

October 19, 2020

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

**Regarding:** Notice of Exempt Modification – T-Mobile Site #: CT11318F\_Anchor  
**Address:** 438 Bridgeport Avenue, Milford, CT

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennae at the 73-foot level of the existing +/- 100-foot monopole tower at the above-referenced address, latitude 41.206600, longitude -73.093400. The tower is operated by American Tower Corporation.

T-Mobile now intends to modify its existing telecommunications facility by adding six (6) antennae, adding three (3) remote radio units (RRU) and adding two (2) hybrid cables and swapping mounts as more particularly detailed and described in the enclosed Construction Drawings prepared by A.T. Engineering Service, PLLC, last revised October 8, 2020. The centerline height of the existing and proposed antennas is and will remain at 73 feet.

**Planned Modifications:**

Add:

- (3) AIR32 B66AA/B2A Antennae
- (3) AIR6449 B41 Antennae
- (3) 4415 B25 RRU
- (2) 1-1/4" Hybrid Cables
- (1) Platform Mount

Remove:

- (3) TMA
- (3) Sector Mounts

Existing to Remain:

- (6) Antennae
- (3) RRU
- (6) TMA
- (18) Coax
- (1) Hybrid Cables

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to American Tower Corporation as tower operator, The Honorable Benjamin G. Blake, Mayor of the City of Milford as chief elected official, David B. Sulkis, City Planner of the City of Milford and Henry and Genevieve Charchenko as underlying property owner. Please note, the original tower approval was requested from the City of Milford, but to date, no records have been found or received. Should any additional documentation be provided, I will supplement my filing with same

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require an 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 modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for T-Mobile's modified facility dated July 24, 2020 and prepared by EBI Consulting enclosed herewith.*
5. The proposed modifications will not cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated July 10, 2020 and prepared by American Tower Corporation enclosed herewith.*

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).

Respectfully submitted,



Jennifer Iliades  
Site Acquisition Consultant  
Centerline Communications, LLC  
750 West Center Street, Suite 301  
West Bridgewater, MA 02379  
jiliades@clinellc.com

Enclosures: Exhibit A – Property Card and GIS  
Exhibit B – Construction Drawings  
Exhibit C – Structural Analysis Report  
Exhibit D – Mount Analysis  
Exhibit E – Power Density/RF Emissions Report

cc: American Tower Corporation, as tower operator  
The Honorable Benjamin G. Blake, Mayor of the City of Milford as chief elected official  
David B. Sulkis, City Planner of the City of Milford  
Henry and Genevieve Charchenko, underlying property owner

# Exhibit A

Property Card

# 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
2019	\$426,060	\$28,350	\$454,410

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$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:	
Num Kitchens	
Cndtn	
Usrflid 103	
Int Condition:	
Solar Panels	
House Generator	
Usrflid 107	
Num Park	
Fireplaces	
Usrflid 108	
Usrflid 101	
Usrflid 102	
Usrflid 100	
Usrflid 300	
Usrflid 301	

## Building Photo



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

## Building Layout

 Building Layout (ParcelSketch.ashx?pid=4835&bid=4880)

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

## Extra Features

Extra Features	<u>Legend</u>
No Data for Extra Features	

## Land

Land Use	Land Line Valuation
<b>Use Code</b> 434V	<b>Size (Acres)</b> 0.05
<b>Description</b> CELL TOWER MDL-00	<b>Frontage</b> 0
<b>Zone</b> CDD3	<b>Depth</b> 0
<b>Neighborhood</b> B	<b>Assessed Value</b> \$19,850
<b>Alt Land Appr Category</b> No	<b>Appraised Value</b> \$28,350

## Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN4	FENCE-8' CHAIN			176.00 L.F.	\$1,060	1
MSC56	RADBLD			550.00 UNIT	\$55,000	1
MSC57	RADELD			200.00 UNIT	\$20,000	1
CEL1	CEL TWR SITE			1.00 UNITS	\$350,000	1

## Valuation History

Appraisal				
Valuation Year	Improvements	Land	Total	
2019	\$426,060	\$28,350	\$454,410	
2018	\$426,060	\$28,350	\$454,410	
2017	\$426,060	\$28,350	\$454,410	
2016	\$412,760	\$28,350	\$441,110	

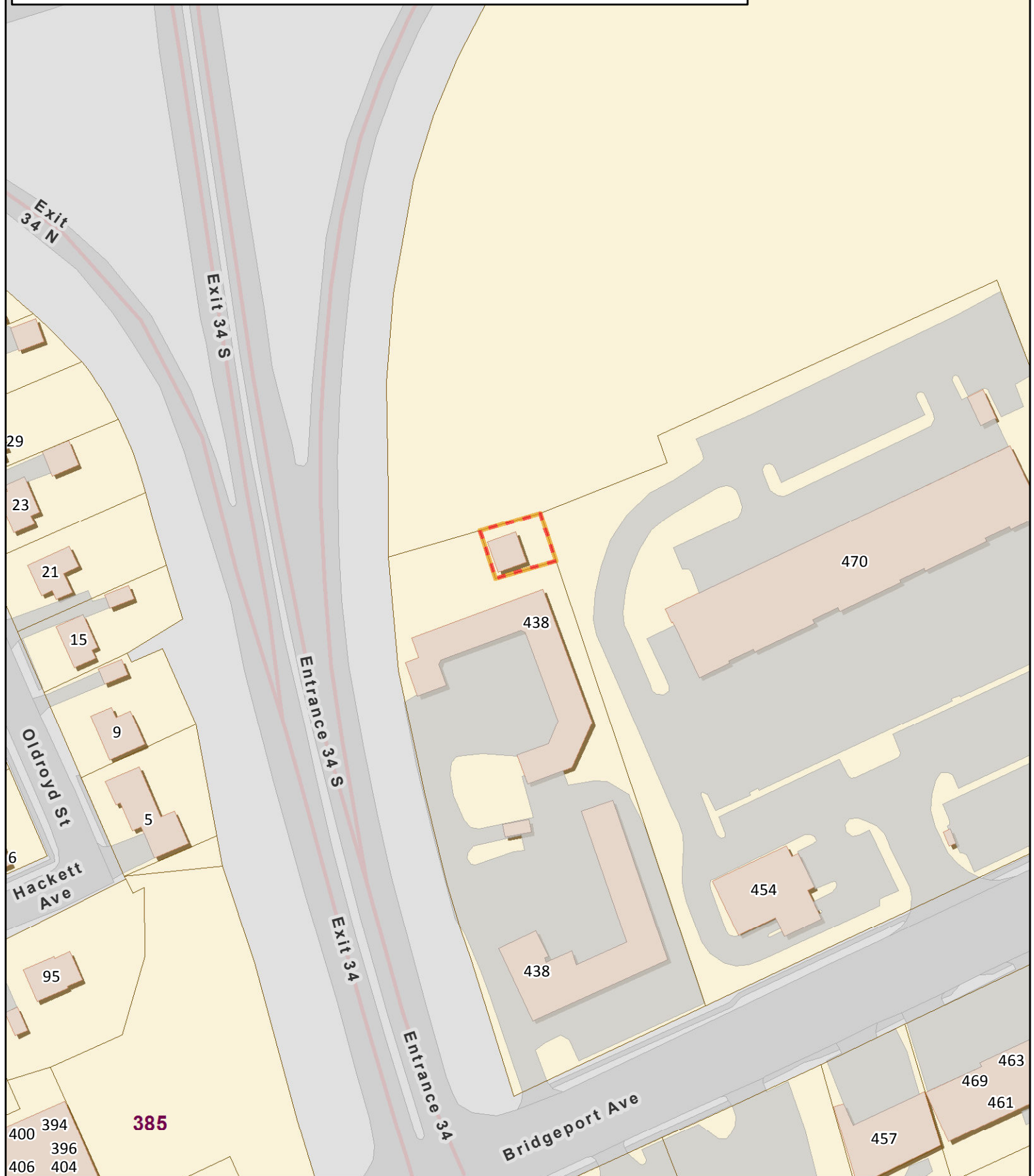
Assessment				
Valuation Year	Improvements	Land	Total	
2019	\$298,240	\$19,850	\$318,090	
2018	\$298,240	\$19,850	\$318,090	
2017	\$298,240	\$19,850	\$318,090	
2016	\$288,930	\$19,850	\$308,780	



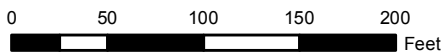
**City of Milford, Connecticut. Assessment Parcel Map**

Parcel ID: **4835**

Address: **438 BRIDGEPORT AVE**



**1 inch = 100 feet**



Disclaimer: This map is for informational purposes only. 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.

Map Produced: July 2016



# Exhibit B

Construction Drawings



VICINITY MAP




**AMERICAN TOWER®**

ATC SITE NAME: MLFD - MILFORD  
 ATC SITE NUMBER: 302516  
 T-MOBILE SITE NAME:  
 CT318/SPECTRA\_DEVON  
 T-MOBILE SITE NUMBER:CT11318F  
 SITE ADDRESS: 438 BRIDGEPORT AVE  
 MILFORD, CT 06460

T-MOBILE ANCHOR ANTENNA AMENDMENT PLAN  
 67D5A994DB HYBRID (EVOLVED FROM 4B)  
 CONFIGURATION



LOCATION MAP



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

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MR	07/30/20
1	UPGRADE CONFIGURATION	MR	08/10/20
2	CABINET LOCATION	MR	09/03/20
3	CABINETS INFO	MR	10/08/20

ATC SITE NUMBER:  
**302516**  
 ATC SITE NAME:  
**MLFD - MILFORD**  
 T-MOBILE SITE NAME:  
**CT318/SPECTRA\_DEVON**  
 SITE ADDRESS:  
 438 BRIDGEPORT AVE  
 MILFORD, CT 06460



DATE DRAWN:	07/30/20
ATC JOB NO:	13251343_D1
CUSTOMER ID:	CT318/SPECTRA_DEVON
CUSTOMER #:	CT11318F

**TITLE SHEET**

SHEET NUMBER:  
**G-001**

REVISION:  
**3**

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) SECTOR MOUNT(s), AND (3) TTA(s)  INSTALL (1) PLATFORM MOUNT, (6) ANTENNA(s), (3) RRH(s), AND (2) 1-1/4" HYBRID CABLE(s)  EXISTING (6) ANTENNA(s), (6) TTA(s), (3) RRU(s), (18) 1-1/4" COAX CABLE(s), AND (1) 1-1/4" HYBRID CABLE TO REMAIN  <u>GROUND WORK:</u> REMOVE (1) CABINET  INSTALL (3) CABINETS	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<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	<u>PROJECT NOTES</u>  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.					
<u>UTILITY COMPANIES</u>  POWER COMPANY: UNITED ILLUMINATING PHONE: (203) 787-7662  TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (800) 376-6843		<u>PROJECT LOCATION DIRECTIONS</u>  FROM HARTFORD CT TAKE I-91 SOUTH TO I-95 SOUTH TO EXIT 34. TURN LEFT OFF THE EXIT THEN TAKE IMMEDIATE LEFT INTO THE DEVON MOTEL PARKING LOT. GO TO THE REAR RIGHT OF THE LOT FOR THE BEGINNING OF THE ACCESS ROAD.					



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**GENERAL CONSTRUCTION NOTES:**

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
  - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
  - B. AC/TELCO INTERFACE BOX (PPC)
  - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
  - D. TOWERS, MONOPOLES
  - E. TOWER LIGHTING
  - F. GENERATORS & LIQUID PROPANE TANK
  - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
  - H. ANTENNAS (INSTALLED BY OTHERS)
  - I. TRANSMISSION LINE
  - J. TRANSMISSION LINE JUMPERS
  - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
  - L. TRANSMISSION LINE GROUND KITS
  - M. HANGERS
  - N. HOISTING GRIPS
  - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSIEIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. 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.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE 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.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. 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.
27. CONTRACTOR SHALL NOTIFY T-MOBILE 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.
28. 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.
29. 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.
30. 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 REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. 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.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

COAXIAL CABLE (NOT WITHIN BENDS)

**SPECIAL CONSTRUCTION**

**ANTENNA INSTALLATION NOTES:**

1. WORK INCLUDED:
  - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
  - B. INSTALL ANTENNA AS INDICATE ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
  - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
  - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.
  - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
  - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
  - G. ANTENNA AND COAXIAL CABLE GROUNDING:
2. ALL EXTERIOR #6 GREED GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.



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

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MR	07/30/20

ATC SITE NUMBER:  
**302516**  
 ATC SITE NAME:  
**MLFD - MILFORD**  
 T-MOBILE SITE NAME:  
**CT318/SPECTRA\_DEVON**  
 SITE ADDRESS:  
 438 BRIDGEPORT AVE  
 MILFORD, CT 06460



DATE DRAWN:	07/30/20
ATC JOB NO:	13251343_D1
CUSTOMER ID:	CT318/SPECTRA_DEVON
CUSTOMER #:	CT11318F

**GENERAL NOTES**

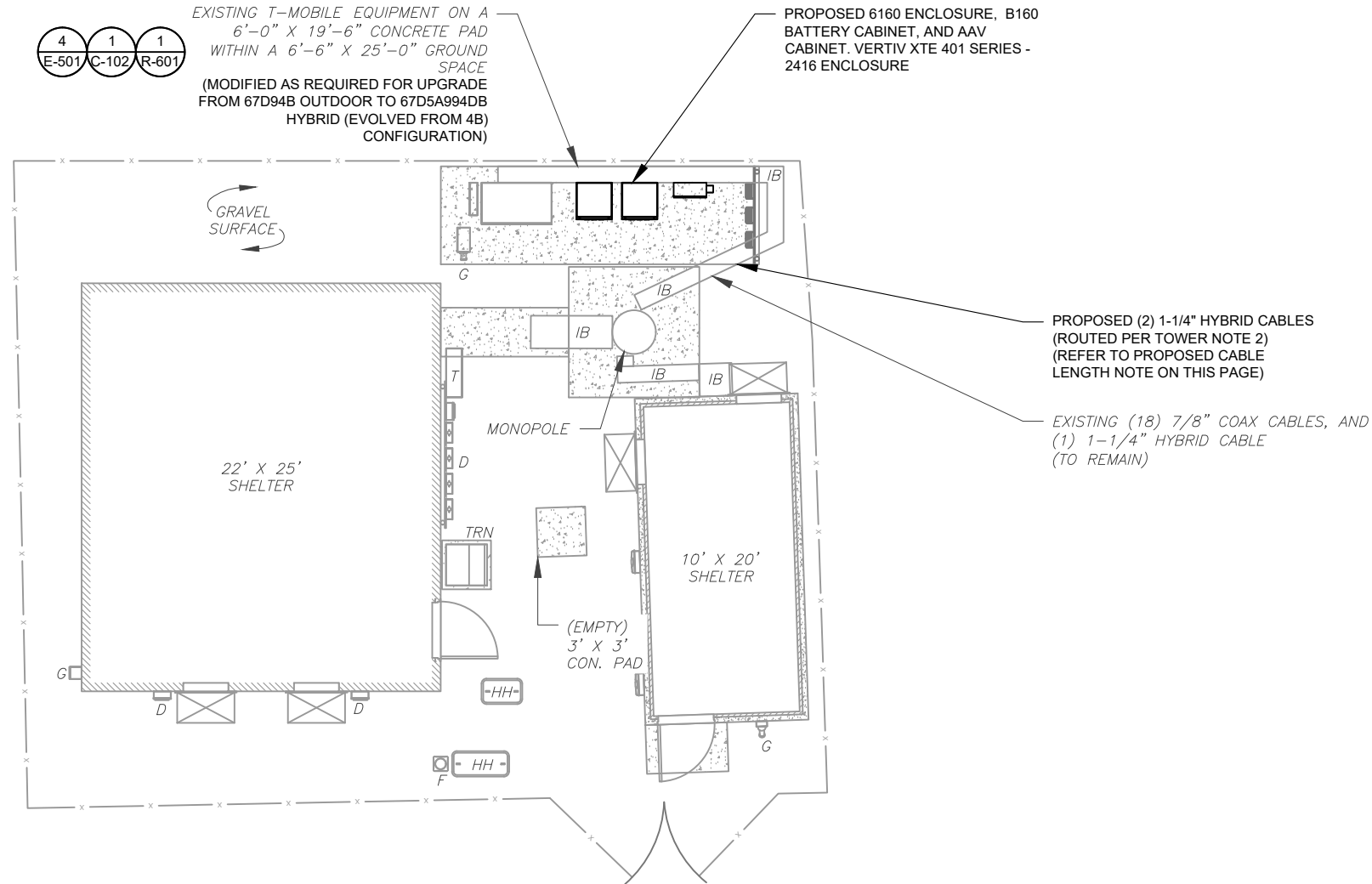
SHEET NUMBER: <b>G-002</b>	REVISION: <b>0</b>
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**SITE PLAN NOTES:**

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.

LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
— x —	CHAINLINK FENCE



**PROPOSED CABLE LENGTH:**

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **125'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.



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**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	MR	07/30/20
1	UPGRADE CONFIGURATION	MR	08/10/20
2	CABINET LOCATION	MR	09/03/20
3	CABINETS INFO	MR	10/08/20

ATC SITE NUMBER:  
**302516**  
 ATC SITE NAME:  
**MLFD - MILFORD**  
 T-MOBILE SITE NAME:  
**CT318/SPECTRA\_DEVON**  
 SITE ADDRESS:  
 438 BRIDGEPORT AVE  
 MILFORD, CT 06460

SEAL:



DATE DRAWN:	07/30/20
ATC JOB NO:	13251343_D1
CUSTOMER ID:	CT318/SPECTRA_DEVON
CUSTOMER #:	CT11318F

**DETAILED SITE PLAN**

SHEET NUMBER:  
**C-101**  
 REVISION:  
**3**

**SITE PLAN NOTES:**

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



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2	CABINET LOCATION	MR	09/03/20
3	CABINETS INFO	MR	10/08/20

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**302516**  
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 MILFORD, CT 06460

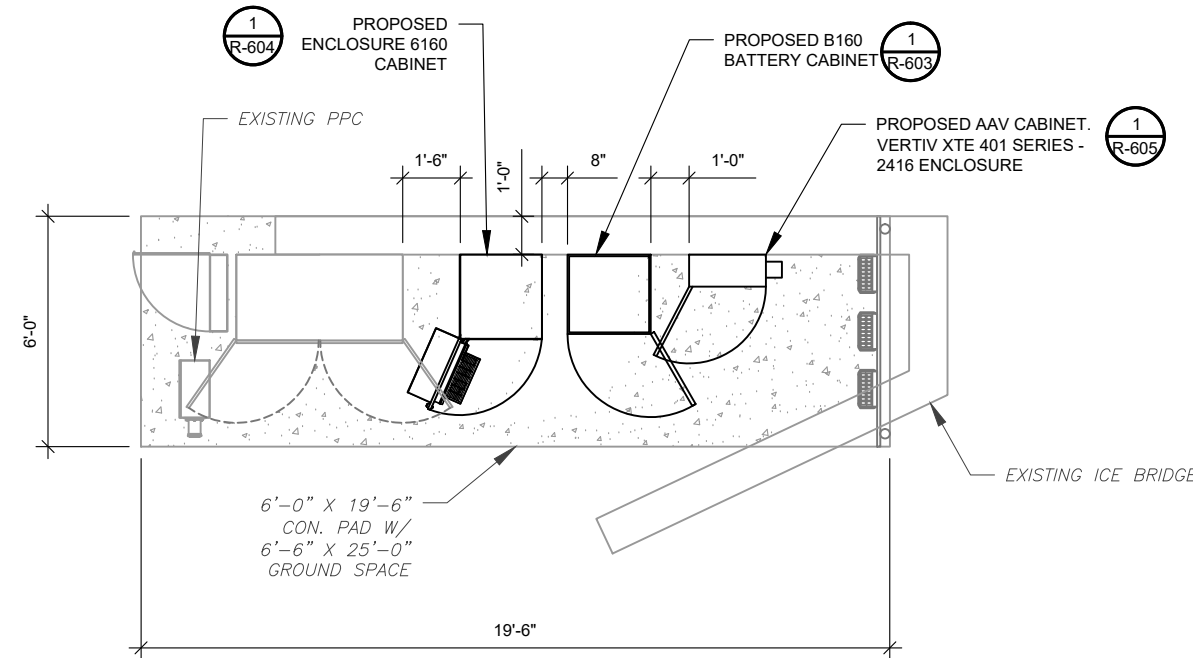
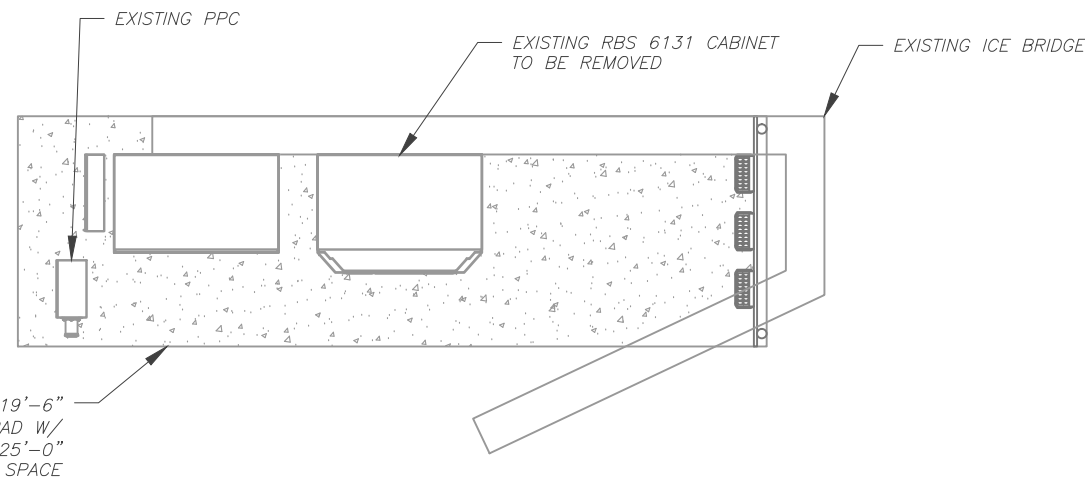
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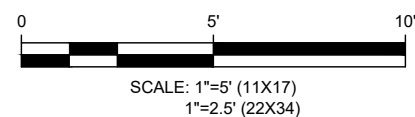
DATE DRAWN:	07/30/20
ATC JOB NO:	13251343_D1
CUSTOMER ID:	CT318/SPECTRA_DEVON
CUSTOMER #:	CT11318F

**DETAILED GROUND PLAN**

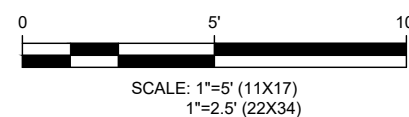
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**C-102**  
 REVISION:  
**3**

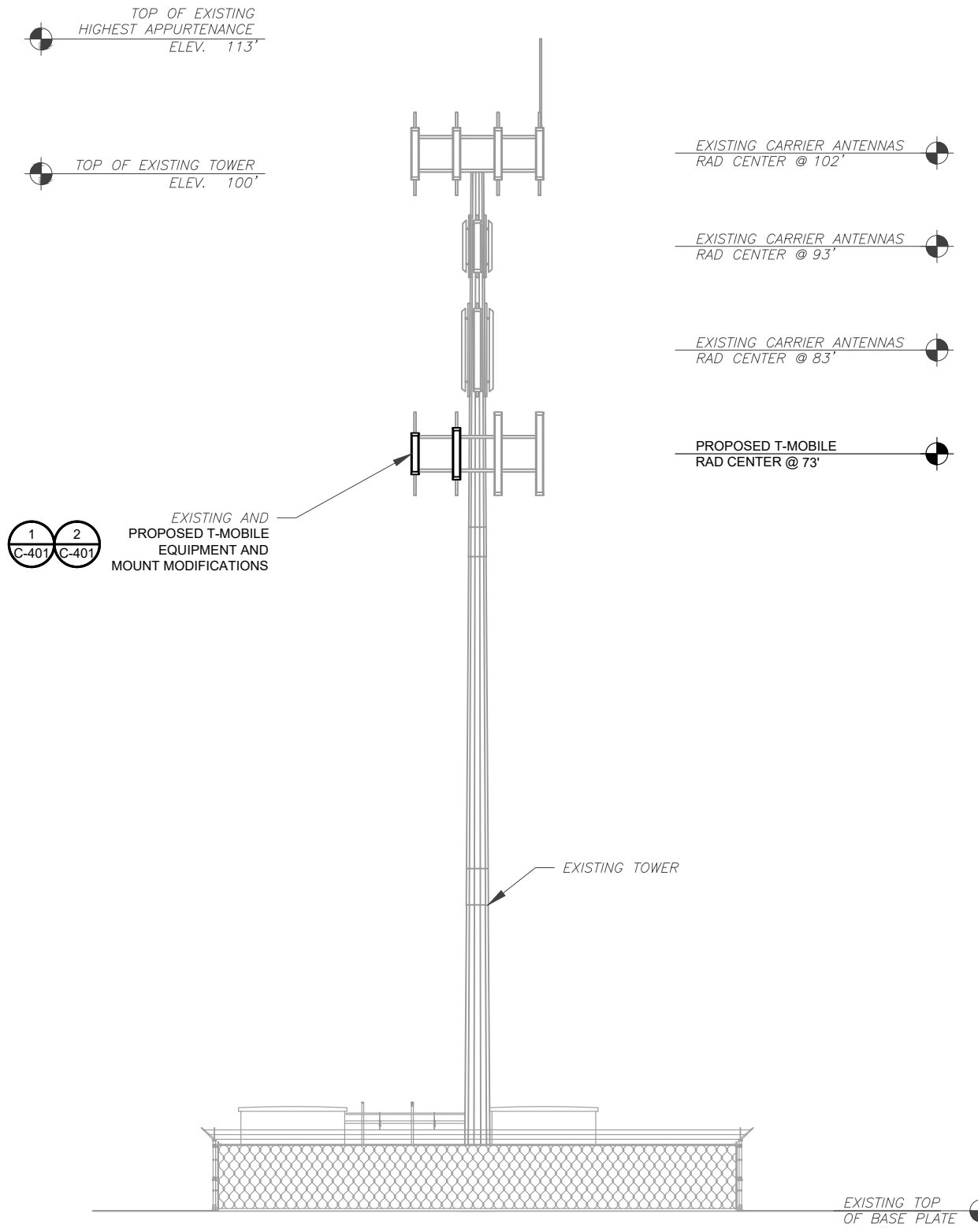


1 EXISTING GROUND EQUIPMENT LAYOUT



2 PROPOSED GROUND EQUIPMENT LAYOUT





PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER, DATED 07/21/20, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING

