



10 INDUSTRIAL AVENUE,
SUITE 3
MAHWAH, NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

July 28, 2020

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

**Re: Notice of Exempt Modification
484 Meriden Road Middlefield CT
Latitude: 41.53553333
Longitude: -72.73211389
T-Mobile site: CTHA244A /L600**

Dear Ms. Bachman:

T-Mobile currently maintains (9) antennas at the 140 foot level of the existing 150 -foot monopole located at 484 Meriden Road in Middlefield CT. The monopole is owned by American Tower and the property is owned by Land Management, Inc. T-Mobile now intends to replace (9) of its existing antennas with (6) 600/700 MHz antennas and (3) 1900/ 2100 MHz Antennas. The new antennas would be installed at the 140 foot level of the tower with proposed mount modifications.

Planned Modifications:

Remove

(6) EMS- RR90-17-02DP
(18) 1-5/8" coax
(6) KRY 112 71 TMA's

Remove and Replace:

Antennas/RRUs:

(3) RFS-APX16DWV-16DWV-S-E-A20 (REMOVE) – Add (3) Air 21 B2A B4P (REPLACE) - 1900 MHz / 2100 MHz
(3) Ericsson RRUS 11 B12 (REMOVE) – (3) Ericsson Radio 4449 B12, B71 (REPLACE)

Existing to Remain:

(6) 1-5/8" coax

Install New:

(3) AIR 32 B66Aa/B2a
(3) APXVAARR24_43-U-NA20 600 MHz / 700 MHz
(3) Ericsson Radio 4449 B12 B71
(3) 1-5/8" hybrid
(3) KRY 112 144/1 TMA's

This facility was approved by the Council as Docket 223 on July 11, 2002, with no known conditions that would restrict exempt modifications. A copy of the original decision is attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Edward P Bailey, First Selectman and CEO, and Jerry Russ, Zoning Enforcement Officer.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,



Elizabeth Jamieson
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
860-605-7808
EJamieson@TranscendWireless.com

cc:

The Honorable Edward P Bailey, First Selectman and CEO
Jerry Russ, Zoning Enforcement Officer
American Tower, Tower Owner
Land Management, Inc, Property Owner

Exhibit A

Original Facility Approval



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Melanie Bachman,
Executive Director

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Decisions

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DOCKET NO. 223 - Cellco Partnership d/b/a Verizon Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at 484 Meriden Road, Middlefield, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	July 11, 2002

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Crown Atlantic Company LLC and Cellco Partnership d/b/a Verizon Wireless (Cellco) for the construction, maintenance and operation of a wireless telecommunications facility at the proposed site located at 484 Meriden Road in Middlefield, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Cellco, AT&T Wireless LLC, and other entities, both public and private, but such tower shall not exceed a height of 150 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include the location and specifications for the tower, tower foundation, antennas, equipment building, security fence, access road, utility line, and landscaping plan. The D&M Plan shall also include construction plans to be submitted prior to construction for site clearing, water drainage, and erosion and sedimentation control consistent with the [Connecticut Guidelines for Soil Erosion and Sediment Control](#), as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. If the facility does not initially provide, or permanently ceases to provide wireless services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and ceases to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, and the Middletown Press.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant

Crown Atlantic Company LLC
and Cellco Partnership d/b/a
Verizon Wireless

Its Representative

Robert Stanford
Crown Atlantic Company LLC
703 Hebron Avenue
Glastonbury, CT 06033

Kenneth C. Baldwin, Esq.
Joey Lee Miranda, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

Intervenor

AT&T Wireless

Its Representative

Christopher B. Fisher
Cuddy & Feder & Worby
90 Maple Avenue
White Plains, NY 10601
w: - (914) 761-1300
f: - (914) 761-6405

Content Last Modified on 6/14/2005 9:27:49 AM

Ten Franklin Square New Britain, CT 06051 / 860- 827-2935

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Exhibit B

Property card

484 MERIDEN RD & RT 66

Location 484 MERIDEN RD & RT 66

Mblu 4/ / 5/ /

Acct# 00146700

Owner LAND MANAGMENT INC

Assessment \$388,500

PID 1566

Building Count 3

Current Value

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$154,900	\$233,600	\$388,500

Owner of Record

Owner LAND MANAGMENT INC
Co-Owner
Address 482 RT 66 & MERIDEN RD
MIDDLEFIELD, CT 06455

Sale Price \$0
Certificate
Book & Page 66/ 682
Sale Date 09/30/1988

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date

LAND MANAGMENT INC	\$0	66/ 682	09/30/1988
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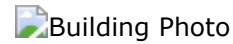
Building Information

Building 1 : Section 1

Year Built: 1958
Living Area: 1,878
Replacement Cost: \$166,389
Building Percent Good: 45
Replacement Cost Less Depreciation: \$74,900

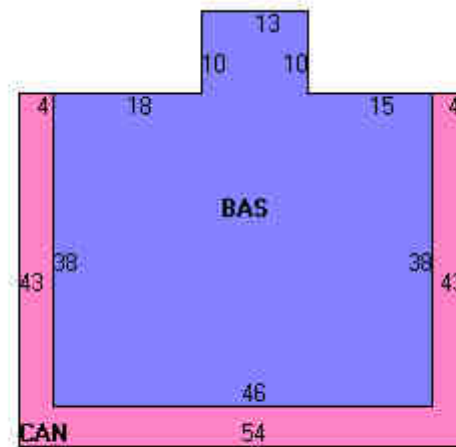
Building Attributes	
Field	Description
STYLE	Restaurant
MODEL	Comm/Ind
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Single Siding
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Plywood Panel
Interior Wall 2	
Interior Floor 1	Concr-Finished

Building Photo



(<http://images.vgsi.com/photos/MiddlefieldCTPhotos//\01\00\21/>)

Building Layout



(<http://images.vgsi.com/photos/MiddlefieldCTPhotos//Sketches/1>)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,878	1,878

Interior Floor 2	Terrazzo Monol
Heating Fuel	Gas/Oil
Heating Type	Forced Air-Duc
AC Type	Heat Pump
Bldg Use	REST/CLUBS
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3260
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	

CAN	Canopy	574	0
		2,452	1,878

Building 2 : Section 1

Year Built: 1969
Living Area: 2,400
Replacement Cost: \$195,644
Building Percent 52
Good:
Replacement Cost
Less Depreciation: \$101,700

Building Attributes : Bldg 2 of 3
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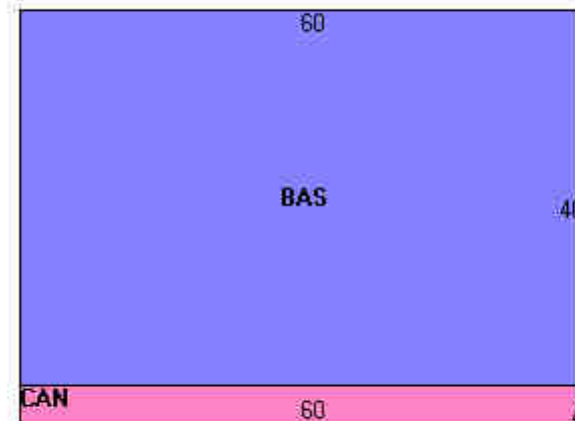
Field	Description
STYLE	Store
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	2
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	Brick
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpet
Heating Fuel	Gas/Oil
Heating Type	Forced Air-Duc
AC Type	None
Bldg Use	STORE/SHOP
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3220
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE

Building Photo



(<http://images.vgsi.com/photos/MiddlefieldCTPhotos/\01\00\17/>)

Building Layout



(<http://images.vgsi.com/photos/MiddlefieldCTPhotos//Sketches/1>)

Building Sub-Areas (sq ft)

Legend

Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	

Code	Description	Gross Area	Living Area
BAS	First Floor	2,400	2,400
CAN	Canopy	240	0
		2,640	2,400

Building 3 : Section 1

Year Built: 1953
Living Area: 984
Replacement Cost: \$80,868
Building Percent Good: 30
Replacement Cost Less Depreciation: \$24,300

Building Attributes : Bldg 3 of 3	
Field	Description
Style	Ranch
Model	Residential
Grade:	Below Average
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	Pre-Fab Wood
Roof Structure:	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall
Interior Wall 2	

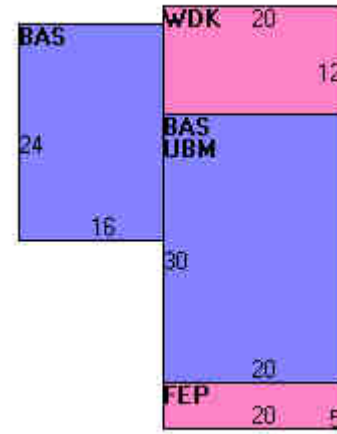
Building Photo



(<http://images.vgsi.com/photos/MiddlefieldCTPhotos/\01\00\17/>)

Interior Flr 1	Linoleum
Interior Flr 2	Carpet
Heat Fuel	Electric
Heat Type:	Electr Basebrd
AC Type:	None
Total Bedrooms:	2 Bedrooms
Total Bthrms:	1
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	5 Rooms
Bath Style:	Average
Kitchen Style:	Average
Whirlpool	
Interior	

Building Layout



(<http://images.vgsi.com/photos/MiddlefieldCTPhotos//Sketches/1>)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	984	984
FEP	Porch, Enclosed	100	0
UBM	Basement, Unfinished	600	0
WDK	Deck, Wood	240	0
		1,924	984

Extra Features

Extra Features

Legend

No Data for Extra Features

Land

Land Use

Use Code 3260
Description REST/CLUBS
Zone PC
Neighborhood A
Alt Land Appr Category No

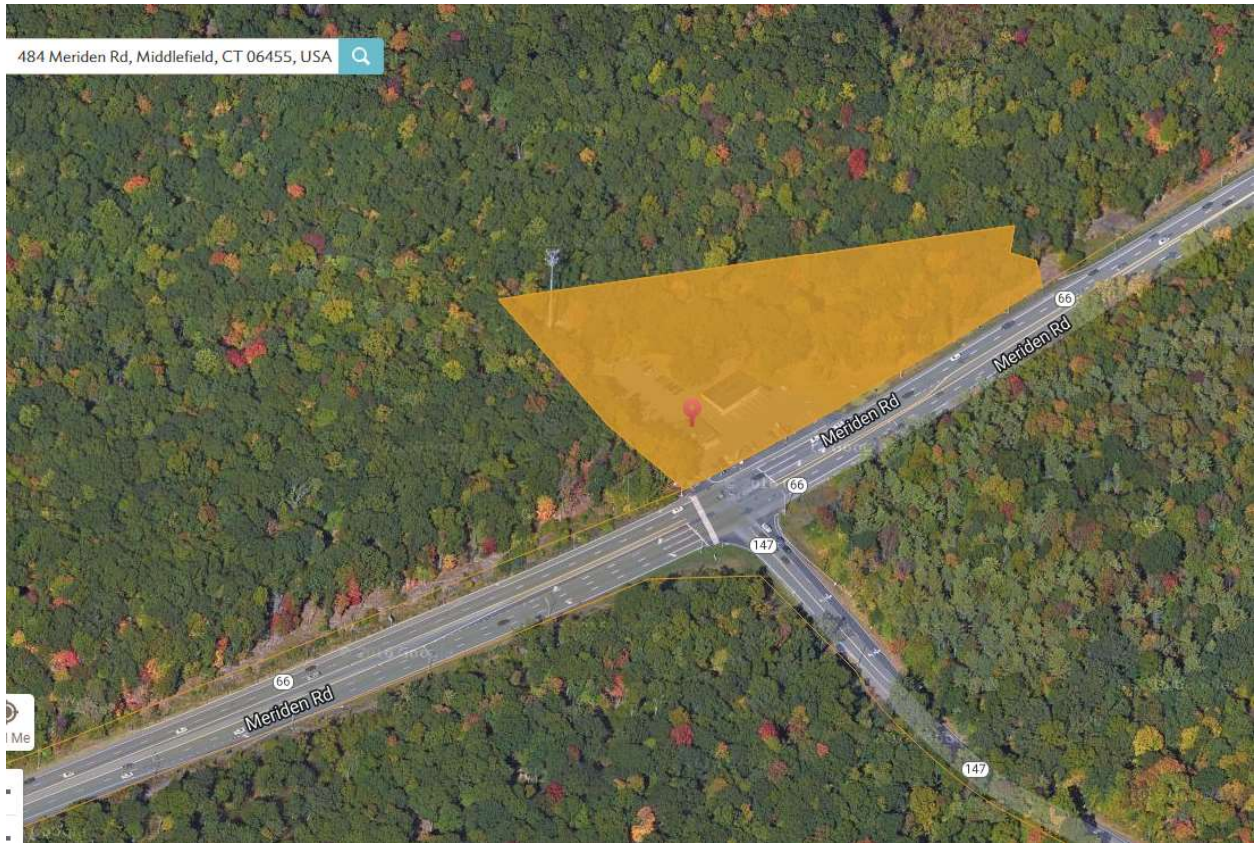
Land Line Valuation

Size (Acres) 3.49
Frontage 605
Depth
Assessed Value \$233,600

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			20000 S.F.	\$17,500	1
SHD2	SHED FR GD			280 S.F.	\$1,700	1
SHD7	COM MAS			64 S.F.	\$1,200	1

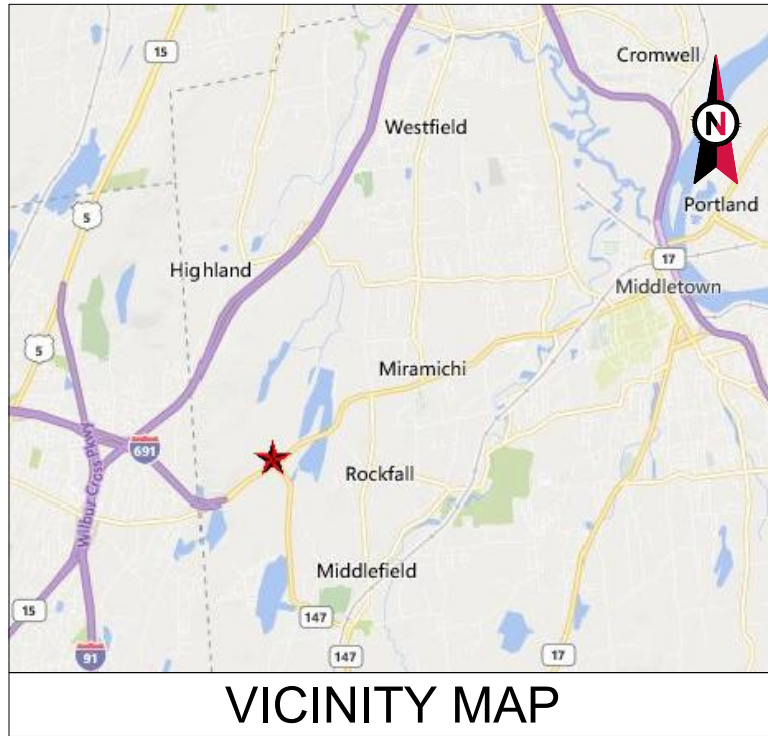
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484 MERIDEN ROAD, MIDDLEFIELD, CT 06455

Exhibit C

Construction Drawings



VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: MIDDLEFIELD CT
 ATC SITE NUMBER: 411260
 T-MOBILE SITE ID: CTHA244A
 SITE ADDRESS: 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



LOCATION MAP

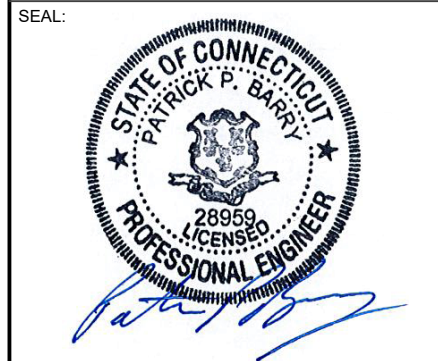
**T-MOBILE L600 ANTENNA AMENDMENT
 67D92DB OUTDOOR CONFIGURATION**

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	KC	05/13/19
1	BREAKER SIZE	TC	06/21/19
2	MA UPDATE	KC	07/24/19
3	ANTENNA/CABLE QTY	JB	08/26/19

ATC SITE NUMBER:
411260
 ATC SITE NAME:
MIDDLEFIELD CT
 SITE ADDRESS:
 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



Authorized by "EOR"
 Aug 27 2019 3:04 PM
 T-Mobile design

DRAWN BY:	KC
APPROVED BY:	PB
DATE DRAWN:	05/13/19
ATC JOB NO:	12951824

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	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> 484 MERIDEN RD. MIDDLEFIELD, CT 06455 COUNTY: MIDDLESEX <u>1A CERTIFICATE SUMMARY:</u> LATITUDE: 41° 32' 7.85" N LONGITUDE: 72° 43' 55.538" W GROUND ELEVATION: 427' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: REMOVE (9) PANELS, (6) TTAs, AND (18) 1-5/8" COAX CABLES INSTALL (9) NEW PANELS, (3) TTAs, (3) RRU's, (3) 1-5/8" HYBRID CABLES AND MOUNT MODIFICATIONS EXISTING (6) 1-5/8" COAX CABLES TO REMAIN	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> LAND MANAGEMENT INC 484 MERIDEN RD / RTE 66 MIDDLEFIELD, CT 06455	<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.	G-001 TITLE SHEET G-002 GENERAL NOTES C-101 DETAILED SITE PLAN & TOWER ELEVATION C-102 GROUND DETAIL PLAN C-501 ANTENNA INFORMATION & SCHEDULE E-501 GROUNDING DETAILS R-601 SUPPLEMENTAL R-602 SUPPLEMENTAL R-603 SUPPLEMENTAL R-604 SUPPLEMENTAL R-605 SUPPLEMENTAL				
<u>UTILITY COMPANIES</u> POWER COMPANY: NORTHEAST UTILITIES PHONE: (800) 286-2000 TELEPHONE COMPANY: AT&T PHONE: UNKNOWN		<u>PROJECT LOCATION DIRECTIONS</u> FROM WALLINGFORD, CT: TAKE RT 91 NORTH TO EXIT 16 (E. MAIN ST) TAKE A RIGHT ONTO EAST MAIN STREET FOLLOW TO RT. 66 AT 1ST TRAFFIC LIGHT ON 66 TAKE A LEFT INTO GUIDA'S DAIRY BAR SITE IS IN LEFT CORNER OF REAR PARKING LOT. GATE COMBO IS 2370					



Know what's below.
 Call before you dig.

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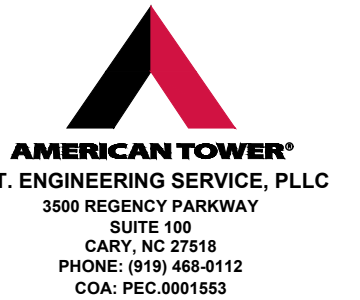
GENERAL CONSTRUCTION NOTES:

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

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

STRUCTURAL STEEL NOTES:

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



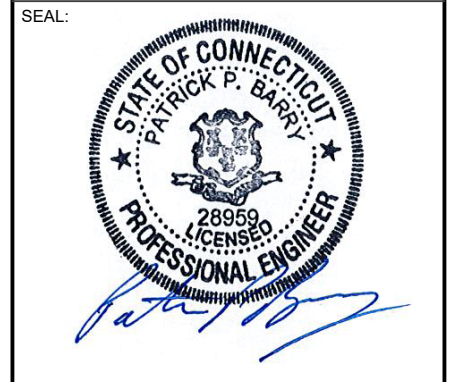
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	KC	05/13/19

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455



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APPROVED BY:	PB
DATE DRAWN:	05/13/19
ATC JOB NO:	12951824

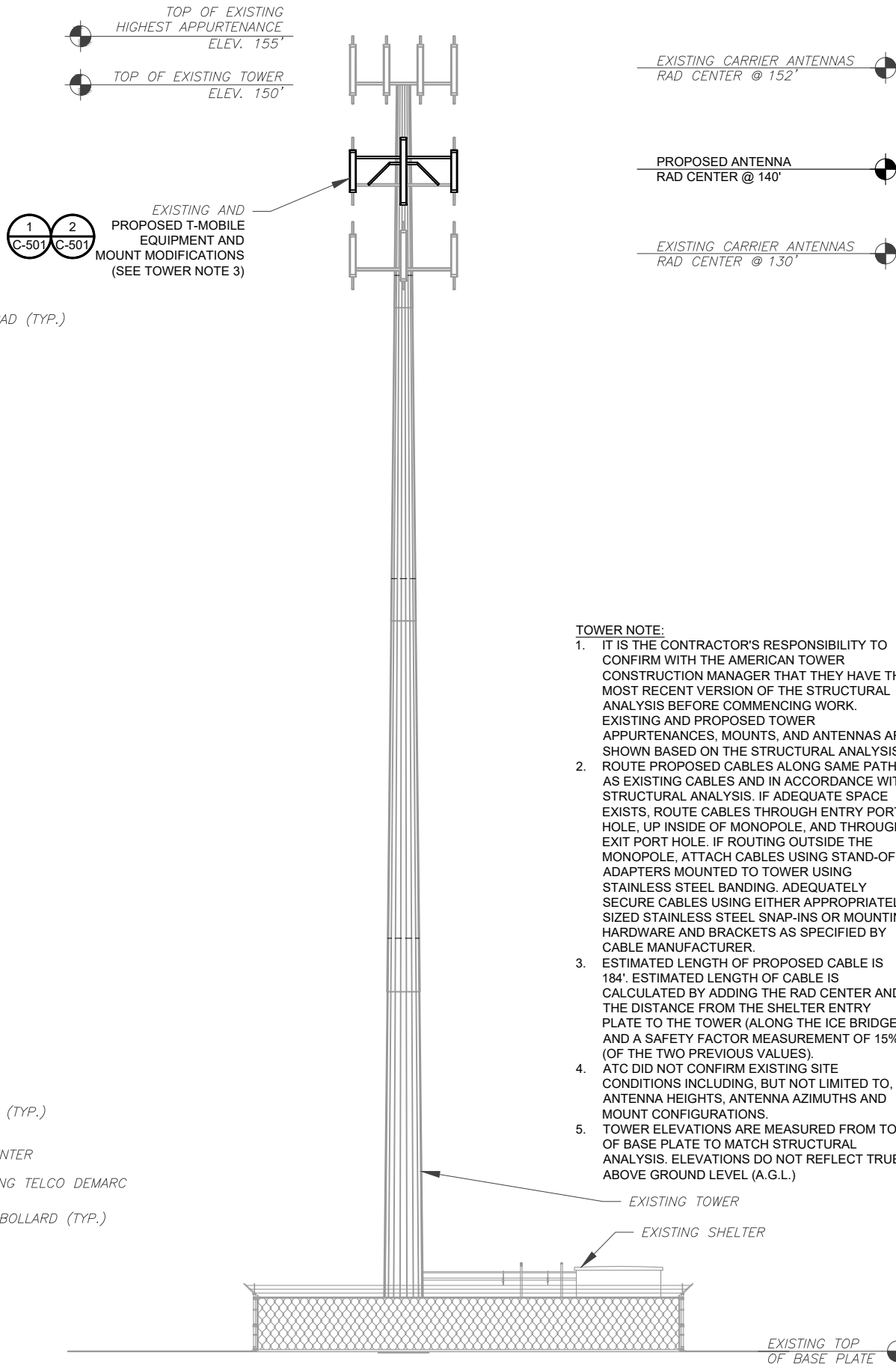
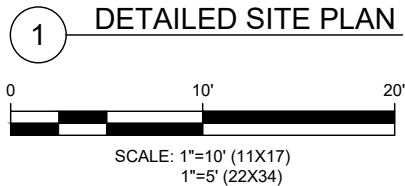
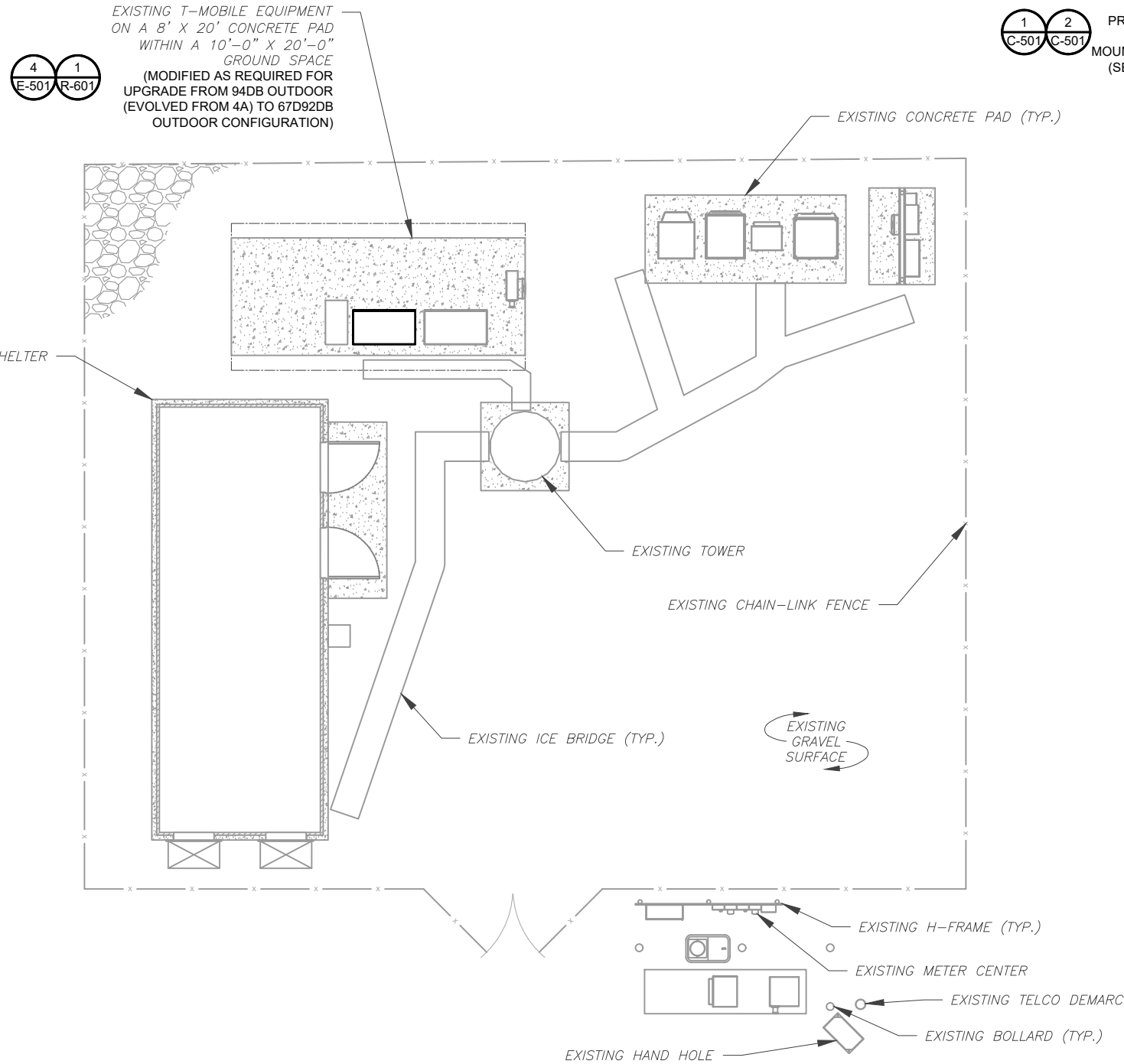
GENERAL NOTES

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

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



2 TOWER ELEVATION
SCALE: NOT TO SCALE

- TOWER NOTE:**
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
 2. 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.
 3. ESTIMATED LENGTH OF PROPOSED CABLE IS 184'. ESTIMATED LENGTH OF CABLE IS 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).
 4. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
 5. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

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COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	KC	05/13/19
2	MA UPDATE	KC	07/24/19

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

SEAL:

Authorized by "EOR"
Aug 27 2019 3:04 PM

DRAWN BY:	KC
APPROVED BY:	PB
DATE DRAWN:	05/13/19
ATC JOB NO:	12951824

DETAILED SITE PLAN & TOWER ELEVATION	
SHEET NUMBER:	REVISION:
C-101	2

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REV.	DESCRIPTION	BY	DATE
1	BREAKER SIZE	TC	06/21/19

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

SITE ADDRESS:
 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455

SEAL:



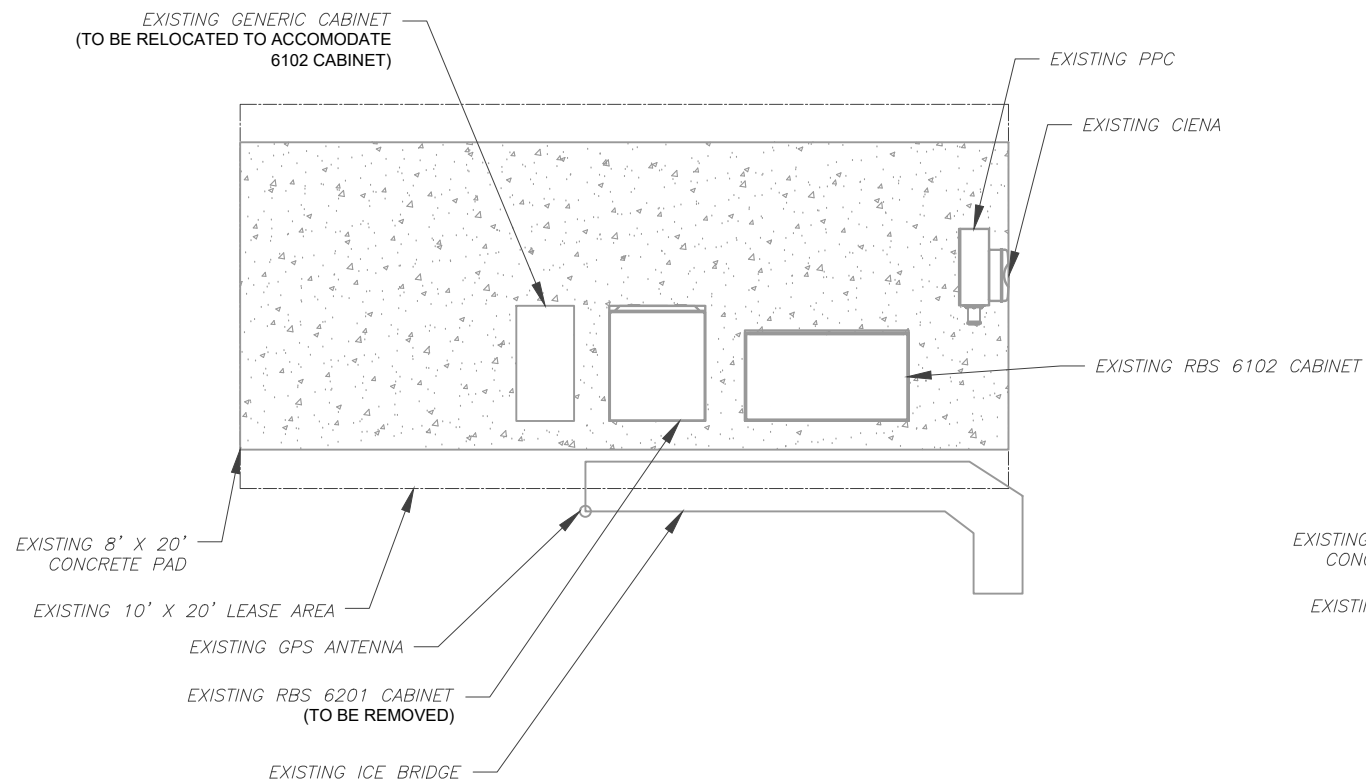
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APPROVED BY:	PB
DATE DRAWN:	05/13/19
ATC JOB NO:	12951824

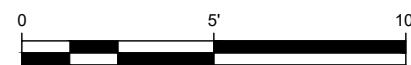
GROUND DETAIL PLAN

SHEET NUMBER:
C-102

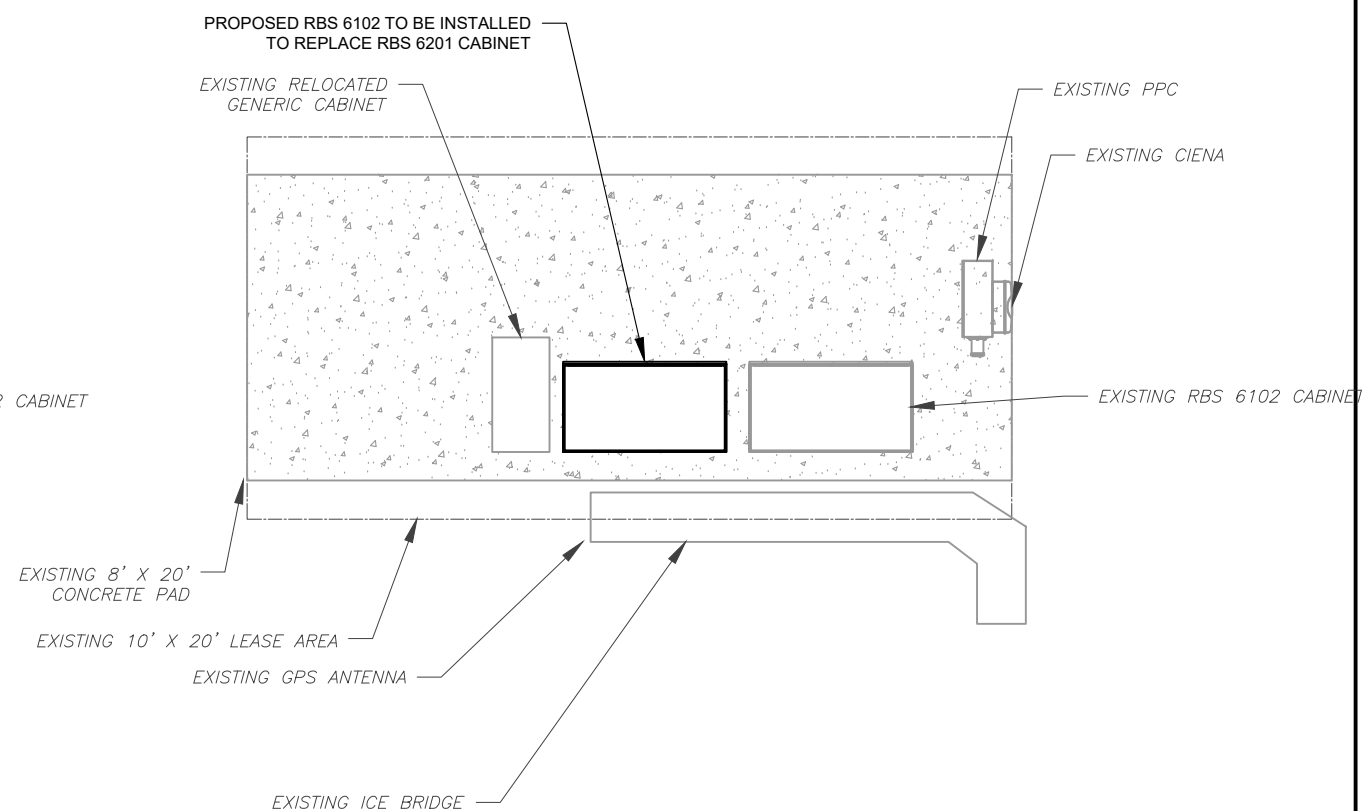
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1 EXISTING GROUND EQUIPMENT LAYOUT



SCALE: 1"=5' (11X17)
 1"=2.5' (22X34)



2 PROPOSED GROUND EQUIPMENT LAYOUT



SCALE: 1"=5' (11X17)
 1"=2.5' (22X34)



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.



