Shear/Leg (V_u):	18.7	k
Compression/Leg (P_u):	27.2	k
Uplift/Leg (T_u):	0.0	k
Tower Type (GT / SST / MP):	MP	
Length / Width of Block:	8.0	ft
Thickness of Block:	6.5	ft
Block Height Above Ground:	1.0	ft
Depth Below Ground Surface to Water Table (w):	99.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil:	130.0	pcf
Unit Weight of Water:	62.4	pcf
Ultimate Compressive Bearing Pressure:	50000	psf
Capacity Increase (Due to Transient Loads):	1.00	
Pullout Angle:	45.0	degrees
Rod Diameter:	2.25	in
Rod Ultimate Strength:	100	ksi
Rod Net Area:	2.65	in ²
Number of Rods:	16	
Diameter of Cored Hole:	3.50	in
Ultimate Grout / Rock Interface Bond Strength:	150	psi
Ultimate Grout / Rock Anchor Interface Bond Strength:	450	psi
Overall Rod Embedment Length:	72	in
Rod Exposure Above Lock Off Nut in Foundation:	0	in
Rod Embedment Circle:	84	in
Free Stress Length:	0	in
Soil / Concrete Friction Coefficient:	0.30	
Rock Anchor Design Plastic or Elastic:	Plastic	
Ignore Pullout Weight Resistance (Y/N):	Y	
Weight of Concrete (Buoyancy Effect Considered):	62.4	k
Compressive Bearing Resistance:	2513.3	k
Pullout Weight / Rod:		k - Ignored
Rock / Grout Bond Strength / Rod:	118.8	k
Grout / Rod Bond Strength / Rod:	229.0	k
Rod Mechanical Strength / Rod:	60.0	k
Soil Strength Reduction Factor (ϕ_s):	0.75	
Factored Nominal Moment Capacity per Leg ($\phi_s M_n$):	1665.0	k
Factored Nominal Uplift Capacity per Leg ($\phi_s T_n$):	1501.6	k
Factored Nominal Compressive Capacity per Leg ($\phi_s P_n$):	1885.0	k
Factored Nominal Shear Capacity per Leg ($\phi_s V_n$):	1908.0	k
M_u :	1460.2	k-ft
T_u :	0.0	k
P_u :	35.6	k
V_u :	18.7	k
$T_u/\phi_s T_n + M_u/\phi_s M_n$:	0.88	Result: OK
$P_u/\phi_s P_n$:	0.02	Result: OK
$V_u/\phi_s V_n$:	0.01	Result: OK

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	4000 psi
Vertical Steel Rebar Size #:	11
Vertical Steel Rebar Area:	1.56 in ²
# of Vertical Steel Rebars:	52 Minimum # of vertical rebar met
Vertical Steel Rebar Yield Strength (F_y):	60 ksi
Horizontal Tie / Stirrup Size #:	4
Horizontal Tie / Stirrup Area:	0.20 in ²
Horizontal Tie / Stirrup Spacing:	12.0 in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	40 ksi
Rod Bearing Plate Diameter:	8.0 in
Rod Bearing Plate Thickness:	1.0 in
Anchor Bearing Plate Yield Strength:	36 ksi
Anchor Rod Nut Diameter:	4.00 in
Rebar Cage Diameter:	88.0 in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75 ACI318-05 - 9.3.2.3
Strength Compression/Bearing Reduction Factor ($\phi_{P/B}$):	0.65 ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000 ksi
Design Moment (M_u):	1460.2 k-ft
Factored Nominal Moment Capacity ($\phi_B M_n$):	15706.9 k-ft - ACI318-05 - 10.2
$M_u / \phi_B M_n$:	0.09 Result: OK
Design Shear (V_u):	315.7 k
Factored Nominal Shear Capacity ($\phi_V V_n$):	673.9 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u / \phi_V V_n$:	0.47 Result: OK
Design Tension (T_u):	0.0 k
Factored Nominal Tension Capacity ($\phi_T T_n$):	4380.5 k - ACI318-05 - 10.2
$T_u / \phi_T T_n$:	0.00 Result: OK
Design Compression (P_u):	27.2 k
Factored Nominal Compression Capacity ($\phi_P P_n$):	14886.8 k - ACI318-05 - 10.3.6.2
$P_u / \phi_P P_n$:	0.00 Result: OK

Bearing Plate Design

Plate Bearing Design Load (P_u):	39.5 k
Plate Shear Design Load (V_u):	39.5 k
Factored Rod Bearing Plate Capacity of a Single Anchor ($\phi_B P_n$):	204.6 k
Bearing Plate Pressure:	1.0 ksi
Plate Design Moment (M_u):	11.4 k-in
Critical Length:	5.63 in
Plastic Modulus:	1.41 in ³
Factored Nominal Plate Flexural Resistance ($\phi_B M_n$):	45.6 k-in
Factored Nominal Plate Shear Resistance ($\phi_V V_n$):	244.3 k
Factored Punch Shear Capacity Resisting Plate Load ($\phi_P P_n$):	514.4 k - ACI318-05 - 11.11.2.1
Interaction Equation:	0.25 Result: OK



AMERICAN TOWER®
CORPORATION

Structural Evaluation	
ATC Site Number & Name	302516, Mlfd - Milford, CT
Carrier Site Number & Name	CT11318F, CT11318F Transcend -JD DR
Site Location	438 Bridgeport Ave Milford, CT 06460-4105, New Haven County 41.20661111 N / 73.0934 W
Tower Description	100.6 ft Monopole
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" ice
Code	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code

Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
104.0	104.0	2	Commscope WCS-IMFQ-AMT	Platform w/ Handrails	(12) 1 5/8" Coax (3) 3" conduit (6) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk (1) 2" conduit	AT&T Mobility
		2	Raycap DC6-48-60-18-8F			
		6	Powerwave LGP21401			
		1	Raycap DC6-48-60-18-8C			
		3	Ericsson RRUS 4478 B14			
		3	Ericsson RRUS 11 (Band 12)			
		3	Ericsson RRUS 32			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS 32 B66			
		3	Powerwave 7770.00			
		3	Commscope SBNHH-1D65A			
		3	CCI OPA-65R-LCUU-H4			
		3	Kathrein 80010964			
	102.0	3	Kaelus DBC0061F1V51-2			
100.0	100.0	1	10' Omni	Platform w/ Handrails	-	Other
93.0	93.0	3	48" x 12" Panel	Flush	(6) 7/8" Coax	Sprint Nextel
83.0	83.0	6	RFS APX86-909014L-CT0-00	Flush	(9) 7/8" Coax	
73.0	73.0	3	Kathrein Smart Bias Tee	T-Arm	(18) 7/8" Coax	T-Mobile
		3	Ericsson KRY 112 489/2			

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
73.0	73.0	3	RFS APX16PV-16PVL-A	-	-	T-Mobile
		3	Commscope LNX-6515DS-VTM			
		3	RFS ATMAA1412D-1A20			

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
73.0	73.0	6	Ericsson KRY 112 144/2	T-Arm	(1) 1 1/4" Fiber	T-Mobile
		3	Ericsson Radio 4449 B12,B71			
		3	RFS APX16DWV-16DWVS-E-A20			
		3	RFS APXVAARR24_43-U-NA20			

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

Install proposed coax inside of the pole shaft.

The existing and proposed loads listed in the tables above are compared to the tower's current design capacity or previous structural analysis. The tower should be re-evaluated as future loads are added or if actual loads are found different from those listed in the tables. The subject tower and foundation **are adequate** to support the above stated loads in conformance with specified requirements.

