



1 INDUSTRIAL AVE,
STATE 3
MORRIS HILLS NJ 07430
PHONE: 201.684.0055
FAX: 201.684.0066

October 13, 2023

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

RE: Notice of Exempt Modification
61 Moose Hill Road, Guilford, CT 06437 (aka 79 Moose Hill Road)
Latitude: 41.2674670
Longitude: -72.7160600
T-Mobile Site#: CTNH805A - Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 108-foot level of the existing 110-foot Monopole at 61 Moose Hill Road (aka 79 Moose Hill Road), in Guilford, CT. The 110-foot monopole is owned by American Tower. The property is owned and operated by Leete Associates, Inc. T-Mobile now intends to remove and replace six (6) antennas at the 108-foot level of the existing tower. The antennas support 5G services. T-Mobile will be installing the associated ground equipment within their existing ground space.

Planned Modifications:

Tower:

Install New:

- (3) AIR 6419 B41 Antennas
- (3) VV-65A-R1 Antennas
- (3) Radio 4460 B25 B66
- (2) 6x24 Hybrid Cables

To Be Removed:

- (6) 1 5/8" Coax Cables
- (3) AIR21 B2A B4P Antennas
- (3) AIR21 B4A B2P Antennas

To Remain:

- (3) APXVAARR24_43-U-NA20 Antennas

- (3) Radio 4449 B71 B85
- (3) 6x24 Hybrid Cables

Ground:

Install New:

- (1) 6160 Power Enclosure and (1) B160 Battery Cabinet

This facility was approved by the Connecticut Siting Council in Docket 417 dated October 6, 2011. This project does not violate any of the conditions of this 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 First Selectman Matthew T. Hoey III, Elected Official, and Anne Hartjen, Town Planner, as well as the tower and property owner.

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

1. The proposed 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,

Eric Breun

Transcend Wireless

Cell: 201-658-7728

Email: ebreun@transcendwireless.com

Attachments

cc: Matthew T. Hoey III - First Selectman of Guilford

Anne Hartjen - Town Planner

American Tower - Tower Owner

Leete Associates, Inc. Property Owner

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

SHIP TO:
LEETE ASSOCIATES INC
79 MOOSE HILL ROAD
GUILFORD CT 06437



CT 065 2-03



UPS GROUND

TRACKING #: 1Z V25 742 03 9875 0366



BILLING: P/P

Reference #1: CTNH805A

XOL 23.10.04 NV-15 41.0A 10/2023*



TM

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

SHIP TO:
CONTACTS MANAGEMENT
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801



MA 018 9-04



UPS GROUND

TRACKING #: 1Z V25 742 03 9426 6852



BILLING: P/P

Reference #1: CTNH805A

XOL 23.10.04 NV-15 41.0A 10/2023*



TM

JAMIE MARCHINI
9738850660
TRANSCEND WIRELESS
1 INTERNATIONAL BLVD
MAHWAH NJ 07495

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

SHIP TO:
FIRST SELECTMAN
MATTHEW T HOEY III
31 PARK STREET
GUILFORD CENTER CT 06437

SHIP TO:
TOWN PLANNER
ANNE HARTJEN
50 BOSTON STREET
GUILFORD CENTER CT 06437

1 LBS

1 LBS

1 OF 1

1 OF 1



CT 065 2-03

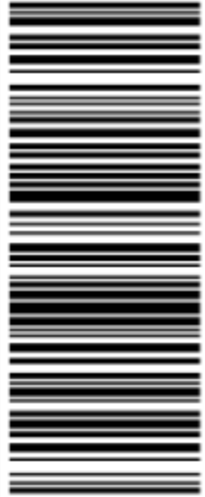

CT 065 2-03


UPS GROUND

UPS GROUND

TRACKING #: 1Z V25 742 03 9101 2863

TRACKING #: 1Z V25 742 03 9116 2871



BILLING: P/P

BILLING: P/P

Reference #1: CTNH805A

Reference #1: CTNH805A



XOL 23.10.04 NV15-41.0A 10/2023*

XOL 23.10.04 NV15-41.0A 10/2023*

Hello, your package has been delivered.

Delivery Date: Wednesday, 10/11/2023

Delivery Time: 10:50 AM

Signed by: MORGAN

TRANSCEND WIRELESS

Tracking Number: [1ZV257420391162871](#)

Ship To: ANNE HARTJEN
50 BOSTON STREET
GUILFORD CENTER, CT 06437
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: [CTNH805A](#)

Hello, your package has been delivered.

Delivery Date: Wednesday, 10/11/2023

Delivery Time: 11:45 AM

Signed by: VASTEENBERGEN

TRANSCEND WIRELESS

Tracking Number: [1ZV257420391012863](#)

Ship To: MATTHEW T HOEY III
31 PARK STREET
GUILFORD CENTER, CT 06437
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: [CTNH805A](#)

Hello, your package has been delivered.

Delivery Date: Wednesday, 10/11/2023

Delivery Time: 1:05 PM

Signed by: ANCRI

TRANSCEND WIRELESS

Tracking Number: [1ZV257420394266852](#)

Ship To: AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN, MA 01801
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: CTNH805A

Hello, your package has been delivered.

Delivery Date: Wednesday, 10/11/2023

Delivery Time: 5:27 PM

Left At: RESIDENTIAL

Signed by: LEETE

Experience UPS My Choice® Premium Today

Be in total control of how, when and where your packages are delivered.



[Upgrade to Premium Now](#)

[Set Delivery Instructions](#)

[Manage Preferences](#)

TRANSCEND WIRELESS

Tracking Number: [1ZV257420398750366](#)

Ship To: LEETE ASSOCIATES INC
79 MOOSE HILL ROAD
GUILFORD, CT 06437
US



Town of Guilford, CT

Property Listing Report

Map Block Lot **066064**

Building #

Unique Identifier

4101

Property Information

Property Location	79 MOOSE HILL RD
Mailing Address	PO BOX 45 GUILFORD CT 06437
Land Use	Residential
Zoning Code	
Neighborhood	M010

Owner	LEETE ASSOCIATES INC
Co-Owner	NA
Book / Page	0734/0353
Land Class	Use Assessment
Census Tract	1902
Acreage	163

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Outbuildings	0	0
Land	1927700	236390
Total	1927700	236390

Utility Information

Electric	
Gas	
Sewer	
Public Water	
Well	



Primary Construction Details

Year Built	
Building Desc.	
Building Style	
Stories	
Exterior Walls	
Exterior Walls 2	
Interior Walls	
Interior Walls 2	
Interior Floors 1	
Interior Floors 2	

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	
Full Bathrooms	
Half Bathrooms	
Extra Fixtures	
Total Rooms	
Bath Style	
Kitchen Style	
Occupancy	

Building Use	
Building Condition	
Frame Type	
Fireplaces	
Bsmt Gar	
Fin Bsmt Area	
Fin Bsmt Quality	
Building Grade	
Roof Style	
Roof Cover	

Report Created On

10/10/2023

Town of Guilford, CT

Property Listing Report

Map Block Lot **066064**

Building #

Unique Identifier **4101**

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

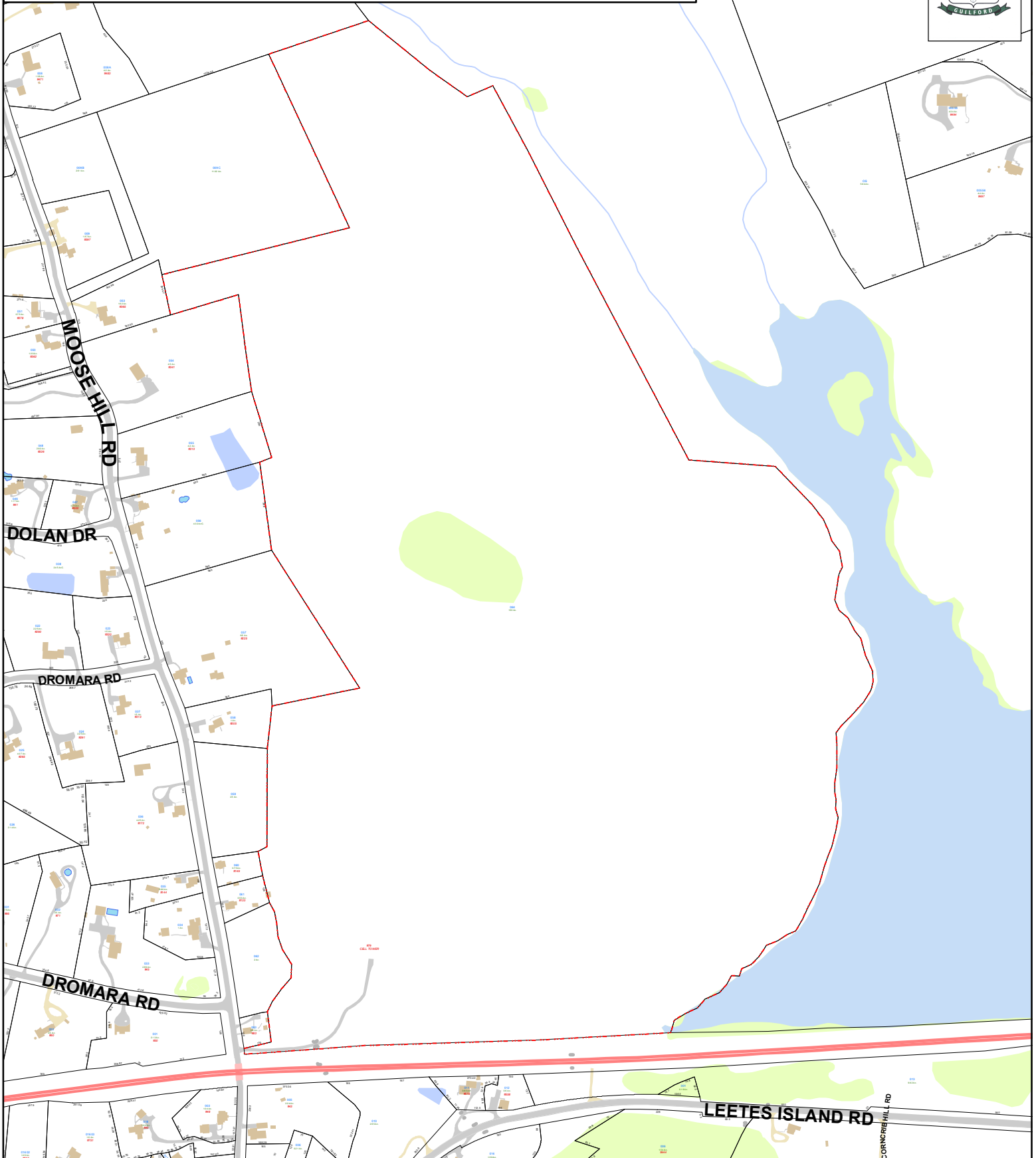
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
LEETE ASSOCIATES INC	0734_0353	11/13/2006	0

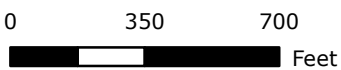
Town of Guilford, Connecticut - Assessment Parcel Map

Unique ID: 4101

Address: 79 MOOSE HILL RD



Approximate Scale: 1 inch = 500 feet



Map Produced:
August 2023

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Guilford and its mapping contractors
assume no legal responsibility
for the information contained herein.

DOCKET NO. 417 - T-Mobile Northeast, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at Moose Hill Road, Guilford, Connecticut.	} } }	Connecticut Siting Council October 6, 2011
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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, maintenance, and operation 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 T-Mobile Northeast, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility located off Moose Hill Road (Map 66, Lot 64) in Guilford, Connecticut.

Unless otherwise approved by the Council, 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 the applicant and other entities, both public and private, but such tower shall not exceed a height of 110 feet above ground level. The height at the top of the Certificate Holder’s antennas shall not exceed 110 feet above ground level.
2. The Certificate Holder shall install a tower foundation and tower that is capable of supporting an extension. Any extension of the tower must be approved by the Council.
3. 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 served on the Town of Guilford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping;
 - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and;
 - c) provisions for a contractor awareness program for the Eastern Box Turtle and Wood Turtle.

4. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the 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 ensure a recalculated report of the electromagnetic radio frequency power density be submitted 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.
5. 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.
6. 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.
7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Guilford public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), 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. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
9. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Guilford. Any proposed modifications to this Decision and Order shall likewise be so served.
10. 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.
11. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.
12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

13. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.
14. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.
15. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.
16. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

Pursuant to General Statutes § 16-50p, the Council hereby directs 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 *New Haven Register*.

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.

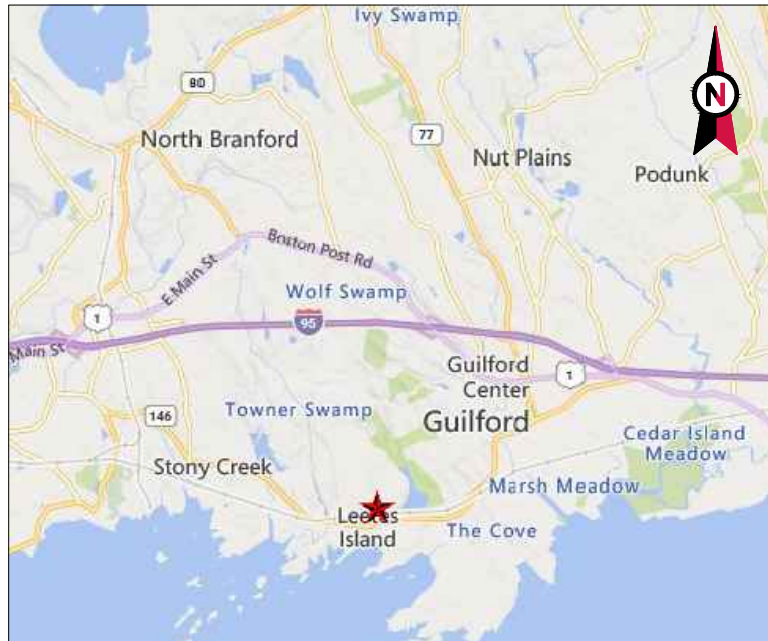
The parties and intervenors to this proceeding are:

Applicant

T-Mobile Northeast LLC

Its Representative

Julie D. Kohler, Esq.
Jesse A. Langer, Esq.
Cohen and Wolf, P.C.
1115 Broad Street
Bridgeport, CT 06604



VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: GUILFORD CT
 ATC SITE NUMBER: 284988
 T-MOBILE SITE NAME: AMTRAK_GUILFORD
 T-MOBILE SITE NUMBER: CTNH805A
 SITE ADDRESS: MOOSE HILL ROAD
 GUILFORD, CT 06437
 SITE CLASS: MONOPOLE



LOCATION MAP

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

**T-MOBILE ANCHOR AMENDMENT PLAN
 67D5D998E 6160 CONFIGURATION**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
<p>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.</p> <p>1. 2020 NFPA 70, NATIONAL ELECTRIC CODE (NEC) 2. 2022 CONNECTICUT STATE BUILDING CODE 3. 2021 INTERNATIONAL BUILDING CODE (IBC)</p> <p><u>DESIGN CRITERIA FROM TOWER STRUCTURAL ANALYSIS:</u> BASIC WIND SPEED: 122 MPH (3-SECOND GUST) BASIC WIND SPEED W/ ICE: 50 MPH (3-SECOND GUST) W/ 1.00" RADIAL ICE CONCURRENT CODE(S): ANSITIA-222-H / 2021 IBC / 2022 CONNECTICUT STATE BUILDING CODE</p> <p>EXPOSURE CATEGORY: C RISK CATEGORY: II TOPO FACTOR PROCEDURE: METHOD 1 TOPOGRAPHIC CATEGORY: 1 SPECTRAL RESPONSE: S_s=0.20, S_r=0.05 SITE CLASS: D - STIFF SOIL - DEFAULT</p> <p>INFORMATION TAKEN FROM STRUCTURAL ANALYSIS COMPLETED BY ATC, DATED 09/15/23.</p>	<p><u>SITE ADDRESS:</u> MOOSE HILL ROAD GUILFORD, CT 06437 COUNTY: NEW HAVEN</p> <p><u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.26745179 LONGITUDE: -72.71602879 GROUND ELEVATION: 97' AMSL</p>	<p>THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (6) ANTENNA(S) AND (6) 1 5/8" COAX CABLE(S)</p> <p>INSTALL (6) ANTENNA(S), (3) RRU(S), AND (2) HYBRID TRUNK 6/24 4AWG CABLE(S)</p> <p>EXISTING (3) ANTENNA(S), (3) RRU(S), AND (3) HYBRID TRUNK 6/24 4AWG CABLE(S) TO REMAIN</p> <p><u>GROUND WORK:</u> INSTALL (1) 6160 CABINET AND (1) B160 BATTERY CABINET</p> <p>EXISTING (1) RBS 6131 CABINET AND (1) BACKUP BATTERY UNIT TO REMAIN</p>	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<p><u>PROJECT TEAM</u></p> <p><u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801</p> <p><u>ENGINEER:</u> ATC TOWER SERVICES, LLC 3500 REGENCY PKWY STE 100 CARY, NC 27518</p> <p><u>PROPERTY OWNER:</u> LEETE ASSOCIATES INC MOOSE HILL ROAD GUILFORD, CT 06437</p> <p><u>APPLICANT:</u> T-MOBILE</p>	<p>PROJECT NOTES</p> <ol style="list-style-type: none"> THE FACILITY IS UNMANNED. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. HANDICAP ACCESS IS NOT REQUIRED. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7). 	G-001	TITLE SHEET	0	10/02/23	AP
<p><u>UTILITY COMPANIES</u></p> <p>POWER COMPANY: UNKNOWN PHONE: N/A</p> <p>TELEPHONE COMPANY: UNKNOWN PHONE: N/A</p>			G-002	GENERAL NOTES	0	10/02/23	AP
			C-101	DETAILED SITE PLAN	0	10/02/23	AP
			C-102	DETAILED EQUIPMENT PLAN	0	10/02/23	AP
			C-201	TOWER ELEVATION	0	10/02/23	AP
			C-401	ANTENNA INFORMATION & SCHEDULE	0	10/02/23	AP
			C-501	CONSTRUCTION DETAILS	0	10/02/23	AP
			E-501	GROUNDING DETAILS	0	10/02/23	AP
			R-601	SUPPLEMENTAL			
			R-602	SUPPLEMENTAL			
			R-603	SUPPLEMENTAL			
			R-604	SUPPLEMENTAL			
			R-605	SUPPLEMENTAL			
			R-606	SUPPLEMENTAL			
			R-607	SUPPLEMENTAL			
			R-608	SUPPLEMENTAL			
			R-609	SUPPLEMENTAL			
		<p><u>PROJECT LOCATION DIRECTIONS</u></p> <p>FROM DOWNTOWN NEW HAVEN: GO NORTHEAST ON CHURCH ST TOWARD WALL ST. TURN RIGHT ONTO TRUMBULL ST. TURN SLIGHT LEFT TO TAKE THE I-91 S/I-91 N RAMP. MERGE ONTO I-91 S TOWARD I-95/N.Y.CITY/NEW LONDON. MERGE ONTO I-95 N VIA THE EXIT ON THE LEFT TOWARD NEW LONDON. TAKE THE LEETES ISLAND RD EXIT, EXIT 56, TOWARD STONY CREEK. TURN RIGHT ONTO LEETES ISLAND RD. TURN SLIGHT LEFT ONTO LEETES ISLAND RD/CT-146. TURN LEFT ONTO MOOSE HILL RD. 61 MOOSE HILL RD, GUILFORD, CT 06437. 60 MOOSE HILL RD IS ON THE RIGHT. ACCESS ROAD IS ADJACENT TO RAILROAD OVERPASS</p>					

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

THE USE AND PUBLICATION OF THESE DRAWINGS SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OR THE SPECIFIED CARRIER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AP	10/02/23

ATC SITE NUMBER:
284988

ATC SITE NAME:
GUILFORD CT

T-MOBILE SITE NAME:
AMTRAK_GUILFORD

SITE ADDRESS:
 MOOSE HILL ROAD
 GUILFORD, CT 06437



Scott Wirgau Digitally signed
 by Scott Wirgau
 Date: 2023.10.02
 10:10:59 -04'00'



ATC PROJ. #:	14529804_G0
CUST. ID:	AMTRAK_GUILFORD
CUST. #:	CTNH805A

TITLE SHEET	
SHEET NUMBER: G-001	REVISION: 0



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GENERAL CONSTRUCTION NOTES:

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

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. WHEN THE PROJECT SCOPE REQUIRES THE USE OF THE SAFETY CLIMB, THE GENERAL CONTRACTOR SHALL ENSURE THE SAFETY CLIMB IS FREE OF OBSTRUCTIONS, NOT RUBBING ON OR TRAPPED BY ANY INSTALLED CUSTOMER EQUIPMENT, IS VISUALLY TAUT, MEETS MANUFACTURER INSTALLATION SPECIFICATIONS, AND IS FIRMLY SECURED AT ALL CABLE GUIDE LOCATIONS UPON PROJECT COMPLETION.
29. COMPLETION OF PROJECT SHALL NOT OBSTRUCT, TRAP, LOOSEN, OR OTHERWISE CAUSE FAILURE TO MEET MANUFACTURER INSTALLATION REQUIREMENTS FOR THE SAFETY CLIMB.
30. 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.
31. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
32. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
33. 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.
34. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
35. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

- B. ALL COAXIAL/HYBRID CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL/HYBRID CABLE (NOT WITHIN BENDS)

SPECIAL CONSTRUCTION

ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
 - A. ANTENNA AND COAXIAL/HYBRID CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
 - B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
 - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
 - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
 - E. INSTALL COAXIAL/HYBRID CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL/HYBRID CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
2. ANTENNA AND COAXIAL/HYBRID CABLE GROUNDING:
 - A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

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



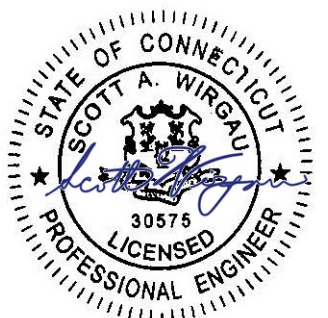
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AP	10/02/23

ATC SITE NUMBER:
284988
 ATC SITE NAME:
GUILFORD CT
 T-MOBILE SITE NAME:
AMTRAK_GUILFORD
 SITE ADDRESS:
 MOOSE HILL ROAD
 GUILFORD, CT 06437

SEAL:



Digitally Signed: 2023-10-02



ATC PROJ. #:	14529804_GO
CUST. ID:	AMTRAK_GUILFORD
CUST. #:	CTNH805A

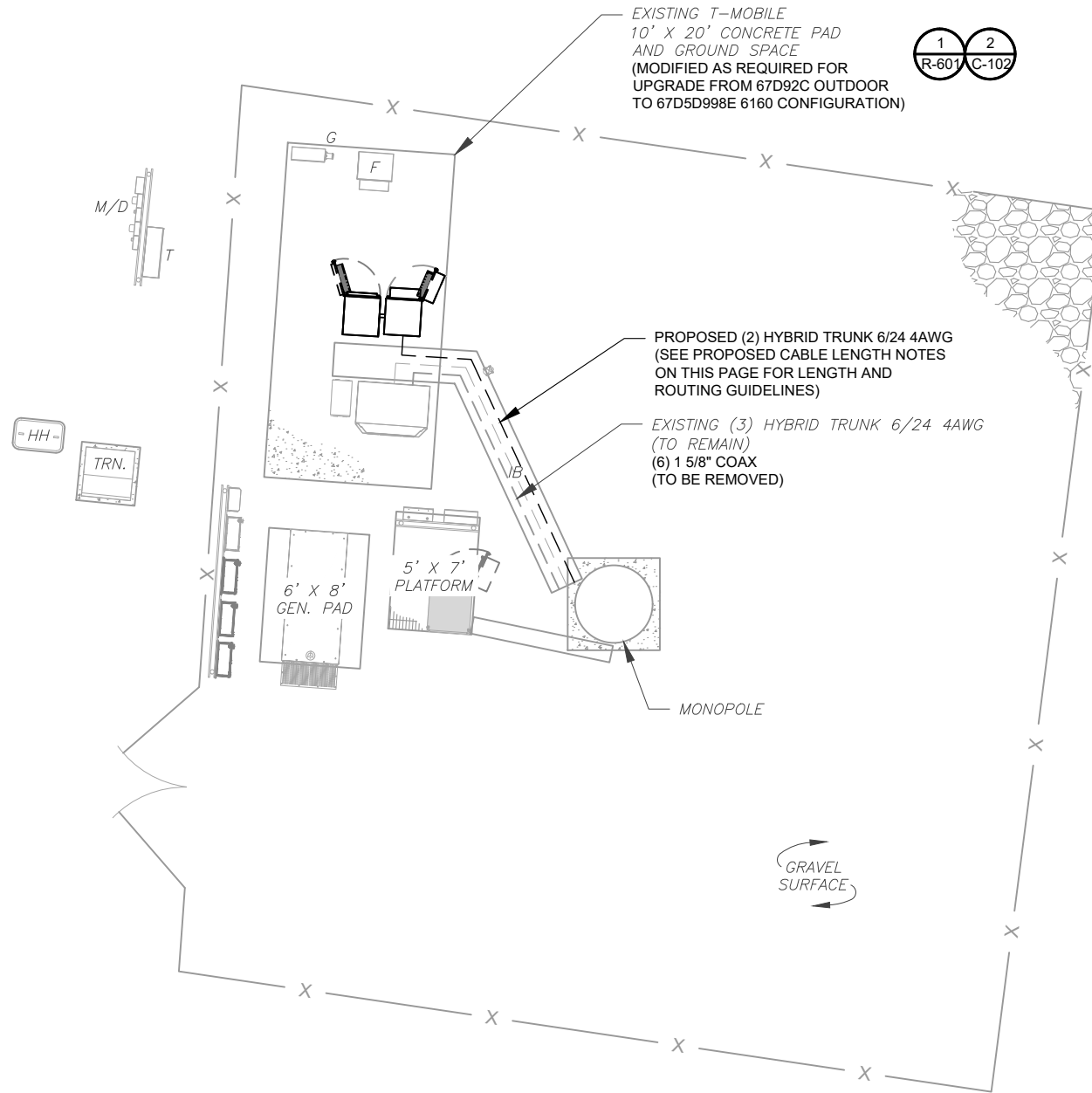
GENERAL NOTES

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. NO ELECTRICAL SCOPE IS INCLUDED IN THIS PROJECT.



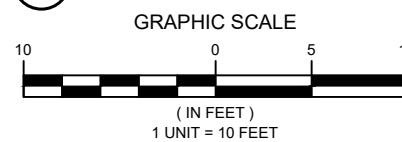

LEGEND

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

PROPOSED CABLE NOTES:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **150'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES). CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

1 DETAILED SITE PLAN

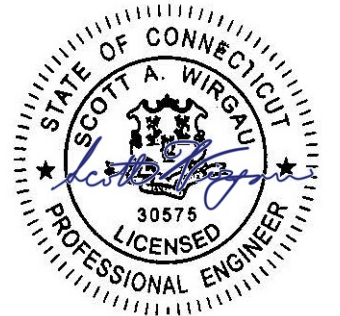
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AP	10/02/23

ATC SITE NUMBER:
284988
 ATC SITE NAME:
GUILFORD CT
 T-MOBILE SITE NAME:
AMTRAK_GUILFORD
 SITE ADDRESS:
 MOOSE HILL ROAD
 GUILFORD, CT 06437

SEAL:



Digitally Signed: 2023-10-02



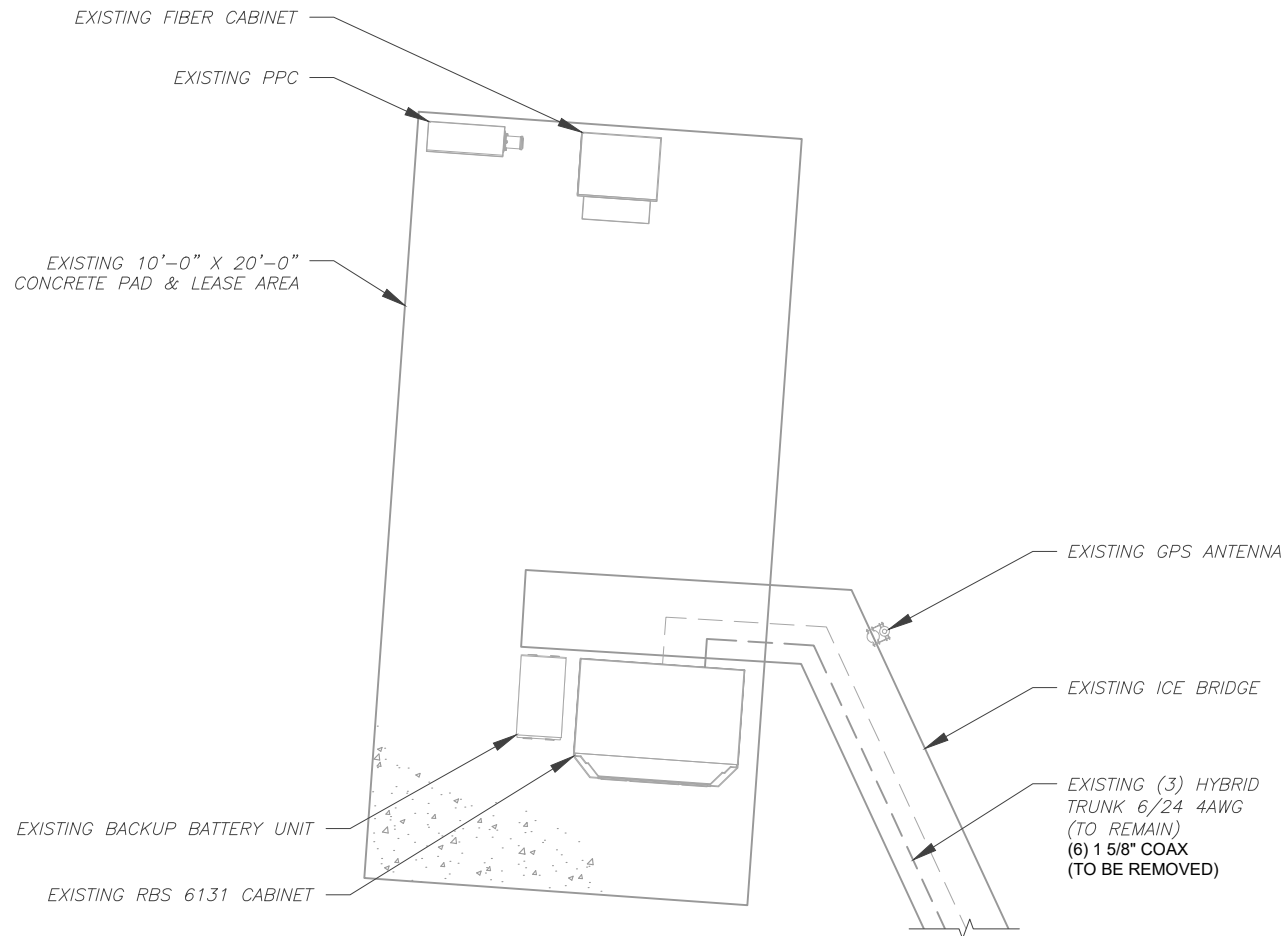
ATC PROJ. #:	14529804_GO
CUST. ID:	AMTRAK_GUILFORD
CUST. #:	CTNH805A

DETAILED SITE PLAN

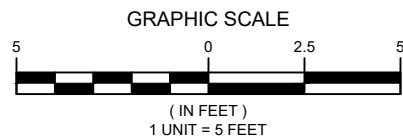
SHEET NUMBER: C-101	REVISION: 0
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SITE PLAN NOTES:

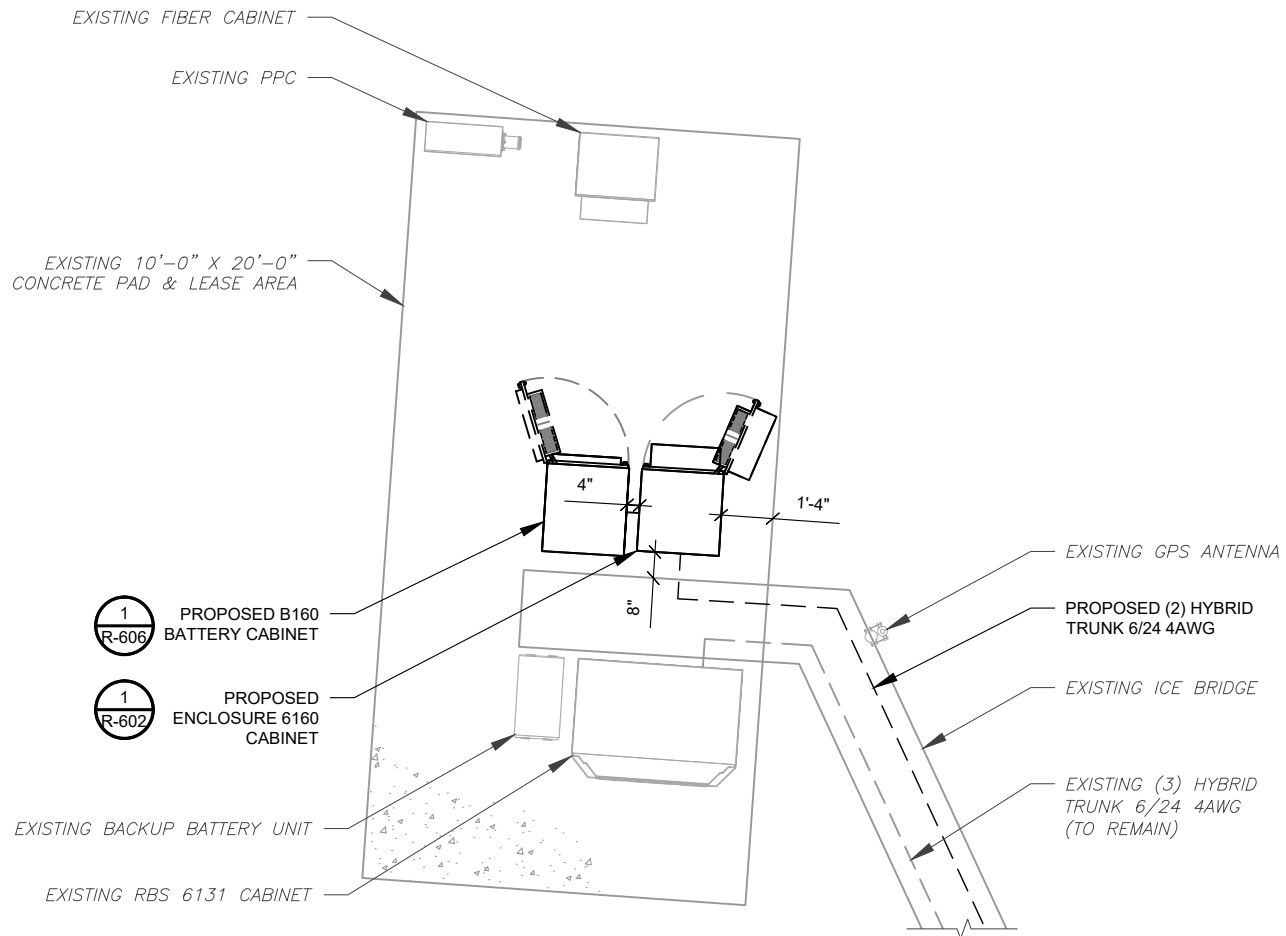
1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
3. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO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



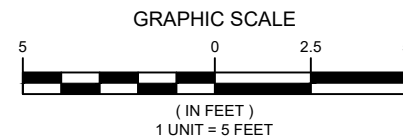
1 EXISTING GROUND EQUIPMENT LAYOUT



T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS.