- TOWER NOTE:**
- 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.
  - ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
  - TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

1 TOWER ELEVATION  
SCALE: N.T.S.

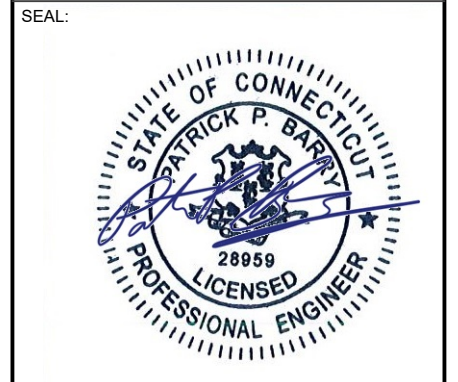


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0	FOR CONSTRUCTION	MR	07/30/20

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**MLFD - MILFORD**  
 T-MOBILE SITE NAME:  
**CT318/SPECTRA\_DEVON**  
 SITE ADDRESS:  
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 MILFORD, CT 06460

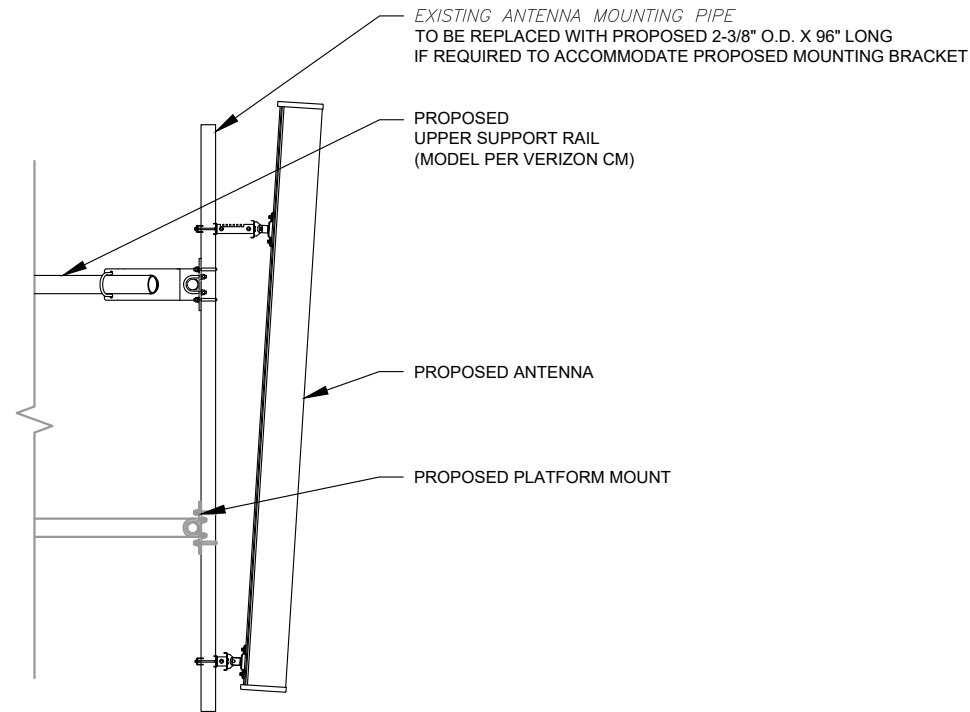


DATE DRAWN:	07/30/20
ATC JOB NO:	13251343_D1
CUSTOMER ID:	CT318/SPECTRA_DEVON
CUSTOMER #:	CT11318F

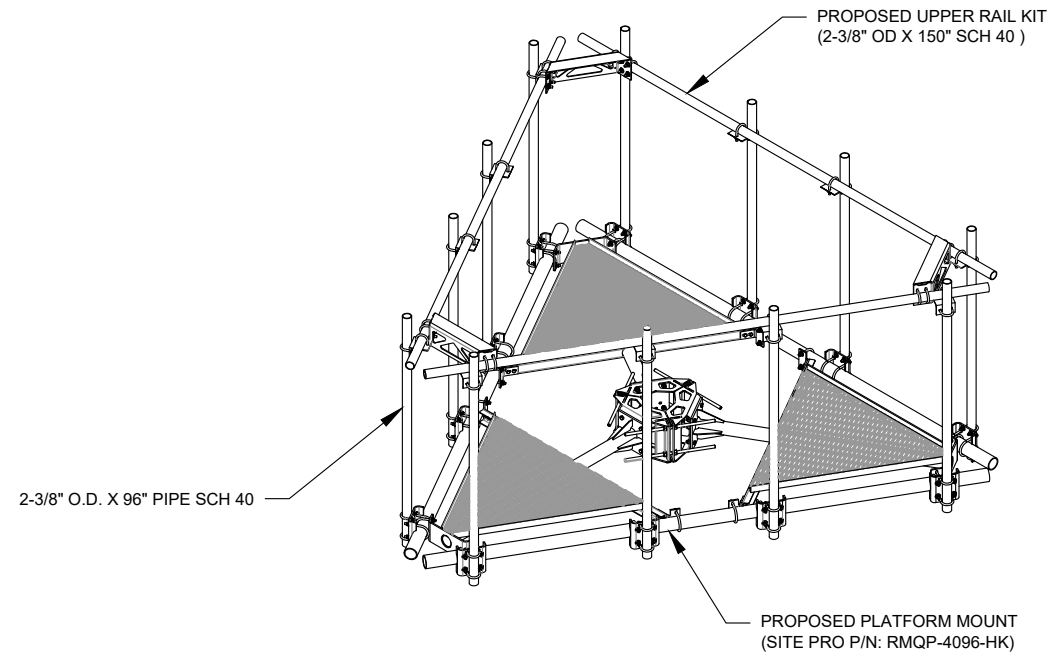
**TOWER ELEVATION**

SHEET NUMBER:	REVISION:
<b>C-201</b>	<b>0</b>

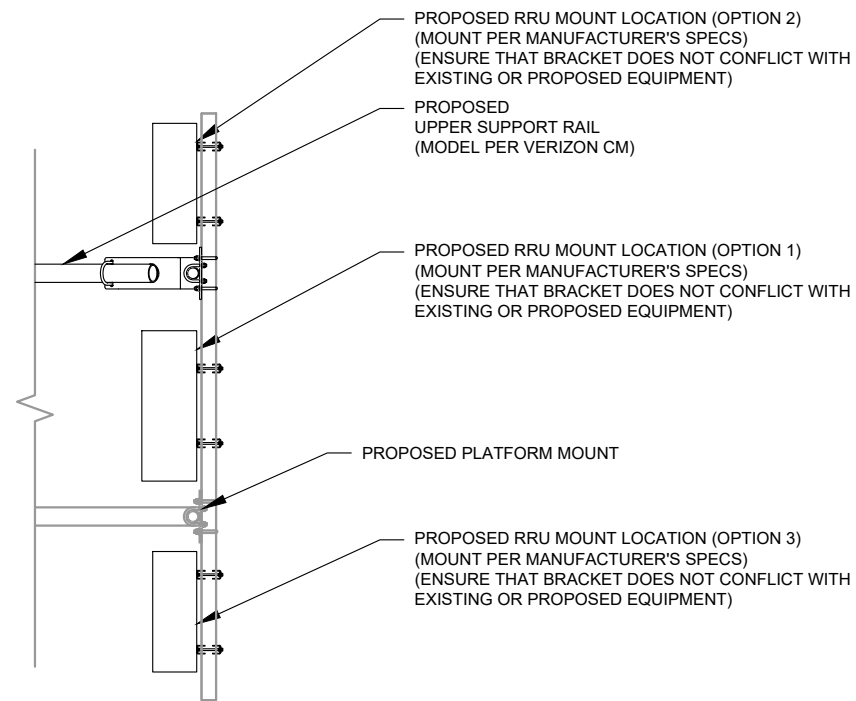
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1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



2 ISOMETRIC PLATFORM DETAIL  
SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



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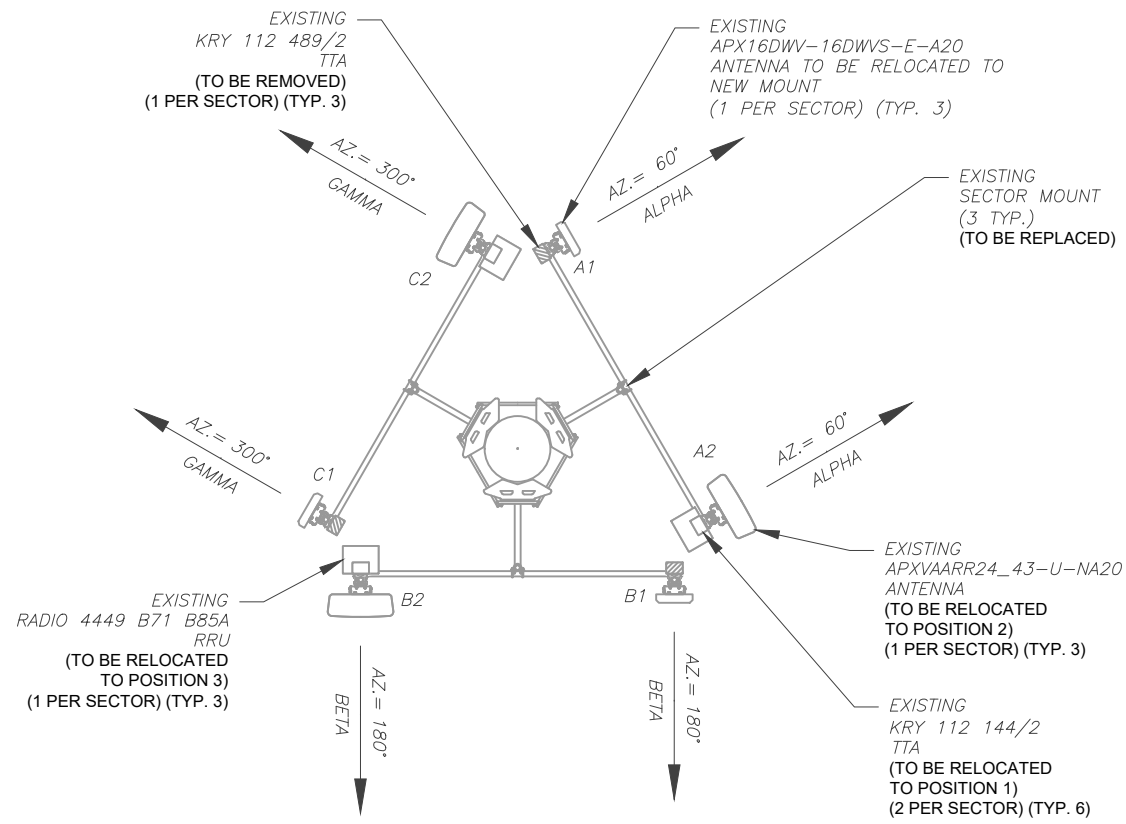
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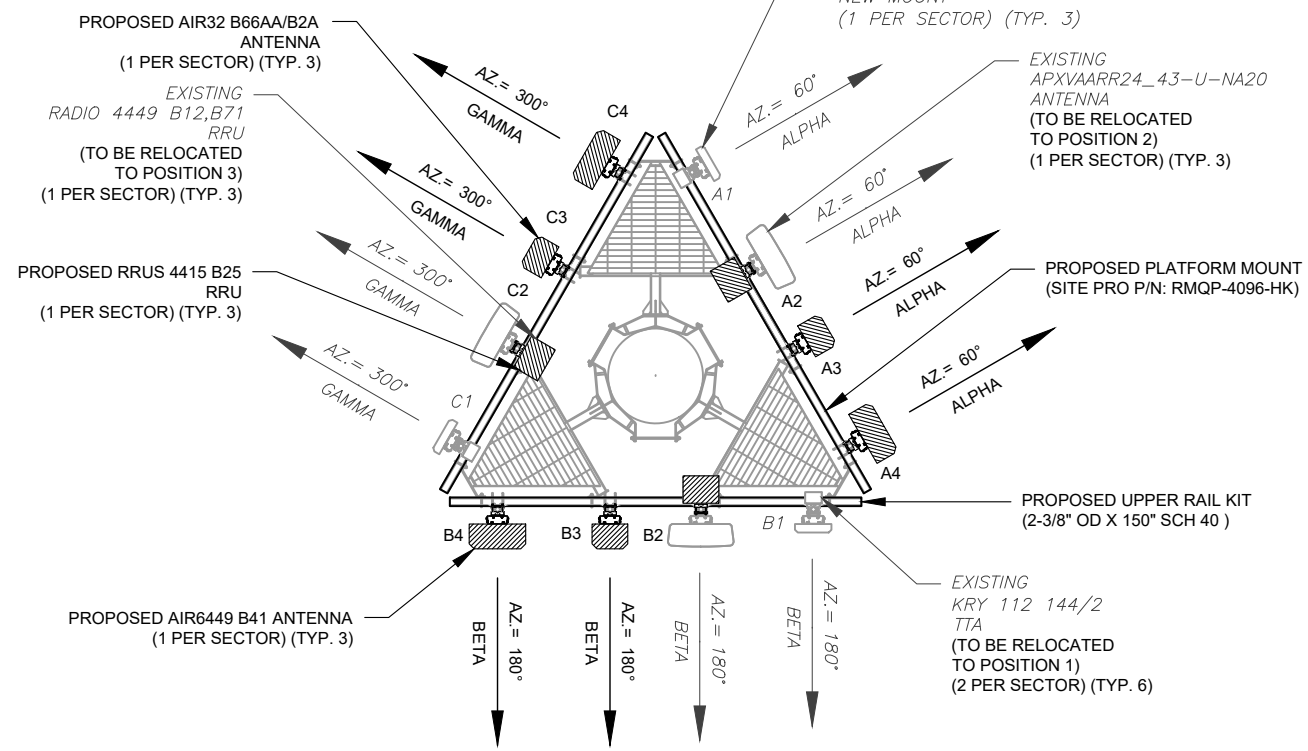
**CONSTRUCTION  
 DETAILS**

SHEET NUMBER:	REVISION:
<b>C-501</b>	<b>0</b>



1 EXISTING ANTENNA PLAN  
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER, DATED 07/21/20, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



2 FINAL ANTENNA PLAN  
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE								
LOCATION		ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	73'	60°	A1	APX16DWV-16DWVS-E-A20	L2100	-	RMN	KRY 112 489/2
			A2	APXVAARR24_43-U-NA20	L600/L700/N600/L1900/G1900/U2100	-	REL	(2) KRY 112 144/2 RADIO 4449 B71 B85A
BETA	73'	180°	B1	APX16DWV-16DWVS-E-A20	L2100	-	RMN	KRY 112 489/2
			B2	APXVAARR24_43-U-NA20	L600/L700/N600/L1900/G1900/U2100	-	REL	(2) KRY 112 144/2 RADIO 4449 B71 B85A
GAMMA	73'	300°	C1	APX16DWV-16DWVS-E-A20	L2100	-	RMN	KRY 112 489/2
			C2	APXVAARR24_43-U-NA20	L600/L700/N600/L1900/G1900/U2100	-	REL	(2) KRY 112 144/2 RADIO 4449 B71 B85A

NOTES

- CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

STATUS ABBREVIATIONS

RMV: TO BE REMOVED  
RMN: TO REMAIN  
REL: TO BE RELOCATED  
ADD: TO BE ADDED

FINAL ANTENNA SCHEDULE								
LOCATION		ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	73'	60°	A1	APX16DWV-16DWVS-E-A20	G1900/U2100	0°	RMN	(2) KRY 112 144/2
			A2	APXVAARR24_43-U-NA20	N600/L600/L700/L1900	0°	REL	RADIO 4449 B71 B85A RRUS 4415 B25
			A3	AIR32 B66AA/B2A	L1900/L2100	0°	ADD	-
			A4	AIR6449 B41	N2500/L2500	0°	ADD	-
BETA	73'	180°	B1	APX16DWV-16DWVS-E-A20	G1900/U2100	0°	RMN	(2) KRY 112 144/2
			B2	APXVAARR24_43-U-NA20	N600/L600/L700/L1900	0°	REL	RADIO 4449 B71 B85A RRUS 4415 B25
			B3	AIR32 B66AA/B2A	L1900/L2100	0°	ADD	-
			B4	AIR6449 B41	N2500/L2500	0°	ADD	-
GAMMA	73'	300°	C1	APX16DWV-16DWVS-E-A20	G1900/U2100	0°	RMN	(2) KRY 112 144/2
			C2	APXVAARR24_43-U-NA20	N600/L600/L700/L1900	0°	REL	RADIO 4449 B71 B85A RRUS 4415 B25
			C3	AIR32 B66AA/B2A	L1900/L2100	0°	ADD	-
			C4	AIR6449 B41	N2500/L2500	0°	ADD	-

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'  
RRU TO ANTENNA: 10'

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(18) 7/8"	(1) 1-1/4"	RMN
-	-	-	-	-

3 EQUIPMENT SCHEDULES

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(18) 7/8"	(1) 1-1/4"	RMN
-	-	-	(2) 1-1/4"	ADD

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ATC SITE NUMBER:  
**302516**

ATC SITE NAME:  
**MLFD - MILFORD**

T-MOBILE SITE NAME:  
**CT318/SPECTRA\_DEVON**

SITE ADDRESS:  
438 BRIDGEPORT AVE  
MILFORD, CT 06460

SEAL:

DATE DRAWN: 07/30/20  
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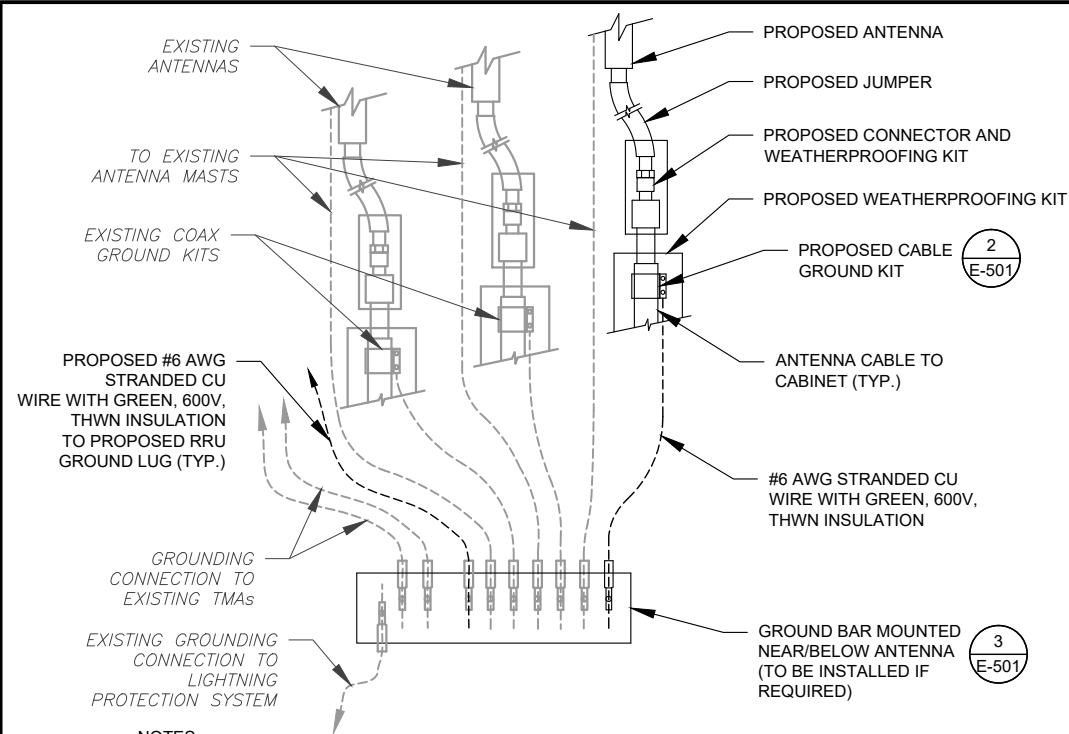
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:  
**C-401**

REVISION:  
**0**

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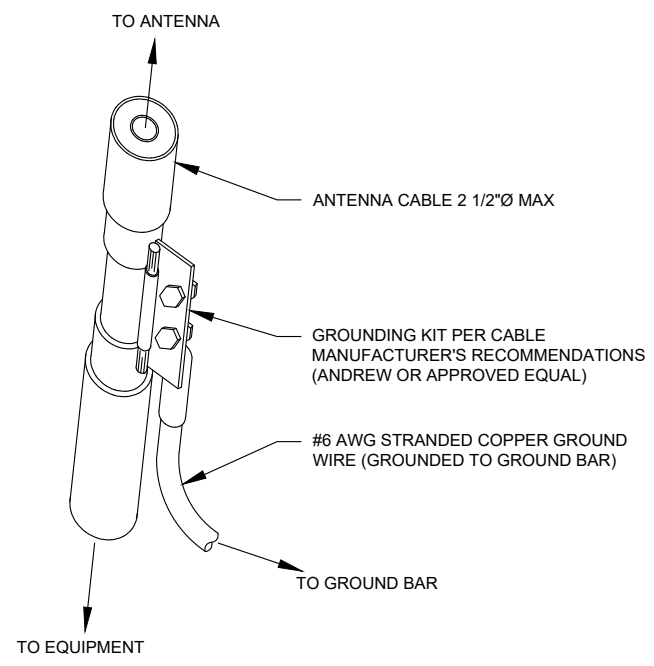




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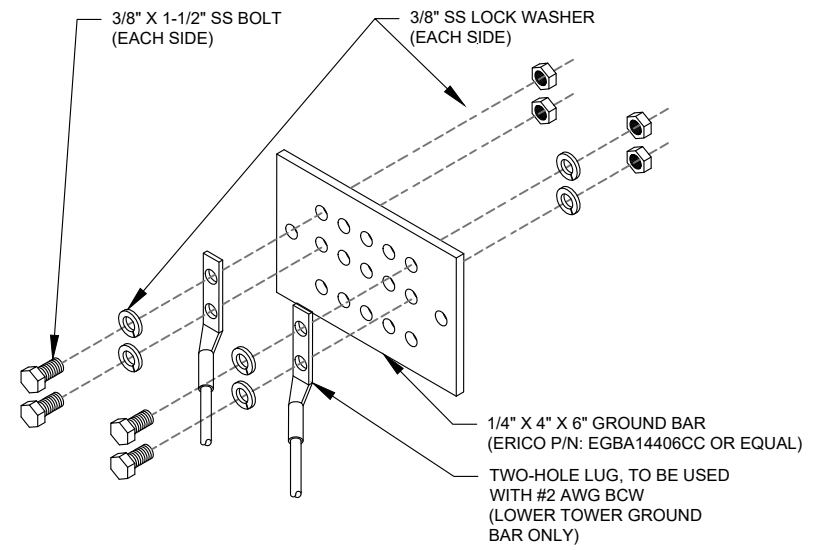
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING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



- 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: N.T.S.



**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: N.T.S.

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CUSTOMER ID:	CT318/SPECTRA_DEVON
CUSTOMER #:	CT11318F

**GROUNDING DETAILS**

SHEET NUMBER:	REVISION:
<b>E-501</b>	<b>0</b>

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Section 5 - RAN Equipment

Existing RAN Equipment	
Template: 67D94B Outdoor	
Enclosure	1
Enclosure Type	RBS 6102
Baseband	DUW30 (U2100) DUG20 (G1900) BB 6630 (L700, L600, L1900, L2100) BB 6630 (N600)
Hybrid Cable System	Ericsson 6x12 HCS 6AWG 40m
Radio	RUS01 B2 (x 3) (G1900, L1900) RUS01 B2 (x 3) (L1900) RUS01 B4 (x 3) (U2100) RUS01 B4 (x 3) (L2100)

Proposed RAN Equipment			
Template: 67D5A994DB Hybrid (evolved from 4B)			
Enclosure	1	2	3
Enclosure Type	RBS 6102	Ancillary Equipment (Ericsson)	Enclosure 6160
Baseband	DUW30 (U2100) DUG20 (G1900) BB 6630 (L2100, L1900, L700, L600) BB 6630 (N600)		BB 6630 (x 3) (L2500) BB 6648 (N2500)
Hybrid Cable System		Ericsson 6x12 HCS 6AWG 40m	Ericsson 6x12 HCS *Select AWG & Length* (x 2)
Radio	RUS01 B2 (x 3) (G1900) RUS01 B2 (x 3) (L1900) RUS01 B4 (x 3) (U2100) RUS01 B4 (x 3) (L2100)		

**RAN Scope of Work:**

Generator and Emerson Cabinet planned for site. Location of new cabinets to be determined (to left of existing cabinets).

Add (1) Enclosure 6160.

Add (1) Battery Cabinet B160.

Add (1) iXRe Router to new Enclosure 6160.

Add (3) BB6630 for L2500 to new Enclosure 6160.

Add (1) BB6648 for N2500 to new Enclosure 6160.