GDH/MBB



Authorized by "EOR"

Sep 7 2018 4:40 PM



Structural Analysis Report

Antenna Mount Analysis

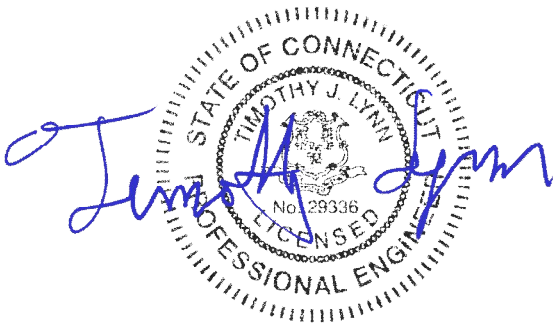
T-Mobile Site #: CT11318F

*438 Bridgeport Ave
Milford, CT 06460*

Centek Project No. 18058.70

Date: June 18, 2018

Max Stress Ratio = 86.5%



Prepared for:

*T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002*

Table of Contents

SECTION 1 – REPORT

- ANTENNA AND APPURTENANCE SUMMARY
- STRUCTURE LOADING
- CONCLUSION

SECTION 2 – CALCULATIONS

- WIND LOAD ON APPURTENANCES
- RISA3D OUTPUT REPORT

SECTION 3 – REFERENCE MATERIALS (NOT INCLUDED WITHIN REPORT)

- RF DATA SHEET, DATED 5/11/2018

June 18, 2018

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: *Structural Letter ~ Antenna Mount*
T-Mobile – Site Ref: CT11318F
438 Bridgeport Ave
Milford, CT 06460

Centek Project No. 18058.70

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing mount, consisting of three (3) 12-ft T-Arms to support the equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2012 International Building Code as modified by the 2016 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

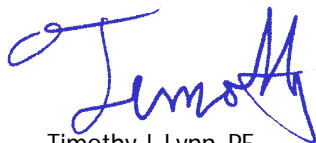
- T-Mobile:
T-Arms: Three (3) RFS APXVAARR24-43-NA20 panel antennas, three (3) RFS APX16DWV-16DWVS panel antennas, nine (9) TMAs and three (3) Ericsson 4449 B71_B12 remote radio units mounted on three (3) T-Arms with a RAD center elevation of 73-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2012 International Building Code as modified by the 2016 Connecticut State Building Code considering a nominal design wind speed of 97 mph for Milford as required in Appendix N of the 2016 Connecticut State Building Code.

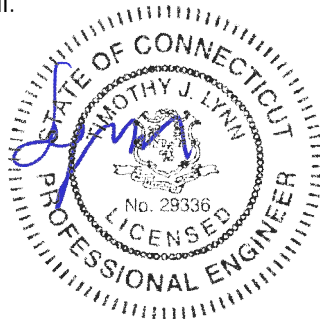
A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the subject antenna mount has sufficient capacity to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer



CEN TEK Engineering, Inc.
Structural Analysis – Mount Analysis
T-Mobile Site Ref. ~ CT11318F
Milford, CT
June 18, 2018

Section 2 - Calculations

**Development of Design Heights, Exposure Coefficients,
 and Velocity Pressures Per TIA-222-G**

Wind Speeds

Basic Wind Speed $V := 97$ mph (User Input - 2016 CSBC Appendix N)
 Basic Wind Speed with Ice $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type = Structure_Type := Pole (User Input)
 Structure Category = SC := II (User Input)
 Exposure Category = Exp := B (User Input)
 Structure Height = h := 100 ft (User Input)
 Height to Center of Antennas = $z_{Ant} := 73$ ft (User Input)
 Radial Ice Thickness = $t_i := 0.75$ in (User Input per Annex B of TIA-222-G)
 Radial Ice Density = $\rho_d := 56.00$ pcf (User Input)
 Topographic Factor = $K_{zt} := 1.0$ (User Input)
 $K_a := 1.0$ (User Input)
 Gust Response Factor = $G_H := 1.1$ (User Input)

Output

Wind Direction Probability Factor = $K_d := \begin{cases} 0.95 & \text{if Structure_Type = Pole} \\ 0.85 & \text{if Structure_Type = Lattice} \end{cases} = 0.95$ (Per Table 2-2 of TIA-222-G)

Importance Factors = $I_{Wind} := \begin{cases} 0.87 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.15 & \text{if SC = 3} \end{cases} = 1$ (Per Table 2-3 of TIA-222-G)

$I_{Wind_w_Ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.00 & \text{if SC = 3} \end{cases} = 1$

$I_{ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.25 & \text{if SC = 3} \end{cases} = 1$

$$K_{iz} := \left(\frac{z_{Ant}}{33} \right)^{0.1} = 1.083$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.624$$

Velocity Pressure Coefficient Antennas =

$$K_{z_{Ant}} := 2.01 \left(\frac{z_{Ant}}{z_g} \right)^{\frac{2}{\alpha}} = 0.903$$

Velocity Pressure w/o Ice Antennas =

$$q_{z_{Ant}} := 0.00256 \cdot K_d \cdot K_{z_{Ant}} \cdot V^2 \cdot I_{Wind} = 20.669$$

Velocity Pressure with Ice Antennas =

$$q_{z_{ice.Ant}} := 0.00256 \cdot K_d \cdot K_{z_{Ant}} \cdot V_i^2 \cdot I_{Wind} = 5.492$$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPXVAARR24-43	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 95.9$	in (User Input)
Antenna Width =	$W_{ant} := 24$	in (User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in (User Input)
Antenna Weight =	$WT_{ant} := 153$	lbs (User Input)
Number of Antennas =	$N_{ant} := 1$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$	
Antenna Force Coefficient =	$Ca_{ant} = 1.27$	

Wind Load (without ice)

Surface Area for One Antenna = $SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$ sf

Total Antenna Wind Force = $F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 460$ lbs

Surface Area for One Antenna = $SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$ sf

Total Antenna Wind Force = $F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 167$ lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice = $SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 18.8$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 144$ lbs

Surface Area for One Antenna w/ Ice = $SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.2$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 63$ lbs

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 153$ lbs

Gravity Loads (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz})(T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 397$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 397$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPX16DWV-16DWVS-E-A20
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 55.9$ in (User Input)
Antenna Width =	$W_{ant} := 13$ in (User Input)
Antenna Thickness =	$T_{ant} := 3.15$ in (User Input)
Antenna Weight =	$WT_{ant} := 41$ lbs (User Input)
Number of Antennas =	$N_{ant} := 1$ (User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.3$
Antenna Force Coefficient =	$Ca_{ant} = 1.28$

Wind Load (without ice)

Surface Area for One Antenna = $SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$ sf

Total Antenna Wind Force = $F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 147$ lbs

Surface Area for One Antenna = $SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.2$ sf

Total Antenna Wind Force = $F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 36$ lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice = $SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.7$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 52$ lbs

Surface Area for One Antenna w/ Ice = $SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 2.6$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 20$ lbs

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 41$ lbs

Gravity Loads (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2289$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 3859$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 125$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 125$ lbs

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	Ericsson KRY112 TMA
TMA Shape =	Flat (User Input)
TMA Height =	$L_{TMA} := 7.7$ in (User Input)
TMA Width =	$W_{TMA} := 7.5$ in (User Input)
TMA Thickness =	$T_{TMA} := 3.4$ in (User Input)
TMA Weight =	$W_{TMA} := 11$ lbs (User Input)
Number of TMA's =	$N_{TMA} := 1$ (User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1$
TMA Force Coefficient =	$Ca_{TMA} = 1.2$

Wind Load (without ice)

Surface Area for One TMA = $SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.4$ sf

Total TMA Wind Force = $F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 11$ lbs

Surface Area for One TMA = $SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.2$ sf

Total TMA Wind Force = $F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 5$ lbs

Wind Load (with ice)

Surface Area for One TMA w/ Ice = $SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 0.8$ sf

Total TMA Wind Force w/ Ice = $F_{iTMA} := qz_{ice} \cdot Ant \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 6$ lbs

Surface Area for One TMA w/ Ice = $SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 0.5$ sf

Total TMA Wind Force w/ Ice = $F_{iTMA} := qz_{ice} \cdot Ant \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 4$ lbs

Gravity Load (without ice)

Weight of All TMA's = $W_{TMA} \cdot N_{TMA} = 11$ lbs

Gravity Loads (ice only)

Volume of Each TMA = $V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 196$ cu in

Volume of Ice on Each TMA = $V_{ice} := (L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 586$ cu in

Weight of Ice on Each TMA = $W_{ICETMA} := \frac{V_{ice}}{1728} \cdot \rho_d = 19$ lbs

Weight of Ice on All TMA's = $W_{ICETMA} \cdot N_{TMA} = 19$ lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model =	Ericsson 4449 B71B12
RRUS Shape =	Flat (User Input)
RRUS Height =	$L_{RRUS} := 14.9$ in (User Input)
RRUS Width =	$W_{RRUS} := 13.2$ in (User Input)
RRUS Thickness =	$T_{RRUS} := 10.4$ in (User Input)
RRUS Weight =	$W_{T_{RRUS}} := 74$ lbs (User Input)
Number of RRUSs =	$N_{RRUS} := 1$ (User Input)
RRUS Aspect Ratio =	$A_{r_{RRUS}} := \frac{L_{RRUS}}{W_{RRUS}} = 1.1$
RRUS Force Coefficient =	$C_{a_{RRUS}} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.4$ sf

Total RRUS Wind Force = $F_{RRUS} := qZ_{Ant} \cdot G_H \cdot C_{a_{RRUS}} \cdot K_a \cdot SA_{RRUSF} = 37$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qZ_{Ant} \cdot G_H \cdot C_{a_{RRUS}} \cdot K_a \cdot SA_{RRUSS} = 29$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.1$ sf