2 PROPOSED GROUND EQUIPMENT LAYOUT



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ATC SITE NUMBER:
284988
 ATC SITE NAME:
GUILFORD CT
 T-MOBILE SITE NAME:
AMTRAK_GUILFORD
 SITE ADDRESS:
 MOOSE HILL ROAD
 GUILFORD, CT 06437

SEAL:



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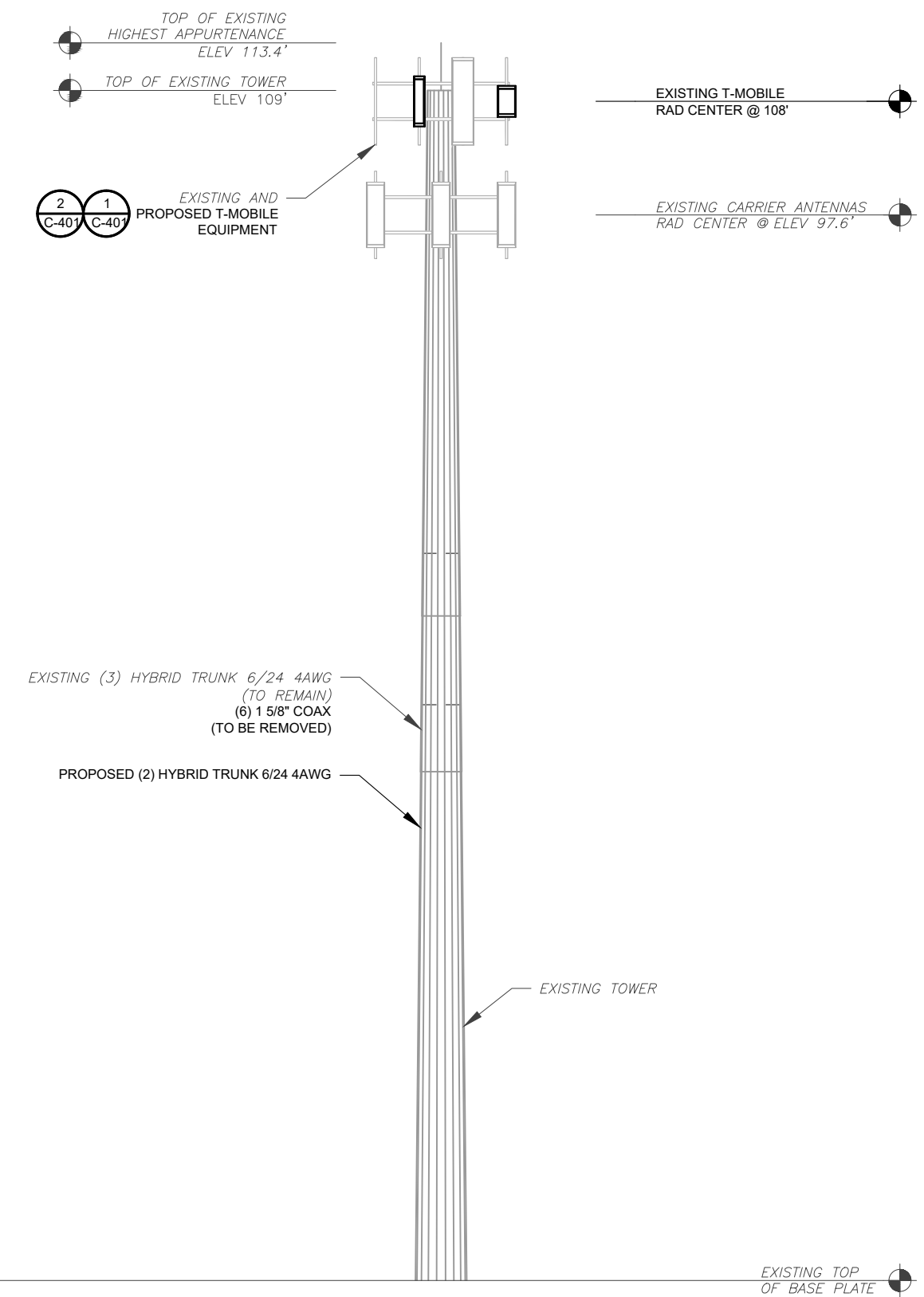


ATC PROJ. #: 14529804_G0
 CUST. ID: AMTRAK_GUILFORD
 CUST. #: CTNH805A

DETAILED EQUIPMENT PLAN

SHEET NUMBER:
C-102
 REVISION:
0

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 09/14/23, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



1 TOWER ELEVATION
SCALE: N.T.S.

- TOWER NOTE:**
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS. WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
 - ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
 - TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
 - TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.



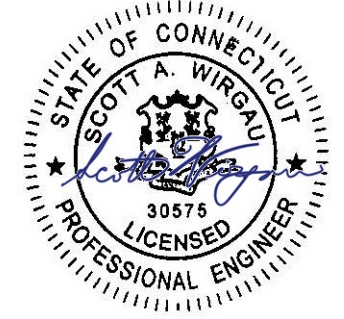
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284988
ATC SITE NAME:
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SITE ADDRESS:
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GUILFORD, CT 06437

SEAL:



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ATC PROJ. #: 14529804_G0
CUST. ID: AMTRAK_GUILFORD
CUST. #: CTNH805A

TOWER ELEVATION

SHEET NUMBER:
C-201
REVISION:
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AP	10/02/23
1			
2			
3			
4			

ATC SITE NUMBER:

284988

ATC SITE NAME:

GUILFORD CT

T-MOBILE SITE NAME:

AMTRAK_GUILFORD

SITE ADDRESS:

MOOSE HILL ROAD
 GUILFORD, CT 06437

SEAL:



Digitally Signed: 2023-10-02



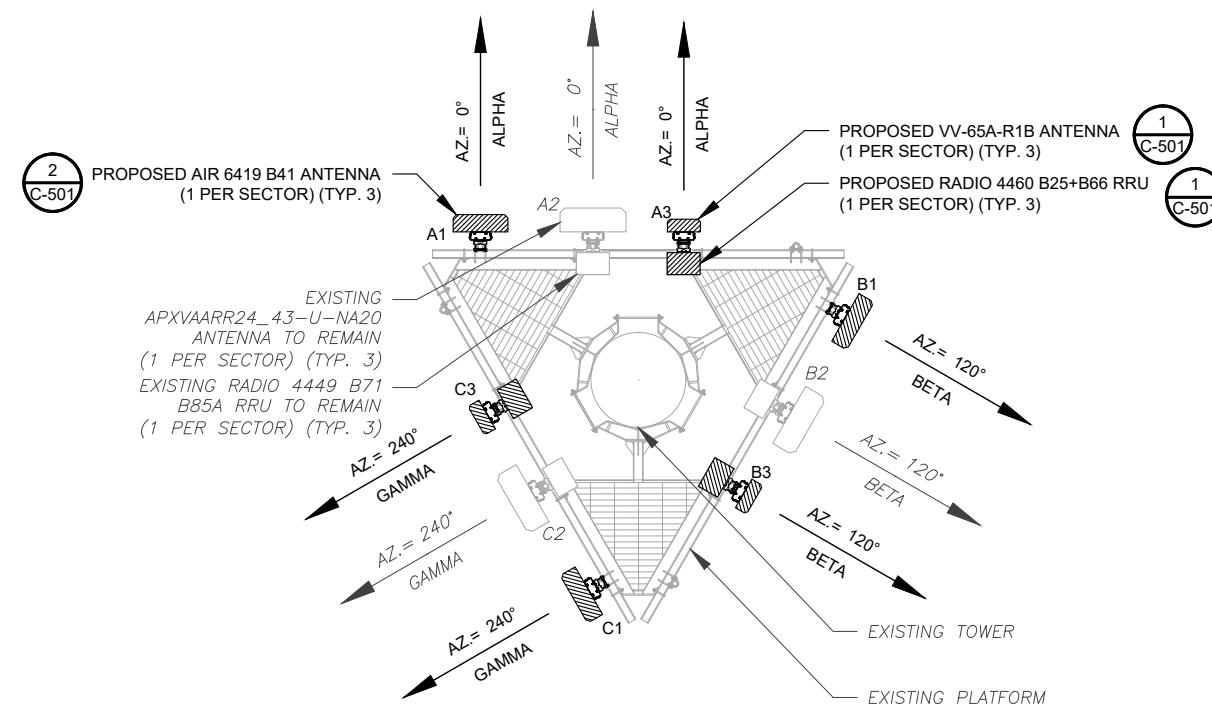
ATC PROJ. #: 14529804_GO
 CUST. ID: AMTRAK_GUILFORD
 CUST. #: CTNH805A

ANTENNA INFORMATION & SCHEDULE

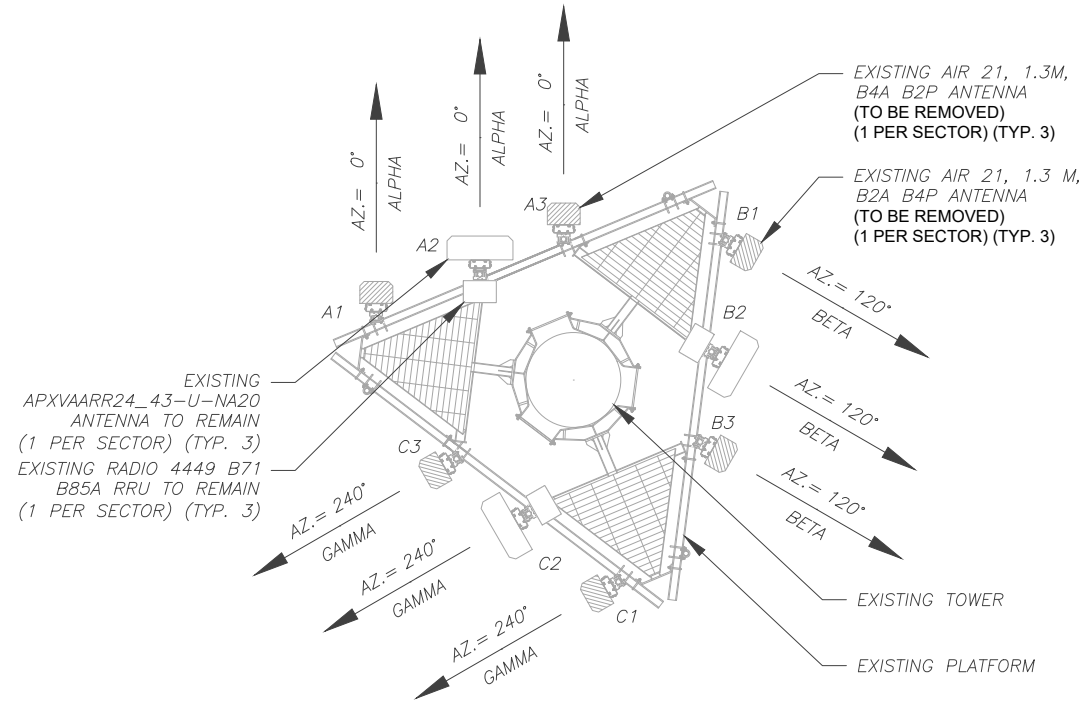
SHEET NUMBER: **C-401**
 REVISION: **0**

CONTRACTOR SHALL RE-ORIENT ANTENNA MOUNT(S) AS NECESSARY TO ACHIEVE PROPOSED ANTENNA AZIMUTHS

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 09/14/23, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



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



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

EXISTING ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	108'	0°	A1	AIR 21, 1.3 M, B2A B4P	L1900/G1900	0°/0°	RMV	-	-
			A2	APXVAARR24_43-U-NA20	N600/L700/L600	0°/0°	RMN	RADIO 4449 B71 B85A	RMN
			A3	AIR 21, 1.3M, B4A B2P	L2100	0°/0°	RMV	-	-
BETA	108'	120°	B1	AIR 21, 1.3 M, B2A B4P	L1900/G1900	0°/0°	RMV	-	-
			B2	APXVAARR24_43-U-NA20	N600/L700/L600	0°/0°	RMN	RADIO 4449 B71 B85A	RMN
			B3	AIR 21, 1.3M, B4A B2P	L2100	0°/0°	RMV	-	-
GAMMA	108'	240°	C1	AIR 21, 1.3 M, B2A B4P	L1900/G1900	0°/0°	RMV	-	-
			C2	APXVAARR24_43-U-NA20	N600/L700/L600	0°/0°	RMN	RADIO 4449 B71 B85A	RMN
			C3	AIR 21, 1.3M, B4A B2P	L2100	0°/0°	RMV	-	-

NOTES

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

STATUS ABBREVIATIONS

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

CABLE LENGTHS FOR JUMPERS

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

FINAL ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	108'	0°	A1	AIR 6419 B41	N2500	0°/0°	ADD	-	-
			A2	APXVAARR24_43-U-NA20	N600/L700/L600	0°/0°	RMN	RADIO 4449 B71 B85A	RMN
			A3	VV-65A-R1B	L2100/G1900/L1900/N1900	0°/0°	ADD	RADIO 4460 B25+B66	ADD
BETA	108'	120°	B1	AIR 6419 B41	N2500	0°/0°	ADD	-	-
			B2	APXVAARR24_43-U-NA20	N600/L700/L600	0°/0°	RMN	RADIO 4449 B71 B85A	RMN
			B3	VV-65A-R1B	L2100/G1900/L1900/N1900	0°/0°	ADD	RADIO 4460 B25+B66	ADD
GAMMA	108'	240°	C1	AIR 6419 B41	N2500	0°/0°	ADD	-	-
			C2	APXVAARR24_43-U-NA20	N600/L700/L600	0°/0°	RMN	RADIO 4449 B71 B85A	RMN
			C3	VV-65A-R1B	L2100/G1900/L1900/N1900	0°/0°	ADD	RADIO 4460 B25+B66	ADD

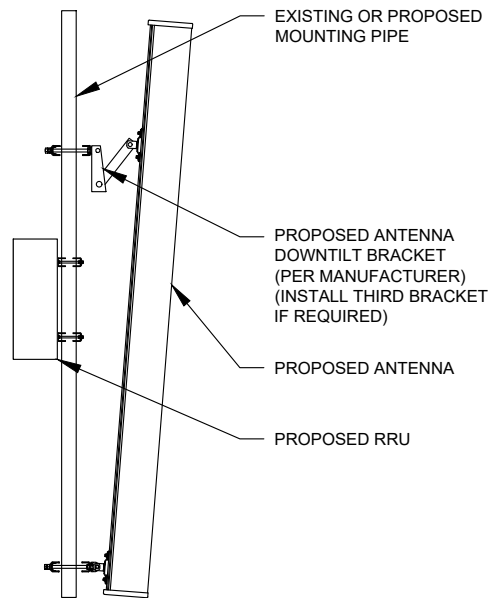
EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
-	-	(3) HYBRID TRUNK 6/24 4AWG	RMN
-	-	(6) 1 5/8" COAX	RMV

3 EQUIPMENT SCHEDULES

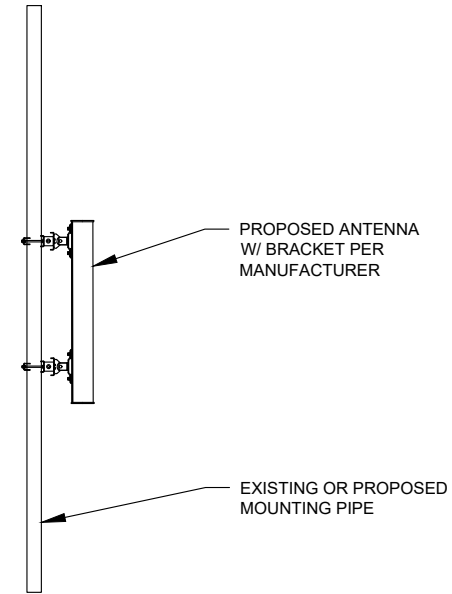
FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
-	-	(3) HYBRID TRUNK 6/24 4AWG	RMN
-	-	(2) HYBRID TRUNK 6/24 4AWG	ADD

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EXISTING/PROPOSED MOUNTS AND/OR MOUNT MODIFICATIONS NOT SHOWN FOR CLARITY. REFER TO ANTENNA PLANS, MOUNT ANALYSES AND/OR MOUNT MODIFICATION DOCUMENTS FOR ADDITIONAL DETAIL.



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



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



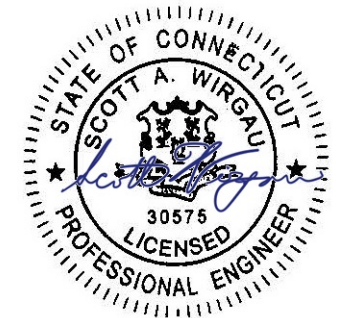
AMERICAN TOWER®
A.T. ENGINEERING SERVICES LLC
 3500 REGENCY PARKWAY
 SUITE 100
 CARY, NC 27518
 PHONE: (919) 468-0112
 PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AP	10/02/23

ATC SITE NUMBER:
284988
 ATC SITE NAME:
GUILFORD CT
 T-MOBILE SITE NAME:
AMTRAK_GUILFORD
 SITE ADDRESS:
 MOOSE HILL ROAD
 GUILFORD, CT 06437

SEAL:



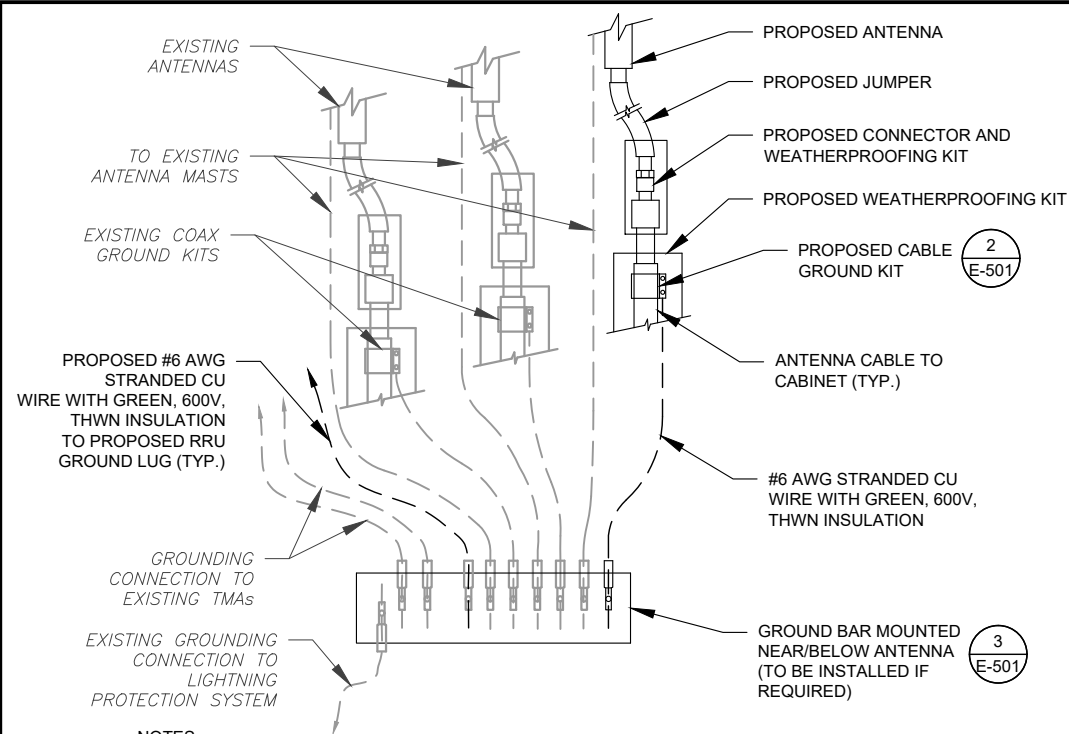
Digitally Signed: 2023-10-02



ATC PROJ. #: 14529804_G0
 CUST. ID: AMTRAK_GUILFORD
 CUST. #: CTNH805A

**CONSTRUCTION
 DETAILS**

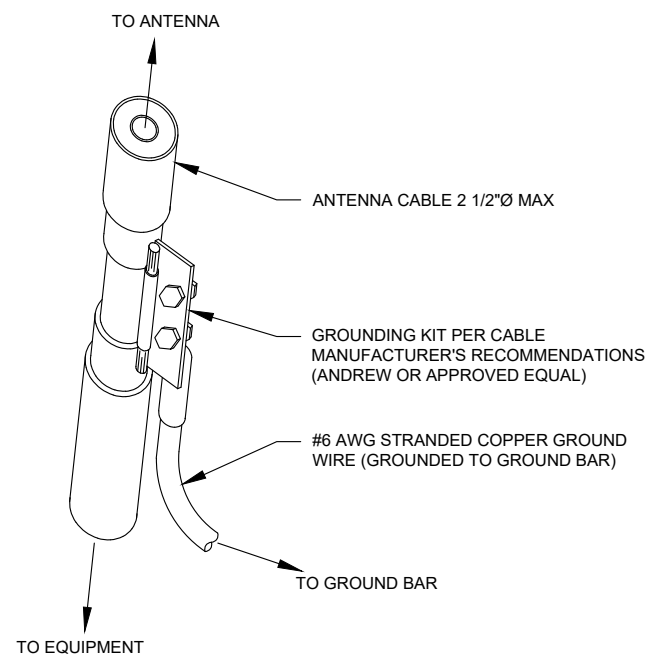
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NOTES:

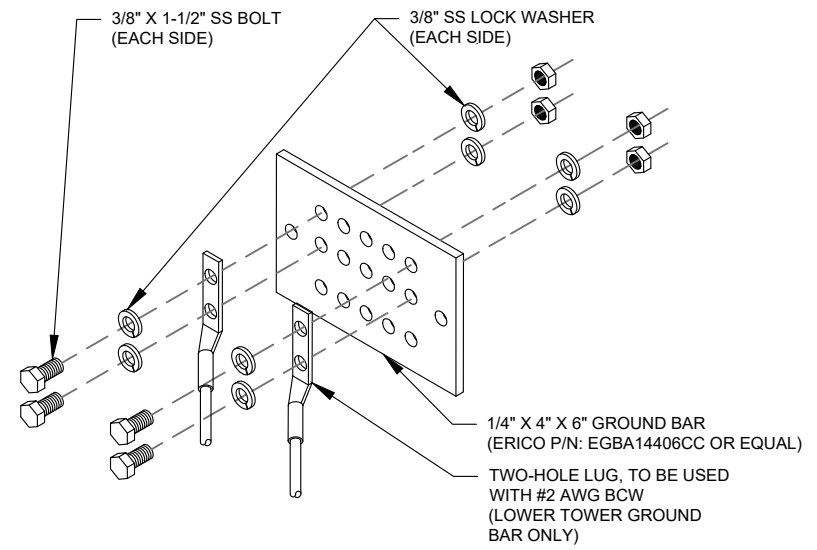
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING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



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

2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: N.T.S.



GROUND BAR NOTES:

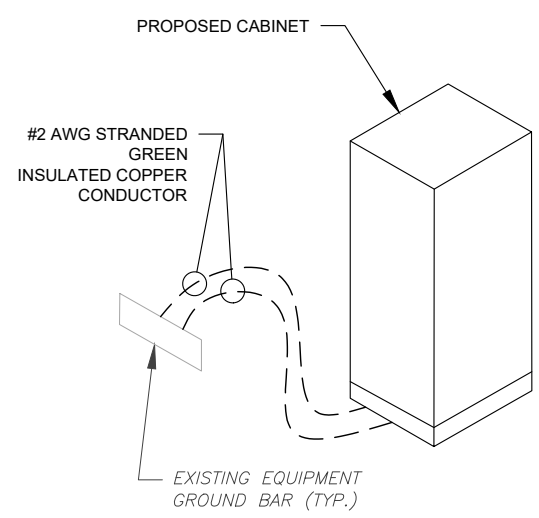
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL
SCALE: N.T.S.

ELECTRICAL NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

VOLTS	OCPD SIZE	WIRE SIZE	GROUND	CONDUIT
120/240V OR 120/208V	80A/2P	3-#3 AWG	#8 AWG	1-1/4"
	100/2P	3-#2 AWG	#8 AWG	1-1/4"
	125A/2P	3-#3/0 AWG	#6 AWG	2"
	150A/2P	3-#3/0 AWG	#6 AWG	2"
240V OR 208V	200A/2P	3-#3/0 AWG	#6 AWG	2"
	80A/2P	2-#3 AWG	#8 AWG	1-1/4"
	100/2P	2-#2 AWG	#8 AWG	1-1/4"
	125A/2P	2-#3/0 AWG	#6 AWG	2"
240V OR 208V	150A/2P	2-#3/0 AWG	#6 AWG	2"
	200A/2P	2-#3/0 AWG	#6 AWG	2"



5 CABINET GROUNDING DETAIL
SCALE: N.T.S.

STANDARD CONDUIT USE TABLE			
CONDUIT TYPE	USE CASE	LOCATION	USE CASE EXAMPLE
RMC (METALLIC)	AC, DC COMM	ABOVE GROUND	ABOVE GROUND PPC TO SSC
PVC	AC POWER	UNDERGROUND	UNDERGROUND PPC TO SSC OR BACKHAUL TRANSPORT HUB TO SSC
LFMC	AC, DC, COMM	MAX 6' PER CONDUIT RUN, ABOVE GROUND ONLY	TIGHT LOCATIONS BETWEEN HUB AND CONDUIT BUT NOT TO BE USED WHERE IT CAN BE STEPPED ON
EMT	INDOOR AC, DC COMM	INDOOR NOT EXPOSED TO THE OUTDOOR ENVIRONMENT (MUST BE DRY)	CIRCUIT PANEL TO JUNCTION BOX
LFNC	GROUND WIRE	CONCEALING AND PROTECTING BTCW RISERS ONLY	GROUND RING TO MGB OR SSC

EXCEPTION CONDUIT USE TABLE			
CONDUIT TYPE	USE CASE	LOCATION	USE CASE EXAMPLE
EMT (NOT PREFERRED)	OUTDOOR DC, COMM	OUTDOOR WHEN USED WITH WATERTIGHT HUBS ONLY	BETWEEN EQUIPMENT AND BATTERY CABINET OR EQUIPMENT TO EQUIPMENT CABINETS FOR INTER CABINET CONNECTION
RMC NONMETALLIC (ALUMINUM)	OUTDOOR/INDOOR PER NEC GUIDLINES	ABOVE GROUND	MAY BE USED AS A LOWER COST ALTERNATIVE TO METALLIC RMC, MUST MEET OR EXCEED FEDERAL SPEC: WW-C-540C, UL-6A, ANSI C80.5, NEC 344.10 (A) ALLOWS THE USE OF EITHER ALUMINUM OR GALVANIZED FITTINGS

4 CONDUIT USE TABLES

6 ELECTRICAL NOTES

AMERICAN TOWER®
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AP	10/02/23

ATC SITE NUMBER:
284988

ATC SITE NAME:
GUILFORD CT

T-MOBILE SITE NAME:
AMTRAK_GUILFORD

SITE ADDRESS:
MOOSE HILL ROAD
GUILFORD, CT 06437



Digitally Signed: 2023-10-02



ATC PROJ. #: 14529804_G0
CUST. ID: AMTRAK_GUILFORD
CUST. #: CTNH805A

GROUNDING DETAILS

SHEET NUMBER:
E-501

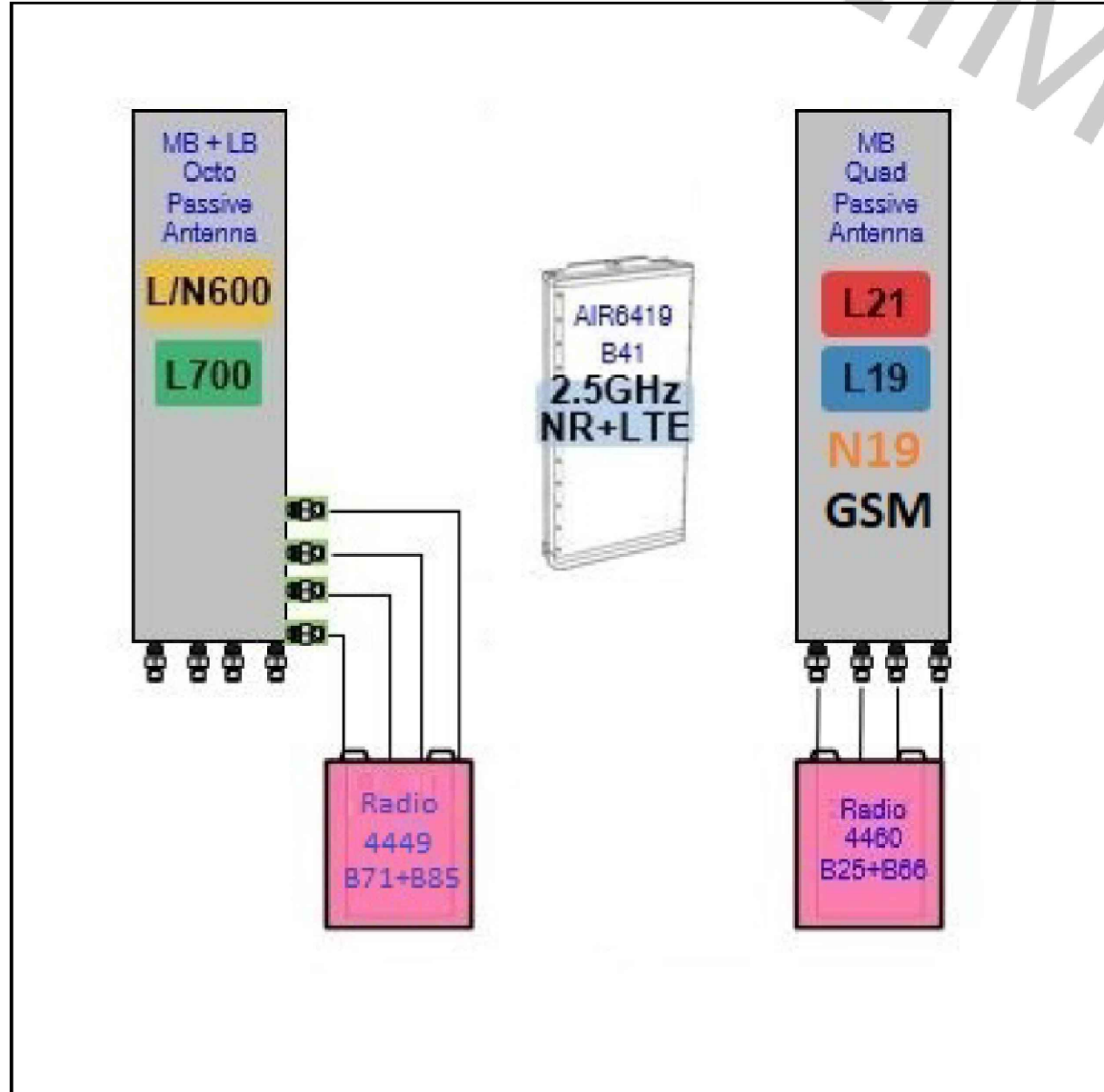
REVISION:
0

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Proposed RAN Equipment			
Template: 67D5D998E 6160			
Enclosure	1	2	3
Enclosure Type	Enclosure 6160 AC V1	RBS 6131	B160
Baseband	RP 6651 N2500	BB 6630 N1900 L1900 L2100	BB 6648 N600 L600 L700
Transport System	CSR IXRe V2 (Gen2)	DUG20 G1900	
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 50m (x2)	Hybrid Trunk 6/24 4AWG 50m (x3)	
RAN Scope of Work: Remove all unused equipment's from RAN section. Add (1) 6160 and (1) B160 cabinets. Add (1) RP6651 for NR2500/L2500 Add (1) IXRe router to 6160. Reuse existing (3) Hybrid Trunk 6/24 4AWG 50m and add (2) 6x24 HCS 50M.			

