



10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

August 12, 2019

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
202 N. Wawecus Hill Rd. Norwich , CT 06360
Latitude: 41.527100
Longitude: -72.122600
T-Mobile Site#: CT11463C – L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 137-foot level of the existing 140-foot monopole tower at 202 Wawecus Hill Road, Norwich, CT. The 140-foot monopole tower is owned by American Tower. The property is owned by Micah Gentile. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 600/700 MHz antennas. The new antennas will be installed at the same 137-foot level of the tower. Mount modifications are also required as detailed in the enclosed mount analysis.

Planned Modifications:

Tower:

Remove

N/A

Remove and Replace:

(3) LNX-6515DS-A1M (remove) – Add (3) APXVAARR24_43-U-NA20 600/700 MHz

(3) RRUS11 B12 (remove) – Add (3) Ericsson Radio 4449 B12 B71

Install New:

(1) 1-5/8" hybrid

(1) 1-1/4" hybrid

Existing to Remain:

(3) AIR 21 B4A B2P

(3) AIR 21 B4P B2A

(1) 1-5/8" hybrid

(6) 1-5/8" coax

(3) TMA

Ground:

Install New: Equipment inside existing 6131 cabinet

This tower facility was originally approved by the Siting Council in Docket No. 270 on April 15, 2004. The proposed modification complies with the original approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor -Peter Nystrom Elected Official and Deanna Rhodes, Director Of Planning Development and Neighborhood Services for the City Of Norwich, as well as the owner.

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

1. The proposed 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,

Jonathan Machado

Transcend Wireless

Cell: 845-274-5116

Email: jmachado@transendwireless.com

Attachments

cc: Peter Nystrom – City Of Norwich Mayor

Deanna Rhodes– City Of Norwich Planning Development and Neighborhood Services

American Tower – Tower Owner

Micah Gentile - Property Owner

202 NORTH WAWECUS HILL RD

Location	202 NORTH WAWECUS HILL RD	Mblu	98/ 1/ 3/ 2/
		Acct#	0089200001
Owner	GENTILE MICAH N +	Assessment	\$235,300
Appraisal	\$336,100	PID	8789
Building Count	1		

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$226,500	\$109,600	\$336,100
Assessment			
Valuation Year	Improvements	Land	Total
2018	\$158,600	\$76,700	\$235,300

Parcel Addresses

Additional Addresses		
Address	City, State Zip	Type

202 NORTH WAWECUS HILL RD		Primary
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Owner of Record

Owner	GENTILE MICAH N + GENTILE TASHA N	Sale Price	\$340,000
Address	202 NORTH WAWECUS HILL RD NORWICH, CT 06360	Certificate	
		Book & Page	3030/0110
		Sale Date	08/17/2017
		Instrument	28

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
GENTILE MICAH N +	\$340,000		3030/0110	28	08/17/2017
POLASKI JOHN J JR	\$0		2964/0083	1N	06/06/2016
POLASKI JOHN J JR	\$0		0590/0144		01/03/1983

Building Information

Building 1 : Section 1

Year Built:	1979
Living Area:	2,921
Replacement Cost:	\$285,684
Building Percent	72
Good:	
Replacement Cost	
Less Depreciation:	\$205,700

Building Attributes

Whirlpool	
FPLG Gas	
FPLW Wood	
FPO	
park	

Code	Description	Gross Area	Living Area
BAS	First Floor	1,881	1,881
TQS	Three Quarter Story	1,300	1,040
CTH	Cath. Ceiling	140	0
FGR	Garage, Finished	483	0
FOP	Porch, Open, Finished	450	0
PTO	Patio	238	0
UBM	Basement, Unfinished	1,881	0
WDK	Deck, Wood	585	0
		6,958	2,921



Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use		Land Line Valuation	
Use Code	1010	Size (Acres)	5.17
Description	Single Family	Frontage	0
Zone	R80	Depth	0
Neighborhood	0040	Assessed Value	\$76,700
Alt Land Appr	No	Appraised Value	\$109,600

Category

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BRN3	Barn 1 St. w Lft			1887 S.F.	\$20,800	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$226,500	\$109,600	\$336,100
2017	\$209,143	\$102,714	\$311,857
2016	\$209,100	\$102,700	\$311,800

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$158,600	\$76,700	\$235,300
2017	\$146,400	\$71,900	\$218,300
2016	\$146,400	\$48,600	\$195,000

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City of Norwich, CT

Property

202 wawecus



CONNECTICUT SITING COUNCIL

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Melanie Bachman,
Executive Director

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DOCKET NO. 270 – New Cingular Wireless PCS, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at one of two locations at 202 North Wawecus Hill Road, Norwich, Connecticut.	} } }	Connecticut Siting Council April 15, 2004
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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 AT&T Wireless PCS d/b/a AT&T Wireless for the construction, maintenance and operation of a wireless telecommunications facility at Site B, 202 North Wawecus Hill Road, Norwich, Connecticut. The Council denies certification of Site A, also located at 202 North Wawecus Hill Road, Norwich, 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 AT&T Wireless PCS LLC and other entities, both public and private, but such tower shall not exceed a total height of 140 feet above ground level including antennas.
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) a detailed site development plan that depicts the location of the access road, compound, tower, utility line, erosion and sedimentation control features, and landscaping;
 - b) specifications for the tower, tower foundation, antennas, equipment building, and security fence; and
 - c) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. Prior to the commencement of operation, the Certificate Holder shall provide to the Council a 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 submit a revised electromagnetic radio frequency power density report to the Council 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. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided tower space is available and such antennas are compatible with the structural integrity of the tower.

6. If the facility ceases to provide wireless services for a period of one year, 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 cease 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 Norwich Bulletin.

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

- AT&T Wireless PCS, LLC
d/b/a AT&T Wireless

Its Representative

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
90 Maple Avenue
White Plains, New York 10601

Party

Mary C. Nasi-Graham
138 North Wawecus Hill Road
Norwich, CT 06360

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

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VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: NORWICH CT

ATC SITE NUMBER: 311014

T-MOBILE SITE ID: CT11463C

SITE ADDRESS: 202 N WAWECUS HILL RD
NORWICH, CT 06360



LOCATION MAP

T-MOBILE L600 ANTENNA AMENDMENT 67D02C CONFIGURATION

BIRD WATCH SITE:
PLEASE CONTACT BIRD.WATCH@AMERICANTOWER.COM OR
AMERICAN TOWER NOC AT 877-518-6937 FOR ASSISTANCE

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> 202 N WAWECUS HILL RD NORWICH, CT 06360 COUNTY: NEW LONDON <u>1A CERTIFICATE SUMMARY:</u> LATITUDE: 41° 31' 37.47" N LONGITUDE: 72° 07' 21.36" W GROUND ELEVATION: 295.0' AMSL TOWER HEIGHT: 140.8' AGL HIGHEST APPURTENANCE: 141.8' AGL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
		REMOVE (3) PANELS, AND (3) RRUs	G-001	TITLE SHEET	0	07/24/19	EF
		INSTALL (3) NEW PANELS, (3) RRUs, (1) 1-1/4" HYBRID CABLE, (1) 1-5/8" HYBRID CABLE, AND MOUNT MODIFICATIONS	G-002	GENERAL NOTES	0	07/24/19	EF
		EXISTING (3) TTAs, (6) PANELS, (1) 1-5/8" HYBRID CABLE, AND (6) 1-5/8" COAX CABLES TO REMAIN	C-101	DETAILED SITE PLAN & TOWER ELEVATION	0	07/24/19	EF
			C-501	ANTENNA INFORMATION & SCHEDULE	0	07/24/19	EF
			E-501	GROUNDING DETAILS	0	07/24/19	EF
			R-601	SUPPLEMENTAL			
			R-602	SUPPLEMENTAL			
		<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.	R-603	SUPPLEMENTAL			
			R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL						
<u>PROJECT TEAM</u> <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 <u>APPLICANT:</u> T-MOBILE 475 VIRGINIA DRIVE FORT WASHINGTON, PA 19034 <u>ENGINEER:</u> ATC TOWER SERVICES, LLC 3500 REGENCY PKWY STE 100 CARY, NC 27518 <u>PROPERTY OWNER:</u> POLASKI JOHN J JR 202 N. WAWECUS HILL RD NORWICH, CT, 06360	<u>PROJECT LOCATION DIRECTIONS</u> FROM HARTFORD CT TAKE RT EAST TOWARDS NORWICH. FROM RT 2 EAST TAKE I-395 SOUTH TO EXIT 80. TURN LEFT AT END OF RAMP. FOLLOW TO THE THIRD LIGHT AND TURN LEFT ONTO WAWECUS HILL ROAD. FOLLOW TO N. WAWECUS HILL ROAD AND TURN RIGHT. GO ABOUT 1/3 MILE AND LOOK FOR '202' SIGN ON TREE ON RIGHT. THERE ARE TWO GRAVEL DRIVES RIGHT NEXT TO EACH OTHER, TAKE THE DRIVEWAY ON THE RIGHT AND FOLLOW TO THE TOWER.						
UTILITY COMPANIES							
POWER COMPANY: NORWICH PUBLIC UTILITIES PHONE: (860) 887-2555							
TELEPHONE COMPANY: AT&T PHONE: (800) 288-2020							
 Know what's below. Call before you dig.							



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

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	EF	07/24/19

ATC SITE NUMBER:
311014

ATC SITE NAME:
NORWICH CT

SITE ADDRESS:
202 N WAWECUS HILL RD
NORWICH, CT 06360



Authorized by "EOR"
Jul 25 2019 10:12 AM


DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	07/24/19
ATC JOB NO:	12955882

TITLE SHEET	
SHEET NUMBER:	REVISION:
G-001	0

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 NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT 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 ½" 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.



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

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REV.	DESCRIPTION	BY	DATE
△	FOR CONSTRUCTION	EF	07/24/19
△			
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△			
△			

ATC SITE NUMBER:
311014

ATC SITE NAME:
NORWICH CT

SITE ADDRESS:
202 N WAWECUS HILL RD
NORWICH, CT 06360



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Jul 25 2019 10:12 AM

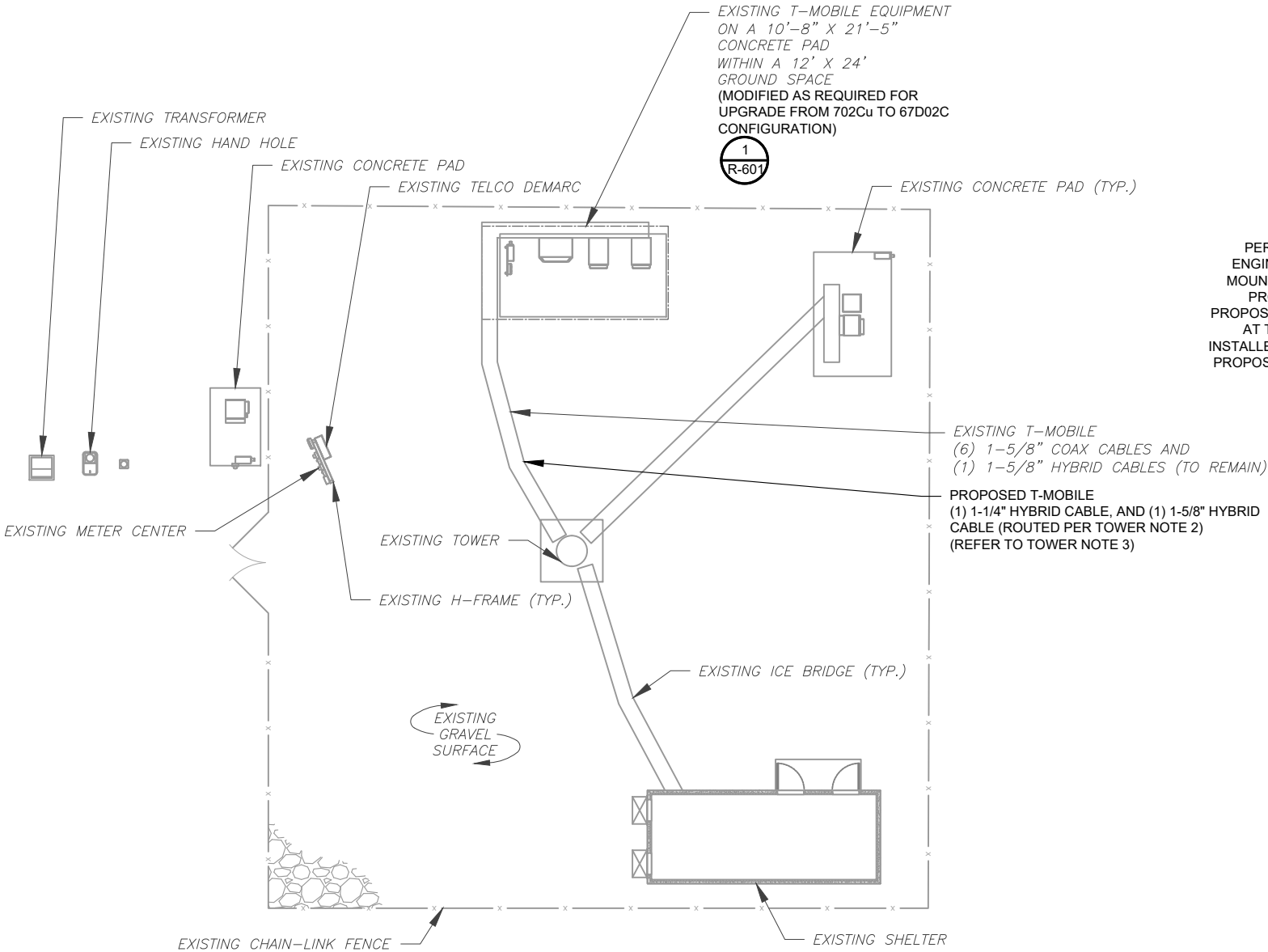

DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	07/24/19
ATC JOB NO:	12955882

GENERAL NOTES

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

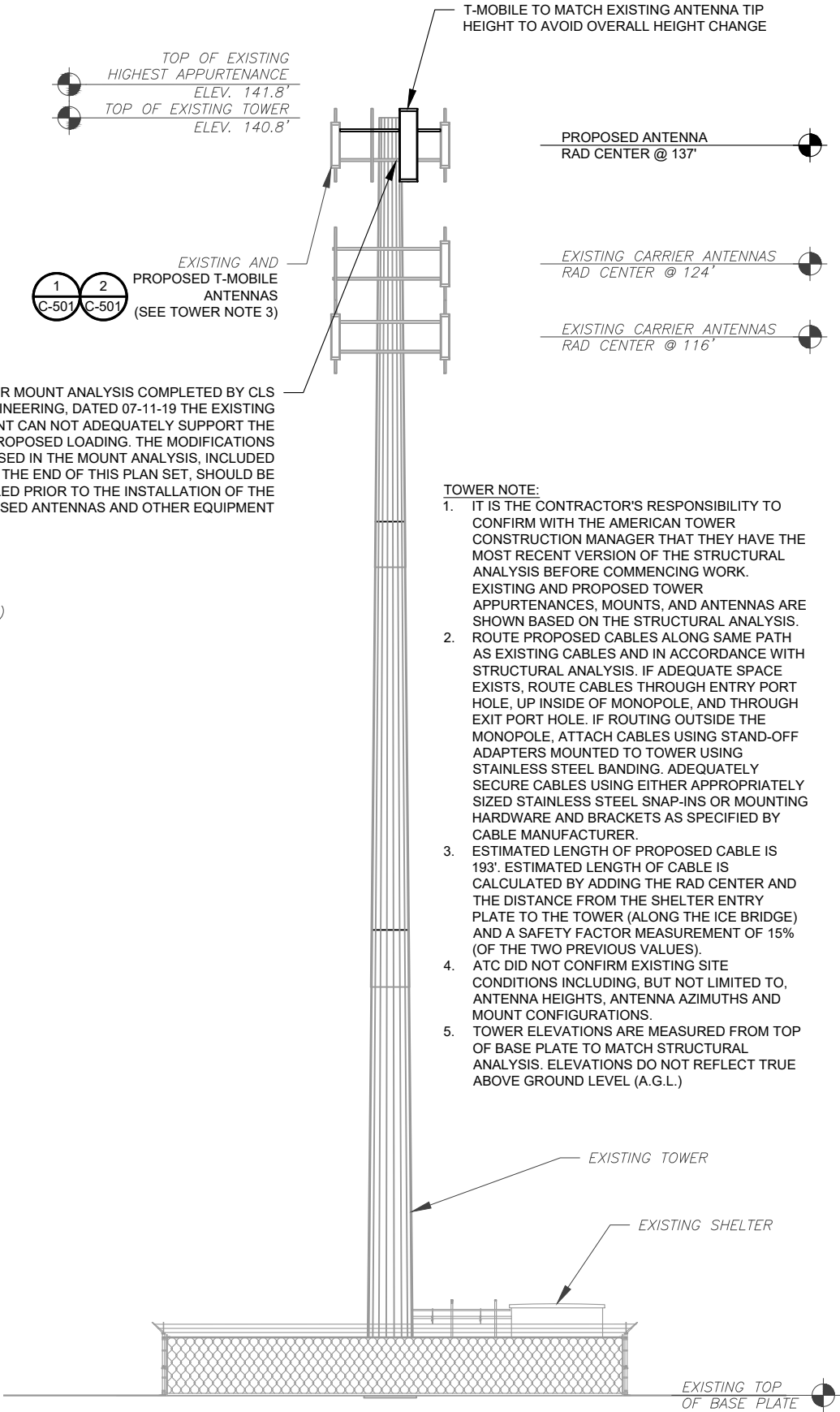
1.
- THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2.
- ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX 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.
- THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.



1 DETAILED SITE PLAN

0 20' 40'

SCALE: 1"=20' (11X17)
1"=10' (22X34)



2 TOWER ELEVATION

SCALE: NOT TO SCALE



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A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
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COA: PEC.0001553

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ATC SITE NUMBER:
311014

ATC SITE NAME:
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SITE ADDRESS:
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NORWICH, CT 06360

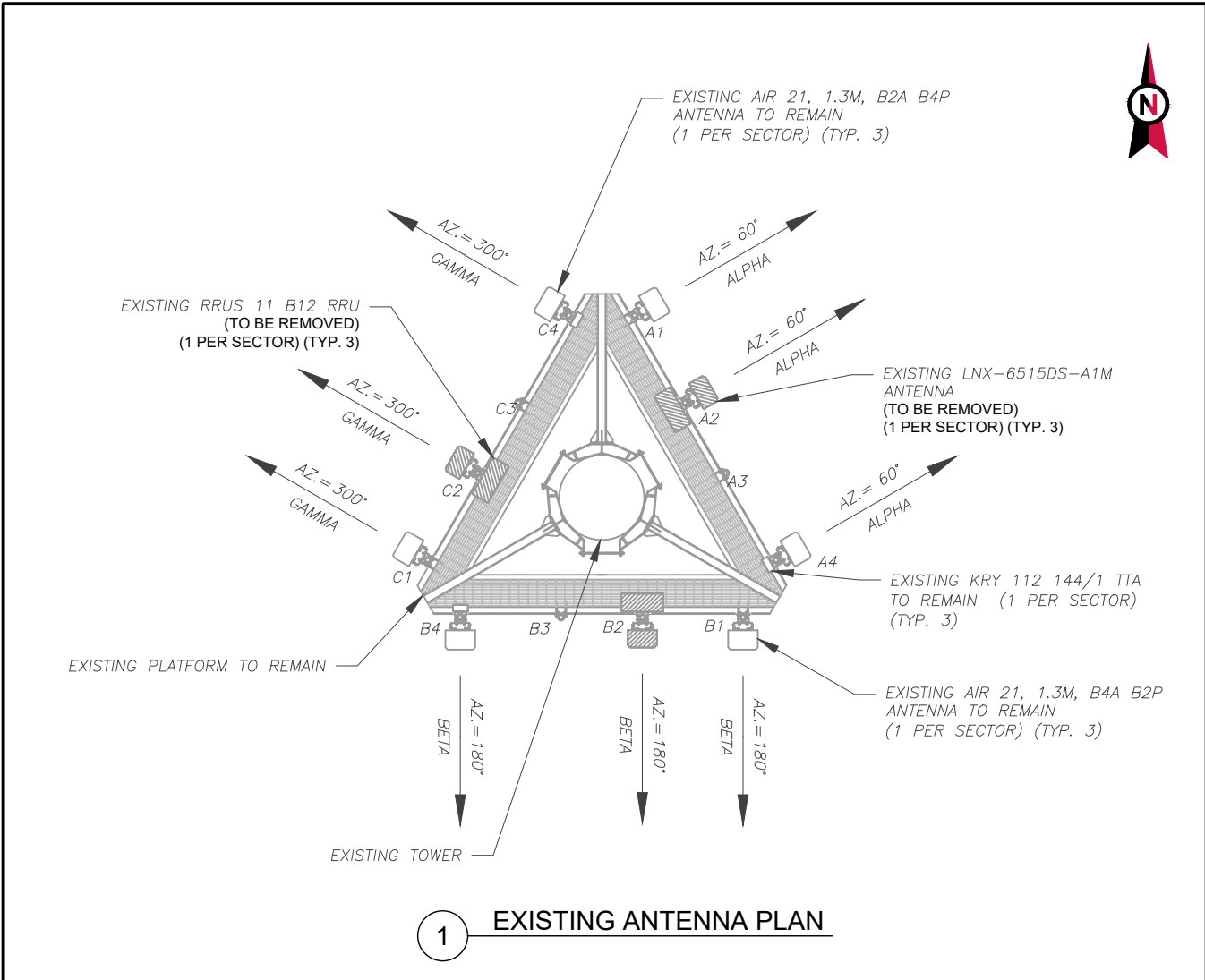


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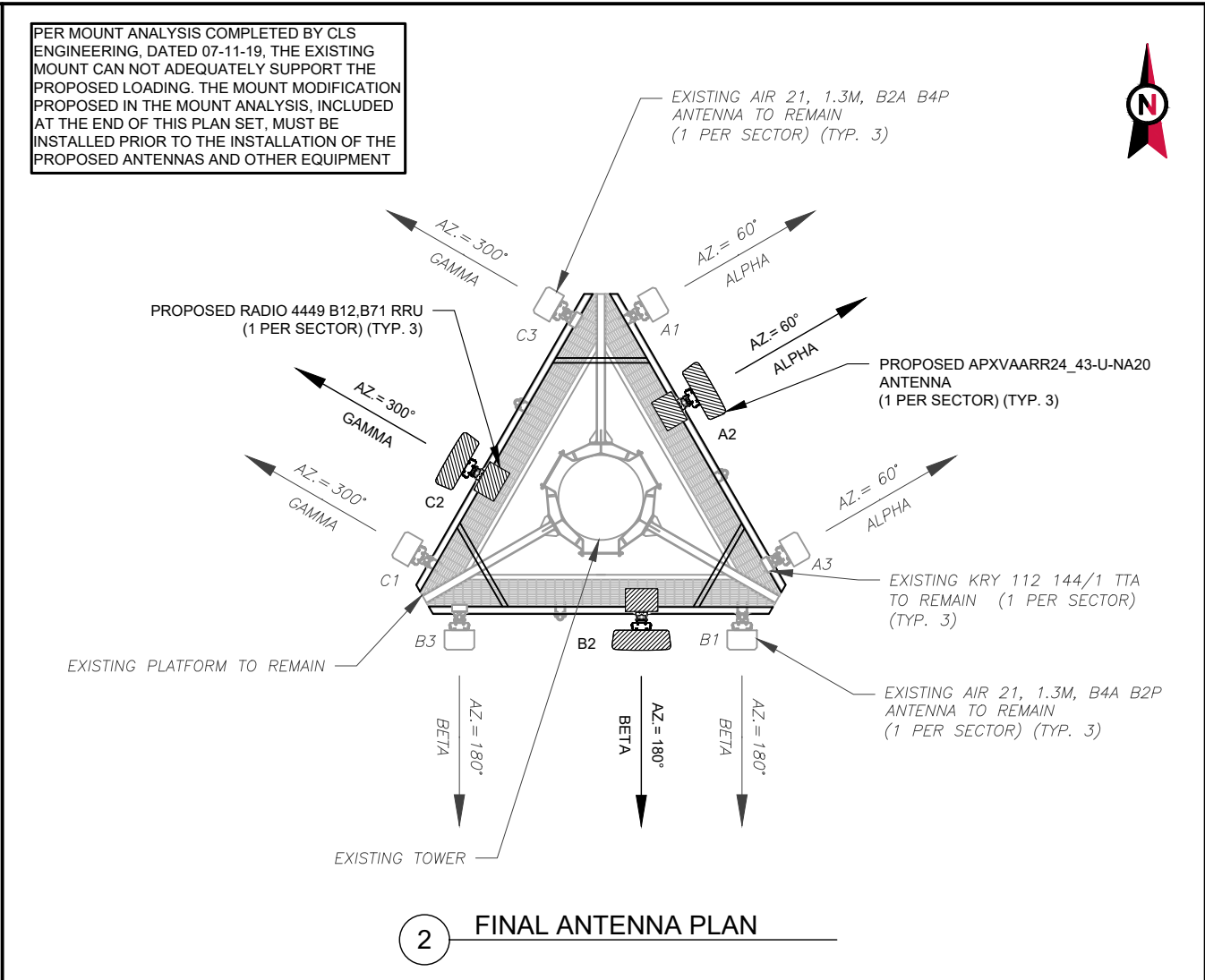

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APPROVED BY:	PB
DATE DRAWN:	07/24/19
ATC JOB NO:	12955882

DETAILED SITE PLAN & TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-101	0



1 EXISTING ANTENNA PLAN



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	AIR 21, 1.3M, B4A B2P	137'-0"	60°	-	2°	-
ALPHA	A2	LNX-6515DS-A1M	137'-0"	60°	0°	2°	RRUS 11 B12
ALPHA	A3	-	137'-0"	60°	-	-	-
ALPHA	A4	AIR 21, 1.3M, B2A B4P	137'-0"	60°	-	2°	KRY 112 144/1
BETA	B1	AIR 21, 1.3M, B4A B2P	137'-0"	180°	-	2°	-
BETA	B2	LNX-6515DS-A1M	137'-0"	180°	0°	2°	RRUS 11 B12
BETA	B3	-	137'-0"	180°	-	-	-
BETA	B4	AIR 21, 1.3M, B2A B4P	137'-0"	180°	-	2°	KRY 112 144/1
GAMMA	C1	AIR 21, 1.3M, B4A B2P	137'-0"	300°	-	2°	-
GAMMA	C2	LNX-6515DS-A1M	137'-0"	300°	0°	2°	RRUS 11 B12
GAMMA	C3	-	137'-0"	300°	-	-	-
GAMMA	C4	AIR 21, 1.3M, B2A B4P	137'-0"	300°	-	2°	KRY 112 144/1

- NOTES
1. BASED ON APPROVED ATC APPLICATION 12927124, DATED 03/11/2019. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
 2. 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.
 3. ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
 4. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
 5. 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, 1.3M, B4A B2P	137'-0"	60°	0°	2°	-
ALPHA	A2	APXVAARR24_43-U-NA20	137'-0"	60°	0°	2°	RADIO 4449 B12,B71
ALPHA	A3	-	137'-0"	60°	-	-	-
ALPHA	A4	AIR 21, 1.3M, B2A B4P	137'-0"	60°	0°	2°	KRY 112 144/1
BETA	B1	AIR 21, 1.3M, B4A B2P	137'-0"	180°	0°	2°	-
BETA	B2	APXVAARR24_43-U-NA20	137'-0"	180°	0°	2°	RADIO 4449 B12,B71
BETA	B3	-	137'-0"	180°	-	-	-
BETA	B4	AIR 21, 1.3M, B2A B4P	137'-0"	180°	0°	2°	KRY 112 144/1
GAMMA	C1	AIR 21, 1.3M, B4A B2P	137'-0"	300°	0°	2°	-
GAMMA	C2	APXVAARR24_43-U-NA20	137'-0"	300°	0°	2°	RADIO 4449 B12,B71
GAMMA	C3	-	137'-0"	300°	-	-	-
GAMMA	C4	AIR 21, 1.3M, B2A B4P	137'-0"	300°	0°	2°	KRY 112 144/1

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

3 ANTENNA SCHEDULE

CABLE LENGTHS FOR JUMPERS
FIBER DISTRIBUTION/OVP TO RRU: 15'
RRU TO COMBINER: 10'
COMBINER TO ANTENNA: 10'

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	(1) 1-5/8"	RMN
-	-	-	(1) 1-1/4" (1) 1-5/8"	ADD

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	EF	07/24/19

ATC SITE NUMBER:
311014

ATC SITE NAME:
NORWICH CT

SITE ADDRESS:
202 N WAWECUS HILL RD
NORWICH, CT 06360

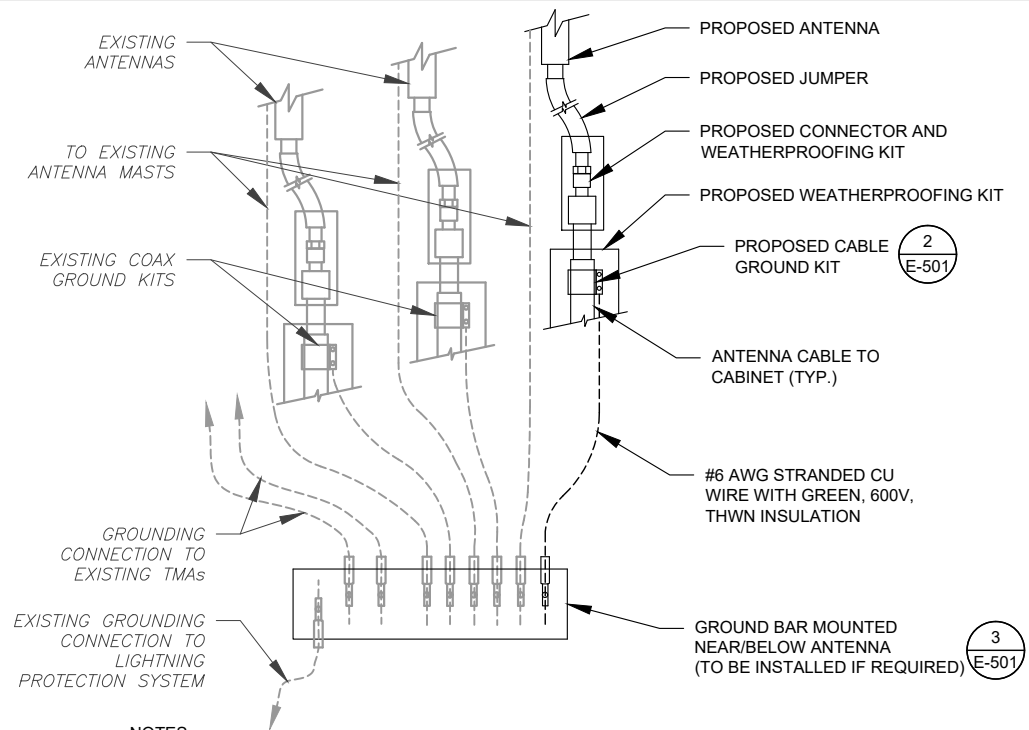
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DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	07/24/19
ATC JOB NO:	12955882

ANTENNA INFORMATION & SCHEDULE

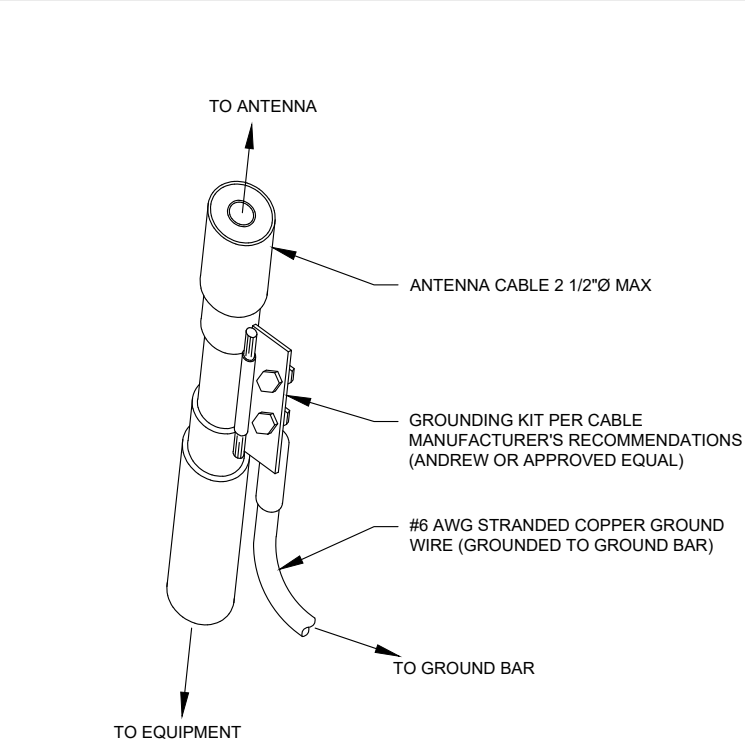
SHEET NUMBER: C-501	REVISION: 0
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NOTES:

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

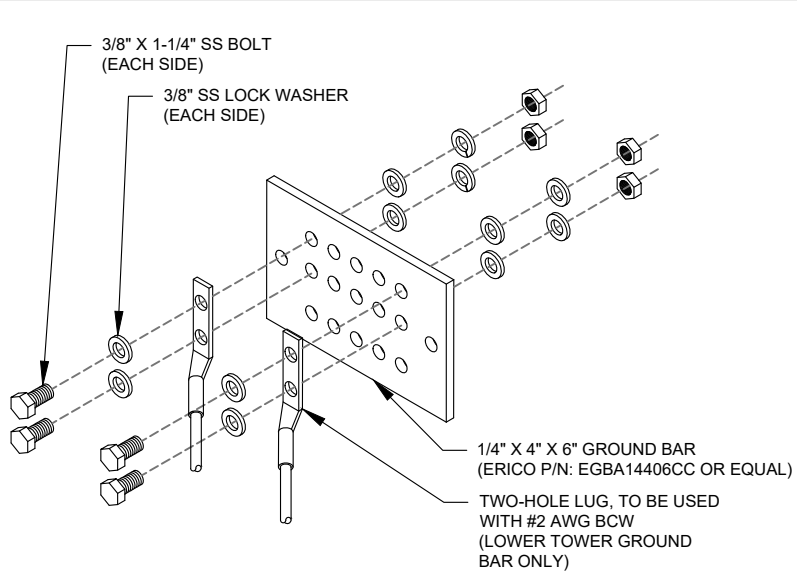
1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



GROUND KIT NOTES:

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

2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: NOT TO SCALE



GROUND BAR NOTES:

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

3 TOWER GROUND BAR DETAIL
SCALE: NOT TO SCALE

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A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	EF	07/24/19