Total RRUS Wind Force w/ Ice = $F_{i_{RRUS}} := qZ_{ice} \cdot Ant \cdot G_H \cdot C_{a_{RRUS}} \cdot K_a \cdot SA_{ICERRUSF} = 15$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.7$ sf

Total RRUS Wind Force w/ Ice = $F_{i_{RRUS}} := qZ_{ice} \cdot Ant \cdot G_H \cdot C_{a_{RRUS}} \cdot K_a \cdot SA_{ICERRUSS} = 12$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $W_{T_{RRUS}} \cdot N_{RRUS} = 74$ lbs

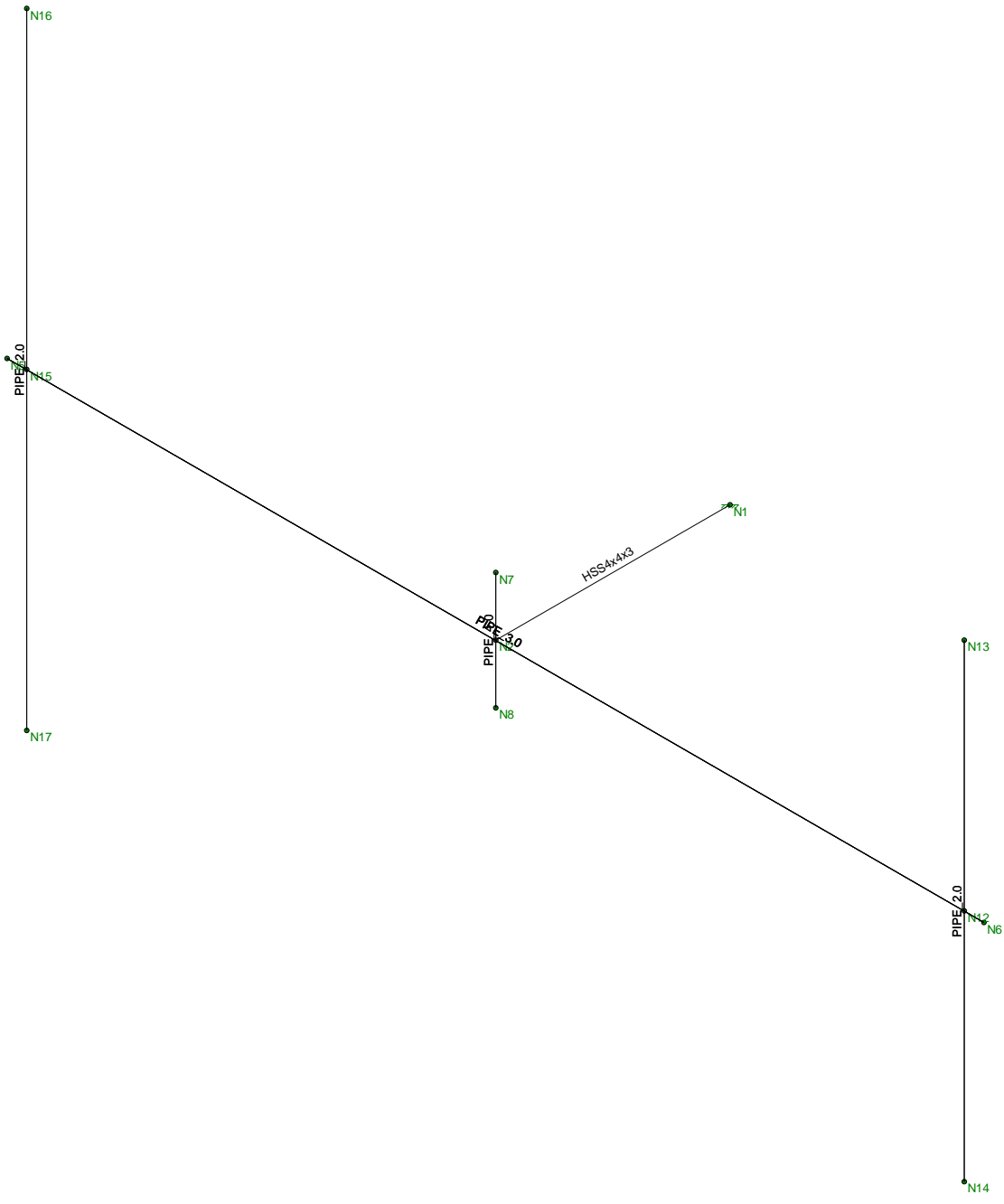
Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2045$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz})(T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2028$

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot \rho_d = 66$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 66$ lbs



Envelope Only Solution

Centek	CT11318F - Mount Member Framing	
TJL		June 18, 2018 at 5:28 PM
18058.70		Mount.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building AISC 14th(360-10): ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Outrigger	HSS4x4x3	Beam	Tube	A500 Gr.46	Typical	2.58	6.21	6.21	10
2	Horz	PIPE 3.0	Beam	Pipe	A36 Gr.36	Typical	2.07	2.85	2.85	5.69
3	Antenna Mast	PIPE 2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
4	Vert	PIPE 4.0	Beam	Pipe	A53 Grade B	Typical	2.96	6.82	6.82	13.6

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Outrigger	3			Lbyy						Lateral
2	M2	Horz	12.5			Lbyy						Lateral
3	M3	Vert	1.5			Lbyy						Lateral
4	M6	Antenna Mast	6			Lbyy						Lateral
5	M7	Antenna Mast	8			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N2			Outrigger	Beam	Tube	A500 Gr...	Typical
2	M2	N5	N6			Horz	Beam	Pipe	A36 Gr.36	Typical
3	M3	N7	N8			Vert	Beam	Pipe	A53 Gra...	Typical
4	M6	N14	N13			Antenna Mast	Beam	Pipe	A53 Gra...	Typical
5	M7	N17	N16			Antenna Mast	Beam	Pipe	A53 Gra...	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	0	0	3	0	
3	N5	-6.25	0	3	0	
4	N6	6.25	0	3	0	
5	N7	0	.75	3	0	
6	N8	0	-.75	3	0	
7	N12	6	0	3	0	
8	N13	6	3	3	0	
9	N14	6	-3	3	0	
10	N15	-6	0	3	0	
11	N16	-6	4	3	0	
12	N17	-6	-4	3	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M7	Y	-.077	1



Member Point Loads (BLC 2 : Equipment Weight) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	M7	Y	-.077	7
3	M6	Y	-.021	1
4	M6	Y	-.021	5
5	M7	Y	-.074	6
6	M7	Y	-.011	5
7	M6	Y	-.011	4

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M7	Y	-.199	1
2	M7	Y	-.199	7
3	M6	Y	-.063	1
4	M6	Y	-.063	5
5	M7	Y	-.066	6
6	M7	Y	-.019	5
7	M6	Y	-.019	4

Member Point Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M7	X	.032	1
2	M7	X	.032	7
3	M6	X	.01	1
4	M6	X	.01	5
5	M7	X	.012	6
6	M7	X	.004	5
7	M6	X	.004	4

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M7	X	.084	1
2	M7	X	.084	7
3	M6	X	.018	1
4	M6	X	.018	5
5	M7	X	.029	6
6	M7	X	.005	5
7	M6	X	.005	4

Member Point Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M7	Z	.072	1
2	M7	Z	.072	7
3	M6	Z	.026	1
4	M6	Z	.026	5

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M7	Z	.23	1
2	M7	Z	.23	7
3	M6	Z	.074	1



Member Point Loads (BLC 7 : Wind Z) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
4	M6	Z	.074	5

Member Distributed Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.002	.002	0	0
2	M3	X	.002	.002	0	0
3	M7	X	.002	.002	0	0
4	M6	X	.002	.002	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.008	.008	0	0
2	M3	X	.008	.008	0	0
3	M7	X	.008	.008	0	0
4	M6	X	.008	.008	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	.002	.002	0	0
2	M3	Z	.002	.002	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	.008	.008	0	0
2	M3	Z	.008	.008	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...Surface(...
1	Self Weight	DL		-1					
2	Equipment Weight	None					7		
3	Ice Weight	None					7		
4	Wind w/ Ice X	None					7	4	
5	Wind X	None					7	4	
6	Wind w/ Ice Z	None					4	2	
7	Wind Z	None					4	2	

Load Combinations

	Description	Sol..	PD..	SR..	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
1	1.2D + 1.6..	Yes	Y		1	1.2	2	1.2	5	1.6			
2	0.9D + 1.6..	Yes	Y		1	.9	2	.9	5	1.6			
3	1.2D + 1.0..	Yes	Y		1	1.2	2	1.2	3	1	4	1	
4	1.2D + 1.6..	Yes	Y		1	1.2	2	1.2	7	1.6			
5	0.9D + 1.6..	Yes	Y		1	.9	2	.9	7	1.6			
6	1.2D + 1.0..	Yes	Y		1	1.2	2	1.2	3	1	6	1	