1 CABINET CONFIGURATION

67D5D998E_OP+AIR+QP with GSM-.jpg



Notes:

2 ANTENNA CONFIGURATION

SUPPLEMENTAL

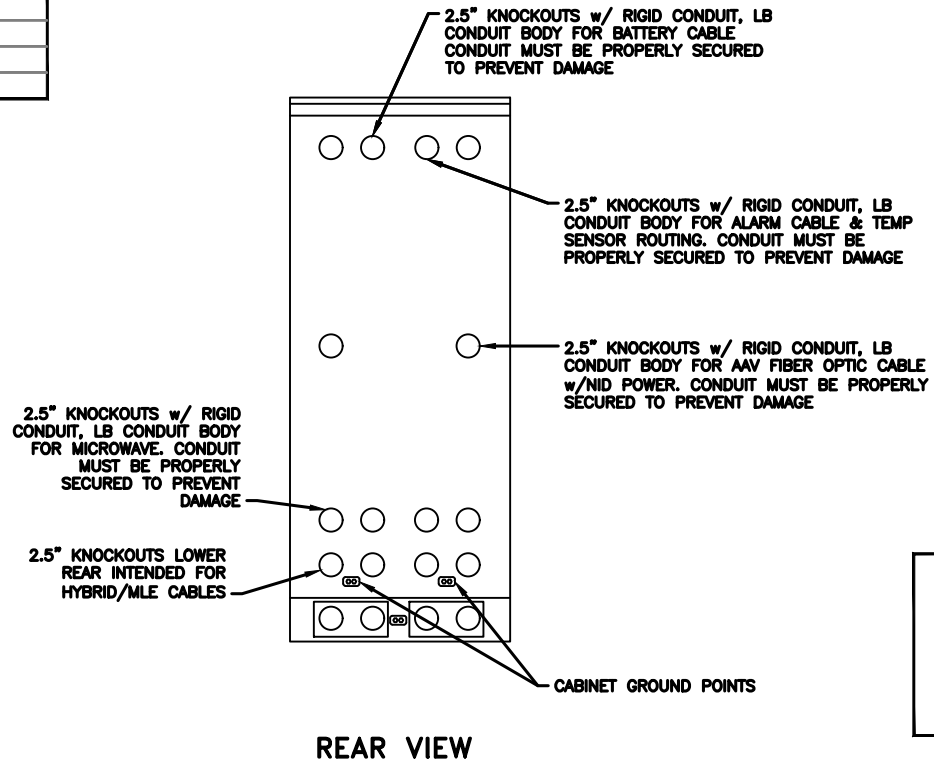
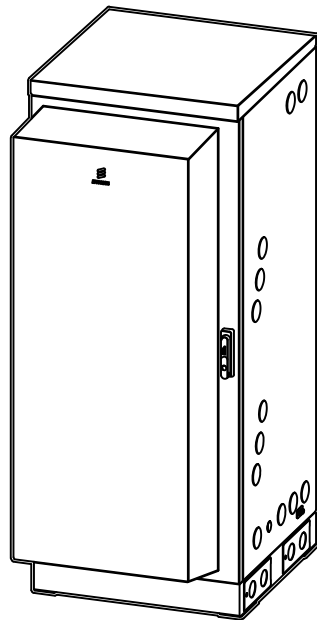
SHEET NUMBER: REVISION:

R-601

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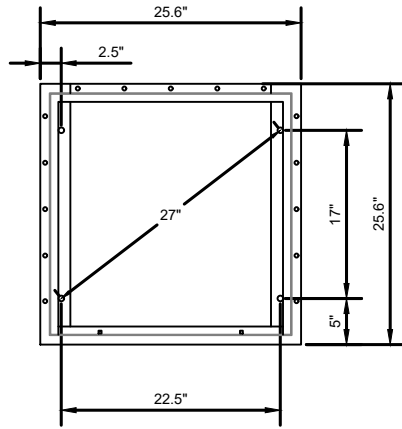
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

MANUFACTURER:	ERICSSON
MODEL:	6160 SITE SUPPORT CABINET
DIMENSIONS:	63" x 25.6" x 33.6" (H x W x D)
WEIGHT:	373 LBS



NOTE:

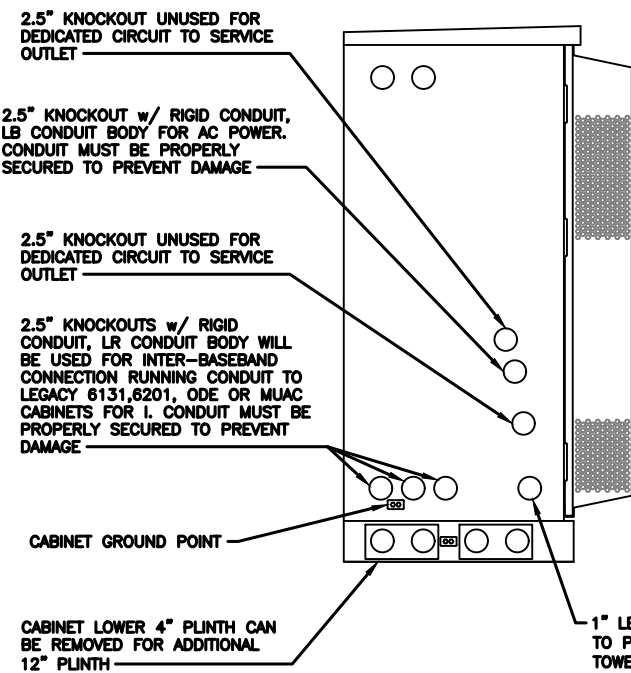
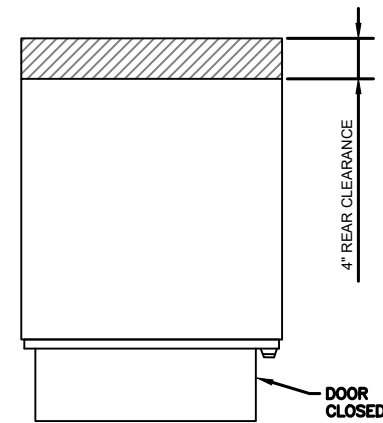
- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING



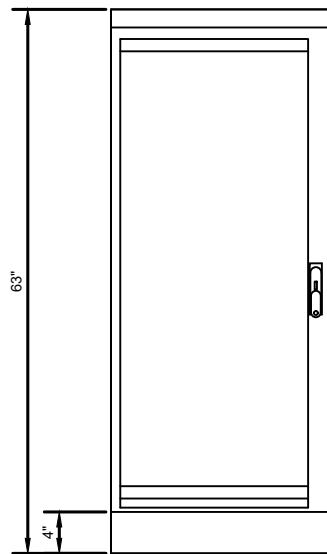
BOLT DOWN PATTERN

GROUNDING NOTE:

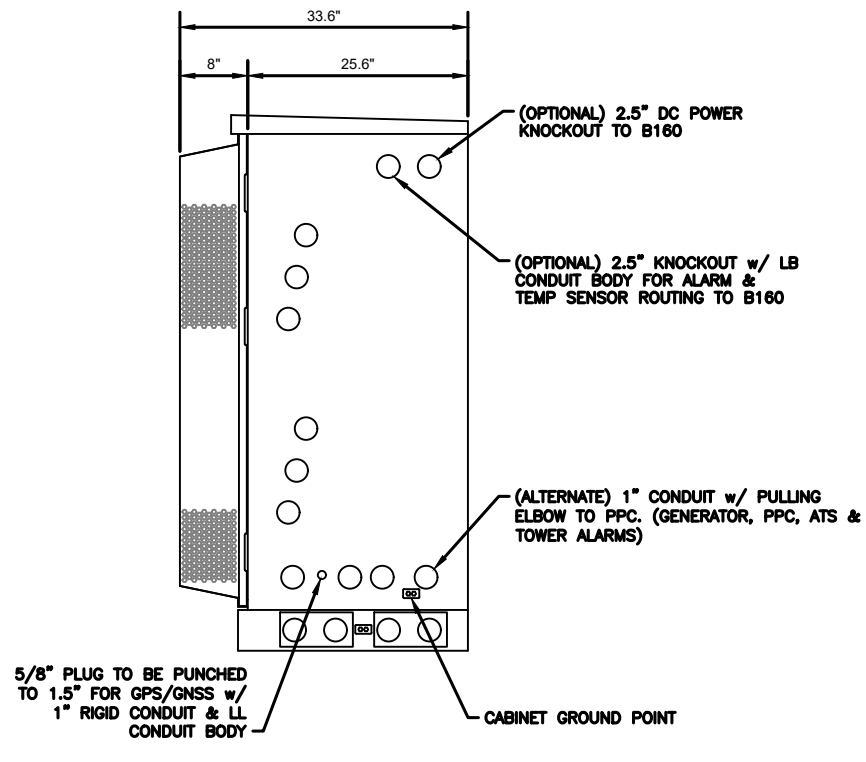
"CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."



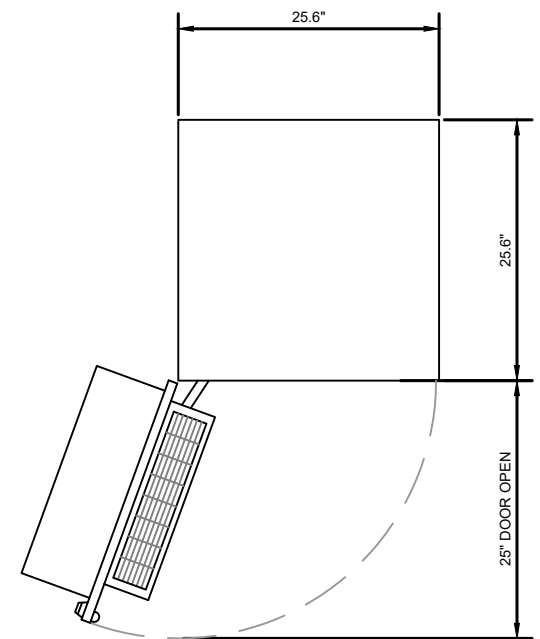
LEFT VIEW



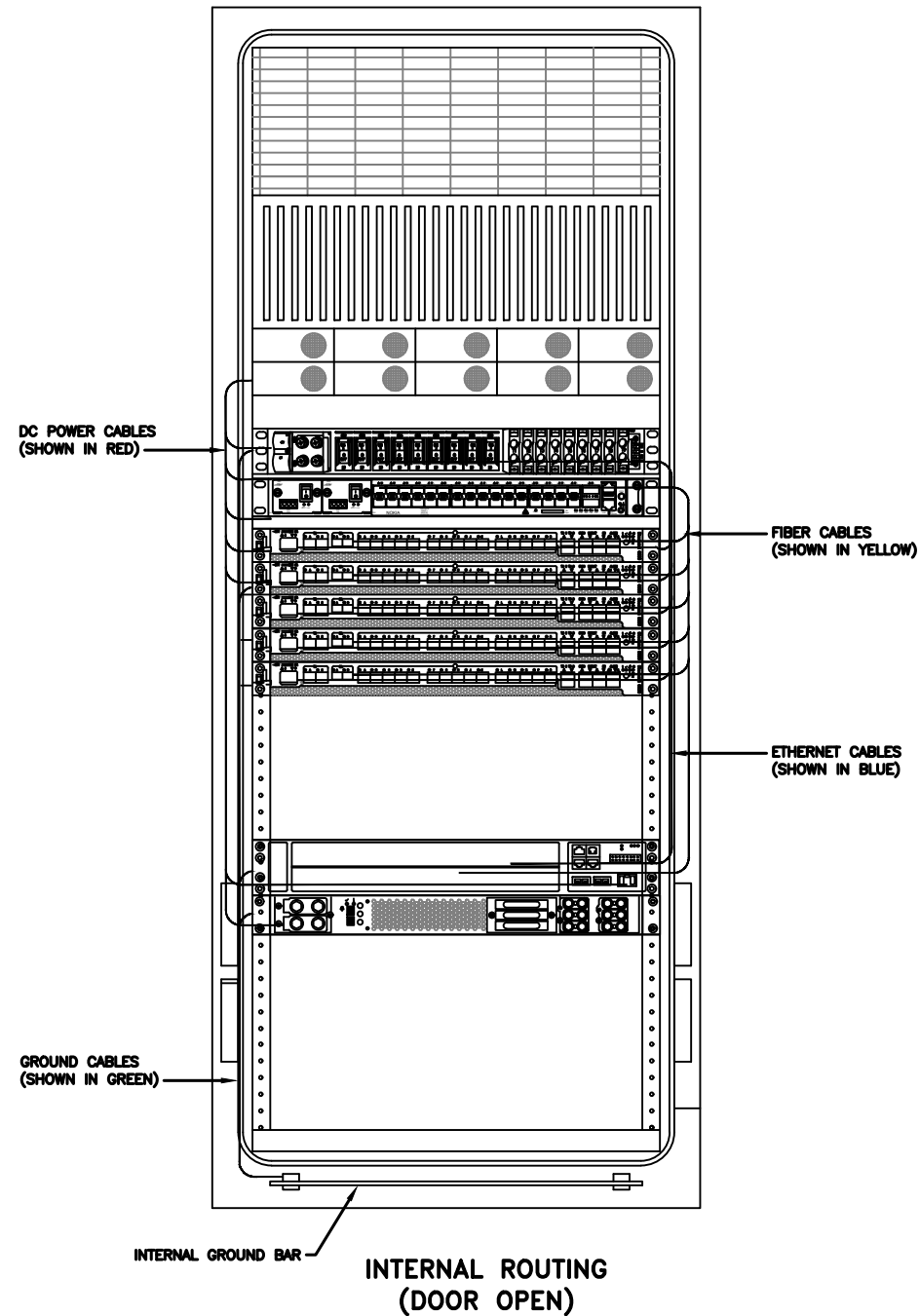
FRONT VIEW



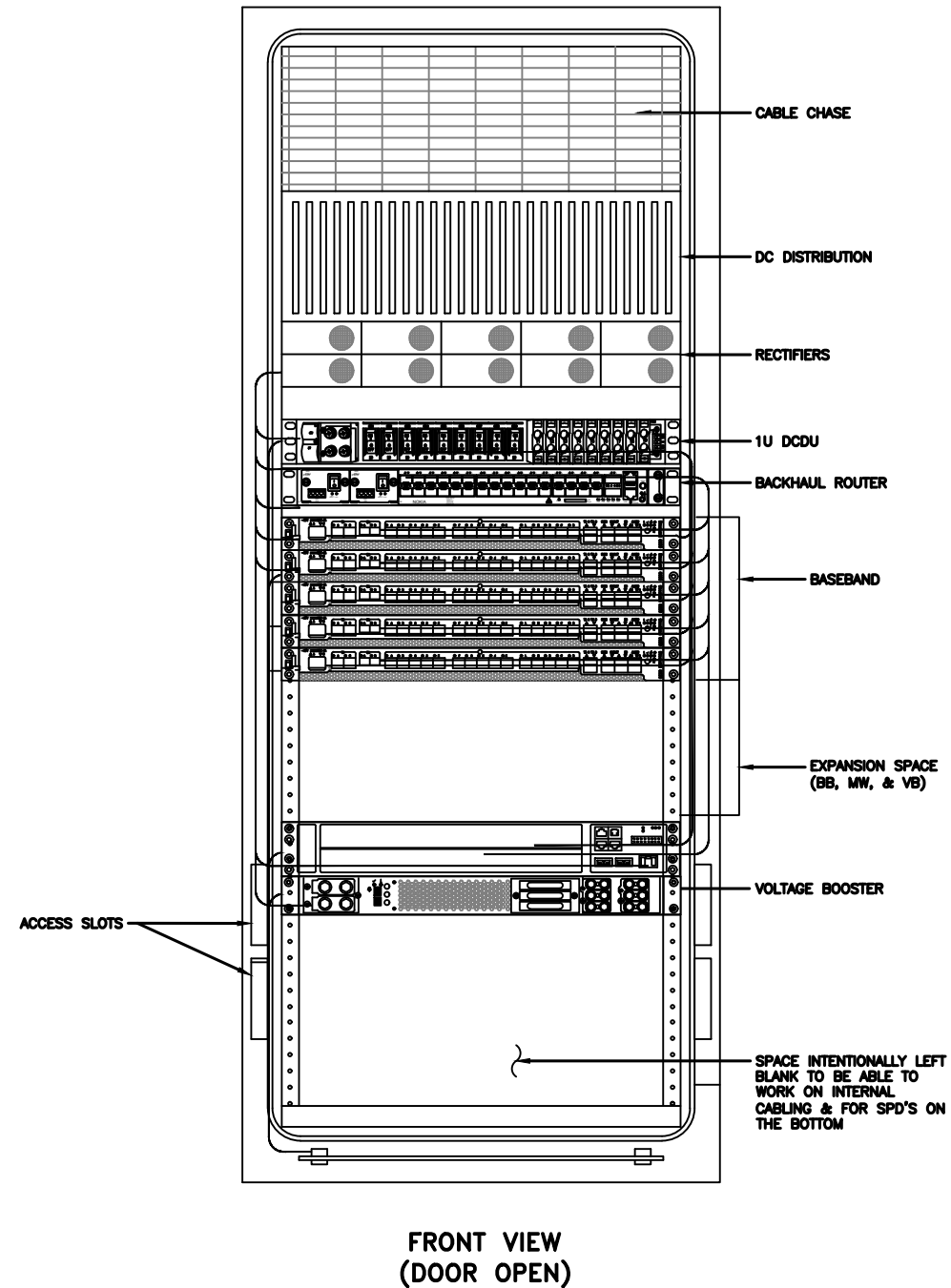
RIGHT VIEW



PLAN VIEW



RACK ASSIGNMENTS	
RU SLOTS	DESCRIPTION
1	DC DISTRIBUTION
2	
3	
4	
5	RECTIFIER SHELF
6	
7	FIBER BOX
8	DCDU
9	BACKHAUL ROUTER
10	
11	1ST BASEBAND
12	2ND BASEBAND
13	3RD BASEBAND
14	4TH BASEBAND
15	5TH BASEBAND
16	EXPANSION
17	
18	
19	EXPANSION / LEGACY BASEBAND / VOLTAGE BOOSTER
20	
21	VOLTAGE BOOSTER
22	VOLTAGE BOOSTER
23	OPEN SPACE FOR SPD ACCESS
24	
25	

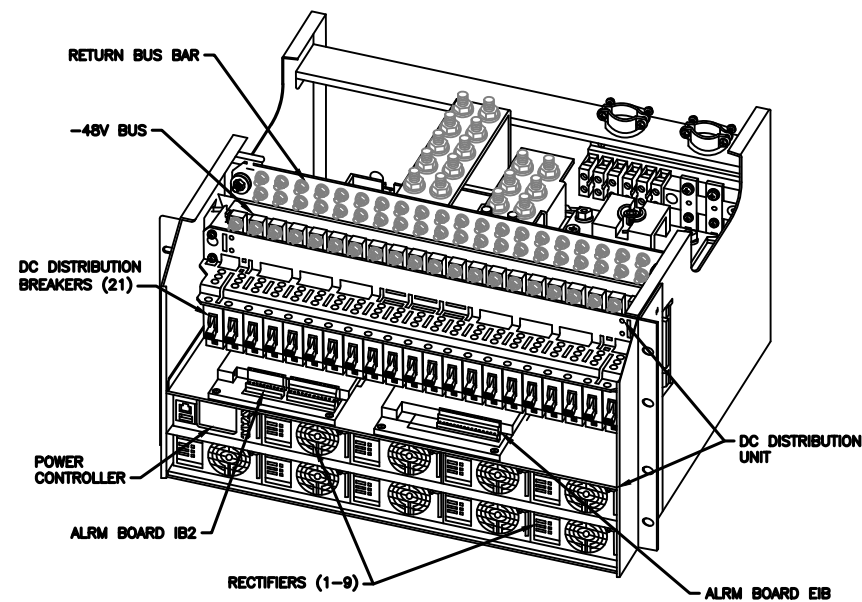


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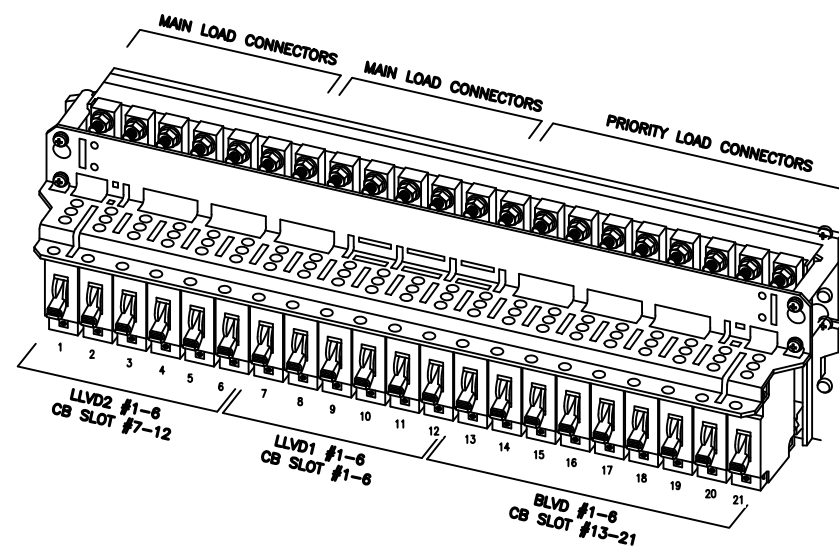
NOTE:
THIS IS FOR REFERENCE ONLY, CHECK
FOR SPECIFIC DETAIL IN T-MOBILE
CABINET SPECIFIC INSTALLATION GUIDES

Breaker Allocation for E6160				
CB SLOT	Ckt #	w/ DCU Prior to availability of the 4460 and 4480	w/ DCU Later Design Post-4460 and Post-4480	w/ DCU 4 and 6 Sector designs
1	1	Router PS-2*/Future		Radio 4460 B25/66 ζ-1
2	2	Future		Radio 4460 B25/66 ζ-2
3	LVD1	PSU 4813 feeding B25/66 α, β and γ (AIR 1641s)	PSU 4813 feeding B41-δ & B71/12-δ (Air 6449s and Radio 4480s)	PSU 4813 feeding B41 α, β and γ (Air 6449s)
4	4			
5	5			
6	6			
7	1	PSU 4813 feeding B71/12 α, β and γ (Radio 4449s)	PSU 4813 feeding B71/12 α, β and γ (Radio 4480s)	
8	2			
9	LVD2	Future	Future	Radio 4460 B25/66 δ-1
10	45.1V	Future	Future	Radio 4460 B25/66 δ-2
11	4	Future	Future	Radio 4460 B25/66 ε-1
12	6	Future	Future	Radio 4460 B25/66 ε-2
13	1	Router PS-1		
14	2	Radio 4415 B25/66 α	Radio 4460 B25/66 α-1	
15	3	Radio 4415 B25/66 β	Radio 4460 B25/66 α-2	
16	4	Radio 4415 B25/66 γ	Radio 4460 B25/66 β-1	
17	5	PSU 4813 feeding B2/25 α, β and γ (Radio 4424s)	Radio 4460 B25/66 β-2	
18	6		Radio 4460 B25/66 γ-1	
19	7	Future	Radio 4460 B25/66 γ-2	
20	8	DCDU		
21	9	AAV		

Sector Identification
α = Alpha, β = Beta, γ = Gamma, δ = Delta, ε = Epsilon, ζ = Zeta



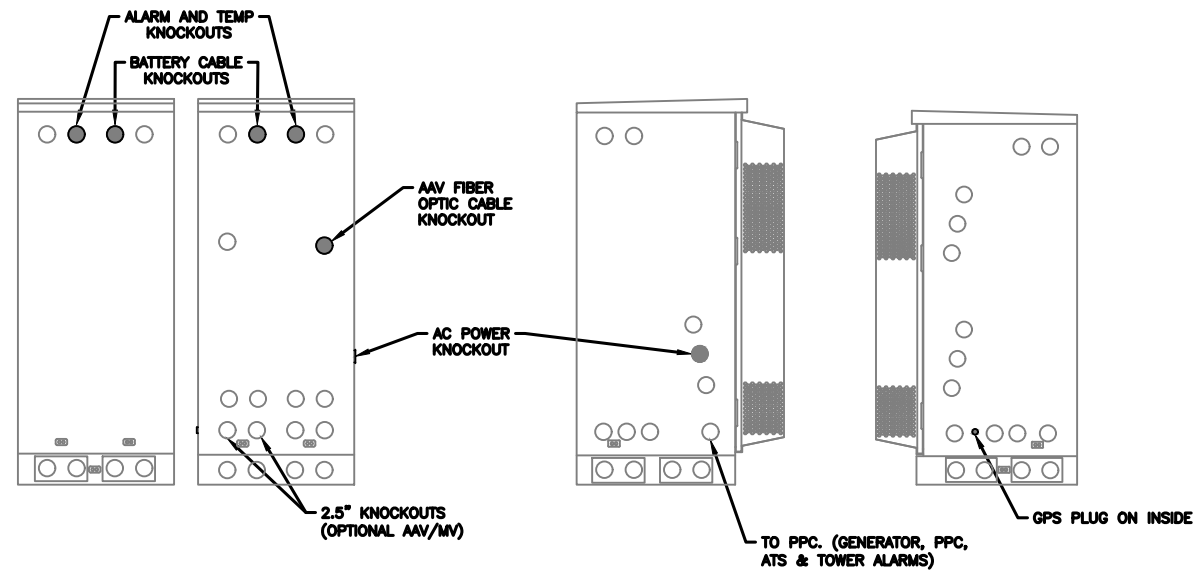
POWER SUBRACK



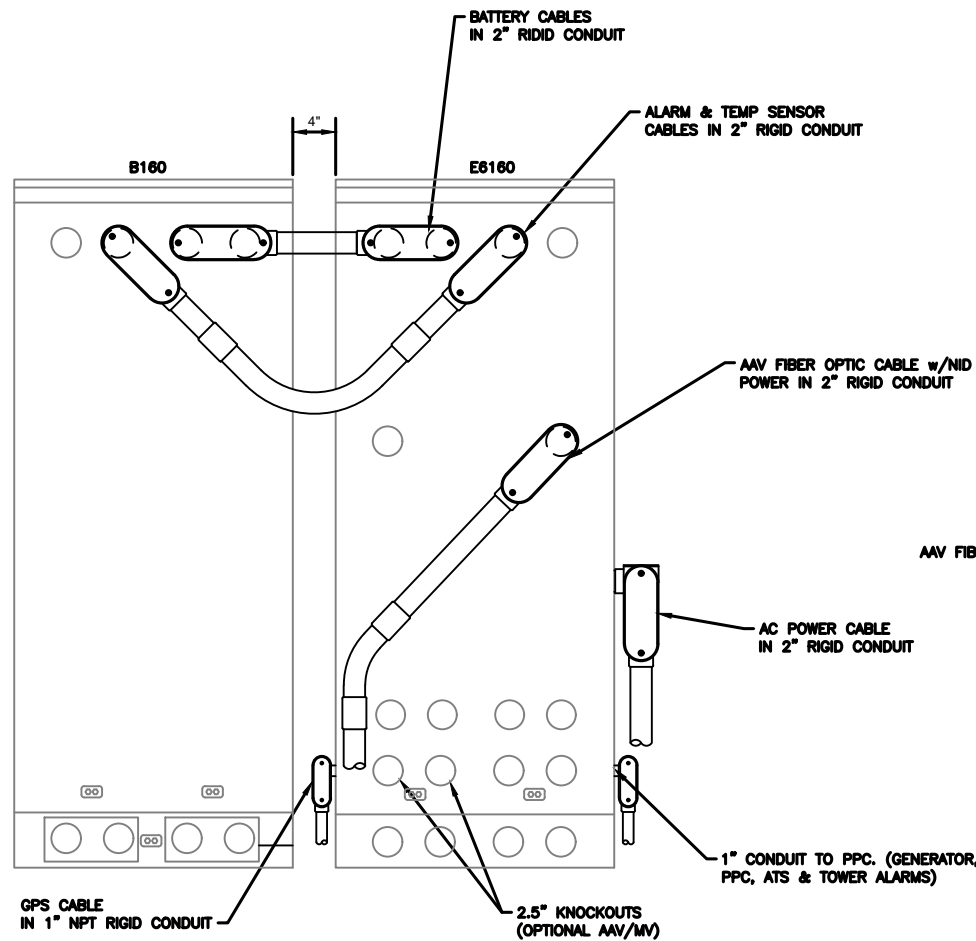
DC DISTRIBUTION

NOTE:

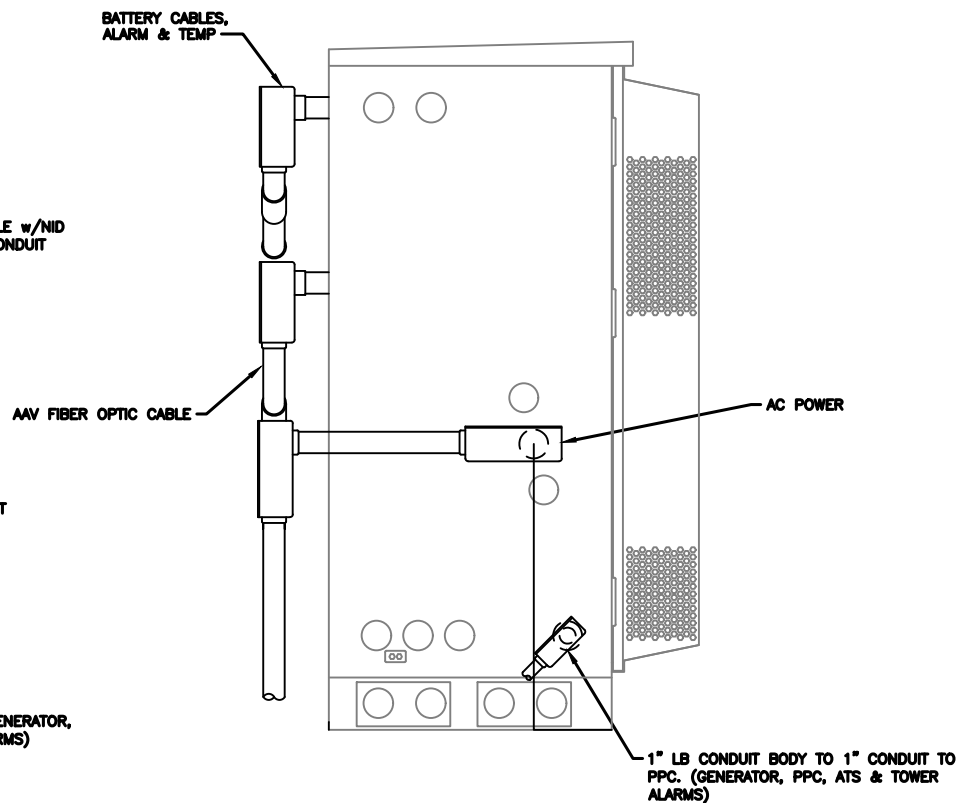
1. ALL CONDUIT AND FITTING ENTRANCES INTO CABINETS AND ENCLOSURES MUST UTILIZE MYERS OR EQUIVALENT HUBS OR SEALING WASHERS TO PREVENT WATER ENTRY/SEEPAGE INTO CABINETS AND ENCLOSURES.
2. (LIQUIDFLEX) FLEXIBLE METALLIC CONDUIT (LFMC) & ASSOCIATED FITTINGS CAN BE USED AS NEEDED BUT ONLY FOR TIGHT CONDUIT BENDS AND RUNS SUBJECT TO UL AND NEC LIMITATIONS. 6' MAX PER CONDUIT RUN.
3. POWER CONDUIT BODY ATTACHED WITH SHORT NIPPLE AND SEALING WASHER INSIDE & OUT. (FOR DOOR HOOD CLEARANCE)
4. PULLING ELBOWS MAY BE USED IN LIEU OF A CONDUIT BODIES WHEN CLEARANCE IS LIMITED.
5. ALL EXTERNAL ALARM CONDUITS ARE TO TERMINATE AT THE PPC WITH A SINGLE 1" ALARM CONDUIT TO THE 6160.
6. (DO NOT USE CHASE NIPPLES) CONDUIT SHOULD HAVE SEALING WASHERS INSIDE AND OUT w/ LOCK NUT AND CAP.