ATC SITE NUMBER:
311014

ATC SITE NAME:
NORWICH CT

SITE ADDRESS:
202 N WAWECUS HILL RD
NORWICH, CT 06360

SEAL:

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DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	07/24/19
ATC JOB NO:	12955882

GROUNDING DETAILS

SHEET NUMBER: E-501	REVISION: 0
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Existing RAN Equipment				
Template: 702Cu				
Enclosure	1	2	3	4
Enclosure Type	RBS 6131	Ancillary Equipment	S8000 Outdoor	S8000 Outdoor
Baseband	DUW30 U1900 DUW30 U2100 (DECOMMISSIONED) DUG20 G1900 DUS41 L2100 L700			
Hybrid Cable System		Ericsson 9x18 HCS *Select Length*		
Radio	RUS01 B4 (x6) U2100 (DECOMMISSIONED)			

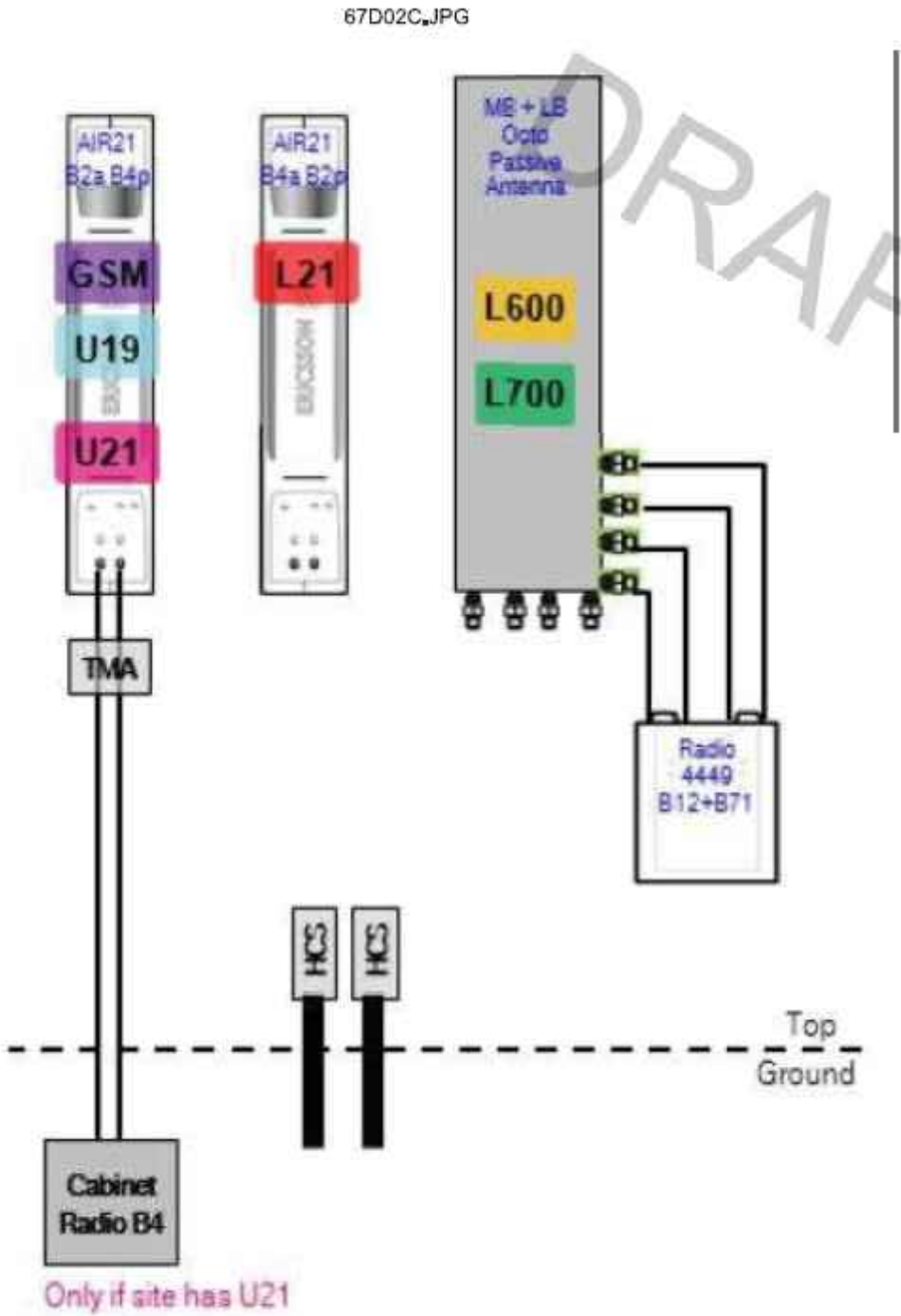
Proposed RAN Equipment				
Template: 67D02C Outdoor				
Enclosure	1	2	3	4
Enclosure Type	RBS 6131	Ancillary Equipment	S8000 Outdoor	S8000 Outdoor
Baseband	DUW30 U2100 (DECOMMISSIONED) DUW30 U1900 DUG20 G1900 BB 6630 N600 (DARK) BB 6630 L2100 L700 L600			
Hybrid Cable System		Ericsson 9x18 HCS *Select Length* Ericsson 6x12 HCS *Select Length & AWG* (x2)		
Radio	RUS01 B4 (x6) U2100 (DECOMMISSIONED)			

RAN Scope of Work:

1

CABINET CONFIGURATION

SCALE: NOT TO SCALE



2

ANTENNA CONFIGURATION

SCALE: NOT TO SCALE

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

SUPPLEMENTAL

SHEET NUMBER:

R-601

REVISION:

0



Mount Analysis of Existing Low Profile Platform for
American Tower on behalf of T-Mobile
311014 - Norwich CT
Project #: 12927124
T-Mobile Site ID: CT11463C
Program: L600

CLS Engineering PLLC Project #41124-12927124-01-MA-R2
July 11, 2019

MOUNT DESCRIPTION	Existing Low Profile Platform at 136 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 137 ft AGL (Eccentricity of ~1 ft)
SITE DESCRIPTION	140 ft Monopole
SITE ADDRESS	202 N Wawecus Hill Road, Norwich, CT 06360, New London County
GPS COORDINATES	41.527069, -72.122594
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	135 mph, V_{ult} / 104.6 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75"

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

MEMBER USAGE	99%	Pass
--------------	-----	------

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

Prepared by:
Sean Rock, E.I.

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
DN: c=US,
o=Telamon
Corporation,
ou=A01427E00000
16A4525ADF80000
1D17, cn=Tyler
Barker
Date: 2019.07.11
12:20:55 -04'00'

Mount Analysis for American Tower on behalf of T-Mobile
311014 - Norwich CT

July 11, 2019
CLS Engineering PLLC Project #41124-12927124-01-MA-R2

■ 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:

- Install (1) proposed Site Pro 1 PRK-1245. Connect to offset angles using 1/2"Ø A325 bolts with proposed Site Pro 1 X-253992 T-bracket included in the kit. Connect offset angles to each other as specified. Field-cut proposed angles as required. Maintain minimum bolt edge distance.
- Install Site Pro 1 HRK14-HD support rail kit at ±3'-0" above the existing platform base horizontal. Connect to all existing mount pipes using Site Pro 1 SCX2 crossover plate included in the support rail kit. Cut support rail pipes to length as needed.
- All hardware for Site Pro 1 PUCK connection to the proposed Support Rails 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

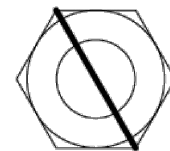
BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS:
+1/2 TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER EIGHT AND UP TO TWELVE DIAMETERS:
+2/3 TURN BEYOND SNUG TIGHT

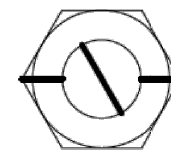
2. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(d)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS:

*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.

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

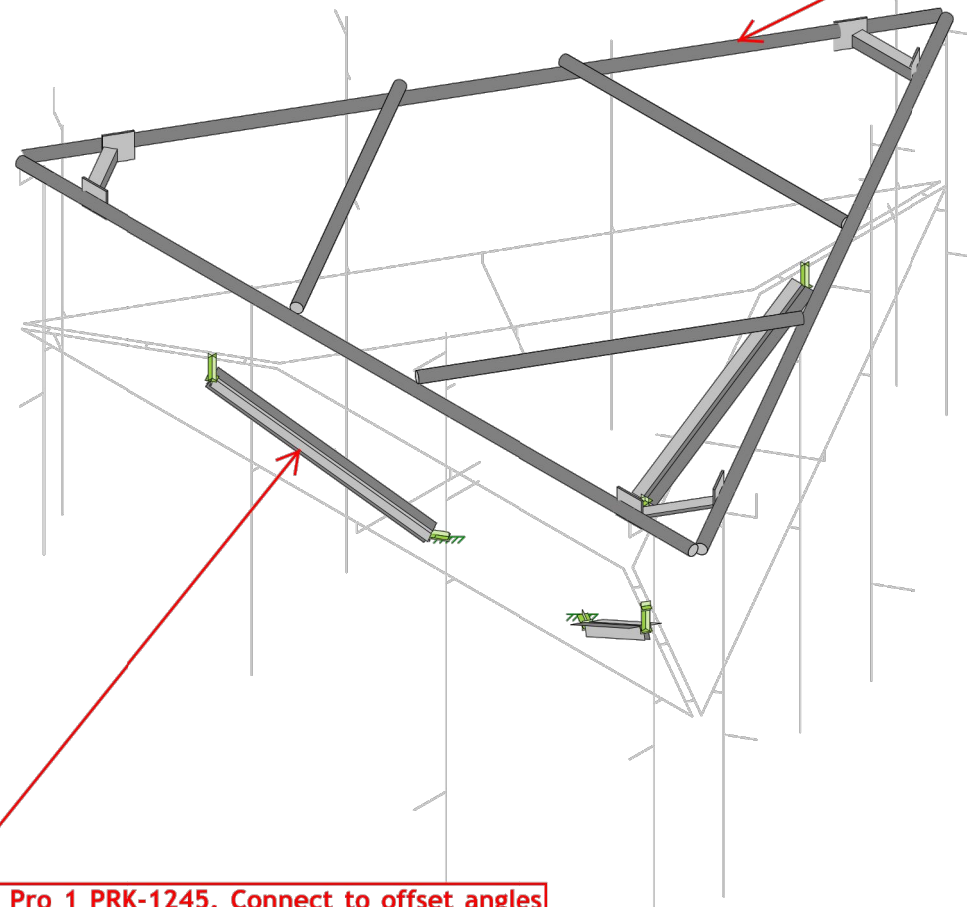
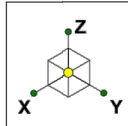
SUPPLEMENTAL

SHEET NUMBER:

R-602

REVISION:

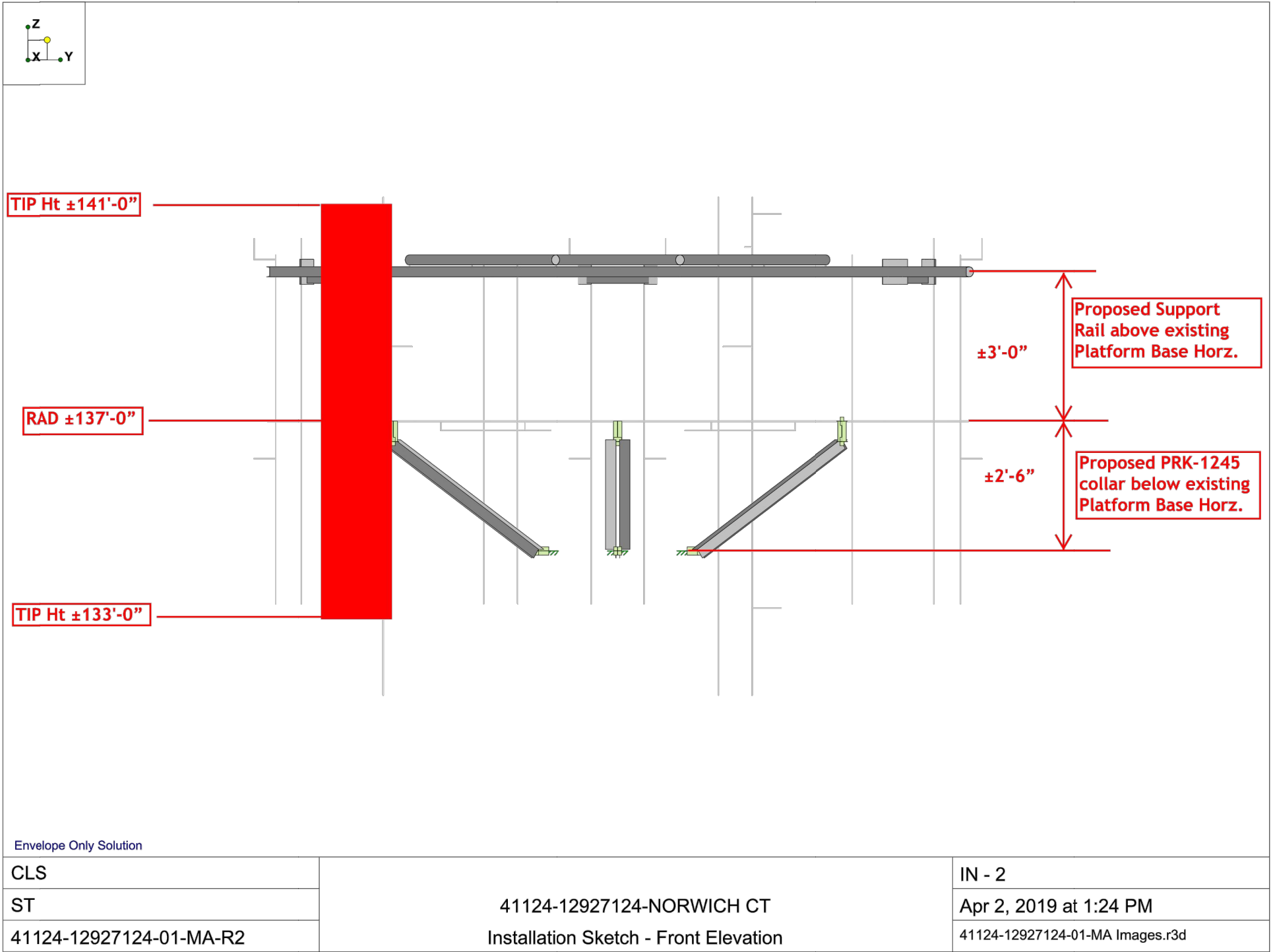
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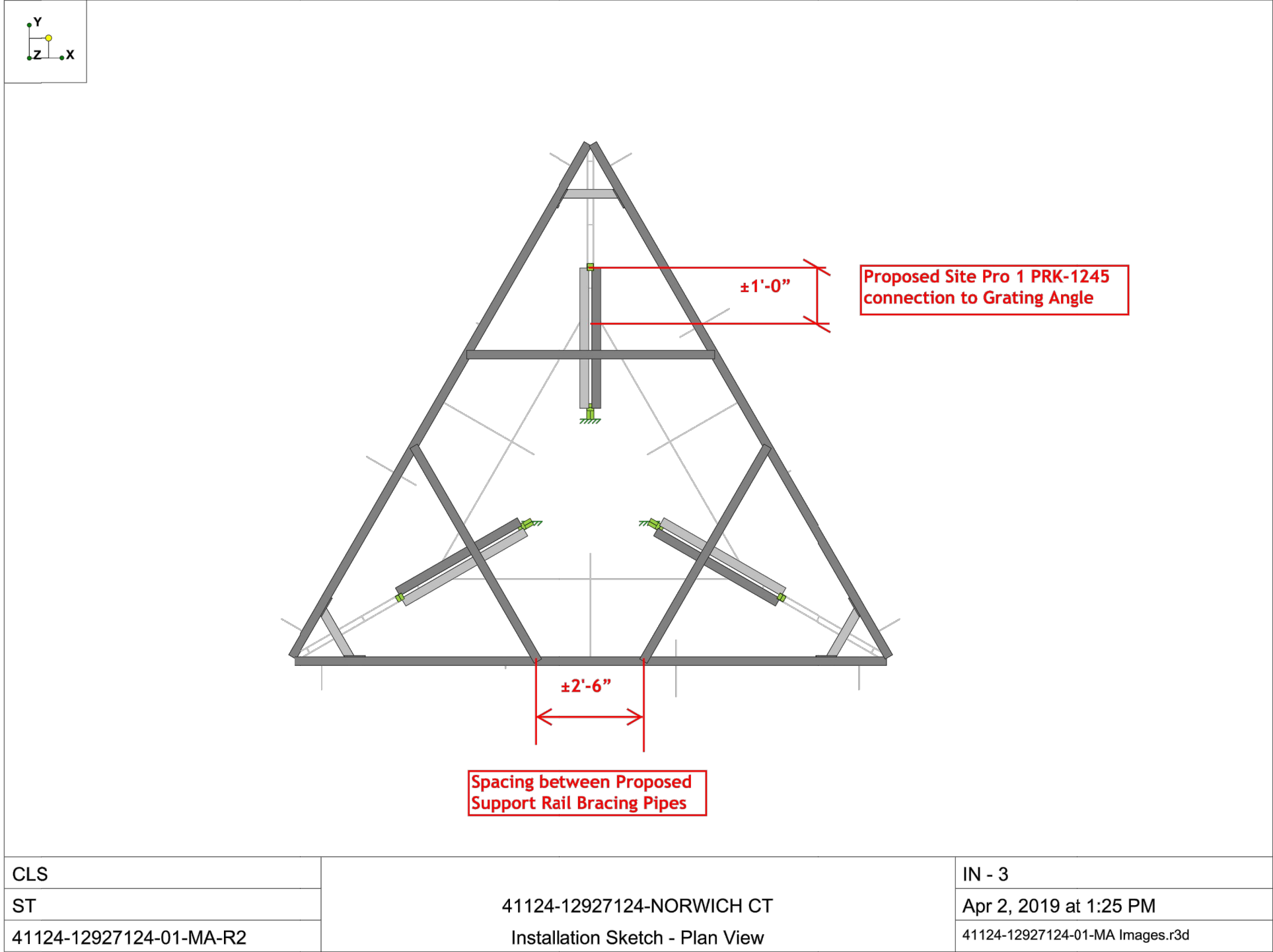
Install Site Pro 1 HRK14-HD support rail kit at $\pm 3'-0"$ above the existing platform base horizontal. Connect to all existing mount pipes using Site Pro 1 SCX2 crossover plate included in the support rail kit. Cut support rail pipes to length as needed.

Install (1) proposed Site Pro 1 PRK-1245. Connect to offset angles using $1/2"$ $\varnothing$ A325 bolts with proposed Site Pro 1 X-253992 T-bracket included in the kit. Connect offset angles to each other as specified. Field-cut proposed angles as required. Maintain minimum bolt edge distance.

CLS	41124-12927124-NORWICH CT Installation Sketch - Isometric View	IN - 1
ST		Apr 2, 2019 at 1:23 PM
41124-12927124-01-MA-R2		41124-12927124-01-MA Images.r3d



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1 MOUNT ANALYSIS

SCALE: NOT TO SCALE

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SUPPLEMENTAL

SHEET NUMBER:

R-605

REVISION:

0



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C O R P O R A T I O N

Structural Analysis Report

Structure : 140 ft Monopole
ATC Site Name : NORWICH CT, CT
ATC Site Number : 311014
Engineering Number : 12927124_C3_02
Proposed Carrier : T-MOBILE
Carrier Site Name : CT463/Wawecus WP#2_FT
Carrier Site Number : CT11463C
Site Location : 202 N Wawecus Hill Rd
Norwich, CT 06360-4071
41.527100,-72.122600
County : New London
Date : August 5, 2019
Max Usage : 40%
Result : Pass

Prepared By:
Thomas Pham
Structural Engineer I

Reviewed By:



Authorized by "EOR"
Aug 6 2019 3:27 PM

cosign

COA: PEC.0001553



Table of Contents

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



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 140 ft monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	Summit, PJF Job #29205-0119, dated June 1, 2005
Foundation Drawing	Summit, PJF Job #29205-0119, dated June 1, 2005
Geotechnical Report	Clarence Welt Assoc. Geotechnical Study Report for Cell Tower 202 North Wawecus Hill Rd., dated October 3, 2005
Mount Analysis	CLS Engineering PLLC Project #41124-12927124-01-MA-R2, dated July 11, 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:	102 mph (3-Second Gust, V_{asd}) / 131 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:	$S_s = 0.17$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

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

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



Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
136.0			-	(6) 1 5/8" Coax (1) 1 5/8" Hybriflex	T-MOBILE
124.0	3	Generic RCU (Remote Control Unit)	Low Profile Platform	(1) 3/8" Coax (6) 1 5/8" Coax	UNKNOWN
	3	Kathrein Scala 800 10504			
116.0	2	Commscope SBNHH-1D65B (40.6 lbs)	Platform with Handrails	(2) 1 1/4" (1.25"- 31.8mm) Fiber (6) 1 5/8" Coax (1) 1 5/8" Hybriflex	VERIZON WIRELESS
	4	Commscope NHH-45B-R2B			
	3	Alcatel-Lucent RRH4X45-B66 w/ Solar Shield			
	3	Alcatel-Lucent B25 RRH4x30			
	3	Samsung B5/B13 RRH-BR04C			
	2	Raycap RCMD-6627-PF-48			
114.0	6	Amphenol Antel BXA-70063-6CF-EDIN-X			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
137.0	3	Ericsson KRY 112 144/1	Low Profile Platform	(6) 1 5/8" Coax	T-MOBILE
	3	Ericsson RRUS 11 B12			
	3	Andrew LNX-6515DS-VTM			
	3	Ericsson AIR 21, 1.3M, B4A B2P			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			

Proposed Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
137.0	3	Ericsson Radio 4449 B12,B71	Platform with Site Pro 1 PRK-125 & Site Pro 1 HRK14-HD Handrail Kit	(1) 1 1/4" (1.25"- 31.8mm) Fiber (1) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)			
	3	Ericsson AIR 21			
136.0	3	RFS APXVAARR24_43-U-NA20			

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	26%	Pass
Shaft	33%	Pass
Base Plate	18%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	5,050.0	6,817.5	2,204.6	32%
Shear (Kips)	43.0	58.1	23.0	40%

* 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) (°)
137.0	Ericsson Radio 4449 B12,B71	T-MOBILE	0.501	0.361
	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)			
	Ericsson AIR 21			
136.0	RFS APXVAARR24_43-U-NA20		0.495	

*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:

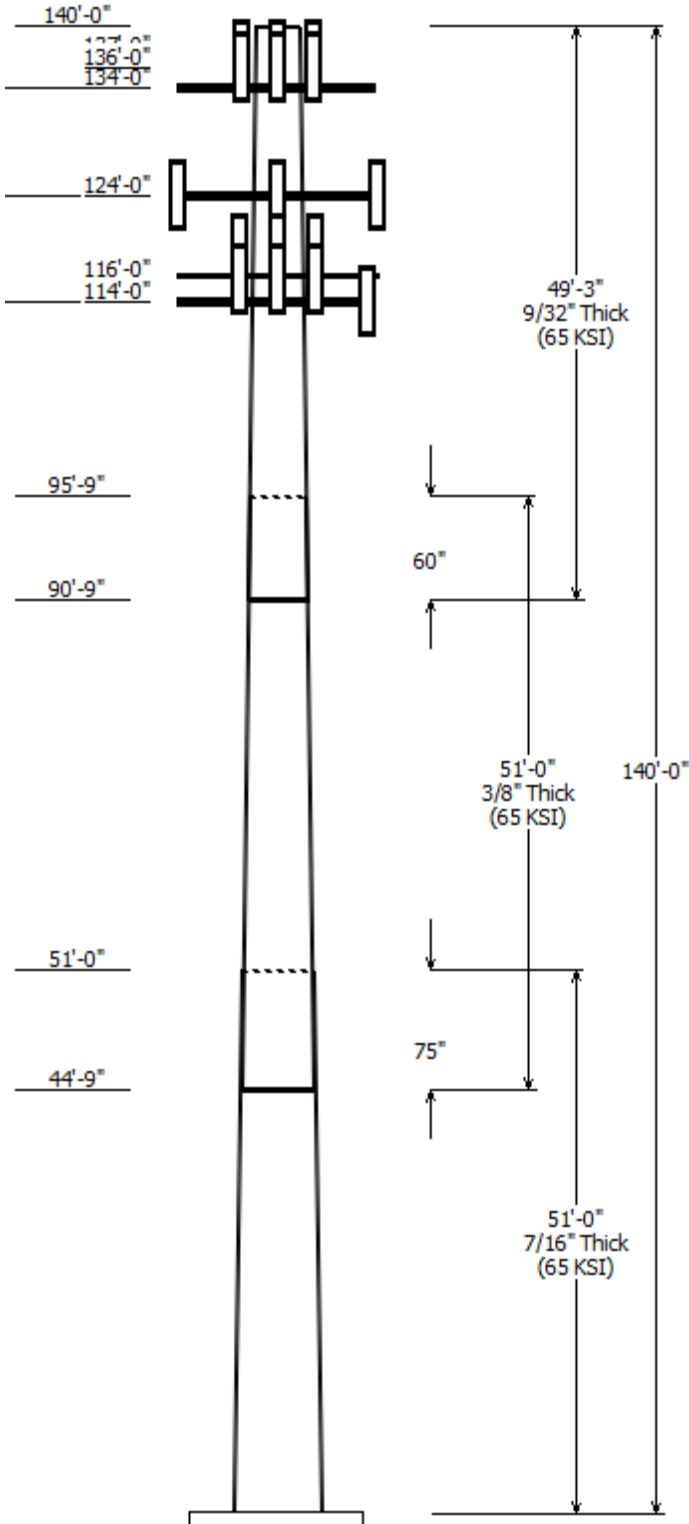
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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.



Job Information

Client : T-MOBILE
 Pole : 311014
 Location : NORWICH CT, CT
 Description : 140 ft PennSummit Monopole
 Shape : 18 Sides
 Height : 140.00 (ft)
 Base Elev (ft): 0.00
 Taper: 0.234201 in/ft

Code: ANSI/TIA-222-G
 Splice Class : II
 Exposure : B
 Topo : 1

Sections Properties

Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Across Flats Top	Across Flats Bottom				
1	51.000	48.21	60.16	0.438		0.000	18 Sides 65
2	51.000	38.48	50.42	0.375	Slip Joint	75.000	18 Sides 65
3	49.250	28.68	40.21	0.281	Slip Joint	60.000	18 Sides 65

Discrete Appurtenance

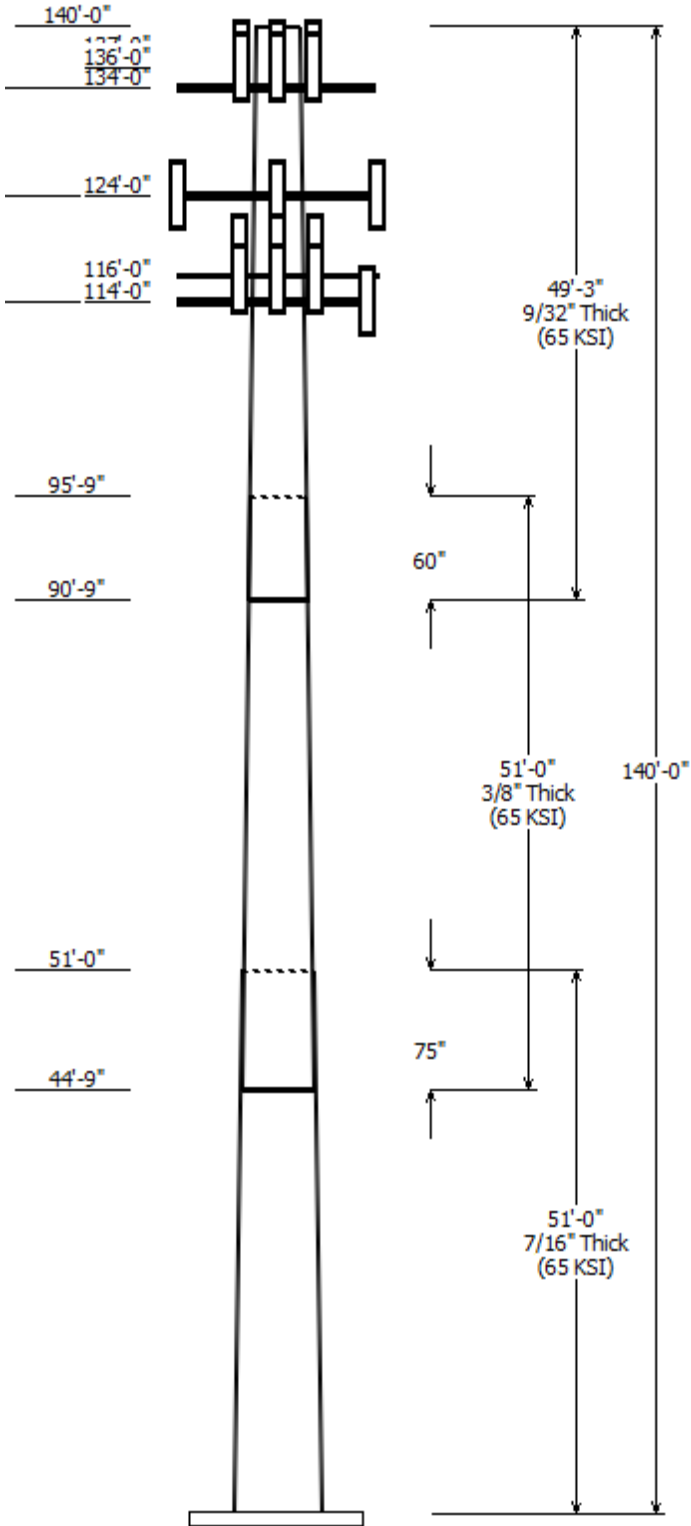
Attach Elev (ft)	Force Elev (ft)	Qty	Description
137.000	137.000	3	Ericsson AIR 21
137.000	137.000	3	Ericsson AIR 21, 1.3M, B2A B4P
137.000	137.000	3	Ericsson Radio 4449 B12,B71
136.000	136.000	3	RFS APXVAARR24_43-U-NA20
134.000	134.000	1	Platform with Site Pro 1 PRK-1
124.000	124.000	1	Flat Low Profile Platform
124.000	124.000	3	Kathrein Scala 800 10504
124.000	124.000	3	Generic RCU (Remote Control
116.000	116.000	4	Commscope NHH-45B-R2B
116.000	117.000	2	Commscope SBNHH-1D65B
116.000	116.000	2	Raycap RCMDC-6627-PF-48
116.000	116.000	3	Alcatel-Lucent RRH4X45-B66
116.000	116.000	3	Alcatel-Lucent B25 RRH4x30
116.000	116.000	3	Samsung B5/B13 RRH-BR04C
114.000	114.000	1	Round Platform w/ Handrails
114.000	114.000	6	Amphenol Antel BXA-70063-

Linear Appurtenance

Elev (ft)		Description	Exposed To Wind
From	To		
0.000	116.0	1 1/4" (1.25")	No
0.000	116.0	1 5/8" Coax	No
0.000	116.0	1 5/8" Hybriflex	No
0.000	124.0	1 5/8" Coax	No
0.000	124.0	3/8" Coax	No
0.000	136.0	1 5/8" Hybriflex	No
0.000	136.0	1 5/8" Hybriflex	No
0.000	137.0	1 1/4" (1.25")	No
0.000	137.0	1 5/8" Coax	No

Load Cases

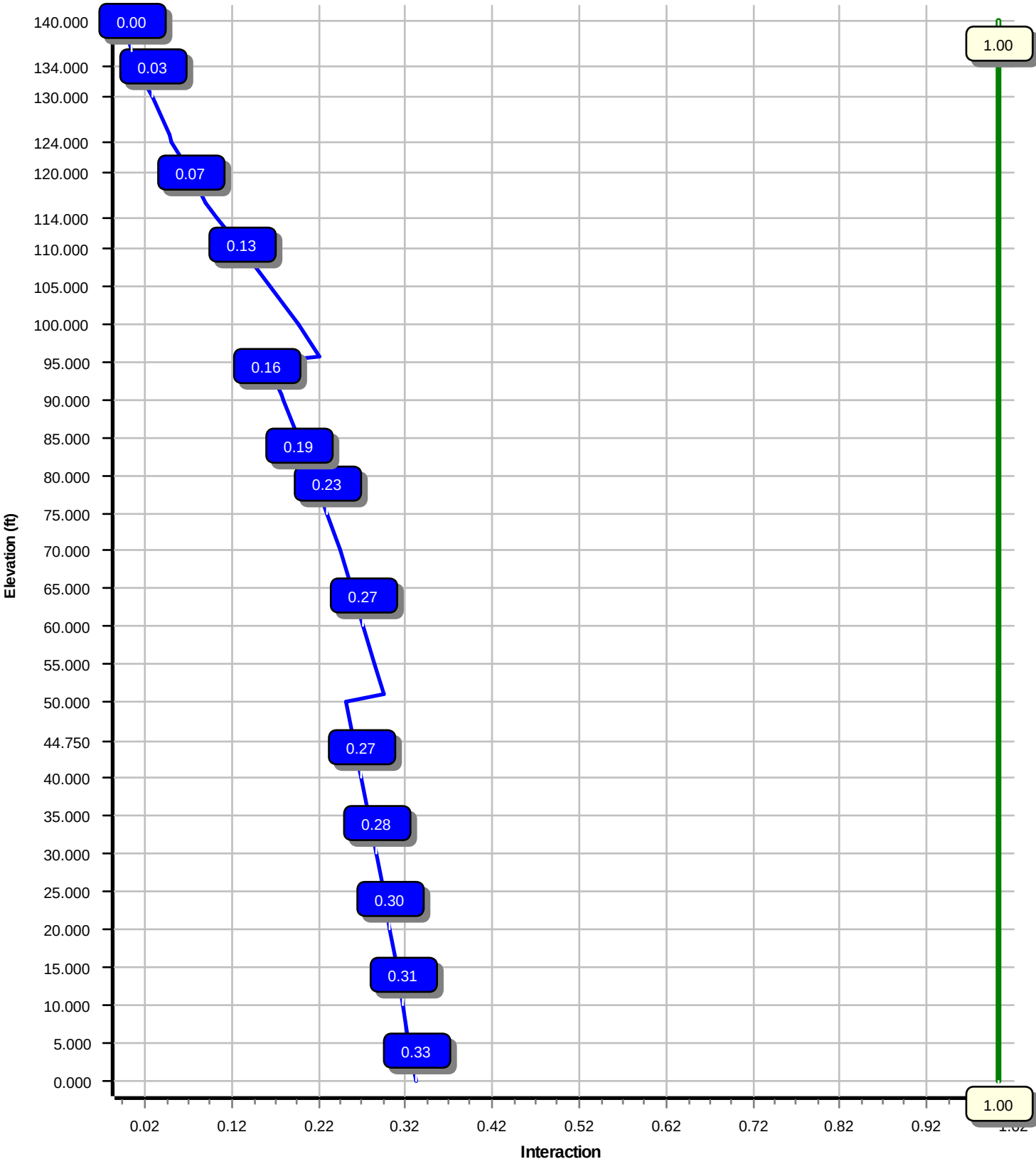
1.2D + 1.6W	102 mph with No Ice
0.9D + 1.6W	102 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	2204.58	22.97	45.76
0.9D + 1.6W	2192.60	22.97	34.32
1.2D + 1.0Di + 1.0Wi	571.41	6.11	64.30
(1.2 + 0.2Sds) * DL + E ELFM	165.93	1.56	45.30
(1.2 + 0.2Sds) * DL + E EMAM	185.64	1.72	45.30
(0.9 - 0.2Sds) * DL + E ELFM	164.86	1.56	31.65
(0.9 - 0.2Sds) * DL + E EMAM	184.37	1.72	31.65
1.0D + 1.0W	424.94	4.44	38.15