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	0	4	1.192	6	0	1	-1.234	2	-.414	3	-.956	2
2		min	-.626	1	.423	2	-1.152	4	-3.533	6	-2.98	4	-3.435	6
3	Totals:	max	0	4	1.192	6	0	1						
4		min	-.626	1	.423	2	-1.152	4						

Envelope Joint Displacements

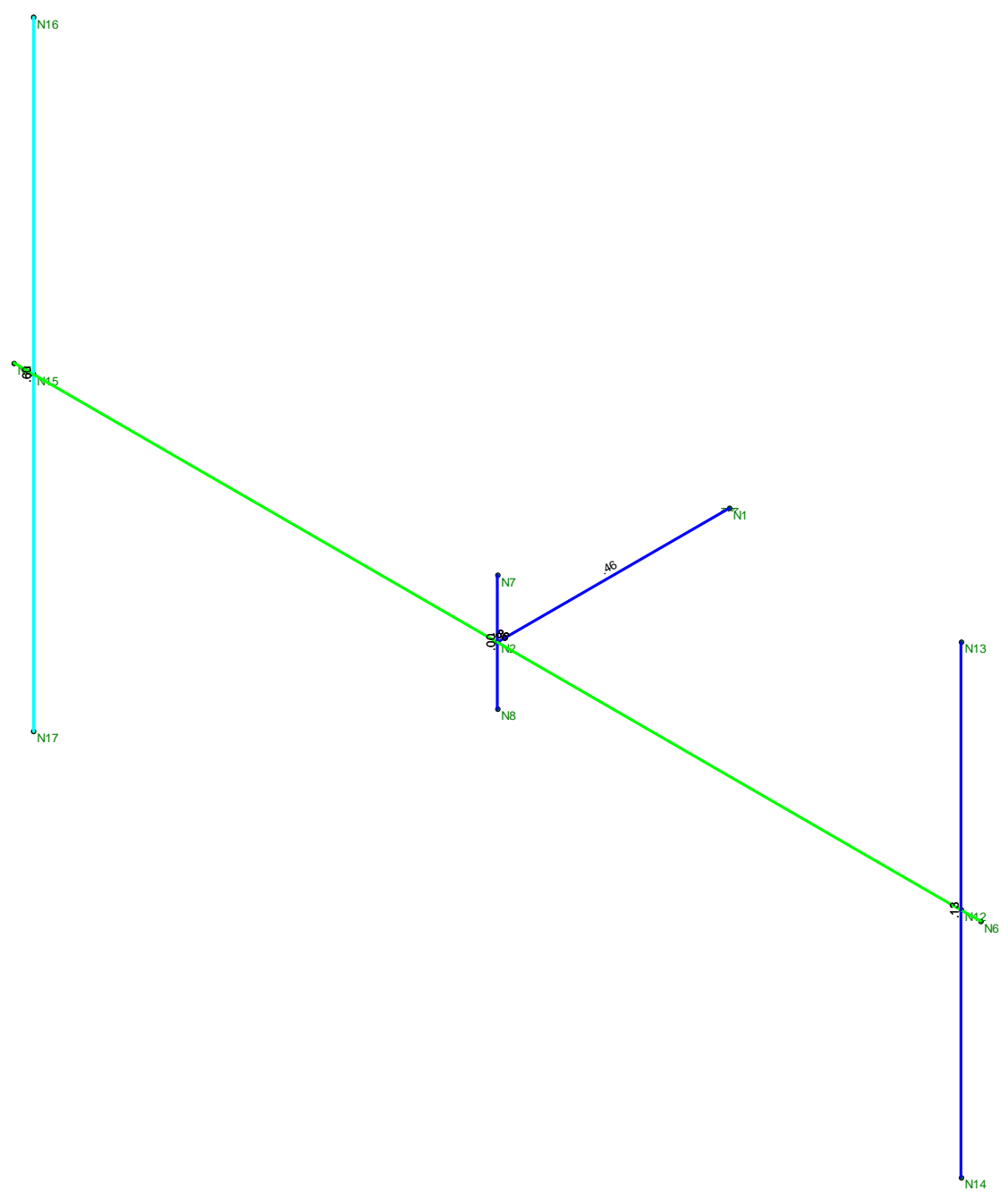
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...]	LC	Y Rotation [...]	LC	Z Rotation [...]	LC
1	N1	max	0	1	0	2	0	4	0	6	0	4	0	6
2		min	0	4	0	6	0	1	0	2	0	3	0	2
3	N2	max	.161	4	-.045	2	0	4	5.283e-03	6	8.958e-03	4	1.331e-02	6
4		min	.015	3	-.13	6	0	1	1.833e-03	2	6.169e-04	3	3.702e-03	2
5	N5	max	.161	4	-.793	2	2.212	4	5.364e-03	6	3.894e-02	4	4.577e-02	6
6		min	.015	3	-2.79	6	.046	3	1.837e-03	2	6.192e-04	3	1.251e-02	2
7	N6	max	.161	4	.357	6	-.01	6	5.288e-03	6	2.698e-03	1	3.401e-03	6
8		min	.015	3	.063	2	-.203	1	1.833e-03	2	-1.459e-03	5	4.22e-04	2
9	N7	max	.125	5	-.045	2	.048	6	5.283e-03	6	8.958e-03	4	1.331e-02	6
10		min	-.104	3	-.13	6	.016	2	1.833e-03	2	6.169e-04	3	3.701e-03	2
11	N8	max	.21	4	-.045	2	-.016	5	5.282e-03	6	8.958e-03	4	1.33e-02	6
12		min	.1	2	-.13	6	-.047	3	1.833e-03	2	6.169e-04	3	3.703e-03	2
13	N12	max	.161	4	.347	6	-.011	6	5.288e-03	6	2.698e-03	1	3.401e-03	6
14		min	.015	3	.062	2	-.195	1	1.833e-03	2	-1.459e-03	5	4.22e-04	2
15	N13	max	.129	5	.347	6	.194	6	5.82e-03	6	2.698e-03	1	3.411e-03	6
16		min	-.094	3	.062	2	-.129	2	1.835e-03	2	-1.459e-03	5	-7.584e-04	2
17	N14	max	.203	4	.347	6	-.137	5	5.266e-03	3	2.698e-03	1	3.557e-03	3
18		min	.114	2	.062	2	-.283	1	-4.967e-04	5	-1.459e-03	5	8.77e-04	5
19	N15	max	.161	4	-.755	2	2.096	4	5.364e-03	6	3.894e-02	4	4.577e-02	6
20		min	.015	3	-2.652	6	.045	3	1.837e-03	2	6.192e-04	3	1.251e-02	2
21	N16	max	-.23	2	-.755	2	2.816	4	1.909e-02	4	3.894e-02	4	4.668e-02	6
22		min	-2.196	6	-2.653	6	.286	2	1.848e-03	2	6.192e-04	3	4.252e-03	2
23	N17	max	2.238	3	-.755	2	2.594	5	5.238e-03	3	3.894e-02	4	4.652e-02	3
24		min	.834	5	-2.653	6	-.208	3	-1.443e-02	5	6.192e-04	3	1.4e-02	5

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

Member	Shape	Code Check	Loc...	LC	Shea..	Loc.....	L...phi*Pn...	phi*Pn...	phi*M...	phi*M...	Eqn			
1	M1	HSS4x4x3	.459	0	6	.365	0	y	6	103.013	106.812	12.662	12.662	1..H3-6
2	M2	PIPE_3.0	.865	6.25	4	.046	6.25	4	28.372	67.068	5.913	5.913	1..H1-1b	
3	M3	PIPE_4.0	.000	.75	4	.000	.75	4	92.571	93.24	10.631	10.631	1..H1-1b	
4	M6	PIPE_2.0	.128	3	4	.012	3	4	20.867	32.13	1.872	1.872	1..H1-1b	
5	M7	PIPE_2.0	.600	4	4	.038	4	4	14.916	32.13	1.872	1.872	1..H1-1b	