CONDUIT LOCATIONS



REAR VIEW



SIDE VIEW

1 ERICSSON 6160/B160 CONDUIT ROUTING DETAILS

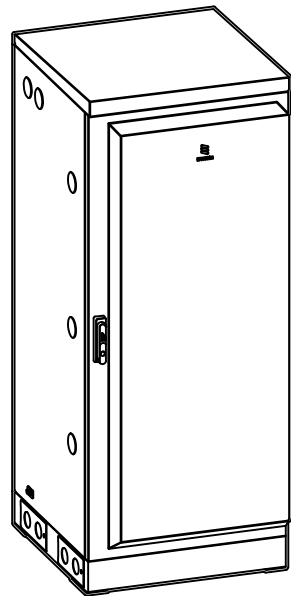
SCALE: N.T.S.

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

SUPPLEMENTAL

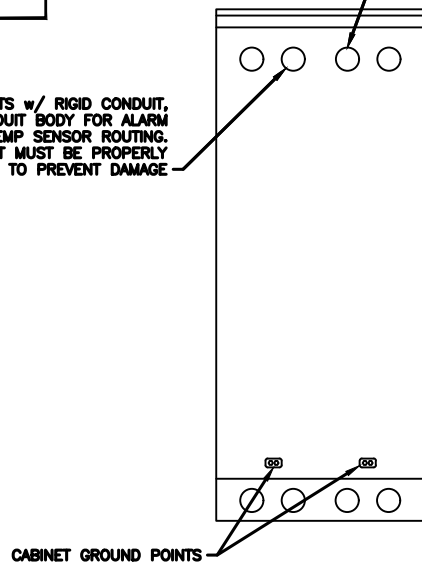
SHEET NUMBER: R-605	REVISION: 0
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MANUFACTURER:	ERICSSON
MODEL:	B160 BATTERY CABINET
DIMENSIONS:	63" x 25.6" x 29.5" (H x W x D)
WEIGHT:	295 LBS (WITHOUT BATTERIES)

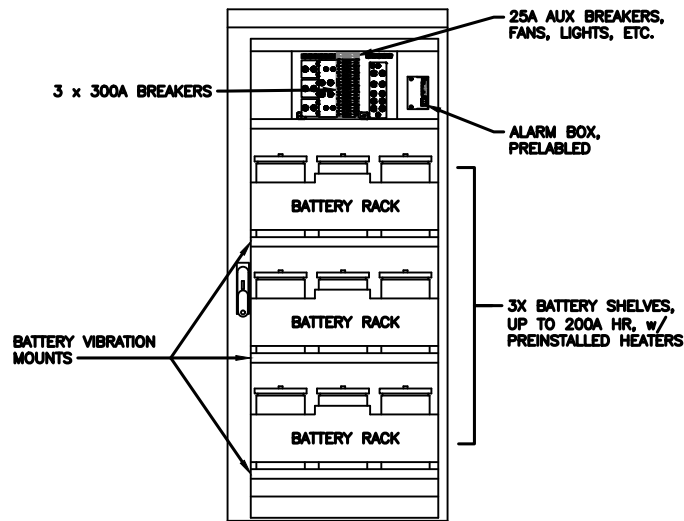


2.5" KNOCKOUTS w/ RIGID CONDUIT, LB CONDUIT BODY FOR ALARM CABLE & TEMP SENSOR ROUTING. CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE

2.5" KNOCKOUTS w/ RIGID CONDUIT, LB CONDUIT BODY FOR BATTERY CABLE CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE

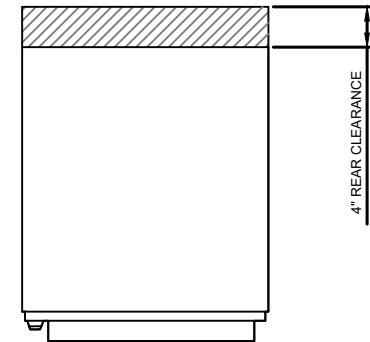


REAR VIEW



FRONT VIEW (DOOR OPEN)

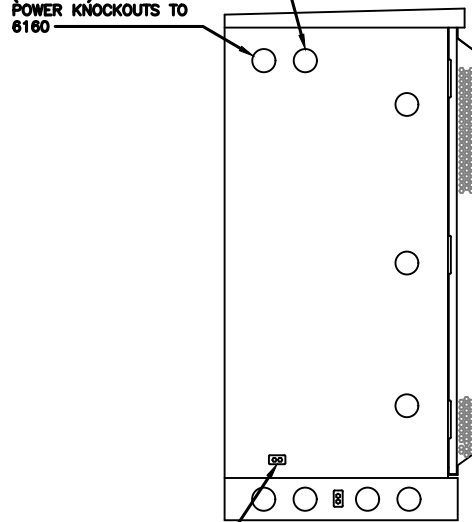
NOTE:
 • CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
 • CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING



GROUNDING NOTE:
 "CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."

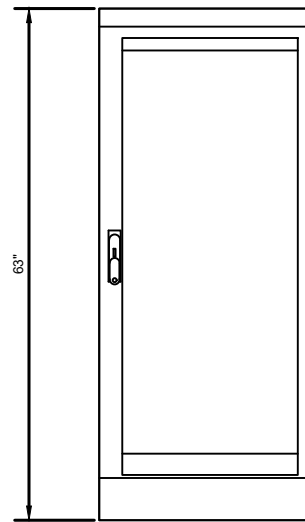
(OPTIONAL) 2.5" KNOCKOUTS FOR ALARM & TEMP SENSOR ROUTING TO 6160

(OPTIONAL) 2.5" DC POWER KNOCKOUTS TO 6160

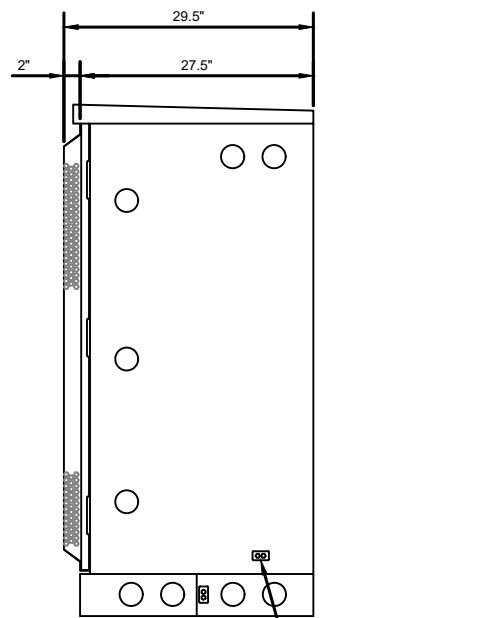


CABINET GROUND POINT

LEFT VIEW

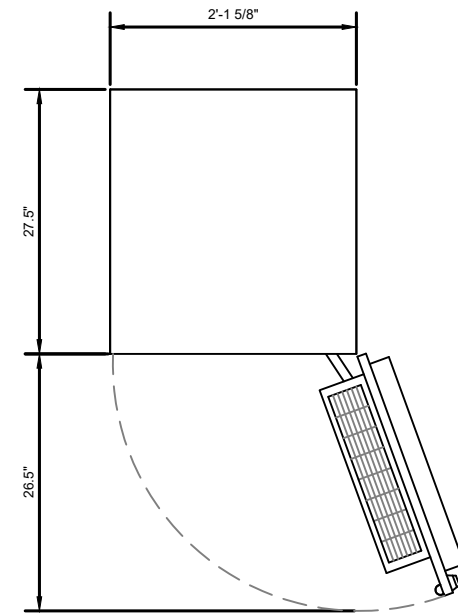


FRONT VIEW



CABINET GROUND POINT

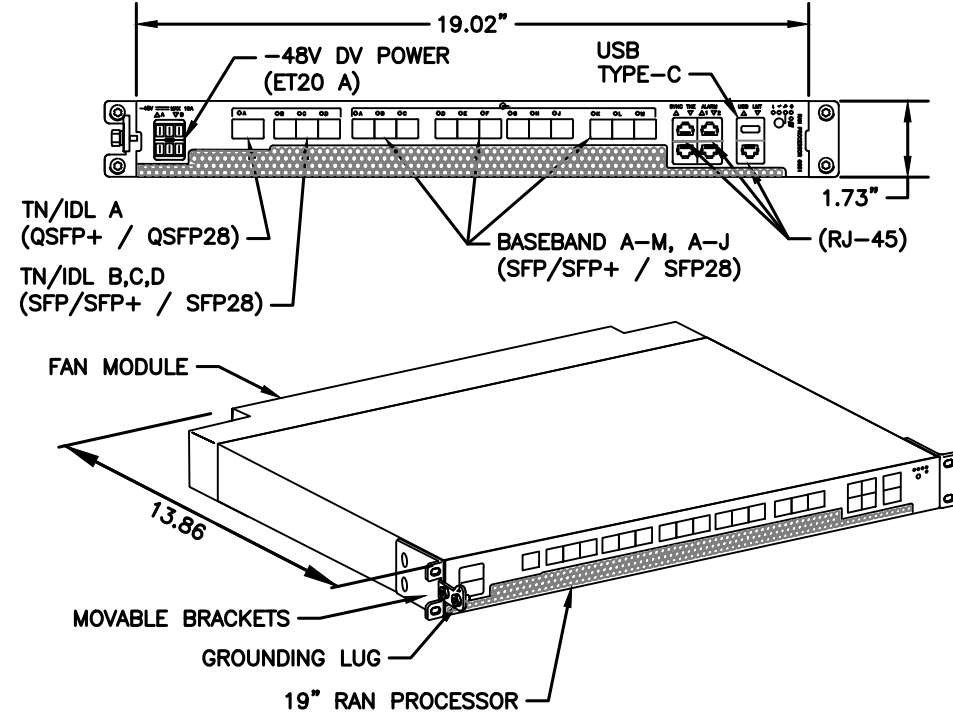
RIGHT VIEW



PLAN VIEW

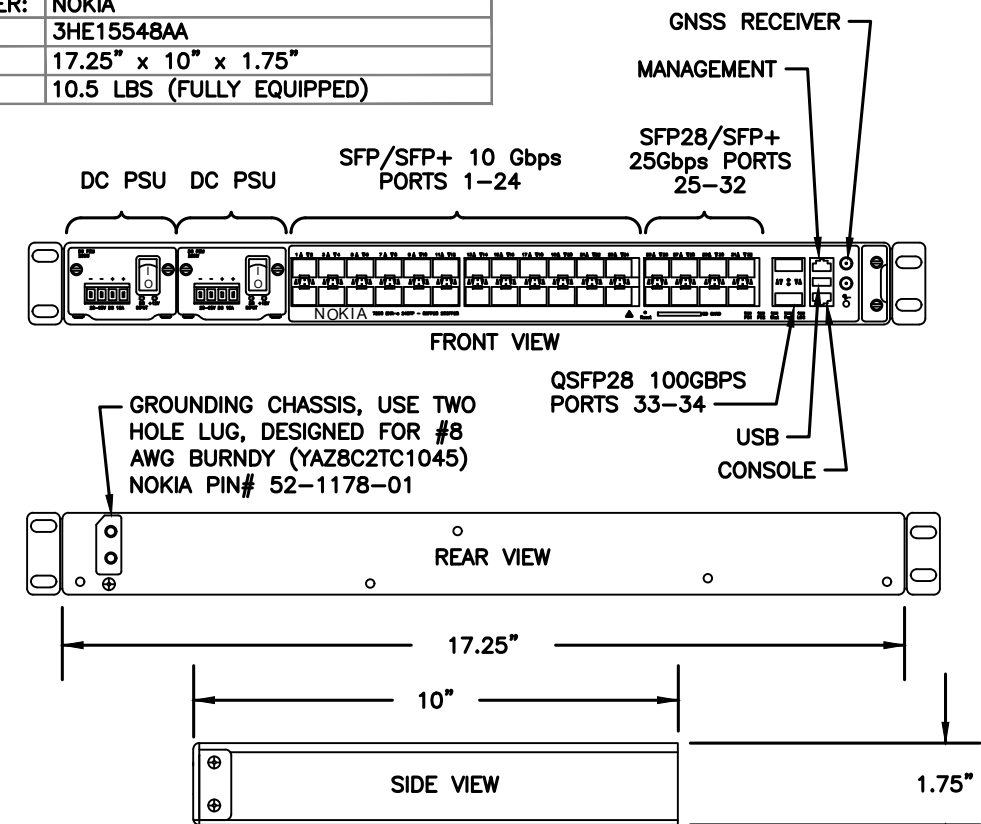
B160 ERICSSON SITE SUPPORT BATTERY CABINET

MANUFACTURER:	ERICSSON
MODEL:	6651 RAN PROCESSOR (KDU1370093/11)
DIMENSIONS:	1.73" X 19.02" X 13.86" (H" X W" X D")
WEIGHT:	16.98 LBS



1 34553 - ERICSSON 6651 RAN PROCESSOR
SCALE: N.T.S.

MANUFACTURER:	NOKIA
MODEL:	3HE15548AA
DIMENSIONS:	17.25" x 10" x 1.75"
WEIGHT:	10.5 LBS (FULLY EQUIPPED)



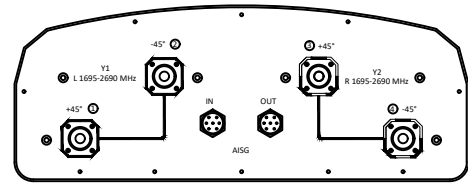
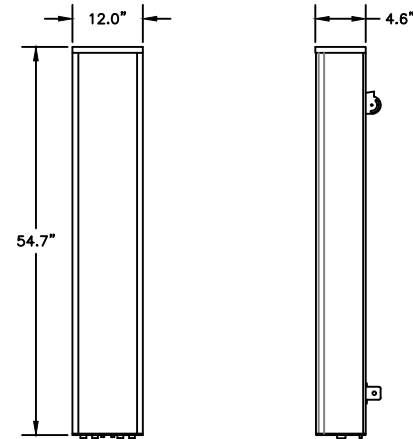
2 34097 - NOKIA 7250 IXR-e ROUTER w/ GNSS
SCALE: N.T.S.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-607	0

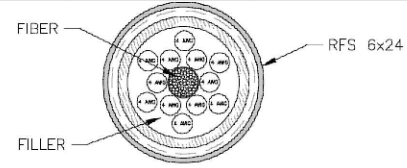
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

MANUFACTURER:	COMMSCOPE
MODEL:	VV-65A-R1
DIMENSIONS:	54.7" x 12.1" x 4.6" (H x W x D)
WEIGHT:	24.7 LB
INTERFACE:	4-PORT 4.3-10 FEMALE
MOUNTING KIT:	600899A-2 (INCLUDED) WEIGHT: 8.6 LB

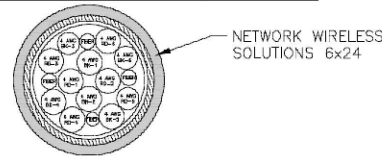


1 34401 - COMMSCOPE VV-65A-R1 SCALE: N.T.S.

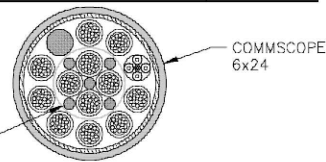
PARAMETER	VALUE
NOMINAL DIAMETER (INCHES)	2
CROSS-SECTION AREA (SQUARE INCHES)	3.13
JACKET COLOR	BLACK
WEIGHT/LINEAR FOOT (POUNDS)	2.55



PARAMETER	VALUE
NOMINAL DIAMETER (INCHES)	1.79
CROSS-SECTION AREA (SQUARE INCHES)	2.52
JACKET COLOR	BLACK
WEIGHT/LINEAR FOOT (POUNDS)	2.65

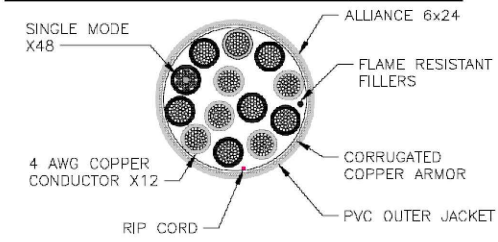


PARAMETER	VALUE
NOMINAL DIAMETER (INCHES)	1.76
CROSS-SECTION AREA (SQUARE INCHES)	2.43
JACKET COLOR	BLACK
WEIGHT/LINEAR FOOT (POUNDS)	2.29

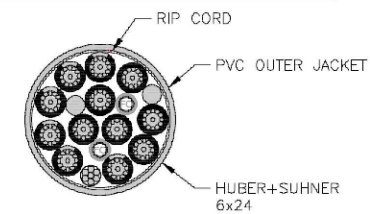


(6x24) HYBRID TRUNK CROSS SECTION 1
8.5" x 11" SCALE N.T.S. | 11" x 17" SCALE N.T.S.

PARAMETER	VALUE
NOMINAL DIAMETER (INCHES)	1.8
CROSS-SECTION AREA (SQUARE INCHES)	2.54
JACKET COLOR	BLACK
WEIGHT/LINEAR FOOT (POUNDS)	2.48

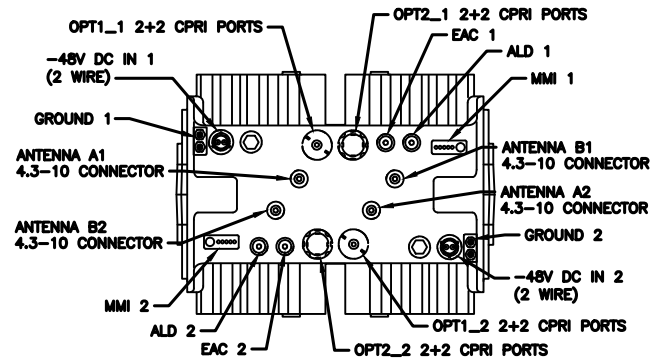
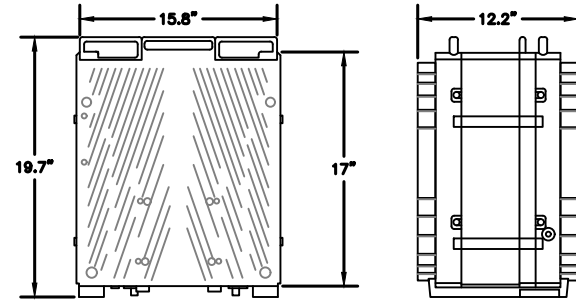


PARAMETER	VALUE
NOMINAL DIAMETER (INCHES)	1.62
CROSS-SECTION AREA (SQUARE INCHES)	2.04
JACKET COLOR	BLACK
WEIGHT/LINEAR FOOT (POUNDS)	2.39



(6x24) HYBRID TRUNK CROSS SECTION 2
8.5" x 11" SCALE N.T.S. | 11" x 17" SCALE N.T.S.

MANUFACTURER:	ERICSSON
MODEL:	4460 RADIO B2/25 B66 (KRC 161 912/3)
DIMENSIONS:	19.7" x 15.8" x 12.2" (H" x W" x D")
WEIGHT:	109 LBS
BRACKET WEIGHT:	4.8 LBS (ERS HEAVY #SXX1255993/1)



2 34373 - ERICSSON 4460 RADIO B2/25 B66 SCALE: N.T.S.

Cable Vendor	Cable Type	Nominal OD (in.)	C.S. Area (sq. in.)	Weight (lbs./ft)	onTop Breakout	MAX ENTITLEMENT
HCS 2.0					HCS Pendant (Breakout) Dimension (in.)	
Alliance	6x24 6AWG	1.46	1.67	1.61	16.36 x 9.30 x 5.79 (sq./in 152.15)	Nominal OD (in.) 1.55
CommScope	6x24 6AWG	1.55	1.89	1.71	19.37 x 10.83 x 5.12 (sq./in 235.07)	C.S. Area (sq./in.) 1.89
NWS	6x24 6AWG	1.48	1.72	1.61	15.95 x 10.20 x 3.21 (sq./in 162.69)	Weight (lbs./ft) 1.71
Amphenol	6x24 6AWG	1.46	1.67	1.65	19.37 x 10.83 x 5.12 (sq./in 209.78)	Pendant (sq./in) 235.07
4 AWG 250' to 450' cable lengths						
Alliance	6x24 4AWG	1.8	2.54	2.48	16.36 x 9.30 x 5.79 (sq./in 152.15)	Nominal OD (in.) 1.8
CommScope	6x24 4AWG	1.76	2.43	2.4	19.37 x 10.83 x 5.12 (sq./in 235.07)	C.S. Area (sq./in.) 2.54
NWS	6x24 4AWG	1.79	2.52	2.65	15.95 x 10.20 x 3.21 (sq./in 162.69)	Weight (lbs./ft) 2.65
Amphenol	6x24 4AWG	1.71	2.3	2.55	19.37 x 10.83 x 5.12 (sq./in 209.78)	Pendant (sq./in) 235.07
6x24					6x24 Canister Breakout - OD x Length (in.)	
Alliance	6x24 4AWG	1.8	2.54	2.48	3.11 x 9.45 (c.s. Area 7.60)	Nominal OD (in.) 2
CommScope	6x24 4AWG	1.76	2.43	2.29	2.68 x 9.81 (c.s. Area 5.64)	C.S. Area (sq./in.) 3.13
H8S	6x24 4AWG	1.62	2.04	2.39	3.82 x 9.26 (c.s. Area 11.46)	Weight (lbs./ft) 2.65
NWS	6x24 4AWG	1.79	2.52	2.65	2.99 x 8.82 (c.s. Area 7.02)	Canister (sq./in) 11.46
RFS	6x24 4AWG	2	3.13	2.55	2.88 x 9.72 (c.s. Area 6.51)	

(6x24) HYBRID TRUNK ENTITLEMENT INFORMATION 3
8.5" x 11" SCALE N.T.S. | 11" x 17" SCALE N.T.S.

3 HYBRID TRUNK INFORMATION (6X24) SCALE: N.T.S.

SUPPLEMENTAL

SHEET NUMBER: R-608 REVISION: 0

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



Mount Analysis Report

ATC Asset Name : GUILFORD CT
ATC Asset Number : 284988
Engineering Number : 14529804_C8_01
Mount Elevation : 106 ft
Proposed Carrier : T-Mobile
Carrier Site Name : Amtrak_Guilford
Carrier Site Number : CTNH805A
Site Location : Moose Hill Road
 Guilford, CT 6437
 41.267452, -72.716029
County : New Haven
Date : September 13, 2023
Max Usage : 81%
Analysis Result : Pass

Prepared By:
Max Carter
Structural Engineer II



Esha Modi
Digitally signed by Esha Modi
Date: 2023.09.14 14:29:23
-04'00'

COA: PEC.0001553

Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 106 ft.

Supporting Documents

Specifications Sheet:	Perfect Vision PV-LPPGS-1XM-HRX, dated November 1, 2019
Radio Frequency Data Sheet:	RFDS ID #CTNH805A, dated August 8, 2023
Reference Photos:	Site photos from 2023

Analysis

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

Basic Wind Speed:	122 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.00" radial ice concurrent
Codes:	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.202, S1 = 0.053
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs

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

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

If you have any questions or require additional information, please reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact MountAnalysis@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



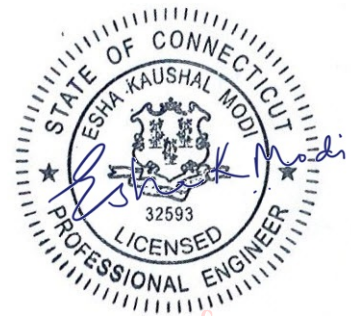
AMERICAN TOWER®
CORPORATION

Mount Analysis Report

ATC Asset Name : GUILFORD CT
ATC Asset Number : 284988
Engineering Number : 14529804_C8_01
Mount Elevation : 106 ft
Proposed Carrier : T-Mobile
Carrier Site Name : Amtrak_Guilford
Carrier Site Number : CTNH805A
Site Location : Moose Hill Road
Guilford, CT 6437
41.267452, -72.716029
County : New Haven
Date : September 13, 2023
Max Usage : 81%
Analysis Result : Pass

Prepared By:
Max Carter
Structural Engineer II

Max Carter



Esha Modi Digitally signed by Esha Modi
Date: 2023.09.14 14:29:23
-04'00'

COA: PEC.0001553



Table of Contents

Introduction 3

Supporting Documents 3

Analysis..... 3

Conclusion..... 3

Application Loading 4

Structure Usages 4

Mount Layout..... 5

Equipment Layout..... 7

Standard Conditions Attached

Calculations..... Attached

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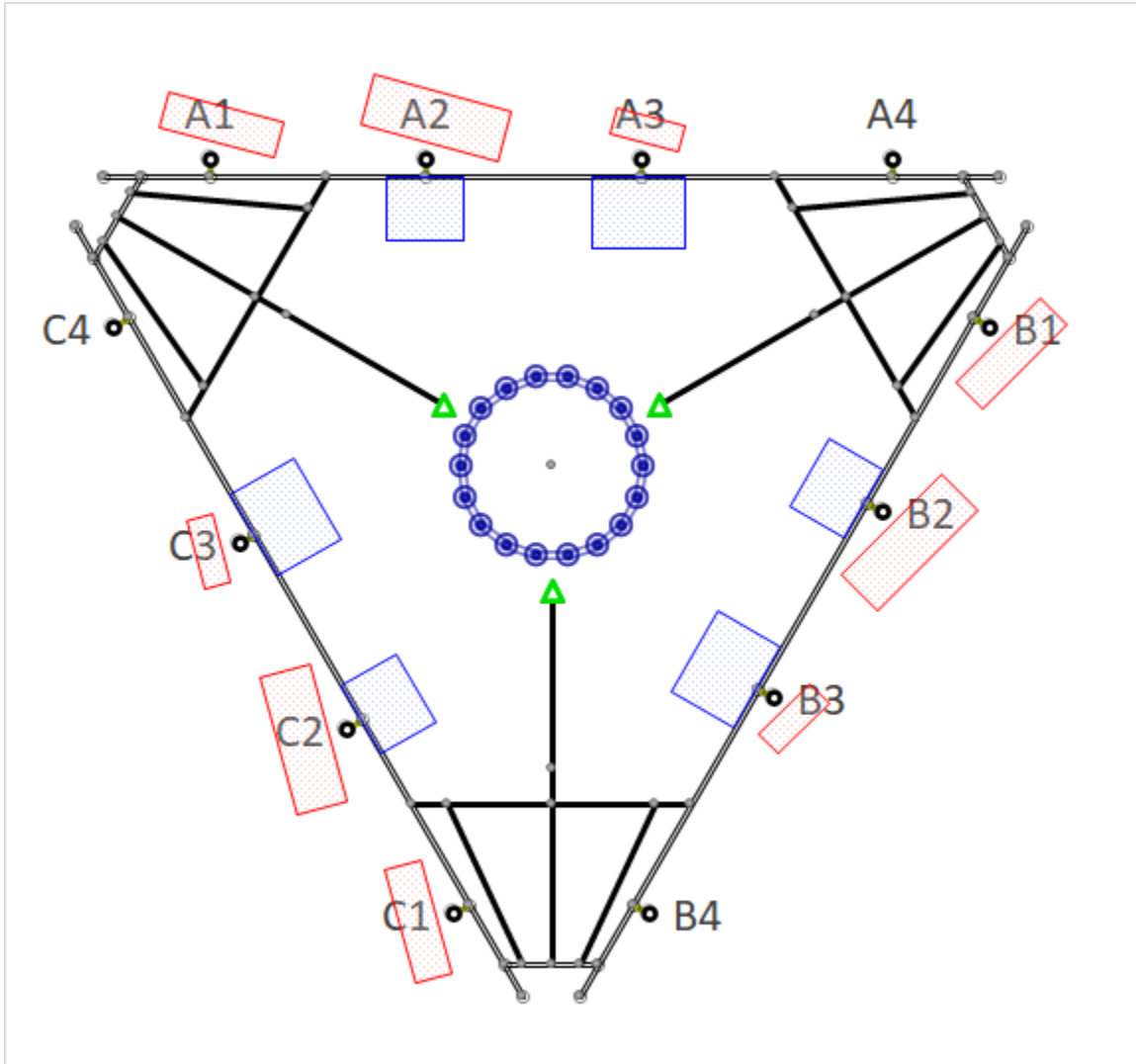
Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
106.0	108.0	3	RFS APXVAARR24_43-U-NA20
		3	Commscope VV-65A-R1B
		3	Ericsson AIR 6419 B41
		3	Ericsson Radio 4460 B25+B66
		3	Ericsson Radio 4449 B71 B85A

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	46%	Pass
Diagonals	17%	Pass
Mount Pipes	81%	Pass

Mount Layout



Equipment Position Table

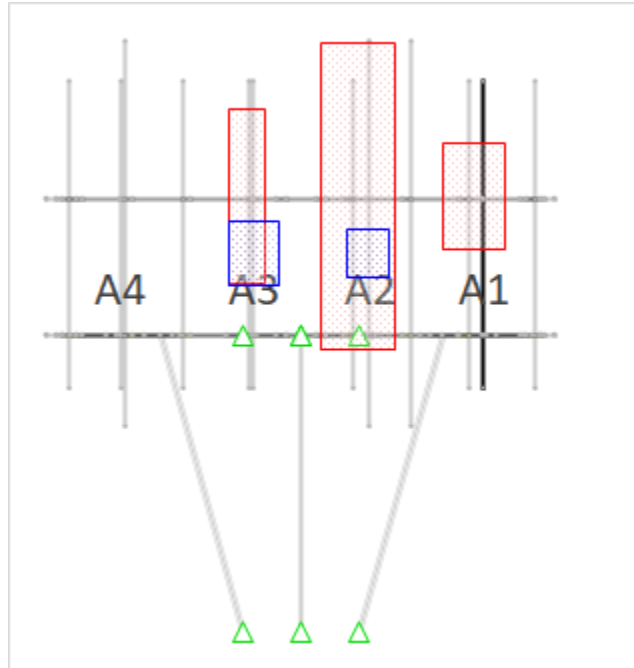
MP	RAD Center (ft)	Qty.	Antenna Model
A1	108.0	1	Ericsson AIR 6419 B41
A2	108.0	1	RFS APXVAARR24_43-U-NA20
	108.0	1	Ericsson Radio 4449 B71 B85A
A3	108.0	1	Commscope VV-65A-R1B
	108.0	1	Ericsson Radio 4460 B25+B66
A4	-	-	Empty
B1	108.0	1	Ericsson AIR 6419 B41
B2	108.0	1	RFS APXVAARR24_43-U-NA20
	108.0	1	Ericsson Radio 4449 B71 B85A

Equipment Position Table Cont.