3 EXISTING GROUND EQUIPMENT LAYOUT (LOOKING SOUTHEAST)

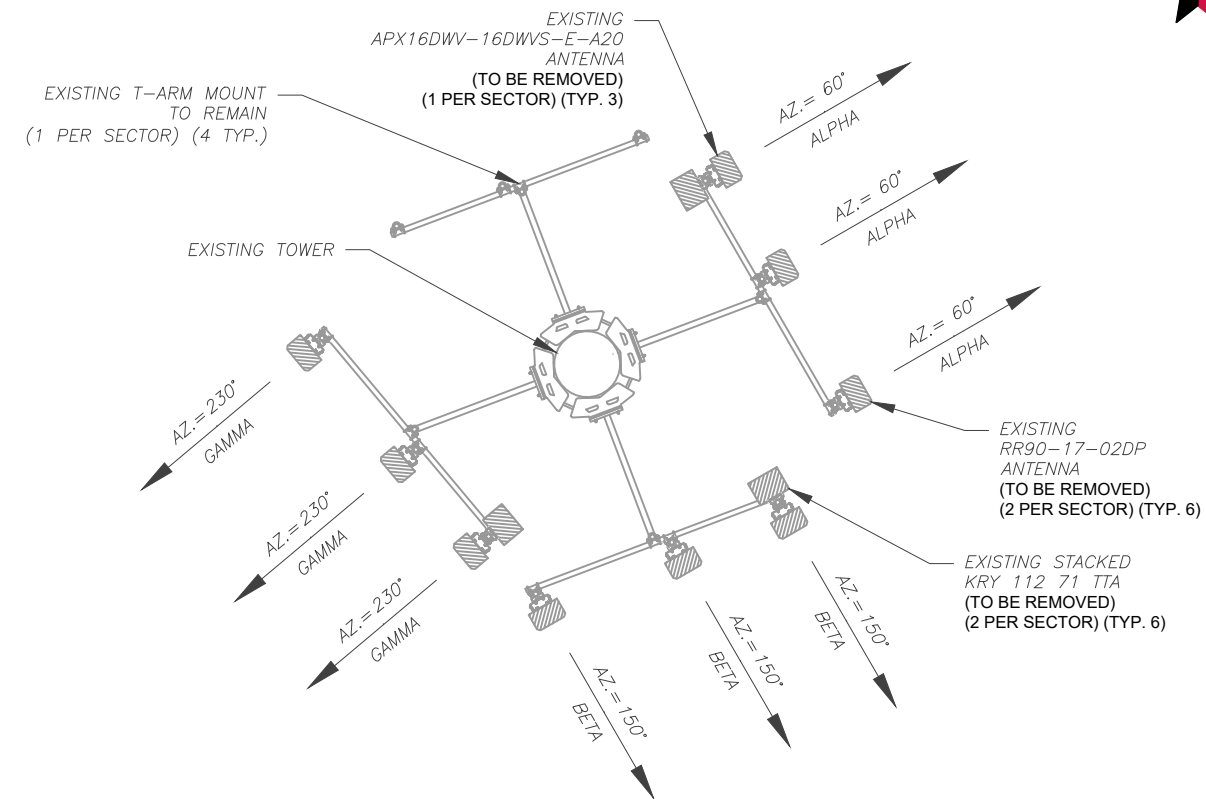
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4 EXISTING GROUND EQUIPMENT LAYOUT (LOOKING SOUTH)

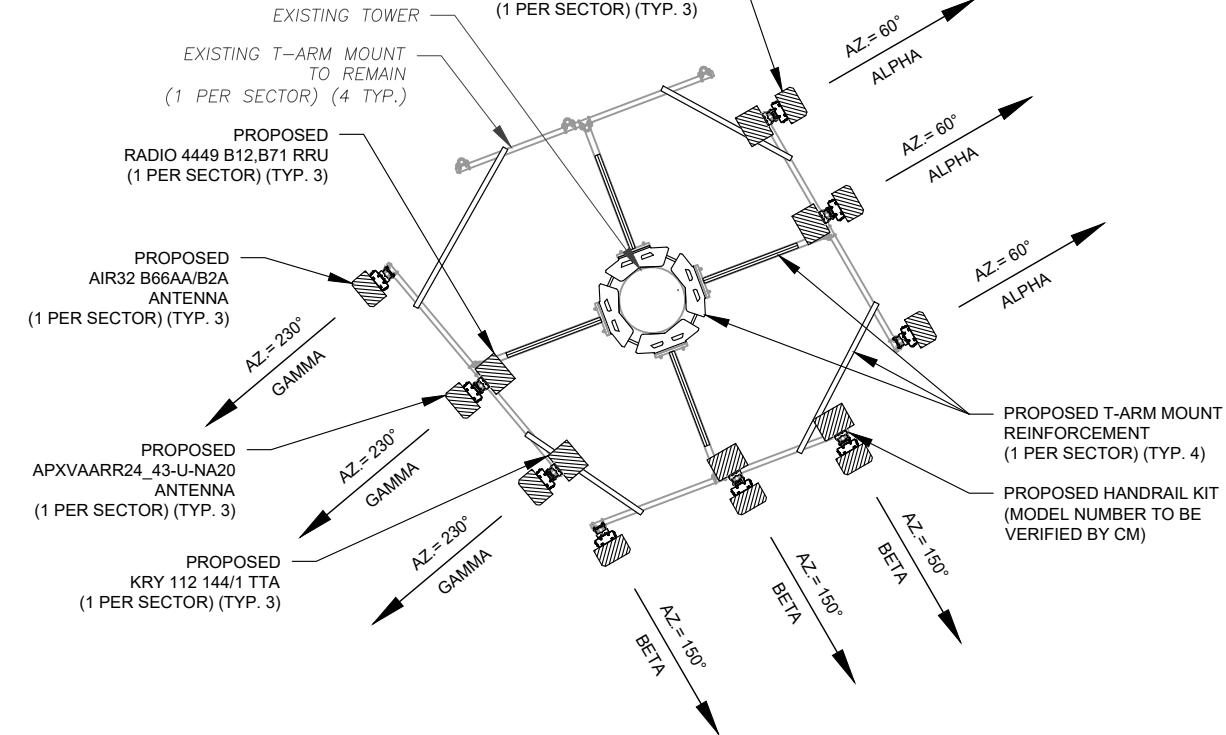
SCALE: NOT TO SCALE

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1 EXISTING ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, PLLC, DATED 07/03/19, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



2 FINAL ANTENNA PLAN

EXISTING ANTENNA / EQUIPMENT SCHEDULE							
SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	A1	APX16DWV-16DWVS-E-A20	140'-0"	60°	0°	2°	(2) KRY 112 71
ALPHA	A2	RR90-17-02DP	140'-0"	60°	0°	-	-
ALPHA	A3	RR90-17-02DP	140'-0"	60°	0°	-	-
BETA	B1	APX16DWV-16DWVS-E-A20	140'-0"	150°	0°	2°	(2) KRY 112 71
BETA	B2	RR90-17-02DP	140'-0"	150°	0°	-	-
BETA	B3	RR90-17-02DP	140'-0"	150°	0°	-	-
GAMMA	C1	APX16DWV-16DWVS-E-A20	140'-0"	230°	0°	2°	(2) KRY 112 71
GAMMA	C2	RR90-17-02DP	140'-0"	230°	0°	-	-
GAMMA	C3	RR90-17-02DP	140'-0"	230°	0°	-	-

- NOTES
- BASED ON APPROVED ATC APPLICATION 12927178, DATED 04/02/19. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
 - ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
 - ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
 - CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
 - POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

FINAL ANTENNA / EQUIPMENT SCHEDULE							
SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	A1	AIR 21, 1.3 M, B2A B4P	140'-0"	60°	0°	2°	KRY 112 144/1
ALPHA	A2	APXVAARR24_43-U-NA20	140'-0"	60°	0°	2°	RADIO 4449 B12,B71
ALPHA	A3	AIR32 B66AA/B2A	140'-0"	60°	0°	2°	-
BETA	B1	AIR 21, 1.3 M, B2A B4P	140'-0"	150°	0°	2°	KRY 112 144/1
BETA	B2	APXVAARR24_43-U-NA20	140'-0"	150°	0°	2°	RADIO 4449 B12,B71
BETA	B3	AIR32 B66AA/B2A	140'-0"	150°	0°	2°	-
GAMMA	C1	AIR 21, 1.3 M, B2A B4P	140'-0"	230°	0°	2°	KRY 112 144/1
GAMMA	C2	APXVAARR24_43-U-NA20	140'-0"	230°	0°	2°	RADIO 4449 B12,B71
GAMMA	C3	AIR32 B66AA/B2A	140'-0"	230°	0°	2°	-

CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY			STATUS ABBREVIATIONS	
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS	RMV:	REL:
-	-	(6) 1-5/8"	-	RMN	TO BE REMOVED	TO BE RELOCATED
-	-	(18) 1-5/8"	-	RMV	TO BE DISCONNECTED & REMAIN	ADD: TO BE ADDED

3 ANTENNA SCHEDULE

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	-	RMN
-	-	-	(3) 1-5/8"	ADD

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	KC	05/13/19
1	BREAKER SIZE	TC	06/21/19
2	MA UPDATE	KC	07/24/19
3	ANTENNA/CABLE QTY	JB	08/26/19

ATC SITE NUMBER:
411260
 ATC SITE NAME:
MIDDLEFIELD CT
 SITE ADDRESS:
 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455

SEAL:

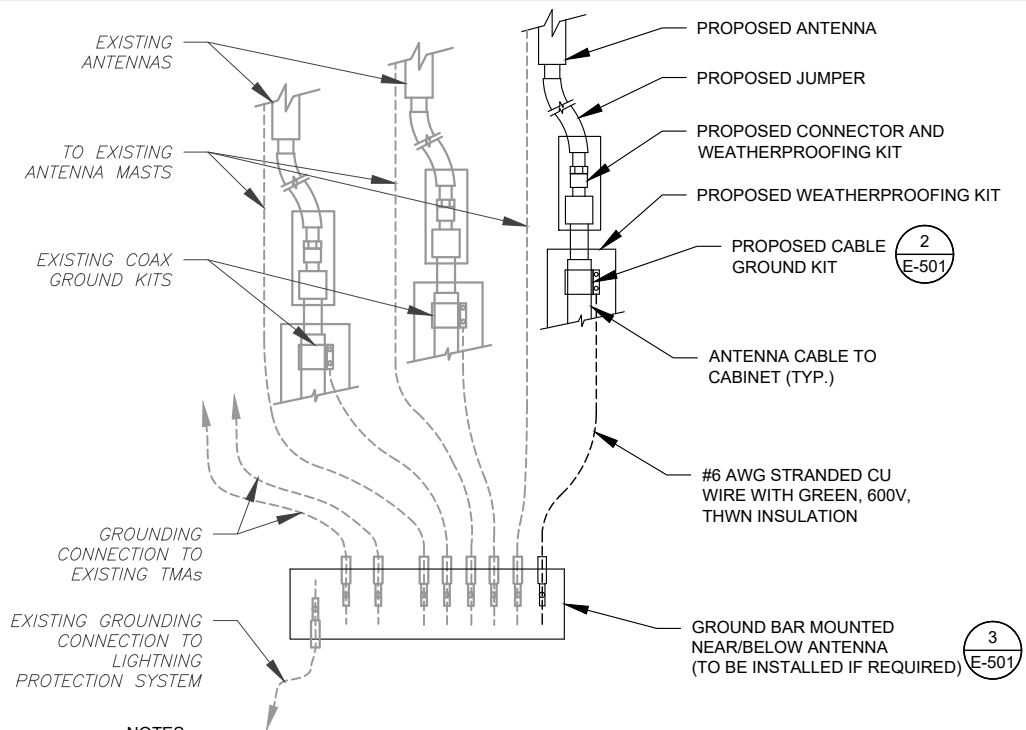
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DRAWN BY:	KC
APPROVED BY:	PB
DATE DRAWN:	05/13/19
ATC JOB NO:	12951824

ANTENNA INFORMATION & SCHEDULE

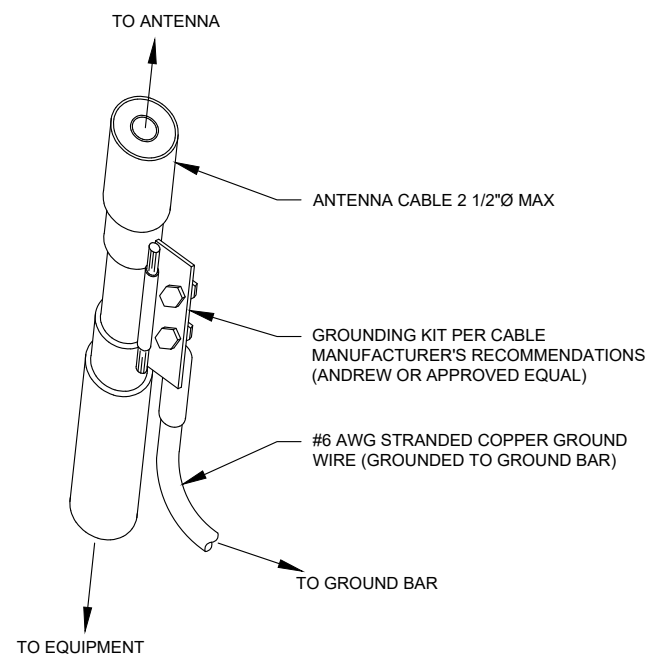
SHEET NUMBER:
C-501
 REVISION:
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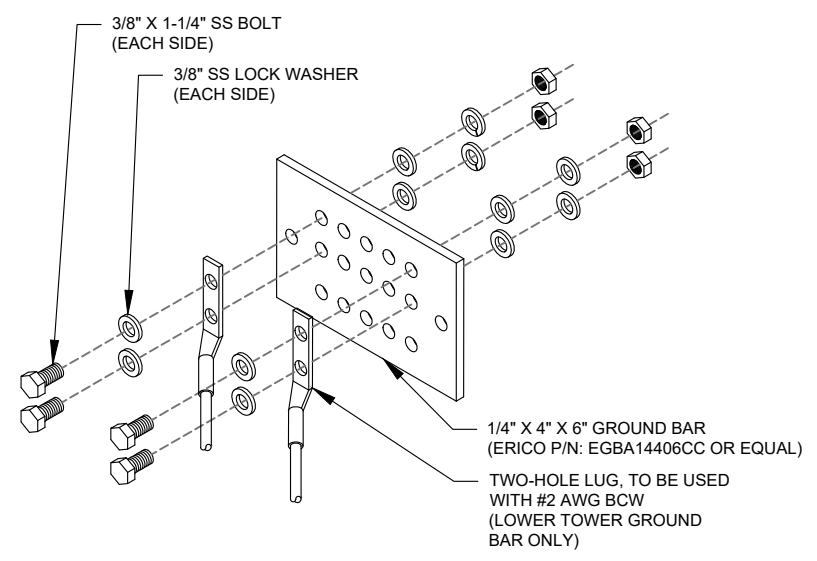
- NOTES:**
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
 2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



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

2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: NOT TO SCALE

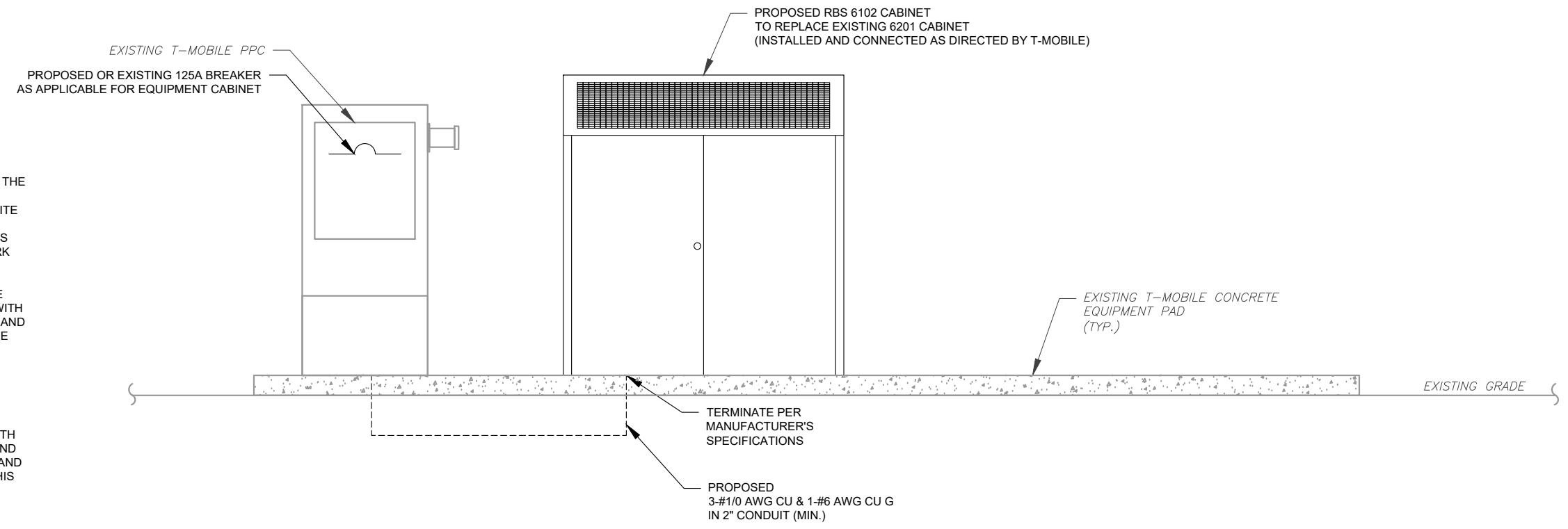


- GROUND BAR NOTES:**
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
 2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL
SCALE: NOT TO SCALE

ELECTRICAL NOTES:

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



2 ELECTRICAL UPGRADE DIAGRAM
SCALE: NOT TO SCALE

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PHONE: (919) 468-0112
COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	KC	05/13/19
1	BREAKER SIZE	TC	06/21/19

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

SEAL:

Authorized by "EOR"
Aug 27 2019 3:04 PM
T-Mobile design

DRAWN BY:	KC
APPROVED BY:	PB
DATE DRAWN:	05/13/19
ATC JOB NO:	12951824

GROUNDING DETAILS	
SHEET NUMBER:	REVISION:
E-501	1

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Section 5 - RAN Equipment

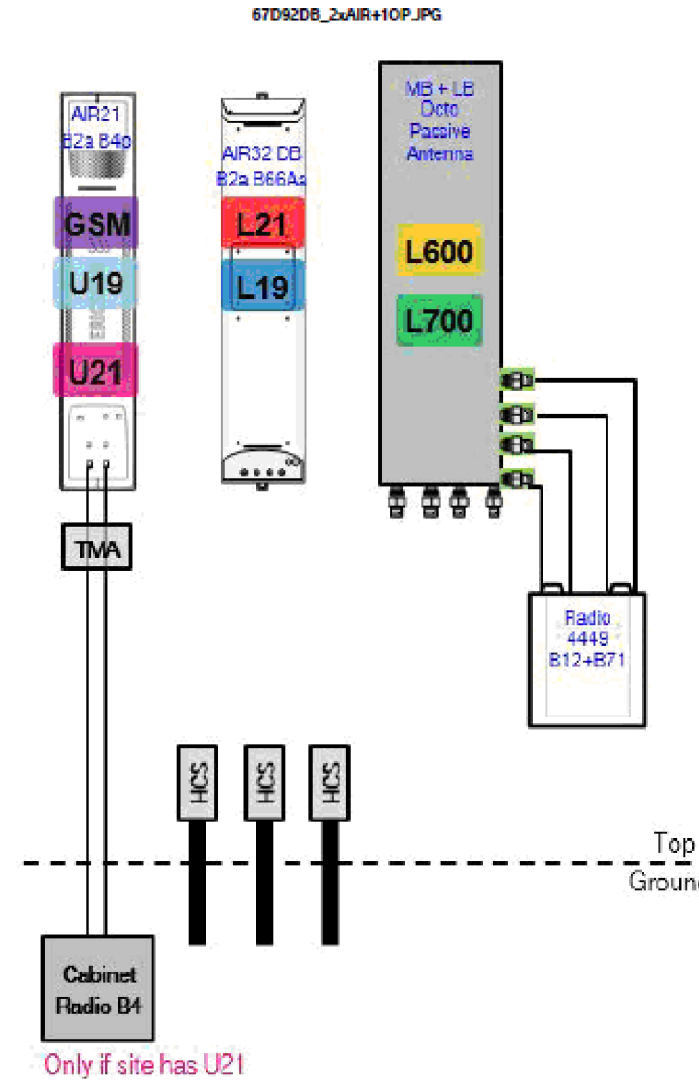
Existing RAN Equipment				
Template: 94DB Outdoor (evolved from 4A)				
Enclosure	1			
Enclosure Type	RBS 6201			
Baseband	<table border="1"> <tr> <td>DUW30 U2100</td> <td>DUG20 G1900</td> <td>DUS41 L2100 L1900</td> </tr> </table>	DUW30 U2100	DUG20 G1900	DUS41 L2100 L1900
DUW30 U2100	DUG20 G1900	DUS41 L2100 L1900		
Radio	<table border="1"> <tr> <td>RUS01 B2 (x3) L1900 G1900</td> <td>RUS01 B4 (x6) L2100</td> <td>RUS01 B4 (x3) U2100</td> </tr> </table>	RUS01 B2 (x3) L1900 G1900	RUS01 B4 (x6) L2100	RUS01 B4 (x3) U2100
RUS01 B2 (x3) L1900 G1900	RUS01 B4 (x6) L2100	RUS01 B4 (x3) U2100		

Proposed RAN Equipment					
Template: 67D92DB Outdoor					
Enclosure	1				
Enclosure Type	RBS 6102				
Baseband	<table border="1"> <tr> <td>DUW30 U2100</td> <td>DUG20 G1900</td> <td>BB 6630 L2100 L1900 L700 L600</td> <td>BB 6630 N600 (DARK)</td> </tr> </table>	DUW30 U2100	DUG20 G1900	BB 6630 L2100 L1900 L700 L600	BB 6630 N600 (DARK)
DUW30 U2100	DUG20 G1900	BB 6630 L2100 L1900 L700 L600	BB 6630 N600 (DARK)		
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 3)				
Radio	<table border="1"> <tr> <td>RUS01 B4 (x 3) U2100</td> </tr> </table>	RUS01 B4 (x 3) U2100			
RUS01 B4 (x 3) U2100					

RAN Scope of Work:

Change RBS6201 ODE to full RBS6102.
 Replace DUS41 with (1) BB6630 for L2100, L1900, L700, and L600.
 Add (1) BB6630 for future 5G N600.
 Remove (3) RUS01 B2 for GSM & L1900 (no longer needed due to installation of AIR21 B2A/B4P and AIR32 DB).
 Remove (6) RUS01 B4 for L2100 (no longer needed due to installation of AIR32 DB).
 Keep (3) RUS01 B4 for U2100 (to be connected to Coaxial Lines; U2100 will use passive ports of new AIR21 B2A/B4P).
 Add (3) 6X12 HCS.
 Rad Center: 140
 Existing: (12) Coax. Remove (6) Coaxial Lines.
 Keep Battery Cabinet.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE



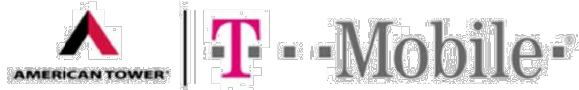
Notes:

2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

SUPPLEMENTAL

SHEET NUMBER: R-601
 REVISION: 2

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



Mount Analysis of Existing T-Arms for American Tower on behalf of T-Mobile

411260 - Middlefield CT

Project #: 12927178

T-Mobile Site ID: CTHA244A

Program: L600

CLS Engineering PLLC Project #41124-12927178-01-MA-R1

July 3, 2019

MOUNT DESCRIPTION	Existing T-Arms at 138.5 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 140 ft AGL (Eccentricity of ~2 ft)
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	484 Meriden Road, Middlefield, CT 06455-1013, Middlesex County
GPS COORDINATES	41.535514, -72.732094
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{std} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

■ ANALYSIS RESULT: **Pass (Conditional)**

MEMBER USAGE	70%	Pass
--------------	-----	------

Modifications are proposed to bring mounts into compliance; see conclusion for details.

Prepared by:
Jennifer Soza

Reviewed and Approved by:
Tyler M. Barker, P.E.



Digitally signed by Tyler Barker
DN: c=US, o=Telamon Corporation, ou=A01427E0000016 A4525AD7600001D1 7, cn=Tyler Barker
Date: 2019.07.03 21:59:38 -0400

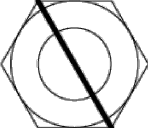
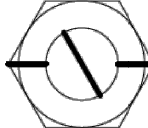
Mount Analysis for American Tower on behalf of T-Mobile
411260 - Middlefield CT

July 3, 2019
CLS Engineering PLLC Project #41124-12927178-01-MA-R1

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **CONDITIONALLY PASS**. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- Replace existing mount pipe in Position 2 with (1) 8ft. long proposed Pipe 2½ STD, A53 Gr. B, on 3 out of 4 sectors for proposed panel configuration (3 total) as shown. Connect to T-arm base horizontal member using Site Pro 1 SCX45-K crossover plate kit or equal. Do not install on empty sector.
- Install (1) Site Pro 1 PQ-1245 platform reinforcement kit at Standoff Tubes as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ±3 ft. above the centerline of existing T-arm mount collar. **DO NOT PINCH SAFETY CLIMB.**
- Install (1) 6ft. long Pipe 2 STD, A53 Gr. B, bracing pipe on each sector (4 total). Connect them to the adjacent existing face horizontal member in each sector using Site Pro 1 PUCK (8 total) as shown in the following sketches.
- All hardware for Site Pro 1 PUCK connection to the existing face horizontals should be installed with "turn of the nut" method per the following table:

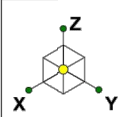
BOLT TIGHTENING PROCEDURE	
1.	TIGHTEN BOLTS BY AISC "TURN OF THE NUT" METHOD USING THE CHART BELOW: BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS: +1/3 TURN BEYOND SNUG TIGHT BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS: +1/2 TURN BEYOND SNUG TIGHT BOLT LENGTHS OVER EIGHT AND UP TO TWELVE DIAMETERS: +2/3 TURN BEYOND SNUG TIGHT
2.	SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(d)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS: *FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(d)(1) THROUGH 8(d)(4). B(d)(1) TURN-OF-THE-NUT TIGHTENING. BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PLIES OF A JOINT ARE IN FIRM CONTACT. THIS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY...UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION, THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
	 

See following sketches and Site Pro 1 assembly drawings for additional details

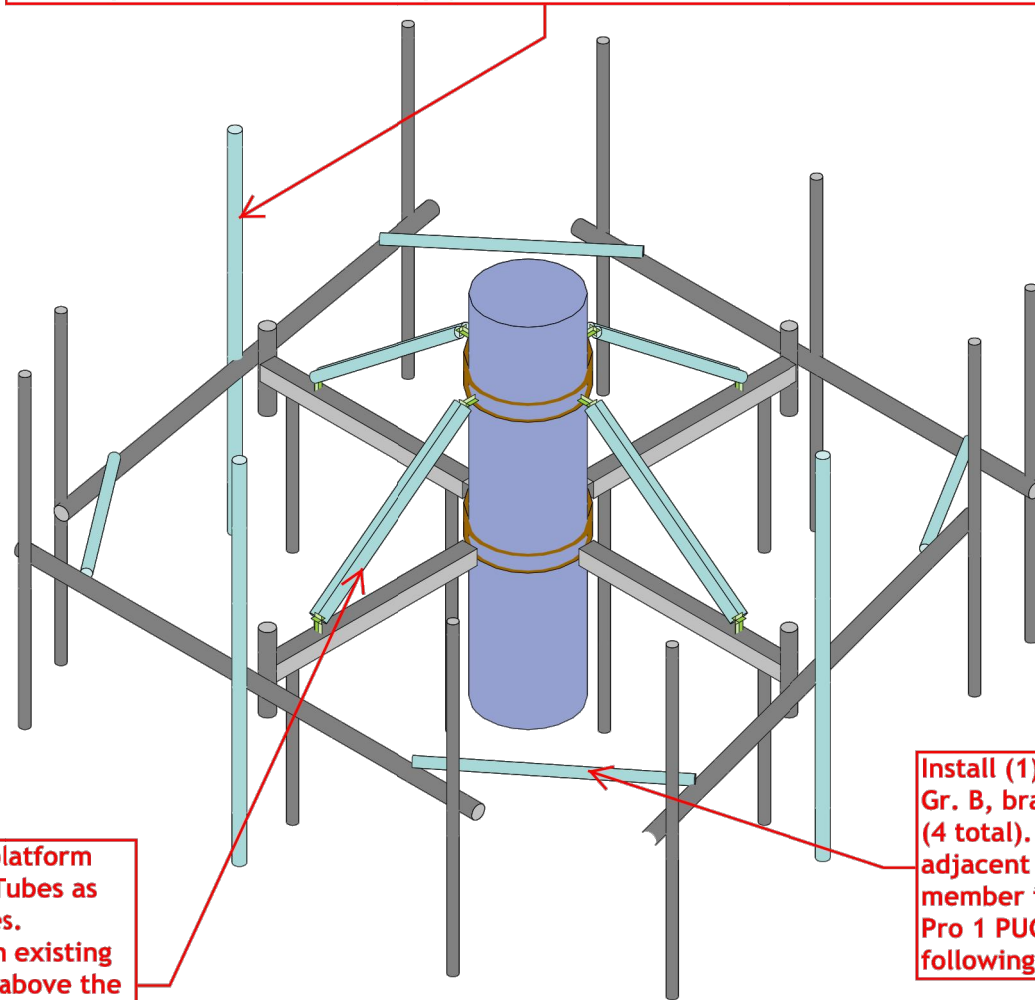
SUPPLEMENTAL

SHEET NUMBER: R-602	REVISION: 0
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NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.



Replace existing mount pipe in Position 2 with (1) 8ft. long proposed Pipe 2½ STD, A53 Gr. B, on 3 out of 4 sectors for proposed panel configuration (3 total) as shown. Connect to T-arm base horizontal member using Site Pro 1 SCX45-K crossover plate kit or equal. Do not install on empty sector.



Install (1) Site Pro 1 PQ-1245 platform reinforcement kit at Standoff Tubes as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ±3 ft. above the centerline of existing T-arm mount collar.

Install (1) 6ft. long Pipe 2 STD, A53 Gr. B, bracing pipe on each sector (4 total). Connect them to the adjacent existing face horizontal member in each sector using Site Pro 1 PUCK as shown in the following sketches.

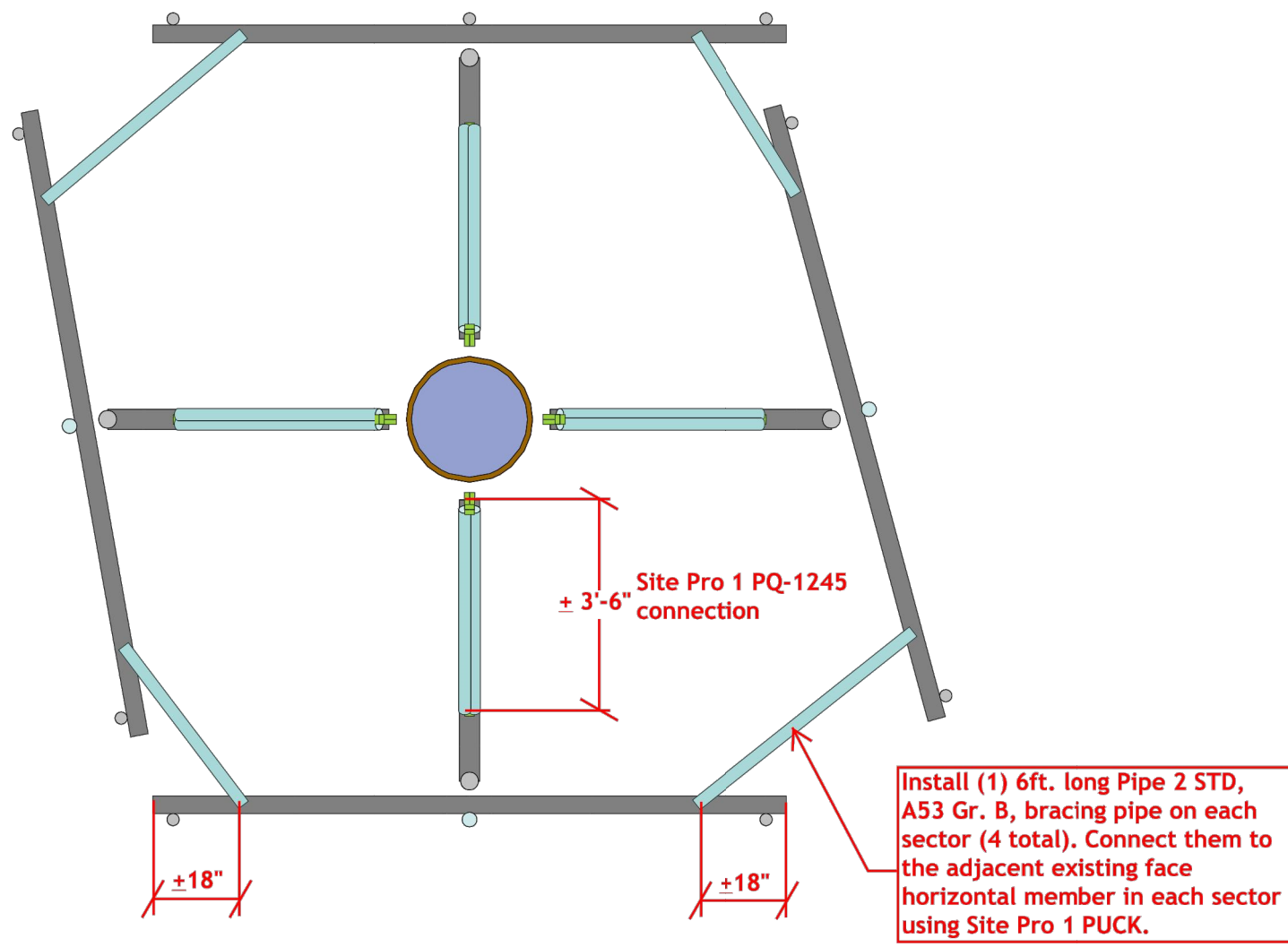
NOTE: DO NOT PINCH SAFETY CLIMB

CLS	41124-12927178-Middlefield CT Installation Sketch	IN - 1
JLS		Apr 10, 2019 at 8:45 AM
41124-12927178-01-MA		41124-12927178-01-MA.r3d

SUPPLEMENTAL

SHEET NUMBER: R-603	REVISION: 0
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NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.