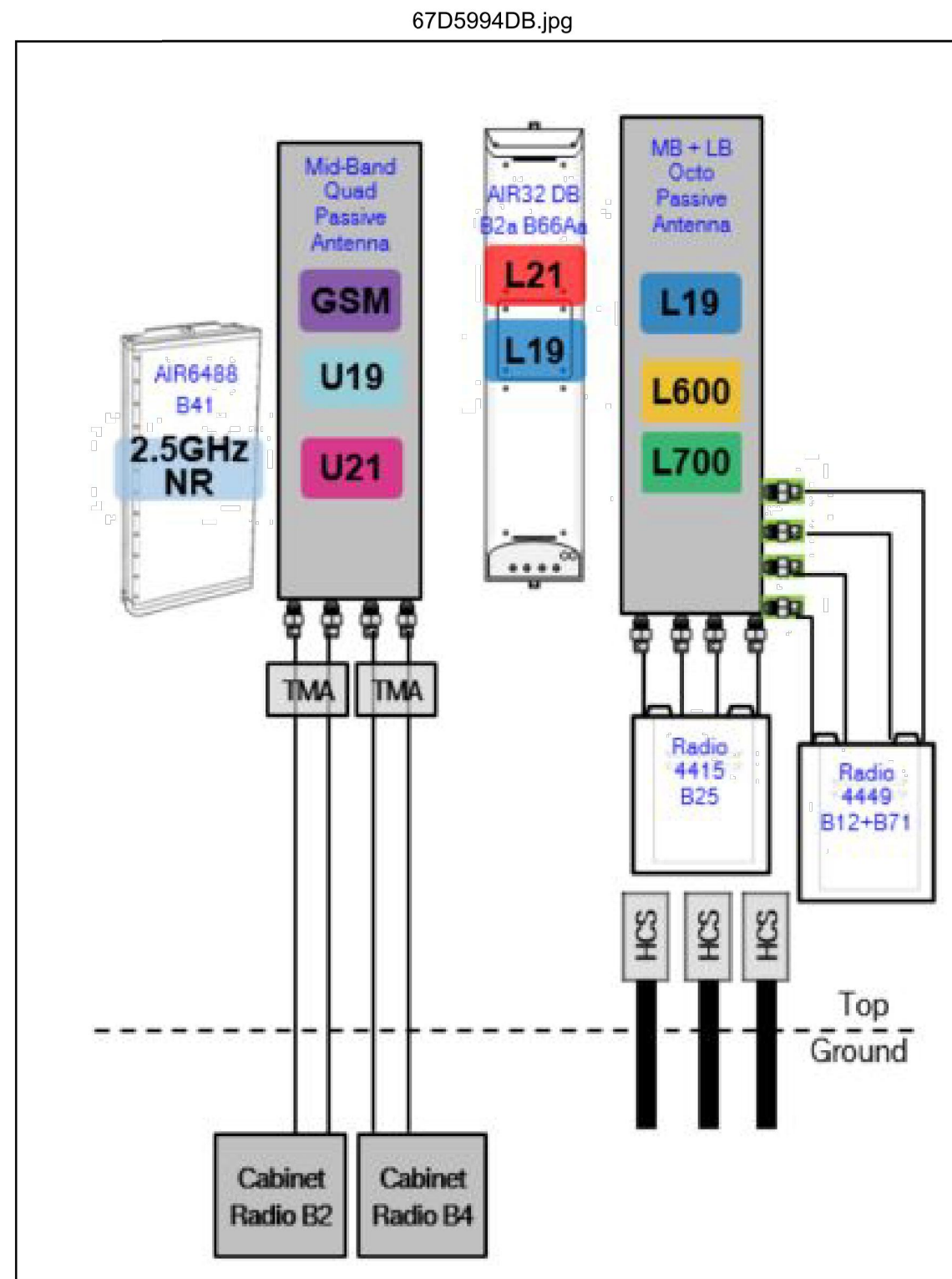
Existing : (18) 7/8" Coax and (1) 6x12 Fiber

Remove (6) Coaxial Lines for a new total of (12) Coaxial Lines (4 per sector).

Add (2) 6X12 HCS. Length of new HCS will match that of existing HCS.

1 CABINET CONFIGURATION  
SCALE: NOT TO SCALE

2 ANTENNA CONFIGURATION  
SCALE: NOT TO SCALE

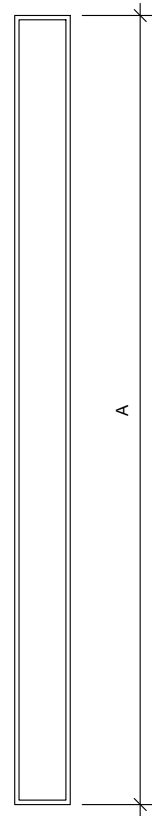


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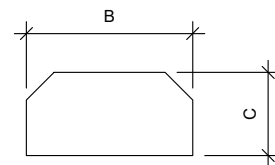
SUPPLEMENTAL

SHEET NUMBER: R-601  
REVISION: 0

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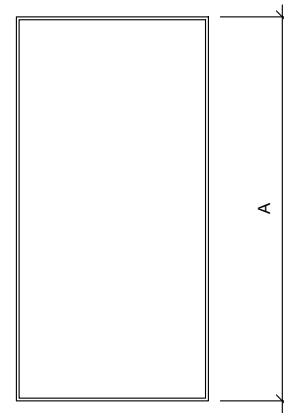
FRONT VIEW



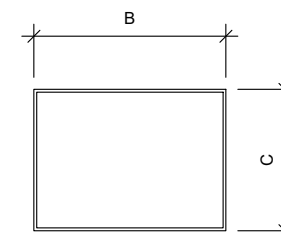
TOP VIEW

**1 ANTENNA SPECIFICATIONS**  
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR32 B66AA/B2A	56.6"	12.9"	8.7"	132.2
AIR6449 B41	33.1"	20.6"	8.6	104.0



FRONT VIEW



TOP VIEW

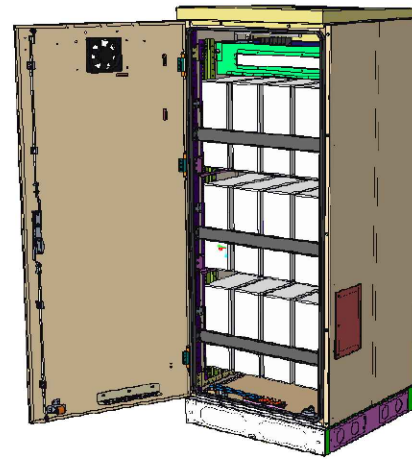
**2 RRU SPECIFICATIONS**  
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RRUS 4415 B25	15.0"	13.2"	5.4"	46.0

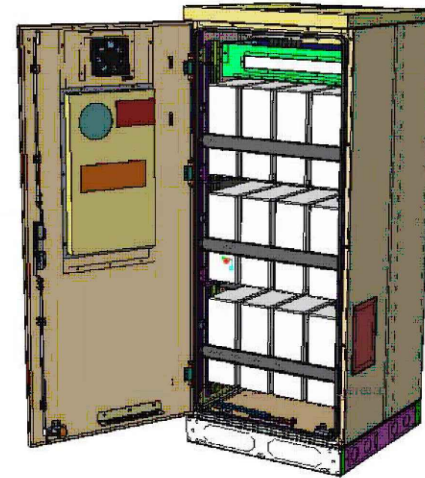
**EQUIPMENT SPECIFICATIONS**

SHEET NUMBER: **R-602** REVISION: **0**

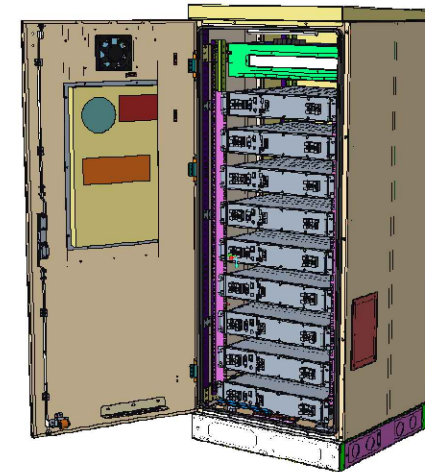
# Enclosure B160



Enclosure B160  
AirCon + VRLA



Enclosure B160  
AirCon + Li-Ion



Enclosure B160  
Convection Cooling  
+ VRLA

PA1 | 2019-02-03 | Ericsson Confidential | Page 1

# Enclosure B160

## Capacity

- VRLA 12V: 100Ah / 150Ah / 170Ah / 190Ah / 210Ah
- Li-Ion: 24U 19" / 23"
- Sodium-Nickel: 3x FIAMM

## Electrical specification

- DC Output: -48VDC/200A
- Battery breakers: 2x 125/2p
- Alarms: Door open, Climate failure, MCB Connection

## Mechanical specification

- Weight: 134kg
- Dimensions: 63 x 26 x 26 in. (incl. Base frame)
- Base frame height: 6 in.
- Material: Galvanized steel (180g/m<sup>2</sup>)
- Color: Powder paint NCS 2002-B
- Door: Front access
- Locking type: Pad lock / cylinder

## Environmental specification

- Ingress protection: VRLA/Sodium IP44  
Li-Ion IP55
- Relative humidity: 15-100%

## Climate system

- Air Conditioner
  - Fan type: DC
  - Cooling capacity: 500W @L35/L35
- Convection cooling
  - Emergency fan

PA1 | 2019-02-03 | Ericsson Confidential | Page 2

SUPPLEMENTAL

SHEET NUMBER: REVISION:

R-603

0

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# Enclosure 6160 AC

The Enclosure 6160 is a multi-purpose site cabinet designed to support a multitude of equipment such as ERS Baseband, Transport, Li-Ion battery and 3PP vendor equipment. It also provides a highly capable power system and battery back-up - all in a streamlined design and minimized footprint to support cost efficient expansion of mobile broadband.

Being an all-in-one enclosure, the Enclosure 6160 is a very fitting choice for all types of sites where the capacity need is large or room for future expansion is needed. It is ideally used for modernizing existing sites or in greenfield scenarios to match both current and future needs.

With a robust design, IP65 compliance and a sealed Heat Exchanger (HEX) climate system the Enclosure 6160 ensures optimal environmental protection of the active equipment - enabling them for a long-lasting service. The complete system is also integrated and verified for the entire Ericsson Radio System and ensures best-in-class service.

The power system offers 31,5kW of power in total and provides 24kW of -48V DC power for both internal and external consumers.

The equipment space allows 19U of rack space ensuring well enough capacity for existing need and future expansion.

One of the main advantages of the Enclosure 6160 is its default integration with ENM - allowing for advanced remote monitoring and control such a fault management (alarms), inventory management and performance measurements. The cabinet also provides an open O&M interface for integration to 3PP O&M systems.



## Preliminary technical specification for Enclosure 6160 AC

### CAPACITY

Rack space user equipment	19U (19" rack)
Hardware capabilities	Power and CPRI support for multi-standard remote radios (RRU or AIR) ERS Baseband and Transport units Li-Ion batteries 3PP equipment Additional power feed available as option

### MECHANICAL SPECIFICATION

Weight	145 kg (excluding active equipment) 320 lbs (excluding active equipment)
Dimension (H x W x D)	1600 x 650 x 650 mm (incl. Base frame) 63 x 26 x 26 in. (incl. Base frame)
Base frame height	150 mm 6 in.
Mounting position	Ground
Enclosure material	Aluminum
Color	Power paint NCS 2002-B
Door	Front access
Rack type	19" (IEC 60297-3-100)
Locking type	Pad lock or Cylinder

### POWER SYSTEM

Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 VAC 1P+N+PE: 200-250 VAC
Input power	<33kW
Output load (-48VDC)	24kW
Total capacity (-48VDC)	31.5kW
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
PSU Slots	9x
Service outlet	Optional
Priority load	8x Circuit Breaker
LLVD 1	6x Circuit Breaker
LLVD 2	6x Circuit Breaker
CB ratings	3A / 5A / 10A / 15A / 20A / 25A / 30A / 40A / 50A / 60A / 80A / 100A
Battery Interface	2x Circuit Breaker
Battery Circuit Breaker rating	125A 2pol (200A)
PSU capacity	3500W

SUPPLEMENTAL

SHEET NUMBER:  
**R-604**

REVISION:  
**0**

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# VERTIV™ XTE 401 SERIES

Equipment Enclosures



## VERTIV™ XTE 401 SERIES



### KEY FEATURES

- NEMA 3R design protects equipment from water and dust, while maintaining a cool operating environment.
- UL and cUL listing ensures documented performance.
- GR-487-CORE Issue 3 design ensures system reliability and durability.
- Aluminum construction provides superior protection for panels, cables and splices, offering a long, corrosion resistant, problem-free service life.
- Multiple climate control solutions satisfy your specific equipment heat loads and environmental demands.
- More customization available for diverse configuration, cooling and mounting.
- Standard enclosure platform for multiple applications simplifies specification, installation and maintenance.

The Vertiv™ XTE 401 Series equipment enclosures are an economical solution for housing a wide variety of wireline or wireless access electronics.

### Description

The Vertiv XTE 401 Series is a family of three small single sided low-cost indoor or outdoor rated aluminum enclosures. These enclosures can be equipped with a variety of inexpensive cooling, power, protection and battery options.



Vertiv XTE 401 Series, 2410 Enclosure

### Application

The Vertiv XTE 401 Series economically houses a wide variety of environmentally hardened wireline or wireless access electronics. Because of their small size, these enclosures are ideal for inconspicuous deployment of mobile 2G/3G/4G cellular base stations, DAS nodes, mobile backhaul, remote power solutions, fiber (FTTx) nodes, advanced metering management (AMM) nodes or hybrid controller systems (solar, wind, etc.).

### Ordering Information

PART NUMBER	DESCRIPTION
NXC2410	Vertiv™ XTE 401 Series, 2410 enclosure
NXC2416	Vertiv™ XTE 401 Series, 2416 enclosure
NXC3816	Vertiv™ XTE 401 Series, 3816 enclosure
F1010410	Kit, 24" W x 10" D, pad mount base assembly
F1010411	Kit, 24" W x 16" D, pad mount base assembly
F1010505	Kit, 24" W x 10" D, stake mount base assembly, e/w (2) 42" stakes
F1010506	Kit, 24" W x 16" D, stake mount base assembly, e/w (2) 42" stakes
F1010408	Kit, wall mount assembly
F1010409	Kit, pole mount assembly
F1010459	24" W x 10" D pad mount template assembly
F1010460	24" W x 16" D pad mount template assembly

### Technical Specifications

PHYSICAL CHARACTERISTICS	NXC2410 AND NXC2416	NXC3816
Enclosure Dimensions (H x W x D)	24" x 24" x 10" (NxC2410) 24" x 24" x 16" (NxC2416)	38" x 24" x 16"
Rack Options and Dimensions	19" W, (11) x 1.75" RU (standard) 19" W, (6) x 1.75" RU (optional, used with battery tray)	19" W, (18) x 1.75" RU (standard) 19" W, (13) x 1.75" RU (optional, used with battery tray) 23" W, (10) x 1.75" RU vertical mount
Backboard Options and Dimensions	Full height, .625" thick, plywood backboard 20" W x 20" H Half height, .625" thick, plywood backboard 20" W x 12" H	Full height, .625" thick, plywood backboard 20" W x 32" H Half height, .625" thick, plywood backboard 20" W x 22" H
Battery Tray Options* and Dimensions	22" W x 7" D battery tray assy 22" W x 13" D battery tray assy (NxC2416 only)	22" W x 7" D battery tray assy 22" W x 13" D battery tray assy
Weight	35 lbs. (NxC2410) 45 lbs. (NxC2416)	55 lbs. (NxC3816)
Color	Off white	

\* All battery trays can be equipped with an optional 120VAC battery heater pad

### ELECTRICAL

Duplex Convenience Receptacle	120 VAC, GFI protected (optional)
Duplex Receptacles	120 VAC, equipment (optional)
Load Center	4 position, 30 amp, 120/240 VAC (optional)
DIN Rail Mounted Load Center	2 position, 30 amp, 120/240 VAC (optional)

### CABLE ENTRANCE

Cable Entry	(3) 1.375" cable entry ports
Ground Cable Entry	(1) 1.375" cable entry port
AC Entry	(1) 1.375" conduit entry port
Miscellaneous Cable Entry	(2) .625" cable entry port

### SECURITY

Equipment Chamber Front Door	(2) 1/2 turn latch, padlockable Optional door actuators include hex/pin and 7/16" hex nut styles
Alarm Options	High temperature alarm Low temperature alarm Front door intrusion alarm

### ENVIRONMENTAL

Operating Temperature	-40°C to +46°C (-40°F to +115°F)
Humidity	0 to 95% non-condensing
Elevation	0 to 10,000 ft.
Cooling	Free air, convection cooled with sealed or vented side plates (optional) 24 VDC, 48 VDC, 500 watt fan cooled (optional) 24 VDC, 48 VDC, 500 watt heat exchanger (optional)
Safety Compliance	UL Listed, cUL, GR-487 (as applicable)



Vertiv™ XTE 401 Series, 2410 Enclosure



Vertiv™ XTE 401 Series, 2416 Enclosure



Vertiv™ XTE 401 Series, 3816 Enclosure

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## SUPPLEMENTAL

SHEET NUMBER:

R-605

REVISION:

0

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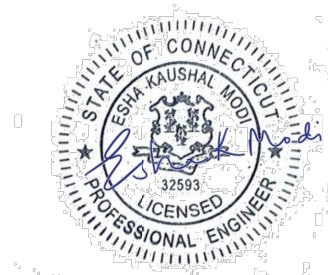


## Antenna Mount Analysis Report

**ATC Site Name** : Mlfd - Milford, CT  
**ATC Site Number** : 302516  
**Engineering Number** : 13251343\_C8\_06  
**Mount Elevation** : 73 ft  
**Carrier** : T-Mobile  
**Carrier Site Name** : CT318/Spectra\_Devon  
**Carrier Site Number** : CT11318F  
**Site Location** : 438 Bridgeport Ave  
 Milford, CT 06460-4105  
 41.20661111, -73.0934  
**County** : New Haven  
**Date** : July 21, 2020  
**Max Usage** : 46%  
**Result** : Pass

Prepared By:  
 Michael Ellis  
 Structural Engineer

Reviewed By:



Authorized by "EOR"  
 22 Jul 2020 04:29:02



COA: PEC.0001553

### Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for T-Mobile at 73 ft on a new Site Pro 1 RMQP-496-HK platform with handrails.

### Supporting Documents

Specifications Sheet	Site Pro 1 RMQP-496-HK, dated July 14, 2014
Radio Frequency Data Sheet	RFDS ID #CT11318F, dated May 19, 2020

### Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	120 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Codes:	ANSI/TIA-222-H
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	Ss = 0.203, S1 = 0.053
Site Class:	D - Stiff Soil
Live Loads: *	Lm = 500 lbs

\* Based on experience it has been determined that the maintenance load cases do not control over rigging load cases in platform mount analyses. Therefore, these load cases have been excluded from this analysis.

### Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount 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](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

SUPPLEMENTAL

SHEET NUMBER: **R-606**  
 REVISION: **0**

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# Exhibit C

## Structural Analysis Report





**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 100 ft Monopole  
**ATC Site Name** : Mlfd - Milford, CT  
**ATC Asset Number** : 302516  
**Engineering Number** : 13251343\_C3\_05  
**Proposed Carrier** : T-MOBILE  
**Carrier Site Name** : CT318/Spectra\_Devon  
**Carrier Site Number** : CT11318F  
**Site Location** : 438 Bridgeport Ave  
Milford, CT 06460-4105  
41.206600,-73.093400  
**County** : New Haven  
**Date** : July 10, 2020  
**Max Usage** : 75%  
**Result** : Pass



Prepared By:  
Kilian Bestram  
Structural Engineer

*Kilian Bestram*

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
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Foundations .....	3
Deflection and Sway .....	3
Standard Conditions .....	4
Calculations .....	Attached



## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 100 ft monopole to reflect the change in loading by T-MOBILE.

## Supporting Documents

<b>Tower Drawings</b>	ITT Meyer Specification #AT-8935, Type D, dated April 13, 1984 Mapping by Smith Cullum, SpectraSite #CT-0052, dated May 31, 2002
<b>Foundation Drawing</b>	Mapping by FDH Project #02-1210, dated January 9, 2003
<b>Geotechnical Report</b>	AET Job #002GT03, dated January 7, 2003
<b>Modifications</b>	SpectraSite Drawing #CT-0052, dated January 14, 2003 ATC Job #40870132, dated September 28, 2007 American Tower #27094034, dated April 21, 2008
<b>Mount Analysis</b>	ATC Engineering #13251343_C8_06, dated July 21, 2020

## 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.

<b>Basic Wind Speed:</b>	120 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Crest Height (H):</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.20, S_1 = 0.05$
<b>Site Class:</b>	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](mailto: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**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier	
108.0	1	Generic 10' Omni	Platform with Handrails	-	OTHER	
104.0	-	-				
102.0	3	Commscope SBNHH-1D65A			(4) 3" conduit (2) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax (1) 2" conduit	AT&T MOBILITY
	3	Kaelus DBC0061F1V51-2				
	2	Commscope WCS-IMFQ-AMT				
	6	Powerwave Allgon LGP21401				
	2	Raycap DC6-48-60-18-8F				
	3	Ericsson RRUS 4478 B14				
	1	Raycap DC6-48-60-18-8C				
	3	Ericsson RRUS 11 (Band 12)				
	3	Ericsson RRUS 32 (50.8 lbs)				
	3	Ericsson RRUS 32 B66				
	3	Ericsson RRUS 32 B2				
3	CCI OPA-65R-LCUU-H4					
3	Powerwave Allgon 7770.00					
3	Kathrein Scala 80010964					
93.0	3	Generic 48" x 12" Panel	Flush	(6) 7/8" Coax	SPRINT NEXTEL	
83.0	3	Generic 48" x 12" Panel	Flush	(6) 7/8" Coax		
73.0	3	RFS APX16DWV-16DWVS-E-A20	-	(1) 1 1/4" (1.25"-31.8mm) Fiber (12) 7/8" Coax	T-MOBILE	
	6	Ericsson KRY 112 144/2				
	3	RFS APXVAARR24_43-U-NA20				

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
73.0	3	Kathrein Scala Smart Bias Tee	T-Arm	(6) 7/8" Coax	T-MOBILE
	3	Ericsson Radio 4449 B12,B71			
	3	Ericsson KRY 112 489/2			

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
73.0	3	Ericsson Radio 4449 B71 B85A	SitePro 1 RMQP-496-HK	(2) 1 1/4" (1.25"-31.8mm) Fiber	T-MOBILE
	3	Ericsson RRUS 4415 B25			
	3	Ericsson Air6449 B41			
	3	Ericsson AIR32 B66Aa/B2a			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax inside the pole shaft.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	32%	Pass
Shaft	65%	Pass
Base Plate	54%	Pass
Reinforcement	75%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,286.4	50%
Axial (Kips)	32.5	2%
Shear (Kips)	17.7	27%

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 B71 B85A	T-MOBILE	0.540	0.753
	Ericsson RRUS 4415 B25			
	Ericsson Air6449 B41			
	Ericsson AIR32 B66Aa/B2a			

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



## Standard Conditions

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

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

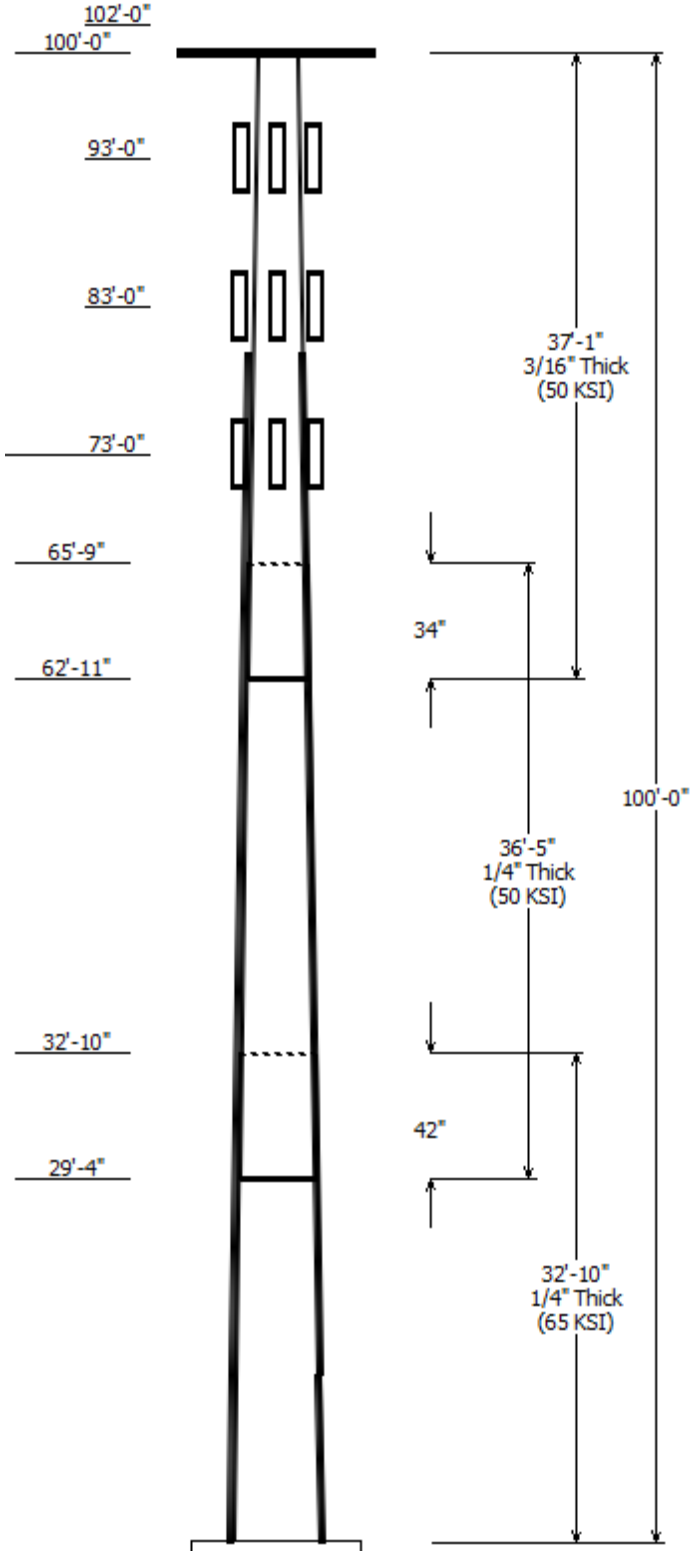
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

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

Job Information	
Client : T-MOBILE	Code: ANSI/TIA-222-H
Pole : 302516	
Location : Mlfd - Milford, CT	
Description : 100 ft ITT Meyer Type B Monopole	Risk Category : II
Shape : 12 Sides	Exposure : B
Height : 100.00 (ft)	Topo Method : Method 1
Base Elev (ft): 0.00	Topographic Category : 1
Taper: 0.16375@in/ft)	



Sections Properties						
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Overlap Length (in)	Steel Grade
		Top	Bottom			
1	32.833	24.62	30.00	0.250	0.000	12 Sides 65
2	36.417	19.73	25.69	0.250	42.000	12 Sides 50
3	37.083	14.50	20.57	0.188	34.000	12 Sides 50

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
108.000	108.000	1	Generic 10' Omni
102.000	104.000	3	Kathrein Scala 80010964
102.000	104.000	3	CCI OPA-65R-LCUU-H4
102.000	104.000	3	Commscope SBNHH-1D65A
102.000	104.000	3	Powerwave Allgon 7770.00
102.000	104.000	3	Ericsson RRUS 32 B2
102.000	104.000	3	Ericsson RRUS 32 B66
102.000	104.000	3	Ericsson RRUS 32 (50.8 lbs)
102.000	104.000	3	Ericsson RRUS 11 (Band 12)
102.000	104.000	1	Raycap DC6-48-60-18-8C
102.000	104.000	3	Ericsson RRUS 4478 B14
102.000	104.000	2	Raycap DC6-48-60-18-8F
102.000	104.000	6	Powerwave Allgon LGP21401
102.000	104.000	2	Commscope WCS-IMFQ-AMT
102.000	102.000	3	Kaelus DBC0061F1V51-2
100.000	100.000	1	Heavy Platform w/ Handrails
93.000	93.000	3	Generic 48" x 12" Panel
83.000	83.000	3	Generic 48" x 12" Panel
73.000	73.000	1	Perfect Vison PV-LLP12M-HR-
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 AIR32 B66Aa/B2a
73.000	73.000	3	Ericsson Air6449 B41
73.000	73.000	3	Ericsson RRUS 4415 B25
73.000	73.000	3	Ericsson Radio 4449 B71 B85A
73.000	73.000	6	Ericsson KRY 112 144/2