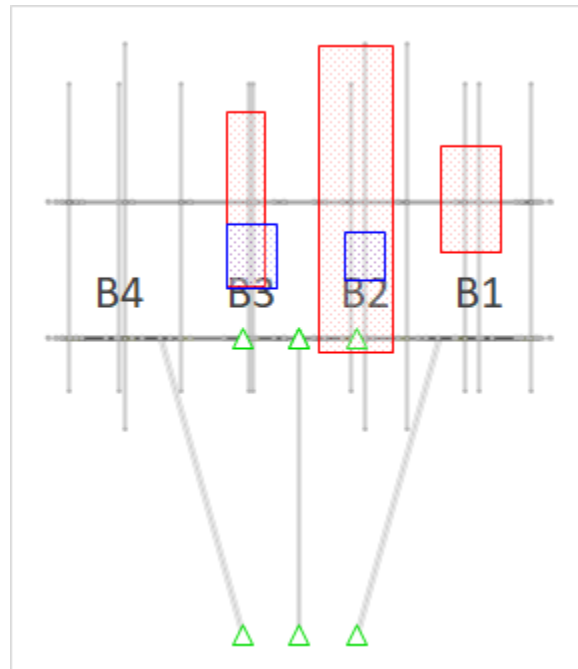
MP	RAD Center (ft)	Qty.	Antenna Model
B3	108.0	1	Commscope VV-65A-R1B
	108.0	1	Ericsson Radio 4460 B25+B66
B4	-	-	Empty
C1	108.0	1	Ericsson AIR 6419 B41
C2	108.0	1	RFS APXVAARR24_43-U-NA20
	108.0	1	Ericsson Radio 4449 B71 B85A
C3	108.0	1	Commscope VV-65A-R1B
	108.0	1	Ericsson Radio 4460 B25+B66
C4	-	-	Empty

Equipment Layout

Front View - Alpha

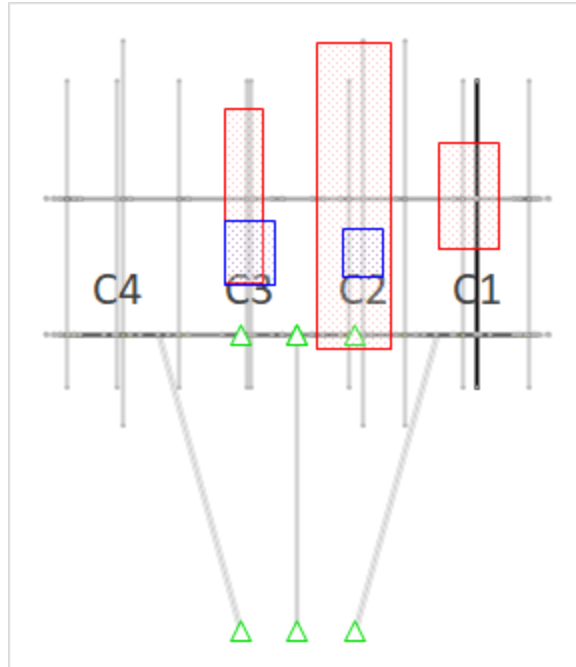


Front View - Beta



Equipment Layout Cont.

Front View - Gamma





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 equipment, 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.

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

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

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

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

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



Site Number: 284988
Project Number: 14529804_C8_01
Carrier: T-Mobile
Mount Elevation: 106 ft
Date: 9/13/2023

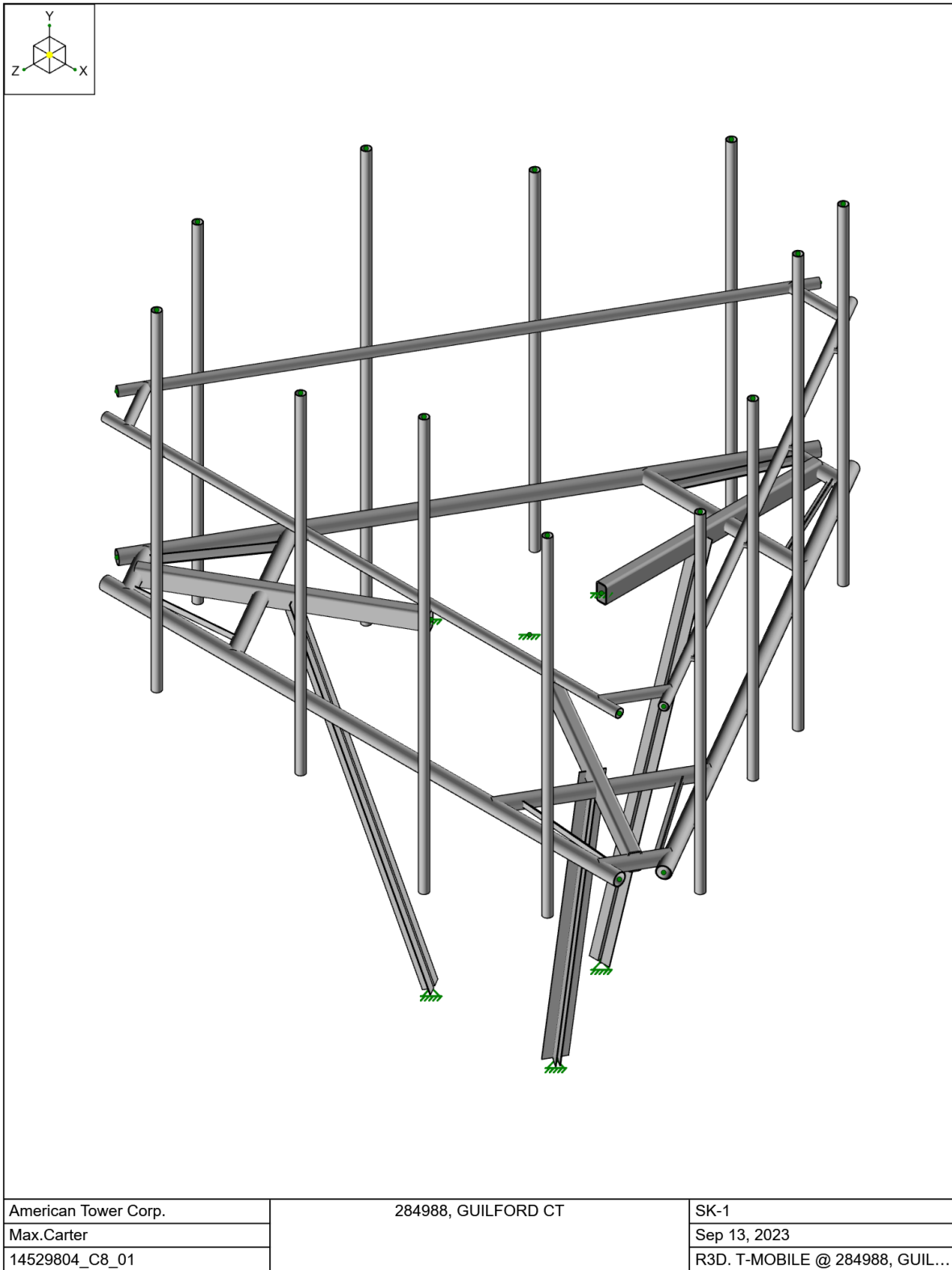
Mount Analysis Force Calculations

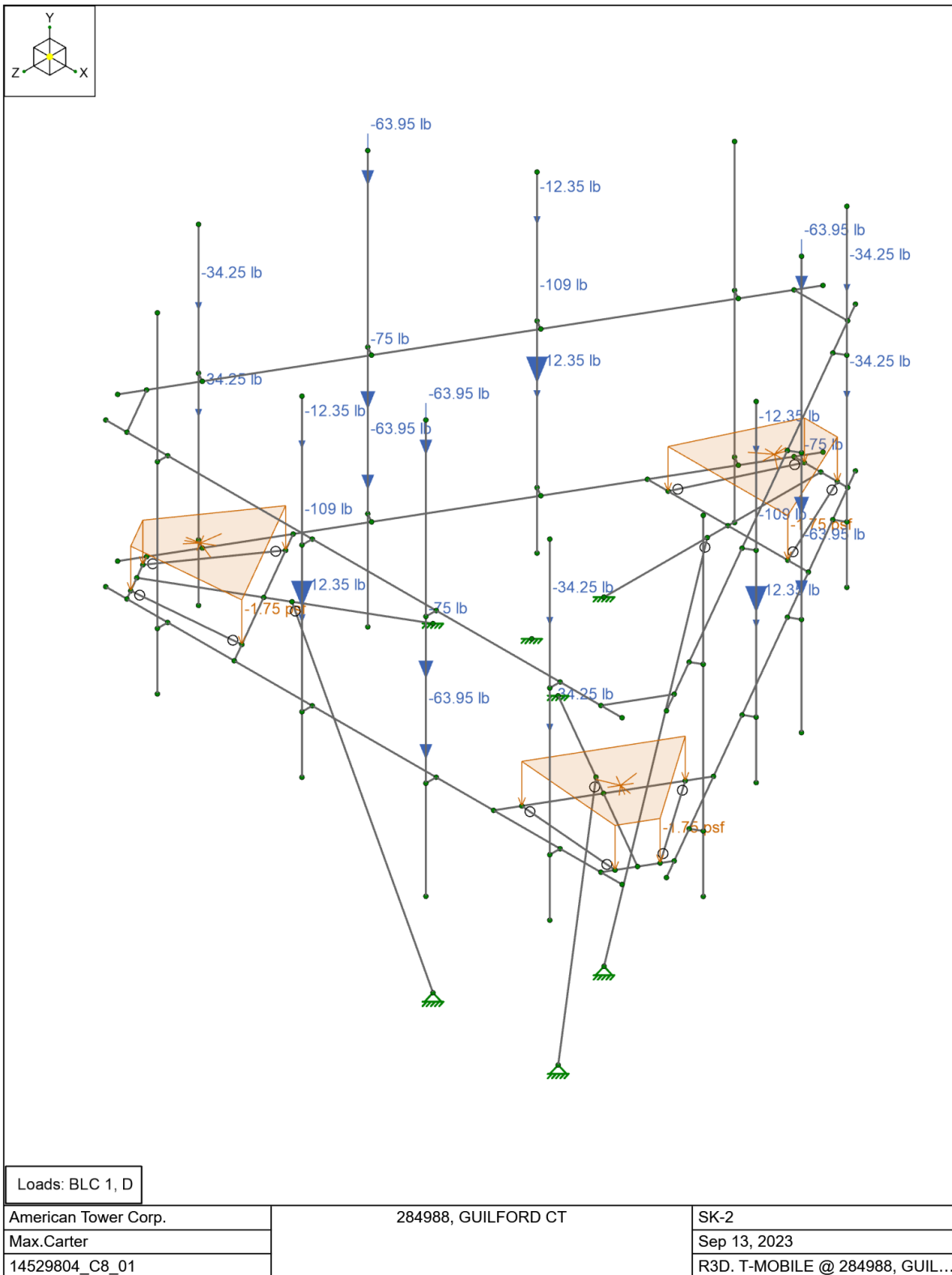
Wind & Ice Load Calculations			
Velocity Pressure Coefficient	K_z	1.28	
Topographic Factor	K_{zt}	1.00	
Rooftop Wind Speed-up Factor	K_s	1.00	
Shielding Factor	K_a	0.90	
Ground Elevation Factor	K_e	1.00	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	122	mph
Velocity Pressure	q_z	46.2	psf
Height Escalation Factor	K_{iz}	1.12	
Thickness of Radial Glaze Ice	T_{iz}	1.12	in

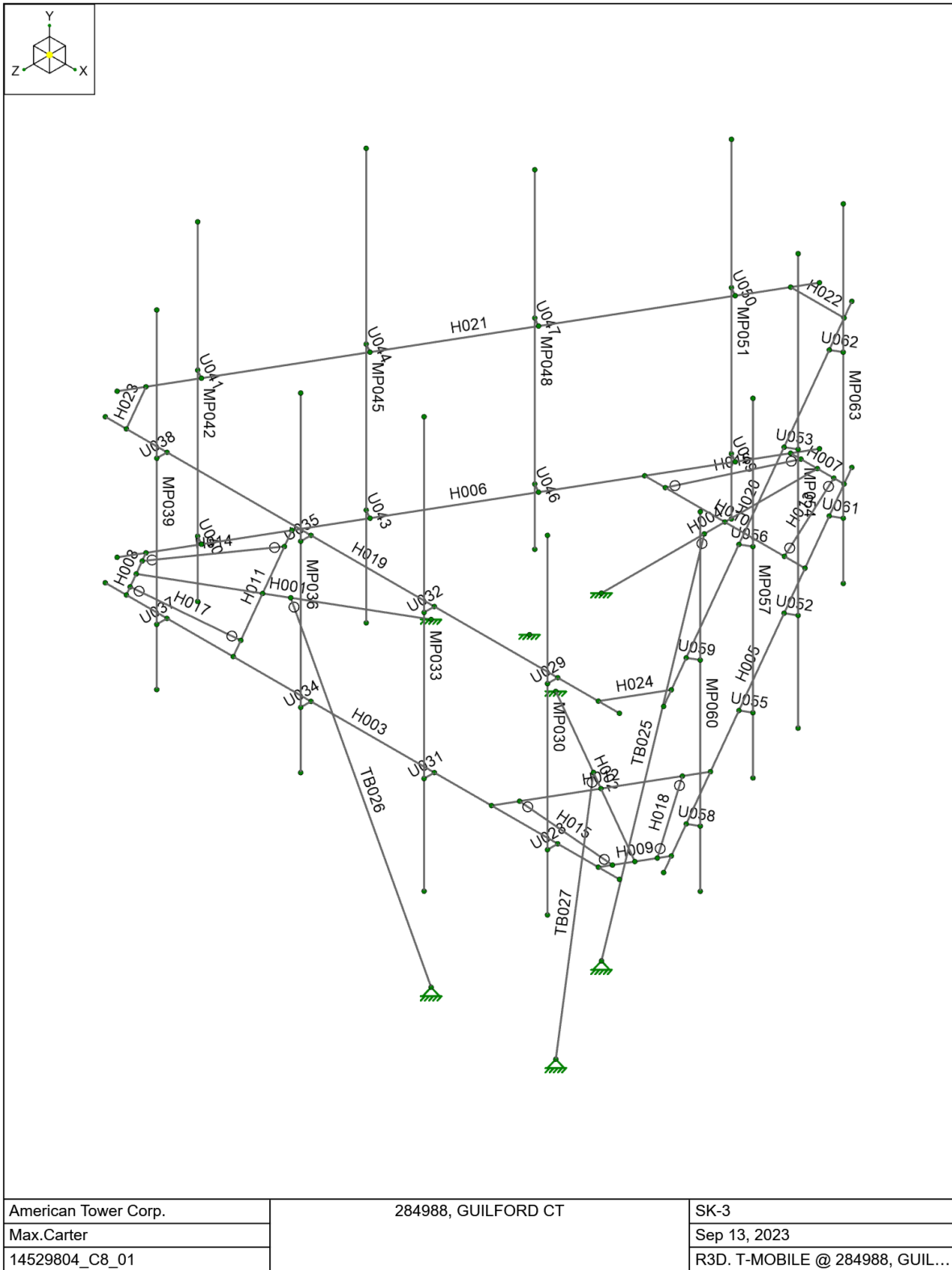
Seismic Load Calculations			
Short Period DSRAP	S_{DS}	0.215	
1 Second DSRAP	S_{D1}	0.085	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_s	0.108	
Amplification Factor	A	1.0	
Total Weight	W	2593.7	lbs
Total Shear Force	V_s	279.4	lbs
Horizontal Seismic Load	E_h	279.4	lbs
Vertical Seismic Load	E_v	111.8	lbs

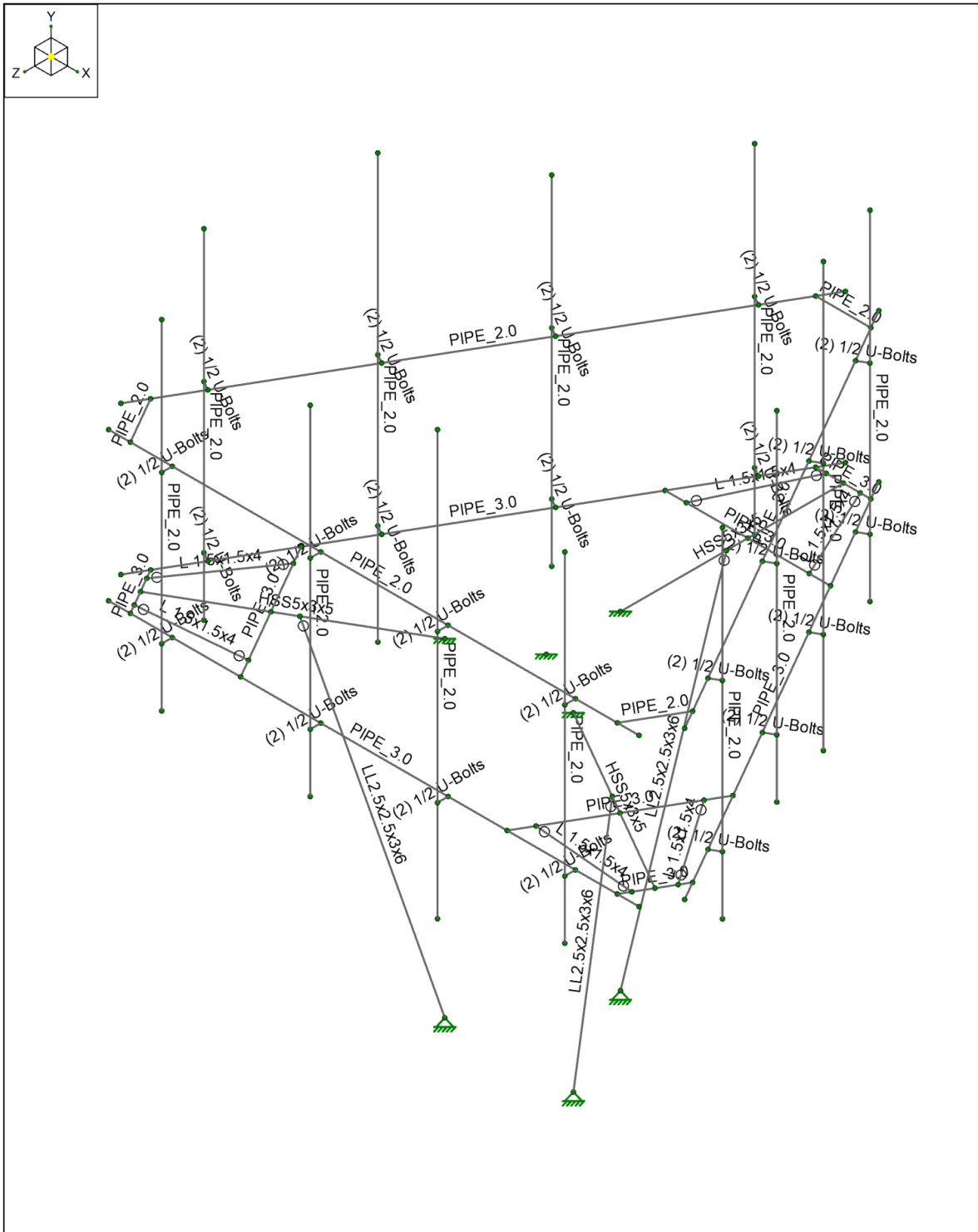
Antenna Calculations (Elevations per Application/RFDS)*								
Equipment	Height	Width	Depth	Weight	EPA_N	EPA_T	EPA_{Ni}	EPA_{Ti}
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
RFS APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	20.24	3.48	22.66	4.48
Commscope VV-65A-R1B	54.7	12.0	4.6	24.7	5.89	1.32	7.28	2.04
Ericsson AIR 6419 B41	33.6	20.0	6.3	68.5	5.60	0.85	6.65	1.24
Ericsson Radio 4460 B25+B66	19.6	15.7	12.1	109.0	2.56	1.98	3.27	2.61
Ericsson Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	1.65	1.31	2.22	1.83

* Equipment with EPA values N/A were not considered in the mount analysis

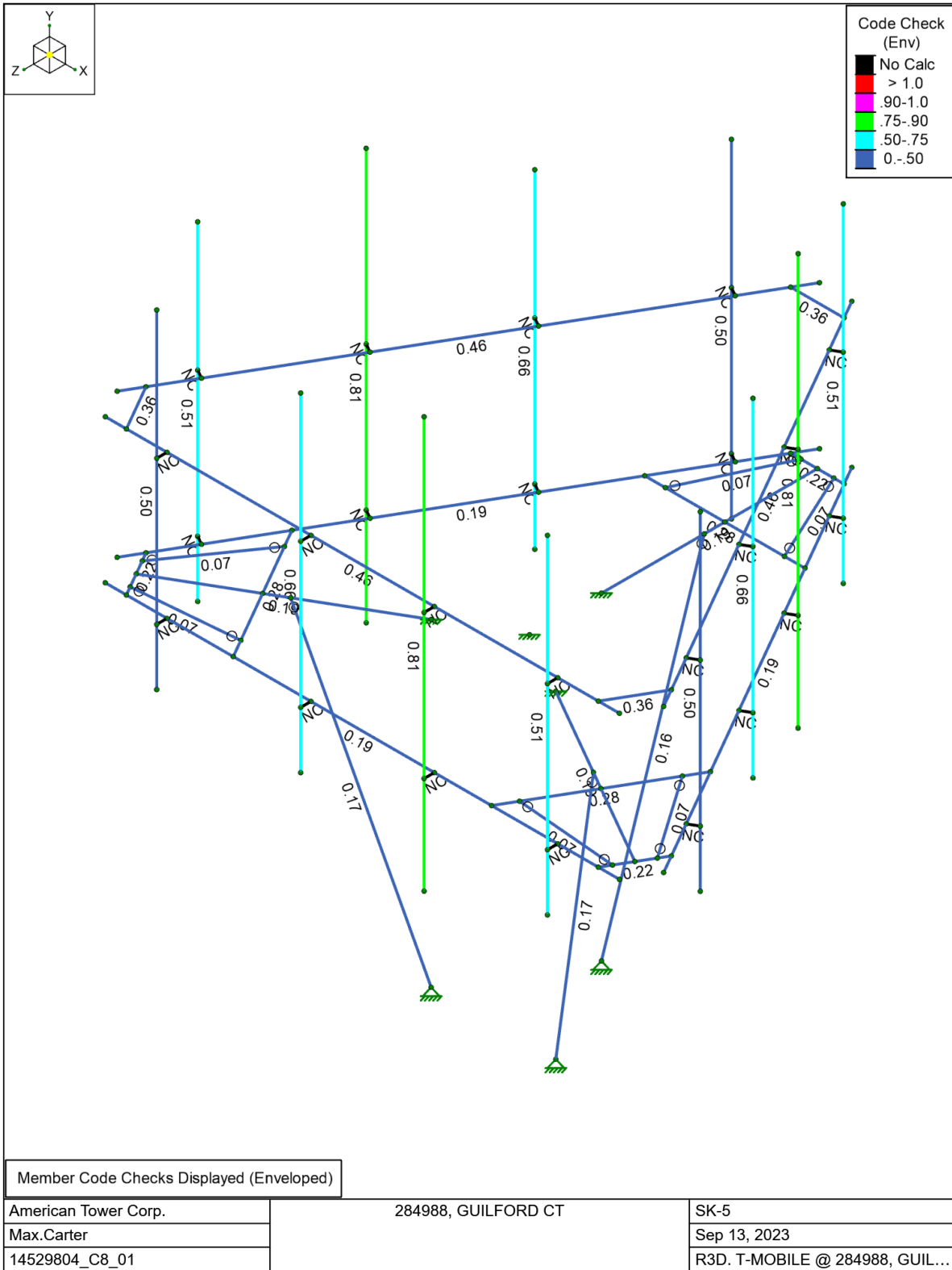


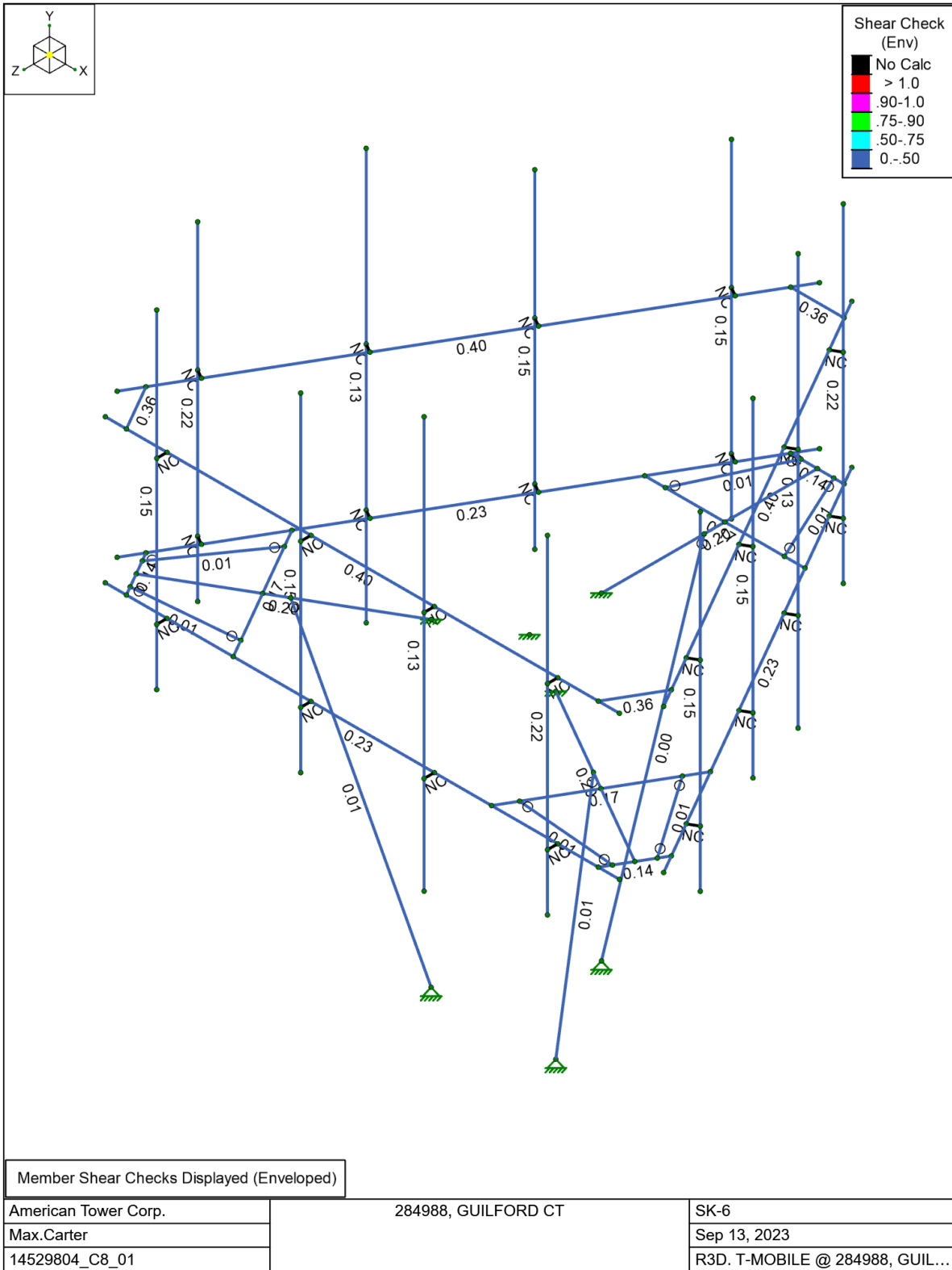






American Tower Corp.	284988, GUILFORD CT	SK-4
Max.Carter		Sep 13, 2023
14529804_C8_01		R3D. T-MOBILE @ 284988, GUIL...







Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
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 Checked By : -

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	D	DL		-1			24		3
2	Di	IL					24	39	3
3	W 0	WL					24	63	
4	W 30	WL					48	126	
5	W 60	WL					48	126	
6	W 90	WL					24	66	
7	W 120	WL					48	126	
8	W 150	WL					48	126	
9	W 180	WL					24	63	
10	W 210	WL					48	126	
11	W 240	WL					48	126	
12	W 270	WL					24	66	
13	W 300	WL					48	126	
14	W 330	WL					48	126	
15	Wi 0	WL					24	63	
16	Wi 30	WL					48	126	
17	Wi 60	WL					48	126	
18	Wi 90	WL					24	66	
19	Wi 120	WL					48	126	
20	Wi 150	WL					48	126	
21	Wi 180	WL					24	63	
22	Wi 210	WL					48	126	
23	Wi 240	WL					48	126	
24	Wi 270	WL					24	66	
25	Wi 300	WL					48	126	
26	Wi 330	WL					48	126	
27	Ws 0	WL					24	63	
28	Ws 30	WL					48	126	
29	Ws 60	WL					48	126	
30	Ws 90	WL					24	66	
31	Ws 120	WL					48	126	
32	Ws 150	WL					48	126	
33	Ws 180	WL					24	63	
34	Ws 210	WL					48	126	
35	Ws 240	WL					48	126	
36	Ws 270	WL					24	66	
37	Ws 300	WL					48	126	
38	Ws 330	WL					48	126	
39	Ev -Y	ELY		-0.043			24		3
40	Eh -Z	ELZ			-0.108		24		3
41	Eh -X	ELX	-0.108				24		3
42	Lm (1)	LL				1			
43	Lm (2)	LL				1			
44	Lm (3)	LL				1			
45	Lm (4)	LL				1			
46	Lm (5)	LL				1			
47	Lm (6)	LL				1			
48	Lm (7)	LL				1			
49	Lm (8)	LL				1			
50	Lm (9)	LL				1			
51	Lm (10)	LL				1			
52	Lm (11)	LL				1			
53	Lm (12)	LL				1			
54	BLC 1 Transient Area Loads	None						66	
55	BLC 2 Transient Area Loads	None						66	



Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
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 Checked By : -

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
56	BLC 39 Transient Area Loads	None						66	
57	BLC 40 Transient Area Loads	None						66	
58	BLC 41 Transient Area Loads	None						66	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y	DL	1.4						
2	1.2D + 1.0W [0°]	Yes	Y	DL	1.2	3	1				
3	1.2D + 1.0W [30°]	Yes	Y	DL	1.2	4	1				
4	1.2D + 1.0W [60°]	Yes	Y	DL	1.2	5	1				
5	1.2D + 1.0W [90°]	Yes	Y	DL	1.2	6	1				
6	1.2D + 1.0W [120°]	Yes	Y	DL	1.2	7	1				
7	1.2D + 1.0W [150°]	Yes	Y	DL	1.2	8	1				
8	1.2D + 1.0W [180°]	Yes	Y	DL	1.2	9	1				
9	1.2D + 1.0W [210°]	Yes	Y	DL	1.2	10	1				
10	1.2D + 1.0W [240°]	Yes	Y	DL	1.2	11	1				
11	1.2D + 1.0W [270°]	Yes	Y	DL	1.2	12	1				
12	1.2D + 1.0W [300°]	Yes	Y	DL	1.2	13	1				
13	1.2D + 1.0W [330°]	Yes	Y	DL	1.2	14	1				
14	0.9D + 1.0W [0°]	Yes	Y	DL	0.9	3	1				
15	0.9D + 1.0W [30°]	Yes	Y	DL	0.9	4	1				
16	0.9D + 1.0W [60°]	Yes	Y	DL	0.9	5	1				
17	0.9D + 1.0W [90°]	Yes	Y	DL	0.9	6	1				
18	0.9D + 1.0W [120°]	Yes	Y	DL	0.9	7	1				
19	0.9D + 1.0W [150°]	Yes	Y	DL	0.9	8	1				
20	0.9D + 1.0W [180°]	Yes	Y	DL	0.9	9	1				
21	0.9D + 1.0W [210°]	Yes	Y	DL	0.9	10	1				
22	0.9D + 1.0W [240°]	Yes	Y	DL	0.9	11	1				
23	0.9D + 1.0W [270°]	Yes	Y	DL	0.9	12	1				
24	0.9D + 1.0W [300°]	Yes	Y	DL	0.9	13	1				
25	0.9D + 1.0W [330°]	Yes	Y	DL	0.9	14	1				
26	1.2D + 1.0Di + 1.0Wi [0°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	15	1		
27	1.2D + 1.0Di + 1.0Wi [30°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	16	1		
28	1.2D + 1.0Di + 1.0Wi [60°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	17	1		
29	1.2D + 1.0Di + 1.0Wi [90°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	18	1		
30	1.2D + 1.0Di + 1.0Wi [120°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	19	1		
31	1.2D + 1.0Di + 1.0Wi [150°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	20	1		
32	1.2D + 1.0Di + 1.0Wi [180°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	21	1		
33	1.2D + 1.0Di + 1.0Wi [210°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	22	1		
34	1.2D + 1.0Di + 1.0Wi [240°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	23	1		
35	1.2D + 1.0Di + 1.0Wi [270°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	24	1		
36	1.2D + 1.0Di + 1.0Wi [300°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	25	1		
37	1.2D + 1.0Di + 1.0Wi [330°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	26	1		
38	1.2D + 1.0Ev + 1.0Eh [0°]	Yes	Y	DL	1.2	ELY	1	ELZ	1	ELX	0.001
39	1.2D + 1.0Ev + 1.0Eh [30°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.866	ELX	0.5
40	1.2D + 1.0Ev + 1.0Eh [60°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.5	ELX	0.866
41	1.2D + 1.0Ev + 1.0Eh [90°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.001	ELX	1
42	1.2D + 1.0Ev + 1.0Eh [120°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.5	ELX	0.866
43	1.2D + 1.0Ev + 1.0Eh [150°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.866	ELX	0.5
44	1.2D + 1.0Ev + 1.0Eh [180°]	Yes	Y	DL	1.2	ELY	1	ELZ	-1	ELX	0.001
45	1.2D + 1.0Ev + 1.0Eh [210°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.866	ELX	-0.5
46	1.2D + 1.0Ev + 1.0Eh [240°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.5	ELX	-0.866
47	1.2D + 1.0Ev + 1.0Eh [270°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.001	ELX	-1
48	1.2D + 1.0Ev + 1.0Eh [300°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.5	ELX	-0.866
49	1.2D + 1.0Ev + 1.0Eh [330°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.866	ELX	-0.5



Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
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Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
50	0.9D + 1.0Ev + 1.0Eh [0°]	Yes	Y	DL	0.9	ELY	1	ELZ	1	ELX	0.001
51	0.9D + 1.0Ev + 1.0Eh [30°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.866	ELX	0.5
52	0.9D + 1.0Ev + 1.0Eh [60°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.5	ELX	0.866
53	0.9D + 1.0Ev + 1.0Eh [90°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.001	ELX	1
54	0.9D + 1.0Ev + 1.0Eh [120°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.5	ELX	0.866
55	0.9D + 1.0Ev + 1.0Eh [150°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.866	ELX	0.5
56	0.9D + 1.0Ev + 1.0Eh [180°]	Yes	Y	DL	0.9	ELY	1	ELZ	-1	ELX	0.001
57	0.9D + 1.0Ev + 1.0Eh [210°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.866	ELX	-0.5
58	0.9D + 1.0Ev + 1.0Eh [240°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.5	ELX	-0.866
59	0.9D + 1.0Ev + 1.0Eh [270°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.001	ELX	-1
60	0.9D + 1.0Ev + 1.0Eh [300°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.5	ELX	-0.866
61	0.9D + 1.0Ev + 1.0Eh [330°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.866	ELX	-0.5
62	1.2D + 1.5Lm(1) + 1.0Wm [0°]	Yes	Y	DL	1.2	42	1.5	27	1		
63	1.2D + 1.5Lm(1) + 1.0Wm [30°]	Yes	Y	DL	1.2	42	1.5	28	1		
64	1.2D + 1.5Lm(1) + 1.0Wm [60°]	Yes	Y	DL	1.2	42	1.5	29	1		
65	1.2D + 1.5Lm(1) + 1.0Wm [90°]	Yes	Y	DL	1.2	42	1.5	30	1		
66	1.2D + 1.5Lm(1) + 1.0Wm [120°]	Yes	Y	DL	1.2	42	1.5	31	1		
67	1.2D + 1.5Lm(1) + 1.0Wm [150°]	Yes	Y	DL	1.2	42	1.5	32	1		
68	1.2D + 1.5Lm(1) + 1.0Wm [180°]	Yes	Y	DL	1.2	42	1.5	33	1		
69	1.2D + 1.5Lm(1) + 1.0Wm [210°]	Yes	Y	DL	1.2	42	1.5	34	1		
70	1.2D + 1.5Lm(1) + 1.0Wm [240°]	Yes	Y	DL	1.2	42	1.5	35	1		
71	1.2D + 1.5Lm(1) + 1.0Wm [270°]	Yes	Y	DL	1.2	42	1.5	36	1		
72	1.2D + 1.5Lm(1) + 1.0Wm [300°]	Yes	Y	DL	1.2	42	1.5	37	1		
73	1.2D + 1.5Lm(1) + 1.0Wm [330°]	Yes	Y	DL	1.2	42	1.5	38	1		
74	1.2D + 1.5Lm(2) + 1.0Wm [0°]	Yes	Y	DL	1.2	43	1.5	27	1		
75	1.2D + 1.5Lm(2) + 1.0Wm [30°]	Yes	Y	DL	1.2	43	1.5	28	1		
76	1.2D + 1.5Lm(2) + 1.0Wm [60°]	Yes	Y	DL	1.2	43	1.5	29	1		
77	1.2D + 1.5Lm(2) + 1.0Wm [90°]	Yes	Y	DL	1.2	43	1.5	30	1		
78	1.2D + 1.5Lm(2) + 1.0Wm [120°]	Yes	Y	DL	1.2	43	1.5	31	1		
79	1.2D + 1.5Lm(2) + 1.0Wm [150°]	Yes	Y	DL	1.2	43	1.5	32	1		
80	1.2D + 1.5Lm(2) + 1.0Wm [180°]	Yes	Y	DL	1.2	43	1.5	33	1		
81	1.2D + 1.5Lm(2) + 1.0Wm [210°]	Yes	Y	DL	1.2	43	1.5	34	1		
82	1.2D + 1.5Lm(2) + 1.0Wm [240°]	Yes	Y	DL	1.2	43	1.5	35	1		
83	1.2D + 1.5Lm(2) + 1.0Wm [270°]	Yes	Y	DL	1.2	43	1.5	36	1		
84	1.2D + 1.5Lm(2) + 1.0Wm [300°]	Yes	Y	DL	1.2	43	1.5	37	1		
85	1.2D + 1.5Lm(2) + 1.0Wm [330°]	Yes	Y	DL	1.2	43	1.5	38	1		
86	1.2D + 1.5Lm(3) + 1.0Wm [0°]	Yes	Y	DL	1.2	44	1.5	27	1		
87	1.2D + 1.5Lm(3) + 1.0Wm [30°]	Yes	Y	DL	1.2	44	1.5	28	1		
88	1.2D + 1.5Lm(3) + 1.0Wm [60°]	Yes	Y	DL	1.2	44	1.5	29	1		
89	1.2D + 1.5Lm(3) + 1.0Wm [90°]	Yes	Y	DL	1.2	44	1.5	30	1		
90	1.2D + 1.5Lm(3) + 1.0Wm [120°]	Yes	Y	DL	1.2	44	1.5	31	1		
91	1.2D + 1.5Lm(3) + 1.0Wm [150°]	Yes	Y	DL	1.2	44	1.5	32	1		
92	1.2D + 1.5Lm(3) + 1.0Wm [180°]	Yes	Y	DL	1.2	44	1.5	33	1		
93	1.2D + 1.5Lm(3) + 1.0Wm [210°]	Yes	Y	DL	1.2	44	1.5	34	1		
94	1.2D + 1.5Lm(3) + 1.0Wm [240°]	Yes	Y	DL	1.2	44	1.5	35	1		
95	1.2D + 1.5Lm(3) + 1.0Wm [270°]	Yes	Y	DL	1.2	44	1.5	36	1		
96	1.2D + 1.5Lm(3) + 1.0Wm [300°]	Yes	Y	DL	1.2	44	1.5	37	1		
97	1.2D + 1.5Lm(3) + 1.0Wm [330°]	Yes	Y	DL	1.2	44	1.5	38	1		
98	1.2D + 1.5Lm(4) + 1.0Wm [0°]	Yes	Y	DL	1.2	45	1.5	27	1		
99	1.2D + 1.5Lm(4) + 1.0Wm [30°]	Yes	Y	DL	1.2	45	1.5	28	1		
100	1.2D + 1.5Lm(4) + 1.0Wm [60°]	Yes	Y	DL	1.2	45	1.5	29	1		
101	1.2D + 1.5Lm(4) + 1.0Wm [90°]	Yes	Y	DL	1.2	45	1.5	30	1		
102	1.2D + 1.5Lm(4) + 1.0Wm [120°]	Yes	Y	DL	1.2	45	1.5	31	1		
103	1.2D + 1.5Lm(4) + 1.0Wm [150°]	Yes	Y	DL	1.2	45	1.5	32	1		
104	1.2D + 1.5Lm(4) + 1.0Wm [180°]	Yes	Y	DL	1.2	45	1.5	33	1		



Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
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Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
105	1.2D + 1.5Lm(4) + 1.0Wm [210°]	Yes	Y	DL	1.2	45	1.5	34	1		
106	1.2D + 1.5Lm(4) + 1.0Wm [240°]	Yes	Y	DL	1.2	45	1.5	35	1		
107	1.2D + 1.5Lm(4) + 1.0Wm [270°]	Yes	Y	DL	1.2	45	1.5	36	1		
108	1.2D + 1.5Lm(4) + 1.0Wm [300°]	Yes	Y	DL	1.2	45	1.5	37	1		
109	1.2D + 1.5Lm(4) + 1.0Wm [330°]	Yes	Y	DL	1.2	45	1.5	38	1		
110	1.2D + 1.5Lm(5) + 1.0Wm [0°]	Yes	Y	DL	1.2	46	1.5	27	1		
111	1.2D + 1.5Lm(5) + 1.0Wm [30°]	Yes	Y	DL	1.2	46	1.5	28	1		
112	1.2D + 1.5Lm(5) + 1.0Wm [60°]	Yes	Y	DL	1.2	46	1.5	29	1		
113	1.2D + 1.5Lm(5) + 1.0Wm [90°]	Yes	Y	DL	1.2	46	1.5	30	1		
114	1.2D + 1.5Lm(5) + 1.0Wm [120°]	Yes	Y	DL	1.2	46	1.5	31	1		
115	1.2D + 1.5Lm(5) + 1.0Wm [150°]	Yes	Y	DL	1.2	46	1.5	32	1		
116	1.2D + 1.5Lm(5) + 1.0Wm [180°]	Yes	Y	DL	1.2	46	1.5	33	1		
117	1.2D + 1.5Lm(5) + 1.0Wm [210°]	Yes	Y	DL	1.2	46	1.5	34	1		
118	1.2D + 1.5Lm(5) + 1.0Wm [240°]	Yes	Y	DL	1.2	46	1.5	35	1		
119	1.2D + 1.5Lm(5) + 1.0Wm [270°]	Yes	Y	DL	1.2	46	1.5	36	1		
120	1.2D + 1.5Lm(5) + 1.0Wm [300°]	Yes	Y	DL	1.2	46	1.5	37	1		
121	1.2D + 1.5Lm(5) + 1.0Wm [330°]	Yes	Y	DL	1.2	46	1.5	38	1		
122	1.2D + 1.5Lm(6) + 1.0Wm [0°]	Yes	Y	DL	1.2	47	1.5	27	1		
123	1.2D + 1.5Lm(6) + 1.0Wm [30°]	Yes	Y	DL	1.2	47	1.5	28	1		
124	1.2D + 1.5Lm(6) + 1.0Wm [60°]	Yes	Y	DL	1.2	47	1.5	29	1		
125	1.2D + 1.5Lm(6) + 1.0Wm [90°]	Yes	Y	DL	1.2	47	1.5	30	1		
126	1.2D + 1.5Lm(6) + 1.0Wm [120°]	Yes	Y	DL	1.2	47	1.5	31	1		
127	1.2D + 1.5Lm(6) + 1.0Wm [150°]	Yes	Y	DL	1.2	47	1.5	32	1		
128	1.2D + 1.5Lm(6) + 1.0Wm [180°]	Yes	Y	DL	1.2	47	1.5	33	1		
129	1.2D + 1.5Lm(6) + 1.0Wm [210°]	Yes	Y	DL	1.2	47	1.5	34	1		
130	1.2D + 1.5Lm(6) + 1.0Wm [240°]	Yes	Y	DL	1.2	47	1.5	35	1		
131	1.2D + 1.5Lm(6) + 1.0Wm [270°]	Yes	Y	DL	1.2	47	1.5	36	1		
132	1.2D + 1.5Lm(6) + 1.0Wm [300°]	Yes	Y	DL	1.2	47	1.5	37	1		
133	1.2D + 1.5Lm(6) + 1.0Wm [330°]	Yes	Y	DL	1.2	47	1.5	38	1		
134	1.2D + 1.5Lm(7) + 1.0Wm [0°]	Yes	Y	DL	1.2	48	1.5	27	1		
135	1.2D + 1.5Lm(7) + 1.0Wm [30°]	Yes	Y	DL	1.2	48	1.5	28	1		
136	1.2D + 1.5Lm(7) + 1.0Wm [60°]	Yes	Y	DL	1.2	48	1.5	29	1		
137	1.2D + 1.5Lm(7) + 1.0Wm [90°]	Yes	Y	DL	1.2	48	1.5	30	1		
138	1.2D + 1.5Lm(7) + 1.0Wm [120°]	Yes	Y	DL	1.2	48	1.5	31	1		
139	1.2D + 1.5Lm(7) + 1.0Wm [150°]	Yes	Y	DL	1.2	48	1.5	32	1		
140	1.2D + 1.5Lm(7) + 1.0Wm [180°]	Yes	Y	DL	1.2	48	1.5	33	1		
141	1.2D + 1.5Lm(7) + 1.0Wm [210°]	Yes	Y	DL	1.2	48	1.5	34	1		
142	1.2D + 1.5Lm(7) + 1.0Wm [240°]	Yes	Y	DL	1.2	48	1.5	35	1		
143	1.2D + 1.5Lm(7) + 1.0Wm [270°]	Yes	Y	DL	1.2	48	1.5	36	1		
144	1.2D + 1.5Lm(7) + 1.0Wm [300°]	Yes	Y	DL	1.2	48	1.5	37	1		
145	1.2D + 1.5Lm(7) + 1.0Wm [330°]	Yes	Y	DL	1.2	48	1.5	38	1		
146	1.2D + 1.5Lm(8) + 1.0Wm [0°]	Yes	Y	DL	1.2	49	1.5	27	1		
147	1.2D + 1.5Lm(8) + 1.0Wm [30°]	Yes	Y	DL	1.2	49	1.5	28	1		
148	1.2D + 1.5Lm(8) + 1.0Wm [60°]	Yes	Y	DL	1.2	49	1.5	29	1		
149	1.2D + 1.5Lm(8) + 1.0Wm [90°]	Yes	Y	DL	1.2	49	1.5	30	1		
150	1.2D + 1.5Lm(8) + 1.0Wm [120°]	Yes	Y	DL	1.2	49	1.5	31	1		
151	1.2D + 1.5Lm(8) + 1.0Wm [150°]	Yes	Y	DL	1.2	49	1.5	32	1		
152	1.2D + 1.5Lm(8) + 1.0Wm [180°]	Yes	Y	DL	1.2	49	1.5	33	1		
153	1.2D + 1.5Lm(8) + 1.0Wm [210°]	Yes	Y	DL	1.2	49	1.5	34	1		
154	1.2D + 1.5Lm(8) + 1.0Wm [240°]	Yes	Y	DL	1.2	49	1.5	35	1		
155	1.2D + 1.5Lm(8) + 1.0Wm [270°]	Yes	Y	DL	1.2	49	1.5	36	1		
156	1.2D + 1.5Lm(8) + 1.0Wm [300°]	Yes	Y	DL	1.2	49	1.5	37	1		
157	1.2D + 1.5Lm(8) + 1.0Wm [330°]	Yes	Y	DL	1.2	49	1.5	38	1		
158	1.2D + 1.5Lm(9) + 1.0Wm [0°]	Yes	Y	DL	1.2	50	1.5	27	1		
159	1.2D + 1.5Lm(9) + 1.0Wm [30°]	Yes	Y	DL	1.2	50	1.5	28	1		



Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
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Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
160	1.2D + 1.5Lm(9) + 1.0Wm [60°]	Yes	Y	DL	1.2	50	1.5	29	1		
161	1.2D + 1.5Lm(9) + 1.0Wm [90°]	Yes	Y	DL	1.2	50	1.5	30	1		
162	1.2D + 1.5Lm(9) + 1.0Wm [120°]	Yes	Y	DL	1.2	50	1.5	31	1		
163	1.2D + 1.5Lm(9) + 1.0Wm [150°]	Yes	Y	DL	1.2	50	1.5	32	1		
164	1.2D + 1.5Lm(9) + 1.0Wm [180°]	Yes	Y	DL	1.2	50	1.5	33	1		
165	1.2D + 1.5Lm(9) + 1.0Wm [210°]	Yes	Y	DL	1.2	50	1.5	34	1		
166	1.2D + 1.5Lm(9) + 1.0Wm [240°]	Yes	Y	DL	1.2	50	1.5	35	1		
167	1.2D + 1.5Lm(9) + 1.0Wm [270°]	Yes	Y	DL	1.2	50	1.5	36	1		
168	1.2D + 1.5Lm(9) + 1.0Wm [300°]	Yes	Y	DL	1.2	50	1.5	37	1		
169	1.2D + 1.5Lm(9) + 1.0Wm [330°]	Yes	Y	DL	1.2	50	1.5	38	1		
170	1.2D + 1.5Lm(10) + 1.0Wm [0°]	Yes	Y	DL	1.2	51	1.5	27	1		
171	1.2D + 1.5Lm(10) + 1.0Wm [30°]	Yes	Y	DL	1.2	51	1.5	28	1		
172	1.2D + 1.5Lm(10) + 1.0Wm [60°]	Yes	Y	DL	1.2	51	1.5	29	1		
173	1.2D + 1.5Lm(10) + 1.0Wm [90°]	Yes	Y	DL	1.2	51	1.5	30	1		
174	1.2D + 1.5Lm(10) + 1.0Wm [120°]	Yes	Y	DL	1.2	51	1.5	31	1		
175	1.2D + 1.5Lm(10) + 1.0Wm [150°]	Yes	Y	DL	1.2	51	1.5	32	1		
176	1.2D + 1.5Lm(10) + 1.0Wm [180°]	Yes	Y	DL	1.2	51	1.5	33	1		
177	1.2D + 1.5Lm(10) + 1.0Wm [210°]	Yes	Y	DL	1.2	51	1.5	34	1		
178	1.2D + 1.5Lm(10) + 1.0Wm [240°]	Yes	Y	DL	1.2	51	1.5	35	1		
179	1.2D + 1.5Lm(10) + 1.0Wm [270°]	Yes	Y	DL	1.2	51	1.5	36	1		
180	1.2D + 1.5Lm(10) + 1.0Wm [300°]	Yes	Y	DL	1.2	51	1.5	37	1		
181	1.2D + 1.5Lm(10) + 1.0Wm [330°]	Yes	Y	DL	1.2	51	1.5	38	1		
182	1.2D + 1.5Lm(11) + 1.0Wm [0°]	Yes	Y	DL	1.2	52	1.5	27	1		
183	1.2D + 1.5Lm(11) + 1.0Wm [30°]	Yes	Y	DL	1.2	52	1.5	28	1		
184	1.2D + 1.5Lm(11) + 1.0Wm [60°]	Yes	Y	DL	1.2	52	1.5	29	1		
185	1.2D + 1.5Lm(11) + 1.0Wm [90°]	Yes	Y	DL	1.2	52	1.5	30	1		
186	1.2D + 1.5Lm(11) + 1.0Wm [120°]	Yes	Y	DL	1.2	52	1.5	31	1		
187	1.2D + 1.5Lm(11) + 1.0Wm [150°]	Yes	Y	DL	1.2	52	1.5	32	1		
188	1.2D + 1.5Lm(11) + 1.0Wm [180°]	Yes	Y	DL	1.2	52	1.5	33	1		
189	1.2D + 1.5Lm(11) + 1.0Wm [210°]	Yes	Y	DL	1.2	52	1.5	34	1		
190	1.2D + 1.5Lm(11) + 1.0Wm [240°]	Yes	Y	DL	1.2	52	1.5	35	1		
191	1.2D + 1.5Lm(11) + 1.0Wm [270°]	Yes	Y	DL	1.2	52	1.5	36	1		
192	1.2D + 1.5Lm(11) + 1.0Wm [300°]	Yes	Y	DL	1.2	52	1.5	37	1		
193	1.2D + 1.5Lm(11) + 1.0Wm [330°]	Yes	Y	DL	1.2	52	1.5	38	1		
194	1.2D + 1.5Lm(12) + 1.0Wm [0°]	Yes	Y	DL	1.2	53	1.5	27	1		
195	1.2D + 1.5Lm(12) + 1.0Wm [30°]	Yes	Y	DL	1.2	53	1.5	28	1		
196	1.2D + 1.5Lm(12) + 1.0Wm [60°]	Yes	Y	DL	1.2	53	1.5	29	1		
197	1.2D + 1.5Lm(12) + 1.0Wm [90°]	Yes	Y	DL	1.2	53	1.5	30	1		
198	1.2D + 1.5Lm(12) + 1.0Wm [120°]	Yes	Y	DL	1.2	53	1.5	31	1		
199	1.2D + 1.5Lm(12) + 1.0Wm [150°]	Yes	Y	DL	1.2	53	1.5	32	1		
200	1.2D + 1.5Lm(12) + 1.0Wm [180°]	Yes	Y	DL	1.2	53	1.5	33	1		
201	1.2D + 1.5Lm(12) + 1.0Wm [210°]	Yes	Y	DL	1.2	53	1.5	34	1		
202	1.2D + 1.5Lm(12) + 1.0Wm [240°]	Yes	Y	DL	1.2	53	1.5	35	1		
203	1.2D + 1.5Lm(12) + 1.0Wm [270°]	Yes	Y	DL	1.2	53	1.5	36	1		
204	1.2D + 1.5Lm(12) + 1.0Wm [300°]	Yes	Y	DL	1.2	53	1.5	37	1		
205	1.2D + 1.5Lm(12) + 1.0Wm [330°]	Yes	Y	DL	1.2	53	1.5	38	1		

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	H001	N003	N005		HSS5x3x5	Beam	None	A500 Gr. B [SQR]	Typical
2	H002	N004	N006		HSS5x3x5	Beam	None	A500 Gr. B [SQR]	Typical
3	H003	N009	N010		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
4	H004	N002	N015		HSS5x3x5	Beam	None	A500 Gr. B [SQR]	Typical
5	H005	N011	N013		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
6	H006	N012	N014		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical



Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
 4:50:18 PM
 Checked By : -

Member Primary Data (Continued)

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule	
7	H007	N019	N017		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
8	H008	N021	N023		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
9	H009	N022	N024		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
10	H010	N018	N020		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
11	H011	N025	N027		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
12	H012	N026	N028		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
13	H013	N037	N029	270	L 1.5x1.5x4	Beam	None	A36	Typical
14	H014	N038	N030	270	L 1.5x1.5x4	Beam	None	A36	Typical
15	H015	N039	N040	270	L 1.5x1.5x4	Beam	None	A36	Typical
16	H016	N034	N031		L 1.5x1.5x4	Beam	None	A36	Typical
17	H017	N035	N032		L 1.5x1.5x4	Beam	None	A36	Typical
18	H018	N036	N033		L 1.5x1.5x4	Beam	None	A36	Typical
19	H019	N041	N042		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
20	H020	N043	N045		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
21	H021	N044	N046		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
22	H022	N048	N047		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
23	H023	N049	N051		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
24	H024	N050	N052		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
25	TB025	N067	N064		LL2.5x2.5x3x6	Column	None	A36	Typical
26	TB026	N068	N065		LL2.5x2.5x3x6	Column	None	A36	Typical
27	TB027	N069	N066		LL2.5x2.5x3x6	Column	None	A36	Typical
28	U028	N053	N070		(2) 1/2 U-Bolts	Beam	None	A36	Typical
29	U029	N071	N072		(2) 1/2 U-Bolts	Beam	None	A36	Typical
30	MP030	N073	N074		PIPE 2.0	Column	None	A53 Gr. B	Typical
31	U031	N054	N075		(2) 1/2 U-Bolts	Beam	None	A36	Typical
32	U032	N076	N077		(2) 1/2 U-Bolts	Beam	None	A36	Typical
33	MP033	N078	N079		PIPE 2.0	Column	None	A53 Gr. B	Typical
34	U034	N055	N080		(2) 1/2 U-Bolts	Beam	None	A36	Typical
35	U035	N081	N082		(2) 1/2 U-Bolts	Beam	None	A36	Typical
36	MP036	N083	N084		PIPE 2.0	Column	None	A53 Gr. B	Typical
37	U037	N056	N085		(2) 1/2 U-Bolts	Beam	None	A36	Typical
38	U038	N086	N087		(2) 1/2 U-Bolts	Beam	None	A36	Typical
39	MP039	N088	N089		PIPE 2.0	Column	None	A53 Gr. B	Typical
40	U040	N057	N090		(2) 1/2 U-Bolts	Beam	None	A36	Typical
41	U041	N091	N092		(2) 1/2 U-Bolts	Beam	None	A36	Typical
42	MP042	N093	N094		PIPE 2.0	Column	None	A53 Gr. B	Typical
43	U043	N059	N095		(2) 1/2 U-Bolts	Beam	None	A36	Typical
44	U044	N096	N097		(2) 1/2 U-Bolts	Beam	None	A36	Typical
45	MP045	N098	N099		PIPE 2.0	Column	None	A53 Gr. B	Typical
46	U046	N061	N100		(2) 1/2 U-Bolts	Beam	None	A36	Typical
47	U047	N101	N102		(2) 1/2 U-Bolts	Beam	None	A36	Typical
48	MP048	N103	N104		PIPE 2.0	Column	None	A53 Gr. B	Typical
49	U049	N063	N105		(2) 1/2 U-Bolts	Beam	None	A36	Typical
50	U050	N106	N107		(2) 1/2 U-Bolts	Beam	None	A36	Typical
51	MP051	N108	N109		PIPE 2.0	Column	None	A53 Gr. B	Typical
52	U052	N058	N110		(2) 1/2 U-Bolts	Beam	None	A36	Typical
53	U053	N111	N112		(2) 1/2 U-Bolts	Beam	None	A36	Typical
54	MP054	N113	N114		PIPE 2.0	Column	None	A53 Gr. B	Typical
55	U055	N060	N115		(2) 1/2 U-Bolts	Beam	None	A36	Typical
56	U056	N116	N117		(2) 1/2 U-Bolts	Beam	None	A36	Typical
57	MP057	N118	N119		PIPE 2.0	Column	None	A53 Gr. B	Typical
58	U058	N062	N120		(2) 1/2 U-Bolts	Beam	None	A36	Typical
59	U059	N121	N122		(2) 1/2 U-Bolts	Beam	None	A36	Typical
60	MP060	N123	N124		PIPE 2.0	Column	None	A53 Gr. B	Typical
61	U061	N125	N126		(2) 1/2 U-Bolts	Beam	None	A36	Typical



Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
 4:50:18 PM
 Checked By : -

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
62	U062	N127	N128		(2) 1/2 U-Bolts	Beam	None	A36	Typical
63	MP063	N129	N130		PIPE_2.0	Column	None	A53 Gr. B	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
1	H001	HSS5x3x5	63			Lbyy		1	1	Lateral
2	H002	HSS5x3x5	63			Lbyy		1	1	Lateral
3	H003	PIPE_3.0	150			Lbyy		1	1	Lateral
4	H004	HSS5x3x5	63			Lbyy		1	1	Lateral
5	H005	PIPE_3.0	150			Lbyy		1	1	Lateral
6	H006	PIPE_3.0	150			Lbyy		1	1	Lateral
7	H007	PIPE_3.0	15.588			Lbyy		0.65	0.65	Lateral
8	H008	PIPE_3.0	15.588			Lbyy		0.65	0.65	Lateral
9	H009	PIPE_3.0	15.588			Lbyy		0.65	0.65	Lateral
10	H010	PIPE_3.0	46.765			Lbyy		0.65	0.65	Lateral
11	H011	PIPE_3.0	46.765			Lbyy		0.65	0.65	Lateral
12	H012	PIPE_3.0	46.765			Lbyy		0.65	0.65	Lateral
13	H013	L 1.5x1.5x4	29.79			Lbyy		1	1	Lateral
14	H014	L 1.5x1.5x4	29.79			Lbyy		1	1	Lateral
15	H015	L 1.5x1.5x4	29.79			Lbyy		1	1	Lateral
16	H016	L 1.5x1.5x4	29.79			Lbyy		1	1	Lateral
17	H017	L 1.5x1.5x4	29.79			Lbyy		1	1	Lateral
18	H018	L 1.5x1.5x4	29.79			Lbyy		1	1	Lateral
19	H019	PIPE_2.0	150			Lbyy		1	1	Lateral
20	H020	PIPE_2.0	150			Lbyy		1	1	Lateral
21	H021	PIPE_2.0	150			Lbyy		1	1	Lateral
22	H022	PIPE_2.0	15.588			Lbyy		0.65	0.65	Lateral
23	H023	PIPE_2.0	15.588			Lbyy		0.65	0.65	Lateral
24	H024	PIPE_2.0	15.588			Lbyy		0.65	0.65	Lateral
25	TB025	LL2.5x2.5x3x6	97.719			Lbyy		1	1	Lateral
26	TB026	LL2.5x2.5x3x6	97.719			Lbyy		1	1	Lateral
27	TB027	LL2.5x2.5x3x6	97.719			Lbyy		1	1	Lateral
28	U028	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
29	U029	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
30	MP030	PIPE_2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
31	U031	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
32	U032	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
33	MP033	PIPE_2.0	120	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
34	U034	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
35	U035	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
36	MP036	PIPE_2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
37	U037	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
38	U038	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
39	MP039	PIPE_2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
40	U040	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
41	U041	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
42	MP042	PIPE_2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
43	U043	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
44	U044	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
45	MP045	PIPE_2.0	120	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
46	U046	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
47	U047	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
48	MP048	PIPE_2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
49	U049	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
50	U050	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral



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 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
 4:50:18 PM
 Checked By : -