NOTE: DO NOT PINCH SAFETY CLIMB

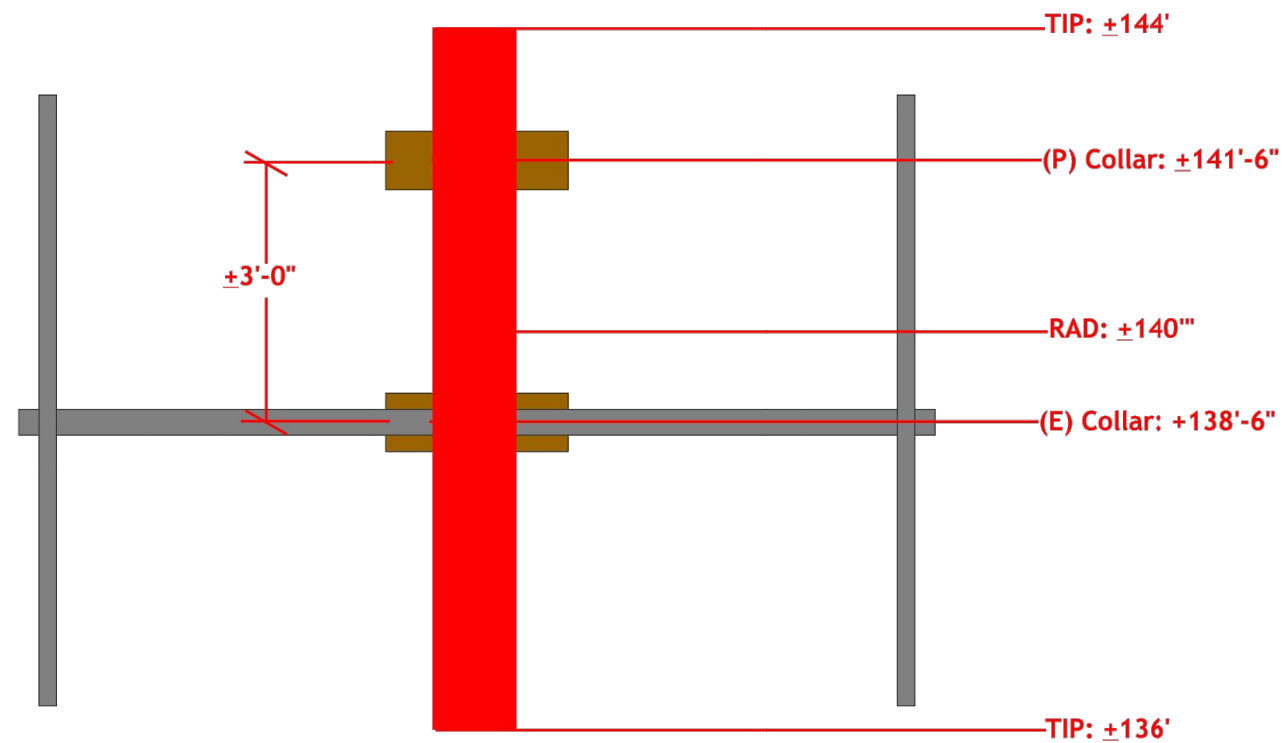
Install (1) 6ft. long Pipe 2 STD, A53 Gr. B, bracing pipe on each sector (4 total). Connect them to the adjacent existing face horizontal member in each sector using Site Pro 1 PUCK.

CLS	41124-12927178-Middlefield CT Installation Sketch	IN - 2
JLS		Apr 10, 2019 at 8:46 AM
41124-12927178-01-MA		41124-12927178-01-MA.r3d

SUPPLEMENTAL

SHEET NUMBER: **R-604** REVISION: **0**

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



**NOTE: DO NOT PINCH
SAFETY CLIMB**

CLS	41124-12927178-Middlefield CT Installation Sketch	IN - 3
JLS		Apr 10, 2019 at 8:46 AM
41124-12927178-01-MA		41124-12927178-01-MA.r3d

SUPPLEMENTAL

SHEET NUMBER: R-605	REVISION: 0
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Exhibit D

Structural Analysis Report



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 150 ft Monopole
ATC Site Name : Middlefield CT, CT
ATC Site Number : 411260
Engineering Number : 12927178_C3_02
Proposed Carrier : T-Mobile
Carrier Site Name : CTHA244/VerizonMiddlefiel
Carrier Site Number : CTHA244A
Site Location : 484 Meriden Rd.
Middlefield, CT 06455-1013
41.535500,-72.732100
County : Middlesex
Date : July 17, 2019
Max Usage : 54%
Result : Pass

Prepared By:
Travis J. Gatling
Structural Engineer II

Reviewed By:



Authorized by "EOR"
Jul 17 2019 4:24 PM

COA: PEC.0001553



Table of Contents

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



Introduction

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

Supporting Documents

Tower Drawings	EI Project #11121, dated September 17, 2002
Foundation Drawing	EI Project #11121, dated September 19, 2002
Geotechnical Report	Clarence Welti Project #Tower at Guidas Drive-In, dated September 12, 2002
Mount Analysis	CLS Engineering PLLC Project #41124-12927178-01-MA-R1, dated July 3, 2019

Analysis

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

Basic Wind Speed:	97 mph (3-Second Gust V_{ASD}) / 125 mph (3-Second Gust V_{ULT})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.18$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

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

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



Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
150.0	4	Commscope NHH-45B-R2B	Low Profile Platform	(1) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	VERIZON WIRELESS
	6	Antel LPA-80063/6CF			
	2	Commscope NHH-65B-R2B			
	1	RFS DB-C1-12C-24AB-0Z			
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung B5/B13 RRH-BR04C			
140.0	-	-	-	(6) 1 5/8" Coax	T-MOBILE
130.0	3	KMW AM-X-CD-16-65-00T-RET	Low Profile Platform	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Hybriflex (1) 3" conduit	AT&T MOBILITY
	6	Powerwave Allgon 7770.00 (27 lbs)			
	6	Ericsson RRUS-11 (50 lbs.)			
	1	Raycap DC6-48-60-18-8F			
	6	Powerwave Allgon LGP 21902			
	3	Spinner Bias-T			
	6	Powerwave Allgon LGP21401			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	6	Ericsson KRY 112 71	T-Arms	(18) 1 5/8" Coax	T-MOBILE
	3	RFS APX16DWV-16DWVS-E-A20			
	6	EMS RR90-17-02DP			

Proposed Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	3	Ericsson KRY 112 144/1	T-Arms with Tie Backs	(3) 1 5/8" (1.63"-41.3mm) Fiber	T-MOBILE
	3	Ericsson Radio 4449 B12,B71			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson AIR32 B66Aa/B2a			
	3	RFS APXVAARR24_43-U-NA20			

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

Install proposed lines inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	41%	Pass
Shaft	54%	Pass
Base Plate	51%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,405.8	4,597.8	2,333.5	51%
Shear (Kips)	31.3	42.2	21.2	50%

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

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Ericsson KRY 112 144/1	T-MOBILE	1.233	1.070
	Ericsson Radio 4449 B12,B71			
	Ericsson AIR 21, 1.3 M, B2A B4P			
	Ericsson AIR32 B66Aa/B2a			
	RFS APXVAARR24_43-U-NA20			

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



Standard Conditions

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

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

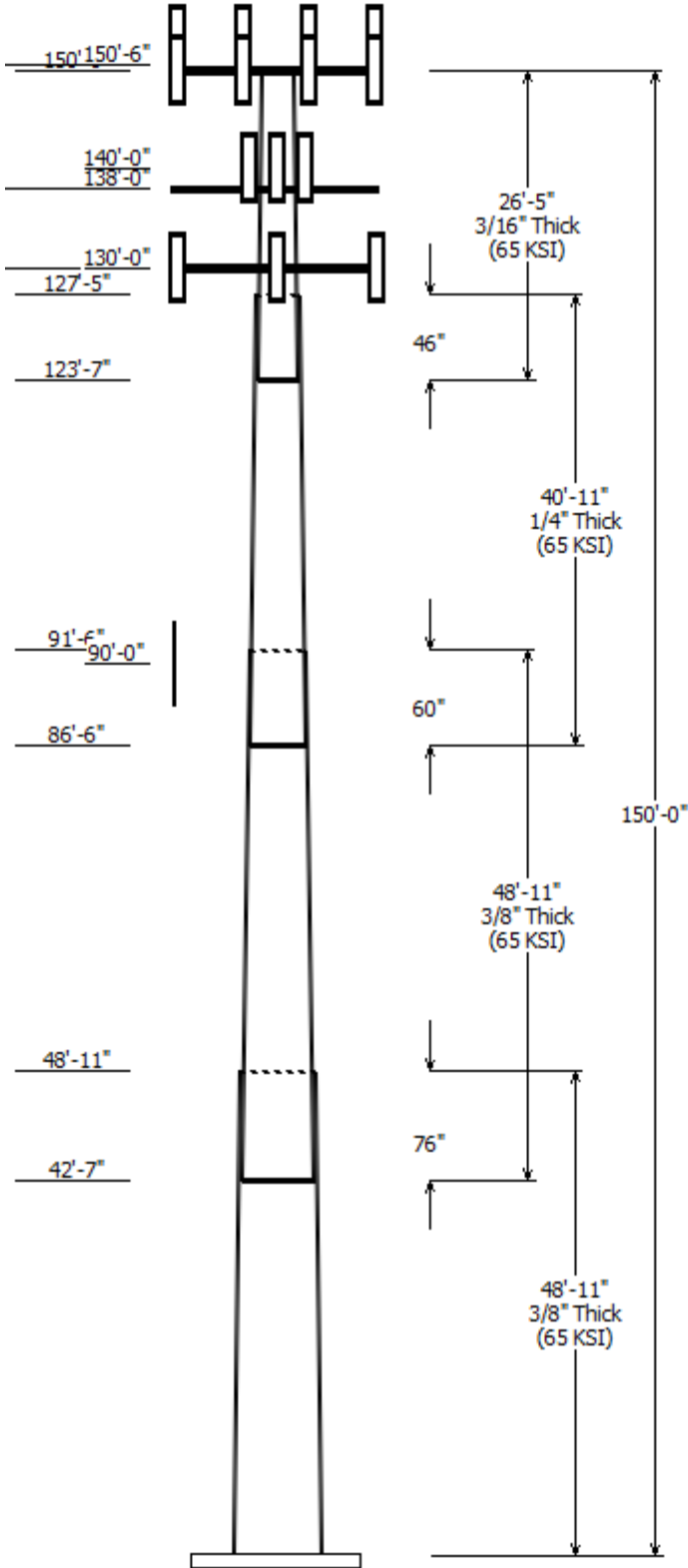
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

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

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Job Information	
Client : T-MOBILE	Code: ANSI/TIA-222-G
Pole : 411260	
Location : MIDDLEFIELD CT, CT	
Description :	Struct Class : II
Shape : 18 Sides	Exposure : B
Height : 150.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.25747(in/ft)	

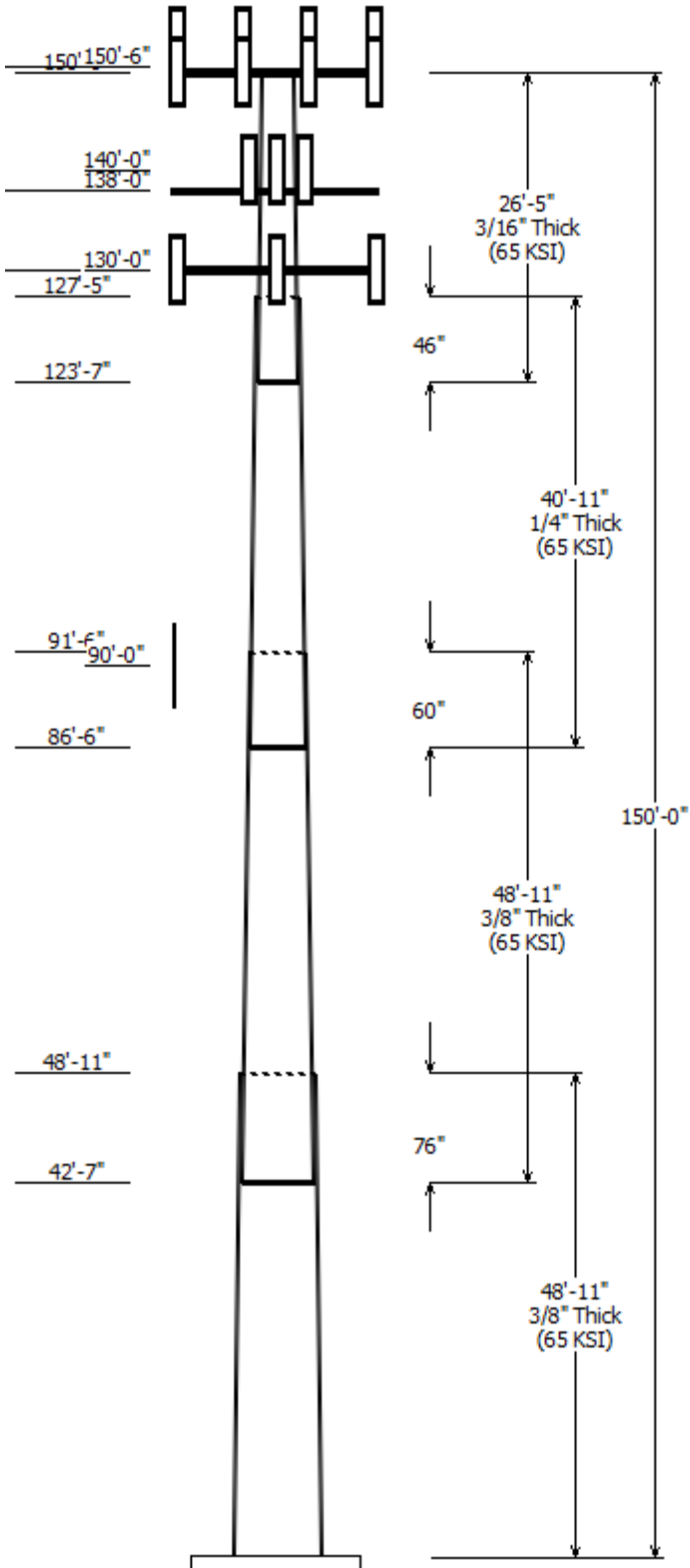
Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom				
1	48.917	43.90	56.49	0.375		0.000	18 Sides 65
2	48.917	33.68	46.28	0.375	Slip Joint	76.000	18 Sides 65
3	40.917	24.94	35.47	0.250	Slip Joint	60.000	18 Sides 65
4	26.417	19.50	26.30	0.188	Slip Joint	46.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.500	150.500	1	VZW Unused Reserve: 0 sq in
150.000	150.000	1	Generic Flat Low Profile Platf
150.000	150.000	4	Commscope NHH-45B-R2B
150.000	152.000	6	Antel LPA-80063/6CF
150.000	150.000	2	Commscope NHH-65B-R2B
150.000	150.000	1	RFS DB-C1-12C-24AB-0Z
150.000	150.000	3	Samsung B2/B66A RRH-BR049
150.000	150.000	3	Samsung B5/B13 RRH-BR04C
140.000	140.000	3	RFS APXVAARR24_43-U-NA20
140.000	140.000	3	Ericsson AIR32 B66Aa/B2a
140.000	140.000	3	Ericsson AIR 21, 1.3 M, B2A B4
140.000	140.000	3	Ericsson Radio 4449 B12,B71
140.000	140.000	3	Ericsson KRY 112 144/1
138.000	138.000	4	Generic Round T-Arm
130.000	130.000	1	Generic Round Low Profile
130.000	130.000	3	KMW AM-X-CD-16-65-00T-RET
130.000	130.000	6	Powerwave Allgon 7770.00 (27
130.000	130.000	6	Ericsson RRUS-11 (50 lbs.)
130.000	130.000	1	Raycap DC6-48-60-18-8F
130.000	130.000	6	Powerwave Allgon LGP21401
130.000	130.000	6	Powerwave Allgon LGP 21902
130.000	130.000	3	Spinner Bias-T
90.000	90.000	1	Generic GPS

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	90.000	1 5/8" Coax	No
0.000	130.0	0.39" (10mm)	No
0.000	130.0	0.78" (19.7mm) 8	No
0.000	130.0	1 5/8" Hybriflex	No
0.000	130.0	3" conduit	No
0.000	140.0	1 5/8" (1.63"-	No
0.000	140.0	1 5/8" Coax	No
0.000	150.0	1 5/8" Coax	Yes
0.000	150.0	2.02 (51.2mm)	No

Load Cases	
1.2D + 1.6W	97 mph with No Ice

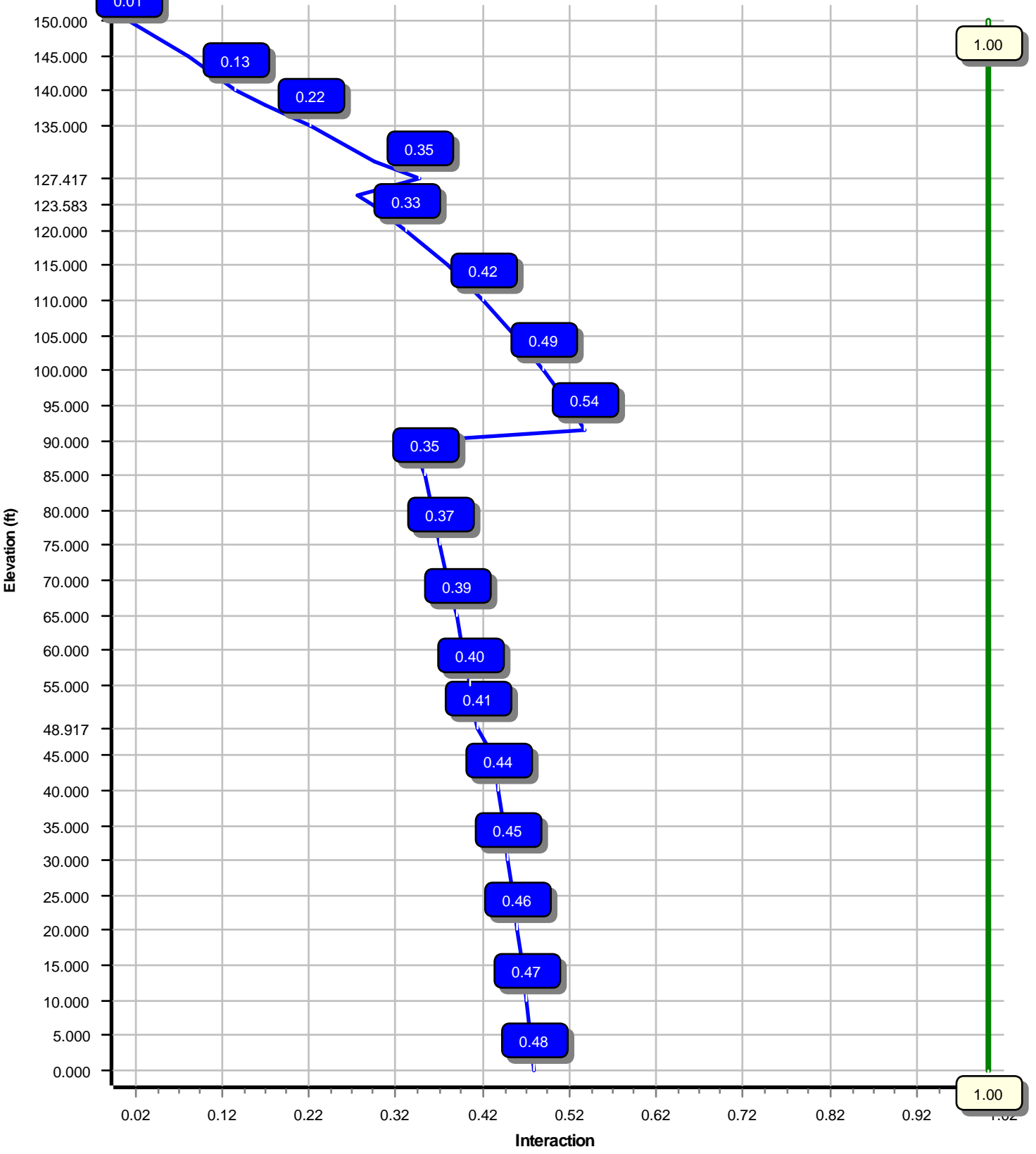
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds)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



Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2333.48	21.17	43.34
0.9D + 1.6W	2309.58	21.16	32.50
1.2D + 1.0Di + 1.0Wi	1015.75	10.78	64.35
(1.2 + 0.2Sds) * DL + E ELFM	173.86	1.41	43.09
(1.2 + 0.2Sds) * DL + E EMAM	295.92	2.44	43.09
(0.9 - 0.2Sds) * DL + E ELFM	171.72	1.41	29.98
(0.9 - 0.2Sds) * DL + E EMAM	292.02	2.44	29.98
1.0D + 1.0W	496.17	4.53	36.13

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

Load Case : 1.2D + 1.6W
Max Ratio 53.59% at 91.5 ft



Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

7/17/2019 1:28:25 PM

Customer: T-MOBILE

Analysis Parameters

Location :	Middlesex County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	56.50
Shape :	18 Sides	Top Diameter (in) :	19.50
Pole Type :	Taper	Taper (in/ft) :	0.257
Pole Manufacturer :	EEl	Rotation (deg) :	0.00

Ice & Wind Parameters

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

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.22		
T_L (sec):	6	p :	1.3
S_s :	0.180	S_1 :	0.060
F_a :	1.600	F_v :	2.400
S_{ds} :	0.192	S_{d1} :	0.096
		C_s :	0.030
		C_s Max:	0.030
		C_s Min:	0.030

Load Cases

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

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

7/17/2019 1:28:25 PM

Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	48.917	0.3750	65		0.00	9,871	56.49	0.00	66.80	26580.7	25.15	150.66	43.90	48.92	51.81	12400.6	19.23	117.07	0.257477
2-18	48.917	0.3750	65	Slip	76.00	7,847	46.28	42.58	54.64	14548.7	20.35	123.42	33.68	91.50	39.65	5559.0	14.43	89.83	0.257477
3-18	40.917	0.2500	65	Slip	60.00	3,310	35.47	86.50	27.95	4381.6	23.61	141.90	24.94	127.42	19.59	1508.8	16.18	99.76	0.257477
4-18	26.417	0.1875	65	Slip	46.00	1,215	26.30	123.58	15.54	1339.0	23.32	140.28	19.50	150.00	11.49	541.6	16.93	104.00	0.257477
Shaft Weight						22,243													

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
150.50	VZW Unused Reserve: 0 sq in	1	1.00	0.000	0.00	0.000	1.00	0.00	0.000	1.00
150.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.880	0.50	127.52	2.785	0.50
150.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.880	0.50	148.22	2.785	0.50
150.00	RFS DB-C1-12C-24AB-0Z	1	0.80	0.000	32.00	4.060	0.67	159.14	5.427	0.67
150.00	Commscope NHH-65B-R2B	2	0.80	0.000	43.70	8.080	0.77	218.12	10.867	0.77
150.00	Antel LPA-80063/6CF	6	0.80	2.000	27.00	9.590	0.76	314.50	10.950	0.76
150.00	Commscope NHH-45B-R2B	4	0.80	0.000	73.60	11.400	0.63	302.16	14.189	0.63
150.00	Generic Flat Low Profile Platform	1	1.00	0.000	1,875.00	26.100	1.00	2,685.16	45.199	1.00
140.00	Ericsson KRY 112 144/1	3	0.80	0.000	11.00	0.350	0.50	21.70	0.753	0.50
140.00	Ericsson Radio 4449 B12,B71	3	0.80	0.000	74.00	1.640	0.50	129.68	2.480	0.50
140.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.80	0.000	83.00	6.050	0.71	228.13	8.200	0.71
140.00	Ericsson AIR32 B66Aa/B2a	3	0.80	0.000	132.20	6.510	0.71	290.92	8.688	0.71
140.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.240	0.63	518.31	23.928	0.63
138.00	Generic Round T-Arm	4	0.75	0.000	312.50	9.700	0.67	571.83	17.884	0.67
130.00	Spinner Bias-T	3	0.80	0.000	1.50	0.140	0.50	6.85	0.422	0.50
130.00	Powerwave Allgon LGP 21902	6	0.80	0.000	5.50	0.230	0.50	13.78	0.564	0.50
130.00	Powerwave Allgon LGP21401	6	0.80	0.000	14.10	1.100	0.50	38.72	1.802	0.50
130.00	Raycap DC6-48-60-18-8F	1	0.80	0.000	20.00	1.260	1.00	71.96	1.910	1.00
130.00	Ericsson RRUS-11 (50 lbs.)	6	0.80	0.000	50.00	2.570	0.67	117.27	3.605	0.67
130.00	Powerwave Allgon 7770.00 (27	6	0.80	0.000	27.00	5.510	0.65	139.17	7.609	0.65
130.00	KMW AM-X-CD-16-65-00T-RET	3	0.80	0.000	48.50	8.020	0.67	208.31	10.771	0.67
130.00	Generic Round Low Profile	1	1.00	0.000	1,875.00	21.700	1.00	2,674.20	40.646	1.00
90.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	37.80	1.508	1.00
Totals	Num Loadings:23	73			8,083.80			18,340.01		

Linear Appurtenance Properties

Load Case Azimuth (deg) : 0

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Flat	Dist Between Rows (in)	Dist Between Cols (in)	Dist Azimuth (deg)	Dist From Face (in)	Dist Exposed To Wind Carrier
0.00	150.00	6	1 5/8" Coax	1.98	0.82	N	6	0.00	0.00	270	Y VERIZON WIRELESS
0.00	150.00	1	2.02 (51.2mm) Hybrid	2.02	3.04	N	0	0.00	0.00	0	N VERIZON WIRELESS
0.00	140.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	N T-MOBILE
0.00	140.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	N T-MOBILE
0.00	130.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	130.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	130.00	12	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	130.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	90.00	1	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	N VERIZON WIRELESS

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3750	56.497	66.796	26,580.7	25.15	150.66	71.8	926.7	0.0	0.0
5.00		0.3750	55.209	65.264	24,793.1	24.55	147.22	72.5	884.5	0.0	1,123.4
10.00		0.3750	53.922	63.732	23,087.5	23.94	143.79	73.2	843.3	0.0	1,097.4
15.00		0.3750	52.634	62.200	21,462.0	23.34	140.36	74.0	803.1	0.0	1,071.3
20.00		0.3750	51.347	60.667	19,914.6	22.73	136.93	74.7	763.9	0.0	1,045.2
25.00		0.3750	50.060	59.135	18,443.5	22.13	133.49	75.4	725.7	0.0	1,019.2
30.00		0.3750	48.772	57.603	17,046.6	21.52	130.06	76.1	688.4	0.0	993.1
35.00		0.3750	47.485	56.071	15,722.2	20.92	126.63	76.8	652.1	0.0	967.0
40.00		0.3750	46.198	54.538	14,468.1	20.31	123.19	77.5	616.8	0.0	940.9
42.58	Bot - Section 2	0.3750	45.532	53.747	13,847.2	20.00	121.42	77.9	599.0	0.0	475.9
45.00		0.3750	44.910	53.006	13,282.6	19.71	119.76	78.2	582.5	0.0	885.2
48.92	Top - Section 1	0.3750	44.652	52.698	13,052.7	19.58	119.07	78.4	575.8	0.0	1,408.8
50.00		0.3750	44.373	52.366	12,807.6	19.45	118.33	78.5	568.5	0.0	193.7
55.00		0.3750	43.085	50.834	11,715.9	18.85	114.89	79.2	535.6	0.0	877.9
60.00		0.3750	41.798	49.302	10,688.1	18.24	111.46	79.9	503.6	0.0	851.9
65.00		0.3750	40.511	47.770	9,722.2	17.64	108.03	80.7	472.7	0.0	825.8
70.00		0.3750	39.223	46.237	8,816.3	17.03	104.60	81.4	442.7	0.0	799.7
75.00		0.3750	37.936	44.705	7,968.6	16.43	101.16	82.1	413.7	0.0	773.6
80.00		0.3750	36.648	43.173	7,177.0	15.82	97.73	82.6	385.7	0.0	747.6
85.00		0.3750	35.361	41.641	6,439.6	15.22	94.30	82.6	358.7	0.0	721.5
86.50	Bot - Section 3	0.3750	34.975	41.181	6,228.7	15.03	93.27	82.6	350.8	0.0	211.4
90.00		0.3750	34.074	40.108	5,754.6	14.61	90.86	82.6	332.6	0.0	812.7
91.50	Top - Section 2	0.2500	34.187	26.928	3,918.5	22.70	136.75	74.7	225.8	0.0	341.8
95.00		0.2500	33.286	26.213	3,614.6	22.07	133.15	75.4	213.9	0.0	316.5
100.0		0.2500	31.999	25.192	3,208.3	21.16	128.00	76.5	197.5	0.0	437.3
105.0		0.2500	30.711	24.170	2,833.6	20.25	122.85	77.6	181.7	0.0	419.9
110.0		0.2500	29.424	23.149	2,489.3	19.34	117.70	78.7	166.6	0.0	402.5
115.0		0.2500	28.137	22.127	2,174.1	18.43	112.55	79.7	152.2	0.0	385.2
120.0		0.2500	26.849	21.106	1,886.7	17.53	107.40	80.8	138.4	0.0	367.8
123.5	Bot - Section 4	0.2500	25.927	20.374	1,697.1	16.88	103.71	81.6	128.9	0.0	252.9
125.0		0.2500	25.562	20.084	1,625.8	16.62	102.25	81.9	125.3	0.0	171.9
127.4	Top - Section 3	0.1875	25.315	14.953	1,192.8	22.40	135.01	75.1	92.8	0.0	287.6
130.0		0.1875	24.650	14.557	1,100.6	21.77	131.46	75.8	87.9	0.0	129.7
135.0		0.1875	23.362	13.791	935.8	20.56	124.60	77.2	78.9	0.0	241.2
138.0		0.1875	22.590	13.332	845.3	19.83	120.48	78.1	73.7	0.0	138.4
140.0		0.1875	22.075	13.025	788.4	19.35	117.73	78.6	70.3	0.0	89.7
145.0		0.1875	20.787	12.259	657.3	18.14	110.87	80.1	62.3	0.0	215.1
150.0		0.1875	19.500	11.493	541.6	16.93	104.00	81.5	54.7	0.0	202.1
22,242.6											

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

7/17/2019 1:28:25 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W

97 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

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		216.5	0.0					0.0	0.0	216.5	0.0	0.0	0.0
5.00		428.0	1,348.1					0.0	257.7	428.0	1,605.8	0.0	0.0
10.00		418.1	1,316.8					0.0	257.7	418.1	1,574.5	0.0	0.0
15.00		408.1	1,285.5					0.0	257.7	408.1	1,543.2	0.0	0.0
20.00		398.1	1,254.3					0.0	257.7	398.1	1,512.0	0.0	0.0
25.00		388.1	1,223.0					0.0	257.7	388.1	1,480.7	0.0	0.0
30.00		382.6	1,191.7					0.0	257.7	382.6	1,449.4	0.0	0.0
35.00		384.7	1,160.4					0.0	257.7	384.7	1,418.1	0.0	0.0
40.00		294.4	1,129.1					0.0	257.7	294.4	1,386.8	0.0	0.0
42.58	Bot - Section 2	196.8	571.1					0.0	133.1	196.8	704.3	0.0	0.0
45.00		252.0	1,062.2					0.0	124.6	252.0	1,186.8	0.0	0.0
48.92	Top - Section 1	199.1	1,690.5					0.0	201.9	199.1	1,892.4	0.0	0.0
50.00		242.2	232.4					0.0	55.8	242.2	288.2	0.0	0.0
55.00		397.4	1,053.5					0.0	257.7	397.4	1,311.2	0.0	0.0
60.00		395.2	1,022.2					0.0	257.7	395.2	1,279.9	0.0	0.0
65.00		391.9	990.9					0.0	257.7	391.9	1,248.6	0.0	0.0
70.00		387.6	959.7					0.0	257.7	387.6	1,217.4	0.0	0.0
75.00		382.4	928.4					0.0	257.7	382.4	1,186.1	0.0	0.0
80.00		376.3	897.1					0.0	257.7	376.3	1,154.8	0.0	0.0
85.00		241.8	865.8					0.0	257.7	241.8	1,123.5	0.0	0.0
86.50	Bot - Section 3	184.7	253.6					0.0	77.3	184.7	331.0	0.0	0.0
90.00	Appurtenance(s)	184.4	975.2	34.8	0.0	0.0	12.0	0.0	180.4	219.1	1,167.6	0.0	0.0
91.50	Top - Section 2	181.6	410.1					0.0	75.8	181.6	486.0	0.0	0.0
95.00		304.0	379.7					0.0	176.9	304.0	556.7	0.0	0.0
100.00		350.2	524.8					0.0	252.8	350.2	777.5	0.0	0.0
105.00		340.8	503.9					0.0	252.8	340.8	756.7	0.0	0.0
110.00		330.9	483.0					0.0	252.8	330.9	735.8	0.0	0.0
115.00		320.5	462.2					0.0	252.8	320.5	715.0	0.0	0.0
120.00		267.0	441.3					0.0	252.8	267.0	694.1	0.0	0.0
123.58	Bot - Section 4	152.6	303.5					0.0	181.2	152.6	484.6	0.0	0.0
125.00		115.5	206.3					0.0	71.6	115.5	277.9	0.0	0.0
127.42	Top - Section 3	148.4	345.1					0.0	122.2	148.4	467.3	0.0	0.0
130.00	Appurtenance(s)	218.3	155.6	2,763.5	0.0	0.0	3,149.5	0.0	130.6	2,981.8	3,435.8	0.0	0.0
135.00		224.8	289.4					0.0	106.3	224.8	395.7	0.0	0.0
138.00	Appurtenance(s)	136.2	166.1	850.8	0.0	0.0	1,500.0	0.0	63.8	986.9	1,729.9	0.0	0.0
140.00	Appurtenance(s)	183.5	107.6	2,383.3	0.0	0.0	1,541.2	0.0	42.5	2,566.8	1,691.3	0.0	0.0
145.00		253.0	258.1					0.0	47.8	253.0	305.9	0.0	0.0
150.00	Appurtenance(s)	123.2	242.5	4,506.4	0.0	3,138.6	3,497.9	0.0	47.8	4,629.6	3,788.1	0.0	0.0
Totals:										21,339.5	43,360.5	0.00	0.00