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
0.000	73.000	1 1/4" (1.25"-	No
0.000	73.000	1 1/4" (1.25"-	No
0.000	73.000	7/8" Coax	Yes
0.000	83.000	7/8" Coax	Yes
0.000	85.000	#20 w/ Angle	Yes
0.000	85.000	#20 w/ Angle	Yes
0.000	85.000	#20 w/ Angle	Yes
0.000	85.000	#20 w/ Angle	Yes
0.000	93.000	7/8" Coax	Yes
0.000	102.0	0.39" (10mm)	No
0.000	102.0	0.78" (19.7mm) 8	No

0.000	102.0	1 5/8" Coax	No
0.000	102.0	2" conduit	No
0.000	102.0	3" conduit	No
0.000	104.0	3" conduit	No

### Load Cases

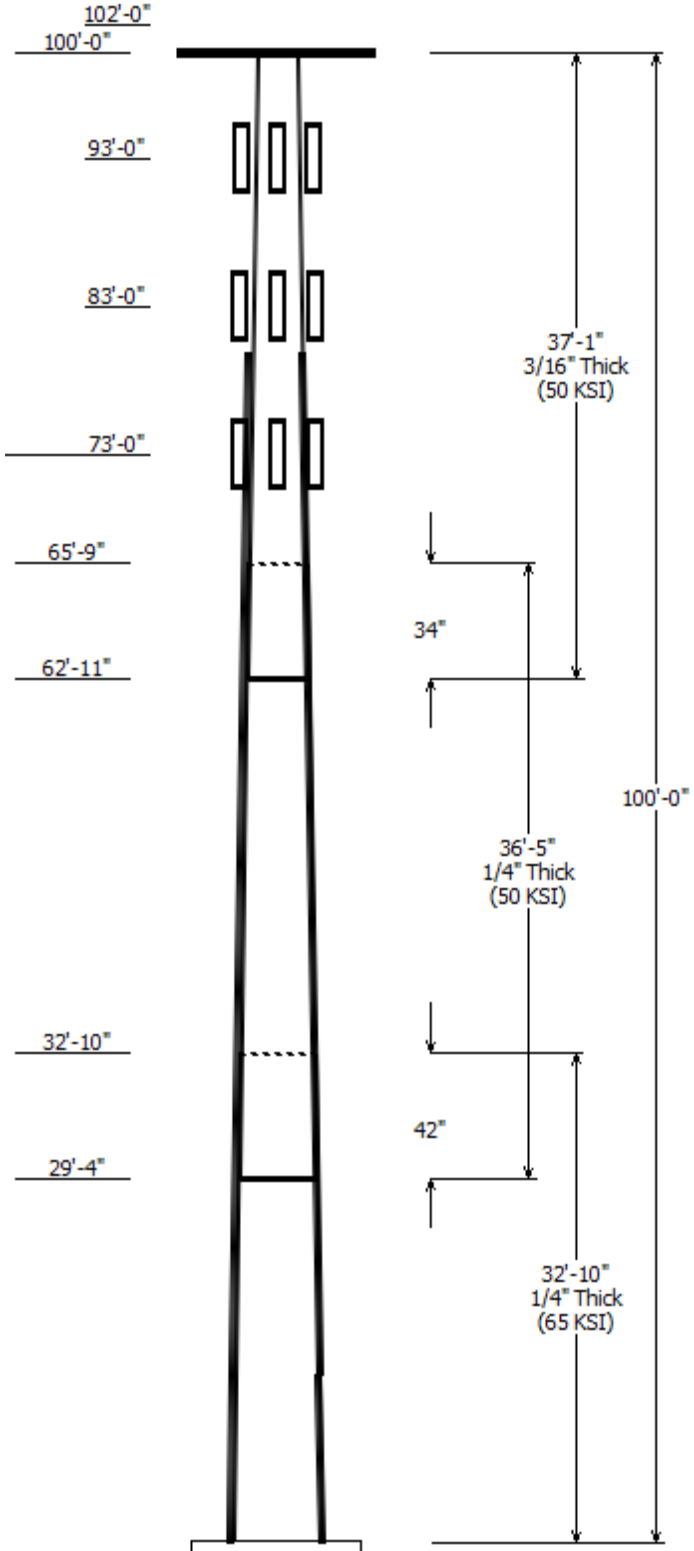
1.2D + 1.0W	120 mph with No Ice
0.9D + 1.0W	120 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

### Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	1286.37	17.73	32.45
0.9D + 1.0W	1269.59	17.71	24.32
1.2D + 1.0Di + 1.0Wi	318.70	4.09	43.84
1.2D + 1.0Ev + 1.0Eh	68.34	0.82	32.27
0.9D - 1.0Ev + 1.0Eh	67.22	0.81	22.24
1.0D + 1.0W	285.47	3.96	27.08

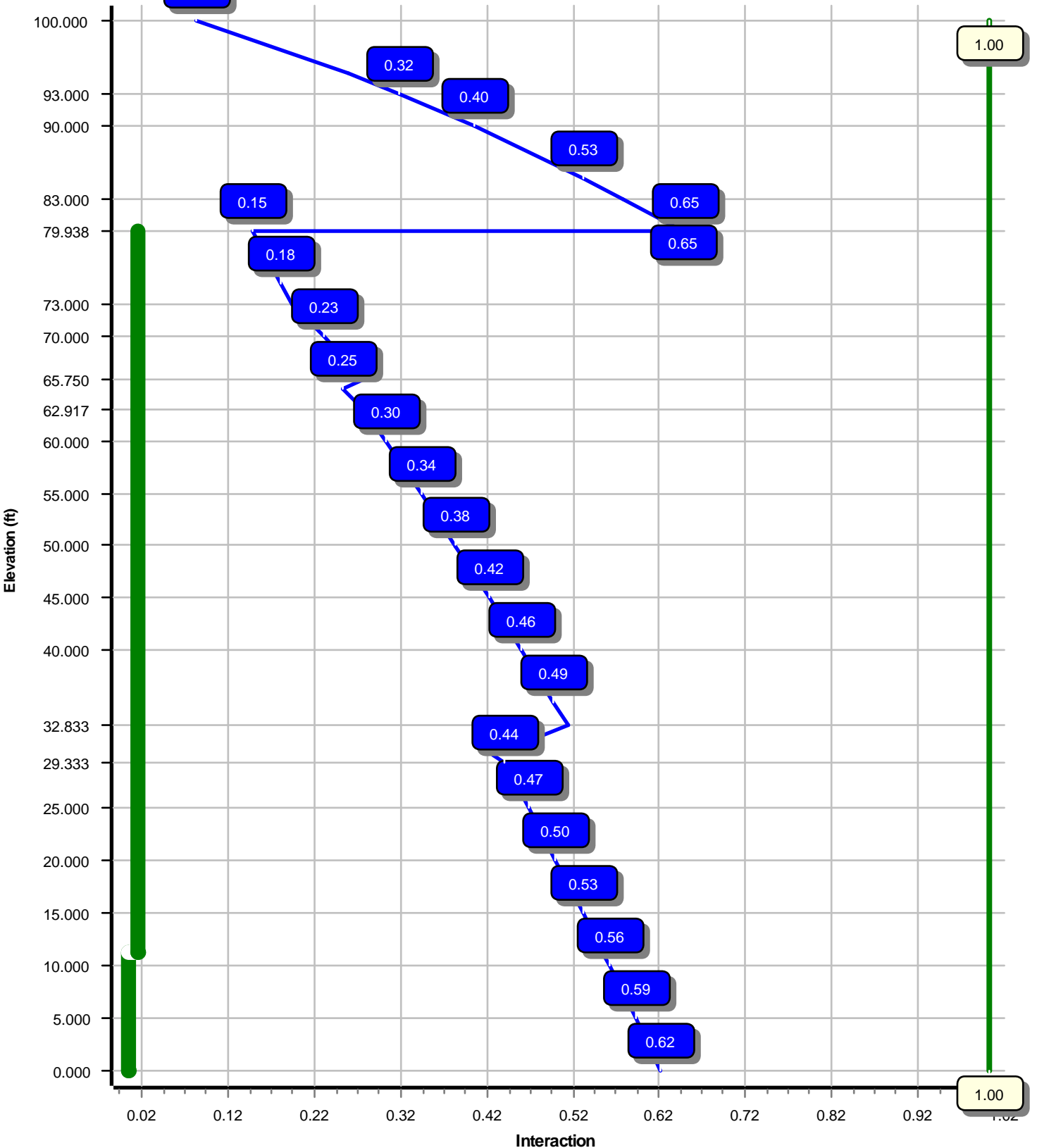
### Dish Deflections

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





Load Case : 1.2D + 1.0W  
Max Ratio 64.70% at 79.9 ft



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Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

7/10/2020 9:43:54 AM

Customer: T-MOBILE

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### Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	100
Code :	ANSI/TIA-222-H	Base Diameter (in) :	30.00
Shape :	12 Sides	Top Diameter (in) :	14.50
Pole Type :	Taper	Taper (in/ft) :	0.164
Pole Manufacturer :	ITT Meyer	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	1.00

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### Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	120 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	77.00 ft

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### Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.06		
$T_L$ (sec):	6	$p$ :	1
$S_s$ :	0.203	$S_1$ :	0.053
$F_a$ :	1.600	$F_v$ :	2.400
$S_{ds}$ :	0.217	$S_{d1}$ :	0.085
		$C_s$ :	0.030
		$C_s$ Max:	0.030
		$C_s$ Min:	0.030

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### Load Cases

1.2D + 1.0W	120 mph with No Ice
0.9D + 1.0W	120 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

7/10/2020 9:43:54 AM

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 <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	32.833	0.2500	65		0.00	2,434	30.00	0.00	23.95	2705.5	29.47	120.00	24.62	32.83	19.62	1487.8	23.71	98.49	0.163750
2-12	36.417	0.2500	50	Slip	42.00	2,241	25.69	29.33	20.48	1693.1	24.86	102.79	19.73	65.75	15.68	759.9	18.47	78.93	0.163750
3-12	37.083	0.1875	50	Slip	34.00	1,322	20.57	62.92	12.31	652.8	26.72	109.72	14.50	100.00	8.64	225.9	18.04	77.33	0.163750
Shaft Weight						5,997													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
108.00	Generic 10' Omni	1	1.00	0.000	25.00	3.000	1.00	73.57	5.303	1.00
102.00	Kaelus DBC0061F1V51-2	3	0.75	0.000	25.50	0.433	0.50	37.32	0.721	0.50
102.00	Commscope WCS-IMFQ-AMT	2	0.75	2.000	29.50	0.989	0.50	51.05	1.412	0.50
102.00	Powerwave Allgon LGP21401	6	0.75	2.000	14.10	1.104	0.50	30.06	1.561	0.50
102.00	Raycap DC6-48-60-18-8F	2	0.75	2.000	20.00	1.260	1.00	53.69	1.681	1.00
102.00	Ericsson RRUS 4478 B14	3	0.75	2.000	59.40	2.021	0.67	98.67	2.625	0.67
102.00	Raycap DC6-48-60-18-8C	1	0.75	2.000	16.00	2.030	1.00	53.25	2.516	1.00
102.00	Ericsson RRUS 11 (Band 12)	3	0.75	2.000	50.00	2.566	0.67	93.62	3.236	0.67
102.00	Ericsson RRUS 32 (50.8 lbs)	3	0.75	2.000	50.80	2.692	0.67	96.57	3.431	0.67
102.00	Ericsson RRUS 32 B66	3	0.75	2.000	53.00	2.743	0.67	100.06	3.491	0.67
102.00	Ericsson RRUS 32 B2	3	0.75	2.000	53.00	2.743	0.67	100.06	3.491	0.67
102.00	Powerwave Allgon 7770.00	3	0.75	2.000	35.00	5.508	0.65	114.32	6.165	0.65
102.00	Commscope SBNHH-1D65A	3	0.75	2.000	33.50	5.883	0.69	120.11	7.244	0.69
102.00	CCI OPA-65R-LCUU-H4	3	0.75	2.000	57.00	6.083	0.66	147.02	7.301	0.66
102.00	Kathrein Scala 80010964	3	0.75	2.000	81.60	9.997	0.62	212.48	11.508	0.62
100.00	Heavy Platform w/ Handrails	1	1.00	0.000	3,000.00	59.800	1.00	4,377.42	76.594	1.00
93.00	Generic 48" x 12" Panel	3	1.00	0.000	30.00	5.067	0.66	101.98	6.257	0.66
83.00	Generic 48" x 12" Panel	3	1.00	0.000	30.00	5.067	0.66	101.15	6.243	0.66
73.00	Ericsson KRY 112 144/2	6	0.75	0.000	9.70	0.480	0.50	18.51	0.774	0.50
73.00	Ericsson Radio 4449 B71 B85A	3	0.75	0.000	75.00	1.650	0.50	112.31	2.177	0.50
73.00	Ericsson RRUS 4415 B25	3	0.75	0.000	46.00	1.650	0.50	72.86	2.177	0.50
73.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	188.54	6.667	0.63
73.00	Ericsson AIR32 B66Aa/B2a	3	0.75	0.000	132.20	6.510	0.71	231.21	7.869	0.71
73.00	RFS APX16DWV-16DWVS-E-A20	3	0.75	0.000	40.70	6.586	0.60	113.17	7.929	0.60
73.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.243	0.63	371.43	22.544	0.63
73.00	Perfect Vison PV-LLP12M-HR-12-	1	1.00	0.000	2,000.00	36.800	1.00	2,864.31	52.703	1.00
Totals	Num Loadings:26	74			8,536.60			15,108.11		

**Linear Appurtenance Properties**

Load Case Azimuth (deg) : 30

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Flat Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind Carrier
0.00	104.00	2	3" conduit	3.50	7.58	N	0	0.00	0	0.00	N AT&T MOBILITY
0.00	102.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0	0.00	N AT&T MOBILITY
0.00	102.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0	0.00	N AT&T MOBILITY
0.00	102.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0	0.00	N AT&T MOBILITY
0.00	102.00	1	2" conduit	2.38	3.65	N	0	0.00	0	0.00	N AT&T MOBILITY
0.00	102.00	2	3" conduit	3.50	7.58	N	0	0.00	0	0.00	N AT&T MOBILITY
0.00	93.00	6	7/8" Coax	1.09	0.33	N	6	0.50	0.50	330	2.09 Y SPRINT NEXTEL
0.00	85.00	1	#20 w/ Angle Brackets	4.00	4.68	N	1	0.00	0.00	0	0.00 Y
0.00	85.00	1	#20 w/ Angle Brackets	4.00	4.68	N	1	0.00	0.00	90	0.00 Y
0.00	85.00	1	#20 w/ Angle Brackets	4.00	4.68	N	1	0.00	0.00	180	0.00 Y

Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

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Customer: T-MOBILE

0.00	85.00	1	#20 w/ Angle Brackets	4.00	4.68	N	1	0.00	0.00	270	0.00	Y	
0.00	83.00	6	7/8" Coax	1.09	0.33	N	6	0.50	0.50	330	0.50	Y	SPRINT NEXTEL
0.00	73.00	1	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	1	0.00	0.00	0	0.00	N	T-MOBILE
0.00	73.00	2	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	1	0.00	0.00	0	0.00	N	T-MOBILE
0.00	73.00	12	7/8" Coax	1.09	0.33	N	3	0.50	0.50	30	0.50	Y	T-MOBILE

**Additional Steel**

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections			Connectors	Continuation?
					Description	Spacing (in)	Len (in)			
0.00	11.25	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	39.5	3.13	5/8" A36 U-Bolt	No
11.25	79.94	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.13	5/8" A36 U-Bolt	Yes

**Segment Properties** (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Additional Reinforcing		
												Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
0.00		0.2500	30.000	23.949	2,705.5	29.47	120.00	72.6	174.2	0.0	0.0	19.64	3,346	0.0
5.00		0.2500	29.181	23.290	2,488.2	28.60	116.72	73.5	164.7	0.0	401.9	19.64	3,200	334.0
10.00		0.2500	28.362	22.631	2,282.9	27.72	113.45	74.5	155.5	0.0	390.6	19.64	3,056	334.0
11.25	Reinf. Top Reinf	0.2500	28.158	22.466	2,233.4	27.50	112.63	74.7	153.2	0.0	95.9	19.64	3,021	83.5
15.00		0.2500	27.544	21.971	2,089.2	26.84	110.18	75.4	146.5	0.0	283.5	19.64	2,916	250.5
20.00		0.2500	26.725	21.312	1,906.7	25.96	106.90	76.4	137.8	0.0	368.2	19.64	2,780	334.0
25.00		0.2500	25.906	20.653	1,735.2	25.09	103.63	77.4	129.4	0.0	357.0	19.64	2,646	334.0
29.33	Bot - Section 2	0.2500	25.197	20.082	1,595.2	24.33	100.79	78.2	122.3	0.0	300.3	19.64	2,533	289.5
30.00		0.2500	25.087	19.994	1,574.4	24.21	100.35	78.3	121.2	0.0	91.8	19.64	2,595	44.5
32.83	Top - Section 1	0.2500	25.124	20.023	1,581.2	24.25	100.49	62.7	121.6	0.0	385.8	19.64	2,522	189.3
35.00		0.2500	24.769	19.738	1,514.5	23.87	99.08	63.0	118.1	0.0	146.6	19.64	2,466	144.7
40.00		0.2500	23.950	19.079	1,367.8	22.99	95.80	63.0	110.3	0.0	330.2	19.64	2,341	334.0
45.00		0.2500	23.131	18.419	1,230.9	22.11	92.53	63.0	102.8	0.0	319.0	19.64	2,218	334.0
50.00		0.2500	22.313	17.760	1,103.4	21.23	89.25	63.0	95.5	0.0	307.8	19.64	2,099	334.0
55.00		0.2500	21.494	17.101	985.1	20.36	85.98	63.0	88.5	0.0	296.6	19.64	1,984	334.0
60.00		0.2500	20.675	16.442	875.5	19.48	82.70	63.0	81.8	0.0	285.4	19.64	1,871	334.0
62.92	Bot - Section 3	0.2500	20.197	16.058	815.5	18.97	80.79	63.0	78.0	0.0	161.3	19.64	1,807	194.8
65.00		0.2500	19.856	15.783	774.4	18.60	79.43	63.0	75.3	0.0	199.4	19.64	1,812	139.2
65.75	Top - Section 2	0.1875	20.108	12.027	609.2	26.06	107.25	61.4	58.5	0.0	70.9	19.64	1,795	50.1
70.00		0.1875	19.413	11.607	547.6	25.06	103.53	62.1	54.5	0.0	170.9	19.64	1,704	283.9
73.00		0.1875	18.921	11.311	506.7	24.36	100.91	62.6	51.7	0.0	117.0	19.64	1,642	200.4
75.00		0.1875	18.594	11.113	480.6	23.89	99.17	63.0	49.9	0.0	76.3	19.64	1,600	133.6
79.94	Reinf. Top	0.1875	17.785	10.625	420.0	22.74	94.85	63.0	45.6	0.0	182.6	19.64	1,501	329.8
80.00		0.1875	17.775	10.618	419.2	22.72	94.80	63.0	45.6	0.0	2.3			
83.00		0.1875	17.284	10.322	385.1	22.02	92.18	63.0	43.0	0.0	106.9			
85.00		0.1875	16.956	10.124	363.4	21.55	90.43	63.0	41.4	0.0	69.6			
90.00		0.1875	16.138	9.630	312.7	20.38	86.07	63.0	37.4	0.0	168.0			
93.00		0.1875	15.646	9.333	284.7	19.68	83.45	63.0	35.2	0.0	96.8			
95.00		0.1875	15.319	9.135	267.0	19.21	81.70	63.0	33.7	0.0	62.8			
100.0		0.1875	14.500	8.641	225.9	18.04	77.33	63.0	30.1	0.0	151.2			
											5,996.6			5,339.8

<b>Load Case:</b> 1.2D + 1.0W	120 mph with No Ice	22 Iterations
Gust Response Factor :1.10		
Dead Load Factor :1.20		
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		262.7	0.0					0.0	0.0	262.7	0.0	0.0	0.0
5.00		521.3	482.2					1.7	864.4	523.0	1,346.6	0.0	0.0
10.00		322.5	468.8					2.3	864.4	324.8	1,333.1	0.0	0.0
11.25	Reinf. Top Reinf	209.3	115.1					0.7	216.1	210.0	331.2	0.0	0.0
15.00		334.2	340.2					86.0	648.3	420.3	988.5	0.0	0.0
20.00		426.0	441.9					116.7	864.4	542.7	1,306.2	0.0	0.0
25.00		436.9	428.4					3.6	864.4	440.4	1,292.8	0.0	0.0
29.33	Bot - Section 2	230.6	360.4					3.1	749.1	233.7	1,109.5	0.0	0.0
30.00		132.3	110.2					0.5	115.3	132.8	225.5	0.0	0.0
32.83	Top - Section 1	179.4	463.0					57.3	489.8	236.7	952.8	0.0	0.0
35.00		258.8	175.9					44.6	374.6	303.5	550.4	0.0	0.0
40.00		362.0	396.2					107.8	864.4	469.8	1,260.6	0.0	0.0
45.00		361.6	382.8					114.2	864.4	475.8	1,247.1	0.0	0.0
50.00		359.5	369.3					120.5	864.4	480.0	1,233.7	0.0	0.0
55.00		355.9	355.9					126.6	864.4	482.5	1,220.2	0.0	0.0
60.00		278.8	342.4					132.7	864.4	411.5	1,206.8	0.0	0.0
62.92	Bot - Section 3	175.4	193.5					80.2	504.2	255.6	697.7	0.0	0.0
65.00		99.8	239.3					58.5	360.1	158.3	599.4	0.0	0.0
65.75	Top - Section 2	174.1	85.1					21.3	129.7	195.4	214.8	0.0	0.0
70.00		250.4	205.1					122.2	734.7	372.6	939.8	0.0	0.0
73.00	Appurtenance(s)	170.3	140.4	3,387.7	0.0	0.0	4,362.7	88.8	518.6	3,646.8	5,021.7	0.0	0.0
75.00		231.7	91.6					33.9	328.7	265.6	420.2	0.0	0.0
79.94	Reinf. Top	166.1	219.1					86.1	811.4	252.2	1,030.6	0.0	0.0
80.00		99.5	2.7					1.1	5.3	100.6	8.0	0.0	0.0
83.00	Appurtenance(s)	161.5	128.3	361.1	0.0	0.0	108.0	54.1	252.5	576.7	488.8	0.0	0.0
85.00		187.9	83.5					36.8	163.6	224.7	247.1	0.0	0.0
90.00		196.2	201.7					0.0	296.7	196.2	498.4	0.0	0.0
93.00	Appurtenance(s)	119.6	116.1	373.1	0.0	0.0	108.0	0.0	178.0	492.7	402.2	0.0	0.0
95.00		162.5	75.4					0.0	113.9	162.5	189.3	0.0	0.0
100.00	Appurtenance(s)	115.1	181.5	2,270.2	0.0	0.0	3,600.0	0.0	284.8	2,385.4	4,066.3	0.0	0.0
Totals:										15,235.3	30,429.2	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

7/10/2020 9:43:57 AM

Customer: T-MOBILE

**Load Case: 1.2D + 1.0W**

120 mph with No Ice

22 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.20

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	-32.45	-17.73	0.00	-1,286.37	0.00	1,286.37	1,564.13	420.30	1,179.53	948.21	0.00	0.00	0.620
5.00	-31.02	-17.36	0.00	-1,197.73	0.00	1,197.73	1,541.15	408.73	1,115.51	908.35	0.16	-0.29	0.589
10.00	-29.63	-17.12	0.00	-1,110.94	0.00	1,110.94	1,517.03	397.17	1,053.29	868.61	0.62	-0.58	0.559
11.25	-29.26	-16.98	0.00	-1,089.54	0.00	1,089.54	1,510.82	394.27	1,038.01	858.70	0.78	-0.65	0.551
11.25	-29.26	-16.98	0.00	-1,089.54	0.00	1,089.54	1,510.82	394.27	1,038.01	858.70	0.78	-0.65	0.551
15.00	-28.20	-16.67	0.00	-1,025.88	0.00	1,025.88	1,491.77	385.60	992.85	829.06	1.38	-0.87	0.528
20.00	-26.83	-16.23	0.00	-942.55	0.00	942.55	1,465.38	374.03	934.19	789.74	2.44	-1.15	0.497
25.00	-25.48	-15.87	0.00	-861.40	0.00	861.40	1,437.85	362.47	877.32	750.71	3.80	-1.42	0.465
29.33	-24.34	-15.67	0.00	-792.62	0.00	792.62	1,413.08	352.44	829.48	717.18	5.20	-1.65	0.438
30.00	-24.09	-15.57	0.00	-782.17	0.00	782.17	1,409.19	350.90	822.24	712.04	5.43	-1.69	0.425
32.83	-23.11	-15.35	0.00	-738.07	0.00	738.07	1,130.05	270.31	634.33	571.84	6.48	-1.84	0.511
35.00	-22.53	-15.10	0.00	-704.81	0.00	704.81	1,119.12	266.46	616.37	558.15	7.34	-1.95	0.494
40.00	-21.22	-14.67	0.00	-629.31	0.00	629.31	1,081.75	257.56	575.90	521.31	9.51	-2.19	0.458
45.00	-19.94	-14.22	0.00	-555.95	0.00	555.95	1,044.38	248.66	536.82	485.73	11.92	-2.41	0.421
50.00	-18.68	-13.76	0.00	-484.84	0.00	484.84	1,007.01	239.76	499.10	451.41	14.57	-2.63	0.382
55.00	-17.44	-13.27	0.00	-416.06	0.00	416.06	969.64	230.87	462.76	418.35	17.43	-2.83	0.342
60.00	-16.23	-12.84	0.00	-349.69	0.00	349.69	932.27	221.97	427.79	386.54	20.50	-3.01	0.300
62.92	-15.52	-12.57	0.00	-312.23	0.00	312.23	910.47	216.78	408.02	368.57	22.37	-3.11	0.274
65.00	-14.92	-12.39	0.00	-286.04	0.00	286.04	894.90	213.07	394.19	355.99	23.74	-3.18	0.251
65.75	-14.71	-12.20	0.00	-276.75	0.00	276.75	664.38	162.37	305.14	269.42	24.24	-3.20	0.274
70.00	-13.77	-11.80	0.00	-224.88	0.00	224.88	648.81	156.70	284.20	253.83	27.15	-3.32	0.229
73.00	-8.96	-7.88	0.00	-189.47	0.00	189.47	637.49	152.69	269.87	242.97	29.26	-3.40	0.192
75.00	-8.55	-7.60	0.00	-173.72	0.00	173.72	629.79	150.02	260.52	235.80	30.70	-3.45	0.178
79.94	-7.53	-7.29	0.00	-136.20	0.00	136.20	602.42	143.43	238.14	215.54	34.32	-3.55	0.145
79.94	-7.53	-7.29	0.00	-136.20	0.00	136.20	602.42	143.43	238.14	215.54	34.32	-3.55	0.647
80.00	-7.51	-7.21	0.00	-135.75	0.00	135.75	602.07	143.35	237.86	215.29	34.37	-3.55	0.646
83.00	-7.04	-6.62	0.00	-114.13	0.00	114.13	585.25	139.35	224.77	203.37	36.68	-3.81	0.575
85.00	-6.78	-6.41	0.00	-100.88	0.00	100.88	574.04	136.68	216.24	195.61	38.31	-3.97	0.530
90.00	-6.27	-6.21	0.00	-68.81	0.00	68.81	546.01	130.00	195.65	176.87	42.65	-4.30	0.403
93.00	-5.89	-5.70	0.00	-50.18	0.00	50.18	529.19	126.00	183.79	166.09	45.40	-4.46	0.315
95.00	-5.70	-5.53	0.00	-38.78	0.00	38.78	517.98	123.33	176.08	159.08	47.29	-4.55	0.257
100.00	0.00	-5.06	0.00	-11.11	0.00	11.11	489.95	116.66	157.55	142.23	52.14	-4.68	0.080