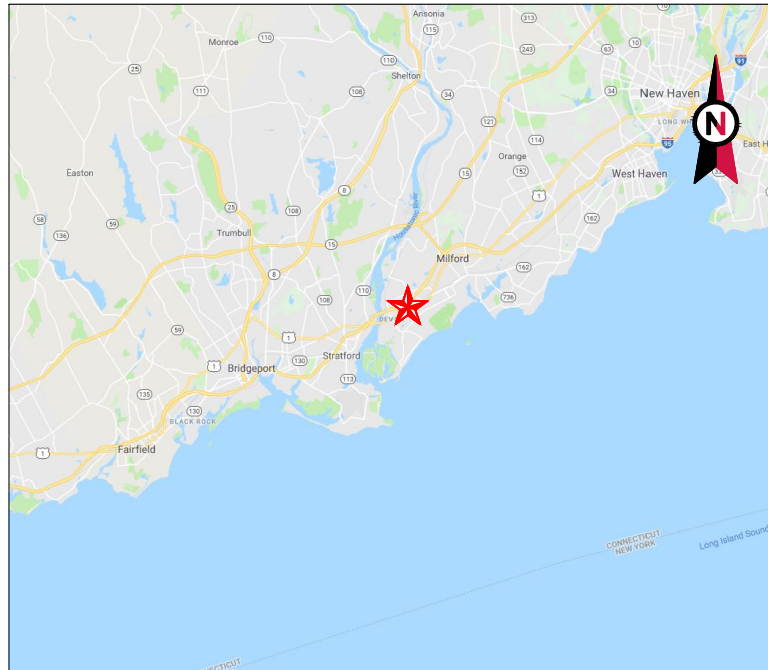


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek	CT11318F - Mount Unity Check	
TJL		June 18, 2018 at 5:28 PM
18058.70		Mount.r3d



VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: MLFD - MILFORD
 ATC SITE NUMBER: 302516
 T-MOBILE SITE ID: CT11318F
 SITE ADDRESS: 438 BRIDGEPORT AVE
 MILFORD, CT 06460



LOCATION MAP

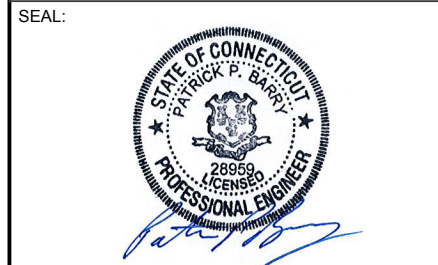
**T-MOBILE ANTENNA AMENDMENT
 67D04B HYBRID CONFIGURATION**

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	MG	08/29/18
1	UPDATED ANTENNA/TTA	MG	09/17/18
2	REMOVED DIPLEXERS	MG	10/10/18

ATC SITE NUMBER:
302516
 ATC SITE NAME:
MLFD - MILFORD
 SITE ADDRESS:
 438 BRIDGEPORT AVE
 MILFORD, CT 06460



Authorized by "EOR"
 Nov 2 2018 4:55 PM **cosign**



DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	08/29/18
ATC JOB NO:	12607174

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	2

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES. 1. INTERNATIONAL BUILDING CODE (IBC) 2. NATIONAL ELECTRIC CODE (NEC) 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u> 438 BRIDGEPORT AVE MILFORD, CT 06460 COUNTY: NEW HAVEN <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.20661111 LONGITUDE: -73.0934 GROUND ELEVATION: 77' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: REMOVE (3) PANELS INSTALL (3) NEW PANELS, (3) TTAs, (3) RRUs, AND (1) 1-1/4" HYBRID CABLES EXISTING (3) PANELS, (6) TTAs, AND (18) 7/8" COAX CABLES TO REMAIN	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
		PROJECT NOTES 1. THE FACILITY IS UNMANNED. 2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. 3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. 4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. 5. HANDICAP ACCESS IS NOT REQUIRED.	G-001	TITLE SHEET	2	10/10/18	MG
<u>UTILITY COMPANIES</u> POWER COMPANY: UNITED ILLUMINATING PHONE: (203) 787-7662 TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (800) 376-6843	<u>PROJECT TEAM</u> <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 <u>ENGINEER:</u> ATC TOWER SERVICES, LLC 3500 REGENCY PKWY STE 100 CARY, NC 27518 <u>PROPERTY OWNER:</u> DONNA WOLNIAKOWSKI 438 BRIDGEPORT AVE MILFORD, CT 06460	PROJECT LOCATION DIRECTIONS FROM BRIDGEPORT, CT: HEAD EAST ON FAIRFIELD AVE TOWARD MIDDLE ST/CONTINUE ONTO STRATFORD AVE/TURN RIGHT ONTO SEAVIEW AVE/TURN LEFT TO MERGE ONTO I-95 N/TAKE EXIT 34 TOWARD US-1/TURN LEFT ONTO BRIDGEPORT AVE DESTINATION WILL BE ON THE LEFT	G-002	GENERAL NOTES	0	08/29/18	MG
		C-101 DETAILED SITE PLAN & TOWER ELEVATION C-501 ANTENNA INFORMATION & SCHEDULE E-501 GROUNDING DETAILS R-601 SUPPLEMENTAL	C-101	0	08/29/18	MG	
			C-501	2	10/10/18	MG	
			E-501	0	08/29/18	MG	
			R-601				



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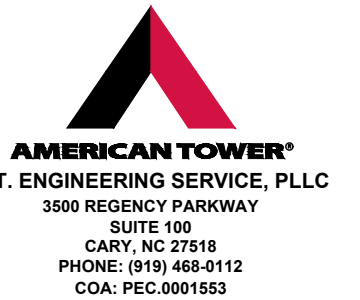
GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSIEA/ITIA-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.



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

ATC SITE NUMBER:

302516

ATC SITE NAME:

MLFD - MILFORD

SITE ADDRESS:

438 BRIDGEPORT AVE
MILFORD, CT 06460

SEAL:



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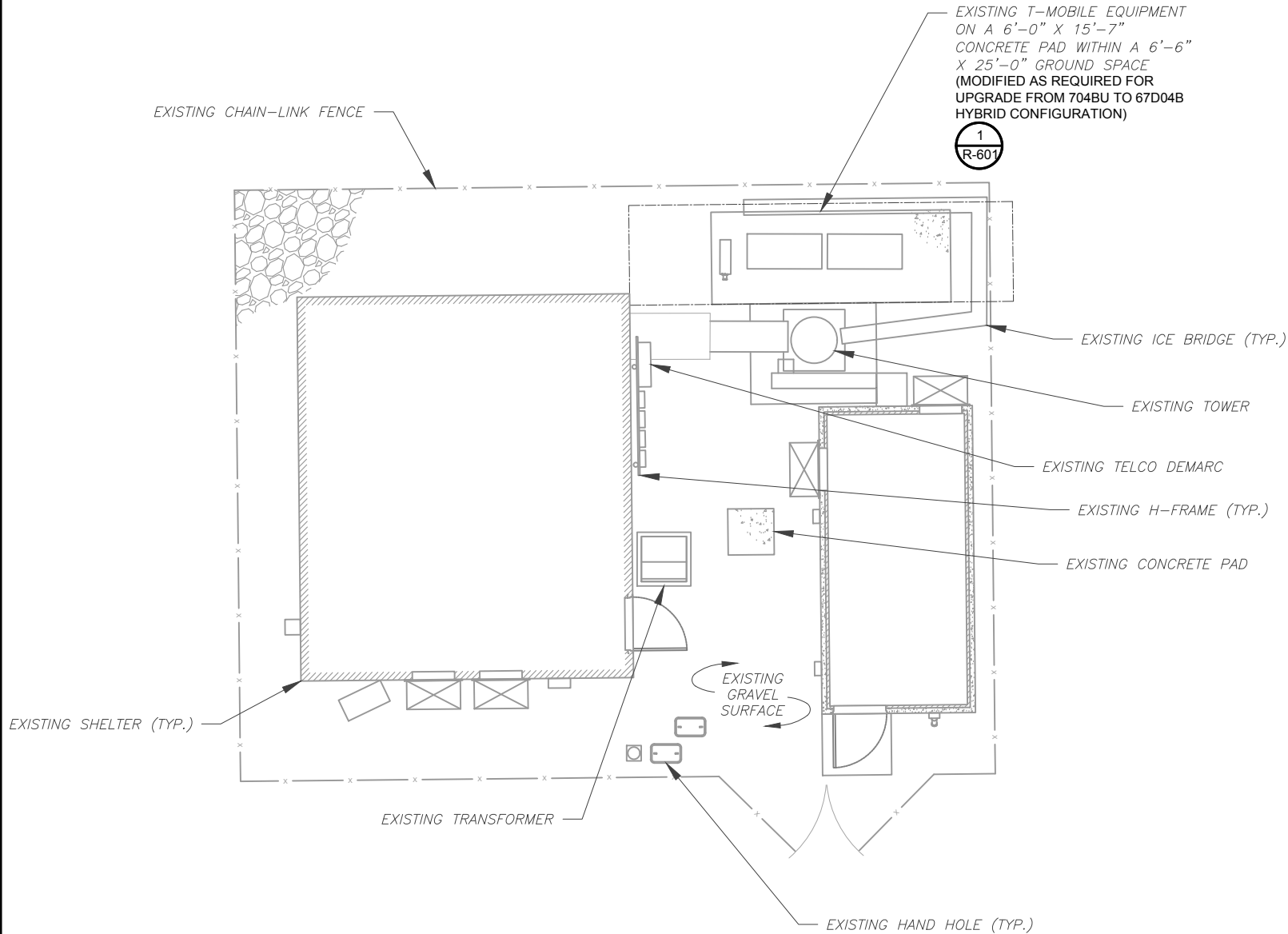
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APPROVED BY:	PPB
DATE DRAWN:	08/29/18
ATC JOB NO:	12607174