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

7/17/2019 1:28:28 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W

97 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces1

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	-43.34	-21.17	0.00	-2,333.48	0.00	2,333.48	4,317.26	2,158.63	9,967.46	4,991.14	0.00	0.00	0.478
5.00	-41.69	-20.83	0.00	-2,227.63	0.00	2,227.63	4,260.05	2,130.02	9,608.26	4,811.27	0.07	-0.12	0.473
10.00	-40.07	-20.49	0.00	-2,123.49	0.00	2,123.49	4,200.87	2,100.44	9,250.82	4,632.29	0.26	-0.25	0.468
15.00	-38.48	-20.17	0.00	-2,021.01	0.00	2,021.01	4,139.73	2,069.86	8,895.48	4,454.35	0.59	-0.37	0.463
20.00	-36.93	-19.84	0.00	-1,920.19	0.00	1,920.19	4,076.62	2,038.31	8,542.54	4,277.62	1.05	-0.51	0.458
25.00	-35.41	-19.52	0.00	-1,820.99	0.00	1,820.99	4,011.55	2,005.78	8,192.33	4,102.25	1.65	-0.64	0.453
30.00	-33.91	-19.20	0.00	-1,723.38	0.00	1,723.38	3,944.52	1,972.26	7,845.14	3,928.40	2.39	-0.78	0.447
35.00	-32.46	-18.88	0.00	-1,627.37	0.00	1,627.37	3,875.52	1,937.76	7,501.31	3,756.23	3.28	-0.92	0.442
40.00	-31.04	-18.62	0.00	-1,532.99	0.00	1,532.99	3,804.56	1,902.28	7,161.13	3,585.89	4.32	-1.06	0.436
42.58	-30.31	-18.45	0.00	-1,484.89	0.00	1,484.89	3,767.13	1,883.56	6,986.91	3,498.65	4.91	-1.13	0.433
45.00	-29.10	-18.22	0.00	-1,440.31	0.00	1,440.31	3,731.63	1,865.82	6,824.93	3,417.54	5.50	-1.21	0.429
48.92	-27.19	-18.01	0.00	-1,368.95	0.00	1,368.95	3,716.76	1,858.38	6,757.94	3,383.99	6.54	-1.33	0.412
50.00	-26.88	-17.81	0.00	-1,349.43	0.00	1,349.43	3,700.61	1,850.31	6,685.84	3,347.89	6.85	-1.36	0.410
55.00	-25.54	-17.44	0.00	-1,260.39	0.00	1,260.39	3,624.90	1,812.45	6,355.82	3,182.63	8.35	-1.50	0.403
60.00	-24.22	-17.08	0.00	-1,173.18	0.00	1,173.18	3,547.23	1,773.62	6,030.53	3,019.74	10.01	-1.65	0.395
65.00	-22.94	-16.71	0.00	-1,087.80	0.00	1,087.80	3,467.60	1,733.80	5,710.28	2,859.38	11.82	-1.80	0.387
70.00	-21.69	-16.34	0.00	-1,004.26	0.00	1,004.26	3,386.00	1,693.00	5,395.40	2,701.71	13.79	-1.96	0.378
75.00	-20.48	-15.97	0.00	-922.57	0.00	922.57	3,302.44	1,651.22	5,086.20	2,546.88	15.92	-2.11	0.369
80.00	-19.30	-15.60	0.00	-842.72	0.00	842.72	3,207.53	1,603.77	4,769.04	2,388.06	18.21	-2.27	0.359
85.00	-18.16	-15.35	0.00	-764.70	0.00	764.70	3,093.69	1,546.85	4,434.86	2,220.73	20.67	-2.43	0.350
86.50	-17.81	-15.18	0.00	-741.68	0.00	741.68	3,059.54	1,529.77	4,336.97	2,171.71	21.44	-2.48	0.347
90.00	-16.63	-14.93	0.00	-688.56	0.00	688.56	2,979.85	1,489.93	4,112.82	2,059.47	23.30	-2.59	0.340
91.50	-16.14	-14.75	0.00	-666.17	0.00	666.17	1,810.37	905.19	2,525.79	1,264.77	24.12	-2.64	0.536
95.00	-15.55	-14.47	0.00	-614.55	0.00	614.55	1,779.94	889.97	2,416.91	1,210.25	26.10	-2.76	0.517
100.00	-14.73	-14.14	0.00	-542.22	0.00	542.22	1,734.79	867.39	2,263.11	1,133.24	29.11	-2.98	0.487
105.00	-13.94	-13.81	0.00	-471.54	0.00	471.54	1,687.67	843.84	2,111.68	1,057.41	32.36	-3.21	0.454
110.00	-13.18	-13.49	0.00	-402.50	0.00	402.50	1,638.60	819.30	1,962.92	982.92	35.84	-3.43	0.418
115.00	-12.44	-13.17	0.00	-335.07	0.00	335.07	1,587.56	793.78	1,817.14	909.92	39.54	-3.64	0.376
120.00	-11.73	-12.89	0.00	-269.24	0.00	269.24	1,534.56	767.28	1,674.67	838.58	43.46	-3.84	0.329
123.58	-11.23	-12.72	0.00	-223.06	0.00	223.06	1,495.36	747.68	1,574.76	788.55	46.39	-3.97	0.291
125.00	-10.95	-12.60	0.00	-205.04	0.00	205.04	1,479.59	739.79	1,535.81	769.04	47.58	-4.02	0.274
127.42	-10.48	-12.43	0.00	-174.59	0.00	174.59	1,010.15	505.07	1,043.37	522.46	49.63	-4.10	0.345
130.00	-7.25	-9.22	0.00	-142.48	0.00	142.48	993.05	496.52	998.35	499.92	51.87	-4.18	0.293
135.00	-6.85	-8.98	0.00	-96.36	0.00	96.36	958.46	479.23	912.49	456.92	56.33	-4.33	0.218
138.00	-5.19	-7.87	0.00	-69.40	0.00	69.40	936.76	468.38	861.87	431.57	59.08	-4.41	0.167
140.00	-3.70	-5.19	0.00	-53.65	0.00	53.65	921.91	460.95	828.54	414.89	60.93	-4.45	0.133
145.00	-3.41	-4.92	0.00	-27.71	0.00	27.71	883.39	441.70	746.83	373.97	65.63	-4.52	0.078
150.00	0.00	-4.63	0.00	-3.14	0.00	3.14	842.91	421.46	667.67	334.33	70.39	-4.56	0.010

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

7/17/2019 1:28:28 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

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		216.5	0.0					0.0	0.0	216.5	0.0	0.0	0.0
5.00		428.0	1,011.1					0.0	193.3	428.0	1,204.4	0.0	0.0
10.00		418.1	987.6					0.0	193.3	418.1	1,180.9	0.0	0.0
15.00		408.1	964.2					0.0	193.3	408.1	1,157.4	0.0	0.0
20.00		398.1	940.7					0.0	193.3	398.1	1,134.0	0.0	0.0
25.00		388.1	917.2					0.0	193.3	388.1	1,110.5	0.0	0.0
30.00		382.6	893.8					0.0	193.3	382.6	1,087.0	0.0	0.0
35.00		384.7	870.3					0.0	193.3	384.7	1,063.6	0.0	0.0
40.00		294.4	846.8					0.0	193.3	294.4	1,040.1	0.0	0.0
42.58	Bot - Section 2	196.8	428.3					0.0	99.9	196.8	528.2	0.0	0.0
45.00		252.0	796.7					0.0	93.4	252.0	890.1	0.0	0.0
48.92	Top - Section 1	199.1	1,267.9					0.0	151.4	199.1	1,419.3	0.0	0.0
50.00		242.2	174.3					0.0	41.9	242.2	216.2	0.0	0.0
55.00		397.4	790.1					0.0	193.3	397.4	983.4	0.0	0.0
60.00		395.2	766.7					0.0	193.3	395.2	959.9	0.0	0.0
65.00		391.9	743.2					0.0	193.3	391.9	936.5	0.0	0.0
70.00		387.6	719.7					0.0	193.3	387.6	913.0	0.0	0.0
75.00		382.4	696.3					0.0	193.3	382.4	889.6	0.0	0.0
80.00		376.3	672.8					0.0	193.3	376.3	866.1	0.0	0.0
85.00		241.8	649.4					0.0	193.3	241.8	842.6	0.0	0.0
86.50	Bot - Section 3	184.7	190.2					0.0	58.0	184.7	248.2	0.0	0.0
90.00	Appurtenance(s)	184.4	731.4	34.8	0.0	0.0	9.0	0.0	135.3	219.1	875.7	0.0	0.0
91.50	Top - Section 2	181.6	307.6					0.0	56.9	181.6	364.5	0.0	0.0
95.00		304.0	284.8					0.0	132.7	304.0	417.5	0.0	0.0
100.00		350.2	393.6					0.0	189.6	350.2	583.2	0.0	0.0
105.00		340.8	377.9					0.0	189.6	340.8	567.5	0.0	0.0
110.00		330.9	362.3					0.0	189.6	330.9	551.9	0.0	0.0
115.00		320.5	346.6					0.0	189.6	320.5	536.2	0.0	0.0
120.00		267.0	331.0					0.0	189.6	267.0	520.6	0.0	0.0
123.58	Bot - Section 4	152.6	227.6					0.0	135.9	152.6	363.5	0.0	0.0
125.00		115.5	154.7					0.0	53.7	115.5	208.4	0.0	0.0
127.42	Top - Section 3	148.4	258.9					0.0	91.6	148.4	350.5	0.0	0.0
130.00	Appurtenance(s)	218.3	116.7	2,763.5	0.0	0.0	2,362.1	0.0	98.0	2,981.8	2,576.8	0.0	0.0
135.00		224.8	217.0					0.0	79.7	224.8	296.7	0.0	0.0
138.00	Appurtenance(s)	136.2	124.6	850.8	0.0	0.0	1,125.0	0.0	47.8	986.9	1,297.4	0.0	0.0
140.00	Appurtenance(s)	183.5	80.7	2,383.3	0.0	0.0	1,155.9	0.0	31.9	2,566.8	1,268.5	0.0	0.0
145.00		253.0	193.6					0.0	35.8	253.0	229.4	0.0	0.0
150.00	Appurtenance(s)	123.2	181.9	4,506.4	0.0	3,138.6	2,623.4	0.0	35.8	4,629.6	2,841.1	0.0	0.0
Totals:										21,339.5	32,520.4	0.00	0.00

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces1

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	-32.50	-21.16	0.00	-2,309.58	0.00	2,309.58	4,317.26	2,158.63	9,967.46	4,991.14	0.00	0.00	0.470
5.00	-31.25	-20.79	0.00	-2,203.79	0.00	2,203.79	4,260.05	2,130.02	9,608.26	4,811.27	0.07	-0.12	0.465
10.00	-30.03	-20.44	0.00	-2,099.82	0.00	2,099.82	4,200.87	2,100.44	9,250.82	4,632.29	0.26	-0.24	0.461
15.00	-28.83	-20.09	0.00	-1,997.63	0.00	1,997.63	4,139.73	2,069.86	8,895.48	4,454.35	0.58	-0.37	0.456
20.00	-27.65	-19.74	0.00	-1,897.19	0.00	1,897.19	4,076.62	2,038.31	8,542.54	4,277.62	1.04	-0.50	0.450
25.00	-26.50	-19.41	0.00	-1,798.47	0.00	1,798.47	4,011.55	2,005.78	8,192.33	4,102.25	1.63	-0.63	0.445
30.00	-25.37	-19.07	0.00	-1,701.43	0.00	1,701.43	3,944.52	1,972.26	7,845.14	3,928.40	2.37	-0.77	0.440
35.00	-24.27	-18.73	0.00	-1,606.07	0.00	1,606.07	3,875.52	1,937.76	7,501.31	3,756.23	3.24	-0.90	0.434
40.00	-23.20	-18.46	0.00	-1,512.42	0.00	1,512.42	3,804.56	1,902.28	7,161.13	3,585.89	4.27	-1.05	0.428
42.58	-22.65	-18.29	0.00	-1,464.72	0.00	1,464.72	3,767.13	1,883.56	6,986.91	3,498.65	4.85	-1.12	0.425
45.00	-21.73	-18.05	0.00	-1,420.54	0.00	1,420.54	3,731.63	1,865.82	6,824.93	3,417.54	5.44	-1.19	0.422
48.92	-20.30	-17.85	0.00	-1,349.84	0.00	1,349.84	3,716.76	1,858.38	6,757.94	3,383.99	6.47	-1.31	0.404
50.00	-20.06	-17.63	0.00	-1,330.50	0.00	1,330.50	3,700.61	1,850.31	6,685.84	3,347.89	6.77	-1.34	0.403
55.00	-19.04	-17.26	0.00	-1,242.35	0.00	1,242.35	3,624.90	1,812.45	6,355.82	3,182.63	8.25	-1.49	0.396
60.00	-18.05	-16.88	0.00	-1,156.06	0.00	1,156.06	3,547.23	1,773.62	6,030.53	3,019.74	9.89	-1.63	0.388
65.00	-17.08	-16.51	0.00	-1,071.65	0.00	1,071.65	3,467.60	1,733.80	5,710.28	2,859.38	11.67	-1.78	0.380
70.00	-16.14	-16.13	0.00	-989.11	0.00	989.11	3,386.00	1,693.00	5,395.40	2,701.71	13.62	-1.93	0.371
75.00	-15.22	-15.76	0.00	-908.45	0.00	908.45	3,302.44	1,651.22	5,086.20	2,546.88	15.72	-2.08	0.361
80.00	-14.33	-15.39	0.00	-829.64	0.00	829.64	3,207.53	1,603.77	4,769.04	2,388.06	17.99	-2.24	0.352
85.00	-13.47	-15.14	0.00	-752.68	0.00	752.68	3,093.69	1,546.85	4,434.86	2,220.73	20.41	-2.39	0.343
86.50	-13.21	-14.96	0.00	-729.97	0.00	729.97	3,059.54	1,529.77	4,336.97	2,171.71	21.17	-2.44	0.341
90.00	-12.32	-14.72	0.00	-677.60	0.00	677.60	2,979.85	1,489.93	4,112.82	2,059.47	23.01	-2.56	0.333
91.50	-11.95	-14.54	0.00	-655.52	0.00	655.52	1,810.37	905.19	2,525.79	1,264.77	23.82	-2.61	0.525
95.00	-11.50	-14.25	0.00	-604.62	0.00	604.62	1,779.94	889.97	2,416.91	1,210.25	25.77	-2.72	0.506
100.00	-10.88	-13.92	0.00	-533.34	0.00	533.34	1,734.79	867.39	2,263.11	1,133.24	28.74	-2.94	0.477
105.00	-10.28	-13.59	0.00	-463.75	0.00	463.75	1,687.67	843.84	2,111.68	1,057.41	31.94	-3.16	0.445
110.00	-9.70	-13.26	0.00	-395.82	0.00	395.82	1,638.60	819.30	1,962.92	982.92	35.37	-3.38	0.409
115.00	-9.14	-12.94	0.00	-329.51	0.00	329.51	1,587.56	793.78	1,817.14	909.92	39.02	-3.59	0.368
120.00	-8.60	-12.67	0.00	-264.81	0.00	264.81	1,534.56	767.28	1,674.67	838.58	42.88	-3.78	0.322
123.58	-8.23	-12.50	0.00	-219.43	0.00	219.43	1,495.36	747.68	1,574.76	788.55	45.77	-3.91	0.284
125.00	-8.02	-12.38	0.00	-201.72	0.00	201.72	1,479.59	739.79	1,535.81	769.04	46.94	-3.96	0.268
127.42	-7.66	-12.22	0.00	-171.80	0.00	171.80	1,010.15	505.07	1,043.37	522.46	48.96	-4.04	0.337
130.00	-5.28	-9.07	0.00	-140.23	0.00	140.23	993.05	496.52	998.35	499.92	51.17	-4.12	0.286
135.00	-4.99	-8.84	0.00	-94.87	0.00	94.87	958.46	479.23	912.49	456.92	55.56	-4.27	0.213
138.00	-3.76	-7.76	0.00	-68.36	0.00	68.36	936.76	468.38	861.87	431.57	58.27	-4.34	0.163
140.00	-2.68	-5.10	0.00	-52.85	0.00	52.85	921.91	460.95	828.54	414.89	60.10	-4.38	0.130
145.00	-2.47	-4.84	0.00	-27.32	0.00	27.32	883.39	441.70	746.83	373.97	64.73	-4.46	0.076
150.00	0.00	-4.63	0.00	-3.14	0.00	3.14	842.91	421.46	667.67	334.33	69.41	-4.49	0.010

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	23 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	Wind Importance Factor :1.00
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		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		69.1	0.0					0.0	0.0	69.1	0.0	0.0	0.0
5.00		137.0	1,757.3					178.5	308.4	315.5	2,065.8	0.0	0.0
10.00		134.4	1,764.2					175.5	313.9	309.9	2,078.1	0.0	0.0
15.00		131.6	1,746.0					172.1	316.6	303.6	2,062.6	0.0	0.0
20.00		128.7	1,719.5					168.5	318.6	297.2	2,038.1	0.0	0.0
25.00		125.8	1,688.7					164.9	320.1	290.7	2,008.8	0.0	0.0
30.00		124.3	1,655.3					161.2	321.3	285.6	1,976.6	0.0	0.0
35.00		125.3	1,619.9					161.3	322.4	286.7	1,942.3	0.0	0.0
40.00		96.1	1,583.2					164.1	323.3	260.2	1,906.5	0.0	0.0
42.58	Bot - Section 2	64.3	804.8					85.6	167.4	149.9	972.1	0.0	0.0
45.00		82.5	1,282.8					80.4	156.7	162.9	1,439.5	0.0	0.0
48.92	Top - Section 1	65.2	2,042.8					130.8	254.4	196.0	2,297.2	0.0	0.0
50.00		79.5	329.7					36.8	70.4	116.3	400.2	0.0	0.0
55.00		130.6	1,493.0					170.2	325.5	300.8	1,818.5	0.0	0.0
60.00		130.3	1,453.1					170.2	326.1	300.4	1,779.2	0.0	0.0
65.00		129.5	1,412.6					169.6	326.7	299.2	1,739.3	0.0	0.0
70.00		128.5	1,371.7					168.7	327.2	297.2	1,699.0	0.0	0.0
75.00		127.1	1,330.4					167.3	327.7	294.4	1,658.2	0.0	0.0
80.00		125.5	1,288.8					165.6	328.2	291.1	1,617.0	0.0	0.0
85.00		80.8	1,246.8					163.5	328.7	244.4	1,575.4	0.0	0.0
86.50	Bot - Section 3	61.9	367.2					48.6	98.7	110.5	465.9	0.0	0.0
90.00	Appurtenance(s)	61.8	1,238.1	9.7	0.0	0.0	31.3	112.6	230.4	184.1	1,499.8	0.0	0.0
91.50	Top - Section 2	61.0	521.9					47.9	97.3	108.9	619.2	0.0	0.0
95.00		102.5	634.7					112.1	227.2	214.6	861.9	0.0	0.0
100.00		118.4	877.2					157.8	324.9	276.2	1,202.2	0.0	0.0
105.00		115.8	844.7					154.7	325.3	270.4	1,170.0	0.0	0.0
110.00		112.9	811.9					151.3	325.7	264.3	1,137.6	0.0	0.0
115.00		109.9	778.9					147.8	326.0	257.7	1,104.9	0.0	0.0
120.00		92.0	745.8					144.1	326.3	236.1	1,072.1	0.0	0.0
123.58	Bot - Section 4	52.8	515.4					100.8	234.1	153.6	749.5	0.0	0.0
125.00		40.1	290.3					39.3	92.6	79.3	382.9	0.0	0.0
127.42	Top - Section 3	51.6	485.4					66.3	158.0	117.8	643.4	0.0	0.0
130.00	Appurtenance(s)	76.3	302.2	719.6	0.0	0.0	4,861.2	70.6	169.0	866.4	5,332.4	0.0	0.0
135.00		78.8	560.1					133.4	180.7	212.3	740.8	0.0	0.0
138.00	Appurtenance(s)	48.0	324.0	260.5	0.0	0.0	2,287.3	77.9	108.6	386.4	2,719.9	0.0	0.0
140.00	Appurtenance(s)	65.1	210.9	500.9	0.0	0.0	3,164.7	51.0	72.4	617.0	3,448.0	0.0	0.0
145.00		90.3	502.9					124.4	122.8	214.7	625.7	0.0	0.0
150.00	Appurtenance(s)	44.2	474.1	1,015.8	0.0	595.1	6,908.1	119.6	123.0	1,179.7	7,505.2	0.0	0.0
Totals:										10,821.1	64,355.7	0.00	0.00

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

7/17/2019 1:28:35 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

23 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces1

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-64.35	-10.78	0.00	-1,015.75	0.00	1,015.75	4,317.26	2,158.63	9,967.46	4,991.14	0.00	0.00	0.218
5.00	-62.28	-10.52	0.00	-961.84	0.00	961.84	4,260.05	2,130.02	9,608.26	4,811.27	0.03	-0.05	0.215
10.00	-60.19	-10.27	0.00	-909.22	0.00	909.22	4,200.87	2,100.44	9,250.82	4,632.29	0.11	-0.11	0.211
15.00	-58.12	-10.01	0.00	-857.89	0.00	857.89	4,139.73	2,069.86	8,895.48	4,454.35	0.25	-0.16	0.207
20.00	-56.07	-9.77	0.00	-807.81	0.00	807.81	4,076.62	2,038.31	8,542.54	4,277.62	0.45	-0.22	0.203
25.00	-54.05	-9.52	0.00	-758.99	0.00	758.99	4,011.55	2,005.78	8,192.33	4,102.25	0.71	-0.27	0.199
30.00	-52.07	-9.28	0.00	-711.39	0.00	711.39	3,944.52	1,972.26	7,845.14	3,928.40	1.03	-0.33	0.194
35.00	-50.12	-9.03	0.00	-665.02	0.00	665.02	3,875.52	1,937.76	7,501.31	3,756.23	1.40	-0.39	0.190
40.00	-48.21	-8.79	0.00	-619.88	0.00	619.88	3,804.56	1,902.28	7,161.13	3,585.89	1.84	-0.44	0.186
42.58	-47.23	-8.66	0.00	-597.18	0.00	597.18	3,767.13	1,883.56	6,986.91	3,498.65	2.09	-0.48	0.183
45.00	-45.79	-8.51	0.00	-576.26	0.00	576.26	3,731.63	1,865.82	6,824.93	3,417.54	2.33	-0.50	0.181
48.92	-43.49	-8.32	0.00	-542.92	0.00	542.92	3,716.76	1,858.38	6,757.94	3,383.99	2.77	-0.55	0.172
50.00	-43.08	-8.22	0.00	-533.91	0.00	533.91	3,700.61	1,850.31	6,685.84	3,347.89	2.89	-0.56	0.171
55.00	-41.26	-7.95	0.00	-492.78	0.00	492.78	3,624.90	1,812.45	6,355.82	3,182.63	3.52	-0.62	0.166
60.00	-39.48	-7.67	0.00	-453.05	0.00	453.05	3,547.23	1,773.62	6,030.53	3,019.74	4.20	-0.68	0.161
65.00	-37.74	-7.38	0.00	-414.73	0.00	414.73	3,467.60	1,733.80	5,710.28	2,859.38	4.94	-0.74	0.156
70.00	-36.03	-7.10	0.00	-377.82	0.00	377.82	3,386.00	1,693.00	5,395.40	2,701.71	5.75	-0.79	0.151
75.00	-34.37	-6.82	0.00	-342.32	0.00	342.32	3,302.44	1,651.22	5,086.20	2,546.88	6.61	-0.85	0.145
80.00	-32.75	-6.53	0.00	-308.24	0.00	308.24	3,207.53	1,603.77	4,769.04	2,388.06	7.53	-0.91	0.139
85.00	-31.18	-6.28	0.00	-275.58	0.00	275.58	3,093.69	1,546.85	4,434.86	2,220.73	8.52	-0.97	0.134
86.50	-30.71	-6.18	0.00	-266.15	0.00	266.15	3,059.54	1,529.77	4,336.97	2,171.71	8.83	-0.99	0.133
90.00	-29.21	-5.99	0.00	-244.52	0.00	244.52	2,979.85	1,489.93	4,112.82	2,059.47	9.57	-1.03	0.129
91.50	-28.59	-5.88	0.00	-235.54	0.00	235.54	1,810.37	905.19	2,525.79	1,264.77	9.89	-1.05	0.202
95.00	-27.73	-5.68	0.00	-214.97	0.00	214.97	1,779.94	889.97	2,416.91	1,210.25	10.67	-1.09	0.193
100.00	-26.52	-5.41	0.00	-186.58	0.00	186.58	1,734.79	867.39	2,263.11	1,133.24	11.85	-1.16	0.180
105.00	-25.35	-5.15	0.00	-159.50	0.00	159.50	1,687.67	843.84	2,111.68	1,057.41	13.12	-1.24	0.166
110.00	-24.22	-4.89	0.00	-133.74	0.00	133.74	1,638.60	819.30	1,962.92	982.92	14.46	-1.32	0.151
115.00	-23.11	-4.64	0.00	-109.27	0.00	109.27	1,587.56	793.78	1,817.14	909.92	15.87	-1.38	0.135
120.00	-22.04	-4.39	0.00	-86.09	0.00	86.09	1,534.56	767.28	1,674.67	838.58	17.36	-1.45	0.117
123.58	-21.29	-4.23	0.00	-70.34	0.00	70.34	1,495.36	747.68	1,574.76	788.55	18.46	-1.49	0.103
125.00	-20.91	-4.15	0.00	-64.35	0.00	64.35	1,479.59	739.79	1,535.81	769.04	18.91	-1.51	0.098
127.42	-20.27	-4.02	0.00	-54.32	0.00	54.32	1,010.15	505.07	1,043.37	522.46	19.68	-1.53	0.124
130.00	-14.96	-3.02	0.00	-43.92	0.00	43.92	993.05	496.52	998.35	499.92	20.51	-1.56	0.103
135.00	-14.23	-2.80	0.00	-28.80	0.00	28.80	958.46	479.23	912.49	456.92	22.17	-1.60	0.078
138.00	-11.52	-2.34	0.00	-20.40	0.00	20.40	936.76	468.38	861.87	431.57	23.18	-1.63	0.060
140.00	-8.09	-1.63	0.00	-15.72	0.00	15.72	921.91	460.95	828.54	414.89	23.87	-1.64	0.047
145.00	-7.47	-1.40	0.00	-7.58	0.00	7.58	883.39	441.70	746.83	373.97	25.59	-1.66	0.029
150.00	0.00	-1.18	0.00	-0.60	0.00	0.60	842.91	421.46	667.67	334.33	27.34	-1.67	0.002

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

7/17/2019 1:28:35 PM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W	Serviceability 60 mph	22 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.00		
Wind Load Factor :1.00		

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		46.3	0.0					0.0	0.0	46.3	0.0	0.0	0.0
5.00		91.6	1,123.4					0.0	214.8	91.6	1,338.2	0.0	0.0
10.00		89.4	1,097.4					0.0	214.8	89.4	1,312.1	0.0	0.0
15.00		87.3	1,071.3					0.0	214.8	87.3	1,286.0	0.0	0.0
20.00		85.2	1,045.2					0.0	214.8	85.2	1,260.0	0.0	0.0
25.00		83.0	1,019.2					0.0	214.8	83.0	1,233.9	0.0	0.0
30.00		81.9	993.1					0.0	214.8	81.9	1,207.8	0.0	0.0
35.00		82.3	967.0					0.0	214.8	82.3	1,181.8	0.0	0.0
40.00		63.0	940.9					0.0	214.8	63.0	1,155.7	0.0	0.0
42.58	Bot - Section 2	42.1	475.9					0.0	111.0	42.1	586.9	0.0	0.0
45.00		53.9	885.2					0.0	103.8	53.9	989.0	0.0	0.0
48.92	Top - Section 1	42.6	1,408.8					0.0	168.2	42.6	1,577.0	0.0	0.0
50.00		51.8	193.7					0.0	46.5	51.8	240.2	0.0	0.0
55.00		85.0	877.9					0.0	214.8	85.0	1,092.7	0.0	0.0
60.00		84.6	851.9					0.0	214.8	84.6	1,066.6	0.0	0.0
65.00		83.9	825.8					0.0	214.8	83.9	1,040.5	0.0	0.0
70.00		82.9	799.7					0.0	214.8	82.9	1,014.5	0.0	0.0
75.00		81.8	773.6					0.0	214.8	81.8	988.4	0.0	0.0
80.00		80.5	747.6					0.0	214.8	80.5	962.3	0.0	0.0
85.00		51.7	721.5					0.0	214.8	51.7	936.3	0.0	0.0
86.50	Bot - Section 3	39.5	211.4					0.0	64.4	39.5	275.8	0.0	0.0
90.00	Appurtenance(s)	39.4	812.7	7.4	0.0	0.0	10.0	0.0	150.3	46.9	973.0	0.0	0.0
91.50	Top - Section 2	38.9	341.8					0.0	63.2	38.9	405.0	0.0	0.0
95.00		65.1	316.5					0.0	147.5	65.1	463.9	0.0	0.0
100.00		74.9	437.3					0.0	210.7	74.9	648.0	0.0	0.0
105.00		72.9	419.9					0.0	210.7	72.9	630.6	0.0	0.0
110.00		70.8	402.5					0.0	210.7	70.8	613.2	0.0	0.0
115.00		68.6	385.2					0.0	210.7	68.6	595.8	0.0	0.0
120.00		57.1	367.8					0.0	210.7	57.1	578.4	0.0	0.0
123.58	Bot - Section 4	32.6	252.9					0.0	151.0	32.6	403.9	0.0	0.0
125.00		24.7	171.9					0.0	59.7	24.7	231.6	0.0	0.0
127.42	Top - Section 3	31.7	287.6					0.0	101.8	31.7	389.4	0.0	0.0
130.00	Appurtenance(s)	46.7	129.7	591.3	0.0	0.0	2,624.6	0.0	108.8	638.0	2,863.1	0.0	0.0
135.00		48.1	241.2					0.0	88.6	48.1	329.7	0.0	0.0
138.00	Appurtenance(s)	29.1	138.4	182.0	0.0	0.0	1,250.0	0.0	53.1	211.2	1,441.6	0.0	0.0
140.00	Appurtenance(s)	39.3	89.7	509.9	0.0	0.0	1,284.3	0.0	35.4	549.2	1,409.4	0.0	0.0
145.00		54.1	215.1					0.0	39.8	54.1	254.9	0.0	0.0
150.00	Appurtenance(s)	26.4	202.1	964.2	0.0	671.5	2,914.9	0.0	39.8	990.6	3,156.8	0.0	0.0
Totals:										4,565.82	36,133.8	0.00	0.00

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

7/17/2019 1:28:38 PM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces1

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.13	-4.53	0.00	-496.17	0.00	496.17	4,317.26	2,158.63	9,967.46	4,991.14	0.00	0.00	0.108
5.00	-34.79	-4.45	0.00	-473.54	0.00	473.54	4,260.05	2,130.02	9,608.26	4,811.27	0.01	-0.03	0.107
10.00	-33.48	-4.38	0.00	-451.28	0.00	451.28	4,200.87	2,100.44	9,250.82	4,632.29	0.06	-0.05	0.105
15.00	-32.19	-4.30	0.00	-429.40	0.00	429.40	4,139.73	2,069.86	8,895.48	4,454.35	0.12	-0.08	0.104
20.00	-30.93	-4.23	0.00	-407.88	0.00	407.88	4,076.62	2,038.31	8,542.54	4,277.62	0.22	-0.11	0.103
25.00	-29.69	-4.16	0.00	-386.73	0.00	386.73	4,011.55	2,005.78	8,192.33	4,102.25	0.35	-0.14	0.102
30.00	-28.48	-4.09	0.00	-365.92	0.00	365.92	3,944.52	1,972.26	7,845.14	3,928.40	0.51	-0.16	0.100
35.00	-27.30	-4.02	0.00	-345.48	0.00	345.48	3,875.52	1,937.76	7,501.31	3,756.23	0.70	-0.19	0.099
40.00	-26.14	-3.96	0.00	-325.38	0.00	325.38	3,804.56	1,902.28	7,161.13	3,585.89	0.92	-0.22	0.098
42.58	-25.55	-3.92	0.00	-315.15	0.00	315.15	3,767.13	1,883.56	6,986.91	3,498.65	1.04	-0.24	0.097
45.00	-24.56	-3.87	0.00	-305.67	0.00	305.67	3,731.63	1,865.82	6,824.93	3,417.54	1.17	-0.26	0.096
48.92	-22.99	-3.83	0.00	-290.49	0.00	290.49	3,716.76	1,858.38	6,757.94	3,383.99	1.39	-0.28	0.092
50.00	-22.75	-3.79	0.00	-286.34	0.00	286.34	3,700.61	1,850.31	6,685.84	3,347.89	1.46	-0.29	0.092
55.00	-21.65	-3.71	0.00	-267.41	0.00	267.41	3,624.90	1,812.45	6,355.82	3,182.63	1.77	-0.32	0.090
60.00	-20.58	-3.63	0.00	-248.88	0.00	248.88	3,547.23	1,773.62	6,030.53	3,019.74	2.13	-0.35	0.088
65.00	-19.54	-3.55	0.00	-230.75	0.00	230.75	3,467.60	1,733.80	5,710.28	2,859.38	2.51	-0.38	0.086
70.00	-18.53	-3.47	0.00	-213.01	0.00	213.01	3,386.00	1,693.00	5,395.40	2,701.71	2.93	-0.42	0.084
75.00	-17.54	-3.39	0.00	-195.67	0.00	195.67	3,302.44	1,651.22	5,086.20	2,546.88	3.38	-0.45	0.082
80.00	-16.57	-3.31	0.00	-178.72	0.00	178.72	3,207.53	1,603.77	4,769.04	2,388.06	3.87	-0.48	0.080
85.00	-15.64	-3.26	0.00	-162.17	0.00	162.17	3,093.69	1,546.85	4,434.86	2,220.73	4.39	-0.52	0.078
86.50	-15.36	-3.22	0.00	-157.28	0.00	157.28	3,059.54	1,529.77	4,336.97	2,171.71	4.55	-0.53	0.077
90.00	-14.39	-3.17	0.00	-146.02	0.00	146.02	2,979.85	1,489.93	4,112.82	2,059.47	4.95	-0.55	0.076
91.50	-13.98	-3.13	0.00	-141.27	0.00	141.27	1,810.37	905.19	2,525.79	1,264.77	5.12	-0.56	0.119
95.00	-13.51	-3.07	0.00	-130.31	0.00	130.31	1,779.94	889.97	2,416.91	1,210.25	5.54	-0.59	0.115
100.00	-12.86	-3.00	0.00	-114.97	0.00	114.97	1,734.79	867.39	2,263.11	1,133.24	6.18	-0.63	0.109
105.00	-12.23	-2.93	0.00	-99.99	0.00	99.99	1,687.67	843.84	2,111.68	1,057.41	6.87	-0.68	0.102
110.00	-11.62	-2.86	0.00	-85.35	0.00	85.35	1,638.60	819.30	1,962.92	982.92	7.61	-0.73	0.094
115.00	-11.02	-2.79	0.00	-71.06	0.00	71.06	1,587.56	793.78	1,817.14	909.92	8.40	-0.77	0.085
120.00	-10.44	-2.73	0.00	-57.11	0.00	57.11	1,534.56	767.28	1,674.67	838.58	9.23	-0.81	0.075
123.58	-10.04	-2.70	0.00	-47.32	0.00	47.32	1,495.36	747.68	1,574.76	788.55	9.85	-0.84	0.067
125.00	-9.81	-2.67	0.00	-43.50	0.00	43.50	1,479.59	739.79	1,535.81	769.04	10.10	-0.85	0.063
127.42	-9.42	-2.64	0.00	-37.05	0.00	37.05	1,010.15	505.07	1,043.37	522.46	10.54	-0.87	0.080
130.00	-6.56	-1.96	0.00	-30.24	0.00	30.24	993.05	496.52	998.35	499.92	11.02	-0.89	0.067
135.00	-6.23	-1.91	0.00	-20.46	0.00	20.46	958.46	479.23	912.49	456.92	11.96	-0.92	0.051
138.00	-4.79	-1.67	0.00	-14.74	0.00	14.74	936.76	468.38	861.87	431.57	12.55	-0.94	0.039
140.00	-3.39	-1.10	0.00	-11.40	0.00	11.40	921.91	460.95	828.54	414.89	12.94	-0.94	0.031
145.00	-3.14	-1.04	0.00	-5.89	0.00	5.89	883.39	441.70	746.83	373.97	13.94	-0.96	0.019
150.00	0.00	-0.99	0.00	-0.67	0.00	0.67	842.91	421.46	667.67	334.33	14.95	-0.97	0.002

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.22
Redundancy Factor (ρ):	1.30
Seismic Force Distribution Exponent (k):	1.86
Total Unfactored Dead Load:	36.13 k
Seismic Base Shear (E):	1.41 k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
37	147.50	242	2,591	0.017	24	300
36	142.50	255	2,561	0.017	24	316
35	139.00	125	1,200	0.008	11	155
34	136.50	192	1,777	0.012	16	237
33	132.50	330	2,894	0.019	27	408
32	128.71	239	1,984	0.013	18	295
31	126.21	389	3,123	0.021	29	482
30	124.29	232	1,805	0.012	17	287
29	121.79	404	3,031	0.020	28	500
28	117.50	578	4,062	0.027	38	716
27	112.50	596	3,859	0.025	36	738
26	107.50	613	3,650	0.024	34	759
25	102.50	631	3,435	0.023	32	781
24	97.50	648	3,217	0.021	30	802
23	93.25	464	2,120	0.014	20	575
22	90.75	405	1,760	0.012	16	502
21	88.25	963	3,972	0.026	37	1,193
20	85.75	276	1,079	0.007	10	342
19	82.50	936	3,408	0.022	32	1,159
18	77.50	962	3,118	0.021	29	1,192
17	72.50	988	2,830	0.019	26	1,224
16	67.50	1,014	2,543	0.017	24	1,256
15	62.50	1,041	2,261	0.015	21	1,289