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
51	MP051	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
52	U052	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
53	U053	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
54	MP054	PIPE 2.0	120	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
55	U055	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
56	U056	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
57	MP057	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
58	U058	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
59	U059	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
60	MP060	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
61	U061	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
62	U062	(2) 1/2 U-Bolts	3			Lbyy		0.5	0.5	Lateral
63	MP063	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral

Node Boundary Conditions

	Node Label	X [lb/in]	Y [lb/in]	Z [lb/in]	X Rot [k-in/rad]	Y Rot [k-in/rad]	Z Rot [k-in/rad]
1	N001	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N002	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N003	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N004	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N067	Reaction	Reaction	Reaction			
6	N068	Reaction	Reaction	Reaction			
7	N069	Reaction	Reaction	Reaction			

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1	H001			Yes	N/A		None
2	H002			Yes	N/A		None
3	H003			Yes	N/A		None
4	H004			Yes	N/A		None
5	H005			Yes	N/A		None
6	H006			Yes	N/A		None
7	H007			Yes	N/A		None
8	H008			Yes	N/A		None
9	H009			Yes	N/A		None
10	H010			Yes	N/A		None
11	H011			Yes	N/A		None
12	H012			Yes	N/A		None
13	H013	BenPIN	BenPIN	Yes	N/A		None
14	H014	BenPIN	BenPIN	Yes	N/A		None
15	H015	BenPIN	BenPIN	Yes	N/A		None
16	H016	BenPIN	BenPIN	Yes	N/A		None
17	H017	BenPIN	BenPIN	Yes	N/A		None
18	H018	BenPIN	BenPIN	Yes	N/A		None
19	H019			Yes	N/A		None
20	H020			Yes	N/A		None
21	H021			Yes	N/A		None
22	H022			Yes	N/A		None
23	H023			Yes	N/A		None
24	H024			Yes	N/A		None
25	TB025		BenPIN	Yes	** NA **		None
26	TB026		BenPIN	Yes	** NA **		None
27	TB027		BenPIN	Yes	** NA **		None



Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
28	U028			Yes	N/A	Exclude	None
29	U029			Yes	N/A	Exclude	None
30	MP030			Yes	** NA **		None
31	U031			Yes	N/A	Exclude	None
32	U032			Yes	N/A	Exclude	None
33	MP033			Yes	** NA **		None
34	U034			Yes	N/A	Exclude	None
35	U035			Yes	N/A	Exclude	None
36	MP036			Yes	** NA **		None
37	U037			Yes	N/A	Exclude	None
38	U038			Yes	N/A	Exclude	None
39	MP039			Yes	** NA **		None
40	U040			Yes	N/A	Exclude	None
41	U041			Yes	N/A	Exclude	None
42	MP042			Yes	** NA **		None
43	U043			Yes	N/A	Exclude	None
44	U044			Yes	N/A	Exclude	None
45	MP045			Yes	** NA **		None
46	U046			Yes	N/A	Exclude	None
47	U047			Yes	N/A	Exclude	None
48	MP048			Yes	** NA **		None
49	U049			Yes	N/A	Exclude	None
50	U050			Yes	N/A	Exclude	None
51	MP051			Yes	** NA **		None
52	U052			Yes	N/A	Exclude	None
53	U053			Yes	N/A	Exclude	None
54	MP054			Yes	** NA **		None
55	U055			Yes	N/A	Exclude	None
56	U056			Yes	N/A	Exclude	None
57	MP057			Yes	** NA **		None
58	U058			Yes	N/A	Exclude	None
59	U059			Yes	N/A	Exclude	None
60	MP060			Yes	** NA **		None
61	U061			Yes	N/A	Exclude	None
62	U062			Yes	N/A	Exclude	None
63	MP063			Yes	** NA **		None

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm. Coeff. [1e ⁵ F ⁻¹]	Density [lb/ft ³]	Yield [psi]	Ry	Fu [psi]	Rt
1	A500 Gr. B [SQR]	2.9e+07	1.115e+07	0.3	0.65	490	46000	1.4	58000	1.3
2	A500 Gr. B [RND]	2.9e+07	1.115e+07	0.3	0.65	490	42000	1.4	58000	1.3
3	A36	2.9e+07	1.115e+07	0.3	0.65	490	36000	1.5	58000	1.2
4	A53 Gr. B	2.9e+07	1.115e+07	0.3	0.65	490	35000	1.6	60000	1.2

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N001	max	0	205	0	205	0	205	0	205	0	205	0	205
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N002	max	1788.36	5	1095.165	20	3823.344	2	564.027	8	2981.182	23	2151.581	11
4		min	-1788.875	23	-1439.625	2	-3231.048	20	-547.376	14	-2974.402	17	-2044.947	17
5	N003	max	3387.674	6	1095.059	24	1827.608	14	1861.008	3	2981.134	15	1121.477	20
6		min	-2873.426	24	-1439.513	6	-2124.568	8	-1777.094	21	-2974.355	21	-1190.337	2
7	N004	max	2743	16	1095.062	16	1776.98	14	1764.792	25	2981.129	19	1126.419	14



Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14529804_C8_01
 Model Name : 284988, GUILFORD CT

9/13/2023
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 Checked By : -

Envelope Node Reactions (Continued)

Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
8		min	-3254.56	10	-1439.517	10	-2073.322	8	-1865.57	7	-2974.349	25	-1165.026	8
9	N067	max	70.069	17	3888.088	2	511.482	20	0	205	0	205	0	205
10		min	-70.042	23	-1771.463	20	-1177.562	2	0	1	0	1	0	1
11	N068	max	433.865	24	3887.946	6	567.762	5	0	205	0	205	0	205
12		min	-1010.888	6	-1771.327	24	-234.209	23	0	1	0	1	0	1
13	N069	max	1010.612	10	3887.954	10	563.943	11	0	205	0	205	0	205
14		min	-433.991	16	-1771.334	16	-230.563	17	0	1	0	1	0	1
15	Totals:	max	6041.109	5	6202.957	26	6211.812	14						
16		min	-6041.109	23	2276.262	20	-6211.812	8						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shear	Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	H001	HSS5x3x5	0.194	0	3	0.198	0	z	3	139602.037	169740	15456	22149	1.632	H1-1b
2	H002	HSS5x3x5	0.194	0	7	0.198	0	z	7	139602.037	169740	15456	22149	1.632	H1-1b
3	H003	PIPE 3.0	0.193	112.5	5	0.227	37.5	z	2	28615.556	78246	6898.5	6898.5	1.651	H1-1b
4	H004	HSS5x3x5	0.194	0	11	0.198	0	z	11	139602.037	169740	15456	22149	1.632	H1-1b
5	H005	PIPE 3.0	0.193	112.5	9	0.227	37.5	z	6	28615.556	78246	6898.5	6898.5	1.651	H1-1b
6	H006	PIPE 3.0	0.193	112.5	13	0.227	37.5	z	10	28615.556	78246	6898.5	6898.5	1.651	H1-1b
7	H007	PIPE 3.0	0.224	7.794	13	0.135	7.794	z	12	77888.459	78246	6898.5	6898.5	1.2	H1-1b
8	H008	PIPE 3.0	0.224	7.794	5	0.135	7.794	z	4	77888.459	78246	6898.5	6898.5	1.2	H1-1b
9	H009	PIPE 3.0	0.224	7.794	9	0.135	7.794	z	8	77888.459	78246	6898.5	6898.5	1.2	H1-1b
10	H010	PIPE 3.0	0.278	23.383	13	0.168	23.383	z	11	75086.325	78246	6898.5	6898.5	1.246	H1-1b
11	H011	PIPE 3.0	0.278	23.383	5	0.168	23.383	z	3	75086.325	78246	6898.5	6898.5	1.246	H1-1b
12	H012	PIPE 3.0	0.278	23.383	9	0.168	23.383	z	7	75086.325	78246	6898.5	6898.5	1.246	H1-1b
13	H013	L 1.5x1.5x4	0.07	15.206	17	0.009	29.79	z	3	8987.293	22469.4	217.337	862.527	1.137	H2-1
14	H014	L 1.5x1.5x4	0.07	15.206	21	0.009	29.79	z	7	8987.293	22469.4	217.337	862.527	1.137	H2-1
15	H015	L 1.5x1.5x4	0.07	15.206	25	0.009	29.79	z	11	8987.293	22469.4	217.337	862.526	1.137	H2-1
16	H016	L 1.5x1.5x4	0.071	15.206	23	0.01	29.79	y	13	8987.293	22469.4	217.337	862.526	1.137	H2-1
17	H017	L 1.5x1.5x4	0.071	15.206	15	0.01	29.79	y	5	8987.293	22469.4	217.337	862.526	1.137	H2-1
18	H018	L 1.5x1.5x4	0.071	15.206	19	0.01	29.79	y	9	8987.293	22469.4	217.337	862.527	1.137	H2-1
19	H019	PIPE 2.0	0.458	53.125	8	0.404	6.25	z	8	6295.422	38556	2245.95	2245.95	2.507	H3-6
20	H020	PIPE 2.0	0.458	53.125	12	0.404	6.25	z	12	6295.422	38556	2245.95	2245.95	2.507	H3-6
21	H021	PIPE 2.0	0.458	53.125	4	0.404	6.25	z	4	6295.422	38556	2245.95	2245.95	2.507	H3-6
22	H022	PIPE 2.0	0.36	0	12	0.365	15.588	z	5	38162.512	38556	2245.95	2245.95	1.75	H3-6
23	H023	PIPE 2.0	0.36	0	4	0.365	15.588	z	9	38162.512	38556	2245.95	2245.95	1.75	H3-6
24	H024	PIPE 2.0	0.36	0	8	0.365	15.588	z	13	38162.512	38556	2245.95	2245.95	1.75	H3-6
25	TB025	LL2.5x2.5x3x6	0.162	0	2	0.004	97.719	y	2	25035.096	58320	4643.061	2505.828	1	H1-1b*
26	TB026	LL2.5x2.5x3x6	0.17	48.859	6	0.005	97.719	y	6	25035.096	58320	4643.061	2505.828	1.136	H1-1b
27	TB027	LL2.5x2.5x3x6	0.17	48.859	10	0.005	97.719	y	10	25035.096	58320	4643.061	2505.828	1.136	H1-1b
28	MP030	PIPE 2.0	0.508	79	13	0.217	79	z	8	16811.605	32130	1871.625	1871.625	1.765	H1-1b
29	MP033	PIPE 2.0	0.81	48.75	8	0.125	91.25	z	9	13066.951	32130	1871.625	1871.625	1.706	H1-1b
30	MP036	PIPE 2.0	0.663	79	2	0.155	79	z	7	16811.605	32130	1871.625	1871.625	2.297	H1-1b
31	MP039	PIPE 2.0	0.496	79	2	0.154	79	z	8	16811.605	32130	1871.625	1871.625	1.793	H1-1b
32	MP042	PIPE 2.0	0.508	79	9	0.217	79	z	4	16811.605	32130	1871.625	1871.625	2.221	H1-1b
33	MP045	PIPE 2.0	0.81	48.75	4	0.125	91.25	z	5	13066.951	32130	1871.625	1871.625	2.022	H1-1b
34	MP048	PIPE 2.0	0.663	79	10	0.155	79	z	3	16811.605	32130	1871.625	1871.625	1.988	H1-1b
35	MP051	PIPE 2.0	0.496	79	10	0.154	79	z	4	16811.605	32130	1871.625	1871.625	2.47	H1-1b
36	MP054	PIPE 2.0	0.81	48.75	12	0.125	91.25	z	13	13066.951	32130	1871.625	1871.625	1.525	H1-1b
37	MP057	PIPE 2.0	0.663	79	6	0.155	79	z	11	16811.605	32130	1871.625	1871.625	1.761	H1-1b
38	MP060	PIPE 2.0	0.496	79	6	0.154	79	z	12	16811.605	32130	1871.625	1871.625	2.201	H1-1b
39	MP063	PIPE 2.0	0.508	79	5	0.217	79	z	12	16811.605	32130	1871.625	1871.625	2.237	H1-1b



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 109 ft Monopole
ATC Asset Name : GUILFORD CT
ATC Asset Number : 284988
Engineering Number : 14529804_C3_03
Proposed Carrier : T-MOBILE
Carrier Site Name : Amtrak_Guilford
Carrier Site Number : CTNH805A
Site Location : Moose Hill Road
Guilford, CT 06437
41.2675° N, 72.716° W
County : New Haven
Date : September 15, 2023
Max Usage : 64%
Analysis Result : Pass

Created By:

Brittany Hucks
Structural Engineer I

Brittany Hucks



Esha Modi Digitally signed by Esha
Modi
Date: 2023.09.15 16:10:16
-04'00'

COA: PEC.0001553



Table of Contents

Introduction3

Supporting Documents.....3

Analysis3

Conclusion3

Structure Usages4

Maximum Reactions4

Tower Loading5

Standard Conditions Attached

Calculations..... Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 109 ft Monopole tower to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower:	Nello Drawing #147997, dated December 22, 2014
Foundation:	Nello Drawing #147998, dated October 17, 2014
Geotechnical:	AEG Site #CT0007, dated June 25, 2014

Analysis

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

Basic Wind Speed:	122 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code(s):	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	$S_s = 0.20$, $S_1 = 0.05$
Site Class:	D - Stiff Soil - Default

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 reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact Engineering@americantower.com. Please include the American Tower asset name, asset number, and engineering number in the subject line for any questions.

Structure Usages

Structural Component	Usage	Control	Result
Pole Shaft	36.8%	1.2D + 1.0W	Pass
Serviceability Usage	10.5%	1.0D + 1.0W	Pass
Base Plate @ 0.0 ft	64.1%	Stiffener	Pass
Mat & Pier	28.4%	Moment [Soil]	Pass

Maximum Reactions

Foundation	Moment (k-ft)	Axial (k)	Shear (k)
Monopole Base	1,340.2	29.0	18.3

**Reactions shown reflect the results from the Load Case with maximum Moment*

Structure base reactions were analyzed using available geotechnical and foundation information.

T-MOBILE Final Loading

Elev (ft)	Qty	Equipment	Lines
108.0	1	Platform with Handrails	(5) 1.99" (50.7mm) Hybrid
	3	Commscope VV-65A-R1B	
	3	Ericsson AIR 6419 B41	
	3	Ericsson Radio 4449 B71 B85A	
	3	Ericsson Radio 4460 B25+B66	
	3	RFS APXVAARR24_43-U-NA20	

Install proposed lines inside the pole shaft.

Other Existing/Reserved Loading

Elev (ft)	Qty	Equipment	Lines	Carrier
97.0	1	Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	1	Commscope RDIDC-9181-PF-48		
	3	Fujitsu TA08025-B604		
	3	Fujitsu TA08025-B605		
	3	JMA Wireless MX08FRO665-21		

(If table breaks across pages, please see previous page for data in merged cells)



Standard Conditions

All engineering services performed by A.T. Engineering Services LLC 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 Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC 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 Services LLC, 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 Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

ANALYSIS PARAMETERS

Nominal Wind: 122 mph	Ice Wind: 50 mph w/ 1" ice	Service Wind: 60 mph
Risk Category: II	Exposure: C	S _z : 0.202 S _d : 0.053
Topo Category: 1	Topo Factor: Method 1	Topo Feature:
Structure Height: 109 ft	Base Elevation: 0.00 ft	Structure Type: Taper
Base Diameter: 55.46 in	Base Rotation: 0°	Taper: 0.2450 (in/ft)

POLE SECTION PROPERTIES

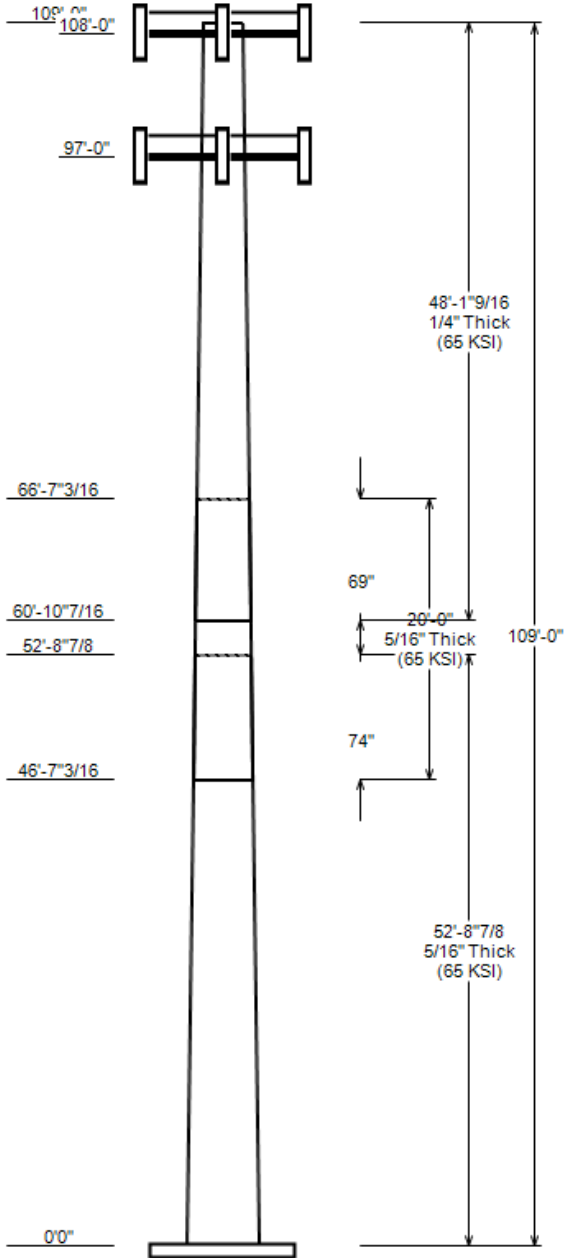
Section	Length (ft)	Flat Diameter (in)		Thick (in)	Joint Type	Joint Length (in)	Pole Shape	Yield Strength (ksi)
		Top	Bottom					
1	52.740	42.54	55.46	0.312		0.000	18 Sides	65
2	20.000	39.76	44.66	0.312	Slip Joint	73.690	18 Sides	65
3	48.130	29.88	41.67	0.250	Slip Joint	68.750	18 Sides	65

DISCRETE APPURTENANCE

Elev (ft)	Description
108.0	(3) Ericsson Radio 4449 B71 B85A
108.0	(3) Ericsson Radio 4460 B25+B66
108.0	(3) Ericsson AIR 6419 B41
108.0	(3) Commscope VV-65A-R1B
108.0	(3) RFS APXVAARR24_43-U-NA20
108.0	(1) Generic Round Platform with Ha
97.0	(1) Commscope RDIDC-9181-PF-48
97.0	(3) Fujitsu TA08025-B605
97.0	(3) Fujitsu TA08025-B604
97.0	(3) JMA Wireless MX08FRO665-21
97.0	(1) Generic Round Platform with Ha

LINEAR APPURTENANCE

Elev To (ft)	Description
108.0	(5) 1.99" (50.7mm) Hybrid
97.0	(1) 1.60" (40.6mm) Hybrid



GLOBAL BASE REACTIONS

Load Case	Moment (kip-ft)	Axial (kip)	Shear (kip)
1.2D + 1.0W	1340.22	29.04	18.32
0.9D + 1.0W	1334.66	21.77	18.32
1.2D + 1.0Di + 1.0Wi	347.43	38.39	4.89
1.2D + 1.0Ev + 1.0Eh	93.84	28.88	1.07
0.9D - 1.0Ev + 1.0Eh	93.35	19.91	1.07
1.0D + 1.0W	289.23	24.21	3.96

ANALYSIS PARAMETERS

Location:	New Haven County,CT	Height:	109 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	55.46 in
Manufacturer:	Undetermined	Top Diameter:	29.88 in
K_d (non-service):	0.95	Taper:	0.2450 in/ft
K_e:	1.00	Rotation:	0.000°

ICE & WIND PARAMETERS

Risk Category:	II	Design Wind Speed:	122 mph
Exposure Category:	C	Design Wind Speed w/ Ice:	50 mph
Topo Factor Procedure:	Method 1	Design Ice Thickness:	1.00 in
Topographic Category:	1	Service Wind Speed:	60 mph
Crest Height:	0 ft	HMSL:	97.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	1.27
T_L (sec):	6	P:	1
S_s:	0.202	S_t:	0.053
F_a:	1.600	F_v:	2.400
S_{ds}:	0.215	S_{d1}:	0.085
		C_s:	0.044
		C_s Max:	0.044
		C_s Min:	0.030

LOAD CASES

1.2D + 1.0W	122 mph Wind with No Ice
0.9D + 1.0W	122 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph Wind with 1" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Section	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	52.74	0.3125	65		0.00	8,665	55.46	0.000	54.69	21,012.5	29.53	177.46	42.54	52.74	41.88	9,432.3	22.24	136.11	0.2450
2-18	20.00	0.3125	65	Slip	73.69	2,828	44.66	46.600	43.99	10,932.6	23.44	142.92	39.76	66.60	39.13	7,694.7	20.67	127.24	0.2450
3-18	48.13	0.2500	65	Slip	68.75	4,616	41.67	60.870	32.86	7,122.7	27.63	166.67	29.88	109.00	23.51	2,606.8	19.31	119.50	0.2450
Total Shaft Weight						16,109													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
108.00	Ericsson Radio 4449 B71 B85A	3	0.75	0.000	75.00	1.650	0.50	113.82	2.198	0.50
108.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.243	0.63	381.33	22.637	0.63
108.00	Commscope VV-65A-R1B	3	0.75	0.000	24.70	5.887	0.63	100.16	7.253	0.63
108.00	Ericsson AIR 6419 B41	3	0.75	0.000	68.50	5.600	0.60	146.50	6.622	0.60
108.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.67	166.06	3.244	0.67
108.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3545.60	42.980	1.00
97.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3534.81	42.817	1.00
97.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	228.71	14.284	0.64
97.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	115.02	2.550	0.50
97.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.16	2.550	0.50
97.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	58.26	2.442	1.00
Totals		Row Count: 11	27		6,847.40			11,196.95		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg): 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Diameter (in)	Weight (lb/ft)	Flat	Max/Row	Distance Between Rows (in)	Distance Between Cols (in)	Azimuth (deg)	Distance From Face (in)	Exposed To Wind	Carrier
0.00	108.00	5	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE
0.00	97.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS L.L.C.

SEGMENT PROPERTIES

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		0.3125	55.456	54.693	21,012.50	29.53	177.46	66.7	746.3	0.0	0.0
5.00		0.3125	54.231	53.478	19,643.00	28.84	173.54	67.5	713.4	0.0	920.2
10.00		0.3125	53.006	52.263	18,334.40	28.15	169.62	68.3	681.3	0.0	899.5
15.00		0.3125	51.781	51.048	17,085.20	27.45	165.70	69.1	649.9	0.0	878.9
20.00		0.3125	50.556	49.833	15,894.00	26.76	161.78	69.9	619.2	0.0	858.2
25.00		0.3125	49.331	48.618	14,759.60	26.07	157.86	70.7	589.3	0.0	837.5
30.00		0.3125	48.106	47.403	13,680.50	25.38	153.94	71.5	560.1	0.0	816.9
35.00		0.3125	46.881	46.188	12,655.30	24.69	150.02	72.4	531.7	0.0	796.2
40.00		0.3125	45.656	44.974	11,682.60	24.00	146.10	73.2	504.0	0.0	775.5
45.00		0.3125	44.431	43.759	10,761.10	23.31	142.18	74	477.0	0.0	754.8
46.60	Bot - Section 2	0.3125	44.039	43.370	10,476.90	23.09	140.93	74.2	468.6	0.0	237.1
50.00		0.3125	43.206	42.544	9,889.40	22.62	138.26	74.8	450.8	0.0	1,001.3
52.74	Top - Section 1	0.3125	43.160	42.498	9,857.40	22.59	138.11	74.8	449.8	0.0	792.9
55.00		0.3125	42.606	41.948	9,480.20	22.28	136.34	75.2	438.3	0.0	324.7
60.00		0.3125	41.381	40.733	8,680.10	21.59	132.42	76	413.1	0.0	703.4
60.87	Bot - Section 3	0.3125	41.168	40.522	8,545.60	21.47	131.74	76.2	408.9	0.0	120.3
65.00		0.3125	40.156	39.518	7,926.30	20.89	128.50	76.8	388.8	0.0	1,018.6
66.60	Top - Section 2	0.2500	40.264	31.750	6,422.80	26.64	161.06	70.1	314.2	0.0	387.7
70.00		0.2500	39.431	31.089	6,029.90	26.05	157.72	70.8	301.2	0.0	363.6
75.00		0.2500	38.206	30.117	5,481.90	25.18	152.82	71.8	282.6	0.0	520.7
80.00		0.2500	36.981	29.145	4,968.00	24.32	147.92	72.8	264.6	0.0	504.1
85.00		0.2500	35.756	28.173	4,487.40	23.46	143.02	73.8	247.2	0.0	487.6
90.00		0.2500	34.531	27.201	4,038.80	22.59	138.12	74.8	230.4	0.0	471.1
95.00		0.2500	33.306	26.229	3,621.10	21.73	133.22	75.8	214.1	0.0	454.5

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description	(Max Length: 5 ft)	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)
97.00			0.2500	32.816	25.840	3,462.40	21.38	131.26	76.3	207.8	0.0	177.2
100.00			0.2500	32.081	25.257	3,233.20	20.86	128.32	76.9	198.5	0.0	260.8
105.00			0.2500	30.856	24.285	2,874.10	20.00	123.42	77.9	183.5	0.0	421.5
108.00			0.2500	30.121	23.702	2,672.00	19.48	120.48	78.5	174.7	0.0	244.9
109.00			0.2500	29.876	23.507	2,606.80	19.31	119.50	78.7	171.9	0.0	80.3
Total:												16,110.0

CALCULATED FORCES

Load Case: 1.2D + 1.0W 122 mph Wind with No Ice 18 Iterations

Gust Response Factor: 1.10
 Dead load Factor: 1.20
 Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.04	-18.32	0.00	-1,340.2	0.00	1,340.22	3,281.83	959.87	4,780.51	3,731.73	0	0	0.368
5.00	-27.84	-17.80	0.00	-1,248.6	0.00	1,248.60	3,248.06	938.55	4,570.50	3,610.81	0.05	-0.09	0.355
10.00	-26.66	-17.29	0.00	-1,159.6	0.00	1,159.59	3,212.50	917.22	4,365.20	3,489.68	0.19	-0.17	0.341
15.00	-25.51	-16.77	0.00	-1,073.2	0.00	1,073.16	3,175.17	895.90	4,164.61	3,368.47	0.42	-0.26	0.327
20.00	-24.39	-16.25	0.00	-989.3	0.00	989.30	3,136.06	874.58	3,968.75	3,247.32	0.74	-0.35	0.313
25.00	-23.29	-15.70	0.00	-908.1	0.00	908.07	3,095.17	853.25	3,777.60	3,126.35	1.15	-0.43	0.298
30.00	-22.23	-15.15	0.00	-829.6	0.00	829.56	3,052.50	831.93	3,591.17	3,005.72	1.65	-0.52	0.284
35.00	-21.18	-14.58	0.00	-753.8	0.00	753.83	3,008.06	810.61	3,409.45	2,885.54	2.23	-0.6	0.269
40.00	-20.17	-14.02	0.00	-680.9	0.00	680.91	2,961.84	789.28	3,232.46	2,765.97	2.9	-0.68	0.253
45.00	-19.19	-13.64	0.00	-610.8	0.00	610.83	2,913.84	767.96	3,060.18	2,647.12	3.66	-0.76	0.238
46.60	-18.87	-13.35	0.00	-589.0	0.00	589.01	2,898.11	761.14	3,006.07	2,609.28	3.92	-0.78	0.233
50.00	-17.62	-12.99	0.00	-543.6	0.00	543.61	2,864.06	746.64	2,892.62	2,529.15	4.49	-0.84	0.221
52.74	-16.62	-12.69	0.00	-508.0	0.00	508.02	2,862.14	745.83	2,886.38	2,524.71	4.98	-0.88	0.207
55.00	-16.20	-12.28	0.00	-479.3	0.00	479.33	2,839.03	736.19	2,812.27	2,471.72	5.41	-0.91	0.200
60.00	-15.28	-11.93	0.00	-417.9	0.00	417.94	2,786.60	714.87	2,651.74	2,355.29	6.4	-0.98	0.183
60.87	-15.12	-11.65	0.00	-407.6	0.00	407.56	2,777.29	711.16	2,624.28	2,335.15	6.58	-0.99	0.180
65.00	-13.84	-11.31	0.00	-359.4	0.00	359.44	2,732.40	693.55	2,495.92	2,240.07	7.46	-1.04	0.166
66.60	-13.35	-11.02	0.00	-341.4	0.00	341.36	2,002.34	557.21	2,013.78	1,651.20	7.81	-1.06	0.214
70.00	-12.87	-10.55	0.00	-303.9	0.00	303.89	1,979.99	545.61	1,930.80	1,598.56	8.58	-1.1	0.197
75.00	-12.17	-9.99	0.00	-251.2	0.00	251.16	1,945.63	528.55	1,811.97	1,521.40	9.77	-1.17	0.172
80.00	-11.50	-9.44	0.00	-201.2	0.00	201.23	1,909.49	511.50	1,696.91	1,444.63	11.03	-1.23	0.146
85.00	-10.85	-8.90	0.00	-154.0	0.00	154.04	1,871.57	494.44	1,585.62	1,368.41	12.35	-1.28	0.119
90.00	-10.22	-8.36	0.00	-109.6	0.00	109.56	1,831.88	477.38	1,478.11	1,292.85	13.71	-1.32	0.091
95.00	-9.61	-7.99	0.00	-67.7	0.00	67.74	1,790.41	460.32	1,374.37	1,218.10	15.11	-1.35	0.061
97.00	-5.67	-5.10	0.00	-51.8	0.00	51.75	1,773.32	453.50	1,333.93	1,188.46	15.68	-1.36	0.047
100.00	-5.33	-4.70	0.00	-36.4	0.00	36.44	1,747.16	443.26	1,274.41	1,144.30	16.54	-1.37	0.035
105.00	-4.78	-4.30	0.00	-12.9	0.00	12.94	1,702.13	426.20	1,178.22	1,071.57	17.98	-1.38	0.015
108.00	-0.10	-0.04	0.00	-0.0	0.00	0.04	1,674.26	415.97	1,122.31	1,028.51	18.85	-1.38	0.000
109.00	0.00	-0.04	0.00	0.0	0.00	0.00	1,664.83	412.56	1,103.98	1,014.26	19.14	-1.38	0.000

CALCULATED FORCES

Load Case: 0.9D + 1.0W 122 mph Wind with No Ice (Reduced DL) 18 Iterations
 Gust Response Factor: 1.10
 Dead load Factor: 0.90
 Wind Load Factor: 1.00