GENERAL NOTES

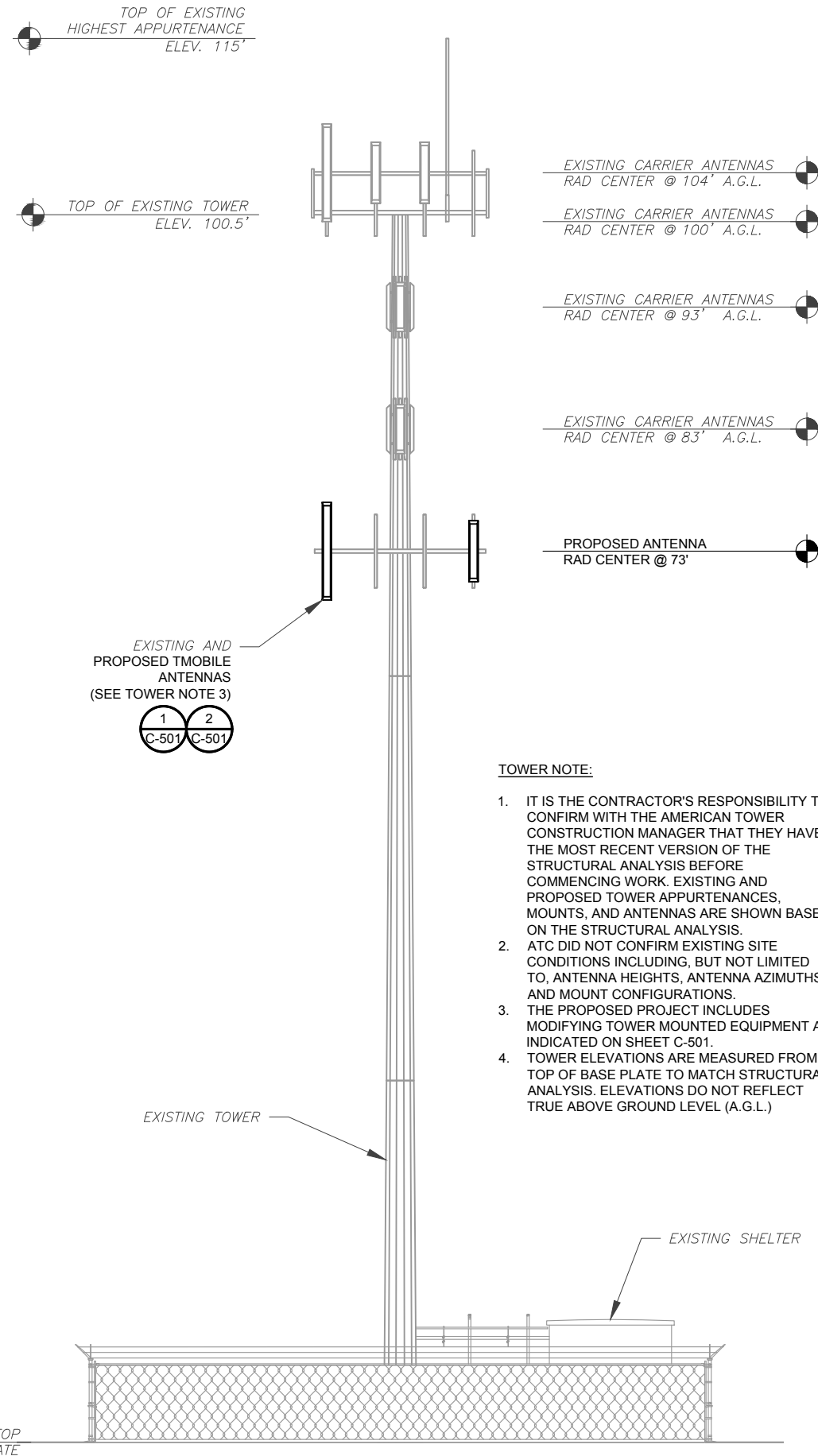
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G-002	0

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)



2 TOWER ELEVATION
 SCALE: NOT TO SCALE

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 (A.G.L.)

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

ATC SITE NUMBER:
302516

ATC SITE NAME:
MLFD - MILFORD

SITE ADDRESS:
 438 BRIDGEPORT AVE
 MILFORD, CT 06460

SEAL:

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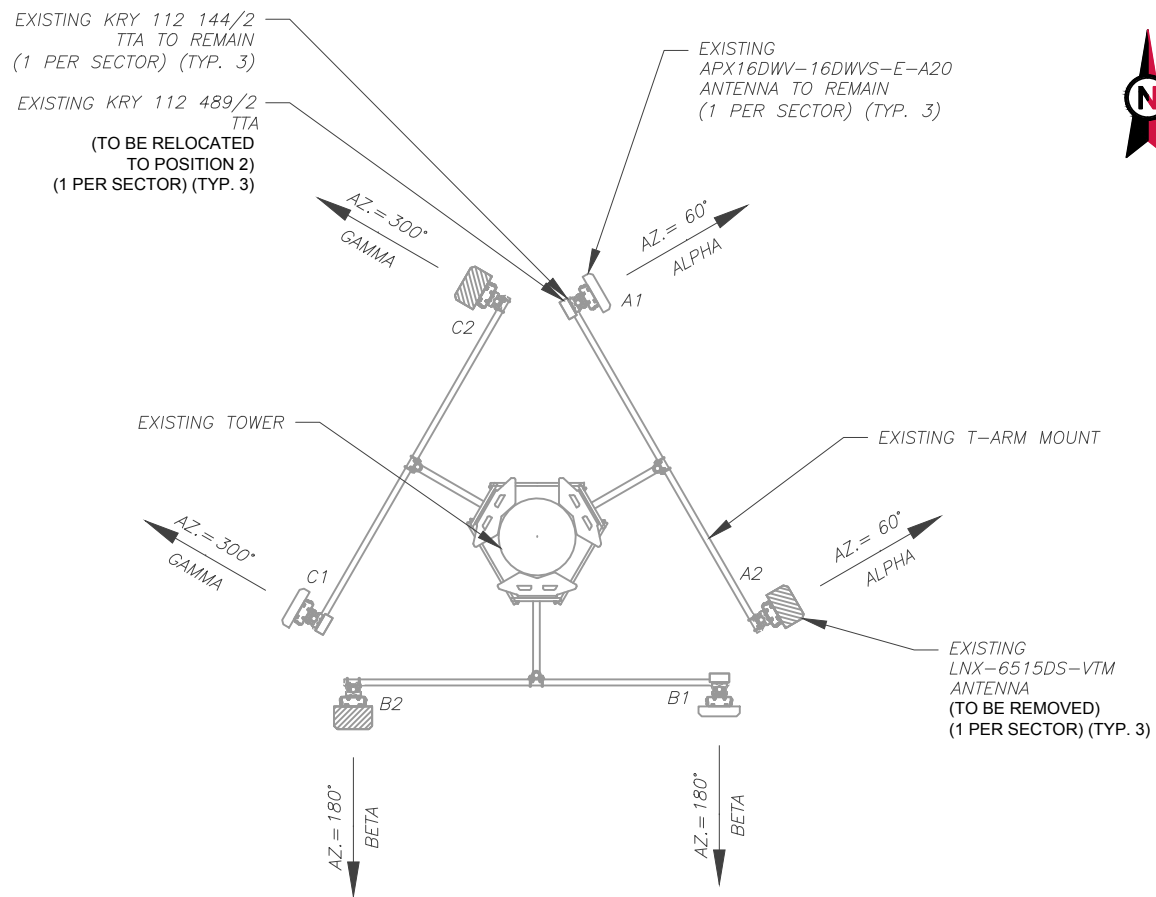


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DATE DRAWN:	08/29/18
ATC JOB NO:	12607174