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

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Customer: T-MOBILE

14	57.50	1,067	1,985	0.013	18	1,321
13	52.50	1,093	1,717	0.011	16	1,353
12	49.46	240	338	0.002	3	297
11	46.96	1,577	2,014	0.013	19	1,953
10	43.79	989	1,110	0.007	10	1,225
9	41.29	587	590	0.004	5	727
8	37.50	1,156	972	0.006	9	1,431
7	32.50	1,182	762	0.005	7	1,463
6	27.50	1,208	571	0.004	5	1,496
5	22.50	1,234	402	0.003	4	1,528
4	17.50	1,260	257	0.002	2	1,560
3	12.50	1,286	140	0.001	1	1,593
2	7.50	1,312	55	0.000	1	1,625
1	2.50	1,338	7	0.000	0	1,657
VZW Unused Reserve:	150.00	0	0	0.000	0	0
Samsung B5/B13 RRH-B	150.00	211	2,331	0.015	22	261
Samsung B2/B66A RRH-	150.00	253	2,799	0.018	26	314
RFS DB-C1-12C-24AB-0	150.00	32	354	0.002	3	40
Commscope NHH-65B-R2	150.00	87	966	0.006	9	108
Antel LPA-80063/6CF	150.00	162	1,791	0.012	17	201
Commscope NHH-45B-R2	150.00	294	3,254	0.021	30	365
Generic Flat Low Pro	150.00	1,875	20,726	0.136	192	2,322
Ericsson KRY 112 144	140.00	33	321	0.002	3	41
Ericsson Radio 4449	140.00	222	2,159	0.014	20	275
Ericsson AIR 21, 1.3	140.00	249	2,421	0.016	22	308
Ericsson AIR32 B66Aa	140.00	397	3,856	0.025	36	491
RFS APXVAARR24_43-U-	140.00	384	3,731	0.025	35	475
Generic Round T-Arm	138.00	1,250	11,834	0.078	110	1,548
Spinner Bias-T	130.00	4	38	0.000	0	6
Powerwave Allgon LGP	130.00	33	280	0.002	3	41
Powerwave Allgon LGP	130.00	85	717	0.005	7	105
Raycap DC6-48-60-18-	130.00	20	169	0.001	2	25
Ericsson RRUS-11 (50	130.00	300	2,542	0.017	24	372
Powerwave Allgon 777	130.00	162	1,373	0.009	13	201
KMW AM-X-CD-16-65-00	130.00	146	1,233	0.008	11	180
Generic Round Low Pr	130.00	1,875	15,886	0.105	147	2,322
Generic GPS	90.00	10	43	0.000	0	12
		36,134	152,023	1.000	1,409	44,748

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
37	147.50	242	2,591	0.017	24	208
36	142.50	255	2,561	0.017	24	220
35	139.00	125	1,200	0.008	11	108
34	136.50	192	1,777	0.012	16	165
33	132.50	330	2,894	0.019	27	284
32	128.71	239	1,984	0.013	18	206
31	126.21	389	3,123	0.021	29	336
30	124.29	232	1,805	0.012	17	200
29	121.79	404	3,031	0.020	28	348
28	117.50	578	4,062	0.027	38	498
27	112.50	596	3,859	0.025	36	513
26	107.50	613	3,650	0.024	34	528
25	102.50	631	3,435	0.023	32	543
24	97.50	648	3,217	0.021	30	558
23	93.25	464	2,120	0.014	20	400
22	90.75	405	1,760	0.012	16	349
21	88.25	963	3,972	0.026	37	830

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

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Customer: T-MOBILE

20	85.75	276	1,079	0.007	10	238
19	82.50	936	3,408	0.022	32	807
18	77.50	962	3,118	0.021	29	829
17	72.50	988	2,830	0.019	26	852
16	67.50	1,014	2,543	0.017	24	874
15	62.50	1,041	2,261	0.015	21	897
14	57.50	1,067	1,985	0.013	18	919
13	52.50	1,093	1,717	0.011	16	941
12	49.46	240	338	0.002	3	207
11	46.96	1,577	2,014	0.013	19	1,359
10	43.79	989	1,110	0.007	10	852
9	41.29	587	590	0.004	5	506
8	37.50	1,156	972	0.006	9	996
7	32.50	1,182	762	0.005	7	1,018
6	27.50	1,208	571	0.004	5	1,041
5	22.50	1,234	402	0.003	4	1,063
4	17.50	1,260	257	0.002	2	1,086
3	12.50	1,286	140	0.001	1	1,108
2	7.50	1,312	55	0.000	1	1,131
1	2.50	1,338	7	0.000	0	1,153
VZW Unused Reserve:	150.00	0	0	0.000	0	0
Samsung B5/B13 RRH-B	150.00	211	2,331	0.015	22	182
Samsung B2/B66A RRH-	150.00	253	2,799	0.018	26	218
RFS DB-C1-12C-24AB-0	150.00	32	354	0.002	3	28
Commscope NHH-65B-R2	150.00	87	966	0.006	9	75
Antel LPA-80063/6CF	150.00	162	1,791	0.012	17	140
Commscope NHH-45B-R2	150.00	294	3,254	0.021	30	254
Generic Flat Low Pro	150.00	1,875	20,726	0.136	192	1,615
Ericsson KRY 112 144	140.00	33	321	0.002	3	28
Ericsson Radio 4449	140.00	222	2,159	0.014	20	191
Ericsson AIR 21, 1.3	140.00	249	2,421	0.016	22	215
Ericsson AIR32 B66Aa	140.00	397	3,856	0.025	36	342
RFS APXVAARR24_43-U-	140.00	384	3,731	0.025	35	331
Generic Round T-Arm	138.00	1,250	11,834	0.078	110	1,077
Spinner Bias-T	130.00	4	38	0.000	0	4
Powerwave Allgon LGP	130.00	33	280	0.002	3	28
Powerwave Allgon LGP	130.00	85	717	0.005	7	73
Raycap DC6-48-60-18-	130.00	20	169	0.001	2	17
Ericsson RRUS-11 (50	130.00	300	2,542	0.017	24	258
Powerwave Allgon 777	130.00	162	1,373	0.009	13	140
KMW AM-X-CD-16-65-00	130.00	146	1,233	0.008	11	125
Generic Round Low Pr	130.00	1,875	15,886	0.105	147	1,615
Generic GPS	90.00	10	43	0.000	0	9
		36,134	152,023	1.000	1,409	31,133

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.09	-1.41	0.00	-173.86	0.00	173.86	4,317.26	2,158.63	9,967.46	4,991.14	0.00	0.00	0.045
5.00	-41.47	-1.42	0.00	-166.80	0.00	166.80	4,260.05	2,130.02	9,608.26	4,811.27	0.00	-0.01	0.044
10.00	-39.87	-1.42	0.00	-159.71	0.00	159.71	4,200.87	2,100.44	9,250.82	4,632.29	0.02	-0.02	0.044
15.00	-38.31	-1.43	0.00	-152.60	0.00	152.60	4,139.73	2,069.86	8,895.48	4,454.35	0.04	-0.03	0.044
20.00	-36.78	-1.43	0.00	-145.47	0.00	145.47	4,076.62	2,038.31	8,542.54	4,277.62	0.08	-0.04	0.043
25.00	-35.29	-1.43	0.00	-138.33	0.00	138.33	4,011.55	2,005.78	8,192.33	4,102.25	0.12	-0.05	0.043
30.00	-33.82	-1.43	0.00	-131.19	0.00	131.19	3,944.52	1,972.26	7,845.14	3,928.40	0.18	-0.06	0.042
35.00	-32.39	-1.42	0.00	-124.06	0.00	124.06	3,875.52	1,937.76	7,501.31	3,756.23	0.25	-0.07	0.041
40.00	-31.67	-1.42	0.00	-116.95	0.00	116.95	3,804.56	1,902.28	7,161.13	3,585.89	0.33	-0.08	0.041
42.58	-30.44	-1.41	0.00	-113.28	0.00	113.28	3,767.13	1,883.56	6,986.91	3,498.65	0.37	-0.09	0.040
45.00	-28.49	-1.39	0.00	-109.87	0.00	109.87	3,731.63	1,865.82	6,824.93	3,417.54	0.42	-0.09	0.040
48.92	-28.19	-1.39	0.00	-104.42	0.00	104.42	3,716.76	1,858.38	6,757.94	3,383.99	0.49	-0.10	0.038
50.00	-26.84	-1.38	0.00	-102.91	0.00	102.91	3,700.61	1,850.31	6,685.84	3,347.89	0.52	-0.10	0.038
55.00	-25.52	-1.36	0.00	-96.03	0.00	96.03	3,624.90	1,812.45	6,355.82	3,182.63	0.63	-0.11	0.037
60.00	-24.23	-1.34	0.00	-89.23	0.00	89.23	3,547.23	1,773.62	6,030.53	3,019.74	0.76	-0.13	0.036
65.00	-22.97	-1.32	0.00	-82.52	0.00	82.52	3,467.60	1,733.80	5,710.28	2,859.38	0.89	-0.14	0.035
70.00	-21.75	-1.30	0.00	-75.92	0.00	75.92	3,386.00	1,693.00	5,395.40	2,701.71	1.04	-0.15	0.035
75.00	-20.55	-1.27	0.00	-69.44	0.00	69.44	3,302.44	1,651.22	5,086.20	2,546.88	1.20	-0.16	0.033
80.00	-19.39	-1.24	0.00	-63.11	0.00	63.11	3,207.53	1,603.77	4,769.04	2,388.06	1.38	-0.17	0.032
85.00	-19.05	-1.23	0.00	-56.92	0.00	56.92	3,093.69	1,546.85	4,434.86	2,220.73	1.57	-0.18	0.032
86.50	-17.86	-1.19	0.00	-55.08	0.00	55.08	3,059.54	1,529.77	4,336.97	2,171.71	1.62	-0.19	0.031
90.00	-17.35	-1.17	0.00	-50.92	0.00	50.92	2,979.85	1,489.93	4,112.82	2,059.47	1.76	-0.20	0.031
91.50	-16.77	-1.15	0.00	-49.16	0.00	49.16	1,810.37	905.19	2,525.79	1,264.77	1.83	-0.20	0.048
95.00	-15.97	-1.12	0.00	-45.13	0.00	45.13	1,779.94	889.97	2,416.91	1,210.25	1.98	-0.21	0.046
100.00	-15.19	-1.09	0.00	-39.51	0.00	39.51	1,734.79	867.39	2,263.11	1,133.24	2.20	-0.22	0.044
105.00	-14.43	-1.06	0.00	-34.04	0.00	34.04	1,687.67	843.84	2,111.68	1,057.41	2.45	-0.24	0.041
110.00	-13.69	-1.03	0.00	-28.74	0.00	28.74	1,638.60	819.30	1,962.92	982.92	2.71	-0.26	0.038
115.00	-12.97	-0.99	0.00	-23.62	0.00	23.62	1,587.56	793.78	1,817.14	909.92	2.99	-0.27	0.034
120.00	-12.47	-0.96	0.00	-18.68	0.00	18.68	1,534.56	767.28	1,674.67	838.58	3.28	-0.29	0.030
123.58	-12.19	-0.94	0.00	-15.24	0.00	15.24	1,495.36	747.68	1,574.76	788.55	3.50	-0.29	0.027
125.00	-11.71	-0.91	0.00	-13.91	0.00	13.91	1,479.59	739.79	1,535.81	769.04	3.58	-0.30	0.026
127.42	-11.41	-0.89	0.00	-11.70	0.00	11.70	1,010.15	505.07	1,043.37	522.46	3.74	-0.30	0.034
130.00	-7.75	-0.64	0.00	-9.40	0.00	9.40	993.05	496.52	998.35	499.92	3.90	-0.31	0.027
135.00	-7.52	-0.63	0.00	-6.19	0.00	6.19	958.46	479.23	912.49	456.92	4.23	-0.32	0.021
138.00	-5.81	-0.50	0.00	-4.31	0.00	4.31	936.76	468.38	861.87	431.57	4.43	-0.32	0.016
140.00	-3.91	-0.35	0.00	-3.32	0.00	3.32	921.91	460.95	828.54	414.89	4.57	-0.33	0.012
145.00	-3.61	-0.32	0.00	-1.60	0.00	1.60	883.39	441.70	746.83	373.97	4.91	-0.33	0.008
150.00	0.00	-0.30	0.00	0.00	0.00	0.00	842.91	421.46	667.67	334.33	5.26	-0.33	0.000

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

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Customer: T-MOBILE

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.98	-1.41	0.00	-171.72	0.00	171.72	4,317.26	2,158.63	9,967.46	4,991.14	0.00	0.00	0.041
5.00	-28.85	-1.41	0.00	-164.67	0.00	164.67	4,260.05	2,130.02	9,608.26	4,811.27	0.00	-0.01	0.041
10.00	-27.74	-1.42	0.00	-157.59	0.00	157.59	4,200.87	2,100.44	9,250.82	4,632.29	0.02	-0.02	0.041
15.00	-26.65	-1.42	0.00	-150.50	0.00	150.50	4,139.73	2,069.86	8,895.48	4,454.35	0.04	-0.03	0.040
20.00	-25.59	-1.42	0.00	-143.40	0.00	143.40	4,076.62	2,038.31	8,542.54	4,277.62	0.08	-0.04	0.040
25.00	-24.55	-1.42	0.00	-136.31	0.00	136.31	4,011.55	2,005.78	8,192.33	4,102.25	0.12	-0.05	0.039
30.00	-23.53	-1.41	0.00	-129.22	0.00	129.22	3,944.52	1,972.26	7,845.14	3,928.40	0.18	-0.06	0.039
35.00	-22.54	-1.41	0.00	-122.15	0.00	122.15	3,875.52	1,937.76	7,501.31	3,756.23	0.24	-0.07	0.038
40.00	-22.03	-1.41	0.00	-115.11	0.00	115.11	3,804.56	1,902.28	7,161.13	3,585.89	0.32	-0.08	0.038
42.58	-21.18	-1.40	0.00	-111.48	0.00	111.48	3,767.13	1,883.56	6,986.91	3,498.65	0.37	-0.08	0.037
45.00	-19.82	-1.38	0.00	-108.10	0.00	108.10	3,731.63	1,865.82	6,824.93	3,417.54	0.41	-0.09	0.037
48.92	-19.61	-1.38	0.00	-102.71	0.00	102.71	3,716.76	1,858.38	6,757.94	3,383.99	0.49	-0.10	0.036
50.00	-18.67	-1.36	0.00	-101.22	0.00	101.22	3,700.61	1,850.31	6,685.84	3,347.89	0.51	-0.10	0.035
55.00	-17.75	-1.34	0.00	-94.42	0.00	94.42	3,624.90	1,812.45	6,355.82	3,182.63	0.62	-0.11	0.035
60.00	-16.85	-1.32	0.00	-87.70	0.00	87.70	3,547.23	1,773.62	6,030.53	3,019.74	0.75	-0.12	0.034
65.00	-15.98	-1.30	0.00	-81.07	0.00	81.07	3,467.60	1,733.80	5,710.28	2,859.38	0.88	-0.13	0.033
70.00	-15.13	-1.28	0.00	-74.56	0.00	74.56	3,386.00	1,693.00	5,395.40	2,701.71	1.03	-0.15	0.032
75.00	-14.30	-1.25	0.00	-68.18	0.00	68.18	3,302.44	1,651.22	5,086.20	2,546.88	1.19	-0.16	0.031
80.00	-13.49	-1.22	0.00	-61.94	0.00	61.94	3,207.53	1,603.77	4,769.04	2,388.06	1.36	-0.17	0.030
85.00	-13.25	-1.21	0.00	-55.85	0.00	55.85	3,093.69	1,546.85	4,434.86	2,220.73	1.54	-0.18	0.029
86.50	-12.42	-1.17	0.00	-54.04	0.00	54.04	3,059.54	1,529.77	4,336.97	2,171.71	1.60	-0.18	0.029
90.00	-12.07	-1.15	0.00	-49.94	0.00	49.94	2,979.85	1,489.93	4,112.82	2,059.47	1.74	-0.19	0.028
91.50	-11.67	-1.13	0.00	-48.21	0.00	48.21	1,810.37	905.19	2,525.79	1,264.77	1.80	-0.20	0.045
95.00	-11.11	-1.10	0.00	-44.24	0.00	44.24	1,779.94	889.97	2,416.91	1,210.25	1.95	-0.20	0.043
100.00	-10.57	-1.07	0.00	-38.72	0.00	38.72	1,734.79	867.39	2,263.11	1,133.24	2.17	-0.22	0.040
105.00	-10.04	-1.04	0.00	-33.35	0.00	33.35	1,687.67	843.84	2,111.68	1,057.41	2.41	-0.24	0.037
110.00	-9.52	-1.01	0.00	-28.15	0.00	28.15	1,638.60	819.30	1,962.92	982.92	2.67	-0.25	0.034
115.00	-9.03	-0.97	0.00	-23.12	0.00	23.12	1,587.56	793.78	1,817.14	909.92	2.94	-0.27	0.031
120.00	-8.68	-0.94	0.00	-18.29	0.00	18.29	1,534.56	767.28	1,674.67	838.58	3.23	-0.28	0.027
123.58	-8.48	-0.92	0.00	-14.92	0.00	14.92	1,495.36	747.68	1,574.76	788.55	3.44	-0.29	0.025
125.00	-8.14	-0.89	0.00	-13.61	0.00	13.61	1,479.59	739.79	1,535.81	769.04	3.53	-0.29	0.023
127.42	-7.94	-0.87	0.00	-11.46	0.00	11.46	1,010.15	505.07	1,043.37	522.46	3.68	-0.30	0.030
130.00	-5.39	-0.63	0.00	-9.20	0.00	9.20	993.05	496.52	998.35	499.92	3.84	-0.30	0.024
135.00	-5.23	-0.61	0.00	-6.06	0.00	6.06	958.46	479.23	912.49	456.92	4.16	-0.31	0.019
138.00	-4.04	-0.48	0.00	-4.22	0.00	4.22	936.76	468.38	861.87	431.57	4.36	-0.32	0.014
140.00	-2.72	-0.34	0.00	-3.25	0.00	3.25	921.91	460.95	828.54	414.89	4.50	-0.32	0.011
145.00	-2.51	-0.31	0.00	-1.56	0.00	1.56	883.39	441.70	746.83	373.97	4.83	-0.32	0.007
150.00	0.00	-0.30	0.00	0.00	0.00	0.00	842.91	421.46	667.67	334.33	5.17	-0.33	0.000

Equivalent Modal Analysis Method

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

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.22
Redundancy Factor (ρ):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
37	147.50	242	1.828	1.667	1.025	0.326	68	300
36	142.50	255	1.706	1.144	0.823	0.253	56	316
35	139.00	125	1.623	0.851	0.702	0.207	22	155
34	136.50	192	1.565	0.674	0.624	0.176	29	237
33	132.50	330	1.475	0.441	0.513	0.132	38	408
32	128.71	239	1.392	0.268	0.423	0.094	20	295
31	126.21	389	1.338	0.177	0.371	0.072	24	482
30	124.29	232	1.298	0.117	0.334	0.057	11	287
29	121.79	404	1.246	0.052	0.290	0.038	13	500
28	117.50	578	1.160	-0.030	0.226	0.011	5	716
27	112.50	596	1.063	-0.088	0.165	-0.014	-7	738
26	107.50	613	0.971	-0.116	0.117	-0.031	-17	759
25	102.50	631	0.883	-0.121	0.081	-0.040	-22	781
24	97.50	648	0.799	-0.112	0.053	-0.042	-24	802
23	93.25	464	0.730	-0.096	0.036	-0.038	-15	575
22	90.75	405	0.692	-0.084	0.028	-0.034	-12	502
21	88.25	963	0.654	-0.072	0.022	-0.028	-23	1,193
20	85.75	276	0.618	-0.059	0.017	-0.021	-5	342
19	82.50	936	0.572	-0.043	0.012	-0.010	-8	1,159
18	77.50	962	0.505	-0.018	0.007	0.006	5	1,192
17	72.50	988	0.442	0.005	0.006	0.022	19	1,224
16	67.50	1,014	0.383	0.023	0.007	0.034	30	1,256
15	62.50	1,041	0.328	0.039	0.010	0.043	39	1,289
14	57.50	1,067	0.278	0.050	0.014	0.048	45	1,321
13	52.50	1,093	0.232	0.058	0.019	0.051	48	1,353
12	49.46	240	0.205	0.062	0.022	0.051	11	297
11	46.96	1,577	0.185	0.065	0.025	0.051	70	1,953
10	43.79	989	0.161	0.067	0.029	0.051	44	1,225
9	41.29	587	0.143	0.068	0.031	0.051	26	727
8	37.50	1,156	0.118	0.070	0.035	0.050	50	1,431
7	32.50	1,182	0.089	0.071	0.039	0.049	50	1,463
6	27.50	1,208	0.064	0.072	0.041	0.047	50	1,496
5	22.50	1,234	0.043	0.070	0.042	0.046	49	1,528
4	17.50	1,260	0.026	0.067	0.040	0.043	47	1,560

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

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Customer: T-MOBILE

3	12.50	1,286	0.013	0.059	0.034	0.039	44	1,593
2	7.50	1,312	0.005	0.044	0.025	0.031	35	1,625
1	2.50	1,338	0.001	0.018	0.010	0.014	16	1,657
VZW Unused Reserve:	150.00	0	1.890	1.980	1.140	0.365	0	0
Samsung B5/B13 RRH-B	150.00	211	1.890	1.980	1.140	0.365	67	261
Samsung B2/B66A RRH-	150.00	253	1.890	1.980	1.140	0.365	80	314
RFS DB-C1-12C-24AB-0	150.00	32	1.890	1.980	1.140	0.365	10	40
Commscope NHH-65B-	150.00	87	1.890	1.980	1.140	0.365	28	108
Antel LPA-80063/6CF	150.00	162	1.890	1.980	1.140	0.365	51	201
Commscope NHH-45B-	150.00	294	1.890	1.980	1.140	0.365	93	365
Generic Flat Low Pro	150.00	1,875	1.890	1.980	1.140	0.365	594	2,322
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.219	6	41
Ericsson Radio 4449	140.00	222	1.646	0.929	0.735	0.219	42	275
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.219	47	308
Ericsson AIR32 B66Aa	140.00	397	1.646	0.929	0.735	0.219	75	491
RFS APXVAARR24_43-U-	140.00	384	1.646	0.929	0.735	0.219	73	475
Generic Round T-Arm	138.00	1,250	1.600	0.778	0.670	0.194	210	1,548
Spinner Bias-T	130.00	4	1.420	0.322	0.452	0.107	0	6
Powerwave Allgon LGP	130.00	33	1.420	0.322	0.452	0.107	3	41
Powerwave Allgon LGP	130.00	85	1.420	0.322	0.452	0.107	8	105
Raycap DC6-48-60-18-	130.00	20	1.420	0.322	0.452	0.107	2	25
Ericsson RRUS-11 (50	130.00	300	1.420	0.322	0.452	0.107	28	372
Powerwave Allgon 777	130.00	162	1.420	0.322	0.452	0.107	15	201
KMW AM-X-CD-16-65-00	130.00	146	1.420	0.322	0.452	0.107	13	180
Generic Round Low Pr	130.00	1,875	1.420	0.322	0.452	0.107	173	2,322
Generic GPS	90.00	10	0.680	-0.081	0.026	-0.032	0	12
		36,134	61.817	29.220	23.407	6.871	2,451	44,748

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

Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
37	147.50	242	1.828	1.667	1.025	0.326	68	208
36	142.50	255	1.706	1.144	0.823	0.253	56	220
35	139.00	125	1.623	0.851	0.702	0.207	22	108
34	136.50	192	1.565	0.674	0.624	0.176	29	165
33	132.50	330	1.475	0.441	0.513	0.132	38	284
32	128.71	239	1.392	0.268	0.423	0.094	20	206
31	126.21	389	1.338	0.177	0.371	0.072	24	336
30	124.29	232	1.298	0.117	0.334	0.057	11	200
29	121.79	404	1.246	0.052	0.290	0.038	13	348
28	117.50	578	1.160	-0.030	0.226	0.011	5	498
27	112.50	596	1.063	-0.088	0.165	-0.014	-7	513
26	107.50	613	0.971	-0.116	0.117	-0.031	-17	528
25	102.50	631	0.883	-0.121	0.081	-0.040	-22	543
24	97.50	648	0.799	-0.112	0.053	-0.042	-24	558
23	93.25	464	0.730	-0.096	0.036	-0.038	-15	400
22	90.75	405	0.692	-0.084	0.028	-0.034	-12	349
21	88.25	963	0.654	-0.072	0.022	-0.028	-23	830
20	85.75	276	0.618	-0.059	0.017	-0.021	-5	238
19	82.50	936	0.572	-0.043	0.012	-0.010	-8	807
18	77.50	962	0.505	-0.018	0.007	0.006	5	829
17	72.50	988	0.442	0.005	0.006	0.022	19	852
16	67.50	1,014	0.383	0.023	0.007	0.034	30	874
15	62.50	1,041	0.328	0.039	0.010	0.043	39	897
14	57.50	1,067	0.278	0.050	0.014	0.048	45	919
13	52.50	1,093	0.232	0.058	0.019	0.051	48	941
12	49.46	240	0.205	0.062	0.022	0.051	11	207
11	46.96	1,577	0.185	0.065	0.025	0.051	70	1,359

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

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Customer: T-MOBILE

10	43.79	989	0.161	0.067	0.029	0.051	44	852
9	41.29	587	0.143	0.068	0.031	0.051	26	506
8	37.50	1,156	0.118	0.070	0.035	0.050	50	996
7	32.50	1,182	0.089	0.071	0.039	0.049	50	1,018
6	27.50	1,208	0.064	0.072	0.041	0.047	50	1,041
5	22.50	1,234	0.043	0.070	0.042	0.046	49	1,063
4	17.50	1,260	0.026	0.067	0.040	0.043	47	1,086
3	12.50	1,286	0.013	0.059	0.034	0.039	44	1,108
2	7.50	1,312	0.005	0.044	0.025	0.031	35	1,131
1	2.50	1,338	0.001	0.018	0.010	0.014	16	1,153
VZW Unused Reserve:	150.00	0	1.890	1.980	1.140	0.365	0	0
Samsung B5/B13 RRH-B	150.00	211	1.890	1.980	1.140	0.365	67	182
Samsung B2/B66A RRH-	150.00	253	1.890	1.980	1.140	0.365	80	218
RFS DB-C1-12C-24AB-0	150.00	32	1.890	1.980	1.140	0.365	10	28
Commscope NHH-65B-	150.00	87	1.890	1.980	1.140	0.365	28	75
Antel LPA-80063/6CF	150.00	162	1.890	1.980	1.140	0.365	51	140
Commscope NHH-45B-	150.00	294	1.890	1.980	1.140	0.365	93	254
Generic Flat Low Pro	150.00	1,875	1.890	1.980	1.140	0.365	594	1,615
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.219	6	28
Ericsson Radio 4449	140.00	222	1.646	0.929	0.735	0.219	42	191
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.219	47	215
Ericsson AIR32 B66Aa	140.00	397	1.646	0.929	0.735	0.219	75	342
RFS APXVAARR24_43-U-	140.00	384	1.646	0.929	0.735	0.219	73	331
Generic Round T-Arm	138.00	1,250	1.600	0.778	0.670	0.194	210	1,077
Spinner Bias-T	130.00	4	1.420	0.322	0.452	0.107	0	4
Powerwave Allgon LGP	130.00	33	1.420	0.322	0.452	0.107	3	28
Powerwave Allgon LGP	130.00	85	1.420	0.322	0.452	0.107	8	73
Raycap DC6-48-60-18-	130.00	20	1.420	0.322	0.452	0.107	2	17
Ericsson RRUS-11 (50	130.00	300	1.420	0.322	0.452	0.107	28	258
Powerwave Allgon 777	130.00	162	1.420	0.322	0.452	0.107	15	140
KMW AM-X-CD-16-65-00	130.00	146	1.420	0.322	0.452	0.107	13	125
Generic Round Low Pr	130.00	1,875	1.420	0.322	0.452	0.107	173	1,615
Generic GPS	90.00	10	0.680	-0.081	0.026	-0.032	0	9
		36,134	61.817	29.220	23.407	6.871	2,451	31,133

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.09	-2.44	0.00	-295.92	0.00	295.92	4,317.26	2,158.63	9,967.46	4,991.14	0.00	0.00	0.069
5.00	-41.46	-2.42	0.00	-283.73	0.00	283.73	4,260.05	2,130.02	9,608.26	4,811.27	0.01	-0.02	0.069
10.00	-39.87	-2.38	0.00	-271.65	0.00	271.65	4,200.87	2,100.44	9,250.82	4,632.29	0.03	-0.03	0.068
15.00	-38.31	-2.35	0.00	-259.73	0.00	259.73	4,139.73	2,069.86	8,895.48	4,454.35	0.07	-0.05	0.068
20.00	-36.78	-2.31	0.00	-248.01	0.00	248.01	4,076.62	2,038.31	8,542.54	4,277.62	0.13	-0.06	0.067
25.00	-35.29	-2.27	0.00	-236.48	0.00	236.48	4,011.55	2,005.78	8,192.33	4,102.25	0.21	-0.08	0.066
30.00	-33.82	-2.22	0.00	-225.15	0.00	225.15	3,944.52	1,972.26	7,845.14	3,928.40	0.31	-0.10	0.066
35.00	-32.39	-2.18	0.00	-214.04	0.00	214.04	3,875.52	1,937.76	7,501.31	3,756.23	0.42	-0.12	0.065
40.00	-31.66	-2.16	0.00	-203.13	0.00	203.13	3,804.56	1,902.28	7,161.13	3,585.89	0.55	-0.14	0.065
42.58	-30.44	-2.12	0.00	-197.54	0.00	197.54	3,767.13	1,883.56	6,986.91	3,498.65	0.63	-0.15	0.065
45.00	-28.48	-2.05	0.00	-192.42	0.00	192.42	3,731.63	1,865.82	6,824.93	3,417.54	0.71	-0.16	0.064
48.92	-28.19	-2.04	0.00	-184.39	0.00	184.39	3,716.76	1,858.38	6,757.94	3,383.99	0.84	-0.17	0.062
50.00	-26.83	-2.00	0.00	-182.17	0.00	182.17	3,700.61	1,850.31	6,685.84	3,347.89	0.88	-0.18	0.062
55.00	-25.51	-1.96	0.00	-172.18	0.00	172.18	3,624.90	1,812.45	6,355.82	3,182.63	1.08	-0.20	0.061
60.00	-24.22	-1.92	0.00	-162.39	0.00	162.39	3,547.23	1,773.62	6,030.53	3,019.74	1.30	-0.22	0.061
65.00	-22.97	-1.90	0.00	-152.78	0.00	152.78	3,467.60	1,733.80	5,710.28	2,859.38	1.54	-0.24	0.060
70.00	-21.74	-1.88	0.00	-143.29	0.00	143.29	3,386.00	1,693.00	5,395.40	2,701.71	1.80	-0.26	0.059
75.00	-20.55	-1.88	0.00	-133.89	0.00	133.89	3,302.44	1,651.22	5,086.20	2,546.88	2.08	-0.28	0.059
80.00	-19.39	-1.89	0.00	-124.49	0.00	124.49	3,207.53	1,603.77	4,769.04	2,388.06	2.39	-0.31	0.058
85.00	-19.05	-1.90	0.00	-115.05	0.00	115.05	3,093.69	1,546.85	4,434.86	2,220.73	2.72	-0.33	0.058
86.50	-17.85	-1.92	0.00	-112.20	0.00	112.20	3,059.54	1,529.77	4,336.97	2,171.71	2.82	-0.34	0.058
90.00	-17.34	-1.93	0.00	-105.49	0.00	105.49	2,979.85	1,489.93	4,112.82	2,059.47	3.08	-0.35	0.057
91.50	-16.76	-1.95	0.00	-102.60	0.00	102.60	1,810.37	905.19	2,525.79	1,264.77	3.19	-0.36	0.090
95.00	-15.96	-1.97	0.00	-95.79	0.00	95.79	1,779.94	889.97	2,416.91	1,210.25	3.46	-0.38	0.088
100.00	-15.18	-2.00	0.00	-85.93	0.00	85.93	1,734.79	867.39	2,263.11	1,133.24	3.88	-0.42	0.085
105.00	-14.42	-2.02	0.00	-75.94	0.00	75.94	1,687.67	843.84	2,111.68	1,057.41	4.33	-0.45	0.080
110.00	-13.68	-2.03	0.00	-65.86	0.00	65.86	1,638.60	819.30	1,962.92	982.92	4.82	-0.49	0.075
115.00	-12.96	-2.02	0.00	-55.72	0.00	55.72	1,587.56	793.78	1,817.14	909.92	5.35	-0.52	0.069
120.00	-12.46	-2.01	0.00	-45.60	0.00	45.60	1,534.56	767.28	1,674.67	838.58	5.92	-0.55	0.063
123.58	-12.17	-2.00	0.00	-38.39	0.00	38.39	1,495.36	747.68	1,574.76	788.55	6.34	-0.58	0.057
125.00	-11.69	-1.97	0.00	-35.56	0.00	35.56	1,479.59	739.79	1,535.81	769.04	6.52	-0.59	0.054
127.42	-11.39	-1.95	0.00	-30.79	0.00	30.79	1,010.15	505.07	1,043.37	522.46	6.82	-0.60	0.070
130.00	-7.74	-1.64	0.00	-25.74	0.00	25.74	993.05	496.52	998.35	499.92	7.14	-0.61	0.059
135.00	-7.50	-1.61	0.00	-17.55	0.00	17.55	958.46	479.23	912.49	456.92	7.80	-0.64	0.046
138.00	-5.80	-1.36	0.00	-12.73	0.00	12.73	936.76	468.38	861.87	431.57	8.21	-0.66	0.036
140.00	-3.90	-1.04	0.00	-10.01	0.00	10.01	921.91	460.95	828.54	414.89	8.49	-0.66	0.028
145.00	-3.60	-0.97	0.00	-4.83	0.00	4.83	883.39	441.70	746.83	373.97	9.19	-0.68	0.017
150.00	0.00	-0.92	0.00	0.00	0.00	0.00	842.91	421.46	667.67	334.33	9.90	-0.68	0.000