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 32.88% at 0.0 ft



Site Number: 311014	Code: ANSI/TIA-222-G	© 2007 - 2019 by ATC IP LLC. All rights reserved.
Site Name: NORWICH CT, CT	Engineering Number: 12927124_C3_02	8/5/2019 10:56:22 AM
Customer: T-MOBILE		

Analysis Parameters

Location :	New London County, CT	Height (ft) :	140
Code :	ANSI/TIA-222-G	Base Diameter (in) :	60.16
Shape :	18 Sides	Top Diameter (in) :	28.68
Pole Type :	Taper	Taper (in/ft) :	0.234
Pole Manufacturer :	PennSummit Tub	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	102 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method: Equivalent Modal Analysis & Equivalent Lateral Force Methods			
Site Class: D - Stiff Soil			
Period Based on Rayleigh Method (sec):		1.57	
T_L (sec):	6	p :	1
S_s :	0.170	S_1 :	0.060
F_a :	1.600	F_v :	2.400
S_{ds} :	0.181	S_{d1} :	0.096
		C_s :	0.041
		C_s Max:	0.041
		C_s Min:	0.030

Load Cases

1.2D + 1.6W	102 mph with No Ice
0.9D + 1.6W	102 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2S _{ds}) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S _{ds}) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S _{ds}) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S _{ds}) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

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Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom				Top				W/t Ratio	D/t Ratio	Taper (in/ft)
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)			
1-18	51.000	0.4375	65		0.00	12,952	60.16	0.00	82.93	37371.0	22.48	137.51	48.21	51.00	66.34	19134.1	0.234203
2-18	51.000	0.3750	65	Slip	75.00	9,105	50.42	44.75	59.58	18858.2	21.95	134.48	38.48	95.75	45.36	8323.2	0.234203
3-18	49.250	0.2813	65	Slip	60.00	5,112	40.21	90.75	35.65	7184.1	23.45	143.00	28.68	140.00	25.35	2584.2	0.234203
Shaft Weight						27,169											

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
137.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	129.57	2.478	0.50
137.00	Ericsson AIR 21, 1.3M, B2A B4P	3	0.75	0.000	91.50	6.040	0.70	236.02	8.170	0.70
137.00	Ericsson AIR 21	3	0.75	0.000	91.00	6.050	0.70	235.11	8.196	0.70
136.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	517.31	23.918	0.63
134.00	Platform with Site Pro 1 PRK-125	1	1.00	0.000	2,413.00	42.400	1.00	4,076.09	71.623	1.00
124.00	Generic RCU (Remote Control	3	0.80	0.000	1.00	0.140	1.00	6.43	0.469	1.00
124.00	Kathrein Scala 800 10504	3	0.80	0.000	17.60	3.340	0.66	79.24	5.117	0.66
124.00	Flat Low Profile Platform	1	1.00	0.000	1,500.00	26.100	1.00	2,135.94	44.840	1.00
116.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.880	0.50	126.14	2.763	0.50
116.00	Alcatel-Lucent B25 RRH4x30	3	0.75	0.000	53.00	2.120	0.67	111.93	3.089	0.67
116.00	Alcatel-Lucent RRH4X45-B66 w/	3	0.75	0.000	64.00	2.660	0.67	133.25	3.782	0.67
116.00	Raycap RCMD-6627-PF-48	2	0.75	0.000	32.00	4.060	0.79	156.07	5.394	0.79
116.00	Commscope SBNHH-1D65B	2	0.75	1.000	40.60	8.080	0.69	210.79	10.800	0.69
116.00	Commscope NHH-45B-R2B	4	0.75	0.000	73.60	11.400	0.63	296.64	14.121	0.63
114.00	Amphenol Antel BXA-70063-6CF-	6	0.75	0.000	17.00	7.570	0.66	161.03	10.254	0.66
114.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,261.06	50.989	1.00
Totals	Num Loadings:16	44			8,225.50			17,084.56		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Flat Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind Carrier
0.00	137.00	1	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N 0	0.00	0.00	0	0.00	N T-MOBILE
0.00	137.00	6	1 5/8" Coax	1.98	0.82	N 0	0.00	0.00	0	0.00	N T-MOBILE
0.00	136.00	1	1 5/8" Hybriflex	1.98	1.30	N 0	0.00	0.00	0	0.00	N T-MOBILE
0.00	136.00	1	1 5/8" Hybriflex	1.98	1.30	N 0	0.00	0.00	0	0.00	N T-MOBILE
0.00	124.00	6	1 5/8" Coax	1.98	0.82	N 0	0.00	0.00	0	0.00	N UNKNOWN
0.00	124.00	1	3/8" Coax	0.44	0.08	N 0	0.00	0.00	0	0.00	N Other
0.00	116.00	2	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N 0	0.00	0.00	0	0.00	N VERIZON WIRELESS
0.00	116.00	6	1 5/8" Coax	1.98	0.82	N 0	0.00	0.00	0	0.00	N VERIZON WIRELESS
0.00	116.00	1	1 5/8" Hybriflex	1.98	1.30	N 0	0.00	0.00	0	0.00	N VERIZON WIRELESS

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

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Customer: T-MOBILE

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.4375	60.160	82.929	37,371.0	22.48	137.51	75.0	1223.	0.0	0.0
5.00		0.4375	58.989	81.303	35,215.5	22.01	134.83	75.5	1175.	0.0	1,397.1
10.00		0.4375	57.818	79.677	33,144.6	21.54	132.16	76.1	1129.	0.0	1,369.4
15.00		0.4375	56.647	78.051	31,156.5	21.07	129.48	76.6	1083.	0.0	1,341.8
20.00		0.4375	55.476	76.425	29,249.5	20.60	126.80	77.2	1038.	0.0	1,314.1
25.00		0.4375	54.305	74.799	27,422.0	20.12	124.13	77.7	994.6	0.0	1,286.5
30.00		0.4375	53.134	73.173	25,672.2	19.65	121.45	78.3	951.6	0.0	1,258.8
35.00		0.4375	51.963	71.547	23,998.5	19.18	118.77	78.8	909.6	0.0	1,231.1
40.00		0.4375	50.792	69.921	22,399.2	18.71	116.10	79.4	868.6	0.0	1,203.5
44.75	Bot - Section 2	0.4375	49.679	68.376	20,947.1	18.26	113.55	79.9	830.5	0.0	1,117.7
45.00		0.4375	49.621	68.295	20,872.5	18.24	113.42	80.0	828.5	0.0	108.8
50.00		0.4375	48.450	66.669	19,416.8	17.76	110.74	80.5	789.3	0.0	2,148.7
51.00	Top - Section 1	0.3750	48.966	57.833	17,251.7	21.26	130.57	76.4	693.9	0.0	423.6
55.00		0.3750	48.029	56.718	16,273.0	20.82	128.08	76.9	667.3	0.0	779.6
60.00		0.3750	46.858	55.324	15,102.6	20.27	124.95	77.6	634.8	0.0	953.1
65.00		0.3750	45.687	53.930	13,989.7	19.72	121.83	78.2	603.1	0.0	929.4
70.00		0.3750	44.516	52.537	12,932.8	19.17	118.71	78.9	572.2	0.0	905.7
75.00		0.3750	43.345	51.143	11,930.6	18.62	115.59	79.5	542.1	0.0	882.0
80.00		0.3750	42.174	49.749	10,981.5	18.07	112.46	80.2	512.9	0.0	858.3
85.00		0.3750	41.003	48.355	10,084.2	17.52	109.34	80.8	484.4	0.0	834.6
90.00		0.3750	39.832	46.962	9,237.1	16.97	106.22	81.4	456.8	0.0	810.9
90.75	Bot - Section 3	0.3750	39.656	46.753	9,114.3	16.88	105.75	81.5	452.7	0.0	119.6
95.00		0.3750	38.661	45.568	8,438.8	16.42	103.10	82.1	429.9	0.0	1,176.7
95.75	Top - Section 2	0.2813	39.047	34.605	6,570.5	22.72	138.84	74.7	331.4	0.0	204.5
100.0		0.2813	38.052	33.716	6,077.3	22.09	135.30	75.4	314.6	0.0	494.0
105.0		0.2813	36.881	32.671	5,529.4	21.36	131.13	76.3	295.3	0.0	564.8
110.0		0.2813	35.710	31.626	5,015.4	20.62	126.97	77.1	276.6	0.0	547.0
114.0		0.2813	34.773	30.789	4,628.0	20.04	123.64	77.8	262.1	0.0	424.8
115.0		0.2813	34.539	30.580	4,534.4	19.89	122.81	78.0	258.6	0.0	104.4
116.0		0.2813	34.305	30.371	4,442.0	19.74	121.97	78.2	255.0	0.0	103.7
120.0		0.2813	33.368	29.535	4,085.1	19.16	118.64	78.9	241.1	0.0	407.7
124.0		0.2813	32.431	28.699	3,747.8	18.57	115.31	79.6	227.6	0.0	396.3
125.0		0.2813	32.197	28.490	3,666.5	18.42	114.48	79.7	224.3	0.0	97.3
130.0		0.2813	31.026	27.444	3,277.6	17.69	110.31	80.6	208.1	0.0	475.8
134.0		0.2813	30.089	26.608	2,987.0	17.10	106.98	81.3	195.5	0.0	367.9
135.0		0.2813	29.855	26.399	2,917.1	16.95	106.15	81.5	192.5	0.0	90.2
136.0		0.2813	29.621	26.190	2,848.4	16.81	105.32	81.6	189.4	0.0	89.5
137.0		0.2813	29.387	25.981	2,780.7	16.66	104.49	81.8	186.4	0.0	88.8
140.0		0.2813	28.684	25.354	2,584.2	16.22	101.99	82.3	177.4	0.0	262.0
											27,169.4

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:22 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W

102 mph with No Ice

21 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
Seg			Dead	Torsion		Moment	Dead		Dead		Torsion	Moment	
Elev		Wind FX	Load	Wind FX	MY	MZ	Load	Wind FX	Load	Wind FX	Load	MY	MZ
(ft)	Description	(lb)	(lb)	(lb)	(lb-ft)	(lb-ft)	(lb)	(lb)	(lb)	(lb)	(lb)	(lb-ft)	(lb)
0.00		255.4	0.0					0.0	0.0	255.4	0.0	0.0	0.0
5.00		505.7	1,676.5					0.0	131.3	505.7	1,807.9	0.0	0.0
10.00		495.7	1,643.3					0.0	131.3	495.7	1,774.7	0.0	0.0
15.00		485.6	1,610.1					0.0	131.3	485.6	1,741.5	0.0	0.0
20.00		475.6	1,576.9					0.0	131.3	475.6	1,708.3	0.0	0.0
25.00		465.5	1,543.7					0.0	131.3	465.5	1,675.1	0.0	0.0
30.00		460.9	1,510.5					0.0	131.3	460.9	1,641.9	0.0	0.0
35.00		465.6	1,477.3					0.0	131.3	465.6	1,608.7	0.0	0.0
40.00		460.9	1,444.1					0.0	131.3	460.9	1,575.5	0.0	0.0
44.75	Bot - Section 2	238.1	1,341.2					0.0	124.8	238.1	1,466.0	0.0	0.0
45.00		255.7	130.5					0.0	6.6	255.7	137.1	0.0	0.0
50.00		292.4	2,578.4					0.0	131.3	292.4	2,709.8	0.0	0.0
51.00	Top - Section 1	244.7	508.3					0.0	26.3	244.7	534.6	0.0	0.0
55.00		440.9	935.5					0.0	105.1	440.9	1,040.6	0.0	0.0
60.00		489.9	1,143.8					0.0	131.3	489.9	1,275.1	0.0	0.0
65.00		488.8	1,115.3					0.0	131.3	488.8	1,246.6	0.0	0.0
70.00		486.4	1,086.8					0.0	131.3	486.4	1,218.2	0.0	0.0
75.00		483.1	1,058.4					0.0	131.3	483.1	1,189.7	0.0	0.0
80.00		478.8	1,029.9					0.0	131.3	478.8	1,161.3	0.0	0.0
85.00		473.6	1,001.5					0.0	131.3	473.6	1,132.8	0.0	0.0
90.00		270.5	973.0					0.0	131.3	270.5	1,104.4	0.0	0.0
90.75	Bot - Section 3	235.1	143.5					0.0	19.7	235.1	163.2	0.0	0.0
95.00		235.1	1,412.0					0.0	111.6	235.1	1,523.7	0.0	0.0
95.75	Top - Section 2	232.1	245.4					0.0	19.7	232.1	265.1	0.0	0.0
100.00		425.4	592.8					0.0	111.6	425.4	704.5	0.0	0.0
105.00		452.6	677.7					0.0	131.3	452.6	809.0	0.0	0.0
110.00		400.4	656.4					0.0	131.3	400.4	787.7	0.0	0.0
114.00	Appurtenance(s)	219.8	509.7	2,269.9	0.0	0.0	2,522.4	0.0	105.1	2,489.7	3,137.2	0.0	0.0
115.00		87.0	125.3					0.0	26.3	87.0	151.6	0.0	0.0
116.00	Appurtenance(s)	215.2	124.4	2,023.1	0.0	384.9	1,201.8	0.0	26.3	2,238.2	1,352.5	0.0	0.0
120.00		340.3	489.2					0.0	65.1	340.3	554.4	0.0	0.0
124.00	Appurtenance(s)	210.2	475.6	1,484.7	0.0	0.0	1,867.0	0.0	65.1	1,695.0	2,407.7	0.0	0.0
125.00		246.7	116.8					0.0	10.3	246.7	127.0	0.0	0.0
130.00		365.2	571.0					0.0	51.4	365.2	622.4	0.0	0.0
134.00	Appurtenance(s)	199.6	441.4	2,028.7	0.0	0.0	2,895.6	0.0	41.1	2,228.3	3,378.2	0.0	0.0
135.00		78.7	108.2					0.0	10.3	78.7	118.5	0.0	0.0
136.00	Appurtenance(s)	78.3	107.4	1,378.6	0.0	0.0	460.4	0.0	10.3	1,456.8	578.1	0.0	0.0
137.00	Appurtenance(s)	154.7	106.5	1,005.7	0.0	0.0	923.4	0.0	7.2	1,160.4	1,037.1	0.0	0.0
140.00		115.7	314.4					0.0	0.0	115.7	314.4	0.0	0.0
Totals:										23,196.5	45,781.8	0.00	0.00

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:25 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W

102 mph with No Ice

21 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.76	-22.97	0.00	-2,204.58	0.00	2,204.58	5,594.46	2,797.23	13,736.1	6,878.27	0.00	0.00	0.329
5.00	-43.93	-22.53	0.00	-2,089.71	0.00	2,089.71	5,525.39	2,762.69	13,298.5	6,659.17	0.04	-0.08	0.322
10.00	-42.12	-22.09	0.00	-1,977.06	0.00	1,977.06	5,454.68	2,727.34	12,863.8	6,441.51	0.17	-0.16	0.315
15.00	-40.35	-21.66	0.00	-1,866.60	0.00	1,866.60	5,382.36	2,691.18	12,432.3	6,225.40	0.39	-0.25	0.307
20.00	-38.61	-21.23	0.00	-1,758.32	0.00	1,758.32	5,308.41	2,654.20	12,004.0	6,010.97	0.69	-0.33	0.300
25.00	-36.91	-20.81	0.00	-1,652.17	0.00	1,652.17	5,232.83	2,616.42	11,579.4	5,798.33	1.08	-0.41	0.292
30.00	-35.24	-20.38	0.00	-1,548.14	0.00	1,548.14	5,155.63	2,577.82	11,158.6	5,587.59	1.56	-0.50	0.284
35.00	-33.61	-19.95	0.00	-1,446.23	0.00	1,446.23	5,076.81	2,538.40	10,741.8	5,378.89	2.12	-0.58	0.276
40.00	-32.01	-19.52	0.00	-1,346.47	0.00	1,346.47	4,996.36	2,498.18	10,329.3	5,172.33	2.77	-0.66	0.267
44.75	-30.54	-19.28	0.00	-1,253.76	0.00	1,253.76	4,918.43	2,459.21	9,941.62	4,978.20	3.47	-0.74	0.258
45.00	-30.39	-19.05	0.00	-1,248.94	0.00	1,248.94	4,914.28	2,457.14	9,921.33	4,968.04	3.51	-0.74	0.258
50.00	-27.67	-18.74	0.00	-1,153.69	0.00	1,153.69	4,830.59	2,415.29	9,518.11	4,766.13	4.33	-0.83	0.248
51.00	-27.12	-18.51	0.00	-1,134.94	0.00	1,134.94	3,976.29	1,988.15	7,940.17	3,975.99	4.51	-0.84	0.292
55.00	-26.06	-18.09	0.00	-1,060.90	0.00	1,060.90	3,926.08	1,963.04	7,687.59	3,849.51	5.24	-0.91	0.282
60.00	-24.77	-17.62	0.00	-970.45	0.00	970.45	3,861.85	1,930.92	7,374.54	3,692.75	6.24	-1.00	0.269
65.00	-23.51	-17.14	0.00	-882.37	0.00	882.37	3,795.99	1,898.00	7,064.71	3,537.61	7.33	-1.08	0.256
70.00	-22.27	-16.66	0.00	-796.67	0.00	796.67	3,728.51	1,864.25	6,758.32	3,384.18	8.51	-1.17	0.241
75.00	-21.07	-16.19	0.00	-713.35	0.00	713.35	3,659.40	1,829.70	6,455.61	3,232.60	9.78	-1.25	0.227
80.00	-19.90	-15.71	0.00	-632.43	0.00	632.43	3,588.67	1,794.34	6,156.81	3,082.98	11.14	-1.33	0.211
85.00	-18.76	-15.23	0.00	-553.89	0.00	553.89	3,516.32	1,758.16	5,862.16	2,935.44	12.57	-1.41	0.194
90.00	-17.65	-14.95	0.00	-477.73	0.00	477.73	3,442.34	1,721.17	5,571.91	2,790.09	14.09	-1.48	0.176
90.75	-17.48	-14.72	0.00	-466.53	0.00	466.53	3,431.10	1,715.55	5,528.76	2,768.49	14.32	-1.49	0.174
95.00	-15.96	-14.45	0.00	-403.98	0.00	403.98	3,366.73	1,683.37	5,286.27	2,647.07	15.68	-1.55	0.157
95.75	-15.69	-14.22	0.00	-393.14	0.00	393.14	2,325.90	1,162.95	3,707.18	1,856.35	15.92	-1.56	0.219
100.00	-14.98	-13.79	0.00	-332.70	0.00	332.70	2,288.45	1,144.23	3,553.17	1,779.22	17.34	-1.61	0.194
105.00	-14.17	-13.33	0.00	-263.74	0.00	263.74	2,242.89	1,121.45	3,373.66	1,689.34	19.07	-1.68	0.163
110.00	-13.39	-12.92	0.00	-197.08	0.00	197.08	2,195.71	1,097.85	3,196.22	1,600.48	20.86	-1.74	0.129
114.00	-10.32	-10.34	0.00	-145.40	0.00	145.40	2,156.79	1,078.40	3,055.89	1,530.22	22.34	-1.78	0.100
115.00	-10.17	-10.25	0.00	-135.06	0.00	135.06	2,146.90	1,073.45	3,021.06	1,512.77	22.72	-1.79	0.094
116.00	-8.89	-7.97	0.00	-124.43	0.00	124.43	2,136.94	1,068.47	2,986.32	1,495.38	23.09	-1.80	0.087
120.00	-8.34	-7.62	0.00	-92.54	0.00	92.54	2,096.47	1,048.23	2,848.43	1,426.33	24.61	-1.83	0.069
124.00	-5.99	-5.85	0.00	-62.07	0.00	62.07	2,054.95	1,027.48	2,712.30	1,358.17	26.15	-1.85	0.049
125.00	-5.87	-5.60	0.00	-56.22	0.00	56.22	2,044.41	1,022.20	2,678.56	1,341.27	26.54	-1.85	0.045
130.00	-5.26	-5.21	0.00	-28.23	0.00	28.23	1,990.73	995.36	2,511.69	1,257.71	28.49	-1.87	0.025
134.00	-1.96	-2.88	0.00	-7.37	0.00	7.37	1,946.61	973.30	2,380.52	1,192.03	30.05	-1.87	0.007
135.00	-1.84	-2.79	0.00	-4.49	0.00	4.49	1,935.42	967.71	2,348.06	1,175.77	30.45	-1.87	0.005
136.00	-1.31	-1.32	0.00	-1.70	0.00	1.70	1,924.16	962.08	2,315.74	1,159.59	30.84	-1.88	0.002
137.00	-0.31	-0.13	0.00	-0.38	0.00	0.38	1,912.84	956.42	2,283.56	1,143.48	31.23	-1.88	0.000
140.00	0.00	-0.12	0.00	0.00	0.00	0.00	1,878.49	939.24	2,187.90	1,095.58	32.41	-1.88	0.000

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:25 AM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W

102 mph with No Ice (Reduced DL)

21 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

		Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
Seg			Dead		Torsion	Moment	Dead		Dead		Torsion	Moment	
Elev		Wind FX	Load	Wind FX	MY	MZ	Load	Wind FX	Load	Wind FX	Load	MY	MZ
(ft)	Description	(lb)	(lb)	(lb)	(lb-ft)	(lb-ft)	(lb)	(lb)	(lb)	(lb)	(lb)	(lb-ft)	(lb)
0.00		255.4	0.0					0.0	0.0	255.4	0.0	0.0	0.0
5.00		505.7	1,257.4					0.0	98.5	505.7	1,355.9	0.0	0.0
10.00		495.7	1,232.5					0.0	98.5	495.7	1,331.0	0.0	0.0
15.00		485.6	1,207.6					0.0	98.5	485.6	1,306.1	0.0	0.0
20.00		475.6	1,182.7					0.0	98.5	475.6	1,281.2	0.0	0.0
25.00		465.5	1,157.8					0.0	98.5	465.5	1,256.3	0.0	0.0
30.00		460.9	1,132.9					0.0	98.5	460.9	1,231.4	0.0	0.0
35.00		465.6	1,108.0					0.0	98.5	465.6	1,206.5	0.0	0.0
40.00		460.9	1,083.1					0.0	98.5	460.9	1,181.6	0.0	0.0
44.75	Bot - Section 2	238.1	1,005.9					0.0	93.6	238.1	1,099.5	0.0	0.0
45.00		255.7	97.9					0.0	4.9	255.7	102.8	0.0	0.0
50.00		292.4	1,933.8					0.0	98.5	292.4	2,032.3	0.0	0.0
51.00	Top - Section 1	244.7	381.2					0.0	19.7	244.7	400.9	0.0	0.0
55.00		440.9	701.6					0.0	78.8	440.9	780.4	0.0	0.0
60.00		489.9	857.8					0.0	98.5	489.9	956.3	0.0	0.0
65.00		488.8	836.5					0.0	98.5	488.8	935.0	0.0	0.0
70.00		486.4	815.1					0.0	98.5	486.4	913.6	0.0	0.0
75.00		483.1	793.8					0.0	98.5	483.1	892.3	0.0	0.0
80.00		478.8	772.5					0.0	98.5	478.8	871.0	0.0	0.0
85.00		473.6	751.1					0.0	98.5	473.6	849.6	0.0	0.0
90.00		270.5	729.8					0.0	98.5	270.5	828.3	0.0	0.0
90.75	Bot - Section 3	235.1	107.6					0.0	14.8	235.1	122.4	0.0	0.0
95.00		235.1	1,059.0					0.0	83.7	235.1	1,142.8	0.0	0.0
95.75	Top - Section 2	232.1	184.1					0.0	14.8	232.1	198.9	0.0	0.0
100.00		425.4	444.6					0.0	83.7	425.4	528.4	0.0	0.0
105.00		452.6	508.3					0.0	98.5	452.6	606.8	0.0	0.0
110.00		400.4	492.3					0.0	98.5	400.4	590.8	0.0	0.0
114.00	Appurtenance(s)	219.8	382.3	2,269.9	0.0	0.0	1,891.8	0.0	78.8	2,489.7	2,352.9	0.0	0.0
115.00		87.0	94.0					0.0	19.7	87.0	113.7	0.0	0.0
116.00	Appurtenance(s)	215.2	93.3	2,023.1	0.0	384.9	901.3	0.0	19.7	2,238.2	1,014.4	0.0	0.0
120.00		340.3	366.9					0.0	48.9	340.3	415.8	0.0	0.0
124.00	Appurtenance(s)	210.2	356.7	1,484.7	0.0	0.0	1,400.2	0.0	48.9	1,695.0	1,805.8	0.0	0.0
125.00		246.7	87.6					0.0	7.7	246.7	95.3	0.0	0.0
130.00		365.2	428.2					0.0	38.6	365.2	466.8	0.0	0.0
134.00	Appurtenance(s)	199.6	331.1	2,028.7	0.0	0.0	2,171.7	0.0	30.9	2,228.3	2,533.6	0.0	0.0
135.00		78.7	81.2					0.0	7.7	78.7	88.9	0.0	0.0
136.00	Appurtenance(s)	78.3	80.5	1,378.6	0.0	0.0	345.3	0.0	7.7	1,456.8	433.6	0.0	0.0
137.00	Appurtenance(s)	154.7	79.9	1,005.7	0.0	0.0	692.5	0.0	5.4	1,160.4	777.8	0.0	0.0
140.00		115.7	235.8					0.0	0.0	115.7	235.8	0.0	0.0
Totals:										23,196.5	34,336.3	0.00	0.00

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:28 AM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W

102 mph with No Ice (Reduced DL)

21 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.32	-22.97	0.00	-2,192.60	0.00	2,192.60	5,594.46	2,797.23	13,736.1	6,878.27	0.00	0.00	0.325
5.00	-32.93	-22.51	0.00	-2,077.77	0.00	2,077.77	5,525.39	2,762.69	13,298.5	6,659.17	0.04	-0.08	0.318
10.00	-31.57	-22.05	0.00	-1,965.25	0.00	1,965.25	5,454.68	2,727.34	12,863.8	6,441.51	0.17	-0.16	0.311
15.00	-30.24	-21.61	0.00	-1,854.98	0.00	1,854.98	5,382.36	2,691.18	12,432.3	6,225.40	0.39	-0.24	0.304
20.00	-28.93	-21.17	0.00	-1,746.96	0.00	1,746.96	5,308.41	2,654.20	12,004.0	6,010.97	0.69	-0.33	0.296
25.00	-27.64	-20.73	0.00	-1,641.13	0.00	1,641.13	5,232.83	2,616.42	11,579.4	5,798.33	1.08	-0.41	0.288
30.00	-26.39	-20.30	0.00	-1,537.47	0.00	1,537.47	5,155.63	2,577.82	11,158.6	5,587.59	1.55	-0.49	0.280
35.00	-25.16	-19.86	0.00	-1,435.98	0.00	1,435.98	5,076.81	2,538.40	10,741.8	5,378.89	2.11	-0.57	0.272
40.00	-23.95	-19.42	0.00	-1,336.69	0.00	1,336.69	4,996.36	2,498.18	10,329.3	5,172.33	2.76	-0.66	0.263
44.75	-22.84	-19.18	0.00	-1,244.46	0.00	1,244.46	4,918.43	2,459.21	9,941.62	4,978.20	3.45	-0.73	0.255
45.00	-22.73	-18.94	0.00	-1,239.66	0.00	1,239.66	4,914.28	2,457.14	9,921.33	4,968.04	3.49	-0.74	0.254
50.00	-20.68	-18.64	0.00	-1,144.95	0.00	1,144.95	4,830.59	2,415.29	9,518.11	4,766.13	4.31	-0.82	0.245
51.00	-20.27	-18.40	0.00	-1,126.31	0.00	1,126.31	3,976.29	1,988.15	7,940.17	3,975.99	4.48	-0.84	0.288
55.00	-19.48	-17.98	0.00	-1,052.69	0.00	1,052.69	3,926.08	1,963.04	7,687.59	3,849.51	5.21	-0.90	0.279
60.00	-18.50	-17.50	0.00	-962.80	0.00	962.80	3,861.85	1,930.92	7,374.54	3,692.75	6.20	-0.99	0.266
65.00	-17.55	-17.02	0.00	-875.30	0.00	875.30	3,795.99	1,898.00	7,064.71	3,537.61	7.28	-1.08	0.252
70.00	-16.62	-16.54	0.00	-790.20	0.00	790.20	3,728.51	1,864.25	6,758.32	3,384.18	8.46	-1.16	0.238
75.00	-15.72	-16.06	0.00	-707.49	0.00	707.49	3,659.40	1,829.70	6,455.61	3,232.60	9.72	-1.24	0.223
80.00	-14.84	-15.58	0.00	-627.18	0.00	627.18	3,588.67	1,794.34	6,156.81	3,082.98	11.06	-1.32	0.208
85.00	-13.98	-15.11	0.00	-549.27	0.00	549.27	3,516.32	1,758.16	5,862.16	2,935.44	12.49	-1.40	0.191
90.00	-13.15	-14.83	0.00	-473.73	0.00	473.73	3,442.34	1,721.17	5,571.91	2,790.09	14.00	-1.47	0.174
90.75	-13.02	-14.60	0.00	-462.61	0.00	462.61	3,431.10	1,715.55	5,528.76	2,768.49	14.23	-1.48	0.171
95.00	-11.88	-14.34	0.00	-400.57	0.00	400.57	3,366.73	1,683.37	5,286.27	2,647.07	15.57	-1.54	0.155
95.75	-11.68	-14.11	0.00	-389.82	0.00	389.82	2,325.90	1,162.95	3,707.18	1,856.35	15.82	-1.55	0.215
100.00	-11.15	-13.68	0.00	-329.87	0.00	329.87	2,288.45	1,144.23	3,553.17	1,779.22	17.22	-1.60	0.190
105.00	-10.54	-13.22	0.00	-261.47	0.00	261.47	2,242.89	1,121.45	3,373.66	1,689.34	18.94	-1.67	0.160
110.00	-9.95	-12.81	0.00	-195.37	0.00	195.37	2,195.71	1,097.85	3,196.22	1,600.48	20.72	-1.73	0.127
114.00	-7.67	-10.25	0.00	-144.12	0.00	144.12	2,156.79	1,078.40	3,055.89	1,530.22	22.18	-1.77	0.098
115.00	-7.56	-10.16	0.00	-133.87	0.00	133.87	2,146.90	1,073.45	3,021.06	1,512.77	22.56	-1.78	0.092
116.00	-6.61	-7.90	0.00	-123.32	0.00	123.32	2,136.94	1,068.47	2,986.32	1,495.38	22.93	-1.78	0.086
120.00	-6.20	-7.55	0.00	-91.72	0.00	91.72	2,096.47	1,048.23	2,848.43	1,426.33	24.44	-1.81	0.067
124.00	-4.45	-5.80	0.00	-61.53	0.00	61.53	2,054.95	1,027.48	2,712.30	1,358.17	25.97	-1.83	0.048
125.00	-4.36	-5.55	0.00	-55.74	0.00	55.74	2,044.41	1,022.20	2,678.56	1,341.27	26.35	-1.84	0.044
130.00	-3.90	-5.17	0.00	-27.99	0.00	27.99	1,990.73	995.36	2,511.69	1,257.71	28.28	-1.85	0.024
134.00	-1.44	-2.86	0.00	-7.32	0.00	7.32	1,946.61	973.30	2,380.52	1,192.03	29.84	-1.86	0.007
135.00	-1.36	-2.78	0.00	-4.46	0.00	4.46	1,935.42	967.71	2,348.06	1,175.77	30.23	-1.86	0.005
136.00	-0.97	-1.31	0.00	-1.68	0.00	1.68	1,924.16	962.08	2,315.74	1,159.59	30.62	-1.86	0.002
137.00	-0.23	-0.12	0.00	-0.37	0.00	0.37	1,912.84	956.42	2,283.56	1,143.48	31.01	-1.86	0.000
140.00	0.00	-0.12	0.00	0.00	0.00	0.00	1,878.49	939.24	2,187.90	1,095.58	32.18	-1.86	0.000

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:29 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