<b>Load Case:</b> 0.9D + 1.0W	120 mph with No Ice (Reduced DL)	22 Iterations
Gust Response Factor :1.10		
Dead Load Factor :0.90		
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		262.7	0.0					0.0	0.0	262.7	0.0	0.0	0.0
5.00		521.3	361.7					1.7	648.3	523.0	1,009.9	0.0	0.0
10.00		322.5	351.6					2.3	648.3	324.8	999.8	0.0	0.0
11.25	Reinf. Top Reinf	209.3	86.3					0.7	162.1	210.0	248.4	0.0	0.0
15.00		334.2	255.2					86.0	486.2	420.3	741.4	0.0	0.0
20.00		426.0	331.4					116.7	648.3	542.7	979.7	0.0	0.0
25.00		436.9	321.3					3.6	648.3	440.4	969.6	0.0	0.0
29.33	Bot - Section 2	230.6	270.3					3.1	561.8	233.7	832.1	0.0	0.0
30.00		132.3	82.6					0.5	86.4	132.8	169.1	0.0	0.0
32.83	Top - Section 1	179.4	347.2					57.3	367.3	236.7	714.6	0.0	0.0
35.00		258.8	131.9					44.6	280.9	303.5	412.8	0.0	0.0
40.00		362.0	297.2					107.8	648.3	469.8	945.5	0.0	0.0
45.00		361.6	287.1					114.2	648.3	475.8	935.4	0.0	0.0
50.00		359.5	277.0					120.5	648.3	480.0	925.3	0.0	0.0
55.00		355.9	266.9					126.6	648.3	482.5	915.2	0.0	0.0
60.00		278.8	256.8					132.7	648.3	411.5	905.1	0.0	0.0
62.92	Bot - Section 3	175.4	145.1					80.2	378.2	255.6	523.3	0.0	0.0
65.00		99.8	179.4					58.5	270.1	158.3	449.6	0.0	0.0
65.75	Top - Section 2	174.1	63.8					21.3	97.2	195.4	161.1	0.0	0.0
70.00		250.4	153.8					122.2	551.0	372.6	704.8	0.0	0.0
73.00	Appurtenance(s)	170.3	105.3	3,387.7	0.0	0.0	3,272.0	88.8	389.0	3,646.8	3,766.3	0.0	0.0
75.00		231.7	68.7					33.9	246.5	265.6	315.2	0.0	0.0
79.94	Reinf. Top	166.1	164.3					86.1	608.6	252.2	772.9	0.0	0.0
80.00		99.5	2.0					1.1	3.9	100.6	6.0	0.0	0.0
83.00	Appurtenance(s)	161.5	96.2	361.1	0.0	0.0	81.0	54.1	189.4	576.7	366.6	0.0	0.0
85.00		187.9	62.6					36.8	122.7	224.7	185.3	0.0	0.0
90.00		196.2	151.2					0.0	222.5	196.2	373.8	0.0	0.0
93.00	Appurtenance(s)	119.6	87.1	373.1	0.0	0.0	81.0	0.0	133.5	492.7	301.6	0.0	0.0
95.00		162.5	56.6					0.0	85.4	162.5	142.0	0.0	0.0
100.00	Appurtenance(s)	115.1	136.1	2,270.2	0.0	0.0	2,700.0	0.0	213.6	2,385.4	3,049.7	0.0	0.0
Totals:										15,235.3	22,821.9	0.00	0.00



Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

7/10/2020 9:44:00 AM

Customer: T-MOBILE

**Load Case: 0.9D + 1.0W**

120 mph with No Ice (Reduced DL)

22 Iterations

Gust Response Factor :1.10

Dead Load Factor :0.90

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	-24.32	-17.71	0.00	-1,269.59	0.00	1,269.59	1,564.13	420.30	1,179.53	948.21	0.00	0.00	0.609
5.00	-23.23	-17.30	0.00	-1,181.06	0.00	1,181.06	1,541.15	408.73	1,115.51	908.35	0.16	-0.29	0.579
10.00	-22.18	-17.03	0.00	-1,094.58	0.00	1,094.58	1,517.03	397.17	1,053.29	868.61	0.61	-0.57	0.548
11.25	-21.89	-16.87	0.00	-1,073.29	0.00	1,073.29	1,510.82	394.27	1,038.01	858.70	0.77	-0.64	0.541
11.25	-21.89	-16.87	0.00	-1,073.29	0.00	1,073.29	1,510.82	394.27	1,038.01	858.70	0.77	-0.64	0.541
15.00	-21.09	-16.53	0.00	-1,010.01	0.00	1,010.01	1,491.77	385.60	992.85	829.06	1.36	-0.86	0.518
20.00	-20.04	-16.07	0.00	-927.33	0.00	927.33	1,465.38	374.03	934.19	789.74	2.41	-1.13	0.487
25.00	-19.01	-15.69	0.00	-846.98	0.00	846.98	1,437.85	362.47	877.32	750.71	3.74	-1.40	0.455
29.33	-18.15	-15.48	0.00	-778.99	0.00	778.99	1,413.08	352.44	829.48	717.18	5.12	-1.63	0.428
30.00	-17.96	-15.37	0.00	-768.67	0.00	768.67	1,409.19	350.90	822.24	712.04	5.35	-1.67	0.416
32.83	-17.22	-15.15	0.00	-725.13	0.00	725.13	1,130.05	270.31	634.33	571.84	6.38	-1.81	0.499
35.00	-16.77	-14.88	0.00	-692.31	0.00	692.31	1,119.12	266.46	616.37	558.15	7.23	-1.92	0.482
40.00	-15.79	-14.44	0.00	-617.90	0.00	617.90	1,081.75	257.56	575.90	521.31	9.37	-2.15	0.447
45.00	-14.82	-13.99	0.00	-545.69	0.00	545.69	1,044.38	248.66	536.82	485.73	11.74	-2.38	0.411
50.00	-13.87	-13.52	0.00	-475.76	0.00	475.76	1,007.01	239.76	499.10	451.41	14.35	-2.59	0.373
55.00	-12.93	-13.03	0.00	-408.19	0.00	408.19	969.64	230.87	462.76	418.35	17.16	-2.78	0.333
60.00	-12.02	-12.61	0.00	-343.02	0.00	343.02	932.27	221.97	427.79	386.54	20.17	-2.96	0.292
62.92	-11.49	-12.34	0.00	-306.26	0.00	306.26	910.47	216.78	408.02	368.57	22.01	-3.06	0.267
65.00	-11.04	-12.17	0.00	-280.55	0.00	280.55	894.90	213.07	394.19	355.99	23.37	-3.13	0.245
65.75	-10.88	-11.97	0.00	-271.43	0.00	271.43	664.38	162.37	305.14	269.42	23.86	-3.15	0.267
70.00	-10.18	-11.58	0.00	-220.53	0.00	220.53	648.81	156.70	284.20	253.83	26.72	-3.27	0.223
73.00	-6.62	-7.73	0.00	-185.79	0.00	185.79	637.49	152.69	269.87	242.97	28.79	-3.34	0.187
75.00	-6.31	-7.45	0.00	-170.33	0.00	170.33	629.79	150.02	260.52	235.80	30.21	-3.39	0.173
79.94	-5.55	-7.16	0.00	-133.53	0.00	133.53	602.42	143.43	238.14	215.54	33.77	-3.49	0.141
79.94	-5.55	-7.16	0.00	-133.53	0.00	133.53	602.42	143.43	238.14	215.54	33.77	-3.49	0.631
80.00	-5.53	-7.07	0.00	-133.08	0.00	133.08	602.07	143.35	237.86	215.29	33.81	-3.49	0.630
83.00	-5.18	-6.49	0.00	-111.87	0.00	111.87	585.25	139.35	224.77	203.37	36.09	-3.74	0.561
85.00	-4.98	-6.28	0.00	-98.88	0.00	98.88	574.04	136.68	216.24	195.61	37.69	-3.90	0.516
90.00	-4.60	-6.07	0.00	-67.50	0.00	67.50	546.01	130.00	195.65	176.87	41.95	-4.22	0.392
93.00	-4.32	-5.57	0.00	-49.27	0.00	49.27	529.19	126.00	183.79	166.09	44.66	-4.38	0.307
95.00	-4.18	-5.41	0.00	-38.14	0.00	38.14	517.98	123.33	176.08	159.08	46.51	-4.47	0.250
100.00	0.00	-5.06	0.00	-11.11	0.00	11.11	489.95	116.66	157.55	142.23	51.27	-4.60	0.080

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	21 Iterations
Gust Response Factor :1.10	Ice Dead Load 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		37.6	0.0					0.0	0.0	37.6	0.0	0.0	0.0
5.00		74.3	632.1					6.4	1,029.8	80.8	1,661.9	0.0	0.0
10.00		45.8	632.0					7.1	1,045.6	53.0	1,677.6	0.0	0.0
11.25	Reinf. Top Reinf	36.0	157.1					1.9	262.8	37.8	419.9	0.0	0.0
15.00		61.9	466.2					5.8	790.9	67.7	1,257.1	0.0	0.0
20.00		69.1	610.0					8.2	1,059.4	77.2	1,669.3	0.0	0.0
25.00		62.8	595.8					8.6	1,063.7	71.4	1,659.5	0.0	0.0
29.33	Bot - Section 2	33.2	504.4					7.8	924.8	41.0	1,429.2	0.0	0.0
30.00		23.4	132.9					1.2	142.5	24.7	275.4	0.0	0.0
32.83	Top - Section 1	33.6	558.3					5.4	606.2	39.0	1,164.5	0.0	0.0
35.00		48.9	248.4					4.2	464.2	53.1	712.5	0.0	0.0
40.00		69.1	559.9					10.3	1,073.0	79.4	1,632.9	0.0	0.0
45.00		70.1	543.2					25.8	1,075.4	95.9	1,618.5	0.0	0.0
50.00		70.7	526.1					34.0	1,077.5	104.7	1,603.6	0.0	0.0
55.00		70.9	508.7					40.4	1,056.8	111.3	1,565.5	0.0	0.0
60.00		56.1	491.1					46.0	1,058.3	102.1	1,549.4	0.0	0.0
62.92	Bot - Section 3	35.6	278.9					52.5	618.0	88.1	896.9	0.0	0.0
65.00		20.3	300.6					38.7	441.7	59.0	742.3	0.0	0.0
65.75	Top - Section 2	35.5	107.1					14.1	159.1	49.7	266.2	0.0	0.0
70.00		51.1	326.2					81.3	902.0	132.4	1,228.2	0.0	0.0
73.00	Appurtenance(s)	34.6	224.3	747.1	0.0	0.0	6,367.4	59.6	637.2	841.3	7,228.9	0.0	0.0
75.00		47.4	146.8					34.3	381.9	81.7	528.7	0.0	0.0
79.94	Reinf. Top	34.2	350.4					87.2	943.5	121.4	1,294.0	0.0	0.0
80.00		20.8	4.4					1.1	6.9	21.9	11.3	0.0	0.0
83.00	Appurtenance(s)	33.9	206.3	77.2	0.0	0.0	272.7	54.7	333.2	165.9	812.3	0.0	0.0
85.00		44.2	134.8					37.1	202.8	81.3	337.6	0.0	0.0
90.00		48.7	324.6					44.6	333.8	93.2	658.3	0.0	0.0
93.00	Appurtenance(s)	29.8	188.1	80.0	0.0	0.0	275.2	27.1	200.3	136.9	663.7	0.0	0.0
95.00		40.7	122.6					0.0	113.9	40.7	236.5	0.0	0.0
100.00	Appurtenance(s)	28.9	294.0	504.8	0.0	0.0	4,668.4	0.0	284.8	533.7	5,247.2	0.0	0.0
<b>Totals:</b>										<b>3,523.85</b>	<b>40,048.9</b>	<b>0.00</b>	<b>0.00</b>

Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

7/10/2020 9:44:03 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

21 Iterations

Gust Response Factor :1.10

Ice Dead Load 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	-43.84	-4.09	0.00	-318.70	0.00	318.70	1,564.13	420.30	1,179.53	948.21	0.00	0.00	0.166
5.00	-42.17	-4.06	0.00	-298.23	0.00	298.23	1,541.15	408.73	1,115.51	908.35	0.04	-0.07	0.159
10.00	-40.49	-4.04	0.00	-277.91	0.00	277.91	1,517.03	397.17	1,053.29	868.61	0.15	-0.14	0.151
11.25	-40.07	-4.03	0.00	-272.86	0.00	272.86	1,510.82	394.27	1,038.01	858.70	0.19	-0.16	0.149
11.25	-40.07	-4.03	0.00	-272.86	0.00	272.86	1,510.82	394.27	1,038.01	858.70	0.19	-0.16	0.149
15.00	-38.81	-4.00	0.00	-257.77	0.00	257.77	1,491.77	385.60	992.85	829.06	0.34	-0.22	0.144
20.00	-37.13	-3.96	0.00	-237.78	0.00	237.78	1,465.38	374.03	934.19	789.74	0.61	-0.29	0.136
25.00	-35.47	-3.92	0.00	-218.00	0.00	218.00	1,437.85	362.47	877.32	750.71	0.95	-0.36	0.128
29.33	-34.04	-3.89	0.00	-201.03	0.00	201.03	1,413.08	352.44	829.48	717.18	1.30	-0.42	0.121
30.00	-33.76	-3.87	0.00	-198.44	0.00	198.44	1,409.19	350.90	822.24	712.04	1.36	-0.42	0.117
32.83	-32.59	-3.84	0.00	-187.47	0.00	187.47	1,130.05	270.31	634.33	571.84	1.62	-0.46	0.141
35.00	-31.88	-3.81	0.00	-179.14	0.00	179.14	1,119.12	266.46	616.37	558.15	1.84	-0.49	0.137
40.00	-30.24	-3.75	0.00	-160.09	0.00	160.09	1,081.75	257.56	575.90	521.31	2.38	-0.55	0.127
45.00	-28.62	-3.66	0.00	-141.36	0.00	141.36	1,044.38	248.66	536.82	485.73	2.99	-0.61	0.117
50.00	-27.02	-3.56	0.00	-123.05	0.00	123.05	1,007.01	239.76	499.10	451.41	3.66	-0.66	0.107
55.00	-25.45	-3.46	0.00	-105.23	0.00	105.23	969.64	230.87	462.76	418.35	4.38	-0.71	0.096
60.00	-23.90	-3.35	0.00	-87.95	0.00	87.95	932.27	221.97	427.79	386.54	5.15	-0.76	0.084
62.92	-23.00	-3.26	0.00	-78.19	0.00	78.19	910.47	216.78	408.02	368.57	5.63	-0.78	0.078
65.00	-22.26	-3.19	0.00	-71.40	0.00	71.40	894.90	213.07	394.19	355.99	5.97	-0.80	0.071
65.75	-21.99	-3.15	0.00	-69.01	0.00	69.01	664.38	162.37	305.14	269.42	6.10	-0.81	0.078
70.00	-20.77	-3.00	0.00	-55.64	0.00	55.64	648.81	156.70	284.20	253.83	6.83	-0.84	0.066
73.00	-13.55	-2.06	0.00	-46.63	0.00	46.63	637.49	152.69	269.87	242.97	7.37	-0.86	0.053
75.00	-13.02	-1.97	0.00	-42.51	0.00	42.51	629.79	150.02	260.52	235.80	7.73	-0.87	0.049
79.94	-11.73	-1.84	0.00	-32.76	0.00	32.76	602.42	143.43	238.14	215.54	8.64	-0.89	0.040
79.94	-11.73	-1.84	0.00	-32.76	0.00	32.76	602.42	143.43	238.14	215.54	8.64	-0.89	0.172
80.00	-11.72	-1.82	0.00	-32.65	0.00	32.65	602.07	143.35	237.86	215.29	8.65	-0.89	0.171
83.00	-10.91	-1.65	0.00	-27.19	0.00	27.19	585.25	139.35	224.77	203.37	9.23	-0.95	0.152
85.00	-10.57	-1.57	0.00	-23.89	0.00	23.89	574.04	136.68	216.24	195.61	9.64	-0.99	0.141
90.00	-9.91	-1.48	0.00	-16.02	0.00	16.02	546.01	130.00	195.65	176.87	10.72	-1.07	0.109
93.00	-9.25	-1.33	0.00	-11.58	0.00	11.58	529.19	126.00	183.79	166.09	11.41	-1.11	0.087
95.00	-9.01	-1.29	0.00	-8.91	0.00	8.91	517.98	123.33	176.08	159.08	11.88	-1.13	0.074
100.00	0.00	-1.11	0.00	-2.45	0.00	2.45	489.95	116.66	157.55	142.23	13.08	-1.16	0.017

**Load Case: 1.0D + 1.0W**

Serviceability 60 mph

21 Iterations

Gust Response Factor :1.10

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		58.8	0.0					0.0	0.0	58.8	0.0	0.0	0.0
5.00		116.6	401.9					0.4	720.3	117.0	1,122.2	0.0	0.0
10.00		72.1	390.6					0.5	720.3	72.6	1,110.9	0.0	0.0
11.25	Reinf. Top Reinf	46.8	95.9					0.1	180.1	47.0	276.0	0.0	0.0
15.00		74.8	283.5					19.2	540.2	94.0	823.7	0.0	0.0
20.00		95.3	368.2					26.1	720.3	121.4	1,088.5	0.0	0.0
25.00		97.7	357.0					0.8	720.3	98.5	1,077.3	0.0	0.0
29.33	Bot - Section 2	51.6	300.3					0.7	624.3	52.3	924.6	0.0	0.0
30.00		29.6	91.8					0.1	96.0	29.7	187.9	0.0	0.0
32.83	Top - Section 1	40.1	385.8					12.8	408.2	52.9	794.0	0.0	0.0
35.00		57.9	146.6					10.0	312.1	67.9	458.7	0.0	0.0
40.00		81.0	330.2					24.1	720.3	105.1	1,050.5	0.0	0.0
45.00		80.9	319.0					25.5	720.3	106.4	1,039.3	0.0	0.0
50.00		80.4	307.8					26.9	720.3	107.4	1,028.1	0.0	0.0
55.00		79.6	296.6					28.3	720.3	107.9	1,016.9	0.0	0.0
60.00		62.4	285.4					29.7	720.3	92.0	1,005.6	0.0	0.0
62.92	Bot - Section 3	39.2	161.3					17.9	420.2	57.2	581.5	0.0	0.0
65.00		22.3	199.4					13.1	300.1	35.4	499.5	0.0	0.0
65.75	Top - Section 2	38.9	70.9					4.8	108.0	43.7	179.0	0.0	0.0
70.00		56.0	170.9					27.3	612.3	83.3	783.2	0.0	0.0
73.00	Appurtenance(s)	38.1	117.0	757.8	0.0	0.0	3,635.6	19.9	432.2	815.7	4,184.8	0.0	0.0
75.00		51.8	76.3					7.6	273.9	59.4	350.2	0.0	0.0
79.94	Reinf. Top	37.2	182.6					19.3	676.2	56.4	858.8	0.0	0.0
80.00		22.3	2.3					0.2	4.4	22.5	6.6	0.0	0.0
83.00	Appurtenance(s)	36.1	106.9	80.8	0.0	0.0	90.0	12.1	210.4	129.0	407.3	0.0	0.0
85.00		42.0	69.6					8.2	136.3	50.3	205.9	0.0	0.0
90.00		43.9	168.0					0.0	247.3	43.9	415.3	0.0	0.0
93.00	Appurtenance(s)	26.8	96.8	83.4	0.0	0.0	90.0	0.0	148.4	110.2	335.1	0.0	0.0
95.00		36.5	62.8					0.0	94.9	36.5	157.8	0.0	0.0
100.00	Appurtenance(s)	25.9	151.2	507.8	0.0	0.0	3,000.0	0.0	237.4	533.7	3,388.6	0.0	0.0
Totals:										3,408.22	25,357.6	0.00	0.00

**Load Case: 1.0D + 1.0W**

Serviceability 60 mph

21 Iterations

Gust Response Factor :1.10

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	-27.08	-3.96	0.00	-285.47	0.00	285.47	1,564.13	420.30	1,179.53	948.21	0.00	0.00	0.144
5.00	-25.95	-3.87	0.00	-265.66	0.00	265.66	1,541.15	408.73	1,115.51	908.35	0.04	-0.06	0.137
10.00	-24.84	-3.82	0.00	-246.29	0.00	246.29	1,517.03	397.17	1,053.29	868.61	0.14	-0.13	0.130
11.25	-24.56	-3.78	0.00	-241.52	0.00	241.52	1,510.82	394.27	1,038.01	858.70	0.17	-0.15	0.128
11.25	-24.56	-3.78	0.00	-241.52	0.00	241.52	1,510.82	394.27	1,038.01	858.70	0.17	-0.15	0.128
15.00	-23.73	-3.71	0.00	-227.34	0.00	227.34	1,491.77	385.60	992.85	829.06	0.31	-0.19	0.123
20.00	-22.64	-3.61	0.00	-208.79	0.00	208.79	1,465.38	374.03	934.19	789.74	0.54	-0.25	0.116
25.00	-21.56	-3.52	0.00	-190.76	0.00	190.76	1,437.85	362.47	877.32	750.71	0.84	-0.32	0.108
29.33	-20.63	-3.48	0.00	-175.48	0.00	175.48	1,413.08	352.44	829.48	717.18	1.15	-0.37	0.102
30.00	-20.44	-3.45	0.00	-173.16	0.00	173.16	1,409.19	350.90	822.24	712.04	1.20	-0.37	0.099
32.83	-19.65	-3.41	0.00	-163.38	0.00	163.38	1,130.05	270.31	634.33	571.84	1.44	-0.41	0.119
35.00	-19.19	-3.35	0.00	-156.00	0.00	156.00	1,119.12	266.46	616.37	558.15	1.63	-0.43	0.115
40.00	-18.14	-3.25	0.00	-139.27	0.00	139.27	1,081.75	257.56	575.90	521.31	2.11	-0.48	0.107
45.00	-17.10	-3.15	0.00	-123.02	0.00	123.02	1,044.38	248.66	536.82	485.73	2.64	-0.53	0.098
50.00	-16.07	-3.04	0.00	-107.27	0.00	107.27	1,007.01	239.76	499.10	451.41	3.23	-0.58	0.090
55.00	-15.05	-2.94	0.00	-92.05	0.00	92.05	969.64	230.87	462.76	418.35	3.86	-0.63	0.080
60.00	-14.04	-2.84	0.00	-77.37	0.00	77.37	932.27	221.97	427.79	386.54	4.54	-0.67	0.071
62.92	-13.46	-2.78	0.00	-69.08	0.00	69.08	910.47	216.78	408.02	368.57	4.96	-0.69	0.065
65.00	-12.96	-2.74	0.00	-63.29	0.00	63.29	894.90	213.07	394.19	355.99	5.26	-0.70	0.060
65.75	-12.78	-2.70	0.00	-61.23	0.00	61.23	664.38	162.37	305.14	269.42	5.37	-0.71	0.065
70.00	-12.00	-2.61	0.00	-49.76	0.00	49.76	648.81	156.70	284.20	253.83	6.02	-0.74	0.055
73.00	-7.82	-1.74	0.00	-41.92	0.00	41.92	637.49	152.69	269.87	242.97	6.49	-0.75	0.045
75.00	-7.47	-1.68	0.00	-38.44	0.00	38.44	629.79	150.02	260.52	235.80	6.80	-0.76	0.042
79.94	-6.62	-1.61	0.00	-30.14	0.00	30.14	602.42	143.43	238.14	215.54	7.61	-0.79	0.035
79.94	-6.62	-1.61	0.00	-30.14	0.00	30.14	602.42	143.43	238.14	215.54	7.61	-0.79	0.151
80.00	-6.61	-1.60	0.00	-30.04	0.00	30.04	602.07	143.35	237.86	215.29	7.62	-0.79	0.151
83.00	-6.20	-1.47	0.00	-25.25	0.00	25.25	585.25	139.35	224.77	203.37	8.13	-0.84	0.135
85.00	-6.00	-1.42	0.00	-22.32	0.00	22.32	574.04	136.68	216.24	195.61	8.49	-0.88	0.125
90.00	-5.58	-1.37	0.00	-15.23	0.00	15.23	546.01	130.00	195.65	176.87	9.45	-0.95	0.096
93.00	-5.25	-1.26	0.00	-11.12	0.00	11.12	529.19	126.00	183.79	166.09	10.06	-0.99	0.077
95.00	-5.09	-1.22	0.00	-8.60	0.00	8.60	517.98	123.33	176.08	159.08	10.48	-1.01	0.064
100.00	0.00	-1.13	0.00	-2.49	0.00	2.49	489.95	116.66	157.55	142.23	11.55	-1.04	0.018

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.20
Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.05
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 ( $S_{ds}$ ):	0.22
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.08
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$	0.03
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	2.06
Redundancy Factor ( $\rho$ ):	1.00
Seismic Force Distribution Exponent (k):	1.78
Total Unfactored Dead Load:	27.08 k
Seismic Base Shear (E):	0.81 k

Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
29	97.50	389	1,340	0.030	25	483
28	94.00	158	510	0.012	9	196
27	91.50	245	755	0.017	14	305
26	87.50	415	1,182	0.027	22	516
25	84.00	206	545	0.012	10	256
24	81.50	317	796	0.018	15	395
23	79.97	7	16	0.000	0	8
22	77.47	859	1,967	0.045	36	1,068
21	74.00	350	740	0.017	14	435
20	71.50	549	1,091	0.025	20	683
19	67.88	783	1,418	0.032	26	974
18	65.38	179	303	0.007	6	223
17	63.96	500	814	0.018	15	621
16	61.46	581	882	0.020	16	723
15	57.50	1,006	1,356	0.031	25	1,250
14	52.50	1,017	1,166	0.027	22	1,264
13	47.50	1,028	987	0.022	18	1,278
12	42.50	1,039	818	0.019	15	1,292
11	37.50	1,051	662	0.015	12	1,306
10	33.92	459	242	0.005	4	570
9	31.42	794	365	0.008	7	987
8	29.67	188	78	0.002	1	234
7	27.17	925	329	0.007	6	1,150
6	22.50	1,077	274	0.006	5	1,339
5	17.50	1,089	177	0.004	3	1,353

Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

7/10/2020 9:44:06 AM

Customer: T-MOBILE

4	13.13	824	80	0.002	1	1,024
3	10.63	276	18	0.000	0	343
2	7.50	1,111	40	0.001	1	1,381
1	2.50	1,122	6	0.000	0	1,395
Generic 10' Omni	100.00	25	90	0.002	2	31
Kaelus DBC0061F1V51-	100.00	76	276	0.006	5	95
Commscope WCS-IMFQ-A	100.00	59	213	0.005	4	73
Powerwave Allgon LGP	100.00	85	305	0.007	6	105
Raycap DC6-48-60-18-	100.00	40	144	0.003	3	50
Ericsson RRUS 4478 B	100.00	178	643	0.015	12	222
Raycap DC6-48-60-18-	100.00	16	58	0.001	1	20
Ericsson RRUS 11 (Ba	100.00	150	541	0.012	10	186
Ericsson RRUS 32 (50	100.00	152	550	0.012	10	189
Ericsson RRUS 32 B66	100.00	159	574	0.013	11	198
Ericsson RRUS 32 B2	100.00	159	574	0.013	11	198
Powerwave Allgon 777	100.00	105	379	0.009	7	131
Commscope SBNHH-1D65	100.00	101	363	0.008	7	125
CCI OPA-65R-LCUU-H4	100.00	171	617	0.014	11	213
Kathrein Scala 80010	100.00	245	883	0.020	16	304
Heavy Platform w/ Ha	100.00	3,000	10,823	0.246	200	3,730
Generic 48" x 12" Pa	93.00	90	285	0.006	5	112
Generic 48" x 12" Pa	83.00	90	233	0.005	4	112
Ericsson KRY 112 144	73.00	58	120	0.003	2	72
Ericsson Radio 4449	73.00	225	464	0.011	9	280
Ericsson RRUS 4415 B	73.00	138	284	0.006	5	172
Ericsson Air6449 B41	73.00	312	643	0.015	12	388
Ericsson AIR32 B66Aa	73.00	397	817	0.019	15	493
RFS APX16DWV-16DWVS-	73.00	122	252	0.006	5	152
RFS APXVAARR24_43-U-	73.00	384	791	0.018	15	477
Perfect Vison PV-LLP	73.00	2,000	4,122	0.094	76	2,487
		27,079	44,001	1.000	812	33,667

Load Case 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
29	97.50	389	1,340	0.030	25	333
28	94.00	158	510	0.012	9	135
27	91.50	245	755	0.017	14	210
26	87.50	415	1,182	0.027	22	356
25	84.00	206	545	0.012	10	176
24	81.50	317	796	0.018	15	272
23	79.97	7	16	0.000	0	6
22	77.47	859	1,967	0.045	36	736
21	74.00	350	740	0.017	14	300
20	71.50	549	1,091	0.025	20	470
19	67.88	783	1,418	0.032	26	671
18	65.38	179	303	0.007	6	153
17	63.96	500	814	0.018	15	428
16	61.46	581	882	0.020	16	498
15	57.50	1,006	1,356	0.031	25	862
14	52.50	1,017	1,166	0.027	22	871
13	47.50	1,028	987	0.022	18	881
12	42.50	1,039	818	0.019	15	890
11	37.50	1,051	662	0.015	12	900
10	33.92	459	242	0.005	4	393
9	31.42	794	365	0.008	7	680
8	29.67	188	78	0.002	1	161
7	27.17	925	329	0.007	6	792
6	22.50	1,077	274	0.006	5	923
5	17.50	1,089	177	0.004	3	933

Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

7/10/2020 9:44:06 AM

Customer: T-MOBILE

4	13.13	824	80	0.002	1	706
3	10.63	276	18	0.000	0	236
2	7.50	1,111	40	0.001	1	952
1	2.50	1,122	6	0.000	0	961
Generic 10' Omni	100.00	25	90	0.002	2	21
Kaelus DBC0061F1V51-	100.00	76	276	0.006	5	66
Commscope WCS-IMFQ-A	100.00	59	213	0.005	4	51
Powerwave Allgon LGP	100.00	85	305	0.007	6	72
Raycap DC6-48-60-18-	100.00	40	144	0.003	3	34
Ericsson RRUS 4478 B	100.00	178	643	0.015	12	153
Raycap DC6-48-60-18-	100.00	16	58	0.001	1	14
Ericsson RRUS 11 (Ba	100.00	150	541	0.012	10	129
Ericsson RRUS 32 (50	100.00	152	550	0.012	10	131
Ericsson RRUS 32 B66	100.00	159	574	0.013	11	136
Ericsson RRUS 32 B2	100.00	159	574	0.013	11	136
Powerwave Allgon 777	100.00	105	379	0.009	7	90
Commscope SBNHH-1D65	100.00	101	363	0.008	7	86
CCI OPA-65R-LCUU-H4	100.00	171	617	0.014	11	146
Kathrein Scala 80010	100.00	245	883	0.020	16	210
Heavy Platform w/ Ha	100.00	3,000	10,823	0.246	200	2,570
Generic 48" x 12" Pa	93.00	90	285	0.006	5	77
Generic 48" x 12" Pa	83.00	90	233	0.005	4	77
Ericsson KRY 112 144	73.00	58	120	0.003	2	50
Ericsson Radio 4449	73.00	225	464	0.011	9	193
Ericsson RRUS 4415 B	73.00	138	284	0.006	5	118
Ericsson Air6449 B41	73.00	312	643	0.015	12	267
Ericsson AIR32 B66Aa	73.00	397	817	0.019	15	340
RFS APX16DWV-16DWVS-	73.00	122	252	0.006	5	105
RFS APXVAARR24_43-U-	73.00	384	791	0.018	15	329
Perfect Vison PV-LLP	73.00	2,000	4,122	0.094	76	1,713
		27,079	44,001	1.000	812	23,198



Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.27	-0.82	0.00	-68.34	0.00	68.34	1,564.13	420.30	1,179.53	948.21	0.00	0.00	0.044
5.00	-30.89	-0.82	0.00	-64.26	0.00	64.26	1,541.15	408.73	1,115.51	908.35	0.01	-0.02	0.042
10.00	-30.55	-0.83	0.00	-60.14	0.00	60.14	1,517.03	397.17	1,053.29	868.61	0.03	-0.03	0.040
11.25	-29.52	-0.83	0.00	-59.11	0.00	59.11	1,510.82	394.27	1,038.01	858.70	0.04	-0.04	0.040
11.25	-29.52	-0.83	0.00	-59.11	0.00	59.11	1,510.82	394.27	1,038.01	858.70	0.04	-0.04	0.040
15.00	-28.17	-0.83	0.00	-55.99	0.00	55.99	1,491.77	385.60	992.85	829.06	0.07	-0.05	0.038
20.00	-26.83	-0.83	0.00	-51.83	0.00	51.83	1,465.38	374.03	934.19	789.74	0.13	-0.06	0.036
25.00	-25.68	-0.83	0.00	-47.66	0.00	47.66	1,437.85	362.47	877.32	750.71	0.20	-0.08	0.034
29.33	-25.45	-0.83	0.00	-44.05	0.00	44.05	1,413.08	352.44	829.48	717.18	0.28	-0.09	0.033
30.00	-24.46	-0.83	0.00	-43.50	0.00	43.50	1,409.19	350.90	822.24	712.04	0.29	-0.09	0.032
32.83	-23.89	-0.83	0.00	-41.15	0.00	41.15	1,130.05	270.31	634.33	571.84	0.35	-0.10	0.038
35.00	-22.58	-0.81	0.00	-39.36	0.00	39.36	1,119.12	266.46	616.37	558.15	0.40	-0.11	0.037
40.00	-21.29	-0.80	0.00	-35.29	0.00	35.29	1,081.75	257.56	575.90	521.31	0.52	-0.12	0.035
45.00	-20.01	-0.79	0.00	-31.28	0.00	31.28	1,044.38	248.66	536.82	485.73	0.65	-0.13	0.032
50.00	-18.75	-0.76	0.00	-27.35	0.00	27.35	1,007.01	239.76	499.10	451.41	0.79	-0.14	0.030
55.00	-17.50	-0.74	0.00	-23.53	0.00	23.53	969.64	230.87	462.76	418.35	0.95	-0.16	0.027
60.00	-16.77	-0.72	0.00	-19.83	0.00	19.83	932.27	221.97	427.79	386.54	1.12	-0.17	0.025
62.92	-16.15	-0.71	0.00	-17.72	0.00	17.72	910.47	216.78	408.02	368.57	1.22	-0.17	0.023
65.00	-15.93	-0.70	0.00	-16.25	0.00	16.25	894.90	213.07	394.19	355.99	1.30	-0.18	0.022
65.75	-14.96	-0.67	0.00	-15.72	0.00	15.72	664.38	162.37	305.14	269.42	1.33	-0.18	0.023
70.00	-14.27	-0.65	0.00	-12.86	0.00	12.86	648.81	156.70	284.20	253.83	1.49	-0.18	0.021
73.00	-9.32	-0.49	0.00	-10.90	0.00	10.90	637.49	152.69	269.87	242.97	1.61	-0.19	0.016
75.00	-8.25	-0.45	0.00	-9.92	0.00	9.92	629.79	150.02	260.52	235.80	1.69	-0.19	0.014
79.94	-8.24	-0.45	0.00	-7.72	0.00	7.72	602.42	143.43	238.14	215.54	1.89	-0.20	0.013
79.94	-8.24	-0.45	0.00	-7.72	0.00	7.72	602.42	143.43	238.14	215.54	1.89	-0.20	0.050
80.00	-7.85	-0.43	0.00	-7.69	0.00	7.69	602.07	143.35	237.86	215.29	1.89	-0.20	0.049
83.00	-7.48	-0.42	0.00	-6.39	0.00	6.39	585.25	139.35	224.77	203.37	2.02	-0.21	0.044
85.00	-6.96	-0.40	0.00	-5.56	0.00	5.56	574.04	136.68	216.24	195.61	2.11	-0.22	0.041
90.00	-6.66	-0.38	0.00	-3.58	0.00	3.58	546.01	130.00	195.65	176.87	2.35	-0.24	0.032
93.00	-6.35	-0.37	0.00	-2.44	0.00	2.44	529.19	126.00	183.79	166.09	2.50	-0.25	0.027
95.00	-5.87	-0.34	0.00	-1.70	0.00	1.70	517.98	123.33	176.08	159.08	2.61	-0.25	0.022
100.00	0.00	-0.31	0.00	0.00	0.00	0.00	489.95	116.66	157.55	142.23	2.87	-0.26	0.000

Load Case 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

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	-22.24	-0.81	0.00	-67.22	0.00	67.22	1,564.13	420.30	1,179.53	948.21	0.00	0.00	0.040
5.00	-21.28	-0.82	0.00	-63.15	0.00	63.15	1,541.15	408.73	1,115.51	908.35	0.01	-0.02	0.038
10.00	-21.05	-0.82	0.00	-59.05	0.00	59.05	1,517.03	397.17	1,053.29	868.61	0.03	-0.03	0.036
11.25	-20.34	-0.82	0.00	-58.02	0.00	58.02	1,510.82	394.27	1,038.01	858.70	0.04	-0.03	0.036
11.25	-20.34	-0.82	0.00	-58.02	0.00	58.02	1,510.82	394.27	1,038.01	858.70	0.04	-0.03	0.036
15.00	-19.41	-0.82	0.00	-54.93	0.00	54.93	1,491.77	385.60	992.85	829.06	0.07	-0.05	0.035
20.00	-18.49	-0.82	0.00	-50.81	0.00	50.81	1,465.38	374.03	934.19	789.74	0.13	-0.06	0.033
25.00	-17.69	-0.82	0.00	-46.70	0.00	46.70	1,437.85	362.47	877.32	750.71	0.20	-0.08	0.031
29.33	-17.53	-0.82	0.00	-43.14	0.00	43.14	1,413.08	352.44	829.48	717.18	0.28	-0.09	0.030
30.00	-16.85	-0.81	0.00	-42.60	0.00	42.60	1,409.19	350.90	822.24	712.04	0.29	-0.09	0.029
32.83	-16.46	-0.81	0.00	-40.29	0.00	40.29	1,130.05	270.31	634.33	571.84	0.34	-0.10	0.035
35.00	-15.56	-0.80	0.00	-38.53	0.00	38.53	1,119.12	266.46	616.37	558.15	0.39	-0.10	0.033
40.00	-14.67	-0.79	0.00	-34.53	0.00	34.53	1,081.75	257.56	575.90	521.31	0.51	-0.12	0.031
45.00	-13.79	-0.77	0.00	-30.59	0.00	30.59	1,044.38	248.66	536.82	485.73	0.64	-0.13	0.029
50.00	-12.92	-0.75	0.00	-26.75	0.00	26.75	1,007.01	239.76	499.10	451.41	0.78	-0.14	0.027
55.00	-12.06	-0.72	0.00	-23.00	0.00	23.00	969.64	230.87	462.76	418.35	0.93	-0.15	0.024
60.00	-11.56	-0.71	0.00	-19.39	0.00	19.39	932.27	221.97	427.79	386.54	1.10	-0.16	0.022
62.92	-11.13	-0.69	0.00	-17.32	0.00	17.32	910.47	216.78	408.02	368.57	1.20	-0.17	0.020
65.00	-10.98	-0.69	0.00	-15.88	0.00	15.88	894.90	213.07	394.19	355.99	1.28	-0.17	0.019
65.75	-10.31	-0.66	0.00	-15.37	0.00	15.37	664.38	162.37	305.14	269.42	1.30	-0.17	0.020
70.00	-9.83	-0.64	0.00	-12.57	0.00	12.57	648.81	156.70	284.20	253.83	1.46	-0.18	0.018
73.00	-6.42	-0.48	0.00	-10.65	0.00	10.65	637.49	152.69	269.87	242.97	1.58	-0.18	0.014
75.00	-5.69	-0.44	0.00	-9.70	0.00	9.70	629.79	150.02	260.52	235.80	1.65	-0.19	0.013
79.94	-5.68	-0.44	0.00	-7.54	0.00	7.54	602.42	143.43	238.14	215.54	1.85	-0.19	0.011
79.94	-5.68	-0.44	0.00	-7.54	0.00	7.54	602.42	143.43	238.14	215.54	1.85	-0.19	0.044
80.00	-5.41	-0.42	0.00	-7.51	0.00	7.51	602.07	143.35	237.86	215.29	1.85	-0.19	0.044
83.00	-5.15	-0.41	0.00	-6.24	0.00	6.24	585.25	139.35	224.77	203.37	1.98	-0.21	0.040
85.00	-4.80	-0.39	0.00	-5.43	0.00	5.43	574.04	136.68	216.24	195.61	2.07	-0.22	0.036
90.00	-4.59	-0.37	0.00	-3.49	0.00	3.49	546.01	130.00	195.65	176.87	2.30	-0.23	0.028
93.00	-4.38	-0.36	0.00	-2.38	0.00	2.38	529.19	126.00	183.79	166.09	2.45	-0.24	0.023
95.00	-4.04	-0.33	0.00	-1.66	0.00	1.66	517.98	123.33	176.08	159.08	2.56	-0.25	0.018
100.00	0.00	-0.31	0.00	0.00	0.00	0.00	489.95	116.66	157.55	142.23	2.82	-0.25	0.000

Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

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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 + 1.0W	17.73	0.00	32.45	0.00	0.00	1286.37	79.94	0.65
0.9D + 1.0W	17.71	0.00	24.32	0.00	0.00	1269.59	79.94	0.63
1.2D + 1.0Di + 1.0Wi	4.09	0.00	43.84	0.00	0.00	318.70	79.94	0.17
1.2D + 1.0Ev + 1.0Eh	0.82	0.00	32.27	0.00	0.00	68.34	79.94	0.05
0.9D - 1.0Ev + 1.0Eh	0.81	0.00	22.24	0.00	0.00	67.22	79.94	0.04
1.0D + 1.0W	3.96	0.00	27.08	0.00	0.00	285.47	79.94	0.15

Site Number: 302516

Code: ANSI/TIA-222-H

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Site Name: Mlfd - Milford, CT

Engineering Number: 13251343\_C3\_05

7/10/2020 9:44:06 AM

Customer: T-MOBILE

Additional Steel Summary

			Intermediate Connectors				Max Member		
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Ratio	Pu (kip)	phiPn (kip)	Ratio
0.00	11.25	(4) SOL-#20 All Thread Bar	277.9	11.0	16.8	0.653	234.6	314.5	0.746
11.25	79.94	(4) SOL-#20 All Thread Bar	338.2	10.1	16.8	0.604	217.4	330.5	0.658

			Upper Termination Connectors				Lower Termination Connectors					
Elev From (ft)	Elev To (ft)	Member	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio
0.00	11.25	(4) SOL-#20 All Thread Bar	0.0	12.0	0	0	0.000	0.0	12.0	0	0	0.000
11.25	79.94	(4) SOL-#20 All Thread Bar	51.5	12.0	5	12	0.358	0.0	12.0	0	0	0.000

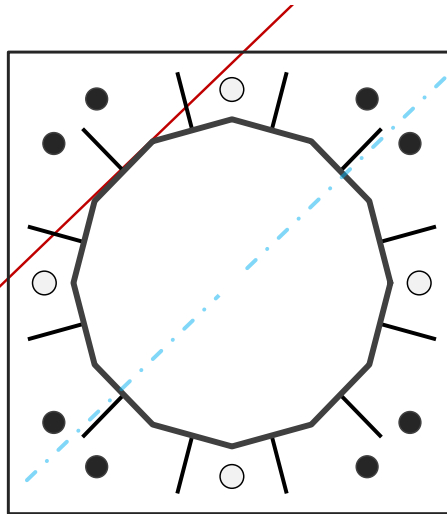
## Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	30	in
Thickness	1/4	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	1286.4	k-ft
Axial, Pu	32.5	k
Shear, Vu	17.7	k
Neutral Axis	43	°

Report Capacities		
Component	Capacity	Result
Base Plate	54%	Pass
Anchor Rods	32%	Pass
Dwyidag	48%	Pass

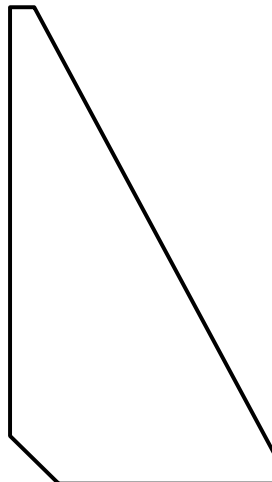
Base Plate		
Shape	Square	-
Width	44	in
Thickness	2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	$\eta=0.55$
Clear Distance	N/A	in
Applied Moment, Mu	1033.5	k
Bending Stress, $\phi Mn$	1922.3	k



Dwyidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, $\phi$	2.5	in
Bracket Type	Angle	-
Circle	36.88	in
Orientation Offset	0	°
Applied Force, Pu	177.7	k
Dwyidag Bar, $\phi Pn$	368.2	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, $\phi$	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	77.3	k
Anchor Rods, $\phi Pn$	243.6	k

Stiffeners		
Arrangement	Radial	-
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	0.5	in
Grade	A36	
Yield Strength, Fy	36	ksi
Tensile Strength, Fu	58	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	3/8	in
Bevel Depth	0	in
Vertical Weld	Fillet	
Vertical Fillet Size	3/8	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	0	°
Vertical Weld, $\phi Rn$	165.2	k
Horz. Weld, $\phi Rn$	76.5	k
Ten. Capacity, $\phi Tn$	72.9	k
Comp. Capacity, $\phi Pn$	294.2	k



# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	17.7	557.1	0.43
Anchor Rod Forces	17.7	557.1	0.43
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	729.3	0.57
Stiffener Forces	10.7	335.5	0.26

## Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	23.0996	1.9250	0.0403		2556.06
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		3345.94
Stiffener	2.2500	2.0250	27.7292		3869.95

Base Plate		
Shape	Square	-
Width, W	44	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	32.187	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	77.3	k
Applied Shear, Vu	0.4	k
Compressive Capacity, φPn	243.6	k
Tensile Capacity, φRnt	0.317	OK
Interaction Capacity	0.320	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	38.1	k
Applied Horizontal Force, Vu	0.44	k

Vertical Weld		
Vert.-to-Stiffener a=e <sub>v</sub> /l	0.183	-
Spacing Ratio, k	0.050	-
Weld Coefficient, C	3.670	-
Compressive Capacity, φPn	165.2	k
Vert.-to-Plate a=e <sub>v</sub> /l	0.333	-
Spacing Ratio, k	0.050	-
Weld Coefficient, C	2.940	-
Shear Capacity, φVn	132.3	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>	0.234	OK

External Base Plate		
Chord Length AA	32.100	in
Additional AA	3.497	in
Section Modulus, Z	35.597	in <sup>3</sup>
Applied Moment, Mu	1033.5	k-ft
Bending Capacity, φMn	1922.3	k-ft
Capacity, Mu/φMn	0.538	OK
Chord Length AB	31.038	in
Additional AB	2.690	in
Section Modulus, Z	33.727	in <sup>3</sup>
Applied Moment, Mu	951.8	k-ft
Bending Capacity, φMn	1821.3	k-ft
Capacity, Mu/φMn	0.523	OK
Bend Line Length	0.000	in
Additional Bend Line	#N/A	in
Section Modulus, Z	#N/A	in <sup>3</sup>
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	#N/A	k-ft
Capacity, Mu/φMn		

Horizontal Weld		
Horz.-to-Stiffener a=e <sub>h</sub> /l	0.167	-
Spacing Ratio, k	0.091	-
Weld Coefficient, C	2.940	-
Effective Fillet	0.375	in
Compressive Capacity, φPn	72.8	k
Horz.-to-Pole a=e <sub>h</sub> /l	0.303	-
Spacing Ratio, k	0.091	-
Weld Coefficient, C	3.090	-
Shear Capacity, φVn	76.5	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>	0.529	OK

Plate Tension		
Gross Cross Section	2.250	in <sup>2</sup>
Net Cross Section	2.025	in <sup>2</sup>
Tensile Capacity, φTn	72.9	k
Capacity, Tu/φTn	0.261	OK

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

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	36.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	177.7	k
Compressive Capacity, φPn	368.2	k
Capacity, Pu/φPn	0.483	OK

Plate Compression		
Radius of Gyration	0.144	in <sup>3</sup>
kl/r	41.57	-
4.71 √(E/Fy)	133.68	-
Buckling Stress(F <sub>e</sub> )	165.6	-
Crit. Buckling Stress(F <sub>cr</sub> )	145.3	ksi
Compressive Capacity, φPn	294.2	k
Capacity, Pu/φPn	0.065	OK

Site Name:	Mlfd-Milford
Site Number:	302516
Engineering Number:	13251343_C3_05
Engineer:	Kilian Bestram
Date:	7/10/2020

**Design Base Loads (Factored) - Design per TIA-222-H Standard**

Moment (Overturning) ( $M_u$ ):	1286.4 k-ft
Shear/Leg ( $V_u$ ):	17.7 k
Compression/Leg ( $P_u$ ):	32.5 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:	120.0 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:	1.00 in
Rod Ultimate Strength:	60 ksi
Rod Net Area:	0.85 in <sup>2</sup>
Number of Rods:	16
Diameter of Cored Hole:	3.00 in
Ultimate Grout / Rock Interface Bond Strength:	150 psi
Ultimate Grout / Rock Anchor Interface Bond Strength:	450 psi
Overall Rod Embedment Length:	78 in
Rod Exposure Above Lock Off Nut in Foundation:	0 in
Rod Embedment Circle:	84 in (Adjustment necessary if square cc)
Free Stress Length:	0 in
Soil / Concrete Friction Coefficient:	0.30
Lock Off Load:	0 k
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
Depth to Base of Rock Anchor minus Development Length:	10.2 ft
Total Rock / Grout Bond Strength:	1764.3 k
Total Grout / Rod Bond Strength:	1764.3 k
Total Rod Mechanical Strength:	816.0 k
Pullout Weight / Rod:	k - Ignored
Rock / Grout Bond Strength / Rod:	110.3 k
Grout / Rod Bond Strength / Rod:	110.3 k
Rod Mechanical Strength / Rod:	60.0 k
Soil Strength Reduction Factor ( $\phi_s$ ):	0.75
Factored Nominal Moment Capacity per Leg ( $\phi_s M_n$ ):	2804.6 k
Factored Nominal Uplift Capacity per Leg ( $\phi_s T_n$ ):	71.1 k
Factored Nominal Compressive Capacity per Leg ( $\phi_s P_n$ ):	1885.0 k
Factored Nominal Shear Capacity per Leg ( $\phi_s V_n$ ):	367.2 k
$M_u$ :	1401.6 k-ft
$T_u$ :	0.0 k
$P_u$ :	45.1 k
$V_u$ :	17.7 k
$T_u/\phi_s T_n + M_u/\phi_s M_n$ :	0.50 Result: OK

$P_u/\phi_s P_n$ : 0.02 Result: OK  
 $V_u/\phi_s V_n$ : 0.05 Result: OK

**Caisson Strength Capacity**

Concrete Compressive Strength ( $f'_c$ ):	4000 psi
Vertical Steel Rebar Size #:	11
Vertical Steel Rebar Area:	1.56 in <sup>2</sup>
# of Vertical Steel Rebars:	62 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 <sup>2</sup>
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:	2.02 in
Rebar Cage Diameter:	88.0 in
Strength Bending/Tension Reduction Factor ( $\phi_B$ ):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor ( $\phi_V$ ):	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 ( $M_u$ ):	1401.6 k-ft
Factored Nominal Moment Capacity ( $\phi_B M_n$ ):	18729.9 k-ft - ACI318-05 - 10.2
$M_u/\phi_B M_n$ :	0.07 Result: OK
Design Shear ( $V_u$ ):	179.9 k
Factored Nominal Shear Capacity ( $\phi_V V_n$ ):	673.9 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$ :	0.27 Result: OK
Design Tension ( $T_u$ ):	0.0 k
Factored Nominal Tension Capacity ( $\phi_T T_n$ ):	5222.9 k - ACI318-05 - 10.2
$T_u/\phi_T T_n$ :	0.00 Result: OK
Design Compression ( $P_u$ ):	32.5 k
Factored Nominal Compression Capacity ( $\phi_P P_n$ ):	14854.3 k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$ :	0.00 Result: OK

**Bearing Plate Design**

Plate Bearing Design Load ( $P_u$ ):	22.5 k
Plate Shear Design Load ( $V_u$ ):	22.5 k
Factored Rod Bearing Plate Capacity of a Single Anchor ( $\phi_B P_n$ ):	218.7 k
Bearing Plate Pressure:	0.5 ksi
Plate Design Moment ( $M_u$ ):	6.5 k-in
Critical Length:	6.88 in
Plastic Modulus:	1.72 in <sup>3</sup>
Factored Nominal Plate Flexural Resistance ( $\phi_B M_n$ ):	55.7 k-in
Factored Nominal Plate Shear Resistance ( $\phi_V V_n$ ):	123.4 k
Factored Punch Shear Capacity Resisting Plate Load ( $\phi_P P_n$ ):	514.4 k - ACI318-05 - 11.11.2.1
Interaction Equation:	0.18 Result: OK
Recommended Lock Off Load:	14.1 k
Recommended Test Load:	22.5 k
Maximum Allowable Test Load:	48.0 k



# Exhibit D

Mount Analysis



**AMERICAN TOWER®**  
CORPORATION

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## Antenna Mount Analysis Report

**ATC Site Name** : Mlfd - Milford, CT  
**ATC Site Number** : 302516  
**Engineering Number** : 13251343\_C8\_06  
**Mount Elevation** : 73 ft  
**Carrier** : T-Mobile  
**Carrier Site Name** : CT318/Spectra\_Devon  
**Carrier Site Number** : CT11318F  
**Site Location** : 438 Bridgeport Ave  
Milford, CT 06460-4105  
41.20661111, -73.0934  
**County** : New Haven  
**Date** : July 21, 2020  
**Max Usage** : 46%  
**Result** : Pass

Prepared By:  
Michael Ellis  
Structural Engineer

Reviewed By:



**COA: PEC.0001553**



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Analysis..... 1

Conclusion..... 1

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Structure Usages..... 2

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Standard Conditions .....7

Calculations ..... Attached



## Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for T-Mobile at 73 ft on a new Site Pro 1 RMQP-496-HK platform with handrails.