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

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Customer: T-MOBILE

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.98	-2.44	0.00	-292.02	0.00	292.02	4,317.26	2,158.63	9,967.46	4,991.14	0.00	0.00	0.065
5.00	-28.85	-2.41	0.00	-279.83	0.00	279.83	4,260.05	2,130.02	9,608.26	4,811.27	0.01	-0.02	0.065
10.00	-27.74	-2.37	0.00	-267.78	0.00	267.78	4,200.87	2,100.44	9,250.82	4,632.29	0.03	-0.03	0.064
15.00	-26.65	-2.33	0.00	-255.91	0.00	255.91	4,139.73	2,069.86	8,895.48	4,454.35	0.07	-0.05	0.064
20.00	-25.59	-2.29	0.00	-244.24	0.00	244.24	4,076.62	2,038.31	8,542.54	4,277.62	0.13	-0.06	0.063
25.00	-24.55	-2.25	0.00	-232.79	0.00	232.79	4,011.55	2,005.78	8,192.33	4,102.25	0.21	-0.08	0.063
30.00	-23.53	-2.20	0.00	-221.55	0.00	221.55	3,944.52	1,972.26	7,845.14	3,928.40	0.30	-0.10	0.062
35.00	-22.53	-2.16	0.00	-210.53	0.00	210.53	3,875.52	1,937.76	7,501.31	3,756.23	0.41	-0.12	0.062
40.00	-22.03	-2.14	0.00	-199.74	0.00	199.74	3,804.56	1,902.28	7,161.13	3,585.89	0.55	-0.13	0.061
42.58	-21.17	-2.09	0.00	-194.22	0.00	194.22	3,767.13	1,883.56	6,986.91	3,498.65	0.62	-0.14	0.061
45.00	-19.82	-2.03	0.00	-189.15	0.00	189.15	3,731.63	1,865.82	6,824.93	3,417.54	0.70	-0.15	0.061
48.92	-19.61	-2.02	0.00	-181.22	0.00	181.22	3,716.76	1,858.38	6,757.94	3,383.99	0.83	-0.17	0.059
50.00	-18.67	-1.97	0.00	-179.03	0.00	179.03	3,700.61	1,850.31	6,685.84	3,347.89	0.87	-0.17	0.059
55.00	-17.75	-1.93	0.00	-169.18	0.00	169.18	3,624.90	1,812.45	6,355.82	3,182.63	1.06	-0.19	0.058
60.00	-16.85	-1.89	0.00	-159.54	0.00	159.54	3,547.23	1,773.62	6,030.53	3,019.74	1.28	-0.21	0.058
65.00	-15.98	-1.87	0.00	-150.07	0.00	150.07	3,467.60	1,733.80	5,710.28	2,859.38	1.51	-0.23	0.057
70.00	-15.12	-1.85	0.00	-140.75	0.00	140.75	3,386.00	1,693.00	5,395.40	2,701.71	1.77	-0.26	0.057
75.00	-14.29	-1.85	0.00	-131.50	0.00	131.50	3,302.44	1,651.22	5,086.20	2,546.88	2.05	-0.28	0.056
80.00	-13.49	-1.86	0.00	-122.28	0.00	122.28	3,207.53	1,603.77	4,769.04	2,388.06	2.35	-0.30	0.055
85.00	-13.25	-1.86	0.00	-113.00	0.00	113.00	3,093.69	1,546.85	4,434.86	2,220.73	2.68	-0.32	0.055
86.50	-12.42	-1.88	0.00	-110.21	0.00	110.21	3,059.54	1,529.77	4,336.97	2,171.71	2.78	-0.33	0.055
90.00	-12.06	-1.90	0.00	-103.62	0.00	103.62	2,979.85	1,489.93	4,112.82	2,059.47	3.03	-0.35	0.054
91.50	-11.66	-1.91	0.00	-100.77	0.00	100.77	1,810.37	905.19	2,525.79	1,264.77	3.14	-0.36	0.086
95.00	-11.10	-1.94	0.00	-94.08	0.00	94.08	1,779.94	889.97	2,416.91	1,210.25	3.41	-0.37	0.084
100.00	-10.56	-1.96	0.00	-84.40	0.00	84.40	1,734.79	867.39	2,263.11	1,133.24	3.82	-0.41	0.081
105.00	-10.03	-1.98	0.00	-74.59	0.00	74.59	1,687.67	843.84	2,111.68	1,057.41	4.26	-0.44	0.076
110.00	-9.51	-1.99	0.00	-64.69	0.00	64.69	1,638.60	819.30	1,962.92	982.92	4.75	-0.48	0.072
115.00	-9.01	-1.99	0.00	-54.74	0.00	54.74	1,587.56	793.78	1,817.14	909.92	5.27	-0.51	0.066
120.00	-8.66	-1.97	0.00	-44.82	0.00	44.82	1,534.56	767.28	1,674.67	838.58	5.82	-0.55	0.059
123.58	-8.46	-1.96	0.00	-37.75	0.00	37.75	1,495.36	747.68	1,574.76	788.55	6.24	-0.57	0.054
125.00	-8.13	-1.94	0.00	-34.97	0.00	34.97	1,479.59	739.79	1,535.81	769.04	6.41	-0.58	0.051
127.42	-7.92	-1.92	0.00	-30.29	0.00	30.29	1,010.15	505.07	1,043.37	522.46	6.70	-0.59	0.066
130.00	-5.38	-1.61	0.00	-25.34	0.00	25.34	993.05	496.52	998.35	499.92	7.03	-0.60	0.056
135.00	-5.21	-1.58	0.00	-17.29	0.00	17.29	958.46	479.23	912.49	456.92	7.67	-0.63	0.043
138.00	-4.03	-1.34	0.00	-12.54	0.00	12.54	936.76	468.38	861.87	431.57	8.08	-0.64	0.033
140.00	-2.71	-1.02	0.00	-9.87	0.00	9.87	921.91	460.95	828.54	414.89	8.35	-0.65	0.027
145.00	-2.50	-0.95	0.00	-4.76	0.00	4.76	883.39	441.70	746.83	373.97	9.04	-0.67	0.016
150.00	0.00	-0.92	0.00	0.00	0.00	0.00	842.91	421.46	667.67	334.33	9.74	-0.67	0.000

Site Number: 411260

Code: ANSI/TIA-222-G

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Site Name: MIDDLEFIELD CT, CT

Engineering Number: 12927178_C3_02

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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 + 1.6W	21.17	0.00	43.34	0.00	0.00	2333.48	91.50	0.54
0.9D + 1.6W	21.16	0.00	32.50	0.00	0.00	2309.58	91.50	0.53
1.2D + 1.0Di + 1.0Wi	10.78	0.00	64.35	0.00	0.00	1015.75	0.00	0.22
(1.2 + 0.2Sds) * DL + E ELFM	1.41	0.00	43.09	0.00	0.00	173.86	91.50	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.44	0.00	43.09	0.00	0.00	295.92	91.50	0.09
(0.9 - 0.2Sds) * DL + E ELFM	1.41	0.00	29.98	0.00	0.00	171.72	91.50	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.44	0.00	29.98	0.00	0.00	292.02	91.50	0.09
1.0D + 1.0W	4.53	0.00	36.13	0.00	0.00	496.17	91.50	0.12

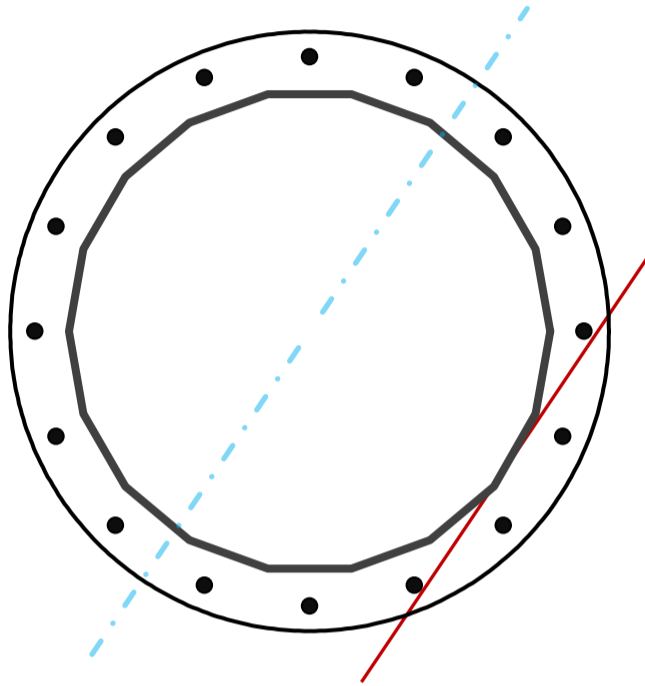
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	56.5	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2410.7	k-ft
Axial, Pu	44.1	k
Shear, Vu	21.8	k
Neutral Axis	236	°

Report Capacities		
Component	Capacity	Result
Base Plate	51%	Pass
Anchor Rods	43%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ϕ	72	in
Thickness	2	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	851.8	k
Bending Stress, ϕMn	1666.7	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, ϕ	2 1/4	in
Bolt Circle	66	in
Grade	A615-75	-
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	13.0	in
Orientation Offset	0	°
Applied Force, Pu	110.3	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	21.8	2410.7	1.00
Anchor Rod Forces	21.8	2410.7	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	65.7855	3.6548	0.1719		25906.27
Bolt	3.9761	3.2477	0.8393	4.5	28307.30
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate

Shape	Round	-
Diameter, D	72	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	44.629	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods

Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	66	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	110.3	k
Applied Shear, Vu	0.4	k
Compressive Capacity, ϕP_n	259.8	k
Tensile Capacity, ϕR_n	0.424	OK
Interaction Capacity	0.428	OK

External Base Plate

Chord Length AA	37.990	in
Additional AA	4.000	in
Section Modulus, Z	41.990	in ³
Applied Moment, Mu	851.8	k-ft
Bending Capacity, ϕM_n	2267.5	k-ft
Capacity, Mu/ ϕM_n	0.376	OK

Chord Length AB	36.637	in
Additional AB	4.000	in
Section Modulus, Z	40.637	in ³
Applied Moment, Mu	754.9	k-ft
Bending Capacity, ϕM_n	2194.4	k-ft
Capacity, Mu/ ϕM_n	0.344	OK

Bend Line Length	30.865	in
Additional Bend Line	0.000	in
Section Modulus, Z	30.865	in ³
Applied Moment, Mu	851.8	k-ft
Bending Capacity, ϕM_n	1666.7	k-ft
Capacity, Mu/ ϕM_n	0.511	OK

Internal Base Plate

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

Exhibit E

Mount Analysis

Mount Analysis of Existing T-Arms for American Tower on behalf of T-Mobile
411260 - Middlefield CT
Project #: 12927178
T-Mobile Site ID: CTHA244A
Program: L600

CLS Engineering PLLC Project #41124-12927178-01-MA-R1
 July 3, 2019

MOUNT DESCRIPTION	Existing T-Arms at 138.5 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 140 ft AGL (Eccentricity of -2 ft)
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	484 Meriden Road, Middlefield, CT 06455-1013, Middlesex County
GPS COORDINATES	41.535514, -72.732094
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

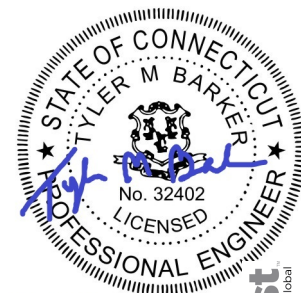
■ ANALYSIS RESULT: **Pass (Conditional)**

MEMBER USAGE	70%	Pass
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Modifications are proposed to bring mounts into compliance; see conclusion for details.

Prepared by:
Jennifer Soza

Reviewed and Approved by:
Tyler M. Barker, P.E.



Tyler M. Barker
 CLS Engineering, PLLC
 Director of Engineering
 PE # 32402 Exp. 1/31/2020
 COA # PEC.001833 Exp. 8/14/2019



Digitally signed by
 Tyler Barker
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 7, cn=Tyler Barker
 Date: 2019.07.03
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■ INTRODUCTION

The proposed equipment is to be mounted to the existing T-Arms. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

■ STRUCTURAL DOCUMENTS PROVIDED

STRUCTURAL DATA	Site Photos, dated February 5, 2018 Site Pro 1 drawing #PQ-1245, dated January 23, 2015 Site Pro1 drawing #SCX45-K, dated February 19, 2015 Site Pro 1 drawing #PUCK, dated September 1, 2010 Tower Mapping by JWB Tower Services, LLC, Site Name Middlefield, date Rev. 1 September 20, 2011
PREVIOUS ANALYSES	Structural Analysis by ATC, Engineering #OAA746563_C3_02, dated March 1, 2019
LOADING DATA	ATC Application, Project # 12927187, dated April 2, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	50 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
EXPOSURE CATEGORY	C
MAX. TOPOGRAPHIC FACTOR, K_{zt}	1.00
RISK CATEGORY	II
MAINTENANCE LIVE LOAD	L_M : 500 lb

■ FINAL EQUIPMENT

ELEVATION (ft)		ANTENNAS	
MOUNT	RAD.	#	NAME
138.5	140.0	3	Ericsson AIR 32 B2A/B66AA
		3	Ericsson AIR 21, 1.3M, B2A/B4P
		3	Ericsson RADIO 4449 B12/B71
		3	Ericsson KRY 112 144/1
		3	RFS Celwave APXVAARR24_43-U-NA20

■ **RESULTS SUMMARY**

Mount Usages before Modifications:

COMPONENT	PEAK USAGE	RESULT
Mount Pipes	131%	Fail
Stand-Off Horizontals	75%	Pass
Face Horizontals	47%	Pass

Mount Usages after Modifications:

COMPONENT	PEAK USAGE	RESULT
Face Horizontals	70%	Pass
Mount Pipes	58%	Pass
Stand-Off Horizontals	30%	Pass

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **CONDITIONALLY PASS**. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- Replace existing mount pipe in Position 2 with (1) 8ft. long proposed Pipe 2½ STD, A53 Gr. B, on 3 out of 4 sectors for proposed panel configuration (3 total) as shown. Connect to T-arm base horizontal member using Site Pro 1 SCX45-K crossover plate kit or equal. Do not install on empty sector.
- Install (1) Site Pro 1 PQ-1245 platform reinforcement kit at Standoff Tubes as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ±3 ft. above the centerline of existing T-arm mount collar. **DO NOT PINCH SAFETY CLIMB.**
- Install (1) 6ft. long Pipe 2 STD, A53 Gr. B, bracing pipe on each sector (4 total). Connect them to the adjacent existing face horizontal member in each sector using Site Pro 1 PUCK (8 total) as shown in the following sketches.
- All hardware for Site Pro 1 PUCK connection to the existing face horizontals should be installed with “turn of the nut” method per the following table:

BOLT TIGHTENING PROCEDURE

1. TIGHTEN BOLTS BY AISC "TURN OF THE NUT" METHOD USING THE CHART BELOW:

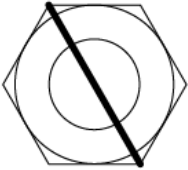
BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS:
+1/3 TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS:
+1/2 TURN BEYOND SNUG TIGHT

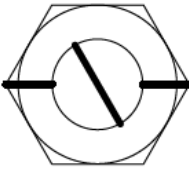
BOLT LENGTHS OVER EIGHT AND UP TO TWELVE DIAMETERS:
+2/3 TURN BEYOND SNUG TIGHT
2. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(d)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS:

"FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(d)(1) THROUGH 8(d)(4).

8(d)(1) TURN-OF-THE-NUT TIGHTENING.
BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PLIES OF A JOINT ARE IN FIRM CONTACT. THIS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY...UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION, THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.



BEFORE 1/3 TURN



AFTER 1/3 TURN

See following sketches and Site Pro 1 assembly drawings for additional details

■ ASSUMPTIONS AND CONDITIONS

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering PLLC should be notified immediately to revise results.

This analysis assumes the following:

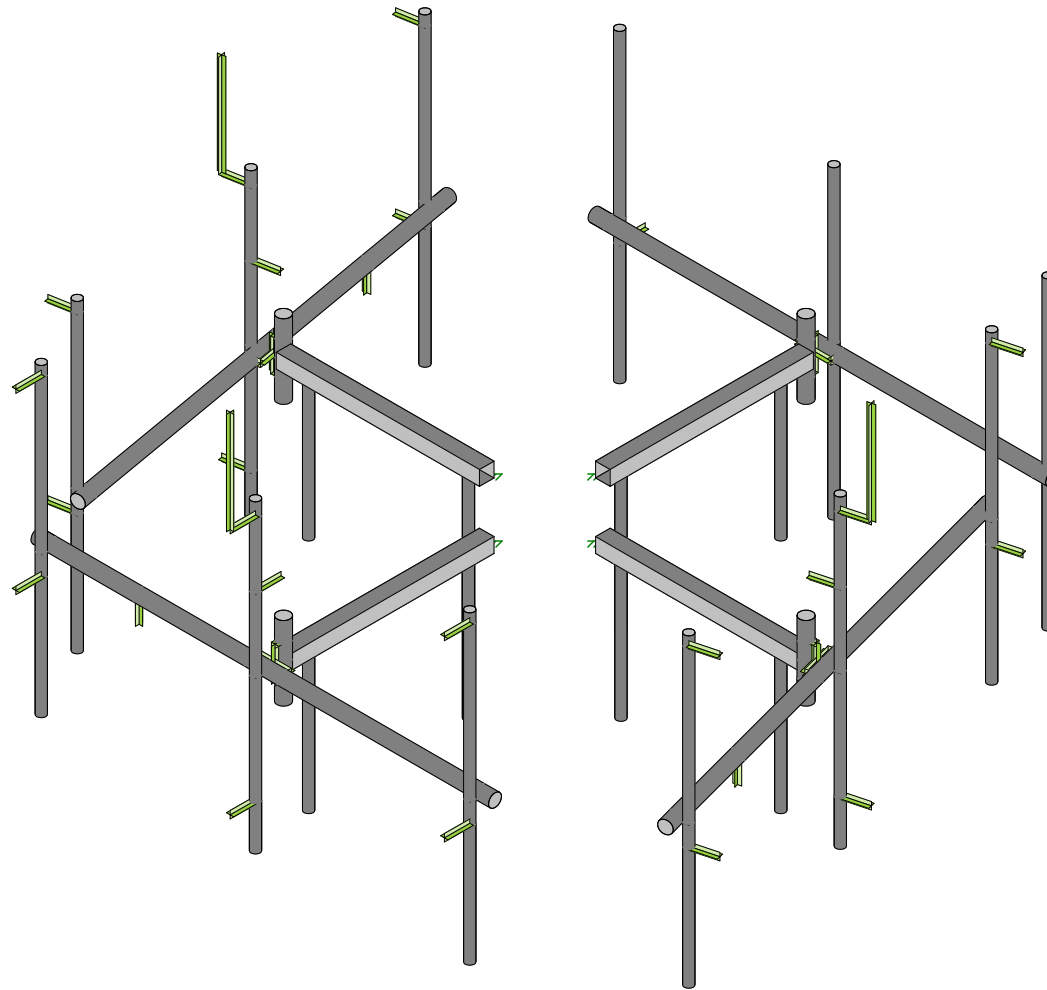
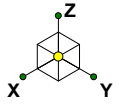
1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

Existing Mount to be Modified.

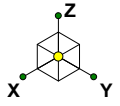


Envelope Only Solution

CLS
JLS
41124-12927178-01-MA

41124-12927178-Middlefield CT
Existing - Rendered

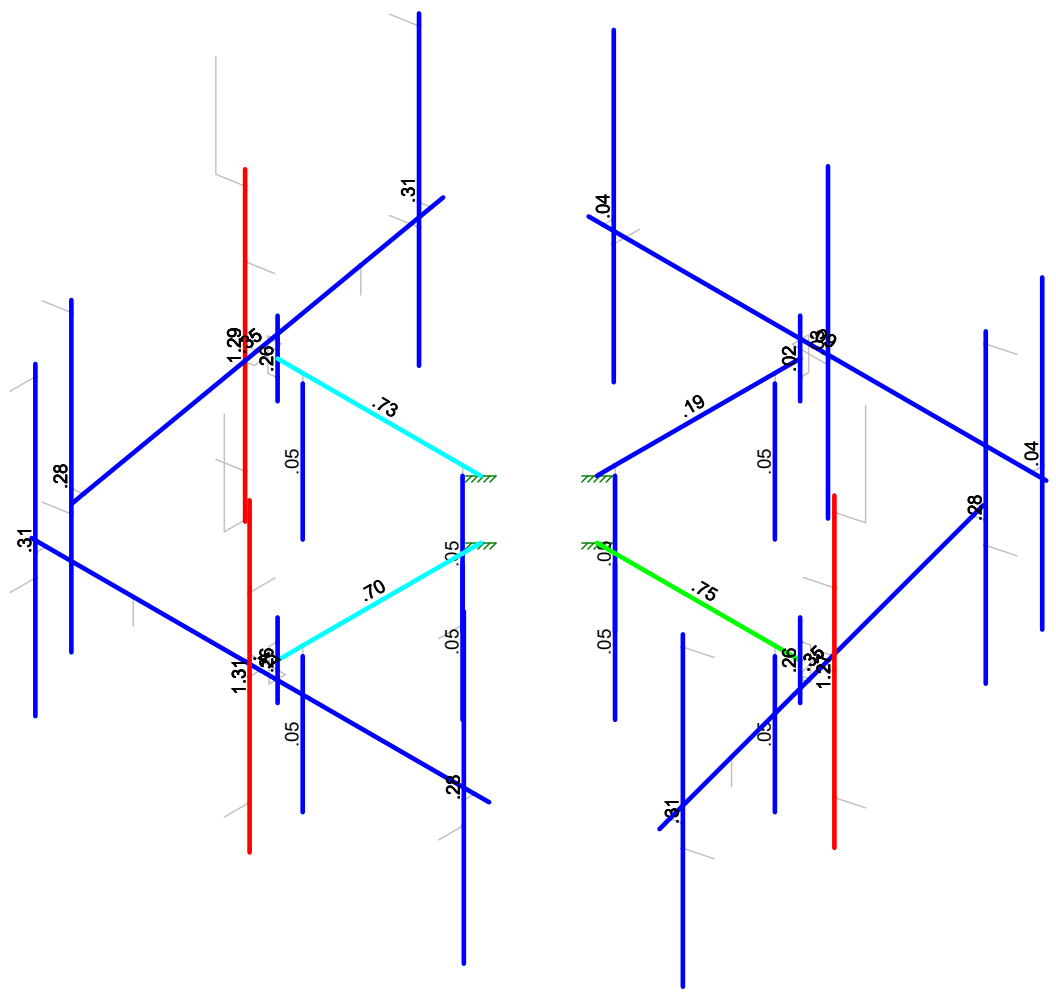
EX - 1
Apr 10, 2019 at 8:48 AM
41124-12927178-01-MA-Existing.r3d



Existing Mount to be Modified.

Code Check
(Env)

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- 0-.50

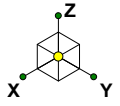


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

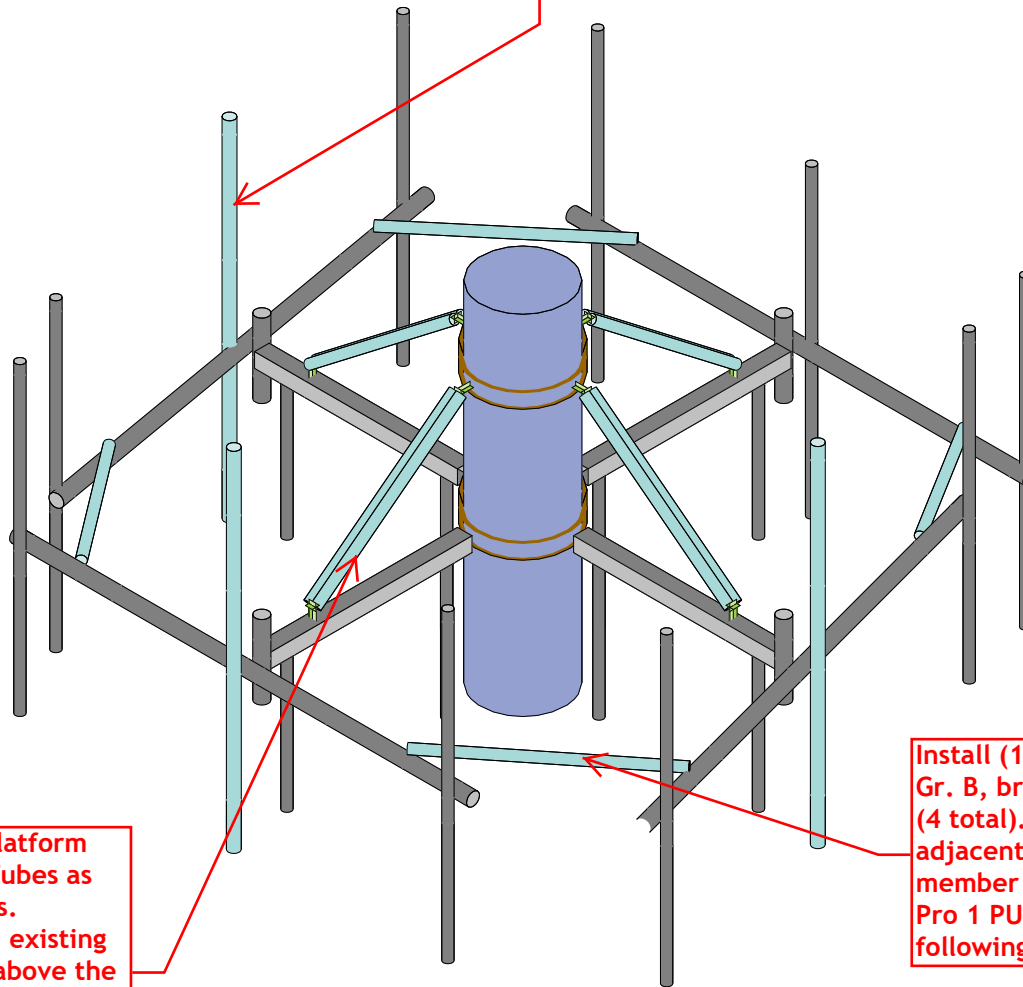
CLS
JLS
41124-12927178-01-MA

41124-12927178-Middlefield CT
Existing - Envelope Member Unity Check Results - Bending

EX - 2
Apr 10, 2019 at 8:48 AM
41124-12927178-01-MA-Existing.r3d



Replace existing mount pipe in Position 2 with (1) 8ft. long proposed Pipe 2½ STD, A53 Gr. B, on 3 out of 4 sectors for proposed panel configuration (3 total) as shown. Connect to T-arm base horizontal member using Site Pro 1 SCX45-K crossover plate kit or equal. Do not install on empty sector.



Install (1) Site Pro 1 PQ-1245 platform reinforcement kit at Standoff Tubes as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ±3 ft. above the centerline of existing T-arm mount collar.

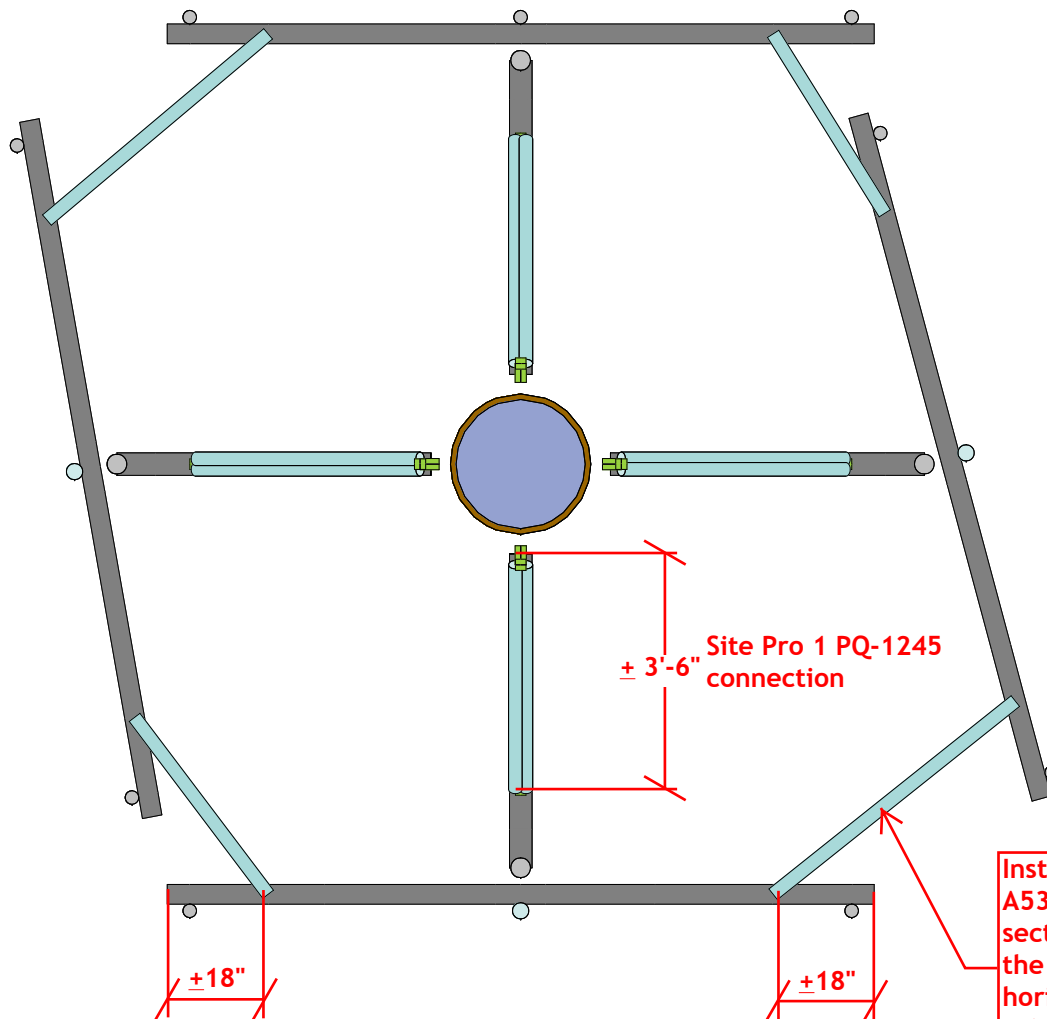
Install (1) 6ft. long Pipe 2 STD, A53 Gr. B, bracing pipe on each sector (4 total). Connect them to the adjacent existing face horizontal member in each sector using Site Pro 1 PUCK as shown in the following sketches.

NOTE: DO NOT PINCH SAFETY CLIMB

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41124-12927178-Middlefield CT
Installation Sketch

IN - 1
Apr 10, 2019 at 8:45 AM
41124-12927178-01-MA.r3d



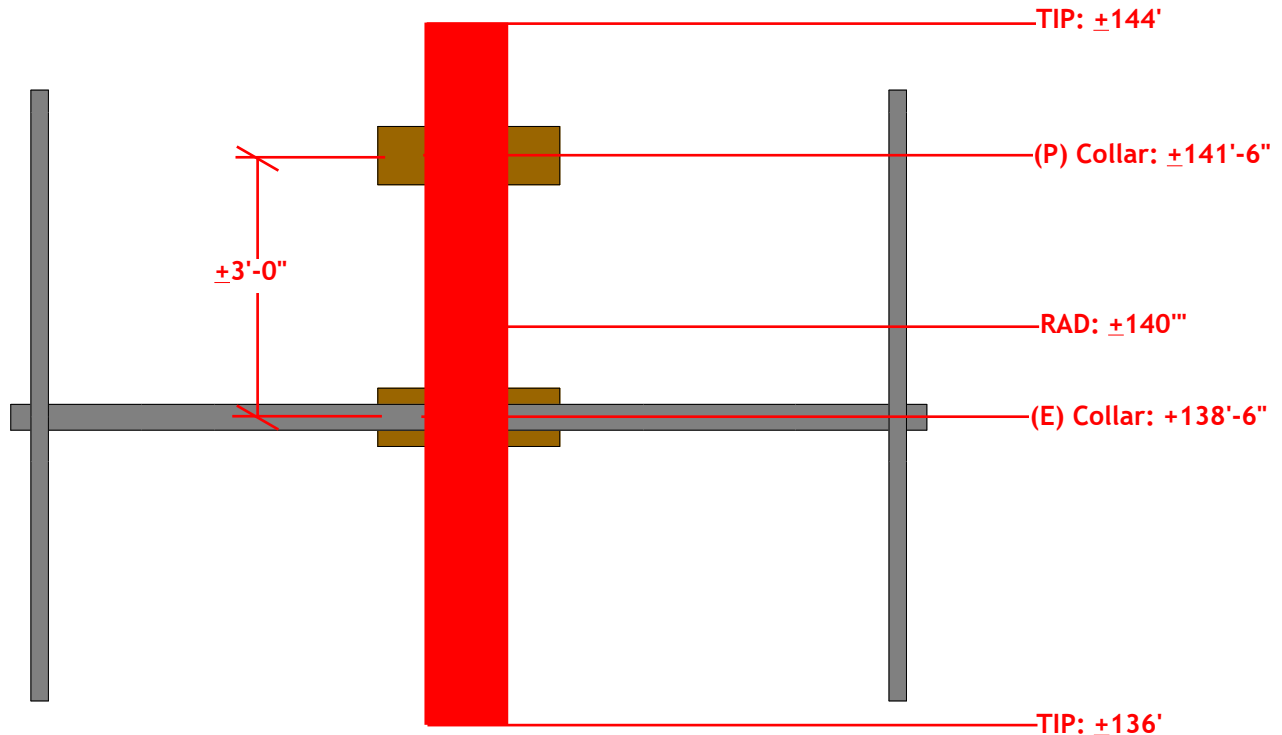
**NOTE: DO NOT PINCH
SAFETY CLIMB**

**Install (1) 6ft. long Pipe 2 STD,
A53 Gr. B, bracing pipe on each
sector (4 total). Connect them to
the adjacent existing face
horizontal member in each sector
using Site Pro 1 PUCK.**

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JLS
41124-12927178-01-MA

41124-12927178-Middlefield CT
Installation Sketch

IN - 2
Apr 10, 2019 at 8:46 AM
41124-12927178-01-MA.r3d



**NOTE: DO NOT PINCH
SAFETY CLIMB**

CLS

JLS

41124-12927178-01-MA

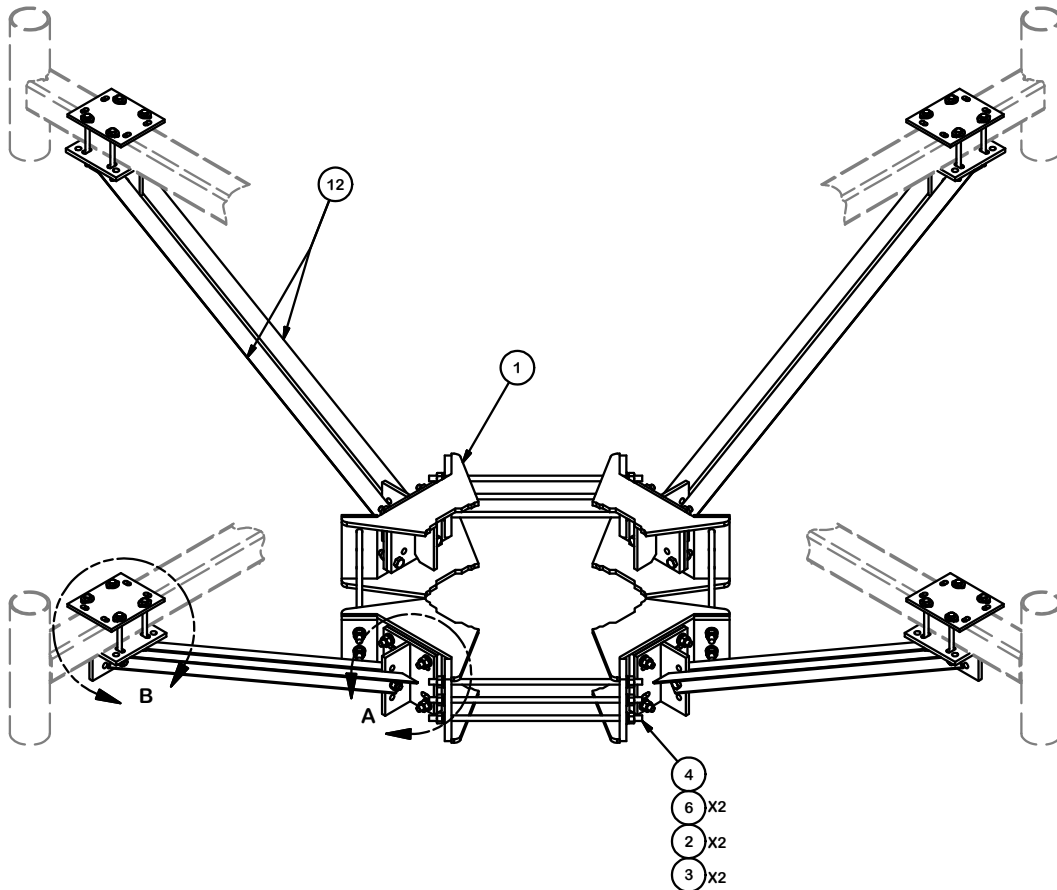
41124-12927178-Middlefield CT

Installation Sketch

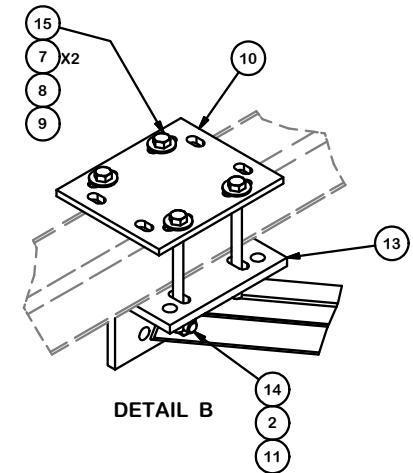
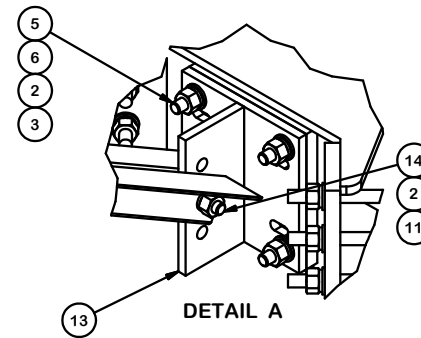
IN - 3