20 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

		Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
Seg			Dead		Torsion	Moment	Dead		Dead		Torsion	Moment	
Elev		Wind FX	Load	Wind FX	MY	MZ	Load	Wind FX	Load	Wind FX	Load	MY	MZ
(ft)	Description	(lb)	(lb)	(lb)	(lb-ft)	(lb-ft)	(lb)	(lb)	(lb)	(lb)	(lb)	(lb-ft)	(lb)
0.00		73.5	0.0					0.0	0.0	73.5	0.0	0.0	0.0
5.00		146.0	2,113.2					0.0	131.3	146.0	2,244.6	0.0	0.0
10.00		143.6	2,122.3					0.0	131.3	143.6	2,253.6	0.0	0.0
15.00		141.1	2,104.8					0.0	131.3	141.1	2,236.1	0.0	0.0
20.00		138.5	2,078.6					0.0	131.3	138.5	2,209.9	0.0	0.0
25.00		135.9	2,047.9					0.0	131.3	135.9	2,179.2	0.0	0.0
30.00		134.8	2,014.4					0.0	131.3	134.8	2,145.7	0.0	0.0
35.00		136.5	1,978.9					0.0	131.3	136.5	2,110.2	0.0	0.0
40.00		135.4	1,942.0					0.0	131.3	135.4	2,073.3	0.0	0.0
44.75	Bot - Section 2	70.0	1,809.9					0.0	124.8	70.0	1,934.7	0.0	0.0
45.00		75.2	155.7					0.0	6.6	75.2	162.3	0.0	0.0
50.00		86.1	3,073.0					0.0	131.3	86.1	3,204.3	0.0	0.0
51.00	Top - Section 1	72.2	607.4					0.0	26.3	72.2	633.6	0.0	0.0
55.00		130.2	1,326.4					0.0	105.1	130.2	1,431.5	0.0	0.0
60.00		144.9	1,624.9					0.0	131.3	144.9	1,756.2	0.0	0.0
65.00		144.9	1,588.9					0.0	131.3	144.9	1,720.2	0.0	0.0
70.00		144.5	1,552.4					0.0	131.3	144.5	1,683.7	0.0	0.0
75.00		143.9	1,515.5					0.0	131.3	143.9	1,646.8	0.0	0.0
80.00		142.9	1,478.2					0.0	131.3	142.9	1,609.5	0.0	0.0
85.00		141.7	1,440.6					0.0	131.3	141.7	1,571.9	0.0	0.0
90.00		81.1	1,402.7					0.0	131.3	81.1	1,534.0	0.0	0.0
90.75	Bot - Section 3	70.6	207.9					0.0	19.7	70.6	227.6	0.0	0.0
95.00		70.6	1,774.1					0.0	111.6	70.6	1,885.8	0.0	0.0
95.75	Top - Section 2	69.8	309.2					0.0	19.7	69.8	328.9	0.0	0.0
100.00		128.2	946.5					0.0	111.6	128.2	1,058.1	0.0	0.0
105.00		136.8	1,083.4					0.0	131.3	136.8	1,214.7	0.0	0.0
110.00		121.4	1,051.7					0.0	131.3	121.4	1,183.0	0.0	0.0
114.00	Appurtenance(s)	66.7	819.4	558.8	0.0	0.0	3,992.7	0.0	105.1	625.6	4,917.2	0.0	0.0
115.00		26.5	202.4					0.0	26.3	26.5	228.7	0.0	0.0
116.00	Appurtenance(s)	65.5	201.1	398.2	0.0	77.3	2,636.7	0.0	26.3	463.8	2,864.1	0.0	0.0
120.00		103.9	788.6					0.0	65.1	103.9	853.7	0.0	0.0
124.00	Appurtenance(s)	64.3	768.0	380.0	0.0	0.0	2,345.4	0.0	65.1	444.3	3,178.4	0.0	0.0
125.00		75.7	189.5					0.0	10.3	75.7	199.8	0.0	0.0
130.00		112.3	923.0					0.0	51.4	112.3	974.5	0.0	0.0
134.00	Appurtenance(s)	61.5	716.0	514.7	0.0	0.0	4,076.1	0.0	41.1	576.2	4,833.2	0.0	0.0
135.00		24.3	176.5					0.0	10.3	24.3	186.8	0.0	0.0
136.00	Appurtenance(s)	24.2	175.2	244.7	0.0	0.0	1,290.9	0.0	10.3	268.9	1,476.4	0.0	0.0
137.00	Appurtenance(s)	47.9	173.9	206.6	0.0	0.0	1,658.5	0.0	7.2	254.5	1,839.6	0.0	0.0
140.00		35.8	512.3					0.0	0.0	35.8	512.3	0.0	0.0
Totals:										6,171.80	64,304.2	0.00	0.00

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:32 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

20 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor 1.00

Wind Importance Factor 1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-64.30	-6.11	0.00	-571.41	0.00	571.41	5,594.46	2,797.23	13,736.1	6,878.27	0.00	0.00	0.095
5.00	-62.06	-5.99	0.00	-540.86	0.00	540.86	5,525.39	2,762.69	13,298.5	6,659.17	0.01	-0.02	0.092
10.00	-59.80	-5.86	0.00	-510.93	0.00	510.93	5,454.68	2,727.34	12,863.8	6,441.51	0.05	-0.04	0.090
15.00	-57.56	-5.74	0.00	-481.61	0.00	481.61	5,382.36	2,691.18	12,432.3	6,225.40	0.10	-0.06	0.088
20.00	-55.35	-5.62	0.00	-452.90	0.00	452.90	5,308.41	2,654.20	12,004.0	6,010.97	0.18	-0.09	0.086
25.00	-53.17	-5.50	0.00	-424.80	0.00	424.80	5,232.83	2,616.42	11,579.4	5,798.33	0.28	-0.11	0.083
30.00	-51.02	-5.38	0.00	-397.29	0.00	397.29	5,155.63	2,577.82	11,158.6	5,587.59	0.40	-0.13	0.081
35.00	-48.91	-5.26	0.00	-370.39	0.00	370.39	5,076.81	2,538.40	10,741.8	5,378.89	0.55	-0.15	0.078
40.00	-46.84	-5.13	0.00	-344.10	0.00	344.10	4,996.36	2,498.18	10,329.3	5,172.33	0.72	-0.17	0.076
44.75	-44.90	-5.07	0.00	-319.71	0.00	319.71	4,918.43	2,459.21	9,941.62	4,978.20	0.90	-0.19	0.073
45.00	-44.74	-5.00	0.00	-318.45	0.00	318.45	4,914.28	2,457.14	9,921.33	4,968.04	0.91	-0.19	0.073
50.00	-41.53	-4.91	0.00	-293.46	0.00	293.46	4,830.59	2,415.29	9,518.11	4,766.13	1.12	-0.21	0.070
51.00	-40.90	-4.84	0.00	-288.55	0.00	288.55	3,976.29	1,988.15	7,940.17	3,975.99	1.16	-0.22	0.083
55.00	-39.47	-4.72	0.00	-269.17	0.00	269.17	3,926.08	1,963.04	7,687.59	3,849.51	1.35	-0.23	0.080
60.00	-37.71	-4.58	0.00	-245.57	0.00	245.57	3,861.85	1,930.92	7,374.54	3,692.75	1.61	-0.26	0.076
65.00	-35.99	-4.44	0.00	-222.66	0.00	222.66	3,795.99	1,898.00	7,064.71	3,537.61	1.89	-0.28	0.072
70.00	-34.30	-4.30	0.00	-200.44	0.00	200.44	3,728.51	1,864.25	6,758.32	3,384.18	2.19	-0.30	0.068
75.00	-32.65	-4.16	0.00	-178.92	0.00	178.92	3,659.40	1,829.70	6,455.61	3,232.60	2.51	-0.32	0.064
80.00	-31.04	-4.02	0.00	-158.11	0.00	158.11	3,588.67	1,794.34	6,156.81	3,082.98	2.86	-0.34	0.060
85.00	-29.47	-3.88	0.00	-138.00	0.00	138.00	3,516.32	1,758.16	5,862.16	2,935.44	3.23	-0.36	0.055
90.00	-27.94	-3.79	0.00	-118.61	0.00	118.61	3,442.34	1,721.17	5,571.91	2,790.09	3.61	-0.38	0.051
90.75	-27.71	-3.73	0.00	-115.76	0.00	115.76	3,431.10	1,715.55	5,528.76	2,768.49	3.67	-0.38	0.050
95.00	-25.82	-3.65	0.00	-99.93	0.00	99.93	3,366.73	1,683.37	5,286.27	2,647.07	4.02	-0.39	0.045
95.75	-25.50	-3.58	0.00	-97.20	0.00	97.20	2,325.90	1,162.95	3,707.18	1,856.35	4.08	-0.40	0.063
100.00	-24.44	-3.45	0.00	-81.99	0.00	81.99	2,288.45	1,144.23	3,553.17	1,779.22	4.44	-0.41	0.057
105.00	-23.22	-3.31	0.00	-64.75	0.00	64.75	2,242.89	1,121.45	3,373.66	1,689.34	4.88	-0.43	0.049
110.00	-22.04	-3.18	0.00	-48.21	0.00	48.21	2,195.71	1,097.85	3,196.22	1,600.48	5.33	-0.44	0.040
114.00	-17.13	-2.52	0.00	-35.48	0.00	35.48	2,156.79	1,078.40	3,055.89	1,530.22	5.71	-0.45	0.031
115.00	-16.90	-2.49	0.00	-32.95	0.00	32.95	2,146.90	1,073.45	3,021.06	1,512.77	5.80	-0.45	0.030
116.00	-14.04	-2.01	0.00	-30.38	0.00	30.38	2,136.94	1,068.47	2,986.32	1,495.38	5.90	-0.46	0.027
120.00	-13.19	-1.90	0.00	-22.35	0.00	22.35	2,096.47	1,048.23	2,848.43	1,426.33	6.28	-0.46	0.022
124.00	-10.01	-1.43	0.00	-14.76	0.00	14.76	2,054.95	1,027.48	2,712.30	1,358.17	6.67	-0.47	0.016
125.00	-9.81	-1.35	0.00	-13.33	0.00	13.33	2,044.41	1,022.20	2,678.56	1,341.27	6.77	-0.47	0.015
130.00	-8.84	-1.23	0.00	-6.57	0.00	6.57	1,990.73	995.36	2,511.69	1,257.71	7.26	-0.47	0.010
134.00	-4.01	-0.62	0.00	-1.64	0.00	1.64	1,946.61	973.30	2,380.52	1,192.03	7.66	-0.47	0.003
135.00	-3.82	-0.59	0.00	-1.02	0.00	1.02	1,935.42	967.71	2,348.06	1,175.77	7.76	-0.47	0.003
136.00	-2.35	-0.31	0.00	-0.43	0.00	0.43	1,924.16	962.08	2,315.74	1,159.59	7.86	-0.47	0.002
137.00	-0.51	-0.04	0.00	-0.12	0.00	0.12	1,912.84	956.42	2,283.56	1,143.48	7.96	-0.47	0.000
140.00	0.00	-0.04	0.00	0.00	0.00	0.00	1,878.49	939.24	2,187.90	1,095.58	8.25	-0.47	0.000

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:32 AM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W

Serviceability 60 mph

19 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

		Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
Seg			Dead		Torsion	Moment	Dead		Dead		Torsion	Moment	
Elev		Wind FX	Load	Wind FX	MY	MZ	Load	Wind FX	Load	Wind FX	Load	MY	MZ
(ft)	Description	(lb)	(lb)	(lb)	(lb-ft)	(lb-ft)	(lb)	(lb)	(lb)	(lb)	(lb)	(lb-ft)	(lb)
0.00		49.4	0.0					0.0	0.0	49.4	0.0	0.0	0.0
5.00		97.9	1,397.1					0.0	109.5	97.9	1,506.6	0.0	0.0
10.00		95.9	1,369.4					0.0	109.5	95.9	1,478.9	0.0	0.0
15.00		94.0	1,341.8					0.0	109.5	94.0	1,451.2	0.0	0.0
20.00		92.0	1,314.1					0.0	109.5	92.0	1,423.6	0.0	0.0
25.00		90.1	1,286.5					0.0	109.5	90.1	1,395.9	0.0	0.0
30.00		89.2	1,258.8					0.0	109.5	89.2	1,368.2	0.0	0.0
35.00		90.1	1,231.1					0.0	109.5	90.1	1,340.6	0.0	0.0
40.00		89.2	1,203.5					0.0	109.5	89.2	1,312.9	0.0	0.0
44.75	Bot - Section 2	46.1	1,117.7					0.0	104.0	46.1	1,221.6	0.0	0.0
45.00		49.5	108.8					0.0	5.5	49.5	114.3	0.0	0.0
50.00		56.6	2,148.7					0.0	109.5	56.6	2,258.1	0.0	0.0
51.00	Top - Section 1	47.3	423.6					0.0	21.9	47.3	445.5	0.0	0.0
55.00		85.3	779.6					0.0	87.6	85.3	867.1	0.0	0.0
60.00		94.8	953.1					0.0	109.5	94.8	1,062.6	0.0	0.0
65.00		94.6	929.4					0.0	109.5	94.6	1,038.9	0.0	0.0
70.00		94.1	905.7					0.0	109.5	94.1	1,015.2	0.0	0.0
75.00		93.5	882.0					0.0	109.5	93.5	991.4	0.0	0.0
80.00		92.6	858.3					0.0	109.5	92.6	967.7	0.0	0.0
85.00		91.6	834.6					0.0	109.5	91.6	944.0	0.0	0.0
90.00		52.3	810.9					0.0	109.5	52.3	920.3	0.0	0.0
90.75	Bot - Section 3	45.5	119.6					0.0	16.4	45.5	136.0	0.0	0.0
95.00		45.5	1,176.7					0.0	93.0	45.5	1,269.7	0.0	0.0
95.75	Top - Section 2	44.9	204.5					0.0	16.4	44.9	221.0	0.0	0.0
100.00		82.3	494.0					0.0	93.0	82.3	587.1	0.0	0.0
105.00		87.6	564.8					0.0	109.5	87.6	674.2	0.0	0.0
110.00		77.5	547.0					0.0	109.5	77.5	656.4	0.0	0.0
114.00	Appurtenance(s)	42.5	424.8	439.2	0.0	0.0	2,102.0	0.0	87.6	481.8	2,614.3	0.0	0.0
115.00		16.8	104.4					0.0	21.9	16.8	126.3	0.0	0.0
116.00	Appurtenance(s)	41.6	103.7	391.5	0.0	74.5	1,001.5	0.0	21.9	433.1	1,127.1	0.0	0.0
120.00		65.9	407.7					0.0	54.3	65.9	462.0	0.0	0.0
124.00	Appurtenance(s)	40.7	396.3	287.3	0.0	0.0	1,555.8	0.0	54.3	328.0	2,006.4	0.0	0.0
125.00		47.7	97.3					0.0	8.6	47.7	105.9	0.0	0.0
130.00		70.7	475.8					0.0	42.9	70.7	518.7	0.0	0.0
134.00	Appurtenance(s)	38.6	367.9	392.5	0.0	0.0	2,413.0	0.0	34.3	431.2	2,815.1	0.0	0.0
135.00		15.2	90.2					0.0	8.6	15.2	98.8	0.0	0.0
136.00	Appurtenance(s)	15.1	89.5	266.7	0.0	0.0	383.7	0.0	8.6	281.9	481.7	0.0	0.0
137.00	Appurtenance(s)	29.9	88.8	194.6	0.0	0.0	769.5	0.0	6.0	224.5	864.2	0.0	0.0
140.00		22.4	262.0					0.0	0.0	22.4	262.0	0.0	0.0
Totals:										4,488.51	38,151.5	0.00	0.00

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W

Serviceability 60 mph

19 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.15	-4.44	0.00	-424.94	0.00	424.94	5,594.46	2,797.23	13,736.1	6,878.27	0.00	0.00	0.069
5.00	-36.64	-4.35	0.00	-402.72	0.00	402.72	5,525.39	2,762.69	13,298.5	6,659.17	0.01	-0.02	0.067
10.00	-35.16	-4.27	0.00	-380.95	0.00	380.95	5,454.68	2,727.34	12,863.8	6,441.51	0.03	-0.03	0.066
15.00	-33.71	-4.18	0.00	-359.61	0.00	359.61	5,382.36	2,691.18	12,432.3	6,225.40	0.08	-0.05	0.064
20.00	-32.29	-4.10	0.00	-338.69	0.00	338.69	5,308.41	2,654.20	12,004.0	6,010.97	0.13	-0.06	0.062
25.00	-30.89	-4.01	0.00	-318.20	0.00	318.20	5,232.83	2,616.42	11,579.4	5,798.33	0.21	-0.08	0.061
30.00	-29.52	-3.93	0.00	-298.13	0.00	298.13	5,155.63	2,577.82	11,158.6	5,587.59	0.30	-0.10	0.059
35.00	-28.18	-3.85	0.00	-278.47	0.00	278.47	5,076.81	2,538.40	10,741.8	5,378.89	0.41	-0.11	0.057
40.00	-26.86	-3.76	0.00	-259.23	0.00	259.23	4,996.36	2,498.18	10,329.3	5,172.33	0.53	-0.13	0.055
44.75	-25.64	-3.72	0.00	-241.36	0.00	241.36	4,918.43	2,459.21	9,941.62	4,978.20	0.67	-0.14	0.054
45.00	-25.53	-3.67	0.00	-240.43	0.00	240.43	4,914.28	2,457.14	9,921.33	4,968.04	0.68	-0.14	0.054
50.00	-23.27	-3.61	0.00	-222.08	0.00	222.08	4,830.59	2,415.29	9,518.11	4,766.13	0.83	-0.16	0.051
51.00	-22.82	-3.57	0.00	-218.46	0.00	218.46	3,976.29	1,988.15	7,940.17	3,975.99	0.87	-0.16	0.061
55.00	-21.96	-3.48	0.00	-204.20	0.00	204.20	3,926.08	1,963.04	7,687.59	3,849.51	1.01	-0.17	0.059
60.00	-20.89	-3.39	0.00	-186.77	0.00	186.77	3,861.85	1,930.92	7,374.54	3,692.75	1.20	-0.19	0.056
65.00	-19.85	-3.30	0.00	-169.81	0.00	169.81	3,795.99	1,898.00	7,064.71	3,537.61	1.41	-0.21	0.053
70.00	-18.84	-3.21	0.00	-153.31	0.00	153.31	3,728.51	1,864.25	6,758.32	3,384.18	1.64	-0.23	0.050
75.00	-17.85	-3.12	0.00	-137.27	0.00	137.27	3,659.40	1,829.70	6,455.61	3,232.60	1.88	-0.24	0.047
80.00	-16.88	-3.02	0.00	-121.69	0.00	121.69	3,588.67	1,794.34	6,156.81	3,082.98	2.15	-0.26	0.044
85.00	-15.93	-2.93	0.00	-106.58	0.00	106.58	3,516.32	1,758.16	5,862.16	2,935.44	2.42	-0.27	0.041
90.00	-15.01	-2.88	0.00	-91.92	0.00	91.92	3,442.34	1,721.17	5,571.91	2,790.09	2.71	-0.29	0.037
90.75	-14.88	-2.83	0.00	-89.76	0.00	89.76	3,431.10	1,715.55	5,528.76	2,768.49	2.76	-0.29	0.037
95.00	-13.61	-2.78	0.00	-77.73	0.00	77.73	3,366.73	1,683.37	5,286.27	2,647.07	3.02	-0.30	0.033
95.75	-13.39	-2.74	0.00	-75.64	0.00	75.64	2,325.90	1,162.95	3,707.18	1,856.35	3.07	-0.30	0.047
100.00	-12.80	-2.65	0.00	-64.01	0.00	64.01	2,288.45	1,144.23	3,553.17	1,779.22	3.34	-0.31	0.042
105.00	-12.12	-2.57	0.00	-50.74	0.00	50.74	2,242.89	1,121.45	3,373.66	1,689.34	3.67	-0.32	0.035
110.00	-11.47	-2.49	0.00	-37.91	0.00	37.91	2,195.71	1,097.85	3,196.22	1,600.48	4.02	-0.34	0.029
114.00	-8.86	-1.99	0.00	-27.97	0.00	27.97	2,156.79	1,078.40	3,055.89	1,530.22	4.30	-0.34	0.022
115.00	-8.73	-1.97	0.00	-25.98	0.00	25.98	2,146.90	1,073.45	3,021.06	1,512.77	4.37	-0.34	0.021
116.00	-7.61	-1.53	0.00	-23.93	0.00	23.93	2,136.94	1,068.47	2,986.32	1,495.38	4.45	-0.35	0.020
120.00	-7.14	-1.47	0.00	-17.80	0.00	17.80	2,096.47	1,048.23	2,848.43	1,426.33	4.74	-0.35	0.016
124.00	-5.14	-1.12	0.00	-11.94	0.00	11.94	2,054.95	1,027.48	2,712.30	1,358.17	5.04	-0.36	0.011
125.00	-5.03	-1.08	0.00	-10.82	0.00	10.82	2,044.41	1,022.20	2,678.56	1,341.27	5.11	-0.36	0.011
130.00	-4.52	-1.00	0.00	-5.43	0.00	5.43	1,990.73	995.36	2,511.69	1,257.71	5.49	-0.36	0.007
134.00	-1.70	-0.55	0.00	-1.42	0.00	1.42	1,946.61	973.30	2,380.52	1,192.03	5.79	-0.36	0.002
135.00	-1.60	-0.54	0.00	-0.86	0.00	0.86	1,935.42	967.71	2,348.06	1,175.77	5.86	-0.36	0.002
136.00	-1.12	-0.25	0.00	-0.33	0.00	0.33	1,924.16	962.08	2,315.74	1,159.59	5.94	-0.36	0.001
137.00	-0.26	-0.02	0.00	-0.07	0.00	0.07	1,912.84	956.42	2,283.56	1,143.48	6.01	-0.36	0.000
140.00	0.00	-0.02	0.00	0.00	0.00	0.00	1,878.49	939.24	2,187.90	1,095.58	6.24	-0.36	0.000

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s	0.04
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.57
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	1.53
Total Unfactored Dead Load:	38.15 k
Seismic Base Shear (E):	1.56 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)
38	138.50	262	506	0.016	25	324
37	136.50	95	179	0.006	9	117
36	135.50	98	183	0.006	9	121
35	134.50	99	182	0.006	9	122
34	132.00	402	721	0.023	36	497
33	127.50	519	881	0.028	44	641
32	124.50	106	173	0.006	9	131
31	122.00	451	716	0.023	36	557
30	118.00	462	697	0.022	35	571
29	115.50	126	183	0.006	9	155
28	114.50	126	182	0.006	9	156
27	112.00	512	714	0.023	36	633
26	107.50	656	859	0.028	43	812
25	102.50	674	820	0.026	41	833
24	97.88	587	665	0.021	33	726
23	95.38	221	241	0.008	12	273
22	92.88	1,270	1,327	0.043	67	1,570
21	90.38	136	136	0.004	7	168
20	87.50	920	878	0.028	44	1,138
19	82.50	944	823	0.027	41	1,167
18	77.50	968	766	0.025	38	1,196
17	72.50	991	709	0.023	36	1,226
16	67.50	1,015	650	0.021	33	1,255

Site Number: 311014

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

15	62.50	1,039	591	0.019	30	1,284
14	57.50	1,063	532	0.017	27	1,314
13	53.00	867	383	0.012	19	1,072
12	50.50	445	183	0.006	9	551
11	47.50	2,258	844	0.027	42	2,792
10	44.88	114	39	0.001	2	141
9	42.38	1,222	383	0.012	19	1,510
8	37.50	1,313	341	0.011	17	1,623
7	32.50	1,341	280	0.009	14	1,657
6	27.50	1,368	221	0.007	11	1,692
5	22.50	1,396	166	0.005	8	1,726
4	17.50	1,424	115	0.004	6	1,760
3	12.50	1,451	70	0.002	4	1,794
2	7.50	1,479	33	0.001	2	1,828
1	2.50	1,507	6	0.000	0	1,863
Ericsson Radio 4449	137.00	222	421	0.014	21	274
Ericsson AIR 21, 1.3	137.00	275	521	0.017	26	339
Ericsson AIR 21	137.00	273	518	0.017	26	338
RFS APXVAARR24_43-U-	136.00	384	720	0.023	36	474
Platform with Site P	134.00	2,413	4,425	0.143	222	2,983
Generic RCU (Remote	124.00	3	5	0.000	0	4
Kathrein Scala 800 1	124.00	53	86	0.003	4	65
Flat Low Profile Pla	124.00	1,500	2,442	0.079	123	1,854
Samsung B5/B13 RRH-B	116.00	211	310	0.010	16	261
Alcatel-Lucent B25 R	116.00	159	234	0.008	12	197
Alcatel-Lucent RRH4X	116.00	192	282	0.009	14	237
Raycap RCMD-6627-PF	116.00	64	94	0.003	5	79
Commscope SBNHH-1D65	116.00	81	119	0.004	6	100
Commscope NHH-45B-R2	116.00	294	433	0.014	22	364
Amphenol Antel BXA-7	114.00	102	146	0.005	7	126
Round Platform w/ Ha	114.00	2,000	2,862	0.092	144	2,473
		38,152	30,993	1.000	1,557	47,165

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	138.50	262	506	0.016	25	226
37	136.50	95	179	0.006	9	82
36	135.50	98	183	0.006	9	85
35	134.50	99	182	0.006	9	85
34	132.00	402	721	0.023	36	347
33	127.50	519	881	0.028	44	448
32	124.50	106	173	0.006	9	91
31	122.00	451	716	0.023	36	389
30	118.00	462	697	0.022	35	399
29	115.50	126	183	0.006	9	108
28	114.50	126	182	0.006	9	109
27	112.00	512	714	0.023	36	443
26	107.50	656	859	0.028	43	567
25	102.50	674	820	0.026	41	582
24	97.88	587	665	0.021	33	507
23	95.38	221	241	0.008	12	191
22	92.88	1,270	1,327	0.043	67	1,097
21	90.38	136	136	0.004	7	117
20	87.50	920	878	0.028	44	795
19	82.50	944	823	0.027	41	815
18	77.50	968	766	0.025	38	836
17	72.50	991	709	0.023	36	856
16	67.50	1,015	650	0.021	33	877

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

15	62.50	1,039	591	0.019	30	897
14	57.50	1,063	532	0.017	27	918
13	53.00	867	383	0.012	19	749
12	50.50	445	183	0.006	9	385
11	47.50	2,258	844	0.027	42	1,950
10	44.88	114	39	0.001	2	99
9	42.38	1,222	383	0.012	19	1,055
8	37.50	1,313	341	0.011	17	1,134
7	32.50	1,341	280	0.009	14	1,158
6	27.50	1,368	221	0.007	11	1,182
5	22.50	1,396	166	0.005	8	1,206
4	17.50	1,424	115	0.004	6	1,230
3	12.50	1,451	70	0.002	4	1,253
2	7.50	1,479	33	0.001	2	1,277
1	2.50	1,507	6	0.000	0	1,301
Ericsson Radio 4449	137.00	222	421	0.014	21	192
Ericsson AIR 21, 1.3	137.00	275	521	0.017	26	237
Ericsson AIR 21	137.00	273	518	0.017	26	236
RFS APXVAARR24_43-U-	136.00	384	720	0.023	36	331
Platform with Site P	134.00	2,413	4,425	0.143	222	2,084
Generic RCU (Remote	124.00	3	5	0.000	0	3
Kathrein Scala 800 1	124.00	53	86	0.003	4	46
Flat Low Profile Pla	124.00	1,500	2,442	0.079	123	1,296
Samsung B5/B13 RRH-B	116.00	211	310	0.010	16	182
Alcatel-Lucent B25 R	116.00	159	234	0.008	12	137
Alcatel-Lucent RRH4X	116.00	192	282	0.009	14	166
Raycap RCMD-6627-PF	116.00	64	94	0.003	5	55
Commscope SBNHH-1D65	116.00	81	119	0.004	6	70
Commscope NHH-45B-R2	116.00	294	433	0.014	22	254
Amphenol Antel BXA-7	114.00	102	146	0.005	7	88
Round Platform w/ Ha	114.00	2,000	2,862	0.092	144	1,727
		38,152	30,993	1.000	1,557	32,953

Site Number: 311014

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.30	-1.56	0.00	-165.93	0.00	165.93	5,594.46	2,797.23	13,736.1	6,878.27	0.00	0.00	0.032
5.00	-43.47	-1.56	0.00	-158.14	0.00	158.14	5,525.39	2,762.69	13,298.5	6,659.17	0.00	-0.01	0.032
10.00	-41.68	-1.56	0.00	-150.33	0.00	150.33	5,454.68	2,727.34	12,863.8	6,441.51	0.01	-0.01	0.031
15.00	-39.92	-1.56	0.00	-142.52	0.00	142.52	5,382.36	2,691.18	12,432.3	6,225.40	0.03	-0.02	0.030
20.00	-38.19	-1.56	0.00	-134.72	0.00	134.72	5,308.41	2,654.20	12,004.0	6,010.97	0.05	-0.03	0.030
25.00	-36.50	-1.55	0.00	-126.95	0.00	126.95	5,232.83	2,616.42	11,579.4	5,798.33	0.08	-0.03	0.029
30.00	-34.85	-1.54	0.00	-119.21	0.00	119.21	5,155.63	2,577.82	11,158.6	5,587.59	0.12	-0.04	0.028
35.00	-33.22	-1.52	0.00	-111.53	0.00	111.53	5,076.81	2,538.40	10,741.8	5,378.89	0.16	-0.04	0.027
40.00	-31.71	-1.50	0.00	-103.92	0.00	103.92	4,996.36	2,498.18	10,329.3	5,172.33	0.21	-0.05	0.026
44.75	-31.57	-1.50	0.00	-96.77	0.00	96.77	4,918.43	2,459.21	9,941.62	4,978.20	0.26	-0.06	0.026
45.00	-28.78	-1.46	0.00	-96.39	0.00	96.39	4,914.28	2,457.14	9,921.33	4,968.04	0.27	-0.06	0.025
50.00	-28.23	-1.45	0.00	-89.09	0.00	89.09	4,830.59	2,415.29	9,518.11	4,766.13	0.33	-0.06	0.025
51.00	-27.16	-1.43	0.00	-87.64	0.00	87.64	3,976.29	1,988.15	7,940.17	3,975.99	0.34	-0.06	0.029
55.00	-25.84	-1.41	0.00	-81.90	0.00	81.90	3,926.08	1,963.04	7,687.59	3,849.51	0.40	-0.07	0.028
60.00	-24.56	-1.38	0.00	-74.86	0.00	74.86	3,861.85	1,930.92	7,374.54	3,692.75	0.48	-0.08	0.027
65.00	-23.30	-1.35	0.00	-67.95	0.00	67.95	3,795.99	1,898.00	7,064.71	3,537.61	0.56	-0.08	0.025
70.00	-22.08	-1.31	0.00	-61.21	0.00	61.21	3,728.51	1,864.25	6,758.32	3,384.18	0.65	-0.09	0.024
75.00	-20.88	-1.28	0.00	-54.64	0.00	54.64	3,659.40	1,829.70	6,455.61	3,232.60	0.75	-0.10	0.023
80.00	-19.71	-1.23	0.00	-48.27	0.00	48.27	3,588.67	1,794.34	6,156.81	3,082.98	0.85	-0.10	0.021
85.00	-18.58	-1.19	0.00	-42.10	0.00	42.10	3,516.32	1,758.16	5,862.16	2,935.44	0.96	-0.11	0.020
90.00	-18.41	-1.18	0.00	-36.15	0.00	36.15	3,442.34	1,721.17	5,571.91	2,790.09	1.08	-0.11	0.018
90.75	-16.84	-1.11	0.00	-35.26	0.00	35.26	3,431.10	1,715.55	5,528.76	2,768.49	1.10	-0.11	0.018
95.00	-16.56	-1.10	0.00	-30.52	0.00	30.52	3,366.73	1,683.37	5,286.27	2,647.07	1.20	-0.12	0.016
95.75	-15.84	-1.07	0.00	-29.69	0.00	29.69	2,325.90	1,162.95	3,707.18	1,856.35	1.22	-0.12	0.023
100.00	-15.00	-1.03	0.00	-25.15	0.00	25.15	2,288.45	1,144.23	3,553.17	1,779.22	1.33	-0.12	0.021
105.00	-14.19	-0.98	0.00	-20.02	0.00	20.02	2,242.89	1,121.45	3,373.66	1,689.34	1.46	-0.13	0.018
110.00	-13.56	-0.95	0.00	-15.10	0.00	15.10	2,195.71	1,097.85	3,196.22	1,600.48	1.60	-0.13	0.016
114.00	-10.81	-0.78	0.00	-11.32	0.00	11.32	2,156.79	1,078.40	3,055.89	1,530.22	1.71	-0.14	0.012
115.00	-10.65	-0.77	0.00	-10.54	0.00	10.54	2,146.90	1,073.45	3,021.06	1,512.77	1.74	-0.14	0.012
116.00	-8.84	-0.66	0.00	-9.76	0.00	9.76	2,136.94	1,068.47	2,986.32	1,495.38	1.77	-0.14	0.011
120.00	-8.28	-0.62	0.00	-7.13	0.00	7.13	2,096.47	1,048.23	2,848.43	1,426.33	1.88	-0.14	0.009
124.00	-6.23	-0.48	0.00	-4.65	0.00	4.65	2,054.95	1,027.48	2,712.30	1,358.17	2.00	-0.14	0.006
125.00	-5.59	-0.43	0.00	-4.17	0.00	4.17	2,044.41	1,022.20	2,678.56	1,341.27	2.03	-0.14	0.006
130.00	-5.09	-0.40	0.00	-2.00	0.00	2.00	1,990.73	995.36	2,511.69	1,257.71	2.18	-0.14	0.004
134.00	-1.99	-0.16	0.00	-0.41	0.00	0.41	1,946.61	973.30	2,380.52	1,192.03	2.30	-0.14	0.001
135.00	-1.87	-0.15	0.00	-0.25	0.00	0.25	1,935.42	967.71	2,348.06	1,175.77	2.33	-0.14	0.001
136.00	-1.27	-0.10	0.00	-0.10	0.00	0.10	1,924.16	962.08	2,315.74	1,159.59	2.36	-0.14	0.001
137.00	0.00	0.00	0.00	0.00	0.00	0.00	1,912.84	956.42	2,283.56	1,143.48	2.39	-0.14	0.000
140.00	0.00	0.00	0.00	0.00	0.00	0.00	1,878.49	939.24	2,187.90	1,095.58	2.48	-0.14	0.000