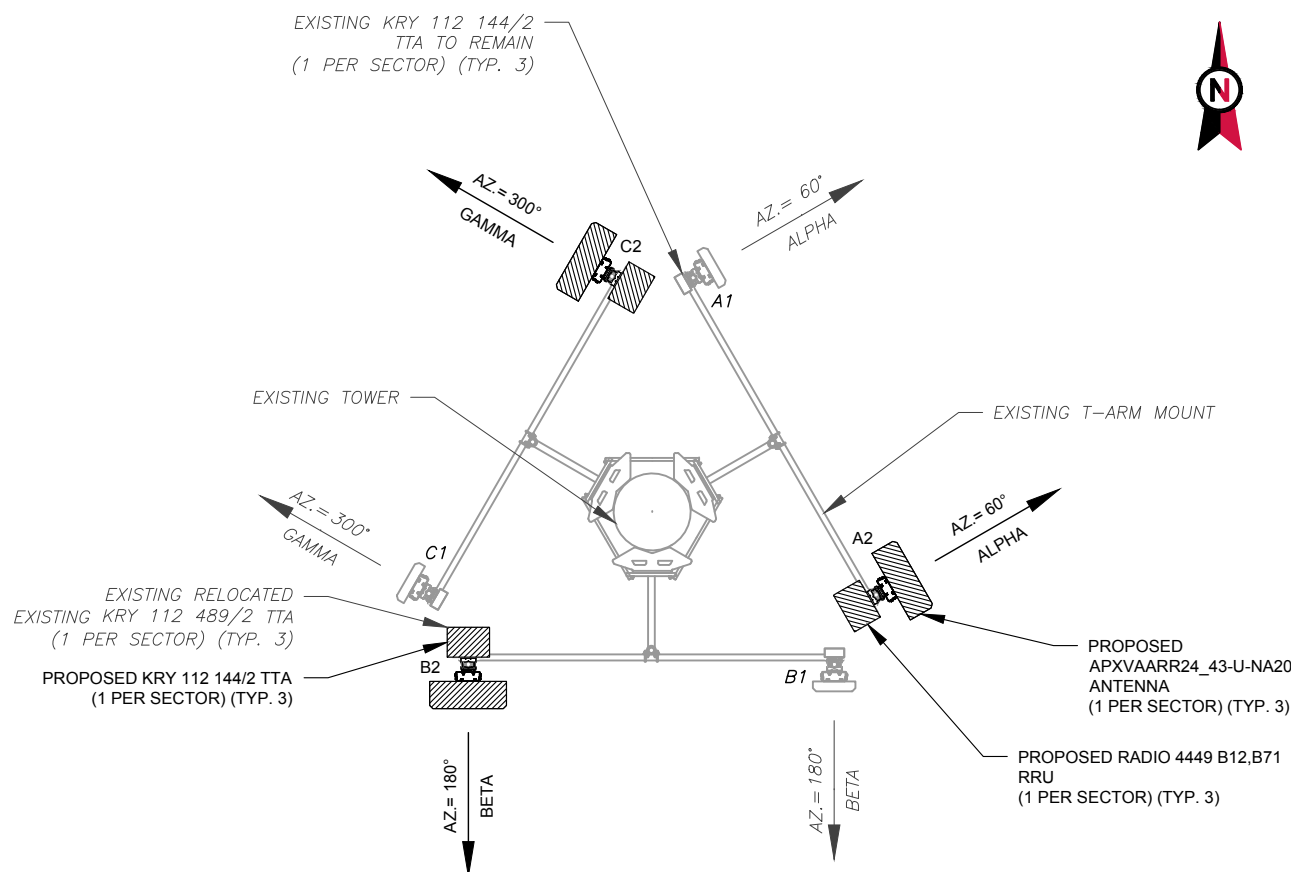
DETAILED SITE PLAN & TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-101	0

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1 EXISTING ANTENNA PLAN



2 FINAL 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.

- 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	APX16DWV-16DWVS-E-A20	73'-0"	60°	0°	7',4"	KRY 112 489/2 KRY 112 144/2	(4) 7/8"
ALPHA	A2	LN-6515DS-VTM	73'-0"	60°	0°	2"	-	(2) 7/8"
BETA	B1	APX16DWV-16DWVS-E-A20	73'-0"	180°	0°	7',4"	KRY 112 489/2 KRY 112 144/2	(4) 7/8"
BETA	B2	LN-6515DS-VTM	73'-0"	180°	0°	2"	-	(2) 7/8"
GAMMA	C1	APX16DWV-16DWVS-E-A20	73'-0"	300°	0°	6"	KRY 112 489/2 KRY 112 144/2	(4) 7/8"
GAMMA	C2	LN-6515DS-VTM	73'-0"	300°	0°	2"	-	(2) 7/8"

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	APX16DWV-16DWVS-E-A20	73'-0"	60°	-	-	KRY 112 144/2	(2) 7/8"
ALPHA	A2	APXVAARR24_43-U-NA20	73'-0"	60°	-	-	RADIO 4449 B12,B71 KRY 112 144/2 KRY 112 489/2	(4) 7/8"
BETA	B1	APX16DWV-16DWVS-E-A20	73'-0"	180°	-	-	KRY 112 144/2	(2) 7/8"
BETA	B2	APXVAARR24_43-U-NA20	73'-0"	180°	-	-	RADIO 4449 B12,B71 KRY 112 144/2 KRY 112 489/2	(4) 7/8"
GAMMA	C1	APX16DWV-16DWVS-E-A20	73'-0"	300°	-	-	KRY 112 144/2	(2) 7/8"
GAMMA	C2	APXVAARR24_43-U-NA20	73'-0"	300°	-	-	RADIO 4449 B12,B71 KRY 112 144/2 KRY 112 489/2	(4) 7/8"

- BASED ON APPROVED ATC APPLICATION OAA736470, DATED 07-03-2018. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.
- (3) PROPOSED 1-1/4" HYBRID CABLES (120±)

3 ANTENNA SCHEDULE

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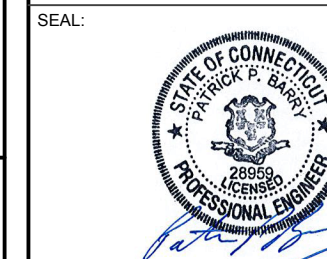
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	08/29/18
1	UPDATED ANTENNA/TTA	MG	09/17/18
2	REMOVED DIPLEXERS	MG	10/10/18

ATC SITE NUMBER:
302516

ATC SITE NAME:
MLFD - MILFORD

SITE ADDRESS:
 438 BRIDGEPORT AVE
 MILFORD, CT 06460



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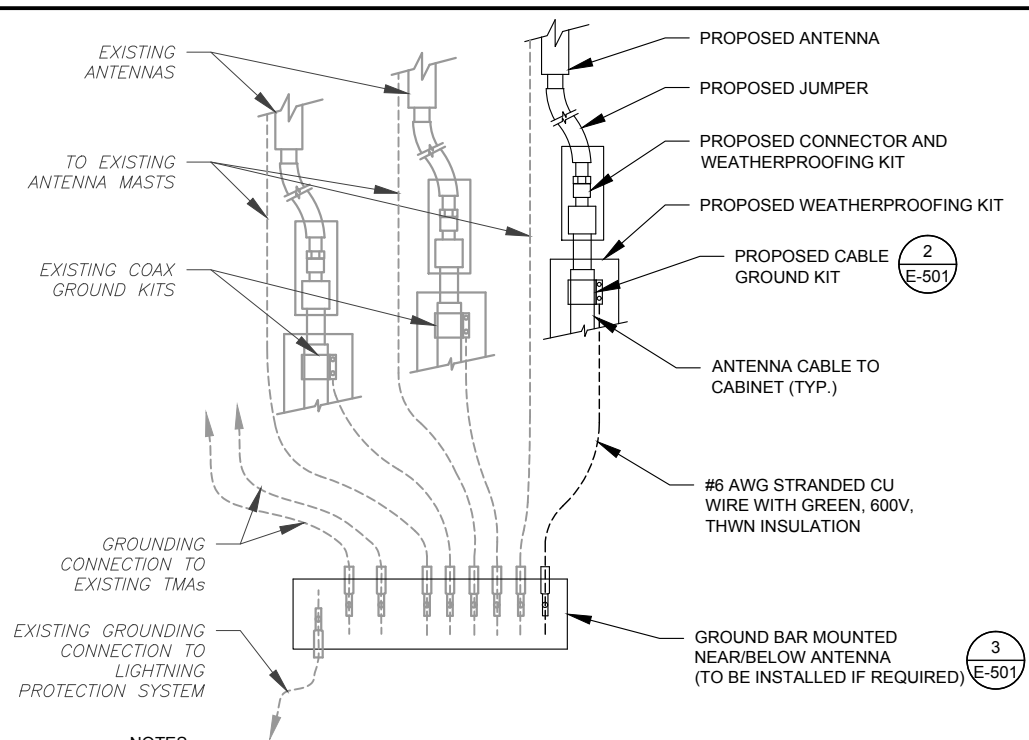