## Supporting Documents

<b>Specifications Sheet</b>	Site Pro 1 RMQP-496-HK, dated July 14, 2014
<b>Radio Frequency Data Sheet</b>	RFDS ID #CT11318F, dated May 19, 2020

## Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

<b>Basic Wind Speed:</b>	120 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Codes:</b>	ANSI/TIA-222-H
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Spectral Response:</b>	Ss = 0.203, S1 = 0.053
<b>Site Class:</b>	D - Stiff Soil
<b>Live Loads: *</b>	Lm = 500 lbs

\* Based on experience it has been determined that the maintenance load cases do not control over rigging load cases in platform mount analyses. Therefore, these load cases have been excluded from this analysis.

## Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount 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](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



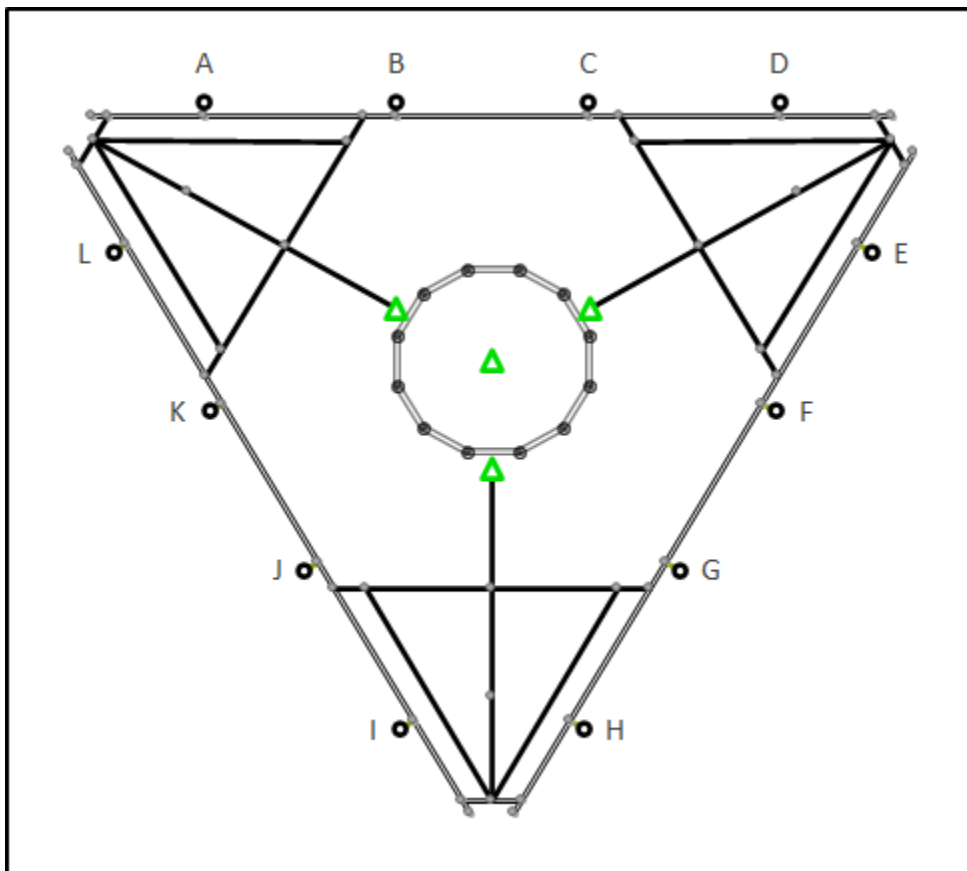
**Application Loading**

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
73.0	73.0	3	Ericsson AIR32 B66Aa/B2a
		3	Ericsson Air6449 B41
		3	RFS APXVAARR24_43-U-NA20
		3	RFS APX16DWV-16DWVS-E-A20
		6	Ericsson KRY 112 144/2
		3	Ericsson Radio 4449 B71 B85A
		3	Ericsson RRUS 4415 B25

**Structure Usages**

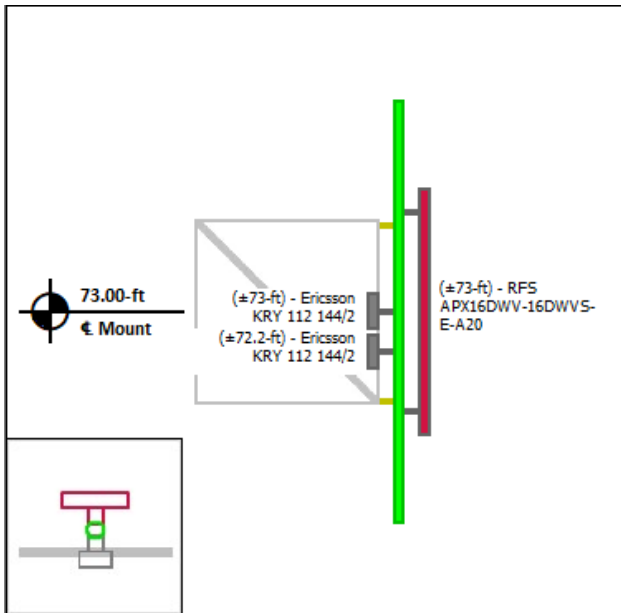
Structural Component	Controlling Usage	Pass/Fail
Horizontals	33%	Pass
Diagonals	9%	Pass
Mount Pipes	46%	Pass
Handrail	25%	Pass

**Mount Layout**

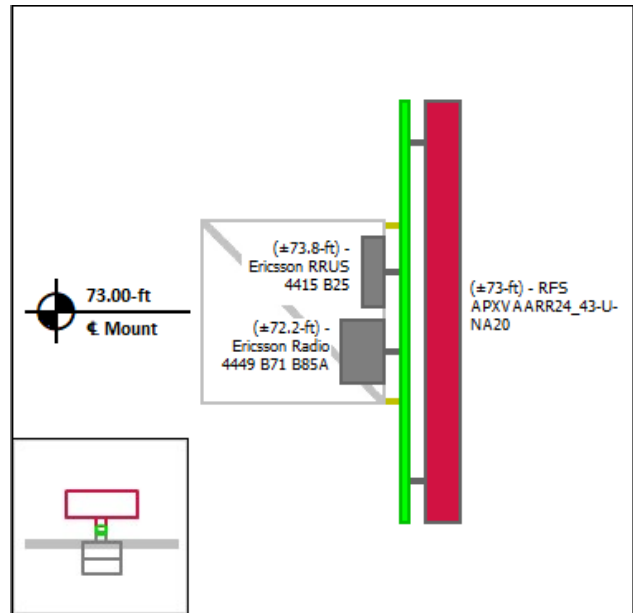


**Equipment Layout**

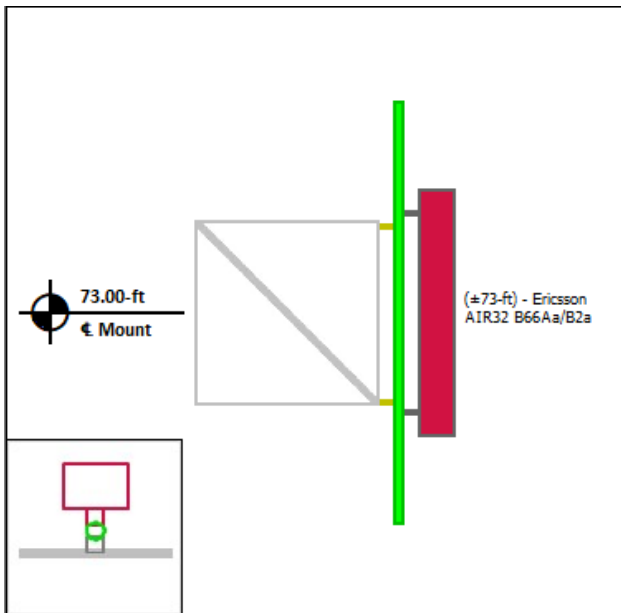
**Mount Pipe A**



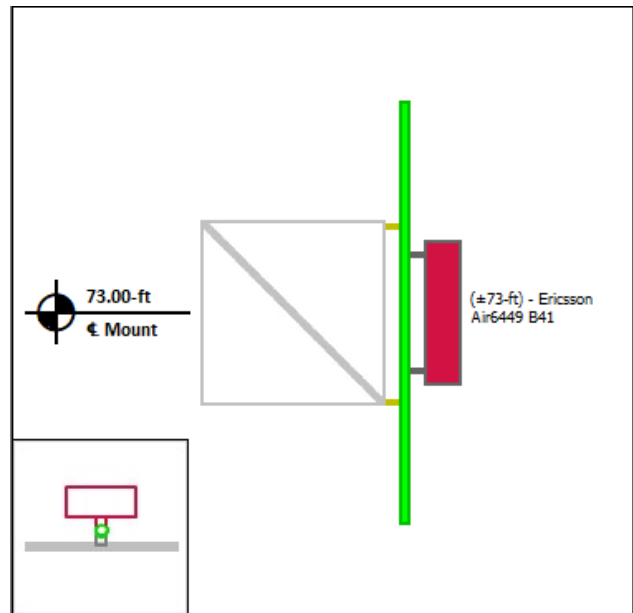
**Mount Pipe B**



**Mount Pipe C**

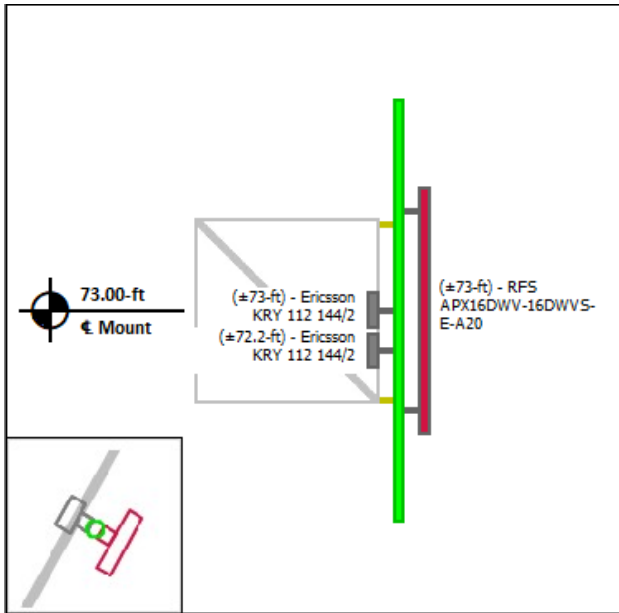


**Mount Pipe D**

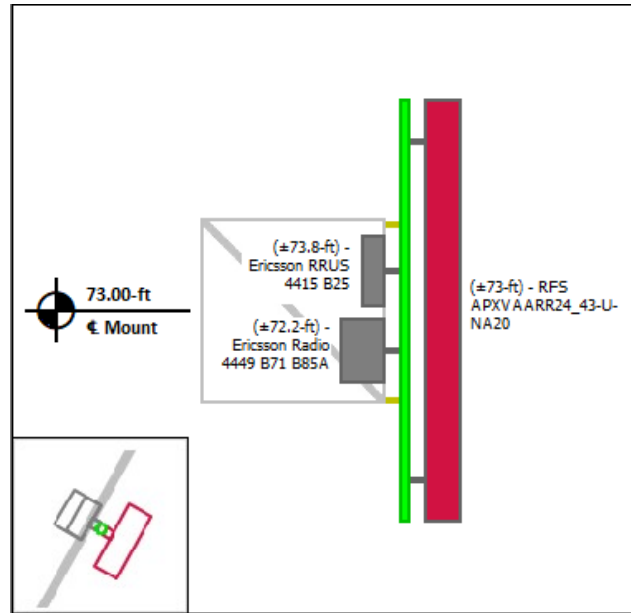


**Equipment Layout Cont'd.**

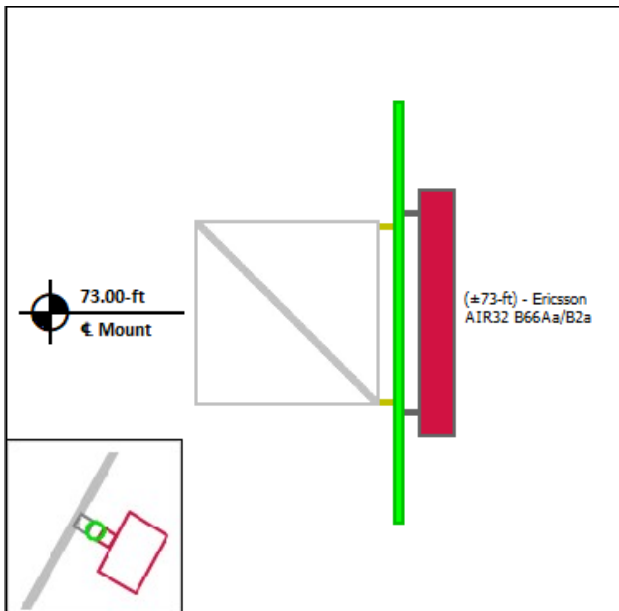
**Mount Pipe E**



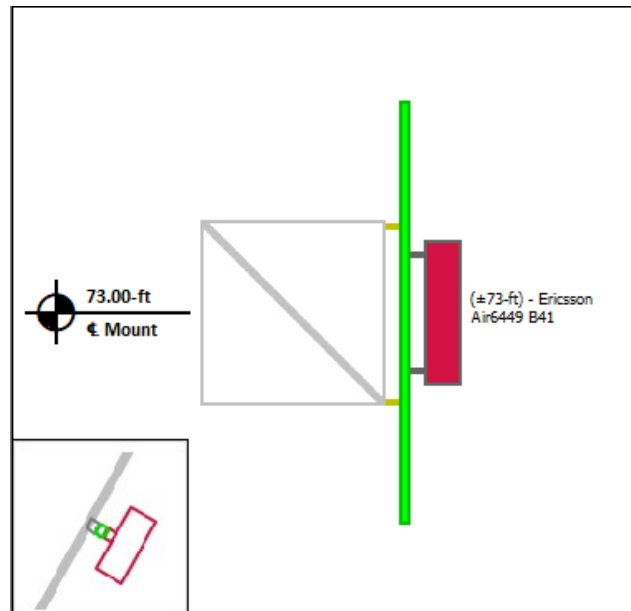
**Mount Pipe F**



**Mount Pipe G**



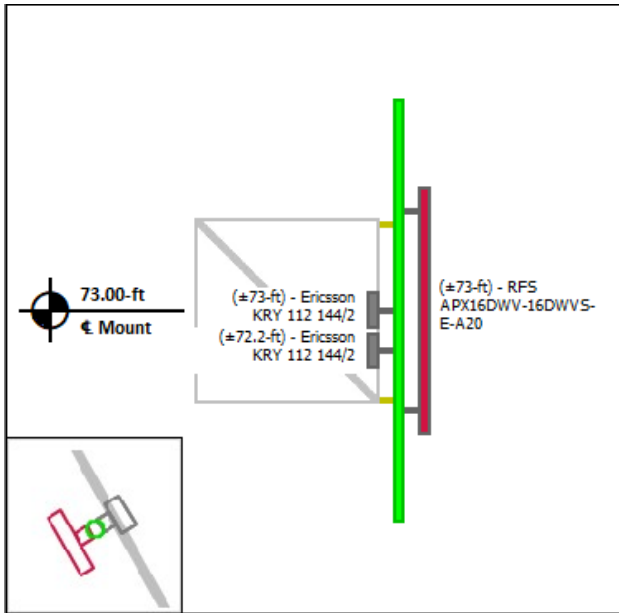
**Mount Pipe H**



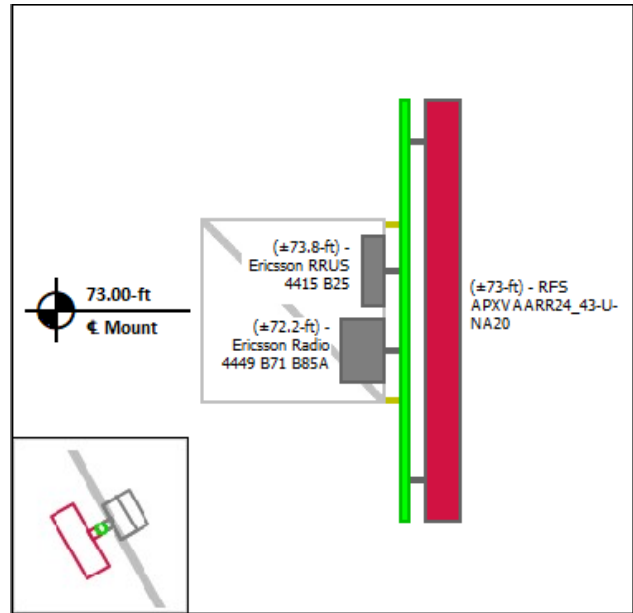


**Equipment Layout Cont'd.**

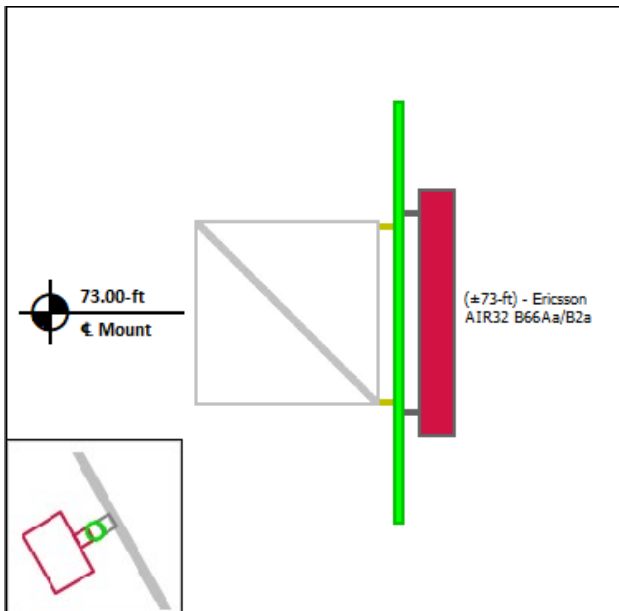
**Mount Pipe I**



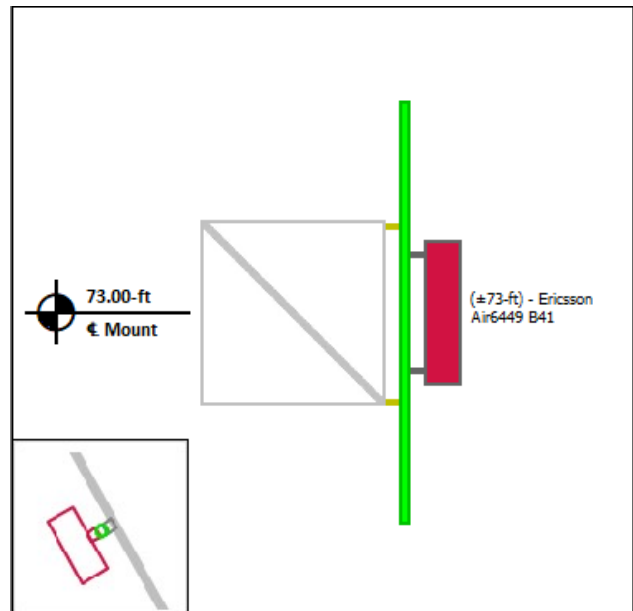
**Mount Pipe J**



**Mount Pipe K**



**Mount Pipe L**





### **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.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

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.



Site Number: 302516  
 Project Number: 13251343\_C8\_06  
 Carrier: T-Mobile  
 Mount Elevation: 73 ft  
 Date: 7/21/2020

## Mount Analysis Force Calculations

### Wind & Ice Load Calculations

Velocity Pressure Coefficient	$K_z$	0.90	
Topographic Factor	$K_{zt}$	1.00	
Rooftop Wind Speed-up Factor	$K_s$	1.00	
Shielding Factor	$K_a$	0.90	
Ground Elevation Factor	$K_e$	1.00	
Wind Direction Probability Factor	$K_d$	0.95	
Basic Wind Speed	$V$	120	mph
Velocity Pressure	$q_z$	31.5	psf
Height Escalation Factor	$K_{iz}$	1.08	
Thickness of Radial Glaze Ice	$T_{iz}$	1.08	in

### Seismic Load Calculations

Short Period DSRAP	$S_{DS}$	0.217	
1 Second DSRAP	$S_{D1}$	0.085	
Importance Factor	$I$	1.0	
Response Modification Coefficient	$R$	2.0	
Seismic Response Coefficient	$C_s$	0.108	
Amplification Factor	$A$	1.0	
Total Weight	$W$	2929.6	lbs
Total Shear Force	$V_s$	317.2	lbs
Horizontal Seismic Load	$E_h$	317.2	lbs
Vertical Seismic Load	$E_v$	126.9	lbs

### Antenna Calculations

Equipment	Height	Width	Depth	Weight	$EPA_N$	$EPA_T$	$EPA_{Ni}$	$EPA_{Ti}$
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Ericsson AIR32 B66Aa/B2a	56.6	12.9	8.7	132.2	6.51	3.31	7.89	4.29
Ericsson Air6449 B41	33.1	20.6	8.6	104.0	5.68	1.56	6.69	2.08
RFS APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	20.24	3.48	22.57	4.44
RFS APX16DWV-16DWVS-E-A20	55.9	13.3	3.1	40.7	6.59	1.26	7.96	2.22
Ericsson KRY 112 144/2	8.6	6.7	3.2	9.7	0.48	0.13	0.80	0.28
Ericsson Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	1.65	1.31	2.20	1.81
Ericsson RRUS 4415 B25	16.5	13.4	5.9	46.0	1.84	0.82	2.42	1.27