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.65	-1.56	0.00	-164.86	0.00	164.86	5,594.46	2,797.23	13,736.1	6,878.27	0.00	0.00	0.030
5.00	-30.37	-1.56	0.00	-157.07	0.00	157.07	5,525.39	2,762.69	13,298.5	6,659.17	0.00	-0.01	0.029
10.00	-29.12	-1.56	0.00	-149.28	0.00	149.28	5,454.68	2,727.34	12,863.8	6,441.51	0.01	-0.01	0.029
15.00	-27.89	-1.56	0.00	-141.48	0.00	141.48	5,382.36	2,691.18	12,432.3	6,225.40	0.03	-0.02	0.028
20.00	-26.68	-1.55	0.00	-133.71	0.00	133.71	5,308.41	2,654.20	12,004.0	6,010.97	0.05	-0.02	0.027
25.00	-25.50	-1.54	0.00	-125.96	0.00	125.96	5,232.83	2,616.42	11,579.4	5,798.33	0.08	-0.03	0.027
30.00	-24.34	-1.53	0.00	-118.25	0.00	118.25	5,155.63	2,577.82	11,158.6	5,587.59	0.12	-0.04	0.026
35.00	-23.21	-1.51	0.00	-110.61	0.00	110.61	5,076.81	2,538.40	10,741.8	5,378.89	0.16	-0.04	0.025
40.00	-22.16	-1.50	0.00	-103.04	0.00	103.04	4,996.36	2,498.18	10,329.3	5,172.33	0.21	-0.05	0.024
44.75	-22.06	-1.49	0.00	-95.94	0.00	95.94	4,918.43	2,459.21	9,941.62	4,978.20	0.26	-0.06	0.024
45.00	-20.11	-1.45	0.00	-95.56	0.00	95.56	4,914.28	2,457.14	9,921.33	4,968.04	0.27	-0.06	0.023
50.00	-19.72	-1.44	0.00	-88.30	0.00	88.30	4,830.59	2,415.29	9,518.11	4,766.13	0.33	-0.06	0.023
51.00	-18.97	-1.42	0.00	-86.86	0.00	86.86	3,976.29	1,988.15	7,940.17	3,975.99	0.34	-0.06	0.027
55.00	-18.05	-1.40	0.00	-81.16	0.00	81.16	3,926.08	1,963.04	7,687.59	3,849.51	0.40	-0.07	0.026
60.00	-17.16	-1.37	0.00	-74.17	0.00	74.17	3,861.85	1,930.92	7,374.54	3,692.75	0.47	-0.08	0.025
65.00	-16.28	-1.34	0.00	-67.32	0.00	67.32	3,795.99	1,898.00	7,064.71	3,537.61	0.56	-0.08	0.023
70.00	-15.42	-1.30	0.00	-60.63	0.00	60.63	3,728.51	1,864.25	6,758.32	3,384.18	0.65	-0.09	0.022
75.00	-14.59	-1.26	0.00	-54.12	0.00	54.12	3,659.40	1,829.70	6,455.61	3,232.60	0.74	-0.10	0.021
80.00	-13.77	-1.22	0.00	-47.80	0.00	47.80	3,588.67	1,794.34	6,156.81	3,082.98	0.85	-0.10	0.019
85.00	-12.98	-1.18	0.00	-41.68	0.00	41.68	3,516.32	1,758.16	5,862.16	2,935.44	0.96	-0.11	0.018
90.00	-12.86	-1.17	0.00	-35.79	0.00	35.79	3,442.34	1,721.17	5,571.91	2,790.09	1.07	-0.11	0.017
90.75	-11.76	-1.10	0.00	-34.91	0.00	34.91	3,431.10	1,715.55	5,528.76	2,768.49	1.09	-0.11	0.016
95.00	-11.57	-1.09	0.00	-30.22	0.00	30.22	3,366.73	1,683.37	5,286.27	2,647.07	1.19	-0.12	0.015
95.75	-11.06	-1.06	0.00	-29.40	0.00	29.40	2,325.90	1,162.95	3,707.18	1,856.35	1.21	-0.12	0.021
100.00	-10.48	-1.02	0.00	-24.90	0.00	24.90	2,288.45	1,144.23	3,553.17	1,779.22	1.32	-0.12	0.019
105.00	-9.92	-0.97	0.00	-19.82	0.00	19.82	2,242.89	1,121.45	3,373.66	1,689.34	1.45	-0.13	0.016
110.00	-9.47	-0.94	0.00	-14.95	0.00	14.95	2,195.71	1,097.85	3,196.22	1,600.48	1.59	-0.13	0.014
114.00	-7.55	-0.77	0.00	-11.20	0.00	11.20	2,156.79	1,078.40	3,055.89	1,530.22	1.70	-0.14	0.011
115.00	-7.44	-0.76	0.00	-10.43	0.00	10.43	2,146.90	1,073.45	3,021.06	1,512.77	1.73	-0.14	0.010
116.00	-6.18	-0.65	0.00	-9.67	0.00	9.67	2,136.94	1,068.47	2,986.32	1,495.38	1.75	-0.14	0.009
120.00	-5.79	-0.61	0.00	-7.06	0.00	7.06	2,096.47	1,048.23	2,848.43	1,426.33	1.87	-0.14	0.008
124.00	-4.35	-0.48	0.00	-4.60	0.00	4.60	2,054.95	1,027.48	2,712.30	1,358.17	1.99	-0.14	0.006
125.00	-3.90	-0.43	0.00	-4.13	0.00	4.13	2,044.41	1,022.20	2,678.56	1,341.27	2.02	-0.14	0.005
130.00	-3.56	-0.39	0.00	-1.98	0.00	1.98	1,990.73	995.36	2,511.69	1,257.71	2.16	-0.14	0.003
134.00	-1.39	-0.16	0.00	-0.40	0.00	0.40	1,946.61	973.30	2,380.52	1,192.03	2.28	-0.14	0.001
135.00	-1.30	-0.15	0.00	-0.25	0.00	0.25	1,935.42	967.71	2,348.06	1,175.77	2.31	-0.14	0.001
136.00	-0.89	-0.10	0.00	-0.10	0.00	0.10	1,924.16	962.08	2,315.74	1,159.59	2.34	-0.14	0.001
137.00	0.00	0.00	0.00	0.00	0.00	0.00	1,912.84	956.42	2,283.56	1,143.48	2.37	-0.14	0.000
140.00	0.00	0.00	0.00	0.00	0.00	0.00	1,878.49	939.24	2,187.90	1,095.58	2.46	-0.14	0.000

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

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):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.57
Redundancy Factor (p):	1.00

Load Case (1.2 + 0.2S_{ds}) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	S _{az}	Horizontal Force (lb)	Vertical Force (lb)
38	138.50	262	1.850	1.774	1.065	0.331	58	324
37	136.50	95	1.797	1.523	0.972	0.301	19	117
36	135.50	98	1.770	1.408	0.927	0.286	19	121
35	134.50	99	1.744	1.298	0.885	0.272	18	122
34	132.00	402	1.680	1.049	0.784	0.237	64	497
33	127.50	519	1.568	0.682	0.627	0.181	63	641
32	124.50	106	1.495	0.488	0.536	0.148	10	131
31	122.00	451	1.435	0.354	0.469	0.123	37	557
30	118.00	462	1.343	0.184	0.375	0.087	27	571
29	115.50	126	1.286	0.102	0.324	0.068	6	155
28	114.50	126	1.264	0.074	0.305	0.061	5	156
27	112.00	512	1.210	0.014	0.262	0.045	15	633
26	107.50	656	1.114	-0.061	0.196	0.021	9	812
25	102.50	674	1.013	-0.106	0.138	0.003	1	833
24	97.88	587	0.924	-0.121	0.097	-0.006	-2	726
23	95.38	221	0.877	-0.121	0.079	-0.009	-1	273
22	92.88	1,270	0.832	-0.117	0.063	-0.010	-8	1,570
21	90.38	136	0.788	-0.110	0.050	-0.009	-1	168
20	87.50	920	0.738	-0.098	0.038	-0.006	-4	1,138
19	82.50	944	0.656	-0.073	0.022	0.001	1	1,167
18	77.50	968	0.579	-0.045	0.012	0.011	7	1,196
17	72.50	991	0.507	-0.019	0.007	0.020	13	1,226
16	67.50	1,015	0.439	0.005	0.006	0.029	20	1,255
15	62.50	1,039	0.377	0.025	0.007	0.035	25	1,284
14	57.50	1,063	0.319	0.041	0.011	0.040	28	1,314
13	53.00	867	0.271	0.051	0.015	0.042	24	1,072
12	50.50	445	0.246	0.056	0.018	0.042	12	551
11	47.50	2,258	0.218	0.060	0.021	0.042	63	2,792
10	44.88	114	0.194	0.063	0.024	0.042	3	141
9	42.38	1,222	0.173	0.066	0.027	0.041	34	1,510
8	37.50	1,313	0.136	0.069	0.032	0.040	35	1,623
7	32.50	1,341	0.102	0.071	0.037	0.039	34	1,657
6	27.50	1,368	0.073	0.072	0.040	0.037	34	1,692
5	22.50	1,396	0.049	0.071	0.042	0.035	33	1,726

Site Number: 311014

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

4	17.50	1,424	0.030	0.068	0.040	0.033	31	1,760
3	12.50	1,451	0.015	0.061	0.036	0.029	28	1,794
2	7.50	1,479	0.005	0.046	0.026	0.023	22	1,828
1	2.50	1,507	0.001	0.019	0.010	0.010	10	1,863
Ericsson Radio 4449	137.00	222	1.810	1.584	0.994	0.308	46	274
Ericsson AIR 21, 1.3	137.00	275	1.810	1.584	0.994	0.308	56	339
Ericsson AIR 21	137.00	273	1.810	1.584	0.994	0.308	56	338
RFS APXVAARR24_43-U-	136.00	384	1.784	1.465	0.949	0.293	75	474
Platform with Site P	134.00	2,413	1.731	1.245	0.864	0.265	426	2,983
Generic RCU (Remote	124.00	3	1.483	0.459	0.522	0.143	0	4
Kathrein Scala 800 1	124.00	53	1.483	0.459	0.522	0.143	5	65
Flat Low Profile Pla	124.00	1,500	1.483	0.459	0.522	0.143	143	1,854
Samsung B5/B13 RRH-B	116.00	211	1.298	0.117	0.334	0.072	10	261
Alcatel-Lucent B25 R	116.00	159	1.298	0.117	0.334	0.072	8	197
Alcatel-Lucent RRH4X	116.00	192	1.298	0.117	0.334	0.072	9	237
Raycap RCMDC-6627-PF	116.00	64	1.298	0.117	0.334	0.072	3	79
Commscope SBNHH-	116.00	81	1.298	0.117	0.334	0.072	4	100
Commscope NHH-45B-	116.00	294	1.298	0.117	0.334	0.072	14	364
Amphenol Antel BXA-7	114.00	102	1.253	0.061	0.296	0.058	4	126
Round Platform w/ Ha	114.00	2,000	1.253	0.061	0.296	0.058	77	2,473
		38,152	52.801	18.586	17.586	5.173	1,727	47,165

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)
38	138.50	262	1.850	1.774	1.065	0.331	58	226
37	136.50	95	1.797	1.523	0.972	0.301	19	82
36	135.50	98	1.770	1.408	0.927	0.286	19	85
35	134.50	99	1.744	1.298	0.885	0.272	18	85
34	132.00	402	1.680	1.049	0.784	0.237	64	347
33	127.50	519	1.568	0.682	0.627	0.181	63	448
32	124.50	106	1.495	0.488	0.536	0.148	10	91
31	122.00	451	1.435	0.354	0.469	0.123	37	389
30	118.00	462	1.343	0.184	0.375	0.087	27	399
29	115.50	126	1.286	0.102	0.324	0.068	6	108
28	114.50	126	1.264	0.074	0.305	0.061	5	109
27	112.00	512	1.210	0.014	0.262	0.045	15	443
26	107.50	656	1.114	-0.061	0.196	0.021	9	567
25	102.50	674	1.013	-0.106	0.138	0.003	1	582
24	97.88	587	0.924	-0.121	0.097	-0.006	-2	507
23	95.38	221	0.877	-0.121	0.079	-0.009	-1	191
22	92.88	1,270	0.832	-0.117	0.063	-0.010	-8	1,097
21	90.38	136	0.788	-0.110	0.050	-0.009	-1	117
20	87.50	920	0.738	-0.098	0.038	-0.006	-4	795
19	82.50	944	0.656	-0.073	0.022	0.001	1	815
18	77.50	968	0.579	-0.045	0.012	0.011	7	836
17	72.50	991	0.507	-0.019	0.007	0.020	13	856
16	67.50	1,015	0.439	0.005	0.006	0.029	20	877
15	62.50	1,039	0.377	0.025	0.007	0.035	25	897
14	57.50	1,063	0.319	0.041	0.011	0.040	28	918
13	53.00	867	0.271	0.051	0.015	0.042	24	749
12	50.50	445	0.246	0.056	0.018	0.042	12	385
11	47.50	2,258	0.218	0.060	0.021	0.042	63	1,950
10	44.88	114	0.194	0.063	0.024	0.042	3	99
9	42.38	1,222	0.173	0.066	0.027	0.041	34	1,055
8	37.50	1,313	0.136	0.069	0.032	0.040	35	1,134
7	32.50	1,341	0.102	0.071	0.037	0.039	34	1,158
6	27.50	1,368	0.073	0.072	0.040	0.037	34	1,182

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

5	22.50	1,396	0.049	0.071	0.042	0.035	33	1,206
4	17.50	1,424	0.030	0.068	0.040	0.033	31	1,230
3	12.50	1,451	0.015	0.061	0.036	0.029	28	1,253
2	7.50	1,479	0.005	0.046	0.026	0.023	22	1,277
1	2.50	1,507	0.001	0.019	0.010	0.010	10	1,301
Ericsson Radio 4449	137.00	222	1.810	1.584	0.994	0.308	46	192
Ericsson AIR 21, 1.3	137.00	275	1.810	1.584	0.994	0.308	56	237
Ericsson AIR 21	137.00	273	1.810	1.584	0.994	0.308	56	236
RFS APXVAARR24_43-U-	136.00	384	1.784	1.465	0.949	0.293	75	331
Platform with Site P	134.00	2,413	1.731	1.245	0.864	0.265	426	2,084
Generic RCU (Remote	124.00	3	1.483	0.459	0.522	0.143	0	3
Kathrein Scala 800 1	124.00	53	1.483	0.459	0.522	0.143	5	46
Flat Low Profile Pla	124.00	1,500	1.483	0.459	0.522	0.143	143	1,296
Samsung B5/B13 RRH-B	116.00	211	1.298	0.117	0.334	0.072	10	182
Alcatel-Lucent B25 R	116.00	159	1.298	0.117	0.334	0.072	8	137
Alcatel-Lucent RRH4X	116.00	192	1.298	0.117	0.334	0.072	9	166
Raycap RCMD-6627-PF	116.00	64	1.298	0.117	0.334	0.072	3	55
Commscope SBNHH-	116.00	81	1.298	0.117	0.334	0.072	4	70
Commscope NHH-45B-	116.00	294	1.298	0.117	0.334	0.072	14	254
Amphenol Antel BXA-7	114.00	102	1.253	0.061	0.296	0.058	4	88
Round Platform w/ Ha	114.00	2,000	1.253	0.061	0.296	0.058	77	1,727
		38,152	52.801	18.586	17.586	5.173	1,727	32,953

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

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

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.30	-1.72	0.00	-185.64	0.00	185.64	5,594.46	2,797.23	13,736.12	6,878.27	0.00	0.00	0.035
5.00	-43.47	-1.70	0.00	-177.04	0.00	177.04	5,525.39	2,762.69	13,298.57	6,659.17	0.00	-0.01	0.034
10.00	-41.68	-1.68	0.00	-168.53	0.00	168.53	5,454.68	2,727.34	12,863.89	6,441.51	0.01	-0.01	0.034
15.00	-39.92	-1.65	0.00	-160.14	0.00	160.14	5,382.36	2,691.18	12,432.32	6,225.40	0.03	-0.02	0.033
20.00	-38.19	-1.62	0.00	-151.88	0.00	151.88	5,308.41	2,654.20	12,004.09	6,010.97	0.06	-0.03	0.032
25.00	-36.50	-1.59	0.00	-143.76	0.00	143.76	5,232.83	2,616.42	11,579.44	5,798.33	0.09	-0.04	0.032
30.00	-34.84	-1.56	0.00	-135.79	0.00	135.79	5,155.63	2,577.82	11,158.60	5,587.59	0.13	-0.04	0.031
35.00	-33.22	-1.53	0.00	-127.98	0.00	127.98	5,076.81	2,538.40	10,741.81	5,378.89	0.18	-0.05	0.030
40.00	-31.71	-1.50	0.00	-120.33	0.00	120.33	4,996.36	2,498.18	10,329.31	5,172.33	0.24	-0.06	0.030
44.75	-31.57	-1.50	0.00	-113.21	0.00	113.21	4,918.43	2,459.21	9,941.62	4,978.20	0.30	-0.06	0.029
45.00	-28.78	-1.43	0.00	-112.84	0.00	112.84	4,914.28	2,457.14	9,921.33	4,968.04	0.30	-0.06	0.029
50.00	-28.23	-1.42	0.00	-105.67	0.00	105.67	4,830.59	2,415.29	9,518.11	4,766.13	0.37	-0.07	0.028
51.00	-27.16	-1.40	0.00	-104.25	0.00	104.25	3,976.29	1,988.15	7,940.17	3,975.99	0.39	-0.07	0.033
55.00	-25.84	-1.37	0.00	-98.65	0.00	98.65	3,926.08	1,963.04	7,687.59	3,849.51	0.45	-0.08	0.032
60.00	-24.56	-1.35	0.00	-91.79	0.00	91.79	3,861.85	1,930.92	7,374.54	3,692.75	0.54	-0.09	0.031
65.00	-23.30	-1.33	0.00	-85.04	0.00	85.04	3,795.99	1,898.00	7,064.71	3,537.61	0.64	-0.10	0.030
70.00	-22.08	-1.32	0.00	-78.39	0.00	78.39	3,728.51	1,864.25	6,758.32	3,384.18	0.74	-0.10	0.029
75.00	-20.88	-1.31	0.00	-71.80	0.00	71.80	3,659.40	1,829.70	6,455.61	3,232.60	0.86	-0.11	0.028
80.00	-19.71	-1.31	0.00	-65.23	0.00	65.23	3,588.67	1,794.34	6,156.81	3,082.98	0.98	-0.12	0.027
85.00	-18.57	-1.32	0.00	-58.67	0.00	58.67	3,516.32	1,758.16	5,862.16	2,935.44	1.11	-0.13	0.025
90.00	-18.41	-1.32	0.00	-52.09	0.00	52.09	3,442.34	1,721.17	5,571.91	2,790.09	1.25	-0.14	0.024
90.75	-16.84	-1.32	0.00	-51.10	0.00	51.10	3,431.10	1,715.55	5,528.76	2,768.49	1.27	-0.14	0.023
95.00	-16.56	-1.33	0.00	-45.47	0.00	45.47	3,366.73	1,683.37	5,286.27	2,647.07	1.40	-0.14	0.022
95.75	-15.84	-1.33	0.00	-44.48	0.00	44.48	2,325.90	1,162.95	3,707.18	1,856.35	1.42	-0.15	0.031
100.00	-15.00	-1.33	0.00	-38.84	0.00	38.84	2,288.45	1,144.23	3,553.17	1,779.22	1.55	-0.15	0.028
105.00	-14.19	-1.32	0.00	-32.21	0.00	32.21	2,242.89	1,121.45	3,373.66	1,689.34	1.72	-0.16	0.025
110.00	-13.56	-1.30	0.00	-25.63	0.00	25.63	2,195.71	1,097.85	3,196.22	1,600.48	1.89	-0.17	0.022
114.00	-10.80	-1.21	0.00	-20.43	0.00	20.43	2,156.79	1,078.40	3,055.89	1,530.22	2.03	-0.17	0.018
115.00	-10.65	-1.20	0.00	-19.23	0.00	19.23	2,146.90	1,073.45	3,021.06	1,512.77	2.07	-0.17	0.018
116.00	-8.84	-1.12	0.00	-18.03	0.00	18.03	2,136.94	1,068.47	2,986.32	1,495.38	2.10	-0.17	0.016
120.00	-8.28	-1.08	0.00	-13.54	0.00	13.54	2,096.47	1,048.23	2,848.43	1,426.33	2.25	-0.18	0.013
124.00	-6.23	-0.92	0.00	-9.21	0.00	9.21	2,054.95	1,027.48	2,712.30	1,358.17	2.40	-0.18	0.010
125.00	-5.59	-0.85	0.00	-8.29	0.00	8.29	2,044.41	1,022.20	2,678.56	1,341.27	2.44	-0.18	0.009
130.00	-5.09	-0.79	0.00	-4.03	0.00	4.03	1,990.73	995.36	2,511.69	1,257.71	2.63	-0.19	0.006
134.00	-1.99	-0.34	0.00	-0.87	0.00	0.87	1,946.61	973.30	2,380.52	1,192.03	2.79	-0.19	0.002
135.00	-1.87	-0.32	0.00	-0.54	0.00	0.54	1,935.42	967.71	2,348.06	1,175.77	2.83	-0.19	0.001
136.00	-1.27	-0.22	0.00	-0.22	0.00	0.22	1,924.16	962.08	2,315.74	1,159.59	2.87	-0.19	0.001
137.00	0.00	0.00	0.00	0.00	0.00	0.00	1,912.84	956.42	2,283.56	1,143.48	2.91	-0.19	0.000
140.00	0.00	0.00	0.00	0.00	0.00	0.00	1,878.49	939.24	2,187.90	1,095.58	3.02	-0.19	0.000

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

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

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.65	-1.72	0.00	-184.37	0.00	184.37	5,594.46	2,797.23	13,736.12	6,878.27	0.00	0.00	0.032
5.00	-30.37	-1.70	0.00	-175.78	0.00	175.78	5,525.39	2,762.69	13,298.57	6,659.17	0.00	-0.01	0.032
10.00	-29.12	-1.68	0.00	-167.28	0.00	167.28	5,454.68	2,727.34	12,863.89	6,441.51	0.01	-0.01	0.031
15.00	-27.89	-1.65	0.00	-158.90	0.00	158.90	5,382.36	2,691.18	12,432.32	6,225.40	0.03	-0.02	0.031
20.00	-26.68	-1.62	0.00	-150.67	0.00	150.67	5,308.41	2,654.20	12,004.09	6,010.97	0.06	-0.03	0.030
25.00	-25.50	-1.59	0.00	-142.58	0.00	142.58	5,232.83	2,616.42	11,579.44	5,798.33	0.09	-0.03	0.029
30.00	-24.34	-1.55	0.00	-134.65	0.00	134.65	5,155.63	2,577.82	11,158.60	5,587.59	0.13	-0.04	0.029
35.00	-23.21	-1.52	0.00	-126.88	0.00	126.88	5,076.81	2,538.40	10,741.81	5,378.89	0.18	-0.05	0.028
40.00	-22.15	-1.49	0.00	-119.28	0.00	119.28	4,996.36	2,498.18	10,329.31	5,172.33	0.24	-0.06	0.027
44.75	-22.06	-1.49	0.00	-112.21	0.00	112.21	4,918.43	2,459.21	9,941.62	4,978.20	0.30	-0.06	0.027
45.00	-20.11	-1.42	0.00	-111.84	0.00	111.84	4,914.28	2,457.14	9,921.33	4,968.04	0.30	-0.06	0.027
50.00	-19.72	-1.41	0.00	-104.72	0.00	104.72	4,830.59	2,415.29	9,518.11	4,766.13	0.37	-0.07	0.026
51.00	-18.97	-1.39	0.00	-103.31	0.00	103.31	3,976.29	1,988.15	7,940.17	3,975.99	0.39	-0.07	0.031
55.00	-18.05	-1.36	0.00	-97.76	0.00	97.76	3,926.08	1,963.04	7,687.59	3,849.51	0.45	-0.08	0.030
60.00	-17.16	-1.34	0.00	-90.96	0.00	90.96	3,861.85	1,930.92	7,374.54	3,692.75	0.54	-0.09	0.029
65.00	-16.28	-1.32	0.00	-84.27	0.00	84.27	3,795.99	1,898.00	7,064.71	3,537.61	0.63	-0.10	0.028
70.00	-15.42	-1.31	0.00	-77.68	0.00	77.68	3,728.51	1,864.25	6,758.32	3,384.18	0.74	-0.10	0.027
75.00	-14.59	-1.30	0.00	-71.15	0.00	71.15	3,659.40	1,829.70	6,455.61	3,232.60	0.85	-0.11	0.026
80.00	-13.77	-1.30	0.00	-64.65	0.00	64.65	3,588.67	1,794.34	6,156.81	3,082.98	0.97	-0.12	0.025
85.00	-12.98	-1.30	0.00	-58.16	0.00	58.16	3,516.32	1,758.16	5,862.16	2,935.44	1.10	-0.13	0.024
90.00	-12.86	-1.30	0.00	-51.64	0.00	51.64	3,442.34	1,721.17	5,571.91	2,790.09	1.24	-0.14	0.022
90.75	-11.76	-1.31	0.00	-50.66	0.00	50.66	3,431.10	1,715.55	5,528.76	2,768.49	1.26	-0.14	0.022
95.00	-11.57	-1.31	0.00	-45.09	0.00	45.09	3,366.73	1,683.37	5,286.27	2,647.07	1.39	-0.14	0.020
95.75	-11.06	-1.31	0.00	-44.11	0.00	44.11	2,325.90	1,162.95	3,707.18	1,856.35	1.41	-0.14	0.029
100.00	-10.48	-1.31	0.00	-38.52	0.00	38.52	2,288.45	1,144.23	3,553.17	1,779.22	1.54	-0.15	0.026
105.00	-9.91	-1.30	0.00	-31.96	0.00	31.96	2,242.89	1,121.45	3,373.66	1,689.34	1.70	-0.16	0.023
110.00	-9.47	-1.29	0.00	-25.44	0.00	25.44	2,195.71	1,097.85	3,196.22	1,600.48	1.87	-0.17	0.020
114.00	-7.55	-1.20	0.00	-20.29	0.00	20.29	2,156.79	1,078.40	3,055.89	1,530.22	2.01	-0.17	0.017
115.00	-7.44	-1.19	0.00	-19.09	0.00	19.09	2,146.90	1,073.45	3,021.06	1,512.77	2.05	-0.17	0.016
116.00	-6.17	-1.11	0.00	-17.90	0.00	17.90	2,136.94	1,068.47	2,986.32	1,495.38	2.09	-0.17	0.015
120.00	-5.79	-1.07	0.00	-13.45	0.00	13.45	2,096.47	1,048.23	2,848.43	1,426.33	2.23	-0.18	0.012
124.00	-4.35	-0.91	0.00	-9.15	0.00	9.15	2,054.95	1,027.48	2,712.30	1,358.17	2.38	-0.18	0.009
125.00	-3.90	-0.85	0.00	-8.24	0.00	8.24	2,044.41	1,022.20	2,678.56	1,341.27	2.42	-0.18	0.008
130.00	-3.56	-0.78	0.00	-4.00	0.00	4.00	1,990.73	995.36	2,511.69	1,257.71	2.61	-0.18	0.005
134.00	-1.39	-0.33	0.00	-0.87	0.00	0.87	1,946.61	973.30	2,380.52	1,192.03	2.77	-0.18	0.001
135.00	-1.30	-0.31	0.00	-0.53	0.00	0.53	1,935.42	967.71	2,348.06	1,175.77	2.81	-0.18	0.001
136.00	-0.89	-0.22	0.00	-0.22	0.00	0.22	1,924.16	962.08	2,315.74	1,159.59	2.84	-0.18	0.001
137.00	0.00	0.00	0.00	0.00	0.00	0.00	1,912.84	956.42	2,283.56	1,143.48	2.88	-0.18	0.000
140.00	0.00	0.00	0.00	0.00	0.00	0.00	1,878.49	939.24	2,187.90	1,095.58	3.00	-0.18	0.000

Site Number: 311014

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Site Name: NORWICH CT, CT

Engineering Number:12927124_C3_02

8/5/2019 10:56:35 AM

Customer: T-MOBILE

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	22.97	0.00	45.76	0.00	0.00	2204.58	0.00	0.33
0.9D + 1.6W	22.97	0.00	34.32	0.00	0.00	2192.60	0.00	0.32
1.2D + 1.0Di + 1.0Wi	6.11	0.00	64.30	0.00	0.00	571.41	0.00	0.09
(1.2 + 0.2Sds) * DL + E ELFM	1.56	0.00	45.30	0.00	0.00	165.93	0.00	0.03
(1.2 + 0.2Sds) * DL + E EMAM	1.72	0.00	45.30	0.00	0.00	185.64	0.00	0.04
(0.9 - 0.2Sds) * DL + E ELFM	1.56	0.00	31.65	0.00	0.00	164.86	0.00	0.03
(0.9 - 0.2Sds) * DL + E EMAM	1.72	0.00	31.65	0.00	0.00	184.37	0.00	0.03
1.0D + 1.0W	4.44	0.00	38.15	0.00	0.00	424.94	0.00	0.07



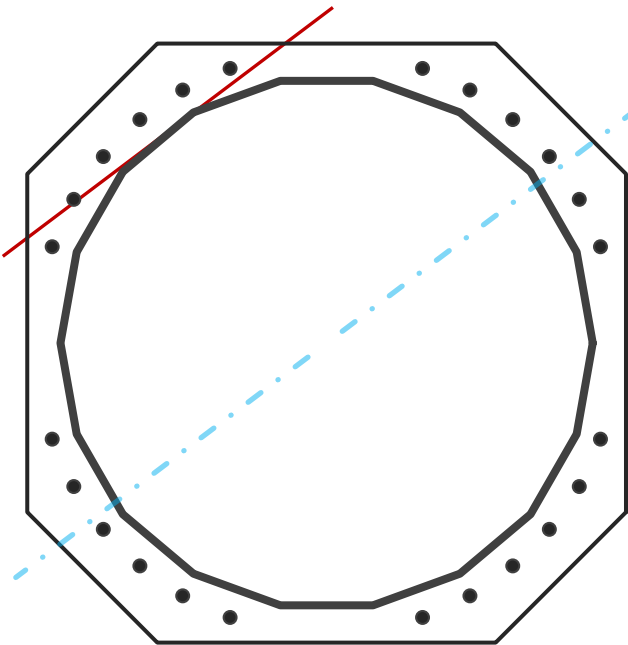
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	60.16	in
Thickness	0.4375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2204.6	k-ft
Axial, Pu	45.8	k
Shear, Vu	23.0	k
Neutral Axis	37	°

Report Capacities		
Component	Capacity	Result
Base Plate	18%	Pass
Anchor Rods	26%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	69	in
Thickness	3	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	15	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	726.6	k
Bending Stress, φMn	3966.0	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	24	-
Diameter, ø	2 1/4	in
Bolt Circle	67	in
Grade	A615-75	-
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	67.6	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	23.0	2204.6	1.00
Anchor Rod Forces	23.0	2204.6	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	81.6693	4.5372	0.2905		36417.25
Bolt	3.9761	3.2477	0.8393	4.5	43756.78
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	69	in
Thickness, t	3	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	33.790	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	24	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	67	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	67.6	k
Applied Shear, Vu	0.1	k
Compressive Capacity, ϕP_n	259.8	k
Tensile Capacity, ϕR_{nt}	0.260	OK
Interaction Capacity	0.261	OK

External Base Plate		
Chord Length AA	37.171	in
Additional AA	2.000	in
Section Modulus, Z	88.134	in ³
Applied Moment, Mu	726.6	k-ft
Bending Capacity, ϕM_n	3966.0	k-ft
Capacity, Mu/ ϕM_n	0.183	OK
Chord Length AB	36.239	in
Additional AB	2.000	in
Section Modulus, Z	86.037	in ³
Applied Moment, Mu	574.0	k-ft
Bending Capacity, ϕM_n	3871.7	k-ft
Capacity, Mu/ ϕM_n	0.148	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in ³
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕM_n	0.0	k-ft
Capacity, Mu/ ϕM_n		

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		

**Mount Analysis of Existing Low Profile Platform for
American Tower on behalf of T-Mobile
311014 - Norwich CT
Project #: 12927124
T-Mobile Site ID: CT11463C
Program: L600**

CLS Engineering PLLC Project #41124-12927124-01-MA-R2
July 11, 2019

MOUNT DESCRIPTION	Existing Low Profile Platform at 136 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 137 ft AGL (Eccentricity of ~1 ft)
SITE DESCRIPTION	140 ft Monopole
SITE ADDRESS	202 N Wawecus Hill Road, Norwich, CT 06360, New London County
GPS COORDINATES	41.527069, -72.122594
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	135 mph, V_{ult} / 104.6 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75"

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

MEMBER USAGE	99%	Pass
--------------	-----	------

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

Prepared by:
Sean Rock, E.I.

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

IdenTrust
part of HID Global

Digitally signed by
Tyler Barker
DN: c=US,
o=Telamon
Corporation,
ou=A01427E00000
16A4525ADF80000
1D17, cn=Tyler
Barker
Date: 2019.07.11
12:20:55 -04'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the existing Low Profile Platform. 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 July 24, 2018 Assembly Drawings by Site Pro 1, Part No. HRK14-HD, dated March 31, 2015 Assembly Drawings by Site Pro 1, Part No. PRK-1245, dated April 10, 2014
PREVIOUS ANALYSES	Tower SA by ATC, Engineering #OAA684610_C3_02, dated December 01, 2016
LOADING DATA	ATC Application, Project #12927124, dated March 11, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	135 mph, V_{ult} / 104.6 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	50 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
EXPOSURE CATEGORY	B
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
136.0	137.0	3	Ericsson AIR 21
		3	Ericsson AIR 21, 1.3M, B2A B4P
		3	Ericsson RADIO 4449 B12/B71
		3	RFS Celwave APXVAARR24_43-U-NA20

■ RESULTS SUMMARY

Existing Mount Usage:

COMPONENT	PEAK USAGE	RESULT
Platform Base	>200%	Fail
Grating Angle	103%	Acceptable
Mount Pipes	91%	Pass
Stand-Off Horizontals	37%	Pass

*Usages upto 105% are considered acceptable.

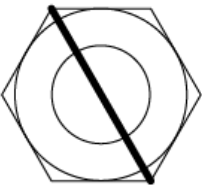
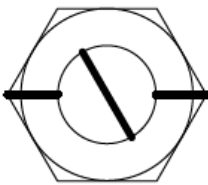
Mount Usage after Modifications:

COMPONENT	PEAK USAGE	RESULT
Face Horizontals	99%	Pass
Mount Pipes	77%	Pass
Platform Base	54%	Pass
Reinforcement Members	36%	Pass
Support Rail	33%	Pass
Stand-Off Horizontals	31%	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:

- Install (1) proposed Site Pro 1 PRK-1245. Connect to offset angles using 1/2"Ø A325 bolts with proposed Site Pro 1 X-253992 T-bracket included in the kit. Connect offset angles to each other as specified. Field-cut proposed angles as required. Maintain minimum bolt edge distance.
- Install Site Pro 1 HRK14-HD support rail kit at $\pm 3'-0"$ above the existing platform base horizontal. Connect to all existing mount pipes using Site Pro 1 SCX2 crossover plate included in the support rail kit. Cut support rail pipes to length as needed.
- All hardware for Site Pro 1 PUCK connection to the proposed Support Rails 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.

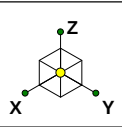
This analysis assumes the following:

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.