Apr 10, 2019 at 8:46 AM

41124-12927178-01-MA.r3d



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	4	X-162290	QUAD BRACKET		54.48	217.94
2	48	G58LW	5/8" HDG LOCKWASHER		0.03	1.25
3	40	A58NUT	5/8" HDG A325 HEX NUT		0.13	5.20
4	12	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	6.59
4	12	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	6.59
5	16	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	5.70
6	40	A58FW	5/8" HDG A325 FLATWASHER		0.03	1.36
7	32	G12FW	1/2" HDG USS FLATWASHER		0.03	1.09
8	16	G12LW	1/2" HDG LOCKWASHER		0.01	0.22
9	16	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.15
10	4	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	24.09
11	8	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.04
12	8	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	114.65
13	8	X-253992	T-BRACKET FOR REINFORCEMENT KIT		13.55	108.36
14	8	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	2.16
15	16	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	6.55
TOTAL WT. #						566.02



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
**PLATFORM REINFORCEMENT
 ON A 12" TO 60" POLE
 4' 6" ANGLE**

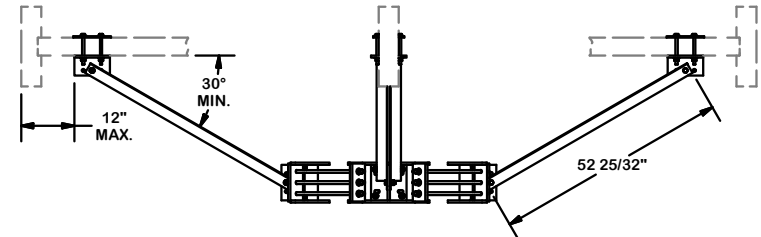
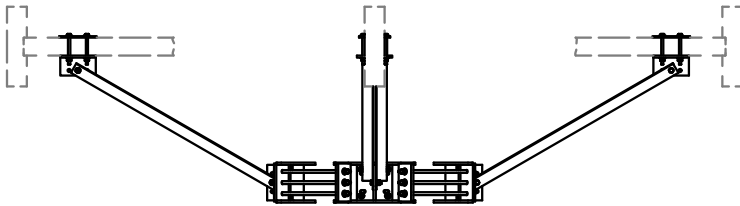
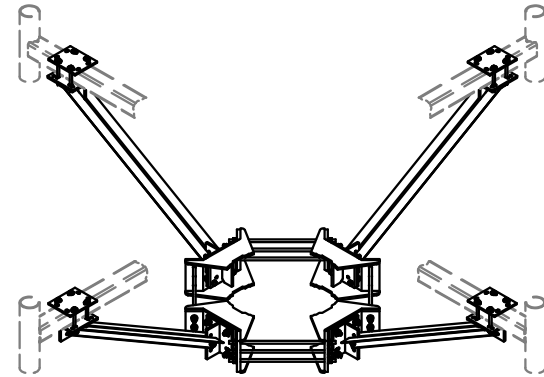
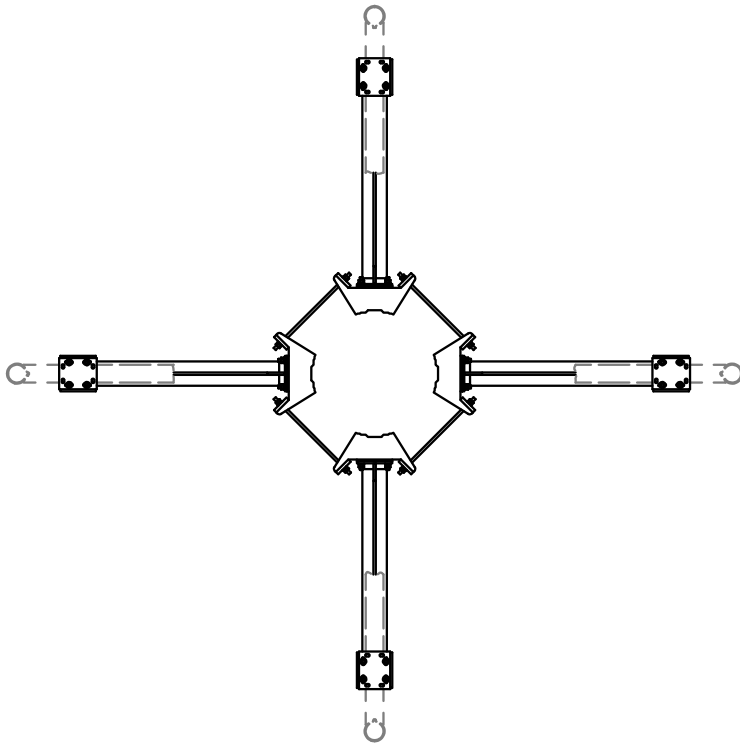
CPD NO.	DRAWN BY CEK	1/22/2015	ENG. APPROVAL
CLASS 81	SUB 01	DRAWING USAGE CUSTOMER	CHECKED BY BMC 1/23/2015



Engineering Support Team:
 1-888-753-7446

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

PART NO.	PQ-1245	PAGE 1 OF 2
DWG. NO.	PQ-1245	



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION

PLATFORM REINFORCEMENT
 ON A 12" TO 60" POLE
 4' 6" ANGLE



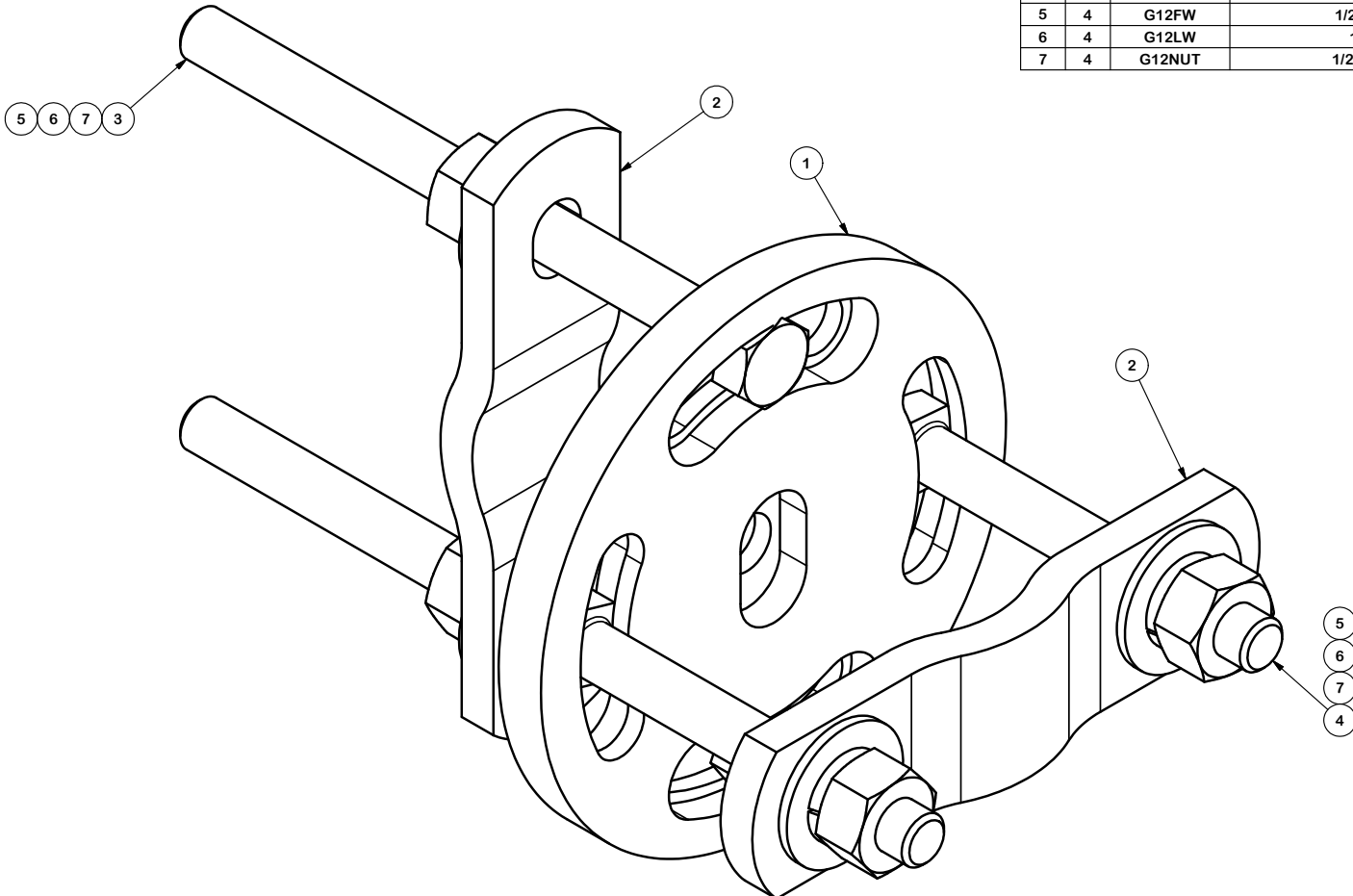
A valmont COMPANY

Engineering Support Team:
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Locations:
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CPD NO.	DRAWN BY	ENG. APPROVAL
81	CEK 1/22/2015	
CLASS	DRAWING USAGE	CHECKED BY
81	CUSTOMER	BMC 1/23/2015

PART NO.	PQ-1245
DWG. NO.	PQ-1245




PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALVANIZED)		2.48	2.48
2	2	X-100064	CLAMP (S) (4" V-CLAMP) GALVANIZED		0.91	1.83
3	2	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	0.82
4	2	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	0.54
5	4	G12FW	1/2" HDG USS FLATWASHER		0.03	0.14
6	4	G12LW	1/2" HDG LOCKWASHER		0.01	0.06
7	4	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.29
					TOTAL WT. #	6.16

TOLERANCE NOTES
 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
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 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

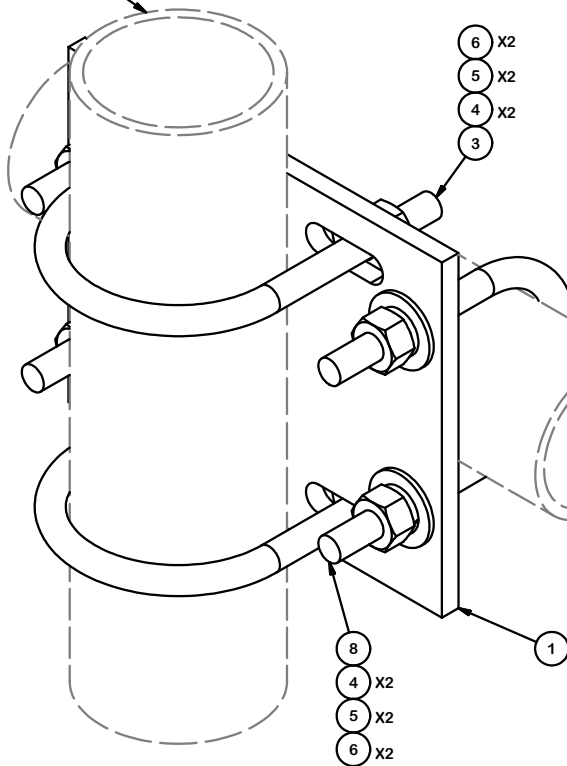
PROPRIETARY NOTE:
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DESCRIPTION		ADJUSTABLE CLAMP PLATE TIE-BACK ASSEMBLY	
CPD NO.	DRAWN BY	ENG. APPROVAL	
	CEK 8/30/2010		
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	01	CUSTOMER	BMC 9/1/2010

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	Engineering Support Team: 1-888-753-7446
PART NO.	PUCK
DWG. NO.	PUCK

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	6.02
3	2	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.73	1.46
8	2	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	1.46
4	8	G12FW	1/2" HDG USS FLATWASHER		0.03	0.27
5	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
6	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
TOTAL WT. #						9.92

3-1/2" O.D. ANTENNA PIPE
(ORDERED SEPRATELY)



2-7/8" O.D. ANTENNA PIPE
(ORDERED SEPRATELY)

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
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 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION		CROSSOVER PLATE KIT
-------------	--	---------------------------

SITE PRO 1
 Engineering Support Team:
 1-888-753-7446

Locations:
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CPD NO.	DRAWN BY	ENG. APPROVAL
CLASS	DRAWING USAGE	CHECKED BY
81	01	CUSTOMER
		BMC 2/19/2015

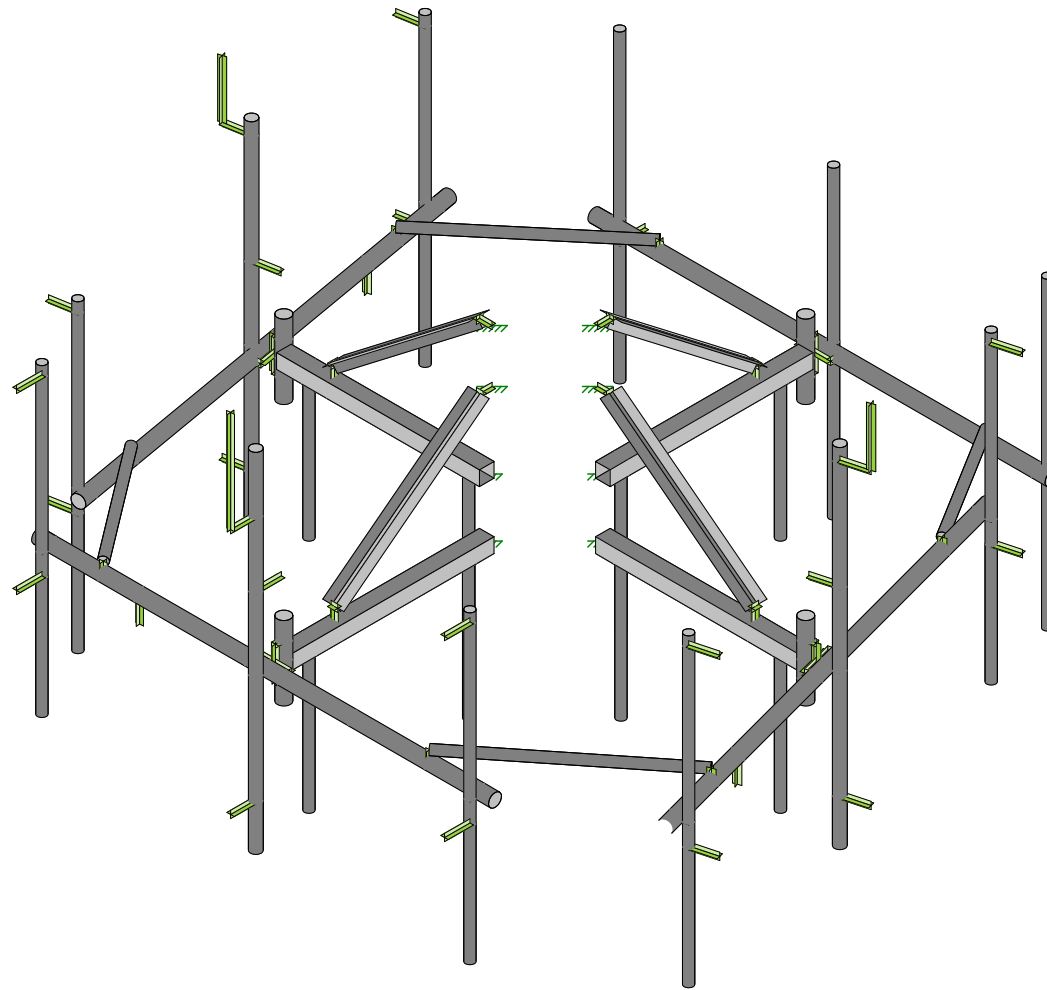
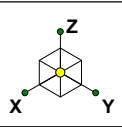
PART NO.	SCX45-K
DWG. NO.	SCX45-K

Wind & Ice Loading			
Nominal Mount Elevation (AGL), z_{mount}	139 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	140 ft	K_d	0.95
Elevation AMSL (ft)	-	K_e	-
TIA Standard	G	K_z	1.36
Basic Wind Speed, V_{ult} (bare)	125 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	-
Design Ice Thickness, t_i	3/4 in	t_{iz}	1.73 in
Exposure Category	C	G_h	1.00
Risk Category	II	q_z (bare)	51.5 psf
Seismic Response Coeff., C_s	-	q_z (ice)	8.2 psf

Live Loading	
At Mount Pipes, L_M	500 lb
Joint Labels Considered	m1
	m2
	m3

Member Distributed Loading				
Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Main Offset tube	HSS4X4X4	30.90	2.94	14.44
Main Face Pipe	PIPE_3.0	16.22	5.16	11.07
Vertical pipe	PIPE_3.0	16.22	5.16	11.07
MOD Mount Pipe	PIPE_2.5	13.33	4.70	9.74
Support Platform pipe	PIPE_2.0	11.01	4.33	8.69
Mount Pipe	PIPE_2.0	11.01	4.33	8.69
MOD PRK	L2.5x2.5x3	19.32	2.80	10.15
MOD Bracing Pipe	PIPE_2.0	11.01	4.33	8.69

Appurtenances																																	
Appurtenance Model	Status	Azimuth Offset (°, ⊂)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth				Total Qty. Override	0° Joints		90° Joints		180° Joints		270° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA _A (Bare) (ft²)		EPA _A (Ice) (ft²)		F _A (Bare) (lb)		F _A (Ice) (lb)	
					Front	Side	0°	90°	180°	270°		1	2	1	2	1	2	1	2							N	T	N	T	N	T	N	T
					AIR 21, 1.3M, B2A/B4P				<input type="checkbox"/>				1					a1	a2													55	12
APXVAARR24_43-U-NA20				<input type="checkbox"/>			1					a3	a4							0	0	0	153.3	Generic	390.29	14.67	5.32	17.30	7.64	681.59	247.17	128.64	56.81
AIR 32 B2A/B66AA				<input type="checkbox"/>			1					a5	a6							56.6	12.9	8.7	132.2	Flat	158.84	6.51	4.71	8.55	6.64	302.46	218.94	63.54	49.36
KRY 112 144/1				<input type="checkbox"/>			1					t1								7	6	3	11	Flat	11.01	0.35	0.18	0.83	0.56	16.26	8.13	6.14	4.19
RADIO 4449 B12/B71				<input type="checkbox"/>	0.5		1					r1								15	13.2	10.4	75	Flat	59.64	0.83	1.30	1.28	2.13	38.33	60.40	9.53	15.86
AIR 21, 1.3M, B2A/B4P		-10		<input type="checkbox"/>				1						b1	b2					55	12	7.9	83	Flat	164.12	5.92	4.22	7.89	6.08	275.26	196.03	58.67	45.20
APXVAARR24_43-U-NA20		-10		<input type="checkbox"/>				1						b3	b4					0	0	0	153.3	Generic	390.29	14.67	5.32	17.30	7.64	681.59	247.17	128.64	56.81
AIR 32 B2A/B66AA		-10		<input type="checkbox"/>				1						b5	b6					56.6	12.9	8.7	132.2	Flat	158.84	6.51	4.71	8.55	6.64	302.46	218.94	63.54	49.36
KRY 112 144/1		-10		<input type="checkbox"/>				1						t2						7	6	3	11	Flat	11.01	0.35	0.18	0.83	0.56	16.26	8.13	6.14	4.19
RADIO 4449 B12/B71		-10		<input type="checkbox"/>	0.5			1						r2						15	13.2	10.4	75	Flat	59.64	0.83	1.30	1.28	2.13	38.33	60.40	9.53	15.86
AIR 21, 1.3M, B2A/B4P		-15		<input type="checkbox"/>					1											55	12	7.9	83	Flat	164.12	5.92	4.22	7.89	6.08	275.26	196.03	58.67	45.20
APXVAARR24_43-U-NA20		-15		<input type="checkbox"/>					1											0	0	0	153.3	Generic	390.29	14.67	5.32	17.30	7.64	681.59	247.17	128.64	56.81
AIR 32 B2A/B66AA		-15		<input type="checkbox"/>					1											56.6	12.9	8.7	132.2	Flat	158.84	6.51	4.71	8.55	6.64	302.46	218.94	63.54	49.36
KRY 112 144/1		-15		<input type="checkbox"/>					1											7	6	3	11	Flat	11.01	0.35	0.18	0.83	0.56	16.26	8.13	6.14	4.19
RADIO 4449 B12/B71		-15		<input type="checkbox"/>	0.5				1											15	13.2	10.4	75	Flat	59.64	0.83	1.30	1.28	2.13	38.33	60.40	9.53	15.86
Working Platform				<input type="checkbox"/>			1	1	1	1		gr1	gr2	gr3	gr4	gr5	gr6	gr7	gr8	2	48	7	38	Flat	73.65	0.80	0.12	2.34	0.48	37.17	5.42	17.43	3.54

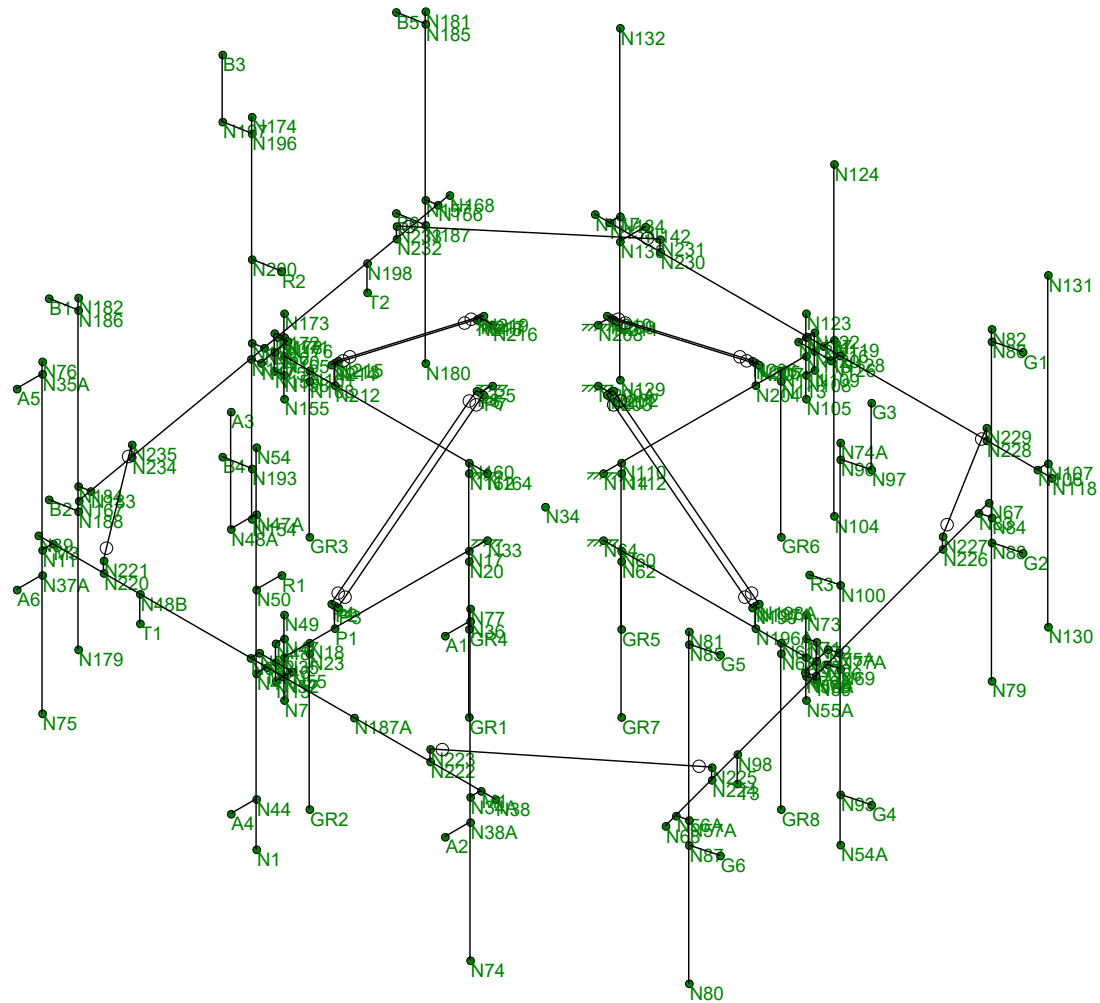
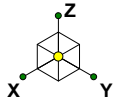


Envelope Only Solution

CLS
JLS
41124-12927178-01-MA-R1

41124-12927178-Middlefield CT
Rendered

SK - 1
July 3, 2019 at 3:03 PM
41124-12927178-01-MA-R1.r3d

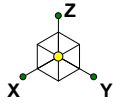


Envelope Only Solution

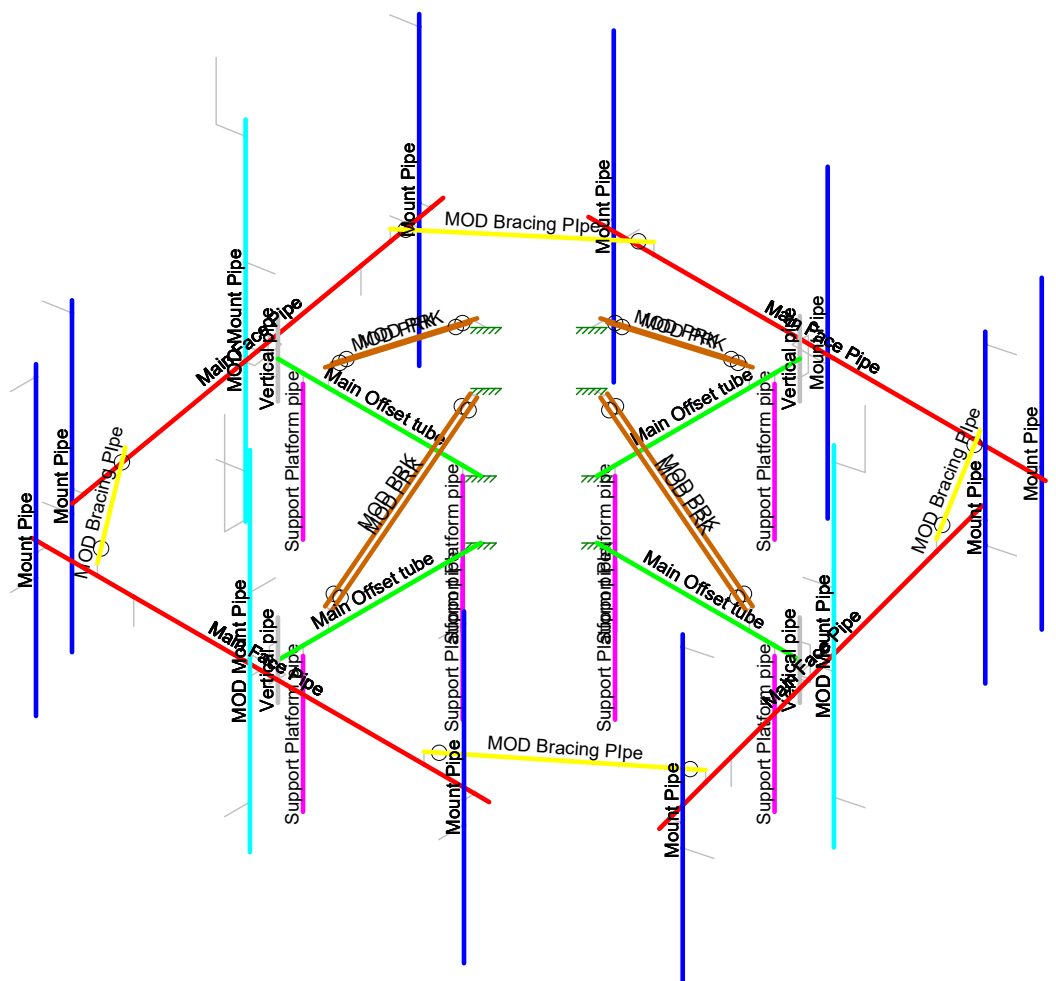
CLS
JLS
41124-12927178-01-MA-R1

41124-12927178-Middlefield CT
Joint Labels

SK - 2
July 3, 2019 at 3:03 PM
41124-12927178-01-MA-R1.r3d



- Section Sets
- Mount Pipe
 - Main Offset tube
 - Main Face Pipe
 - Vertical pipe
 - Support Platform pipe
 - MOD Mount Pipe
 - MOD PRK
 - MOD Bracing Pipe
 - RIGID

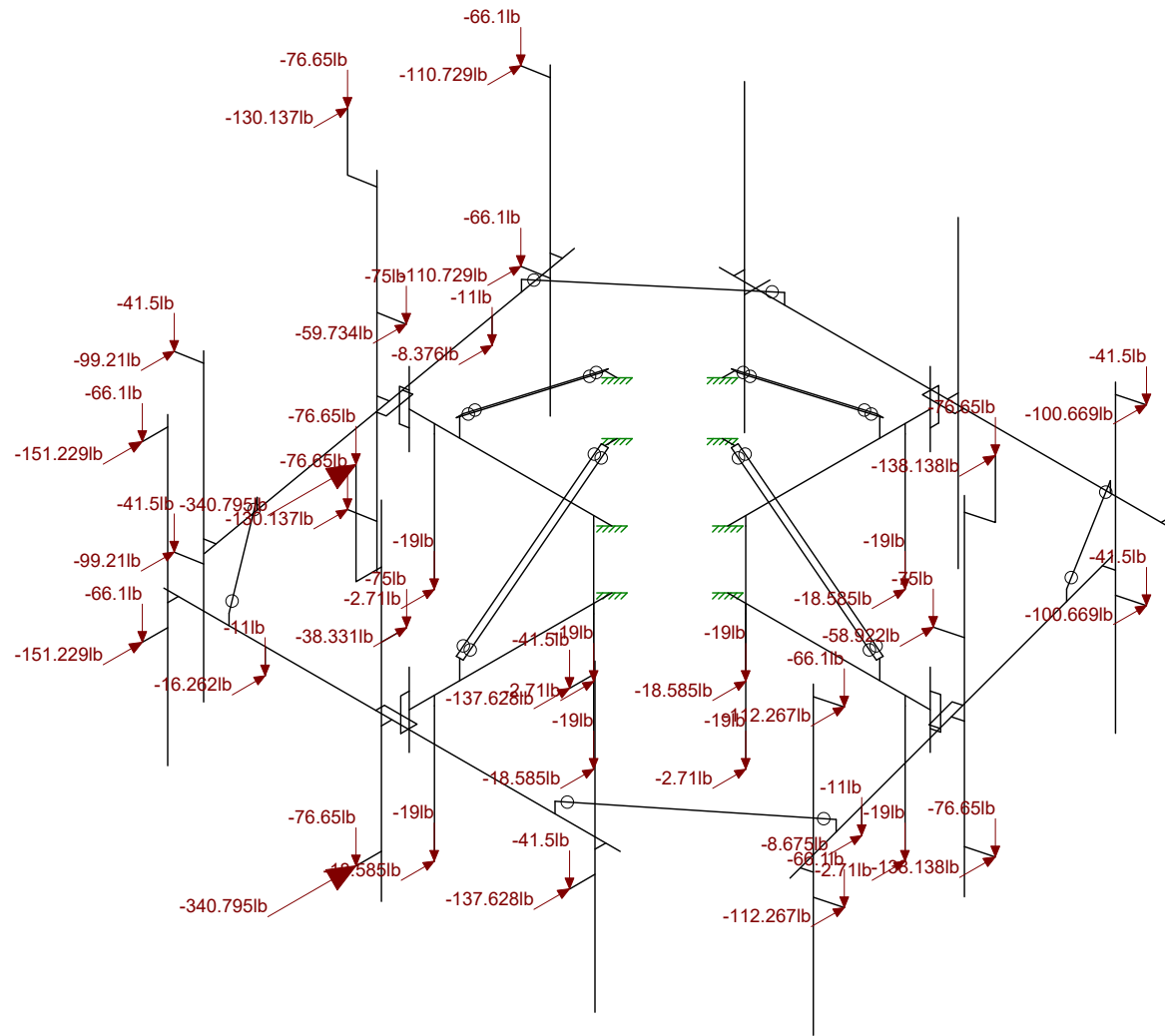
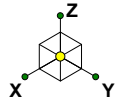


Envelope Only Solution

CLS
JLS
41124-12927178-01-MA-R1

41124-12927178-Middlefield CT	
Section Sets	

SK - 4
July 3, 2019 at 3:04 PM
41124-12927178-01-MA-R1.r3d

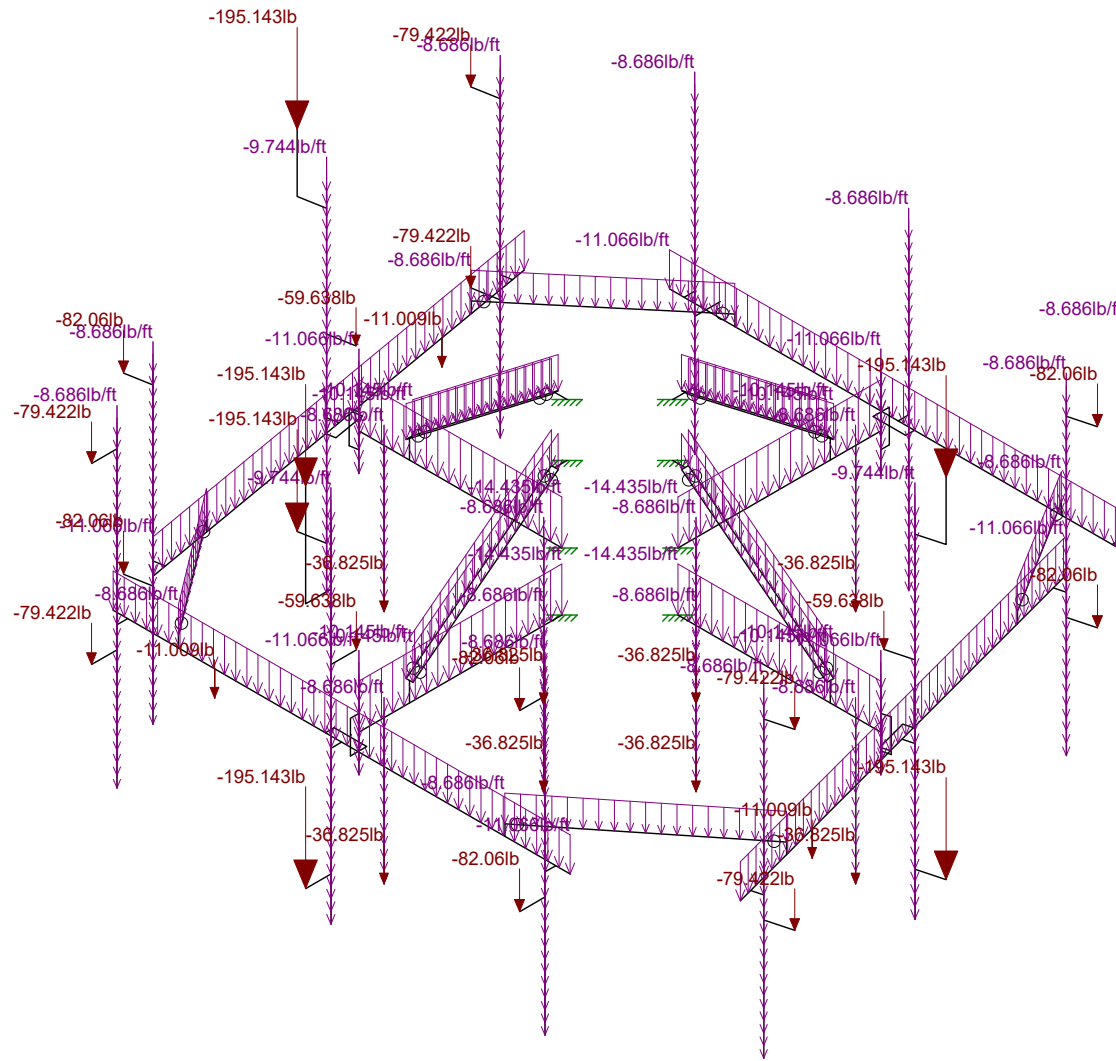
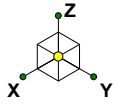


Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

CLS
JLS
41124-12927178-01-MA-R1

41124-12927178-Middlefield CT
Joint Loads - Dead and Normal Wind

SK - 5
July 3, 2019 at 3:04 PM
41124-12927178-01-MA-R1.r3d

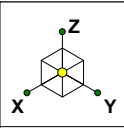


Loads: BLC 2, Ice Dead
Envelope Only Solution

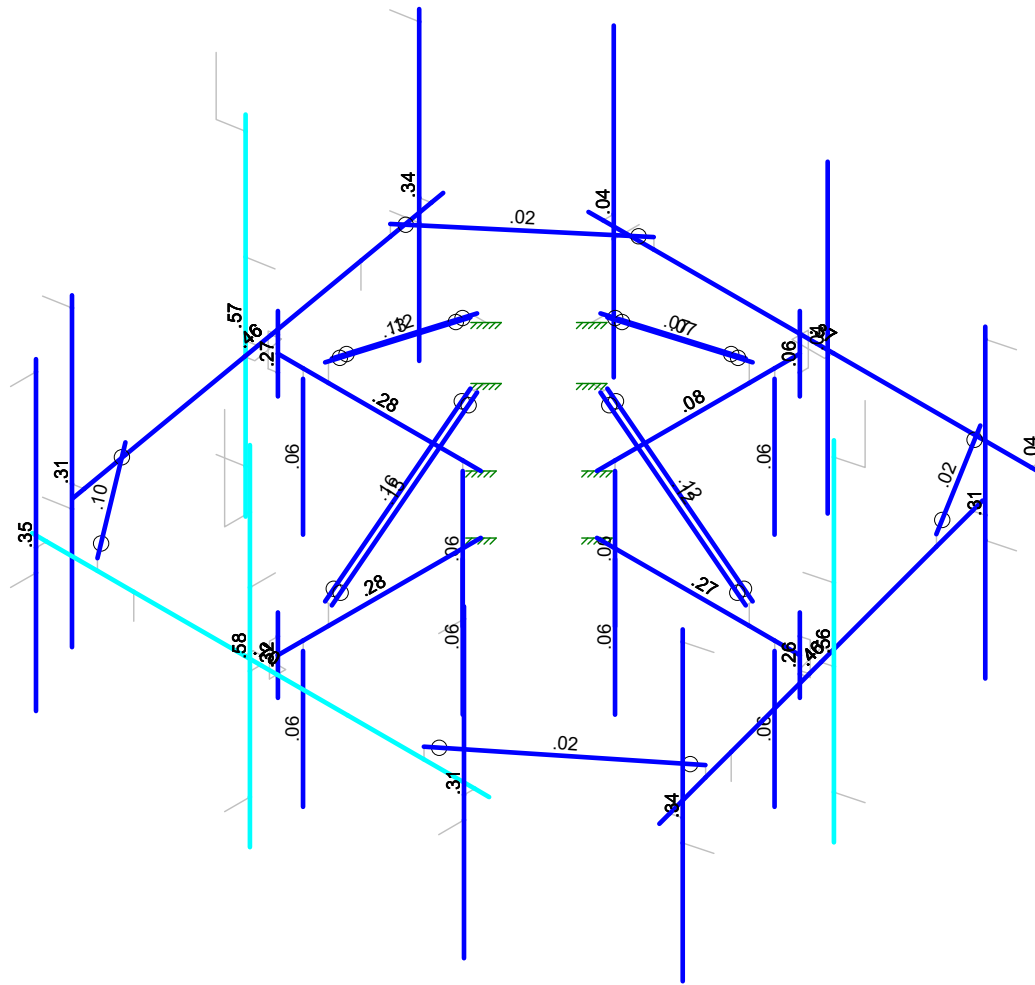
CLS
JLS
41124-12927178-01-MA-R1

41124-12927178-Middlefield CT
Ice Dead Loads

SK - 7
July 3, 2019 at 3:04 PM
41124-12927178-01-MA-R1.r3d

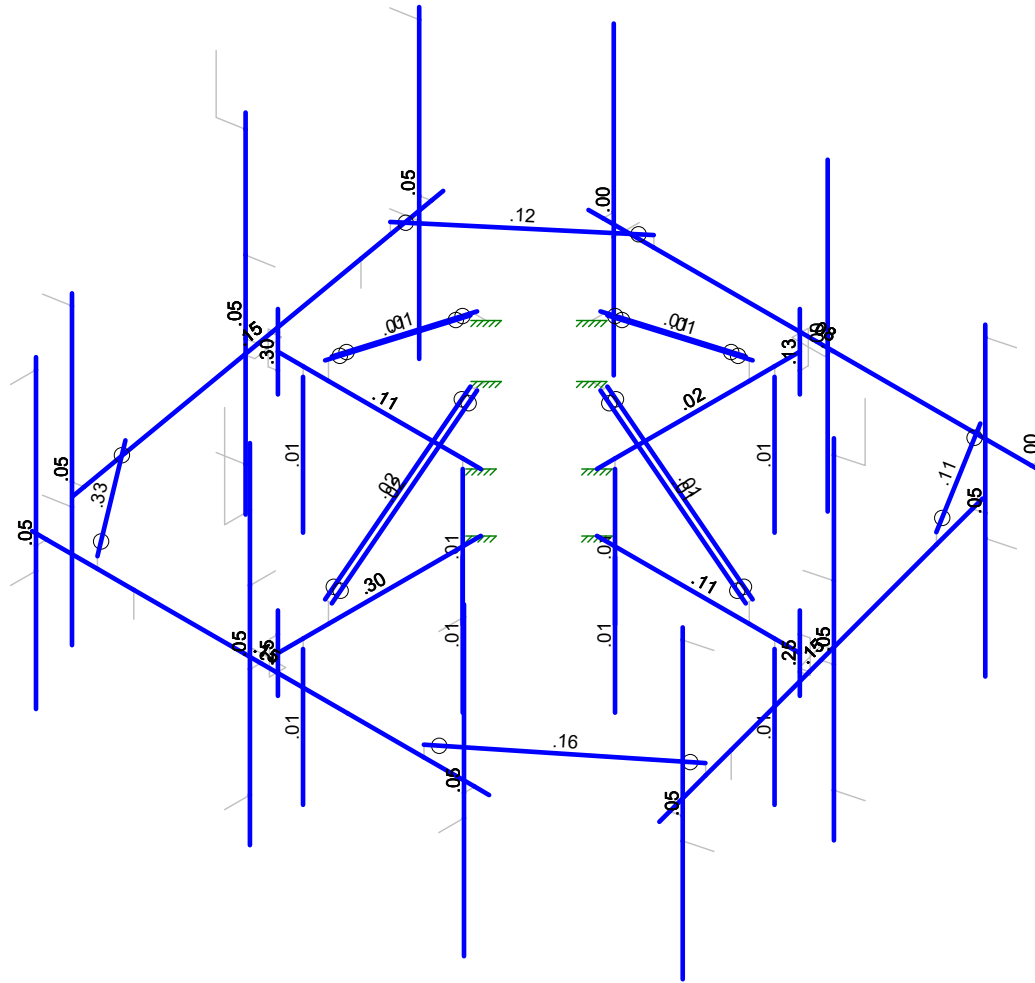
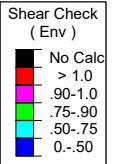
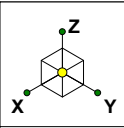


Code Check (Env)	
Black	No Calc
Red	> 1.0
Pink	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927178-Middlefield CT Envelope Member Unity Check Results - Bending	SK - 8
JLS		July 3, 2019 at 3:04 PM
41124-12927178-01-MA-R1		41124-12927178-01-MA-R1.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS
JLS
41124-12927178-01-MA-R1

41124-12927178-Middlefield CT
Envelope Member Check Results - Shear

SK - 9
July 3, 2019 at 3:05 PM
41124-12927178-01-MA-R1.r3d

Basic Load Cases

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distributed	Area(Member)	Surfac...
1	Dead	DL			-1	32				
2	Ice Dead	RL				32		44		
4	Structure Wind 0°	None						42		
5	Structure Wind 30°	None						88		
6	Structure Wind 45°	None						88		
7	Structure Wind 60°	None						88		
8	Structure Wind 90°	None						40		
9	Structure Wind 120°	None						88		
10	Structure Wind 135°	None						88		
11	Structure Wind 150°	None						88		
12	Structure Wind w/ Ice 0°	None						42		
13	Structure Wind w/ Ice 30°	None						88		
14	Structure Wind w/ Ice 45°	None						88		
15	Structure Wind w/ Ice 60°	None						88		
16	Structure Wind w/ Ice 90°	None						40		
17	Structure Wind w/ Ice 120°	None						88		
18	Structure Wind w/ Ice 135°	None						88		
19	Structure Wind w/ Ice 150°	None						88		
20	Antenna Wind 0°	None				32				
21	Antenna Wind 30°	None				64				
22	Antenna Wind 45°	None				64				
23	Antenna Wind 60°	None				64				
24	Antenna Wind 90°	None				32				
25	Antenna Wind 120°	None				64				
26	Antenna Wind 135°	None				64				
27	Antenna Wind 150°	None				64				
28	Antenna Wind w/ Ice 0°	None				32				
29	Antenna Wind w/ Ice 30°	None				64				
30	Antenna Wind w/ Ice 45°	None				64				
31	Antenna Wind w/ Ice 60°	None				64				
32	Antenna Wind w/ Ice 90°	None				32				
33	Antenna Wind w/ Ice 120°	None				64				
34	Antenna Wind w/ Ice 135°	None				64				
35	Antenna Wind w/ Ice 150°	None				64				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				
41	Maintenance Live 500 (3)	OL3				1				

Load Combinations

	Description	S...P...S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DISPLAY (1.0D + ...Y...	Y	DL	1	20	1														
2	1.4D	Y	DL	1.4																
3	1.2D + 1.0W 0°	Y...	DL	1.2	4	1	20	1												
4	1.2D + 1.0W_30°	Y...	DL	1.2	5	1	21	1												
5	1.2D + 1.0W_45°	Y...	DL	1.2	6	1	22	1												
6	1.2D + 1.0W_60°	Y...	DL	1.2	7	1	23	1												
7	1.2D + 1.0W_90°	Y...	DL	1.2	8	1	24	1												
8	1.2D + 1.0W_120°	Y...	DL	1.2	9	1	25	1												
9	1.2D + 1.0W_135°	Y...	DL	1.2	10	1	26	1												
10	1.2D + 1.0W_150°	Y...	DL	1.2	11	1	27	1												
11	1.2D + 1.0W_180°	Y...	DL	1.2	4	-1	20	-1												
12	1.2D + 1.0W_210°	Y...	DL	1.2	5	-1	21	-1												
13	1.2D + 1.0W_225°	Y...	DL	1.2	6	-1	22	-1												
14	1.2D + 1.0W_240°	Y...	DL	1.2	7	-1	23	-1												

Load Combinations (Continued)

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
15	1.2D + 1.0W 270°	Y...	Y		DL	1.2	8	-1	24	-1										
16	1.2D + 1.0W 300°	Y...	Y		DL	1.2	9	-1	25	-1										
17	1.2D + 1.0W 315°	Y...	Y		DL	1.2	10	-1	26	-1										
18	1.2D + 1.0W 330°	Y...	Y		DL	1.2	11	-1	27	-1										
19	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	12	1	28	1	RL	1								
20	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	13	1	29	1	RL	1								
21	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	14	1	30	1	RL	1								
22	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	15	1	31	1	RL	1								
23	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	16	1	32	1	RL	1								
24	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	17	1	33	1	RL	1								
25	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	18	1	34	1	RL	1								
26	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	19	1	35	1	RL	1								
27	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	12	-1	28	-1	RL	1								
28	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	13	-1	29	-1	RL	1								
29	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	14	-1	30	-1	RL	1								
30	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	15	-1	31	-1	RL	1								
31	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	16	-1	32	-1	RL	1								
32	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	17	-1	33	-1	RL	1								
33	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	18	-1	34	-1	RL	1								
34	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	19	-1	35	-1	RL	1								
35	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	4	.061	20	.061	O...	1.5								
36	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	5	.061	21	.061	O...	1.5								
37	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	6	.061	22	.061	O...	1.5								
38	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	7	.061	23	.061	O...	1.5								
39	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	8	.061	24	.061	O...	1.5								
40	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	9	.061	25	.061	O...	1.5								
41	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	10	.061	26	.061	O...	1.5								
42	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	11	.061	27	.061	O...	1.5								
43	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	4	-.061	20	-.061	O...	1.5								
44	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	5	-.061	21	-.061	O...	1.5								
45	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	6	-.061	22	-.061	O...	1.5								
46	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	7	-.061	23	-.061	O...	1.5								
47	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	8	-.061	24	-.061	O...	1.5								
48	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	9	-.061	25	-.061	O...	1.5								
49	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	10	-.061	26	-.061	O...	1.5								
50	1.2D + 1.5Lm 1 +...	Y...	Y		DL	1.2	11	-.061	27	-.061	O...	1.5								
51	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	4	.061	20	.061	O...	1.5								
52	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	5	.061	21	.061	O...	1.5								
53	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	6	.061	22	.061	O...	1.5								
54	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	7	.061	23	.061	O...	1.5								
55	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	8	.061	24	.061	O...	1.5								
56	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	9	.061	25	.061	O...	1.5								
57	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	10	.061	26	.061	O...	1.5								
58	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	11	.061	27	.061	O...	1.5								
59	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	4	-.061	20	-.061	O...	1.5								
60	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	5	-.061	21	-.061	O...	1.5								
61	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	6	-.061	22	-.061	O...	1.5								
62	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	7	-.061	23	-.061	O...	1.5								
63	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	8	-.061	24	-.061	O...	1.5								
64	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	9	-.061	25	-.061	O...	1.5								
65	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	10	-.061	26	-.061	O...	1.5								
66	1.2D + 1.5Lm 2 +...	Y...	Y		DL	1.2	11	-.061	27	-.061	O...	1.5								
67	1.2D + 1.5Lm 3 +...	Y...	Y		DL	1.2	4	.061	20	.061	O...	1.5								
68	1.2D + 1.5Lm 3 +...	Y...	Y		DL	1.2	5	.061	21	.061	O...	1.5								
69	1.2D + 1.5Lm 3 +...	Y...	Y		DL	1.2	6	.061	22	.061	O...	1.5								
70	1.2D + 1.5Lm 3 +...	Y...	Y		DL	1.2	7	.061	23	.061	O...	1.5								
71	1.2D + 1.5Lm 3 +...	Y...	Y		DL	1.2	8	.061	24	.061	O...	1.5								

Load Combinations (Continued)

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	
72	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	9	.061	25	.061	O...	1.5											
73	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	10	.061	26	.061	O...	1.5											
74	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	11	.061	27	.061	O...	1.5											
75	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	4	-.061	20	-.061	O...	1.5											
76	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	5	-.061	21	-.061	O...	1.5											
77	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	6	-.061	22	-.061	O...	1.5											
78	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	7	-.061	23	-.061	O...	1.5											
79	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	8	-.061	24	-.061	O...	1.5											
80	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	9	-.061	25	-.061	O...	1.5											
81	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	10	-.061	26	-.061	O...	1.5											
82	1.2D + 1.5Lm_3 +...Y...	Y		Y	DL	1.2	11	-.061	27	-.061	O...	1.5											

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	A500 GR.C RND	29000	11154	.3	.65	.49	46	1.5	58	1.3
9	A500 GR.C RECT	29000	11154	.3	.65	.49	50	1.5	58	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Main Offset tube	HSS4X4X4	Beam	None	A500 Gr....	Typical	3.37	7.8	7.8	12.8
3	Main Face Pipe	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	Vertical pipe	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	Support Platform pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	MOD Mount Pipe	PIPE 2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
7	MOD PRK	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011
8	MOD Bracing Plpe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M38	Main Offset ...	55.95			Lbyy						Lateral
2	M45	Main Face ...	126			Lbyy						Lateral
3		Vertical pipe	20.4			Lbyy						Lateral
4	M139	MOD Mount...	96			Lbyy						Lateral
5	M44A	Support Pla...	37.2			Lbyy						Lateral
6	M45A	Support Pla...	37.2			Lbyy						Lateral
7	M42D	Mount Pipe	84			Lbyy						Lateral
8	M43B	Mount Pipe	84			Lbyy						Lateral
9	M31	Main Offset ...	55.95			Lbyy						Lateral
10	M32	Main Face ...	126			Lbyy						Lateral
11	M36	Vertical pipe	20.4			Lbyy						Lateral
12	M37	MOD Mount...	96			Lbyy						Lateral
13	M44	Support Pla...	37.2			Lbyy						Lateral
14	M45B	Support Pla...	37.2			Lbyy						Lateral
15	M47A	Mount Pipe	84			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torg...	Kyy	Kzz	Cb	Function
16	M48	Mount Pipe	84			Lbyy						Lateral
17	M60	Main Offset ...	55.95			Lbyy						Lateral
18	M61	Main Face ...	126			Lbyy						Lateral
19	M65	Vertical pipe	20.4			Lbyy						Lateral
20	M66	Mount Pipe	84			Lbyy						Lateral
21	M73	Support Pla...	37.2			Lbyy						Lateral
22	M74	Support Pla...	37.2			Lbyy						Lateral
23	M76	Mount Pipe	84			Lbyy						Lateral
24	M77	Mount Pipe	84			Lbyy						Lateral
25	M89	Main Offset ...	55.95			Lbyy						Lateral
26	M90	Main Face ...	126			Lbyy						Lateral
27	M94	Vertical pipe	20.4			Lbyy						Lateral
28	M95	MOD Mount...	96			Lbyy						Lateral
29	M102	Support Pla...	37.2			Lbyy						Lateral
30	M103	Support Pla...	37.2			Lbyy						Lateral
31	M105	Mount Pipe	84			Lbyy						Lateral
32	M106	Mount Pipe	84			Lbyy						Lateral
33	PR5	MOD PRK	50.531									Lateral
34	PR6	MOD PRK	50.531									Lateral
35	M119	MOD PRK	50.531									Lateral
36	M120	MOD PRK	50.531									Lateral
37	M125	MOD PRK	50.531									Lateral
38	M126	MOD PRK	50.531									Lateral
39	M131	MOD PRK	50.531									Lateral
40	M132	MOD PRK	50.531									Lateral
41	M141	MOD Bracin...	55.251			Lbyy						Lateral
42	M142	MOD Bracin...	39.535			Lbyy						Lateral
43	M143	MOD Bracin...	51.56			Lbyy						Lateral
44	M144	MOD Bracin...	37.682			Lbyy						Lateral

Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	N33	max	4392.452	19	1007.272	14	432.233	1	2903.385	39	1349.108	11	3571.913	14
2		min	285.099	11	-1014.909	6	-1002.061	11	-3267.378	78	-623.97	3	-3600.615	6
3	N164	max	941.058	18	-306.98	15	373.401	7	1341.245	15	1093.041	4	3209.7	18
4		min	-936.986	10	-4378.507	23	-995.824	15	-574.605	7	-871.179	12	-3192.797	10
5	N64	max	846.926	4	4338.625	31	350.459	15	545.54	15	953.377	4	3075.879	12
6		min	-856.477	12	353.307	7	-945.009	7	-1277.686	7	-1187.662	12	-3027.759	4
7	N114	max	746.5	3	447.651	14	62.97	12	60.137	18	139.251	11	1022.996	7
8		min	-1705.101	11	-453.042	6	-111.514	4	-112.229	10	-262.735	3	-1007.084	15
9	P5	max	-446.878	1	88.035	15	3303.422	27	232.935	46	-100.27	1	297.947	46
10		min	-4229.706	27	-87.578	7	356.516	1	-263.53	70	-929.087	27	-337.288	71
11	N216	max	86.222	3	4217.196	31	3293.812	31	-160.784	7	76.437	8	89.785	17
12		min	-85.94	11	693.192	7	571.677	7	-926.385	31	-58.771	14	-113.258	9
13	N200A	max	85.987	3	-723.853	15	3261.571	23	917.317	23	33.527	12	66.004	12
14		min	-86.322	11	-4175.188	23	595.285	15	167.424	15	-50.25	4	-87.933	4
15	N208	max	1361.047	21	81.782	15	1099.124	21	15.856	15	309.129	21	50.488	7
16		min	346.401	12	-81.778	7	310.412	12	-20.688	7	87.303	12	-44.305	15
17	Totals:	max	5486.79	3	5929.572	15	8145.269	34						
18		min	-5486.795	11	-5929.569	7	2681.986	1						

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn....	Eqn
1	M45	PIPE 3.0	.697	67.642	77	.153	67.642	12	36138.4	65205	5748.75	5748.75...	H1-1b
2	M139	PIPE 2.5	.579	53.558	3	.049	54.568	5	30038...	50715	3596.25	3596.25...	H1-1b
3	M95	PIPE 2.5	.570	53.558	7	.049	54.568	8	30038...	50715	3596.25	3596.25...	H1-1b
4	M37	PIPE 2.5	.558	53.558	14	.049	54.568	12	30038...	50715	3596.25	3596.25...	H1-1b
5	M90	PIPE 3.0	.464	67.642	16	.154	58.358	14	36138.4	65205	5748.75	5748.75...	H1-1b
6	M32	PIPE 3.0	.460	67.642	7	.154	67.642	7	36138.4	65205	5748.75	5748.75...	H1-1b
7	M61	PIPE 3.0	.368	67.642	4	.077	58.358	18	36138.4	65205	5748.75	5748.75...	H1-1b
8	M43B	PIPE 2.0	.347	44.211	11	.054	44.211	15	17855...	32130	1871.6...	1871.6....	H1-1b
9	M106	PIPE 2.0	.344	44.211	15	.054	44.211	3	17855...	32130	1871.6...	1871.6....	H1-1b
10	M48	PIPE 2.0	.341	44.211	7	.054	44.211	11	17855...	32130	1871.6...	1871.6....	H1-1b
11		PIPE 3.0	.318	10.093	77	.249	10.093	12	64204...	65205	5748.75	5748.75...	H1-1b
12	M42D	PIPE 2.0	.311	44.211	11	.049	44.211	7	17855...	32130	1871.6...	1871.6....	H1-1b
13	M105	PIPE 2.0	.308	44.211	15	.049	44.211	10	17855...	32130	1871.6...	1871.6....	H1-1b
14	M47A	PIPE 2.0	.305	44.211	6	.049	44.211	18	17855...	32130	1871.6...	1871.6....	H1-1b
15	M89	HSS4X4X4	.281	42.404	31	.113	49.472	y 4	12738...	139518	16180.5	16180.5...	H1-1b
16	M38	HSS4X4X4	.276	42.404	27	.300	42.404	y 78	12738...	139518	16180.5	16180.5...	H1-1b
17	M31	HSS4X4X4	.273	42.404	23	.114	49.472	y 12	12738...	139518	16180.5	16180.5...	H1-1b
18	M94	PIPE 3.0	.272	10.093	15	.300	10.093	14	64204...	65205	5748.75	5748.75...	H1-1b
19	M36	PIPE 3.0	.258	10.093	7	.248	10.093	8	64204...	65205	5748.75	5748.75...	H1-1b
20	PR6	L2.5x2.5x3	.162	25.532	69	.017	50.531	y 80	16255...	29192.4	872.574	1734.1....	H2-1
21	PR5	L2.5x2.5x3	.152	25.532	44	.017	50.531	z 80	16255...	29192.4	872.574	1734.1....	H2-1
22	M131	L2.5x2.5x3	.126	25.532	31	.014	50.531	y 3	16255...	29192.4	872.574	1734.1....	H2-1
23	M119	L2.5x2.5x3	.122	25.532	28	.014	50.531	y 12	16255...	29192.4	872.574	1734.1....	H2-1
24	M132	L2.5x2.5x3	.120	25.532	25	.014	50.531	z 3	16255...	29192.4	872.574	1734.1....	H2-1
25	M120	L2.5x2.5x3	.118	25.532	22	.014	50.531	z 12	16255...	29192.4	872.574	1734.1....	H2-1
26	M142	PIPE 2.0	.104	21.224	81	.333	39.535	81	28209...	32130	1871.6...	1871.6....	H3-6
27	M60	HSS4X4X4	.084	42.404	21	.022	42.404	y 26	12738...	139518	16180.5	16180.5...	H1-1b
28	M125	L2.5x2.5x3	.068	25.532	7	.006	50.531	y 15	16255...	29192.4	872.574	1734.1....	H2-1
29	M126	L2.5x2.5x3	.066	25.532	15	.006	50.531	z 15	16255...	29192.4	872.574	1734.1....	H2-1
30	M65	PIPE 3.0	.064	10.093	3	.128	10.093	4	64204...	65205	5748.75	5748.75...	H1-1b
31	M45A	PIPE 2.0	.060	0	11	.005	0	11	28633...	32130	1871.6...	1871.6....	H1-1b
32	M103	PIPE 2.0	.060	0	15	.005	0	15	28633...	32130	1871.6...	1871.6....	H1-1b
33	M45B	PIPE 2.0	.060	0	7	.005	0	7	28633...	32130	1871.6...	1871.6....	H1-1b
34	M74	PIPE 2.0	.060	0	3	.005	0	3	28633...	32130	1871.6...	1871.6....	H1-1b
35	M73	PIPE 2.0	.060	0	11	.005	0	11	28633...	32130	1871.6...	1871.6....	H1-1b
36	M44	PIPE 2.0	.060	0	15	.005	0	15	28633...	32130	1871.6...	1871.6....	H1-1b
37	M102	PIPE 2.0	.060	0	7	.005	0	7	28633...	32130	1871.6...	1871.6....	H1-1b
38	M44A	PIPE 2.0	.060	0	3	.005	0	3	28633...	32130	1871.6...	1871.6....	H1-1b
39	M77	PIPE 2.0	.040	44.211	5	.004	44.211	5	17855...	32130	1871.6...	1871.6....	H1-1b
40	M76	PIPE 2.0	.040	44.211	18	.004	44.211	18	17855...	32130	1871.6...	1871.6....	H1-1b
41	M66	PIPE 2.0	.036	41.558	3	.004	41.558	3	17855...	32130	1871.6...	1871.6....	H1-1b
42	M141	PIPE 2.0	.024	27.916	9	.160	55.251	37	24918...	32130	1871.6...	1871.6....	H1-1b
43	M143	PIPE 2.0	.024	26.052	18	.123	0	17	25750...	32130	1871.6...	1871.6....	H1-1b
44	M144	PIPE 2.0	.020	0	4	.110	0	6	28547...	32130	1871.6...	1871.6....	H1-1b*

Exhibit F

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: CTHA244A

**CTHA244/VerizonMiddlefiel
484 Meriden Road
Middlefield, Connecticut 06455**

June 3, 2019

EBI Project Number: 6219001990

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	9.05%

June 3, 2019

T-Mobile

Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTHA244A - CTHA244/VerizonMiddlefiel

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **484 Meriden Road in Middlefield, 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 484 Meriden Road in Middlefield, 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) 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.
- 3) 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.
- 4) 2 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.
- 5) 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.

- 6) 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.
- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna 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.
- 9) The antennas used in this modeling are the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 1900 MHz / 2100 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.
- 10) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).
- 11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 12) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 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):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A1 MPE %:	1.13%	Antenna B1 MPE %:	1.13%	Antenna C1 MPE %:	1.13%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	1.05%	Antenna B2 MPE %:	1.05%	Antenna C2 MPE %:	1.05%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR32 B66A_B2A	Make / Model:	Ericsson AIR32 B66A_B2A	Make / Model:	Ericsson AIR32 B66A_B2A
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 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 %:	1.60%	Antenna B3 MPE %:	1.60%	Antenna C3 MPE %:	1.60%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	3.79%
Verizon	3.3%
AT&T	1.96%
Site Total MPE % :	9.05%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	3.79%
T-Mobile Sector B Total:	3.79%
T-Mobile Sector C Total:	3.79%
Site Total MPE % :	
	9.05%

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	1028.30	140.0	7.54	1900 MHz GSM	1000	0.75%
T-Mobile 2100 MHz UMTS	2	1028.30	140.0	3.77	2100 MHz UMTS	1000	0.38%
T-Mobile 600 MHz LTE	2	591.73	140.0	2.17	600 MHz LTE	400	0.54%
T-Mobile 700 MHz LTE	2	648.82	140.0	2.38	700 MHz LTE	467	0.51%
T-Mobile 1900 MHz LTE PCS	2	2056.61	140.0	7.54	1900 MHz LTE PCS	1000	0.75%
T-Mobile 2100 MHz LTE AWS	2	2307.55	140.0	8.47	2100 MHz LTE AWS	1000	0.85%
						Total:	3.79%

• 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:	3.79%
Sector B:	3.79%
Sector C:	3.79%
T-Mobile Maximum MPE % (Sector A):	3.79%
Site Total:	9.05%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **9.05%** 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 G

Mailing Receipts/Proof of Notice

UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. GETTING YOUR SHIPMENT TO UPS

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.

Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.


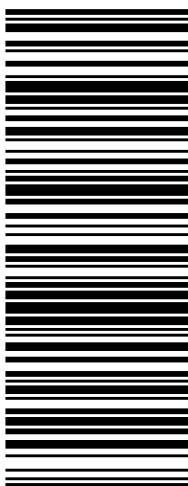

Hand the package to any UPS driver in your area.

UPS Access Point™
THE UPS STORE
115 FRANKLIN TPKE
MAHWAH ,NJ 07430

UPS Access Point™
THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

UPS Access Point™
POSTNET NY137
74 LAFAYETTE AVE
SUFFERN ,NY 10901

FOLD HERE

<p>NEIL GUERRIERO 3473040176 TRANSCEND WIRELESS 10 INDUSTRIAL AVE MAHWAH NJ 07430</p> <p>SHIP TO: JERRY RUSS TOWN OF MIDDLEFIELD POB 179 393 JACKSON HILL ROAD MIDDLEFIELD CT 06455-1240</p>	<p style="text-align: right;">1 OF 1</p> <p style="text-align: center;">CT 061 9-01</p> 	<p style="text-align: center;">UPS GROUND</p> <p>TRACKING #: 1Z V25 742 03 9006 1599</p> 	<p style="text-align: center;">BILLING: P/P</p> <p>Reference#1: CTHA244A Reference#2: UPS-Planner</p> <p style="text-align: center;"></p> <p style="text-align: center; font-size: small;">UPS 21.5.24. WINTNVS0 15.0A 07/2019</p>
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1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. GETTING YOUR SHIPMENT TO UPS

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.

Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.


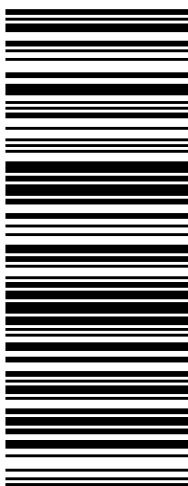

Hand the package to any UPS driver in your area.

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MAHWAH ,NJ 07430

UPS Access Point™
THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

UPS Access Point™
POSTNET NY137
74 LAFAYETTE AVE
SUFFERN ,NY 10901

FOLD HERE

<p>NEIL GUERRIERO 3473040176 TRANSCEND WIRELESS 10 INDUSTRIAL AVE MAHWAH NJ 07430</p> <p>SHIP TO: LAND MANAGMENT INC. 482 RT 66 & MEIRDEN RD MIDDLEFIELD CT 06455</p>	<p style="text-align: right;">1 OF 1</p> <p style="text-align: center;">CT 061 9-01</p> 	<p style="text-align: center;">UPS GROUND</p> <p>TRACKING #: 1Z V25 742 03 9062 3580</p> 	<p style="text-align: center;">BILLING: P/P</p> <p>Reference#1: CTHA244A Reference#2: UPS-Prop Owner</p> <p style="text-align: right; font-size: small;">UPS 21.5.24. WINTNVS0 15.0A 07/2019</p> 
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UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

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Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.

Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.

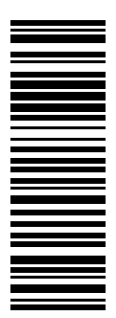
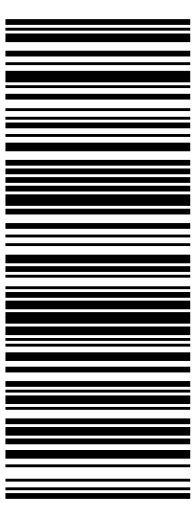

Hand the package to any UPS driver in your area.

UPS Access Point™
THE UPS STORE
115 FRANKLIN TPKE
MAHWAH ,NJ 07430

UPS Access Point™
THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

UPS Access Point™
POSTNET NY137
74 LAFAYETTE AVE
SUFFERN ,NY 10901

FOLD HERE

<p>NEIL GUERRIERO 3473040176 TRANSCEND WIRELESS 10 INDUSTRIAL AVE MAHWAH NJ 07430</p> <p>SHIP TO: CONTACTS MANAGEMENT AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN MA 01801-1053</p>	<p>1 OF 1</p> <p>1 LBS</p>	<p>MA 018 9-04</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z V25 742 03 9030 2604</p> 	<p>BILLING: P/P</p>	 <p>Reference#1: CTHA244A Reference#2: UPS-ATC</p> <p><small>UPS 21.5.22. WINTNVS0 12.0A 04/2019</small></p>
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UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. GETTING YOUR SHIPMENT TO UPS

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.

Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.

Hand the package to any UPS driver in your area.

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RAMSEY ,NJ 07446

UPS Access Point™
POSTNET NY137
74 LAFAYETTE AVE
SUFFERN ,NY 10901

FOLD HERE

<p>NEIL GUERRIERO 3473040176 TRANSCEND WIRELESS 10 INDUSTRIAL AVE MAHWAH NJ 07430</p> <p>SHIP TO: EDWARD P. BAILEY THE TOWN OF MIDDLEFIELD 405 MAIN STREET MIDDLEFIELD CT 06455-1268</p>	<p style="text-align: right;">1 OF 1</p> <p style="text-align: center;">CT 061 9-01</p> 	<p style="text-align: center;">UPS GROUND</p> <p>TRACKING #: 1Z V25 742 03 9079 8624</p> 
<p>BILLING: P/P</p>		
<p>Reference#1: CTHA244A Reference#2: UPS-Mayor</p> <p>UPS 21.5.22. WINTNVS0 12.0A 04/2019</p> 