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J E	b e E	I i E i i G i	F H	G E H i G	E	
J F	b e F	I E i J G F J	F H	G E H i G	E	
J G	b e G	I E i J G F J	J i	I i E F F i H	E	
J H	b e H	I H e i i G i	F H	I i E F F i H	E	
J i	b e i	I E i J G F J	F H	I i E F F i H	E	
J i	b e i	I i E i J G F J	J i	I i E i i i i	E	
J i	b e i	J F E i i G i	F H	I i E i i i i	E	
J i	b e i	I i E i J G F J	F H	I i E i i i i	E	
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FH	PEFH	bEÍ	bEH			ŠG:G:H	Óæ	b ] ^	ÖHI	V' ] äæ
FI	PEFI	bEÏ	bEH			ŠG:G:H	Óæ	b ] ^	ÖHI	V' ] äæ
FÍ	PEFÍ	bEJ	bEH			ŠG:G:H	Óæ	b ] ^	ÖHI	V' ] äæ
FÏ	PEFÏ	bEÍ	bEÏ			ÜQÜ' GEE	Óæ	b ] ^	ÖE HÄ: EÖ	V' ] äæ
Fİ	PEFİ	bEÏ	bEÏ			ÜQÜ' GEE	Óæ	b ] ^	ÖE HÄ: EÖ	V' ] äæ
Fì	PEFì	bE€	bEU			ÜQÜ' GEE	Óæ	b ] ^	ÖE HÄ: EÖ	V' ] äæ
FJ	PEFJ	bEÍ	bEF	FI €		ŠG:G:EE çl	Óæ	b ] ^	ÖHI	V' ] äæ
G€	PEG€	bEI	bEH	FI €		ŠG:G:EE çl	Óæ	b ] ^	ÖHI	V' ] äæ
G€	PEG€	bEI	bEH	FI €		ŠG:G:EE çl	Óæ	b ] ^	ÖHI	V' ] äæ
GF	PEGF	bEÍ	bEG	FI €		ŠG:G:EE çl	Óæ	b ] ^	ÖHI	V' ] äæ
GG	ÖEGG	bE€	bEÏ			ŠSGE cGE çHc Ö[ ] { }	Óæ	b ] ^	ÖHI	V' ] äæ
GH	ÖEGH	bEG	bEJ			ŠSGE cGE çHc Ö[ ] { }	Óæ	b ] ^	ÖHI	V' ] äæ
G	ÖEG	bEF	bEÏ			ŠSGE cGE çHc Ö[ ] { }	Óæ	b ] ^	ÖHI	V' ] äæ
G	WEG	bEH	bEÍ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
G	WEG	bEÍ	bEÏ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
G	WEG	bEÍ	bEÏ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
G	WEG	bEJ	bE€			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
GJ	WEGJ	bEJ	bEF			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
H€	WEH€	bEG	bEH			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
HF	WEHF	bEG	bEI			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
HG	WEHG	bEÍ	bEÏ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
HH	WEHH	bEÍ	bEÏ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
HI	WEHI	bEÏ	bEJ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
HÍ	WEHÍ	bEÏ	bE€			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
HÏ	WEHÏ	bEF	bEG			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
Hİ	WEHİ	bEF	bEH			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
Hì	WEHì	bEI	bEÍ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
HJ	WEHJ	bEI	bEÏ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
I €	WE €	bEÏ	bEÏ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
IF	WEF	bEI	bEJ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
IG	WEG	bEJ	bEF			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
IH	WEH	bEÏ	bEG			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
II	WEI	bEH	bEJ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
IÍ	WEÍ	bE€	bEJ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
IÏ	WEÏ	bEH	bEÏ			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
Iì	WEì	bEJ	bFEE			GDAFCAMÉ	Óæ	b ] ^	ÜÖÄRI GÄE	V' ] äæ
IJ	PEJ	bEG	bEÏ			ŠG:G:H	Óæ	b ] ^	ÖHI	V' ] äæ
I€	PE€	bEH	bEÏ			ŠG:G:H	Óæ	b ] ^	ÖHI	V' ] äæ
IF	PEF	bEH	bEJ			ŠG:G:H	Óæ	b ] ^	ÖHI	V' ] äæ
IG	TUF	TUFc	TUFa			ÜQÜ' GEE	Ö[ ] { }	b ] ^	ÖE HÄ: EÖ	V' ] äæ
IH	TUG	TUGc	TUGa			ÜQÜ' GEE	Ö[ ] { }	b ] ^	ÖE HÄ: EÖ	V' ] äæ
II	TUH	TUHc	TUHä			ÜQÜ' GEE	Ö[ ] { }	b ] ^	ÖE HÄ: EÖ	V' ] äæ
IÍ	TUI	TUI c	TUI à			ÜQÜ' GEE	Ö[ ] { }	b ] ^	ÖE HÄ: EÖ	V' ] äæ
IÏ	TUI	TUI c	TUI à			ÜQÜ' GEE	Ö[ ] { }	b ] ^	ÖE HÄ: EÖ	V' ] äæ





Ô[ { ] a^ K O^ A^ a^ Á[ , A^ /O[ ] É  
 Ô• a^ K T a^ @|É|ã  
 R a^ Á^ { a^ K F H G F H I H' Ô i ' é  
 T[ a^ /p a^ K H E G F I É T | a^ Á^ a^ | a

R | Á^ FÉ G E G E  
 I K G F Á U T  
 Ô @ & ^ a^ Á O^ K É

<chFc`YX'GhYY'8 Yg]] b'DU'Ua YhYfg f'f' cbh]bi YXL

	Saa^)	U@^	S^)*c@a^	Sa^`Za^	Sa::Za^	S&[ ] A[ ] Z a S&[ ] A[ ] c Z a S&[ ] ~ E E S^`	S::	Oa	U'&@]
G	WEG	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
G	WEG	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
G	WEG	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
G	WEG	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
GJ	WEGJ	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
HE	WEHE	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
HF	WEHF	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
HG	WEHG	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
HH	WEHH	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
HI	WEHI	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
Hí	WEHí	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
Hî	WEHî	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
Hï	WEHï	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
Hì	WEHì	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
Hÿ	WEHÿ	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
HJ	WEHJ	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
I €	WE €	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
IF	WE F	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
IG	WE G	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
I H	WE H	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
I I	WE I	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
I í	WE í	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
I î	WE î	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
I ï	WE ï	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
I ÿ	WE ÿ	GD^FED^WE^OE^EE	H				E	E	Saa^ a^
I J	PE J	SG^G^H	I I E I I				F	F	Saa^ a^
I €	PE €	SG^G^H	I I E I I				F	F	Saa^ a^
I F	PE F	SG^G^H	I I E I I				F	F	Saa^ a^
I G	T U F	U Q U O' G E E	J I				GE	GE	Saa^ a^
I H	T U G	U Q U O' G E E	J I				GE	GE	Saa^ a^
I I	T U H	U Q U O' G E E	J I				GE	GE	Saa^ a^
I í	T U í	U Q U O' G E E	J I				GE	GE	Saa^ a^
I î	T U î	U Q U O' G E E	J I				GE	GE	Saa^ a^
I ï	T U ï	U Q U O' G E E	J I				GE	GE	Saa^ a^
I ÿ	T U ÿ	U Q U O' G E E	J I				GE	GE	Saa^ a^
I J	T U J	U Q U O' G E E	J I				GE	GE	Saa^ a^
I €	T U J	U Q U O' G E E	J I				GE	GE	Saa^ a^
I F	T U F €	U Q U O' G E E	J I				GE	GE	Saa^ a^
I G	T U F F	U Q U O' G E E	J I				GE	GE	Saa^ a^
I H	T U F G	U Q U O' G E E	J I				GE	GE	Saa^ a^

<chFc`YX'GhYY'DfcdYf]Yg

	Saa^)	O^A^•a^	O^A^•a^	P^	V@:( A@O^E^A^ )•a^ Z a B E E	Ya]aZ^•a^	U'	U'Z^•a^	Uc	
F	OHÍ	GE^EÍ	FEEF^EÍ	E	E	I JE	Hí €€€	FEE	I í €€€	FEE
G	OÉ í GE €	GE^EÍ	FEEF^EÍ	E	E	I JE	I €€€€	FEE	I í €€€€	FEE
H	OÉ €€O:ÉO^U^Oa	GE^EÍ	FEEF^EÍ	E	E	I G	I G€€€	FEE	I í €€€	FEE
I	OÉ €€O:ÉO^U^Ua	GE^EÍ	FEEF^EÍ	E	E	I G	I I €€€	FEE	I í €€€	FEE
I	OÉ €€O:ÉO	GE^EÍ	FEEF^EÍ	E	E	FJE	I I €€€	FEE	I G€€€	FEE
I	OÉ € € í	GE^EÍ	FEEF^EÍ	E	E	I JE	I €€€€	FEE	I í €€€€	FEE
I	OÉ H O:ÉO	GE^EÍ	FEEF^EÍ	E	E	I JE	Hí €€€	FEE	I €€€€	FEE
I	OÉ J G	GE^EÍ	FEEF^EÍ	E	E	I JE	I €€€€	FEE	I í €€€€	FEE

U Q U O' H O A^ • a^ ] A^ I E E A A A A O K E A A A A H O E A E T U O G S O A A H E G F I É T | a^ Á^ a^ | a A G E F G E G E A E I E I E I U E P O A

Ô[ { ]ə˘ K œ ʌ ɤə Á[ , ʌ ʌÓ[ ] É  
 Ó• ă } ʌ K T ɤ œ ʌ ʌ ʌ  
 R ʌ ʌ ʌ { ʌ ʌ K FHG FHI H' Ôi : ʌ  
 T[ ʌ ʌ ʌ ʌ K HEG FÍ ʌ ʌ ʌ ʌ ʌ ʌ

R | ʌ G F G E G E  
 | K F Á Ú T  
 Ô ʌ & ʌ ʌ Ó ʌ K É

**<chFc`YX'GhYY`DfcdYfHjYg`fT`cbHjbi`YXL**

J	ÜÖÄRI GJÄÖ:EG	ÖÄ:ä	ÖÄ:ä	Ð	V@!{ A#ÖHÖ^}•æ ZäBÈ Yä äZ•ä	Ü	Ø Z•ä	Üc
J	ÜÖÄRI GJÄÖ:EG	ÖÄ:ä	ÖÄ:ä	Ð	V@!{ A#ÖHÖ^}•æ ZäBÈ Yä äZ•ä	Ü	Ø Z•ä	Üc

**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`%&:.`@`fHt**

F	R ä o Saa ʌ T ÜFc	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
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**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% :.`@`fHt**

F	R ä o Saa ʌ T ÜGc	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
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**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% :.`@`fHt**

F	R ä o Saa ʌ T ÜHc	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
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**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% :.`@`fHt**

F	R ä o Saa ʌ T Üi c	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
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**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% :.`@`fHt**

F	R ä o Saa ʌ T Üi c	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
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**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% :.`@`fHt**

F	R ä o Saa ʌ T Üi c	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
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**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% :.`@`fHt**

F	R ä o Saa ʌ T Üi c	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
---	-----------------------	-----	----------	---------------------------

**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% :.`@`fHt**

F	R ä o Saa ʌ T Üi c	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
---	-----------------------	-----	----------	---------------------------

**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% \$:.`@`fHt**

F	R ä o Saa ʌ T ÜJc	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
---	----------------------	-----	----------	---------------------------

**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% :.`@`fHt**

F	R ä o Saa ʌ T ÜFc	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
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**>c]bh`@UXg`UbX`9 bZ:fWYX`8]gd`UMWa`Ybhg`f6`@`% &:.`@`fHt**

F	R ä o Saa ʌ T ÜFfc	SÖH	Öä^&cä }	T æ } æ ʌ Zä BÈ Yä  ä Z•ä
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Ö[ ( ] a^ K Ö Ä Å [ , Å [ Ö ] È  
 Ô • ä } s K T & @ | ð | ä  
 Ŕ à Á ~ { à ^ K FHG FHI H' Ôi : €  
 T [ à ^ / p æ ^ K HEÇ FÍ ÈT | - à / À a | à

R | r | ÁGFÉGE  
 | KGFÁUT  
 Ô @ & ^ à Á Ö K È

**A Ya Vyf'Dc]bhi@UXg'f6 @ ' & : 'WLF7 cb]bi YXL**

	T ^ { à   Á } S a ^	Ö a ^ & c ä }	T æ } ä à ^ Ž a   ð a È c á	Š } & c a } Ž a È á
Ì	T ÚG	Ÿ	È È F	Í J È
J	T ÚH	Ÿ	È È I	Í È
F€	T ÚH	Ÿ	È È I	Í È
FF	T ÚH	Ÿ	È È F	G È
FG	T ÚH	Ÿ	È È F	Í J È
FH	T ÚI	Ÿ	È H È H	H È
FI	T ÚI	Ÿ	È F È I	Í È
FÍ	T ÚI	Ÿ	È H È F G	Í È
FĪ	T ÚI	Ÿ	È H È F G	Í È
Fì	T ÚI	Ÿ	È H È F G	Í È
FJ	T ÚI	Ÿ	È H È H	H È
Œ	T ÚI	Ÿ	È F È I	Í È
Œ	T ÚI	Ÿ	È H È F G	Í È
GG	T ÚI	Ÿ	È H È F G	Í È
GH	T ÚI	Ÿ	È H È H	H È
G	T ÚI	Ÿ	È F È I	Í È
Ġ	T ÚI	Ÿ	È I È F	G È
Ġ	T ÚI	Ÿ	È I È F	Í J È
Ġ	T ÚI	Ÿ	È I È F	G È
Ġ	T ÚI	Ÿ	È I È F	Í J È
GJ	T ÚJ	Ÿ	È I È F	G È
Ĥ	T ÚJ	Ÿ	È I È F	Í J È
HF	T ÚF€	Ÿ	È I È I J	H
HG	T ÚF€	Ÿ	È I È I J	Í È
HH	T ÚFF	Ÿ	È I È I J	H
HI	T ÚFF	Ÿ	È I È I J	Í È
HÍ	T ÚFG	Ÿ	È I È I J	H
HĪ	T ÚFG	Ÿ	È I È I J	Í È

**A Ya Vyf'Dc]bhi@UXg'f6 @ ' " : 'K ]bX'NL**

	T ^ { à   Á } S a ^	Ö a ^ & c ä }	T æ } ä à ^ Ž a   ð a È c á	Š } & c a } Ž a È á
F	T ÚF	Z	È È F	Í È
G	T ÚF	Z	È È H G	Í È
H	T ÚF	Z	È È H J	G È
I	T ÚF	Z	È È H J	Í J È
Í	T ÚG	Z	È È I G	Í È
Ī	T ÚG	Z	È È F G	Í È
ì	T ÚG	Z	È È G J	G È
Ì	T ÚG	Z	È È G J	Í J È
J	T ÚH	Z	È È I G	Í È
F€	T ÚH	Z	È È F G	Í È
FF	T ÚH	Z	È È G J	G È
FG	T ÚH	Z	È È G J	Í J È
FH	T ÚI	Z	È È F I	H È
FI	T ÚI	Z	È È H G	Í È
FÍ	T ÚI	Z	È È I È I	Í È
FĪ	T ÚI	Z	È È I È I	Í È
Fì	T ÚI	Z	È È I È €	Í È
Fì	T ÚI	Z	È È I È €	Í È
FJ	T ÚI	Z	È È F I	H È









Ö[ { ] ə ^ K Ö Ä Å [ , ^ / Ö [ ] É  
 Ö • ä } ^ K T & @ | ð | ä  
 R ä Å ~ { ä ^ K FHG FHI H' Ö i ' é  
 T [ ä ^ / P æ ^ K HEG FÍ ÉT | -á / ÁT æ | ä

R | r / ÁG FÁGEGE  
 I KGFÁUT  
 Ö @ & ^ á / Ö KÉ

**A Ya Vyf Dc ]bh @ UXg f6 @ ; : ' K ]bX' !L fK cf \_ ]b[ tL f7 cb] ]bi YXL**

	T ^ { ä ^ / ÁG ä ^ }	Ö ä ^ & c ä }	T æ } æ ä ^ ]a Dá E c á	Š } & c ä } Ž ä É á
GJ	T ÚJ	Ý	Ě Ě Í J	G Ě
HĚ	T ÚJ	Ý	Ě Ě Í J	Í J Ě
HF	T ÚFĚ	Ý	Ě Ě Í	H
HG	T ÚFĚ	Ý	Ě Ě Í	Í Ě
HH	T ÚFF	Ý	Ě Ě Í	H
HI	T ÚFF	Ý	Ě Ě Í	Í Ě
HÍ	T ÚFG	Ý	Ě Ě Í	H
HĪ	T ÚFG	Ý	Ě Ě Í	Í Ě

**A Ya Vyf 8 ]gh ]Vi hYX' @ UXg f6 @ ' & : = YXL**

	T ^ { ä ^ / ÁG ä ^ }	Ö ä ^ & c ä }	Ú c ä ö ÁT æ } æ ä ^ ]a Dá E c á	Ö ä ÁT æ } æ ä ^ ]a Dá E c á	Ú c ä ö Š } & c ä } Ž ä É á	Ö ) ä ÁŠ } & c ä } Ž ä É á
F	P Ě F	Ý	Ě Ě FH	Ě Ě FH	€	Ä FEE
G	P Ě G	Ý	Ě Ě FH	Ě Ě FH	€	Ä FEE
H	P Ě H	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
I	P Ě I	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
Í	P Ě Í	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
Ī	P Ě Ī	Ý	Ě Ě H	Ě Ě H	€	Ä FEE
Ī	P Ě Ī	Ý	Ě Ě H	Ě Ě H	€	Ä FEE
Ī	P Ě Ī	Ý	Ě Ě H	Ě Ě H	€	Ä FEE
J	P Ě J	Ý	Ě Ě FH	Ě Ě FH	€	Ä FEE
FĚ	P Ě FĚ	Ý	Ě Ě H	Ě Ě H	€	Ä FEE
FF	P Ě FF	Ý	Ě Ě H	Ě Ě H	€	Ä FEE
FG	P Ě FG	Ý	Ě Ě H	Ě Ě H	€	Ä FEE
FH	P Ě FH	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
FI	P Ě FI	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
FÍ	P Ě Í	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
FĪ	P Ě Ī	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
FĪ	P Ě Ī	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
FĪ	P Ě Ī	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
FĪ	P Ě Ī	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
FJ	P Ě J	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
GĚ	P Ě GĚ	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
GF	P Ě GF	Ý	Ě Ě Í	Ě Ě Í	€	Ä FEE
GG	Ö Ě GG	Ý	Ě Ě H	Ě Ě H	€	Ä FEE
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FH	P €€I	Z	ËËË	€	ËËË
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FJ	P €€€	Z	ËËË	€	FFËË
G€	P €€G	Z	ËËË	€	FFËË
GF	Ö €€G	Z	ËËË	€	ËËË
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Hï	W €€Ï	Z	ËËË	€	H
Hj	W €€J	Z	ËËË	€	H
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IF	P €€€	Z	ËËË	€	ËËË
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# Exhibit E

Power Density/RF Emissions Report



## 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, Connecticut 06460

**July 24, 2020**

**EBI Project Number: 6220003385**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>53.23%</b>

July 24, 2020

T-Mobile  
Attn: Jason Overbey, RF Manager  
35 Griffin Road South  
Bloomfield, Connecticut 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 in Milford, Connecticut** 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), 2100 MHz (AWS) and 11 GHz 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 in Milford, Connecticut 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 7) 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.
- 8) 2 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 9) 2 NR channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 10) 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.
- 11) 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 12) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-EA20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24\_43-UNA20 for the 700 MHz / 600 MHz / 600 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 2100 MHz / 1900 MHz channel(s), the Ericsson AIR6449 B4I for the 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-EA20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24\_43-UNA20 for the 700 MHz / 600 MHz / 600 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 2100 MHz / 1900 MHz channel(s), the Ericsson AIR6449 B4I for the 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-EA20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24\_43-UNA20 for the 700 MHz / 600 MHz / 600 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 2100 MHz / 1900 MHz channel(s), the Ericsson AIR6449 B4I for the 2500 MHz / 2500 MHz channel(s) in Sector C. 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

manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 13) The antenna mounting height centerline of the proposed antennas is 73 feet above ground level (AGL).
- 14) 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.
- 15) 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-16DWV-S-EA20	Make / Model:	RFS APX16DWV-16DWV-S-EA20	Make / Model:	RFS APX16DWV-16DWV-S-EA20
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd
Height (AGL):	73 feet	Height (AGL):	73 feet	Height (AGL):	73 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	7,002.81	ERP (W):	7,002.81	ERP (W):	7,002.81
Antenna A1 MPE %:	4.72%	Antenna B1 MPE %:	4.72%	Antenna C1 MPE %:	4.72%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20
Frequency Bands:	700 MHz / 600 MHz / 600 MHz / 1900 MHz	Frequency Bands:	700 MHz / 600 MHz / 600 MHz / 1900 MHz	Frequency Bands:	700 MHz / 600 MHz / 600 MHz / 1900 MHz
Gain:	13.35 dBd / 12.95 dBd / 12.95 dBd / 15.65 dBd	Gain:	13.35 dBd / 12.95 dBd / 12.95 dBd / 15.65 dBd	Gain:	13.35 dBd / 12.95 dBd / 12.95 dBd / 15.65 dBd
Height (AGL):	73 feet	Height (AGL):	73 feet	Height (AGL):	73 feet
Channel Count:	7	Channel Count:	7	Channel Count:	7
Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts
ERP (W):	8,466.41	ERP (W):	8,466.41	ERP (W):	8,466.41
Antenna A2 MPE %:	9.51%	Antenna B2 MPE %:	9.51%	Antenna C2 MPE %:	9.51%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	2100 MHz / 1900 MHz	Frequency Bands:	2100 MHz / 1900 MHz	Frequency Bands:	2100 MHz / 1900 MHz
Gain:	15.85 dBd / 15.35 dBd	Gain:	15.85 dBd / 15.35 dBd	Gain:	15.85 dBd / 15.35 dBd
Height (AGL):	73 feet	Height (AGL):	73 feet	Height (AGL):	73 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A3 MPE %:	5.89%	Antenna B3 MPE %:	5.89%	Antenna C3 MPE %:	5.89%
Antenna #:	4	Antenna #:	4	Antenna #:	4
Make / Model:	Ericsson AIR6449 B41	Make / Model:	Ericsson AIR6449 B41	Make / Model:	Ericsson AIR6449 B41
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	73 feet	Height (AGL):	73 feet	Height (AGL):	73 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	25,651.93	ERP (W):	25,651.93	ERP (W):	25,651.93
Antenna A4 MPE %:	17.31%	Antenna B4 MPE %:	17.31%	Antenna C4 MPE %:	17.31%



Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	37.42%
AT&T	11.84%
Sprint	3.97%
<b>Site Total MPE % :</b>	<b>53.23%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	37.42%
T-Mobile Sector B Total:	37.42%
T-Mobile Sector C Total:	37.42%
<b>Site Total MPE % :</b>	<b>53.23%</b>

## T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# 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 1900 MHz GSM	4	1167.14	73.0	31.50	1900 MHz GSM	1000	3.15%
T-Mobile 2100 MHz UMTS	2	1167.14	73.0	15.75	2100 MHz UMTS	1000	1.57%
T-Mobile 700 MHz LTE	2	648.82	73.0	8.75	700 MHz LTE	467	1.87%
T-Mobile 600 MHz LTE	2	591.73	73.0	7.98	600 MHz LTE	400	2.00%
T-Mobile 600 MHz NR	1	1577.94	73.0	10.65	600 MHz NR	400	2.66%
T-Mobile 1900 MHz LTE	2	2203.69	73.0	29.73	1900 MHz LTE	1000	2.97%
T-Mobile 2100 MHz LTE	2	2307.55	73.0	31.14	2100 MHz LTE	1000	3.11%
T-Mobile 1900 MHz LTE	2	2056.61	73.0	27.75	1900 MHz LTE	1000	2.77%
T-Mobile 2500 MHz LTE	2	6412.98	73.0	86.53	2500 MHz LTE	1000	8.65%
T-Mobile 2500 MHz NR	2	6412.98	73.0	86.53	2500 MHz NR	1000	8.65%
						<b>Total:</b>	<b>37.42%</b>

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

## 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:	37.42%
Sector B:	37.42%
Sector C:	37.42%
T-Mobile Maximum MPE % (Sector A):	37.42%
Site Total:	53.23%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **53.23%** 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.

# Exhibit F

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## Jennifer Iliades

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Tuesday, October 20, 2020 10:41 AM  
**To:** Jennifer Iliades  
**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030310875247



**Hello, your package has been delivered.**

**Delivery Date:** Tuesday, 10/20/2020

**Delivery Time:** 10:37 AM

**Left At:** FRONT DESK

**Signed by:** ANCRI

### CENTERLINE SITE ACQUISITION

**Tracking Number:** [1Z9Y45030310875247](#)

**Ship To:** AMERICAN TOWER CORP  
10 PRESIDENTIAL WAY  
WOBURN, MA 018011053  
US

**Number of Packages:** 1

**UPS Service:** UPS Ground

**Package Weight:** 0.2 LBS

**Reference Number:** CT11318F - CSC TO ATC



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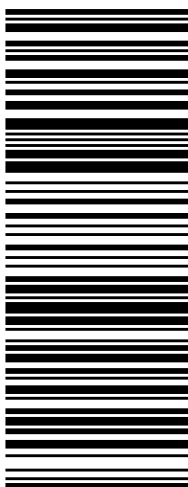

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## Jennifer Iliades

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**To:** Jennifer Iliades  
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**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 10/21/2020

**Delivery Time:** 12:40 PM

**Left At:** FRONT DESK

**Signed by:** ID Verified

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**Tracking Number:** [1Z9Y45030309779229](#)

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**Number of Packages:** 1

**UPS Service:** UPS Ground

**Package Weight:** 0.2 LBS

**Reference Number:** CT11318F - CSC TO CITY



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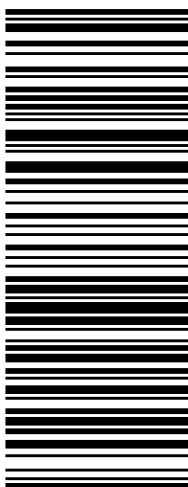
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## Jennifer Iliades

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**Sent:** Tuesday, October 20, 2020 11:25 AM  
**To:** Jennifer Iliades  
**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030305626230



**Hello, your package has been delivered.**

**Delivery Date:** Tuesday, 10/20/2020

**Delivery Time:** 11:24 AM

**Left At:** FRONT DESK

**Signed by:** ID Verified

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US

**Number of Packages:** 1

**UPS Service:** UPS Ground

**Package Weight:** 0.2 LBS

**Reference Number:** CT11318F - CSC TO PLANNER



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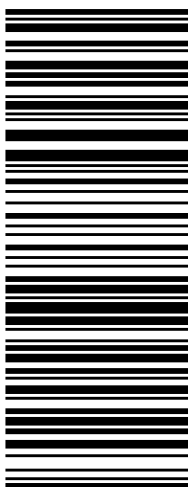

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WEST BRIDGEWATER ,MA 02379

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<p style="text-align: right;"><b>1 OF 1</b></p> <p style="text-align: center;"><b>1 LBS</b></p> <p>CENTERLINE COMMUNICATIONS 5082655599 CENTERLINE CORPORATE 95 RYAN DR. RAYNHAM MA 02767</p> <p><b>SHIP TO:</b> HENRY &amp; GENEVIEVE CHARCHENKO 438 BRIDGEPORT AVENUE <b>MILFORD CT 06460-4106</b></p>	<p style="font-size: 2em;"><b>CT 066 9-55</b></p> 	<p style="font-size: 1.5em;"><b>UPS GROUND</b></p> <p>TRACKING #: 1Z 9Y4 503 03 0592 6255</p> 	<p style="text-align: center;"><b>BILLING: P/P</b></p> <p>Reference # 1: CT11318F - CSC to property <small>CS 22.0.12. WNTNV50 34.0A 10/2020*</small></p> 
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## Jennifer Iliades

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Tuesday, October 20, 2020 11:45 AM  
**To:** Jennifer Iliades  
**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030305926255



**Hello, your package has been delivered.**

**Delivery Date:** Tuesday, 10/20/2020

**Delivery Time:** 11:43 AM

**Left At:** OFFICE

**Signed by:** BRAZUE

### CENTERLINE SITE ACQUISITION

**Tracking Number:** [1Z9Y45030305926255](#)

**Ship To:** HENRY & GENEVIEVE CHARCHENKO  
438 BRIDGEPORT AVENUE  
MILFORD, CT 064604106  
US

**Number of Packages:** 1

**UPS Service:** UPS Ground

**Package Weight:** 0.2 LBS

**Reference Number:** CT11318F - CSC TO PROPERTY



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