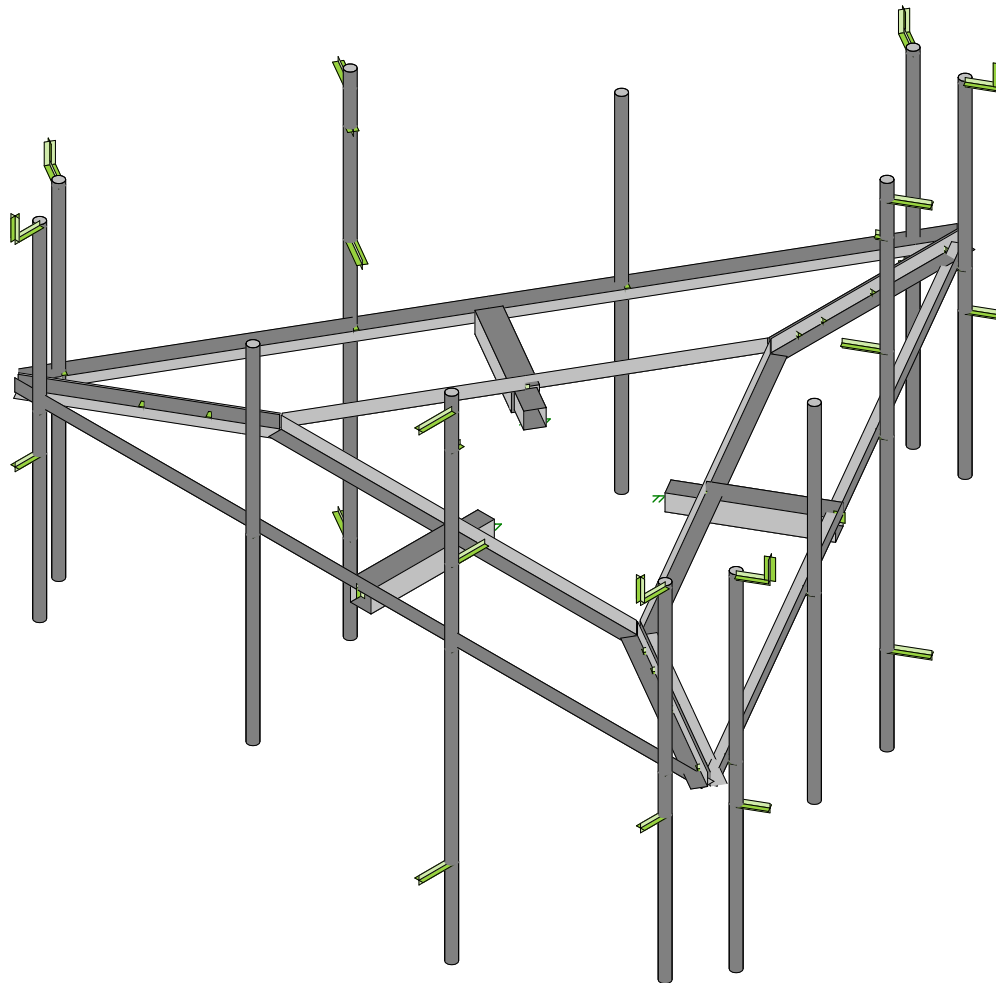
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided 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 Low Profile Platform mount to be modified.

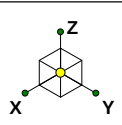


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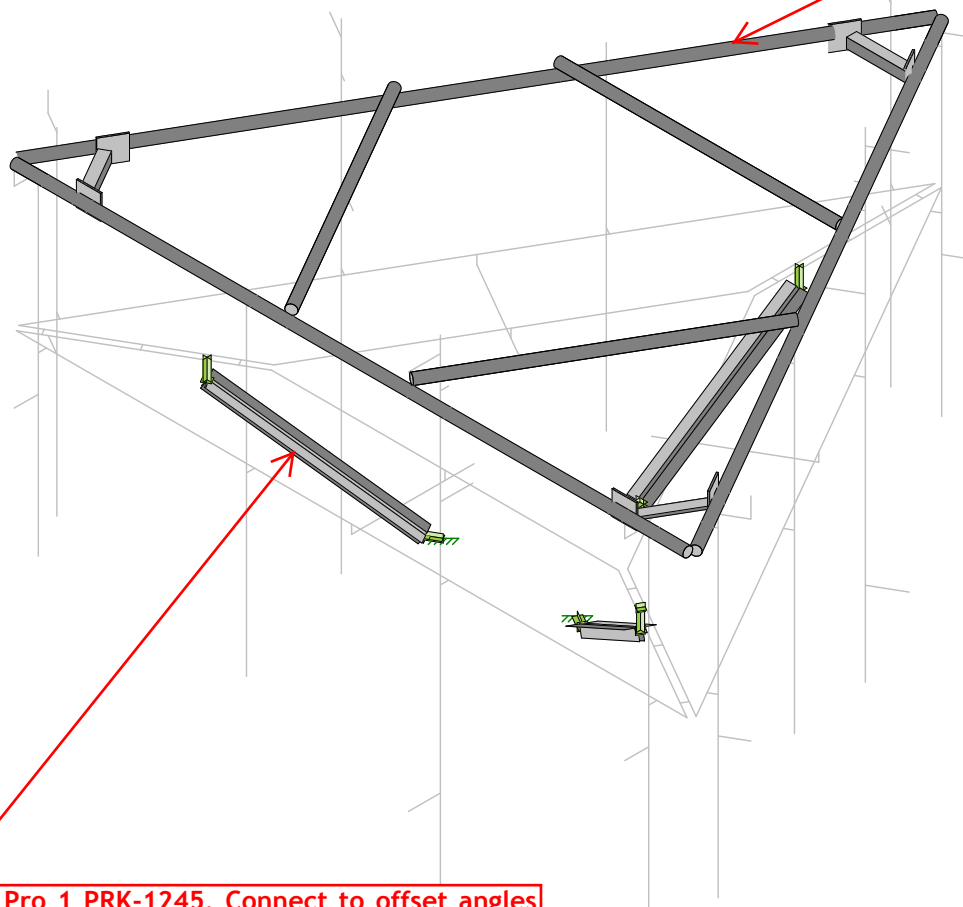
CLS
ST
41124-12927124-01-MA

41124-12927124-NORWICH CT
Rendered

FM - 1
Apr 2, 2019 at 12:47 PM
41124-12927124-01-MA.r3d



Install Site Pro 1 HRK14-HD support rail kit at $\pm 3'-0"$ above the existing platform base horizontal. Connect to all existing mount pipes using Site Pro 1 SCX2 crossover plate included in the support rail kit. Cut support rail pipes to length as needed.

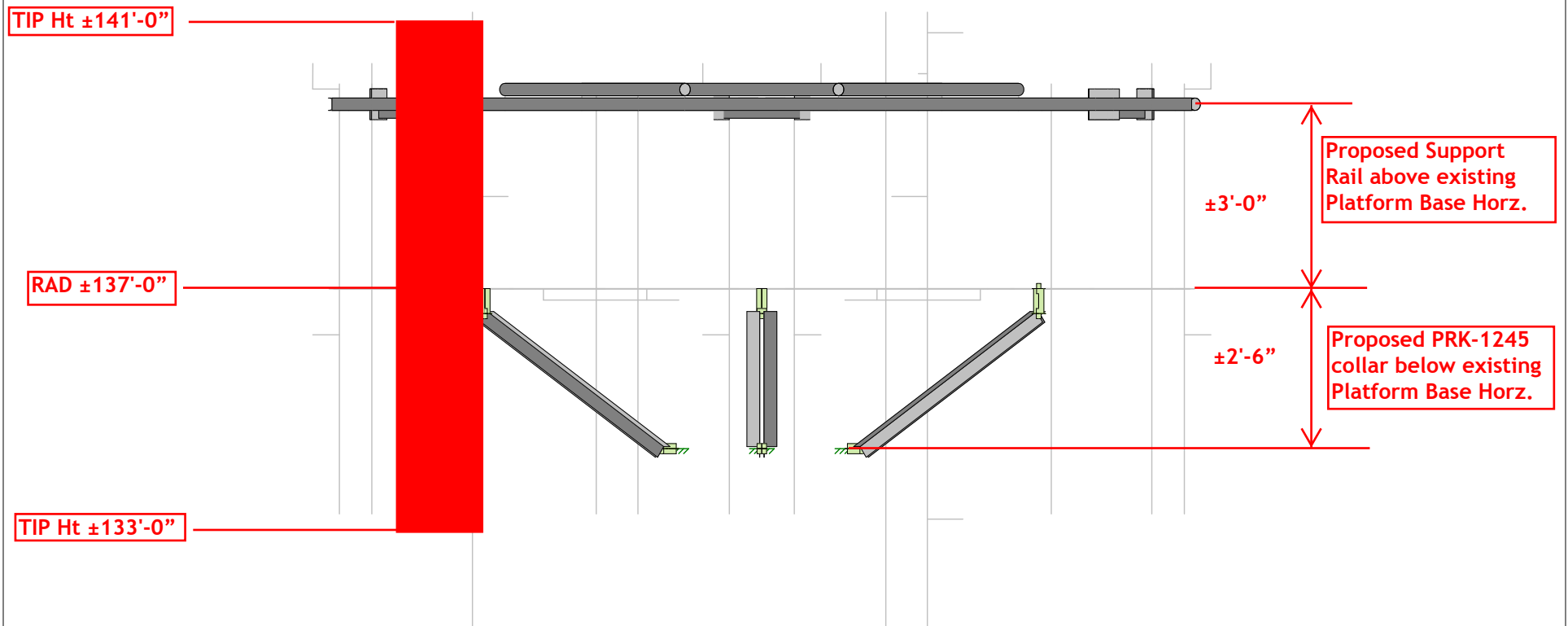
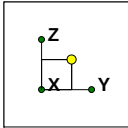


Install (1) proposed Site Pro 1 PRK-1245. Connect to offset angles using $1/2"$ Ø A325 bolts with proposed Site Pro 1 X-253992 T-bracket included in the kit. Connect offset angles to each other as specified. Field-cut proposed angles as required. Maintain minimum bolt edge distance.

CLS
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41124-12927124-01-MA-R2

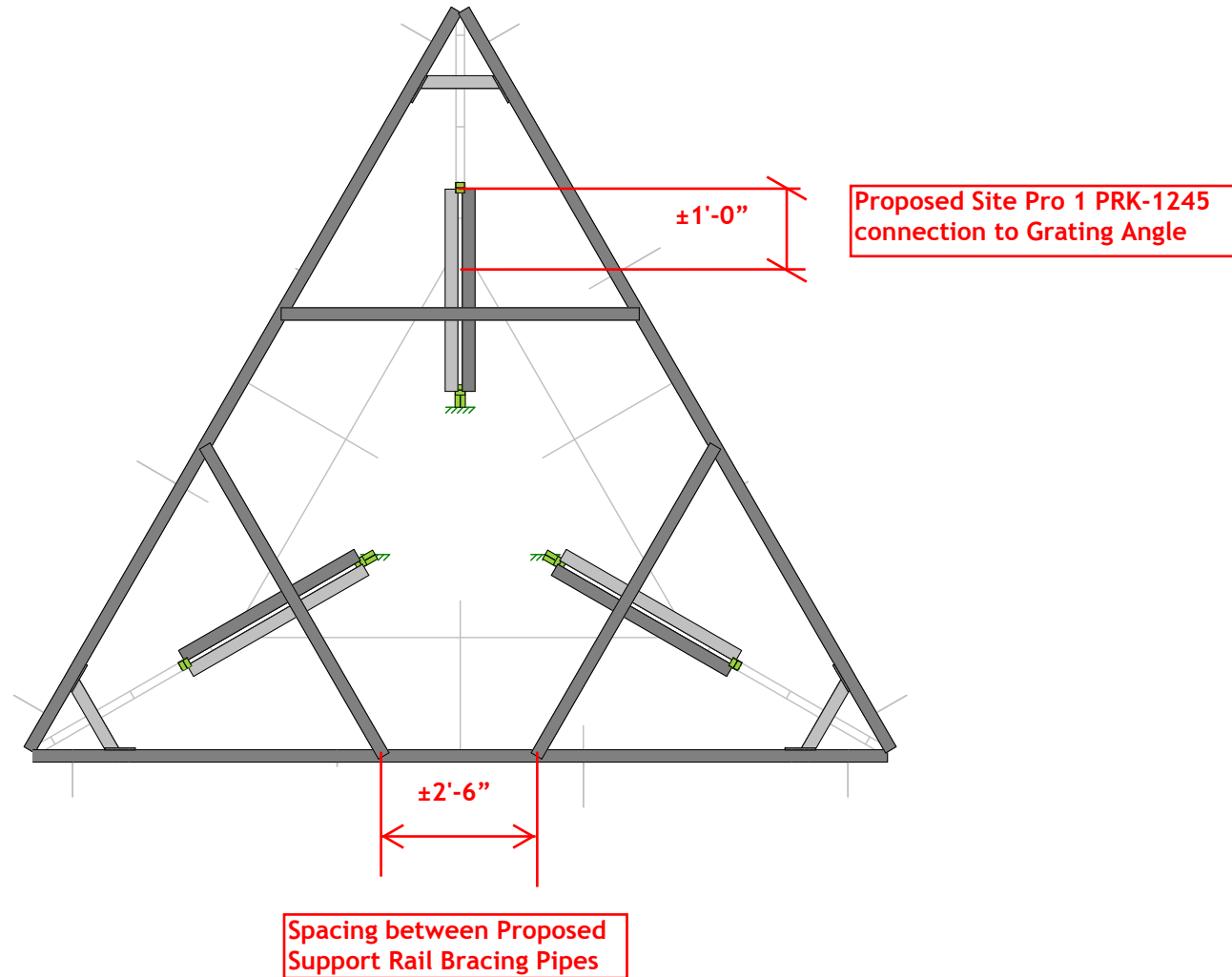
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Installation Sketch - Isometric View

IN - 1
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41124-12927124-01-MA Images.r3d



Envelope Only Solution

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CLS

ST

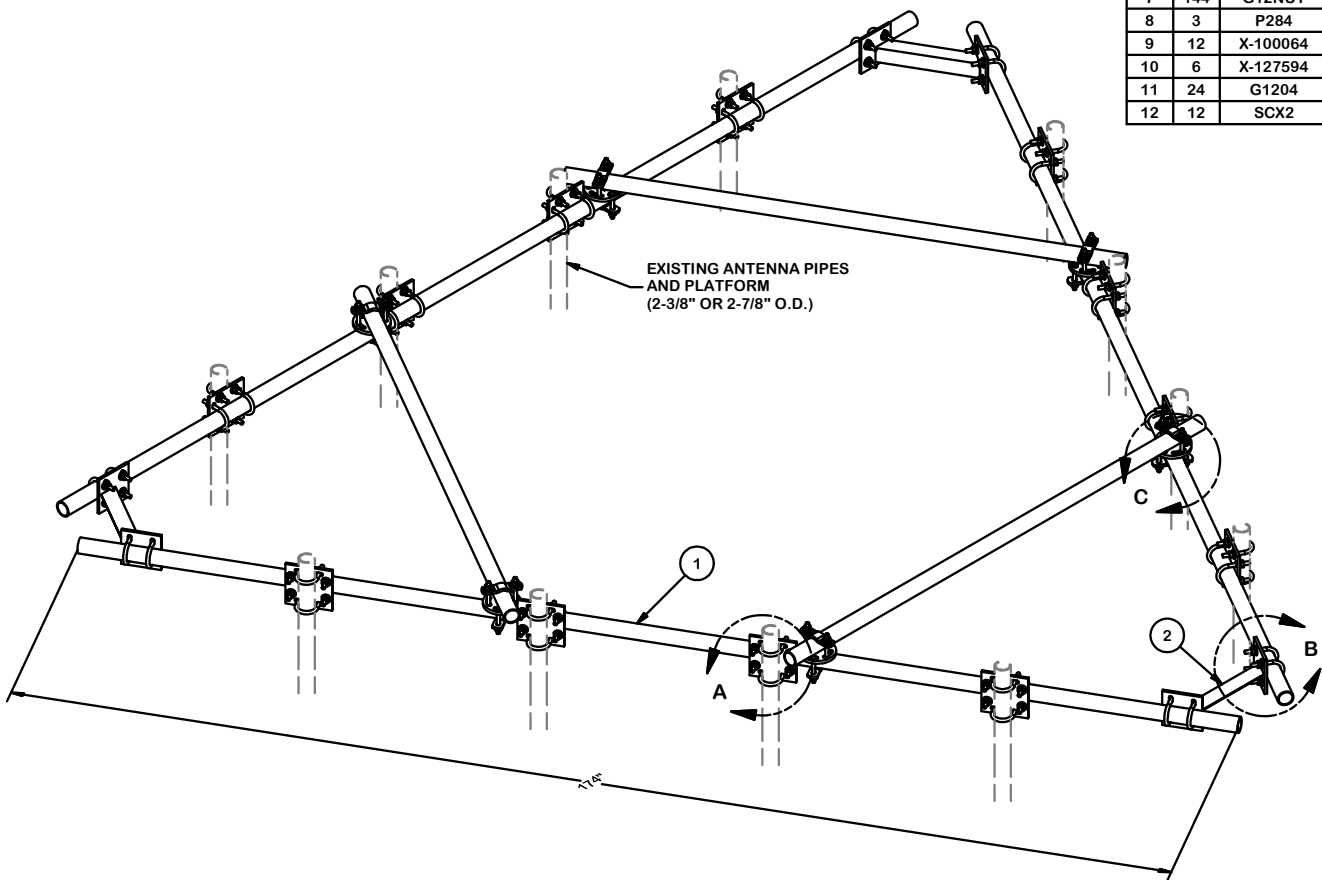
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41124-12927124-NORWICH CT
Installation Sketch - Plan View

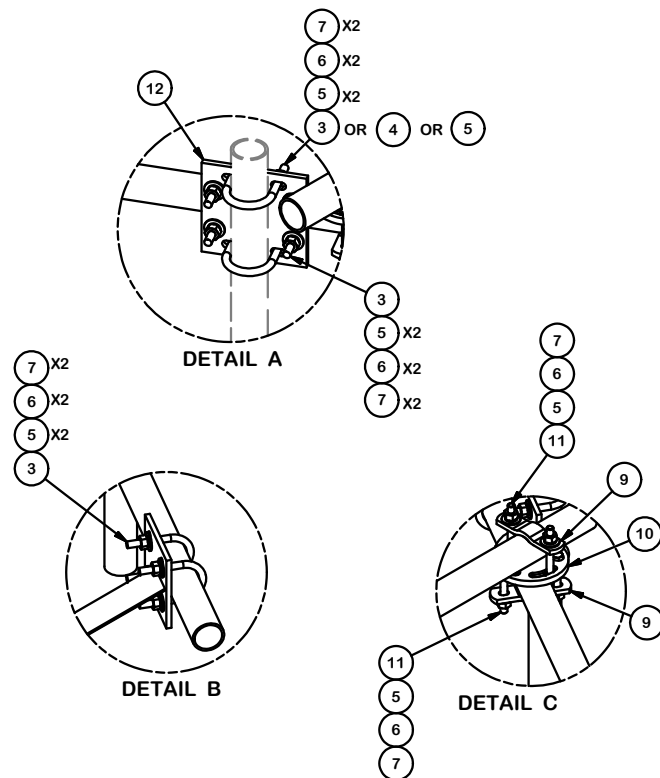
IN - 3

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41124-12927124-01-MA Images.r3d



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2174	2-3/8" OD X 174" SCH 40 GALVANIZED PIPE	174 in	55.75	167.24
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	15.42
4	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.26	6.17
5	144	G12FW	1/2" HDG USS FLATWASHER		0.03	4.91
6	144	G12LW	1/2" HDG LOCKWASHER		0.01	2.00
7	144	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	10.31
8	3	P284	2-3/8" X 84" SCH 40 GALVANIZED PIPE	84 in	26.91	80.74
9	12	X-100064	CLAMP (S) (4" V-CLAMP) GALVANIZED		0.91	10.95
10	6	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)		2.48	14.90
11	24	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	6.48
12	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
TOTAL WT. #						448.08



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

HEAVY DUTY HANDRAIL KIT
 FOR 14' PLATFORMS WITH
 2-3/8" OR 2-7/8" ANTENNA PIPES

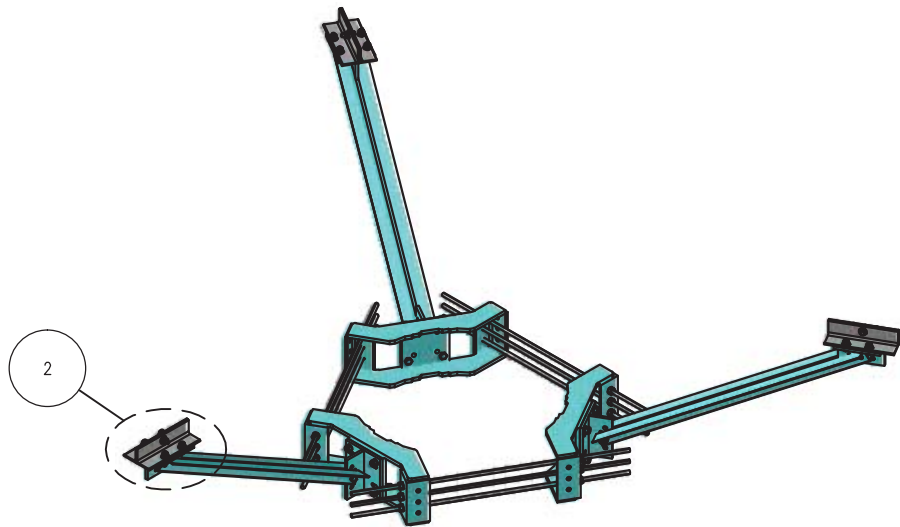
CPD NO.	DRAWN BY	ENG. APPROVAL
CLASS	DRAWING USAGE	CHECKED BY
81	01	CUSTOMER
		BMC 3/31/2015



Engineering
 Support Team:
 1-888-753-7446

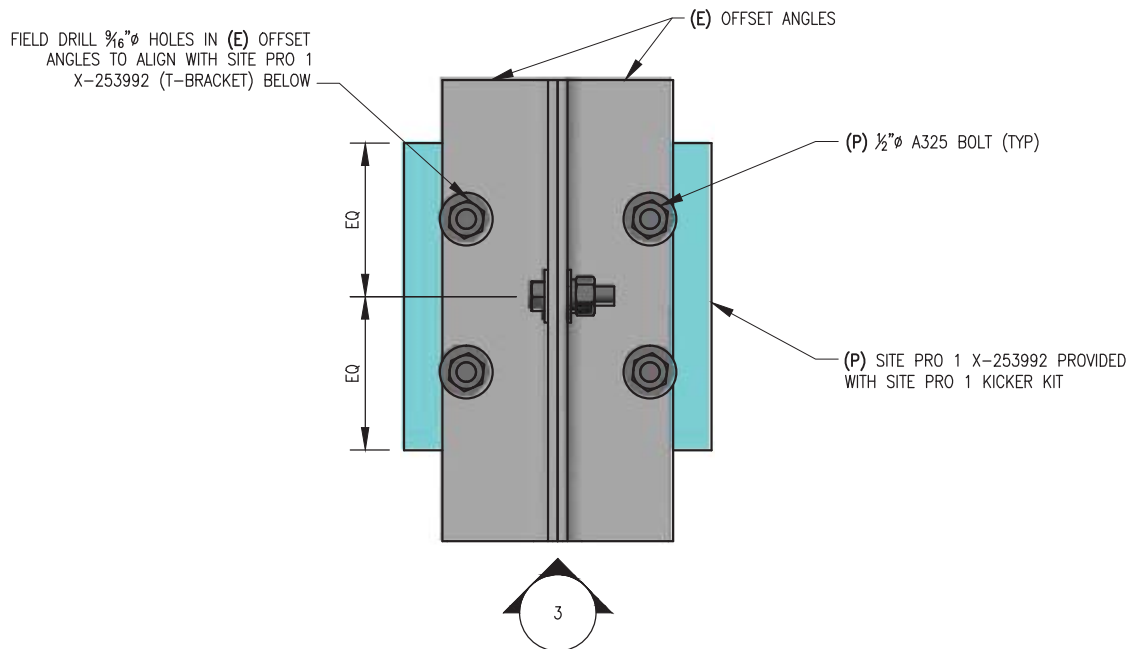
Locations:
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 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

PART NO.	HRK14-HD
DWG. NO.	HRK14-HD



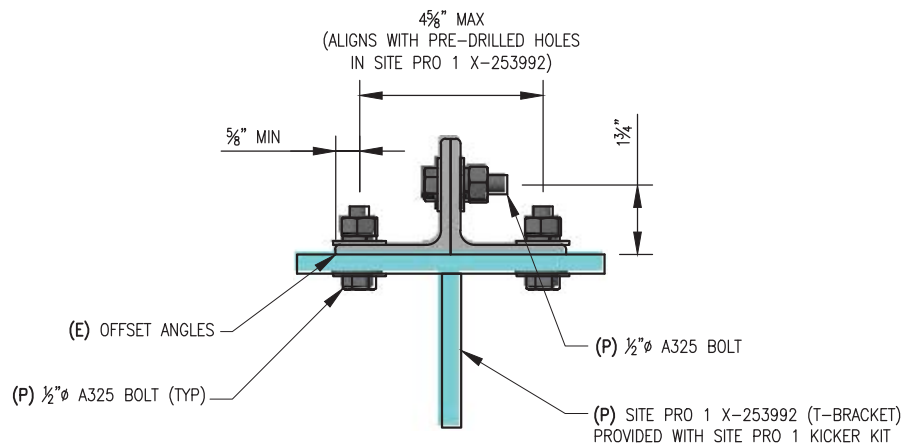
1 SITE PRO 1 PRK-1245

SCALE: N.T.S.



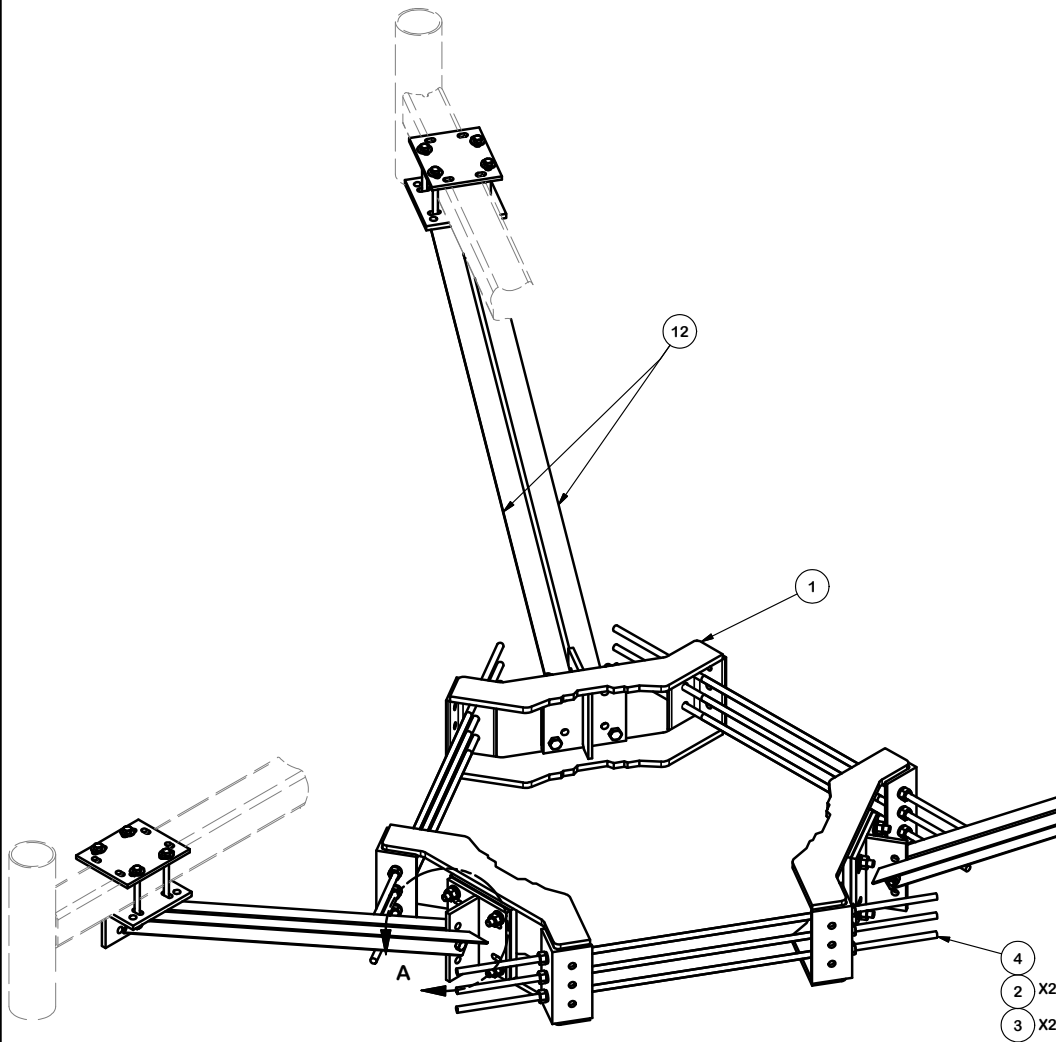
2 SITE PRO 1 KICKER CONNECTION PLAN VIEW

SCALE: N.T.S.

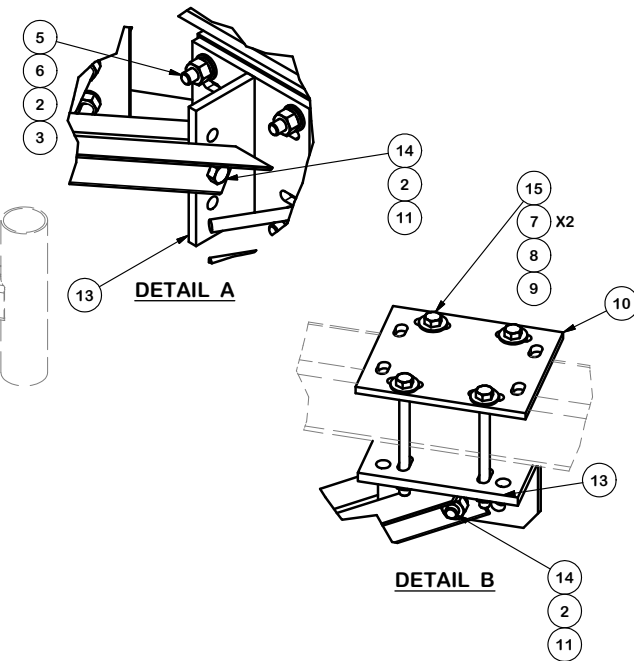


3 SITE PRO 1 KICKER CONNECTION FRONT ELEVATION

SCALE: N.T.S.



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	36	G58LW	5/8" HDG LOCKWASHER		0.03	0.94
3	30	A58NUT	5/8" HDG A325 HEX NUT		0.13	3.90
4	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	4.94
4	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	4.94
5	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	4.27
6	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
7	24	G12FW	1/2" HDG USS FLATWASHER		0.03	0.82
8	12	G12LW	1/2" HDG LOCKWASHER		0.01	0.17
9	12	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.86
10	3	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	18.06
11	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
12	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
13	6	X-253992	T-BRACKET FOR REINFORCEMENT KIT		13.55	81.27
14	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
15	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
TOTAL WT. #						464.91



TOLERANCE NOTES

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 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
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 ALL OTHER ASSEMBLY ($\pm 0.060"$)

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DESCRIPTION

PLATFORM REINFORCEMENT
 ON A 12" TO 45" POLE
 4' 6" ANGLE

CPD NO.
4488

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CEK 4/10/2014

ENG. APPROVAL

CLASS SUB
81 01

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CHECKED BY
BMC 4/10/2014



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 Support Team:
 1-888-753-7446

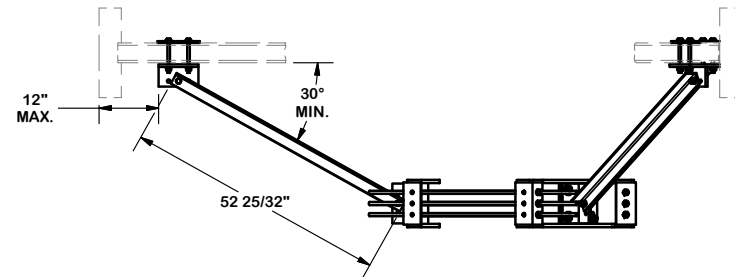
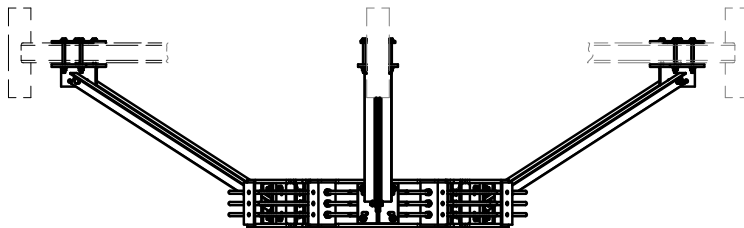
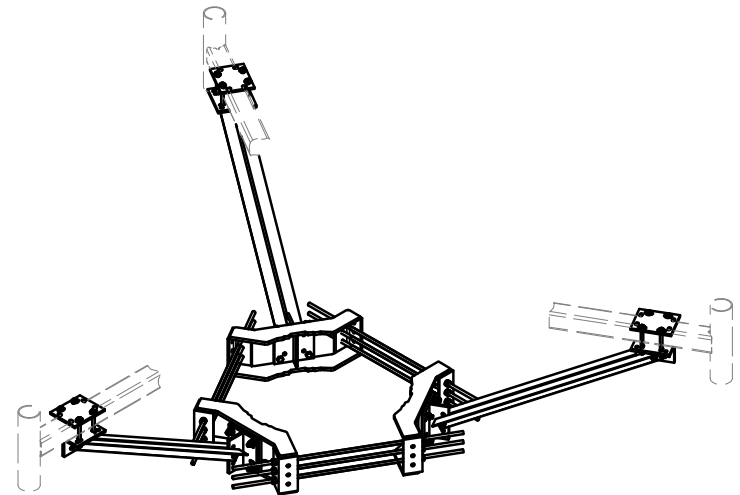
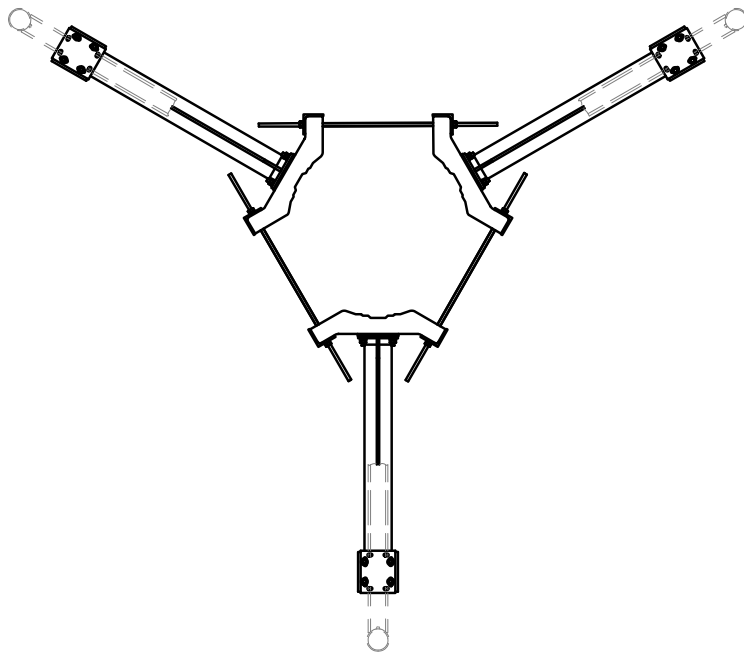
Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

PART NO.