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DATE DRAWN:	08/29/18
ATC JOB NO:	12607174

ANTENNA INFORMATION & SCHEDULE

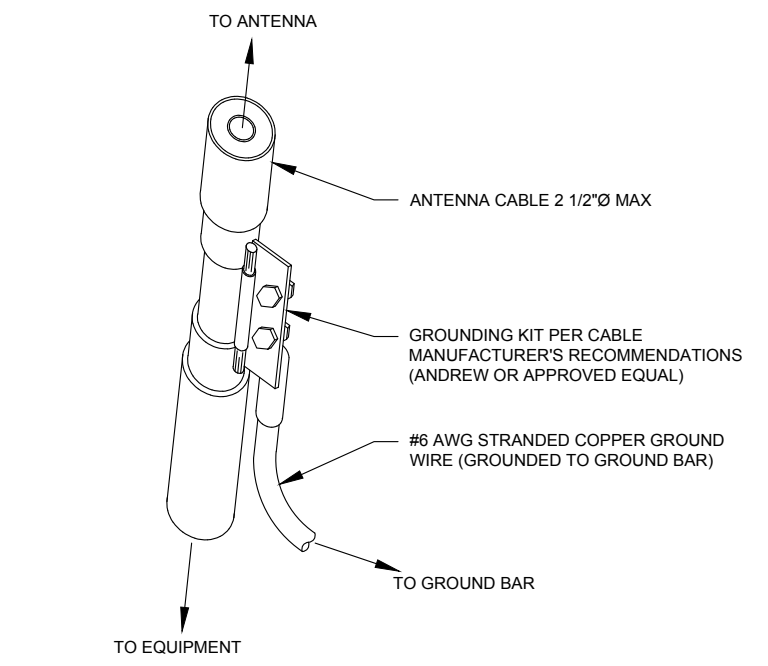
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REVISION:
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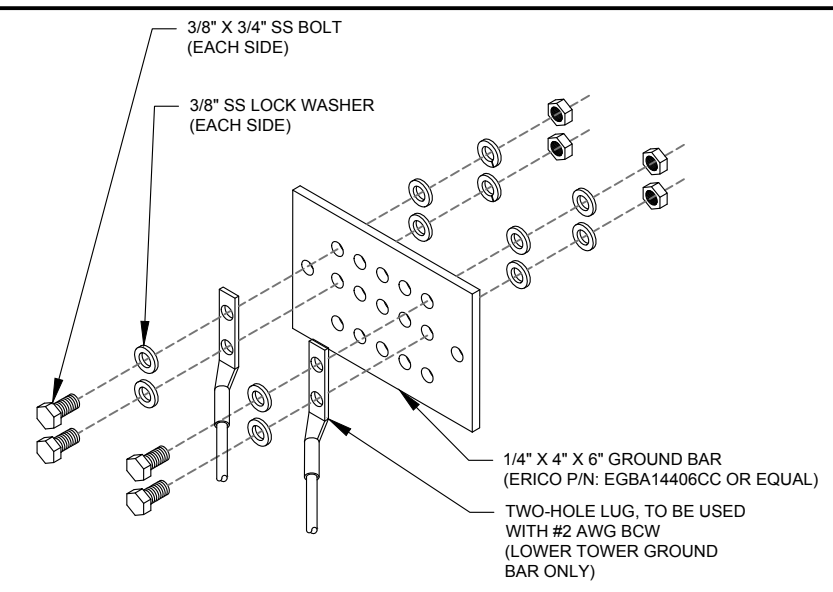
- NOTES:**
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
 2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE 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

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MILFORD, CT 06460

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GROUNDING DETAILS

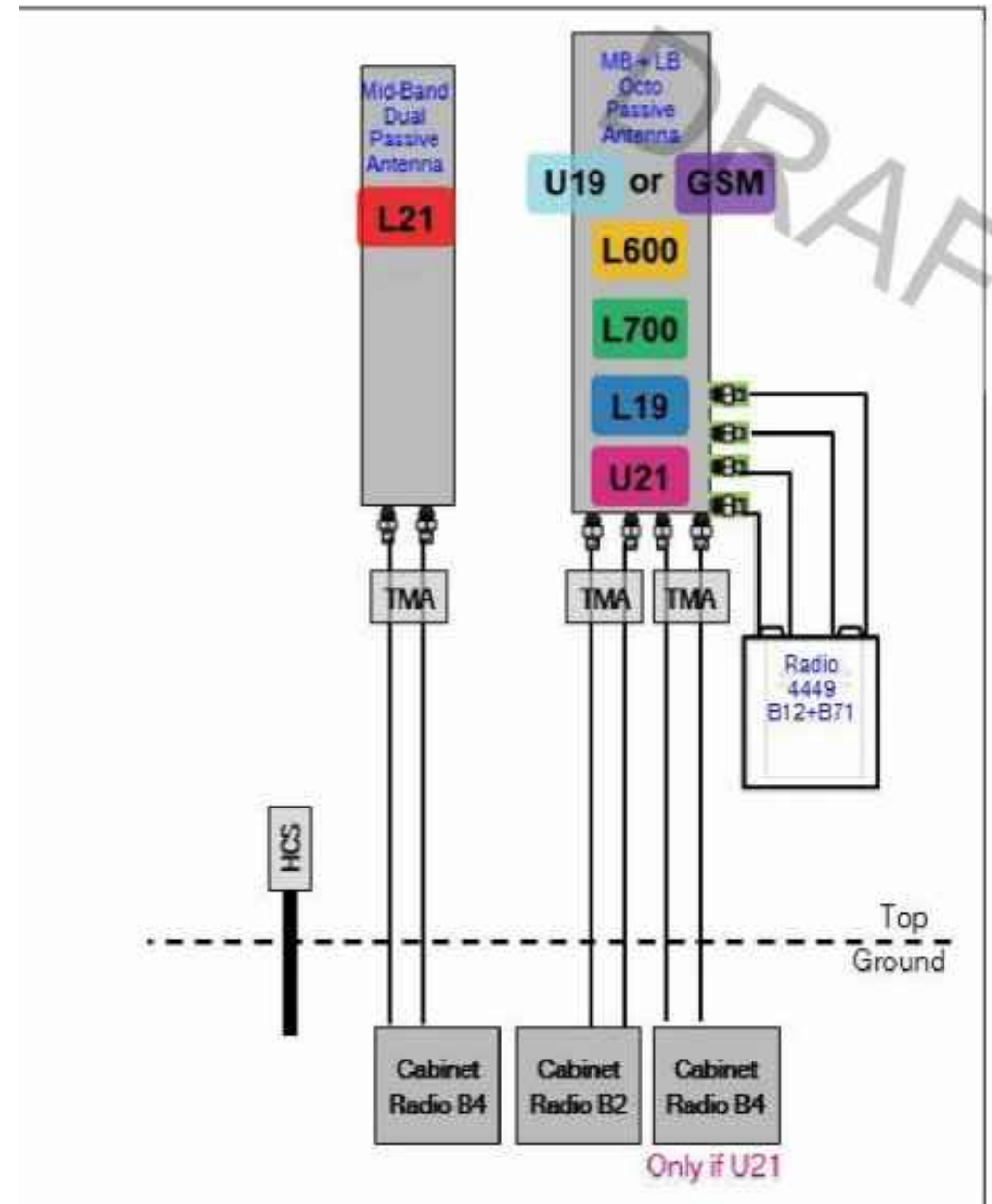
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E-501	0

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Existing RAN Equipment		
Template: 704Bu		
Enclosure	1	2
Enclosure Type	RBS 6102	RBS 3106
Baseband	DUS41 DUW30 (x2) DUG20	
Radio	RUS01 B2 (x6) RUS01 B4 (x6)	

Proposed RAN Equipment		
Template: 67D04B Hybrid		
Enclosure	1	2
Enclosure Type	RBS 6102	Ancillary Equipment
Baseband	BB 5216 L2100 L1500 L700 L600 DUW30 U2100 DUG20 G1900 DUW30 U1900	
Hybrid Cable System		Ericsson 6x12 HCS 6AWG 40m
Multiplexer	XMU	
Radio	RUS01 B2 (x3) L1900 RUS01 B2 (x3) U1900 L1900 RUS01 B4 (x6) L2100	
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

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