PRK-1245

DWG. NO.

PRK-1245



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 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 ($\pm 0.060"$)

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 ON A 12" TO 45" POLE
 4' 6" ANGLE

CPD NO.
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DRAWN BY
CEK 4/10/2014

ENG. APPROVAL

CLASS SUB
81 01

DRAWING USAGE
CUSTOMER

CHECKED BY
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Engineering
 Support Team:
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PART NO.

PRK-1245

DWG. NO.

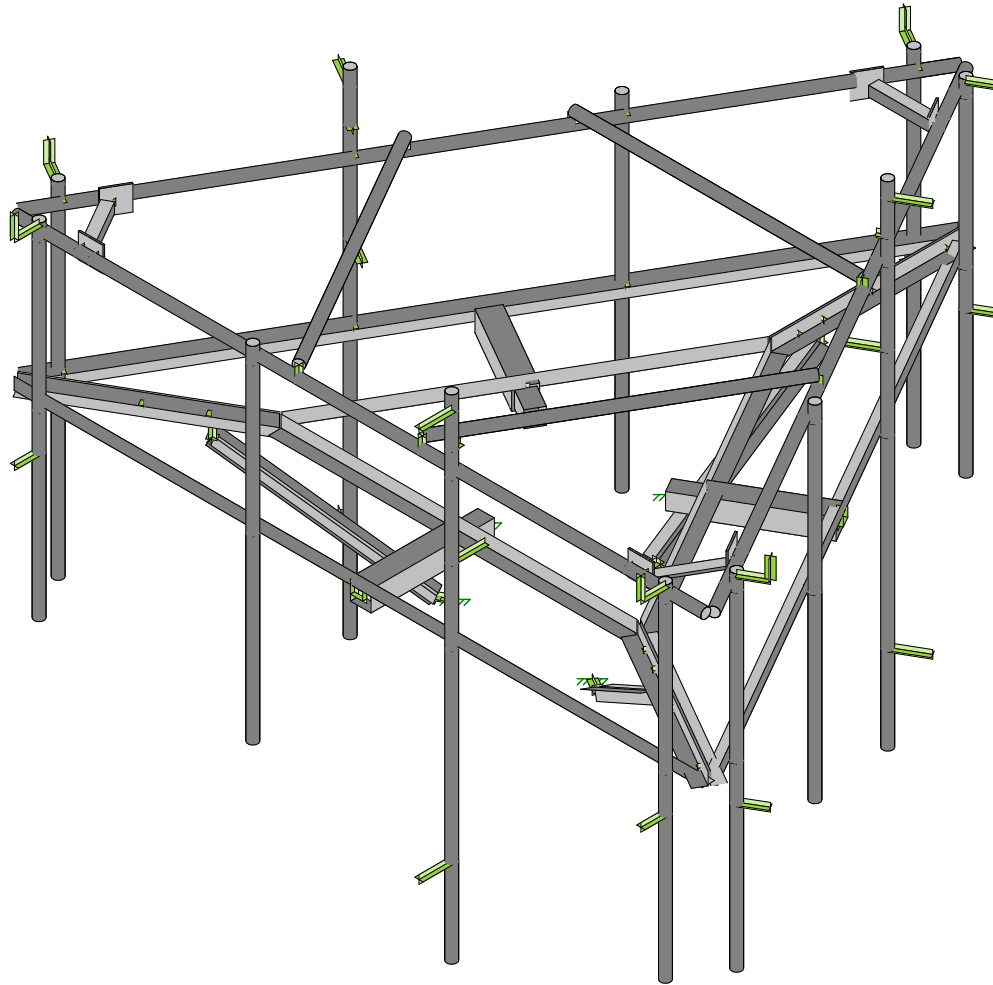
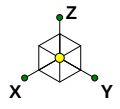
PRK-1245

Wind & Ice Loading			
Nominal Mount Elevation (AGL), z_{mount}	136 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	137 ft	K_d	0.95
Elevation AMSL (ft)	-	K_e	-
TIA Standard	G	K_z	1.08
Basic Wind Speed, V_{ult} (bare)	135 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	B	G_h	1.00
Risk Category	II	q_z (bare)	47.8 psf
Seismic Response Coeff., C_s	-	q_z (ice)	6.6 psf

Live Loading	
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3
	M4

Member Distributed Loading				
Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Platform Base	L3X3X4	21.52	2.26	11.46
Grating Angle	L3X3X4	21.52	2.26	11.46
Mount Pipe	PIPE_2.0	10.22	3.44	8.66
Grating Tube 1	HSS5X5X5	35.87	2.41	17.09
Grating Tube 2	HSS4X4X4	28.69	2.34	14.40
MOD PRK	L2.5x2.5x3	17.93	2.23	10.12
MOD Support Rail	PIPE_2.0	10.22	3.44	8.66
MOD SR Conn Plate	PL6x0.375	43.04	5.59	12.22
MOD SR Conn Angle	L2.5x2.5x4	17.93	2.23	10.12
MOD SR Bracing	PIPE_2.0	10.22	3.44	8.66

Appurtenances																														
Appurtenance Model	Status	Azimuth Offset (°, ∪)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° 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°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
AIR 21, 1.3M, B2A B4P				☐			1	1	1		A1	A2	B1	B2	G1	G2	55.9	12	7.8	91.5	Flat	165.25	6.04	4.26	8.03	6.14	260.38	183.56	47.49	36.33
AIR 21				☐			1	1	1		A5	A6	B5	B6	G5	G6	56	12	7.9	91	Flat	144.17	6.05	4.31	8.04	6.20	260.92	185.91	47.58	36.67
APXVAARR24_43-U-NA20				☐			1	1	1		A3	A4	B3	B4	G3	G4	0	0	0	153.3	Generic	389.44	14.67	5.32	17.30	7.64	632.74	229.46	102.35	45.19
RADIO 4449 B12/B71				☐	0		1	1	1		R1A		R1B		R1G		15	13.2	10.4	75	Flat	59.51	0.00	1.30	0.00	2.13	0.00	56.07	0.00	12.61



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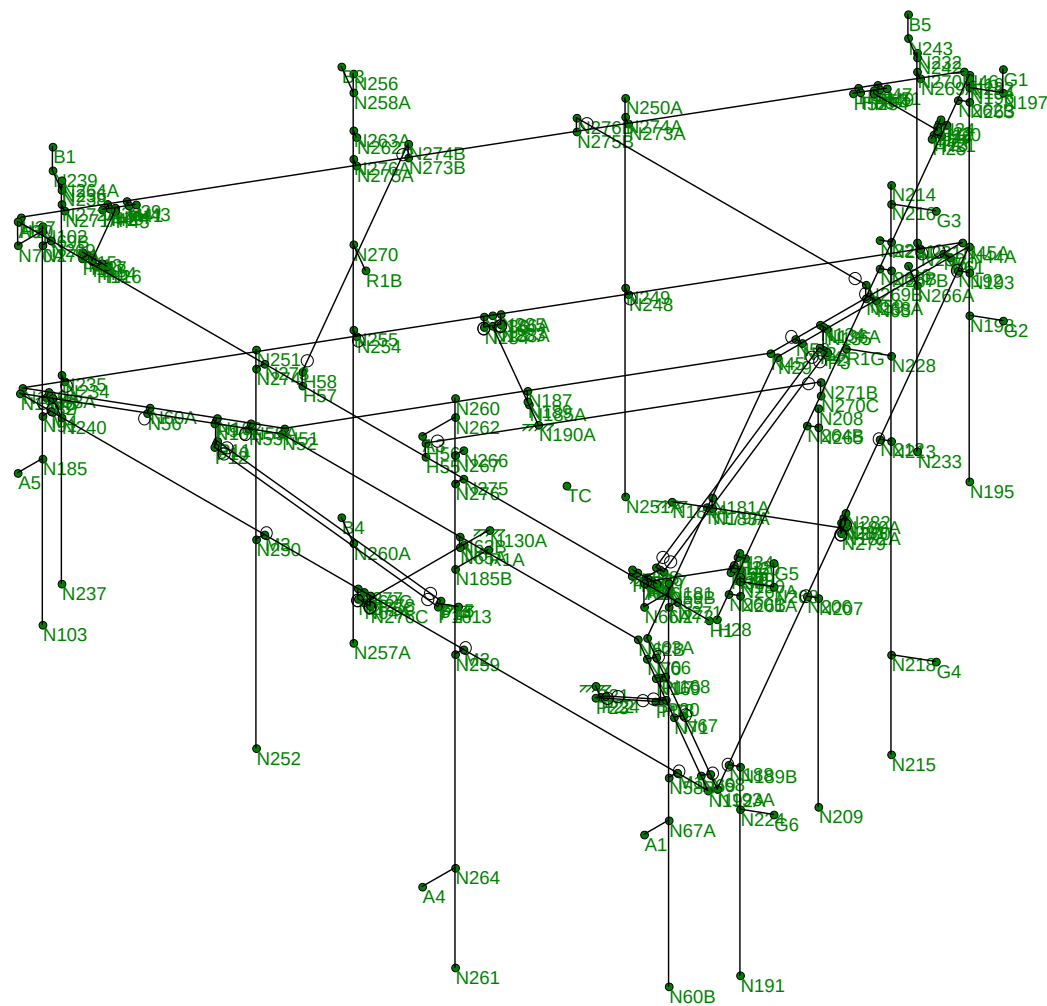
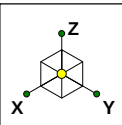
41124-12927124-NORWICH CT

Rendered

SK - 1

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41124-12927124-01-MA-R2.r3d



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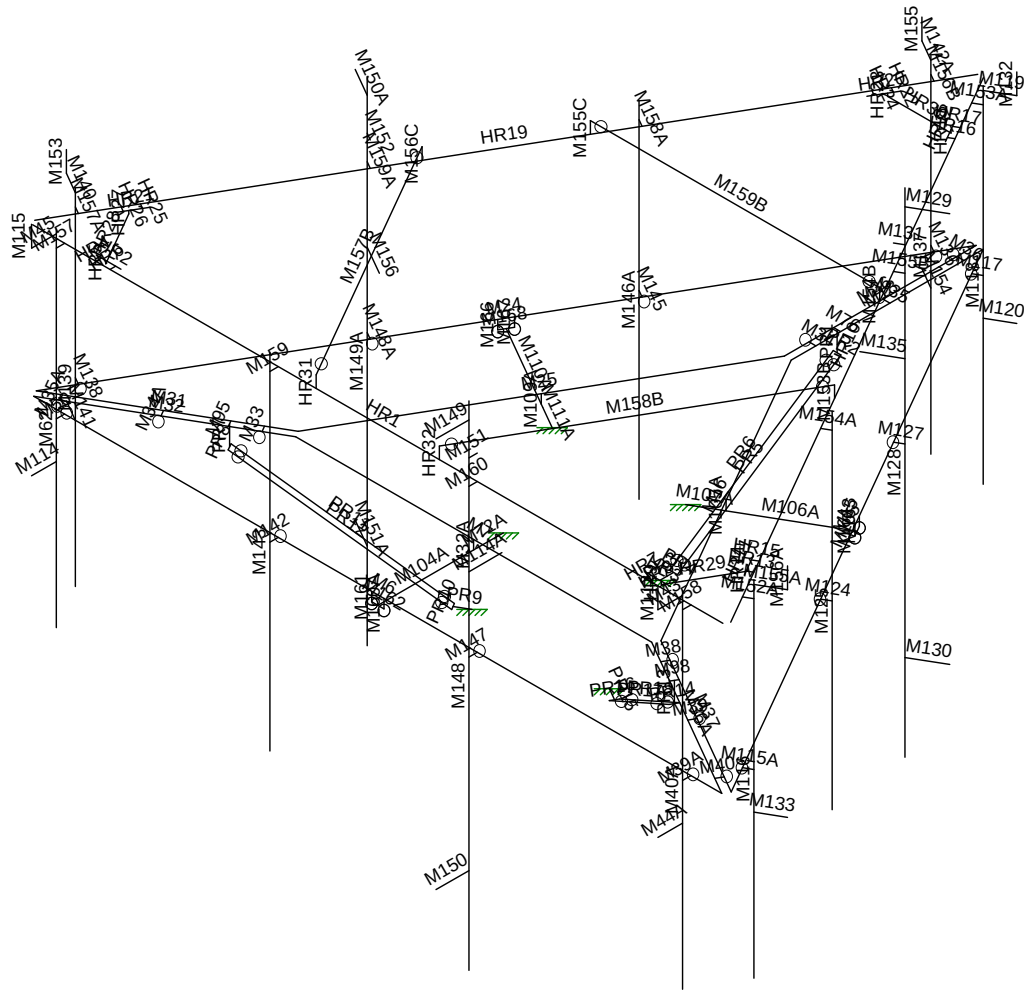
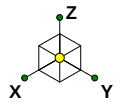
41124-12927124-NORWICH CT

Joint Labels

SK - 2

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41124-12927124-01-MA-R2.r3d

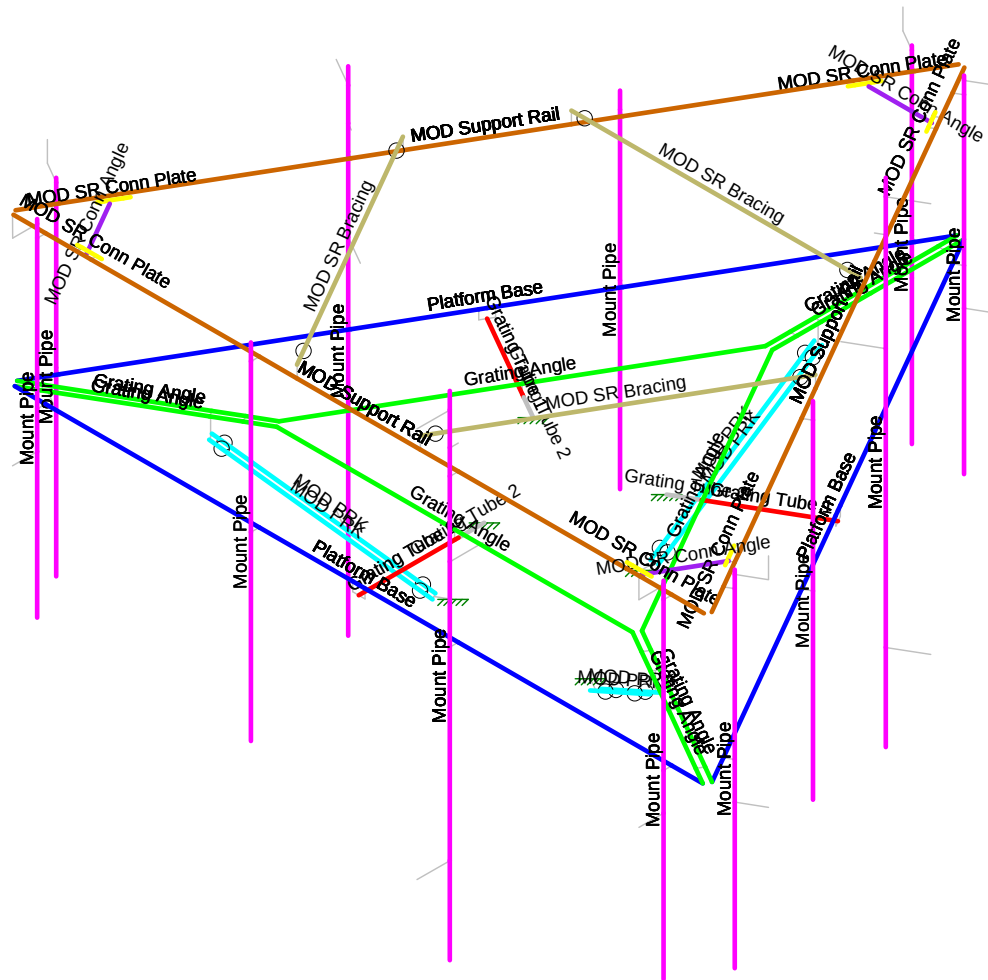
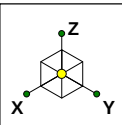


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Member Labels

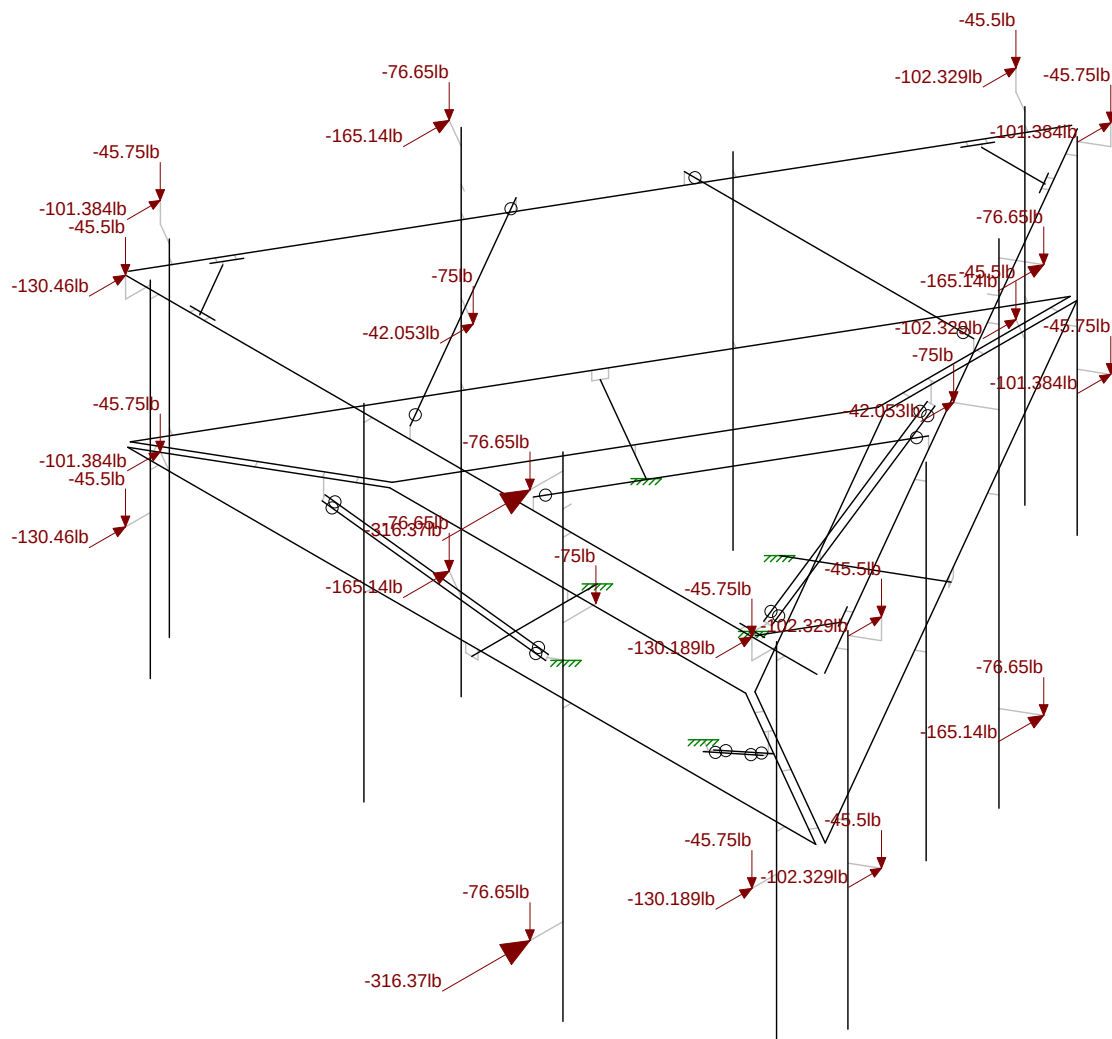
SK - 3
July 11, 2019 at 10:38 AM
41124-12927124-01-MA-R2.r3d



Section Sets	
■	Platform Base
■	Grating Angle
■	Grating Tube 1
■	Grating Tube 2
■	Mount Pipe
■	MOD PRK
■	MOD Support Rail
■	MOD SR Conn Plate
■	MOD SR Conn Angle
■	MOD SR Bracing
■	RIGID

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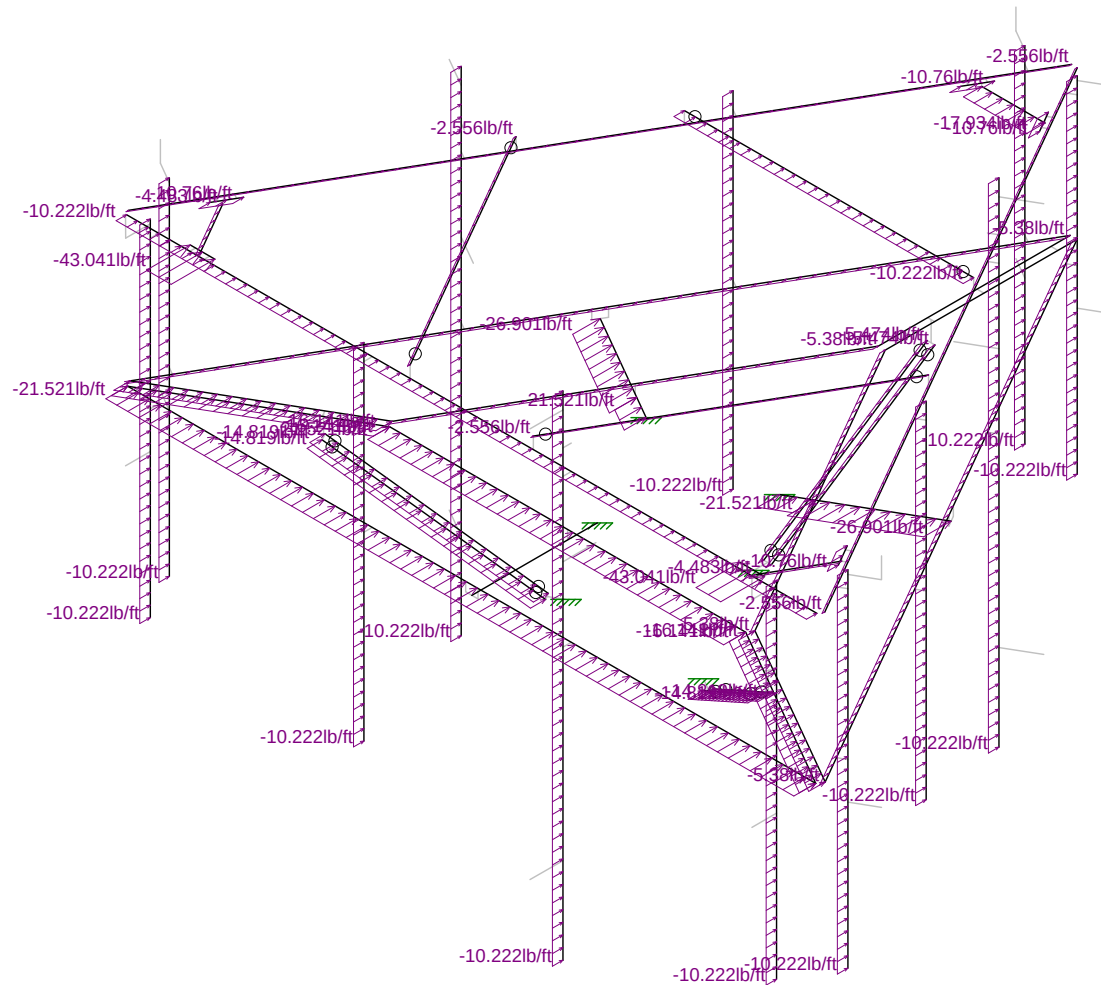
CLS	41124-12927124-NORWICH CT Section Sets	SK - 4
SMR		July 11, 2019 at 10:38 AM
41124-12927124-01-MA-R2		41124-12927124-01-MA-R2.r3d



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41124-12927124-NORWICH CT
Joint Loads - Dead and Normal Wind

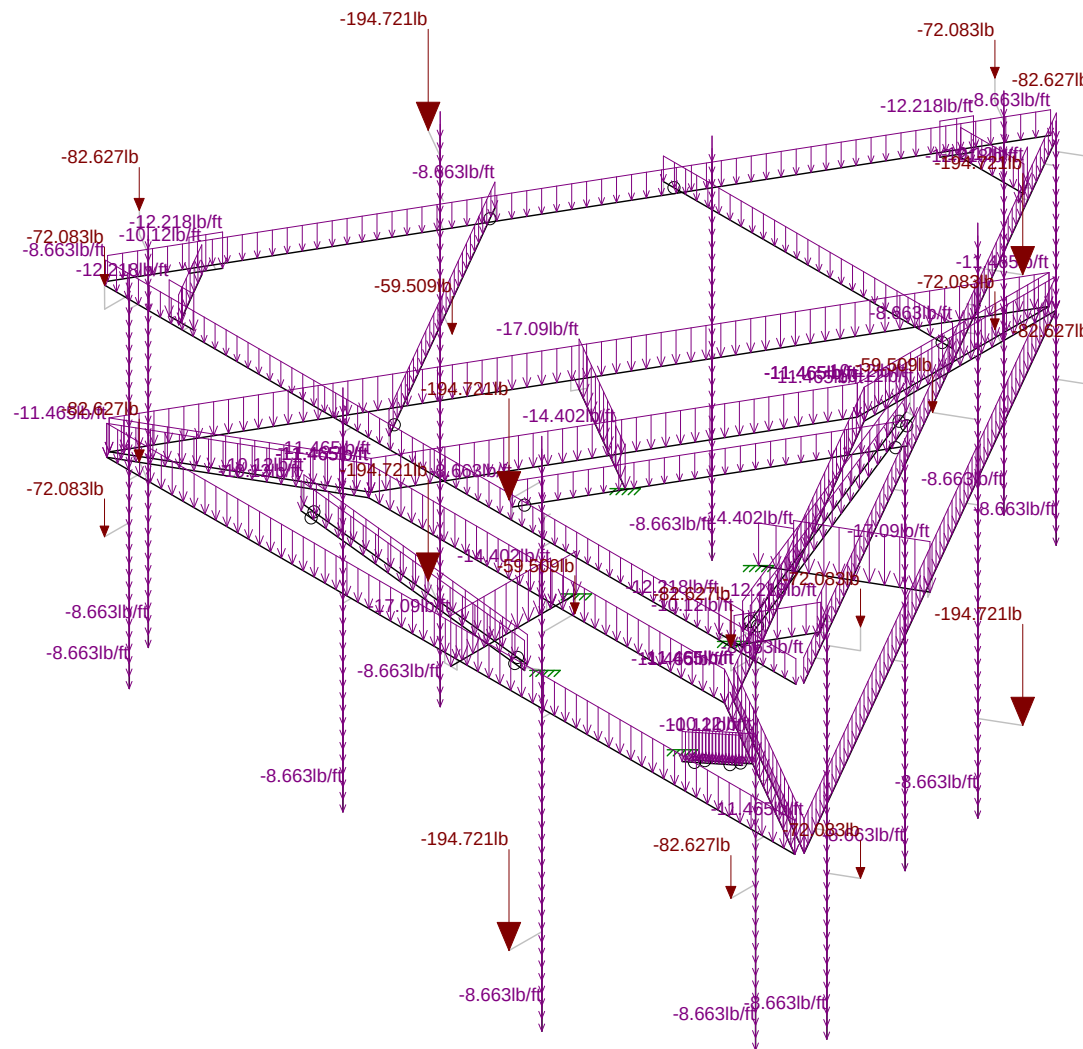
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41124-12927124-01-MA-R2.r3d



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Distributed Load - Normal Wind

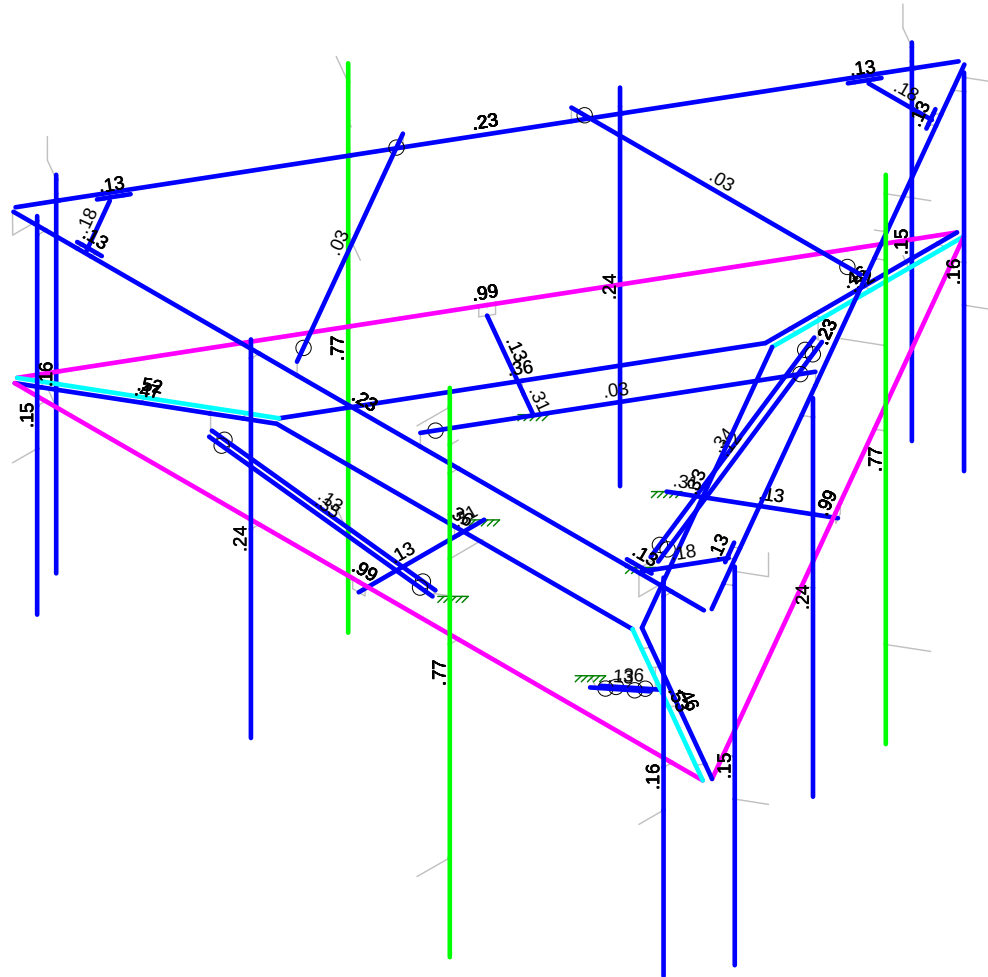
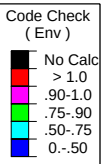
SK - 6
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41124-12927124-01-MA-R2.r3d



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Ice Dead Loads

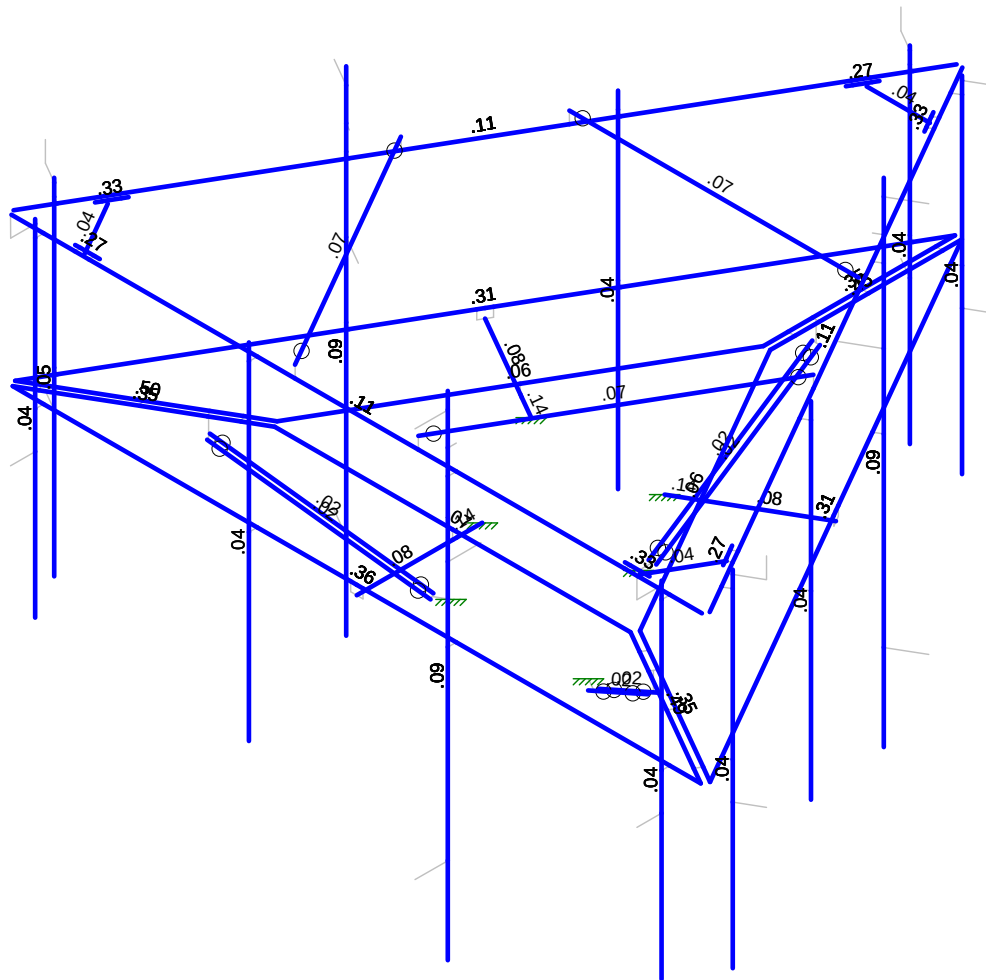
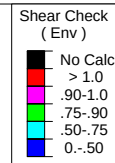
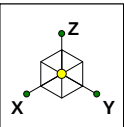
SK - 7
July 11, 2019 at 10:39 AM
41124-12927124-01-MA-R2.r3d



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41124-12927124-NORWICH CT
Envelope Member Unity Check Results - Bending

SK - 8
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41124-12927124-01-MA-R2.r3d



Member Shear Checks Displayed (Enveloped)
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41124-12927124-NORWICH CT
Envelope Member Check Results - Shear

SK - 9
July 11, 2019 at 10:39 AM
41124-12927124-01-MA-R2.r3d

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	DL			-1	21				
2	Ice Dead	RL				21		51		
4	Structure Wind 0Á	None						47		
5	Structure Wind 30Á	None						88		
6	Structure Wind 45Á	None						102		
7	Structure Wind 60Á	None						94		
8	Structure Wind 90Á	None						44		
9	Structure Wind 120Á	None						94		
10	Structure Wind 135Á	None						102		
11	Structure Wind 150Á	None						88		
12	Structure Wind w/ Ice 0Á	None						48		
13	Structure Wind w/ Ice 30Á	None						88		
14	Structure Wind w/ Ice 45Á	None						102		
15	Structure Wind w/ Ice 60Á	None						96		
16	Structure Wind w/ Ice 90Á	None						44		
17	Structure Wind w/ Ice 120Á	None						96		
18	Structure Wind w/ Ice 135Á	None						102		
19	Structure Wind w/ Ice 150Á	None						88		
20	Antenna Wind 0Á	None				20				
21	Antenna Wind 30Á	None				42				
22	Antenna Wind 45Á	None				42				
23	Antenna Wind 60Á	None				40				
24	Antenna Wind 90Á	None				21				
25	Antenna Wind 120Á	None				40				
26	Antenna Wind 135Á	None				42				
27	Antenna Wind 150Á	None				42				
28	Antenna Wind w/ Ice 0Á	None				20				
29	Antenna Wind w/ Ice 30Á	None				42				
30	Antenna Wind w/ Ice 45Á	None				42				
31	Antenna Wind w/ Ice 60Á	None				40				
32	Antenna Wind w/ Ice 90Á	None				21				
33	Antenna Wind w/ Ice 120Á	None				40				
34	Antenna Wind w/ Ice 135Á	None				42				
35	Antenna Wind w/ Ice 150Á	None				42				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				
41	Maintenance Live 500 (3)	OL3				1				
42	Maintenance Live 500 (4)	OL4				1				

[illegible]

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	Label	E [ksi]	G [ksi]	Nu	Therm (1...Density[k/...	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

Company : CLS
 Designer : SMR
 Job Number : 41124-12927124-01-MA-R2
 Model Name : 41124-12927124-NORWICH CT

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Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Platform Base	L3X3X4	Beam	None	A36 Gr.36	Typical	1.44	1.23	1.23	.031
2	Grating Angle	L3X3X4	Beam	None	A36 Gr.36	Typical	1.44	1.23	1.23	.031
3	Grating Tube 1	HSS5X5X5	Beam	None	A36 Gr.36	Typical	5.26	19	19	31.2
4	Grating Tube 2	HSS4X4X4	Beam	None	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
5	Mount Pipe	PIPE 2.0	Column	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	MOD PRK	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011
7	MOD Support Rail	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	MOD SR Conn Plate	PL6x0.375	Beam	None	A36 Gr.36	Typical	2.25	.026	6.75	.101
9	MOD SR Conn Angle	L2.5x2.5x4	Beam	None	A36 Gr.36	Typical	1.19	.692	.692	.026
10	MOD SR Bracing	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-torqu...	Kyy	Kzz	Cb	Function
1	M6	Platform Ba...	167.429	52.5	83.7	Lbyy						Lateral
2	M7	Grating Angle	86.614	43.3		Lbyy						Lateral
3	M15	Platform Ba...	167.429	52.5	83.7	Lbyy						Lateral
4	M16	Grating Angle	86.614	43.3		Lbyy						Lateral
5	M18	Grating Angle	46.659			Lbyy						Lateral
6	M24	Platform Ba...	167.429	52.5	83.7	Lbyy						Lateral
7	M25	Grating Angle	86.614	43.3		Lbyy						Lateral
8	M26	Grating Angle	46.659			Lbyy						Lateral
9	M31	Grating Angle	46.659			Lbyy						Lateral
10	M32	Grating Angle	46.659			Lbyy						Lateral
11	M36A	Grating Angle	46.659			Lbyy						Lateral
12	M37	Grating Angle	46.659			Lbyy						Lateral
13	M62	Mount Pipe	84			Lbyy						Lateral
14	M104A	Grating Tub...	24.298			Lbyy						Lateral
15	M106A	Grating Tub...	24.298			Lbyy						Lateral
16	M107A	Grating Tub...	6.25			Lbyy						Lateral
17	M110A	Grating Tub...	24.298			Lbyy						Lateral
18	M111A	Grating Tub...	6.25			Lbyy						Lateral
19	M40A	Mount Pipe	84			Lbyy						Lateral
20	M72A	Grating Tub...	6.25			Lbyy						Lateral
21	PR5	MOD PRK	47.75									Lateral
22	PR6	MOD PRK	47.75									Lateral
23	PR11	MOD PRK	47.75									Lateral
24	PR12	MOD PRK	47.75									Lateral
25	PR17	MOD PRK	47.75									Lateral
26	PR18	MOD PRK	47.75									Lateral
27	HR1	MOD Supp...	168									Lateral
28	HR2	MOD SR C...	6									Lateral
29	HR3	MOD SR C...	6									Lateral
30	HR10	MOD Supp...	168									Lateral
31	HR11	MOD SR C...	6									Lateral
32	HR12	MOD SR C...	6									Lateral
33	HR19	MOD Supp...	168									Lateral
34	HR20	MOD SR C...	6									Lateral
35	HR21	MOD SR C...	6									Lateral
36	HR28	MOD SR C...	15.408									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
37	HR29	MOD SR C...	15.408									Lateral
38	HR30	MOD SR C...	15.408									Lateral
39	M143	Mount Pipe	84			Lbyy						Lateral
40	M148	Mount Pipe	120			Lbyy						Lateral
41	M116	Mount Pipe	84			Lbyy						Lateral
42	M118	Mount Pipe	84			Lbyy						Lateral
43	M125	Mount Pipe	84			Lbyy						Lateral
44	M128	Mount Pipe	120			Lbyy						Lateral
45	M137	Mount Pipe	84			Lbyy						Lateral
46	M139	Mount Pipe	84			Lbyy						Lateral
47	M146A	Mount Pipe	84			Lbyy						Lateral
48	M149A	Mount Pipe	120			Lbyy						Lateral
49	M157B	MOD SR Br...	70.387			Lbyy						Lateral
50	M158B	MOD SR Br...	70.387			Lbyy						Lateral
51	M159B	MOD SR Br...	70.387			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	N184A	max 2391.3...	3	1725.31	15	1219.1...	23	2921.809	23	2136.83	19	1647.223	11
2		min -2734.13	11	-1574.82	7	354.656	15	498.467	15	308.148	12	-1604.212	3
3	N190A	max 2522.84	3	1483.1...	14	1219.2...	33	-736.128	7	1528.714	19	1647.357	6
4		min -2485....	11	-1850....	6	354.653	10	-3262.484	31	22.626	10	-1604.33	14
5	P5	max -347.668	11	135.531	15	1527.5...	19	-18.01	7	277.493	19	-9.187	7
6		min -2409....	19	-56.688	7	216.77	11	-220.119	32	30.644	14	-368.809	32
7	P21	max 1300.5...	24	2031.07	24	1527.4...	24	350.152	24	102.507	36	-3.772	13
8		min 183.937	16	295.216	16	216.751	16	42.628	16	-53.661	12	-404.942	37
9	P13	max 1108.7...	30	-306.959	6	1527.59	30	31.806	9	-37.963	6	-9.192	18
10		min 163.726	6	-2142....	30	216.79	6	-134.931	33	-329.023	30	-412.612	90
11	N130A	max 1100.8...	3	2884.9...	16	1219.1...	28	628.074	56	-749.338	1	1783.344	17
12		min -800.591	11	-2658....	8	313.407	1	-370.086	80	-3552.623	27	-1738.905	9
13	Totals:	max 5413.2...	3	5413.31	15	7947.4...	31						
14		min -5413....	11	-5413....	7	2425.9...	1						

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	Eqn
1	M24	L3X3X4	.993	85.4...	32	.305	167.429	z	31	305...	46656	168...	227... 1 H2-1
2	M15	L3X3X4	.993	85.4...	22	.305	167.429	z	20	305...	46656	168...	227... 1 H2-1
3	M6	L3X3X4	.993	85.4...	27	.360	167.429	z	42	305...	46656	168...	227... 1 H2-1
4	M148	PIPE 2.0	.771	66.25	3	.094	66.25		11	983...	32130	187...	187... H1-...
5	M128	PIPE 2.0	.771	66.25	14	.094	66.25		6	983...	32130	187...	187... H1-...
6	M149A	PIPE 2.0	.771	66.25	8	.094	66.25		17	983...	32130	187...	187... H1-...
7	M36A	L3X3X4	.535	12.1...	41	.493	0	z	40	333...	46656	168...	375... H2-1
8	M31	L3X3X4	.520	12.1...	30	.499	0	z	94	333...	46656	168...	375... H2-1
9	M18	L3X3X4	.520	12.1...	19	.451	0	z	19	333...	46656	168...	375... H2-1
10	M32	L3X3X4	.465	12.1...	94	.349	42.285	z	30	333...	46656	168...	375... H2-1
11	M26	L3X3X4	.457	12.1...	19	.349	42.285	z	19	333...	46656	168...	375... H2-1
12	M37	L3X3X4	.457	12.1...	24	.349	42.285	z	24	333...	46656	168...	375... H2-1
13	M25	L3X3X4	.362	43.3...	94	.063	86.614	y	94	349...	46656	168...	298... 1 H2-1
14	M7	L3X3X4	.360	43.3...	40	.066	0	y	94	349...	46656	168...	298... 1 H2-1

Company : CLS
 Designer : SMR
 Job Number : 41124-12927124-01-MA-R2
 Model Name : 41124-12927124-NORWICH CT

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	Eqn
15	PR18	L2.5x2.5x3	.356	0	40	.023	0	z	40	172...	291...	872...	197... H2-1
16	PR12	L2.5x2.5x3	.355	0	94	.023	0	z	94	172...	291...	872...	197... H2-1
17	PR6	L2.5x2.5x3	.337	0	19	.023	0	z	19	172...	291...	872...	197... H2-1
18	M16	L3X3X4	.332	43.3...	19	.065	0	y	41	349...	46656	168...	298... 1 H2-1
19	M72A	HSS4X4X4	.310	6.25	29	.141	6.25	z	8	109...	109...	12663	12663... H1...
20	M111A	HSS4X4X4	.309	6.25	19	.141	6.25	z	14	109...	109...	12663	12663... H1...
21	M107A	HSS4X4X4	.309	6.25	24	.141	6.25	z	3	109...	109...	12663	12663... H1...
22	M143	PIPE 2.0	.236	79.6...	7	.036	44.625		24	178...	32130	187...	187... H1...
23	M146A	PIPE 2.0	.236	79.6...	12	.036	44.625		30	178...	32130	187...	187... H1...
24	M125	PIPE 2.0	.236	79.6...	18	.036	44.625		19	178...	32130	187...	187... H1...
25	HR19	PIPE 2.0	.233	108.5	3	.110	99.75		16	501...	32130	187...	187... H1...
26	HR10	PIPE 2.0	.233	108.5	8	.110	99.75		6	501...	32130	187...	187... H1...
27	HR1	PIPE 2.0	.233	108.5	14	.110	99.75		11	501...	32130	187...	187... H1...
28	HR28	L2.5x2.5x4	.184	0	8	.044	15.408	z	10	365...	38556	111...	253... H2-1
29	HR30	L2.5x2.5x4	.184	0	14	.044	15.408	z	15	365...	38556	111...	253... H2-1
30	HR29	L2.5x2.5x4	.184	0	3	.044	15.408	z	4	365...	38556	111...	253... H2-1
31	M40A	PIPE 2.0	.161	79.6...	15	.044	44.625		11	178...	32130	187...	187... H1...
32	M139	PIPE 2.0	.161	79.6...	4	.045	44.625		17	178...	32130	187...	187... H1...
33	M118	PIPE 2.0	.161	79.6...	10	.044	44.625		6	178...	32130	187...	187... H1...
34	M116	PIPE 2.0	.149	79.6...	18	.042	43.75		17	178...	32130	187...	187... H1...
35	M62	PIPE 2.0	.149	79.6...	7	.041	43.75		7	178...	32130	187...	187... H1...
36	M137	PIPE 2.0	.149	79.6...	12	.042	43.75		13	178...	32130	187...	187... H1...
37	HR21	PL6x0.375	.134	3.75	17	.325	4.687	y	8	619...	72900	569...	911... H1...
38	HR12	PL6x0.375	.132	3.75	7	.325	4.687	y	14	619...	72900	569...	911... H1...
39	HR3	PL6x0.375	.132	3.75	12	.325	4.688	y	3	619...	72900	569...	911... H1...
40	HR2	PL6x0.375	.128	2.25	18	.270	2.25	y	3	619...	72900	569...	911... H1...
41	HR20	PL6x0.375	.128	2.25	7	.270	2.25	y	8	619...	72900	569...	911... H1...
42	HR11	PL6x0.375	.128	2.25	12	.270	2.25	y	14	619...	72900	569...	911... H1...
43	PR17	L2.5x2.5x3	.127	0	41	.016	0	y	24	172...	291...	872...	175... H2-1
44	PR11	L2.5x2.5x3	.127	0	95	.016	0	y	30	172...	291...	872...	175... H2-1
45	M110A	HSS5X5X5	.125	24.2...	31	.083	24.298	z	14	168...	170...	24732	24732... H1...
46	M104A	HSS5X5X5	.125	24.2...	26	.083	24.298	z	8	168...	170...	24732	24732... H1...
47	M106A	HSS5X5X5	.125	24.2...	20	.083	24.298	z	3	168...	170...	24732	24732... H1...
48	PR5	L2.5x2.5x3	.117	0	19	.016	0	y	19	172...	291...	872...	175... H2-1
49	M159B	PIPE 2.0	.032	35.1...	19	.069	0		6	212...	32130	187...	187... H1...
50	M158B	PIPE 2.0	.032	35.1...	24	.069	0		11	212...	32130	187...	187... H1...
51	M157B	PIPE 2.0	.032	35.1...	30	.069	0		17	212...	32130	187...	187... H1...

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom
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CT11463C_L600_2.2_draft

Section 1 - Site Information

Site ID: CT11463C
Status: Draft
Version: 2.2
Project Type: L600
Approved: Not Approved
Approved By: Not Approved
Last Modified: 6/7/2019 9:54:34 AM
Last Modified By: GSM1900\DKallas2

Site Name: CT463/Wawecus WP#2_FT
Site Class: Monopole
Site Type: Structure Non Building
Plan Year:
Market: CONNECTICUT
Vendor: Ericsson
Landlord: <undefined>

Latitude: 41.5270715400
Longitude: -72.1226468000
Address: 202 North Wawecus Hill Road
City, State: Norwich, CT
Region: NORTHEAST

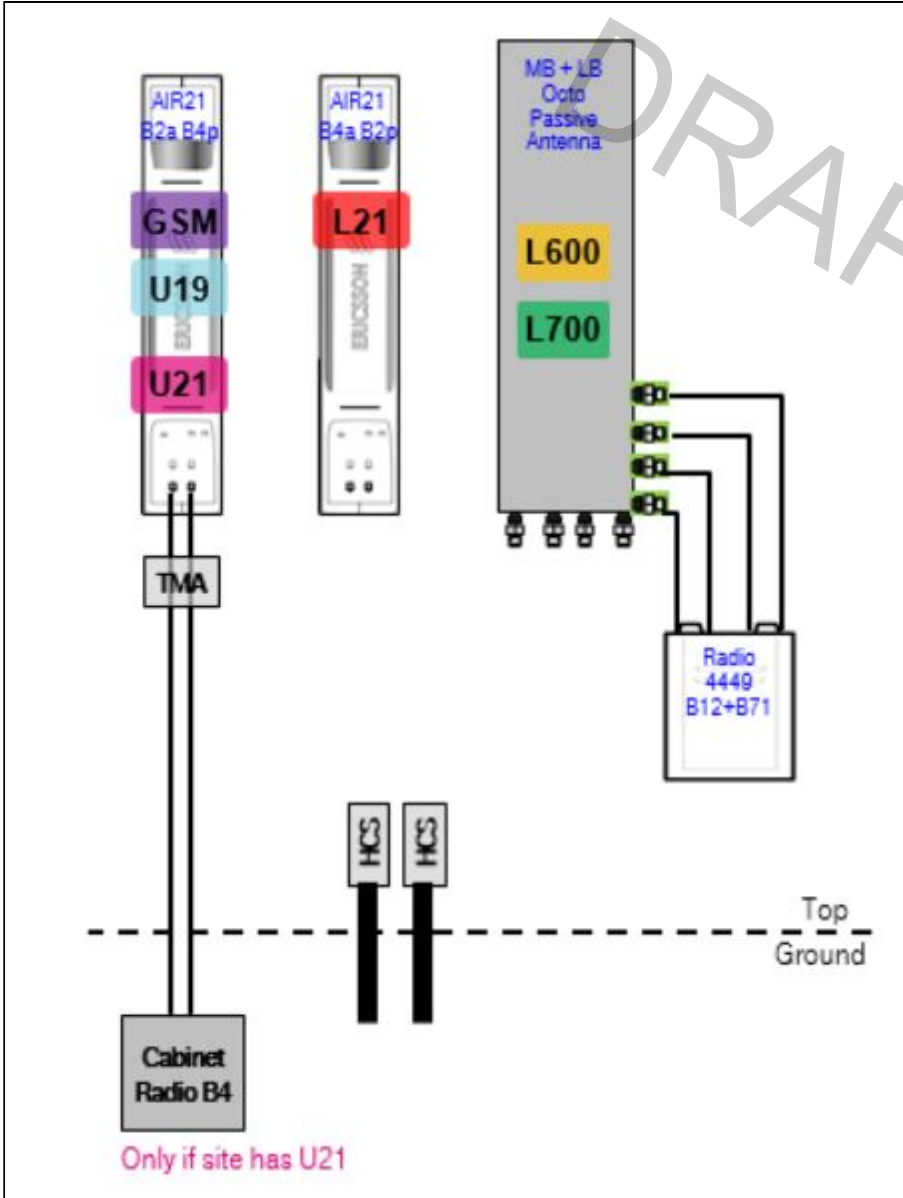
RAN Template: 67D02C Outdoor		AL Template: 67D02C_2xAIR+1OP		
Sector Count: 3	Antenna Count: 9	Coax Line Count: 6	TMA Count: 3	RRU Count: 3

Section 2 - Existing Template Images

----- This section is intentionally blank. -----

Section 3 - Proposed Template Images

67D02C.JPG



Notes:

Section 4 - Siteplan Images

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DRAFT

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom
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Section 5 - RAN Equipment

Existing RAN Equipment

Template: 702Cu

Enclosure	1	2	3	4
Enclosure Type	RBS 6131	Ancillary Equipment	S8000 Outdoor	S8000 Outdoor
Baseband	DUW30 U1900 DUW30 U2100 (DECOMMISSIONED) DUG20 G1900 DUS41 L2100 L700			
Hybrid Cable System		Ericsson 9x18 HCS *Select Length*		
Radio	RUS01 B4 (x6) U2100 (DECOMMISSIONED)			

Proposed RAN Equipment

Template: 67D02C Outdoor

Enclosure	1	2	3	4
Enclosure Type	RBS 6131	Ancillary Equipment	S8000 Outdoor	S8000 Outdoor
Baseband	DUW30 U2100 (DECOMMISSIONED) DUW30 U1900 DUG20 G1900 BB 6630 N600 (DARK) BB 6630 L2100 L700 L600			
Hybrid Cable System		Ericsson 9x18 HCS *Select Length* Ericsson 6x12 HCS *Select Length & AWG* (x2)		
Radio	RUS01 B4 (x6) U2100 (DECOMMISSIONED)			

RAN Scope of Work:

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom
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Section 6 - A&L Equipment

Existing Template: 702Cu
Proposed Template: 67D02C_2xAIR+1OP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2		3		4	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)		Empty Antenna Mount (Empty mount)		Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	60		60				60	
M. Tilt			0					
Height	137		136				137	
Ports	P1		P2		P3		P4	
Active Tech.	L2100				L700		U1900 G1900	
Dark Tech.								
Restricted Tech.								
Decomm. Tech.							U2100	
E. Tilt	2		2				2	
Cables	Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft.				Fiber Jumper - 15 ft. (x2)	
TMA's							Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners								
Radio			RRUS11 B12 (At Antenna)					
Sector Equipment								
Unconnected Equipment:								
Scope of Work:								

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom
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CT11463C_L600_2.2_draft

Sector 1 (Proposed) view from behind										
Coverage Type	A - Outdoor Macro									
Antenna	1		2				3		4	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Empty Antenna Mount (Empty mount)		Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	(60)		(60)						(60)	
M. Tilt	(0)		(0)						(0)	
Height	(137)		(136)						(137)	
Ports	P1		P2		P3	P4	P5	P6	P7 P8	
Active Tech.	L2100				L700 L600	L700 L600			U1900 G1900	
Dark Tech.										
Restricted Tech.										
Decomm. Tech.									U2100	
E. Tilt	(2)				(2)	(2)			(2) (2)	
Cables	Fiber Jumper - 15 ft.				Fiber Jumper - 15 ft. (x2) Coax Jumper (x2)	Coax Jumper (x2)			Fiber Jumper - 15 ft. (x2) 1-5/8" Coax - 202 ft. (x2)	
TMA's									Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners										
Radio					Radio 4449 B71 +B1 2 (At Antenna)	SHARED Radio 4449 B71 +B1 2 (At Antenna)				
Sector Equipment										
Unconnected Equipment:										
Scope of Work:										
Replace LB Dual in Position 2 with (1) LB/MB Octo. Replace RRUS11 B12 with (1) Radio 4449 B71+B12 for L600 and L700 in Position 2.										

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom
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CT11463C_L600_2.2_draft

Sector 2 (Existing) view from behind						
Coverage Type	A - Outdoor Macro					
Antenna	1		2		3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)		Empty Antenna Mount (Empty mount)	
Azimuth	180		180		180	
M. Tilt			0			
Height	137		136		137	
Ports	P1	P2	P3		P4	P5
Active Tech.	L2100		L700		U1900 G1900	
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						U2100
E. Tilt	2		2		2	2
Cables	Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 196 ft. (x2)
TMA's						Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners						
Radio			RRUS11 B12 (At Antenna)			
Sector Equipment						
Unconnected Equipment:						
Scope of Work:						

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom
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CT11463C_L600_2.2_draft

Sector 2 (Proposed) view from behind										
Coverage Type	A - Outdoor Macro									
Antenna	1		2				3		4	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Empty Antenna Mount (Empty mount)		Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	(180)		(180)						(180)	
M. Tilt			(0)							
Height	(137)		(136)						(137)	
Ports	P1		P2		P3	P4	P5	P6	P7 P8	
Active Tech.	L2100				L700 L600	L700 L600			U1900 G1900	
Dark Tech.										
Restricted Tech.										
Decomm. Tech.									U2100	
E. Tilt	(2)				(2)	(2)			(2) (2)	
Cables	Fiber Jumper - 15 ft.				Fiber Jumper - 15 ft. (x2) Coax Jumper (x2)	Coax Jumper (x2)			Fiber Jumper - 15 ft. (x2) 1-5/8" Coax - 196 ft. (x2)	
TMA's									Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners										
Radio					Radio 4449 B71 +B1 2 (At Antenna)	SHARED Radio 4449 B71 +B1 2 (At Antenna)				
Sector Equipment										
Unconnected Equipment:										
Scope of Work:										
Replace LB Dual in Position 2 with (1) LB/MB Octo. Replace RRUS11 B12 with (1) Radio 4449 B71+B12 for L600 and L700 in Position 2.										

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom
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CT11463C_L600_2.2_draft

Sector 3 (Existing) view from behind						
Coverage Type	A - Outdoor Macro					
Antenna	1		2		3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)		Empty Antenna Mount (Empty mount)	
Azimuth	300		300		300	
M. Tilt			0			
Height	137		136		137	
Ports	P1	P2	P3		P4	P5
Active Tech.	L2100		L700		U1900 G1900	
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						U2100
E. Tilt	2		2		2	2
Cables	Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 194 ft. (x2)
TMA's						Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners						
Radio			RRUS11 B12 (At Antenna)			
Sector Equipment						
Unconnected Equipment:						
Scope of Work:						

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom
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CT11463C_L600_2.2_draft

Sector 3 (Proposed) view from behind									
Coverage Type	A - Outdoor Macro								
Antenna	1		2			3		4	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Empty Antenna Mount (Empty mount)		Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	300		300					300	
M. Tilt			0						
Height	137		136					137	
Ports	P1	P2	P3	P4	P5	P6			P7 P8
Active Tech.	L2100		L700 L600	L700 L600					U1900 G1900
Dark Tech.									
Restricted Tech.									
Decomm. Tech.									U2100
E. Tilt	2		2	2					2 2
Cables	Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft. (x2) Coax Jumper (x2)	Coax Jumper (x2)					Fiber Jumper - 15 ft. (x2) 1-5/8" Coax - 194 ft. (x2)
TMA's									Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners									
Radio			Radio 4449 B71 +B1 2 (At Antenna)	SHARED Radio 4449 B71 +B1 2 (At Antenna)					
Sector Equipment									
Unconnected Equipment:									
Scope of Work:									
Replace LB Dual in Position 2 with (1) LB/MB Octo. Replace RRUS11 B12 with (1) Radio 4449 B71+B12 for L600 and L700 in Position 2.									

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

Section 7 - Power Systems Equipment	
Existing Power Systems Equipment	
----- This section is intentionally blank. -----	
Proposed Power Systems Equipment	



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

T-Mobile Existing Facility

Site ID: CT11463C

CT463/Wawecus WP#2_FT
202 North Wawecus Hill Road
Norwich, Connecticut 06360

May 31, 2019

EBI Project Number: 6219001986

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.72%



EBI Consulting

environmental | engineering | due diligence

May 31, 2019

T-Mobile

Attn: Jason Overbey, RF Manager

35 Griffin Road South

Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11463C - CT463/Wawecus WP#2_FT

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **202 North Wawecus Hill Road** in **Norwich, 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 202 North Wawecus Hill Road in Norwich, 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) 2 GSM/UMTS 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 (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 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.
- 6) 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.
 - 7) The antennas used in this modeling are the Ericsson AIR2I B2A_B4P for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR2I B2P_B4A for the 2100 MHz channel(s) in Sector A, the Ericsson AIR2I B2A_B4P for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR2I B2P_B4A for the 2100 MHz channel(s) in Sector B, the Ericsson AIR2I B2A_B4P for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR2I B2P_B4A for the 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.
 - 8) The antenna mounting height centerlines of the proposed antennas are 136 and 137 feet above ground level (AGL).
 - 9) 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.
 - 10) 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	Frequency Bands:	1900 MHz	Frequency Bands:	1900 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	137 feet	Height (AGL):	137 feet	Height (AGL):	137 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	60 Watts	Total TX Power (W):	60 Watts	Total TX Power (W):	60 Watts
ERP (W):	2,056.61	ERP (W):	2,056.61	ERP (W):	2,056.61
Antenna A1 MPE %:	0.39%	Antenna B1 MPE %:	0.39%	Antenna C1 MPE %:	0.39%
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):	136 feet	Height (AGL):	136 feet	Height (AGL):	136 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 %:	1.12%	Antenna B2 MPE %:	1.12%	Antenna C2 MPE %:	1.12%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	137 feet	Height (AGL):	137 feet	Height (AGL):	137 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	0.79%	Antenna B3 MPE %:	0.79%	Antenna C3 MPE %:	0.79%



EBI Consulting

environmental | engineering | due diligence

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	2.30%
Metro PCS	0.33%
Verizon	6.09%
Site Total MPE % :	8.72%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	2.30%
T-Mobile Sector B Total:	2.30%
T-Mobile Sector C Total:	2.30%
Site Total MPE % :	8.72%

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/UMTS	2	1028.30	137.0	3.94	1900 MHz GSM/UMTS	1000	0.39%
T-Mobile 600 MHz LTE	2	591.73	136.0	2.30	600 MHz LTE	400	0.58%
T-Mobile 700 MHz LTE	2	648.82	136.0	2.52	700 MHz LTE	467	0.54%
T-Mobile 2100 MHz LTE AWS	2	2056.61	137.0	7.88	2100 MHz LTE AWS	1000	0.79%
						Total:	2.30%

• 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:	2.30%
Sector B:	2.30%
Sector C:	2.30%
T-Mobile Maximum MPE % (Sector A):	2.30%
Site Total:	8.72%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **8.72%** 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.

Customer Name: T-MOBILE		ATC Asset Name: NORWICH CT		ATC Asset #: 311014		
Customer Site Name: CT463/Wawecus WP#2_FT				Customer Site #: CT11463C		
GROUND SPACE REQUIREMENTS						
Total Lease Area	Sq. Ft: 288.00'	Primary Contiguous Lease Area		L:12.00'	W:24.00'	H: Sq. Ft: 288.00
Concrete Pad				10.80'	21.50'	N/A 232.20
Outside Primary Lease Area				N/A	N/A	N/A Sq. Ft: N/A
BACKUP POWER REQUIREMENTS						
Generator: N/A		Capacity(KW): N/A		Fuel Tank Size(gal): N/A		Fuel Type: N/A Fuel Tank Setback(radius): N/A
UTILITY REQUIREMENTS						
Power Provided By: Utility Company Direct						
Telco/Interconnect: N/A						
TRANSMITTER & RECEIVER SPECIFICATIONS						
Type: N/A		Quantity: N/A		TX Power(watts): N/A		ERP(watts): N/A
ANTENNA EQUIPMENT SPECIFICATIONS						
Type	PANEL	PANEL	RRU/RRH	PANEL	N/A	N/A
Manufacturer	Ericsson	Ericsson	Ericsson	RFS	N/A	N/A
Model #	AIR 21, 1.3M, B2A B4P (91.5 lbs)	AIR 21	Radio 4449 B12,B71	APXVAARR24_43-U-NA20	N/A	N/A
Dimensions HxWxD	55.9" x 12" x 7.8"	56" x 12" x 7.9"	14.9" x 13.2" x 9.3"	95.9" x 24" x 8.7"	N/A	N/A
Weight(lbs.)	91.5	91.0	74.0	127.9	N/A	N/A
Location	Tower	Tower	Tower	Tower	N/A	N/A
RAD Center AGL	137.0'	137.0'	137.0'	136.0'	N/A	N/A
Antenna Tip Height	139.3'	139.3'	137.6'	140.0'	N/A	N/A
Antenna Base Height	134.7'	134.7'	136.4'	132.0'	N/A	N/A
Mount Type	Low Profile Platform	Low Profile Platform	Low Profile Platform	Low Profile Platform	N/A	N/A
Quantity	3	3	3	3	N/A	N/A
Azimuths/Dir. of Radiation	60/180/300	60/180/300	60/180/300	60/180/300	N/A	N/A
Quant. Per Azimuth/Sector	1/1/1	1/1/1	1/1/1	1/1/1	N/A	N/A
TX/RX Frequency Units	MHz	MHz	N/A	MHz	N/A	N/A
TX Frequency	1940-1945	2130-2135	N/A	728-734 622-627	N/A	N/A
RX Frequency	1860-1865	1730-1735	N/A	698-704 627 - 632	N/A	N/A
Using Unlicensed Frequencies?	No	No	No	No	N/A	N/A
Antenna Gain	15.4	15.1/ 15.7	N/A	13 / 13.4 / 15.2 / 15.7 / 16.4 / 15 / 15.7 / 16.4	N/A	N/A
Total # of Lines	6	0	1	2	N/A	N/A
Line Quant. Per Azimuth/Sector	2/2/2	N/A	1/0/0	1/1/0	N/A	N/A
Line Type	Coax	N/A	Fiber/Hybrid	Fiber/Hybrid	N/A	N/A
Line Diameter Size	1 5/8" Coax	N/A	1 1/4" (1.25"-31.8mm) Fiber	1 5/8" Hybriflex	N/A	N/A
Line Configuration	N/A	N/A	N/A	N/A	N/A	N/A

12927124

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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.

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120 E MAIN ST
RAMSEY ,NJ 07446

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

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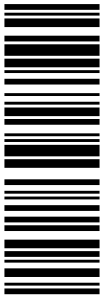
1 LBS

1 OF 1

SHIP TO:
NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

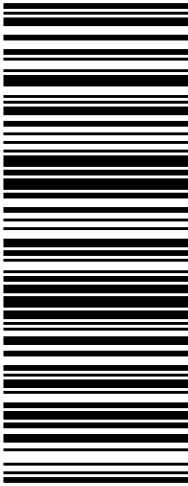
DEANNA RHODES
TOWN OF NORWICH
NORWICH CITY HALL
100 BROADWAY
NORWICH CT 06360-4404

CT 063 0-01



UPS GROUND

TRACKING #: 1Z V25 742 03 9086 1493



BILLING: P/P

Reference#1: CT11463C
Reference#2: UPS-Planner



UPS 21.5.24. WINTNV50 15.0A 07/2019

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RAMSEY ,NJ 07446

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

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1 LBS

SHIP TO:
MICAH N. GENTILE
TOWN OF NORWICH
202 NORTH WAWECUS ROAD
NORWICH CT 06360

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 OF 1

CT 063 0-01

UPS GROUND

TRACKING #: 1Z V25 742 03 9046 3486

BILLING: P/P

Reference#1: CT11463C
Reference#2: UPS-Prop Owner

UPS 21.5.24. WNTNVS0 15.0A 07/2019

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AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBBURN MA 01801-1053

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

MA 018 9-04

UPS GROUND

TRACKING #: 1Z V25 742 03 9151 8764

BILLING: P/P

Reference#1: CT11463C
Reference#2: UPS-ATC

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UPS Access Point™
POSTNET NY137
74 LAFAYETTE AVE
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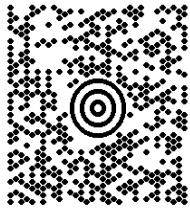
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1 LBS

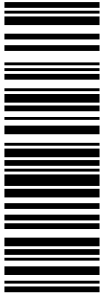
1 OF 1

SHIP TO:
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE
NEW BRITAIN CT 06051-2655

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

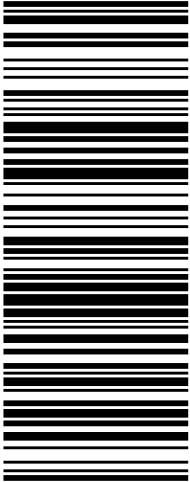


CT 067 9-06



UPS GROUND

TRACKING #: 1Z V25 742 03 9402 8770



BILLING: P/P



Reference#1: CT11463C
Reference#2: UPS-CSC

UPS 21.5.22. WINTNV50 12.0A 04/2019

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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1 LBS

1 OF 1

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NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

PETER A. NYSTROM
TOWN OF NORWICH
23 UNION STREET
NORWICH CT 06360-4416

CT 063 0-01

UPS GROUND

TRACKING #: 1Z V25 742 03 9054 2784

BILLING: P/P

UPS 21.5.22. WINTNV50 12.0A 04/2019