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	-21.77	-18.32	0.00	-1,334.7	0.00	1,334.66	3,281.83	959.87	4,780.51	3,731.73	0	0	0.365
5.00	-20.87	-17.78	0.00	-1,243.1	0.00	1,243.07	3,248.06	938.55	4,570.50	3,610.81	0.05	-0.09	0.351
10.00	-19.98	-17.26	0.00	-1,154.2	0.00	1,154.15	3,212.50	917.22	4,365.20	3,489.68	0.19	-0.17	0.337
15.00	-19.11	-16.74	0.00	-1,067.8	0.00	1,067.85	3,175.17	895.90	4,164.61	3,368.47	0.42	-0.26	0.323
20.00	-18.27	-16.20	0.00	-984.2	0.00	984.16	3,136.06	874.58	3,968.75	3,247.32	0.73	-0.35	0.309
25.00	-17.44	-15.65	0.00	-903.1	0.00	903.14	3,095.17	853.25	3,777.60	3,126.35	1.14	-0.43	0.295
30.00	-16.63	-15.09	0.00	-824.9	0.00	824.88	3,052.50	831.93	3,591.17	3,005.72	1.64	-0.51	0.280
35.00	-15.85	-14.52	0.00	-749.4	0.00	749.42	3,008.06	810.61	3,409.45	2,885.54	2.22	-0.6	0.265
40.00	-15.09	-13.95	0.00	-676.8	0.00	676.81	2,961.84	789.28	3,232.46	2,765.97	2.89	-0.68	0.250
45.00	-14.35	-13.57	0.00	-607.0	0.00	607.05	2,913.84	767.96	3,060.18	2,647.12	3.64	-0.75	0.235
46.60	-14.11	-13.28	0.00	-585.3	0.00	585.34	2,898.11	761.14	3,006.07	2,609.28	3.9	-0.78	0.230
50.00	-13.17	-12.92	0.00	-540.2	0.00	540.16	2,864.06	746.64	2,892.62	2,529.15	4.47	-0.83	0.218
52.74	-12.42	-12.63	0.00	-504.8	0.00	504.76	2,862.14	745.83	2,886.38	2,524.71	4.96	-0.87	0.205
55.00	-12.10	-12.21	0.00	-476.2	0.00	476.23	2,839.03	736.19	2,812.27	2,471.72	5.38	-0.91	0.197
60.00	-11.41	-11.87	0.00	-415.2	0.00	415.18	2,786.60	714.87	2,651.74	2,355.29	6.37	-0.97	0.181
60.87	-11.29	-11.58	0.00	-404.8	0.00	404.85	2,777.29	711.16	2,624.28	2,335.15	6.54	-0.98	0.178
65.00	-10.33	-11.24	0.00	-357.0	0.00	357.02	2,732.40	693.55	2,495.92	2,240.07	7.42	-1.04	0.163
66.60	-9.96	-10.95	0.00	-339.0	0.00	339.05	2,002.34	557.21	2,013.78	1,651.20	7.77	-1.06	0.211
70.00	-9.60	-10.48	0.00	-301.8	0.00	301.80	1,979.99	545.61	1,930.80	1,598.56	8.54	-1.1	0.194
75.00	-9.08	-9.92	0.00	-249.4	0.00	249.40	1,945.63	528.55	1,811.97	1,521.40	9.72	-1.16	0.169
80.00	-8.57	-9.37	0.00	-199.8	0.00	199.79	1,909.49	511.50	1,696.91	1,444.63	10.97	-1.22	0.143
85.00	-8.09	-8.83	0.00	-152.9	0.00	152.93	1,871.57	494.44	1,585.62	1,368.41	12.28	-1.27	0.116
90.00	-7.62	-8.30	0.00	-108.8	0.00	108.77	1,831.88	477.38	1,478.11	1,292.85	13.63	-1.31	0.089
95.00	-7.16	-7.93	0.00	-67.3	0.00	67.26	1,790.41	460.32	1,374.37	1,218.10	15.03	-1.34	0.060
97.00	-4.23	-5.07	0.00	-51.4	0.00	51.39	1,773.32	453.50	1,333.93	1,188.46	15.59	-1.35	0.046
100.00	-3.97	-4.67	0.00	-36.2	0.00	36.18	1,747.16	443.26	1,274.41	1,144.30	16.44	-1.36	0.034
105.00	-3.56	-4.27	0.00	-12.8	0.00	12.85	1,702.13	426.20	1,178.22	1,071.57	17.88	-1.37	0.014
108.00	-0.07	-0.04	0.00	-0.0	0.00	0.04	1,674.26	415.97	1,122.31	1,028.51	18.74	-1.38	0.000
109.00	0.00	-0.04	0.00	0.0	0.00	0.00	1,664.83	412.56	1,103.98	1,014.26	19.03	-1.38	0.000

CALCULATED FORCES

Load Case: 1.2D + 1.0Di + 1.0Wi													50 mph Wind with 1" Radial Ice		17 Iterations
Gust Response Factor:		1.10	Ice Dead Load Factor			1.00							Ice Importance Factor		1.00
Dead Load Factor:		1.20													
Wind Load Factor:		1.00													
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	-38.39	-4.89	0.00	-347.4	0.00	347.43	3,281.83	959.87	4,780.51	3,731.73	0	0	0.105		
5.00	-36.95	-4.75	0.00	-323.0	0.00	322.96	3,248.06	938.55	4,570.50	3,610.81	0.01	-0.02	0.101		
10.00	-35.51	-4.60	0.00	-299.2	0.00	299.22	3,212.50	917.22	4,365.20	3,489.68	0.05	-0.05	0.097		
15.00	-34.08	-4.46	0.00	-276.2	0.00	276.21	3,175.17	895.90	4,164.61	3,368.47	0.11	-0.07	0.093		
20.00	-32.68	-4.31	0.00	-253.9	0.00	253.91	3,136.06	874.58	3,968.75	3,247.32	0.19	-0.09	0.089		
25.00	-31.30	-4.16	0.00	-232.4	0.00	232.37	3,095.17	853.25	3,777.60	3,126.35	0.3	-0.11	0.084		
30.00	-29.94	-4.00	0.00	-211.6	0.00	211.59	3,052.50	831.93	3,591.17	3,005.72	0.42	-0.13	0.080		
35.00	-28.61	-3.84	0.00	-191.6	0.00	191.61	3,008.06	810.61	3,409.45	2,885.54	0.58	-0.15	0.076		
40.00	-27.32	-3.67	0.00	-172.4	0.00	172.42	2,961.84	789.28	3,232.46	2,765.97	0.75	-0.17	0.072		
45.00	-26.05	-3.56	0.00	-154.0	0.00	154.05	2,913.84	767.96	3,060.18	2,647.12	0.94	-0.19	0.067		
46.60	-25.65	-3.48	0.00	-148.4	0.00	148.35	2,898.11	761.14	3,006.07	2,609.28	1.01	-0.2	0.066		
50.00	-24.20	-3.38	0.00	-136.5	0.00	136.51	2,864.06	746.64	2,892.62	2,529.15	1.16	-0.21	0.062		
52.74	-23.05	-3.29	0.00	-127.2	0.00	127.25	2,862.14	745.83	2,886.38	2,524.71	1.28	-0.22	0.058		
55.00	-22.50	-3.17	0.00	-119.8	0.00	119.81	2,839.03	736.19	2,812.27	2,471.72	1.39	-0.23	0.056		
60.00	-21.30	-3.07	0.00	-103.9	0.00	103.94	2,786.60	714.87	2,651.74	2,355.29	1.64	-0.25	0.052		
60.87	-21.09	-2.99	0.00	-101.3	0.00	101.26	2,777.29	711.16	2,624.28	2,335.15	1.69	-0.25	0.051		
65.00	-19.58	-2.89	0.00	-88.9	0.00	88.91	2,732.40	693.55	2,495.92	2,240.07	1.91	-0.27	0.047		
66.60	-19.01	-2.81	0.00	-84.3	0.00	84.28	2,002.34	557.21	2,013.78	1,651.20	2	-0.27	0.061		
70.00	-18.34	-2.67	0.00	-74.7	0.00	74.73	1,979.99	545.61	1,930.80	1,598.56	2.2	-0.28	0.056		
75.00	-17.37	-2.51	0.00	-61.4	0.00	61.37	1,945.63	528.55	1,811.97	1,521.40	2.5	-0.3	0.049		
80.00	-16.44	-2.35	0.00	-48.8	0.00	48.83	1,909.49	511.50	1,696.91	1,444.63	2.82	-0.31	0.042		
85.00	-15.53	-2.19	0.00	-37.1	0.00	37.09	1,871.57	494.44	1,585.62	1,368.41	3.15	-0.32	0.035		
90.00	-14.65	-2.03	0.00	-26.1	0.00	26.14	1,831.88	477.38	1,478.11	1,292.85	3.49	-0.33	0.028		
95.00	-13.79	-1.92	0.00	-16.0	0.00	15.98	1,790.41	460.32	1,374.37	1,218.10	3.85	-0.34	0.021		
97.00	-8.31	-1.22	0.00	-12.1	0.00	12.13	1,773.32	453.50	1,333.93	1,188.46	3.99	-0.34	0.015		
100.00	-7.83	-1.10	0.00	-8.5	0.00	8.47	1,747.16	443.26	1,274.41	1,144.30	4.21	-0.35	0.012		
105.00	-7.04	-0.98	0.00	-3.0	0.00	2.96	1,702.13	426.20	1,178.22	1,071.57	4.57	-0.35	0.007		
108.00	-0.14	-0.01	0.00	-0.0	0.00	0.01	1,674.26	415.97	1,122.31	1,028.51	4.79	-0.35	0.000		
109.00	0.00	-0.01	0.00	0.0	0.00	0.00	1,664.83	412.56	1,103.98	1,014.26	4.86	-0.35	0.000		

CALCULATED FORCES

Load Case: 1.0D + 1.0W

60 mph Wind with No Ice

17 Iterations

Gust Response Factor: 1.10
 Dead load Factor: 1.00
 Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.21	-3.96	0.00	-289.2	0.00	289.23	3,281.83	959.87	4,780.51	3,731.73	0	0	0.085
5.00	-23.23	-3.85	0.00	-269.4	0.00	269.41	3,248.06	938.55	4,570.50	3,610.81	0.01	-0.02	0.082
10.00	-22.27	-3.74	0.00	-250.2	0.00	250.16	3,212.50	917.22	4,365.20	3,489.68	0.04	-0.04	0.079
15.00	-21.33	-3.62	0.00	-231.5	0.00	231.47	3,175.17	895.90	4,164.61	3,368.47	0.09	-0.06	0.075
20.00	-20.41	-3.51	0.00	-213.4	0.00	213.35	3,136.06	874.58	3,968.75	3,247.32	0.16	-0.07	0.072
25.00	-19.51	-3.39	0.00	-195.8	0.00	195.81	3,095.17	853.25	3,777.60	3,126.35	0.25	-0.09	0.069
30.00	-18.64	-3.27	0.00	-178.8	0.00	178.85	3,052.50	831.93	3,591.17	3,005.72	0.36	-0.11	0.066
35.00	-17.78	-3.15	0.00	-162.5	0.00	162.51	3,008.06	810.61	3,409.45	2,885.54	0.48	-0.13	0.062
40.00	-16.95	-3.02	0.00	-146.8	0.00	146.77	2,961.84	789.28	3,232.46	2,765.97	0.63	-0.15	0.059
45.00	-16.13	-2.94	0.00	-131.6	0.00	131.65	2,913.84	767.96	3,060.18	2,647.12	0.79	-0.16	0.055
46.60	-15.88	-2.88	0.00	-127.0	0.00	126.95	2,898.11	761.14	3,006.07	2,609.28	0.84	-0.17	0.054
50.00	-14.83	-2.80	0.00	-117.2	0.00	117.15	2,864.06	746.64	2,892.62	2,529.15	0.97	-0.18	0.052
52.74	-14.01	-2.74	0.00	-109.5	0.00	109.48	2,862.14	745.83	2,886.38	2,524.71	1.08	-0.19	0.048
55.00	-13.66	-2.65	0.00	-103.3	0.00	103.29	2,839.03	736.19	2,812.27	2,471.72	1.17	-0.2	0.047
60.00	-12.89	-2.57	0.00	-90.1	0.00	90.06	2,786.60	714.87	2,651.74	2,355.29	1.38	-0.21	0.043
60.87	-12.76	-2.51	0.00	-87.8	0.00	87.82	2,777.29	711.16	2,624.28	2,335.15	1.42	-0.21	0.042
65.00	-11.70	-2.44	0.00	-77.4	0.00	77.45	2,732.40	693.55	2,495.92	2,240.07	1.61	-0.22	0.039
66.60	-11.29	-2.38	0.00	-73.6	0.00	73.55	2,002.34	557.21	2,013.78	1,651.20	1.68	-0.23	0.050
70.00	-10.88	-2.27	0.00	-65.5	0.00	65.47	1,979.99	545.61	1,930.80	1,598.56	1.85	-0.24	0.046
75.00	-10.30	-2.15	0.00	-54.1	0.00	54.11	1,945.63	528.55	1,811.97	1,521.40	2.11	-0.25	0.041
80.00	-9.74	-2.03	0.00	-43.4	0.00	43.35	1,909.49	511.50	1,696.91	1,444.63	2.38	-0.26	0.035
85.00	-9.19	-1.92	0.00	-33.2	0.00	33.18	1,871.57	494.44	1,585.62	1,368.41	2.66	-0.28	0.029
90.00	-8.67	-1.80	0.00	-23.6	0.00	23.60	1,831.88	477.38	1,478.11	1,292.85	2.96	-0.28	0.023
95.00	-8.15	-1.72	0.00	-14.6	0.00	14.59	1,790.41	460.32	1,374.37	1,218.10	3.26	-0.29	0.017
97.00	-4.82	-1.10	0.00	-11.2	0.00	11.15	1,773.32	453.50	1,333.93	1,188.46	3.38	-0.29	0.012
100.00	-4.53	-1.01	0.00	-7.8	0.00	7.85	1,747.16	443.26	1,274.41	1,144.30	3.57	-0.3	0.009
105.00	-4.06	-0.93	0.00	-2.8	0.00	2.79	1,702.13	426.20	1,178.22	1,071.57	3.88	-0.3	0.005
108.00	-0.08	-0.01	0.00	-0.0	0.00	0.01	1,674.26	415.97	1,122.31	1,028.51	4.06	-0.3	0.000
109.00	0.00	-0.01	0.00	0.0	0.00	0.00	1,664.83	412.56	1,103.98	1,014.26	4.13	-0.3	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_s):	0.202
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.053
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.215
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.085
Seismic Response Coefficient (C_s):	0.044
Upper Limit C_s :	0.044
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	1.270
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	1.390
Total Unfactored Dead Load:	24.210 k
Seismic Base Shear (E):	1.070 k

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
28	108.5	80	53	0.006	7	100
27	106.5	273	177	0.021	23	340
26	102.5	469	288	0.035	37	583
25	98.5	289	168	0.020	22	360
24	96	201	113	0.014	15	250
23	92.5	514	274	0.033	35	639
22	87.5	530	262	0.031	34	659
21	82.5	547	249	0.030	32	680
20	77.5	563	235	0.028	30	700
19	72.5	580	221	0.026	28	721
18	68.2997	404	141	0.017	18	502
17	65.7997	407	135	0.016	17	505
16	62.9351	1,067	334	0.040	43	1,327
15	60.4351	131	39	0.005	5	162
14	57.5	763	210	0.025	27	948
13	53.87	351	89	0.011	11	437
12	51.37	825	195	0.023	25	1,026
11	48.2997	1,042	226	0.027	29	1,295
10	45.7997	256	52	0.006	7	318
9	42.5	814	148	0.018	19	1,012
8	37.5	835	127	0.015	16	1,038
7	32.5	855	107	0.013	14	1,063
6	27.5	876	87	0.010	11	1,089
5	22.5	897	67	0.008	9	1,115
4	17.5	917	49	0.006	6	1,140
3	12.5	938	31	0.004	4	1,166
2	7.5	959	16	0.002	2	1,192
1	2.5	979	3	0.000	0	1,218
Ericsson Radio 4449 B71 B85A	108	225	149	0.018	19	280
Ericsson Radio 4460 B25+B66	108	327	216	0.026	28	406
Ericsson AIR 6419 B41	108	206	136	0.016	18	255
Commscope VV-65A-R1B	108	74	49	0.006	6	92
RFS APXVAARR24_43-U-NA20	108	384	254	0.030	33	477
Generic Round Platform with Handrails	108	2,500	1,653	0.198	213	3,108
Generic Round Platform with Handrails	97	2,500	1,424	0.171	184	3,108
Commscope RDIDC-9181-PF-48	97	22	12	0.002	2	27
Fujitsu TA08025-B604	97	192	109	0.013	14	238
Fujitsu TA08025-B605	97	225	128	0.015	17	280

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
JMA Wireless MX08FRO665-21	97	194	110	0.013	14	241
Totals:		24,210	8,337	1.000	1,074	30,096

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
28	108.5	80	53	0.006	7	69
27	106.5	273	177	0.021	23	234
26	102.5	469	288	0.035	37	402
25	98.5	289	168	0.020	22	248
24	96	201	113	0.014	15	172
23	92.5	514	274	0.033	35	440
22	87.5	530	262	0.031	34	454
21	82.5	547	249	0.030	32	469
20	77.5	563	235	0.028	30	483
19	72.5	580	221	0.026	28	497
18	68.2997	404	141	0.017	18	346
17	65.7997	407	135	0.016	17	348
16	62.9351	1,067	334	0.040	43	915
15	60.4351	131	39	0.005	5	112
14	57.5	763	210	0.025	27	653
13	53.87	351	89	0.011	11	301
12	51.37	825	195	0.023	25	707
11	48.2997	1,042	226	0.027	29	893
10	45.7997	256	52	0.006	7	219
9	42.5	814	148	0.018	19	698
8	37.5	835	127	0.015	16	715
7	32.5	855	107	0.013	14	733
6	27.5	876	87	0.010	11	751
5	22.5	897	67	0.008	9	768
4	17.5	917	49	0.006	6	786
3	12.5	938	31	0.004	4	804
2	7.5	959	16	0.002	2	822
1	2.5	979	3	0.000	0	839
Ericsson Radio 4449 B71 B85A	108	225	149	0.018	19	193
Ericsson Radio 4460 B25+B66	108	327	216	0.026	28	280
Ericsson AIR 6419 B41	108	206	136	0.016	18	176
Commscope VV-65A-R1B	108	74	49	0.006	6	63
RFS APXVAARR24_43-U-NA20	108	384	254	0.030	33	329
Generic Round Platform with Handrails	108	2,500	1,653	0.198	213	2,142
Generic Round Platform with Handrails	97	2,500	1,424	0.171	184	2,142
Commscope RDIDC-9181-PF-48	97	22	12	0.002	2	19
Fujitsu TA08025-B604	97	192	109	0.013	14	164
Fujitsu TA08025-B605	97	225	128	0.015	17	193
JMA Wireless MX08FRO665-21	97	194	110	0.013	14	166
Totals:		24,210	8,337	1.000	1,074	20,746

1.2D + 1.0Ev + 1.0Eh

Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-28.88	-1.07	0.00	-93.84	0.00	93.84	3,281.83	959.87	4,781	3,731.73	0.00	0.00	0.03
5.00	-27.69	-1.08	0.00	-88.47	0.00	88.47	3,248.06	938.55	4,570	3,610.81	0.00	-0.01	0.03
10.00	-26.52	-1.07	0.00	-83.09	0.00	83.09	3,212.50	917.22	4,365	3,489.68	0.01	-0.01	0.03
15.00	-25.38	-1.07	0.00	-77.72	0.00	77.72	3,175.17	895.90	4,165	3,368.47	0.03	-0.02	0.03
20.00	-24.26	-1.06	0.00	-72.37	0.00	72.37	3,136.06	874.58	3,969	3,247.32	0.05	-0.02	0.03
25.00	-23.18	-1.05	0.00	-67.05	0.00	67.05	3,095.17	853.25	3,778	3,126.35	0.08	-0.03	0.03
30.00	-22.11	-1.04	0.00	-61.78	0.00	61.78	3,052.50	831.93	3,591	3,005.72	0.12	-0.04	0.03

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
35.00	-21.07	-1.03	0.00	-56.56	0.00	56.56	3,008.06	810.61	3,409	2,885.54	0.16	-0.04	0.03
40.00	-20.06	-1.01	0.00	-51.42	0.00	51.42	2,961.84	789.28	3,232	2,765.97	0.21	-0.05	0.03
45.00	-19.74	-1.00	0.00	-46.37	0.00	46.37	2,913.84	767.96	3,060	2,647.12	0.26	-0.06	0.02
46.60	-18.45	-0.98	0.00	-44.76	0.00	44.76	2,898.11	761.14	3,006	2,609.28	0.28	-0.06	0.02
50.00	-17.42	-0.95	0.00	-41.45	0.00	41.45	2,864.06	746.64	2,893	2,529.15	0.33	-0.06	0.02
52.74	-16.99	-0.94	0.00	-38.84	0.00	38.84	2,862.14	745.83	2,886	2,524.71	0.36	-0.06	0.02
55.00	-16.04	-0.91	0.00	-36.72	0.00	36.72	2,839.03	736.19	2,812	2,471.72	0.39	-0.07	0.02
60.00	-15.88	-0.91	0.00	-32.16	0.00	32.16	2,786.60	714.87	2,652	2,355.29	0.47	-0.07	0.02
60.87	-14.55	-0.86	0.00	-31.37	0.00	31.37	2,777.29	711.16	2,624	2,335.15	0.48	-0.07	0.02
65.00	-14.04	-0.85	0.00	-27.80	0.00	27.80	2,732.40	693.55	2,496	2,240.07	0.54	-0.08	0.02
66.60	-13.54	-0.83	0.00	-26.45	0.00	26.45	2,002.34	557.21	2,014	1,651.20	0.57	-0.08	0.02
70.00	-12.82	-0.80	0.00	-23.64	0.00	23.64	1,979.99	545.61	1,931	1,598.56	0.63	-0.08	0.02
75.00	-12.12	-0.77	0.00	-19.64	0.00	19.64	1,945.63	528.55	1,812	1,521.40	0.72	-0.09	0.02
80.00	-11.44	-0.74	0.00	-15.79	0.00	15.79	1,909.49	511.50	1,697	1,444.63	0.81	-0.09	0.02
85.00	-10.78	-0.70	0.00	-12.11	0.00	12.11	1,871.57	494.44	1,586	1,368.41	0.91	-0.10	0.02
90.00	-10.14	-0.67	0.00	-8.59	0.00	8.59	1,831.88	477.38	1,478	1,292.85	1.01	-0.10	0.01
95.00	-9.89	-0.65	0.00	-5.26	0.00	5.26	1,790.41	460.32	1,374	1,218.10	1.12	-0.10	0.01
97.00	-5.64	-0.39	0.00	-3.95	0.00	3.95	1,773.32	453.50	1,334	1,188.46	1.16	-0.10	0.01
100.00	-5.06	-0.36	0.00	-2.77	0.00	2.77	1,747.16	443.26	1,274	1,144.30	1.22	-0.10	0.01
105.00	-4.72	-0.33	0.00	-1.00	0.00	1.00	1,702.13	426.20	1,178	1,071.57	1.33	-0.10	0.00
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,674.26	415.97	1,122	1,028.51	1.40	-0.10	0.00
109.00	0.00	0.00	0.00	0.00	0.00	0.00	1,664.83	412.56	1,104	1,014.26	1.42	-0.10	0.00

0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.91	-1.07	0.00	-93.35	0.00	93.35	3,281.83	959.87	4,781	3,731.73	0.00	0.00	0.03
5.00	-19.08	-1.07	0.00	-87.98	0.00	87.98	3,248.06	938.55	4,570	3,610.81	0.00	-0.01	0.03
10.00	-18.28	-1.07	0.00	-82.61	0.00	82.61	3,212.50	917.22	4,365	3,489.68	0.01	-0.01	0.03
15.00	-17.49	-1.07	0.00	-77.25	0.00	77.25	3,175.17	895.90	4,165	3,368.47	0.03	-0.02	0.03
20.00	-16.73	-1.06	0.00	-71.91	0.00	71.91	3,136.06	874.58	3,969	3,247.32	0.05	-0.02	0.03
25.00	-15.98	-1.05	0.00	-66.61	0.00	66.61	3,095.17	853.25	3,778	3,126.35	0.08	-0.03	0.03
30.00	-15.24	-1.04	0.00	-61.35	0.00	61.35	3,052.50	831.93	3,591	3,005.72	0.12	-0.04	0.03
35.00	-14.53	-1.02	0.00	-56.16	0.00	56.16	3,008.06	810.61	3,409	2,885.54	0.16	-0.04	0.02
40.00	-13.83	-1.00	0.00	-51.05	0.00	51.05	2,961.84	789.28	3,232	2,765.97	0.21	-0.05	0.02
45.00	-13.61	-1.00	0.00	-46.03	0.00	46.03	2,913.84	767.96	3,060	2,647.12	0.26	-0.06	0.02
46.60	-12.72	-0.97	0.00	-44.43	0.00	44.43	2,898.11	761.14	3,006	2,609.28	0.28	-0.06	0.02
50.00	-12.01	-0.94	0.00	-41.14	0.00	41.14	2,864.06	746.64	2,893	2,529.15	0.32	-0.06	0.02
52.74	-11.71	-0.93	0.00	-38.55	0.00	38.55	2,862.14	745.83	2,886	2,524.71	0.36	-0.06	0.02
55.00	-11.06	-0.91	0.00	-36.44	0.00	36.44	2,839.03	736.19	2,812	2,471.72	0.39	-0.07	0.02
60.00	-10.94	-0.90	0.00	-31.91	0.00	31.91	2,786.60	714.87	2,652	2,355.29	0.46	-0.07	0.02
60.87	-10.03	-0.86	0.00	-31.13	0.00	31.13	2,777.29	711.16	2,624	2,335.15	0.48	-0.07	0.02
65.00	-9.68	-0.84	0.00	-27.59	0.00	27.59	2,732.40	693.55	2,496	2,240.07	0.54	-0.08	0.02
66.60	-9.33	-0.82	0.00	-26.24	0.00	26.24	2,002.34	557.21	2,014	1,651.20	0.57	-0.08	0.02
70.00	-8.84	-0.79	0.00	-23.45	0.00	23.45	1,979.99	545.61	1,931	1,598.56	0.62	-0.08	0.02
75.00	-8.35	-0.76	0.00	-19.48	0.00	19.48	1,945.63	528.55	1,812	1,521.40	0.71	-0.09	0.02
80.00	-7.89	-0.73	0.00	-15.66	0.00	15.66	1,909.49	511.50	1,697	1,444.63	0.81	-0.09	0.02
85.00	-7.43	-0.70	0.00	-12.01	0.00	12.01	1,871.57	494.44	1,586	1,368.41	0.90	-0.10	0.01
90.00	-6.99	-0.66	0.00	-8.52	0.00	8.52	1,831.88	477.38	1,478	1,292.85	1.00	-0.10	0.01
95.00	-6.82	-0.65	0.00	-5.21	0.00	5.21	1,790.41	460.32	1,374	1,218.10	1.11	-0.10	0.01
97.00	-3.89	-0.39	0.00	-3.92	0.00	3.92	1,773.32	453.50	1,334	1,188.46	1.15	-0.10	0.01
100.00	-3.49	-0.35	0.00	-2.75	0.00	2.75	1,747.16	443.26	1,274	1,144.30	1.22	-0.10	0.00
105.00	-3.25	-0.33	0.00	-0.99	0.00	0.99	1,702.13	426.20	1,178	1,071.57	1.32	-0.10	0.00
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,674.26	415.97	1,122	1,028.51	1.39	-0.10	0.00
109.00	0.00	0.00	0.00	0.00	0.00	0.00	1,664.83	412.56	1,104	1,014.26	1.41	-0.10	0.00

ANALYSIS SUMMARY

Load Case	Base Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	18.32	0.00	29.04	0.00	0.00	1340.22	0.00	0.37
0.9D + 1.0W	18.32	0.00	21.77	0.00	0.00	1334.66	0.00	0.36
1.2D + 1.0Di + 1.0Wi	4.89	0.00	38.39	0.00	0.00	347.43	0.00	0.1
1.2D + 1.0Ev + 1.0Eh	1.08	0.00	28.88	0.00	0.00	93.84	0.00	0.03
0.9D - 1.0Ev + 1.0Eh	1.07	0.00	19.91	0.00	0.00	93.35	0.00	0.03
1.0D + 1.0W	3.96	0.00	24.21	0.00	0.00	289.23	0.00	0.08

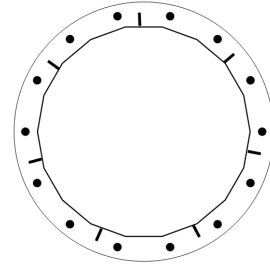
BASE PLATE ANALYSIS @ 0 FT

APPLIED REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
1340.22	29.04	18.32

PLATE PARAMETERS (ID# 12047)

Width:	68.5	in
Shape:	Round	
Thickness:	2.5	in
Grade:	A572-50	
Yield Strength:	50	ksi
Tensile Strength:	65	ksi
Rod Detail Type:	d	
Clear Distance	3	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	180	°

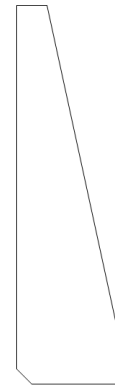


ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	F _y (ksi)	F _u (ksi)	Spacing (in)	Offset (°)
Original [ID#2350]	Radial	14	2.25	62.5	A615-75	75	100	-	-

STIFFENER PARAMETERS

Arrangement:	Radial	
Quantity:	7	
Height:	12.5	in
Width:	3.5	in
Thickness:	0.75	in
Notch:	0.5	in
Grade:	A36	
Yield Strength:	36	ksi
Tensile Strength:	58	ksi
Horizontal Weld Type:	Fillet	
Horizontal Weld Fillet Size:	0.313	in
Vertical Weld Fillet Size:	0.313	in
Weld Strength:	70	ksi
Orientation Offset:	15	°



COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	55.4559"Ø x 0.3125" (18 Sides)	53.8625	-	-	20474.85	-
Bolt Group	Original (14) 2.25"Ø	3.9761	3.2477	0.8393	20387.04	4.5
Stiffeners	(7) 12.5"H x 3.5"W x 0.75"T	2.2500	2.0250	10.7188	6168.49	-

ASSET: 284988, GUILFORD CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 PROJECT: 14529804

REACTION DISTRIBUTION

Component	ID	Moment M _u (k-ft)	Axial Load P _u (k)	Shear V _u (k)	Moment Factor
Pole	55.4559"Ø x 0.3125" (18 Sides)	1340.2	29.04	18.32	1.000
Bolt Group	Original (14) 2.25"Ø	1340.2	-	18.32	1.000
Stiffeners	(7) 12.5"H x 3.5"W x 0.75"T	310.3	-	4.24	0.232

BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 55.58 in
 Point-to-Point Diameter: 56.44 in
 Orientation Offset: - °

Flat Width: 9.800 in
 Flat Radians: 0.349 rad

PLATE PROPERTIES

Neutral Axis: 180 °
 Bend Line Limits: 4.167 to 5.258 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment M _u (k-in)	Moment Capacity ΦM _n (k-in)	Flexure Result M _u /ΦM _n
Flats	35.387	0.00	55.293	214.6	2488.2	8.6%
Corners	34.003	0.00	53.130	148.7	2390.8	6.2%
Circumferential	45.387	8.50	84.198	264.1	3788.9	7.0%

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load P _u (k)	Applied Shear Load V _u (k)	Compressive Capacity ΦP _n (k)	Interaction Result
Original	14	2.25	65.5	2.1	243.6	28.6%

BASE PLATE STIFFENER ANALYSIS

Quantity:	7	
Height:	12.5	in
Width:	3.5	in
Effective Width:	3.500	in
Thickness:	0.75	in
Notch:	0.5	in
Grade:	A36	
Yield Strength:	36	ksi
Tensile Strength:	58	ksi
Horizontal Weld Type:	Fillet	
Horizontal Weld Fillet Size:	0.313	in
Horizontal Weld Bevel Size:		in
Vertical Weld Fillet Size:	0.313	in
Weld Strength:	70	ksi
Electrode Coefficient:	1.000	

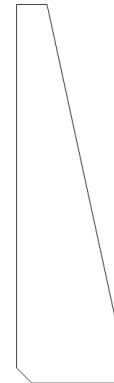


PLATE COMPRESSION

Radius of Gyration:	0.217	in ³
kl/r:	34.64	
4.71 √(E/F _y):	133.68	
Buckling Stress, F _e :	238.52	ksi
Crit. Buckling Stress, F _{cr} :	209.18	ksi
Applied Compression, P _u :	33.99	k
Compressive Capacity, ΦP _n :	423.59	k
Compressive Result, P _u /ΦP _n :	4.0%	✓

PLATE TENSION

Gross Cross Section:	2.2500	in ²
Net Cross Section:	2.0250	in ²
Applied Tension, T _u :	35.05	k
Tensile Capacity, ΦT _n :	72.90	k
Tension Result, T _u /ΦT _n :	24.0%	✓

VERTICAL WELD TO POLE

Vertical Eccentricity Ratio, a=e _x /l:	0.093	
Spacing Ratio, k:	0.060	
Weld Coefficient, C:	3.371	
Applied Compression, P _u :	33.99	k
Compressive Capacity, ΦP _n :	158.27	k
Horizontal Eccentricity Ratio, a=e _x /l:	0.333	
Weld Coefficient, C:	2.940	
Applied Shear, V _u :	0.04	k
Shear Capacity, ΦV _n :	138.03	k
Weld Result, P _u /ΦP _n + V _u /ΦV _n :	21.5%	✓

HORIZONTAL WELD TO PLATE

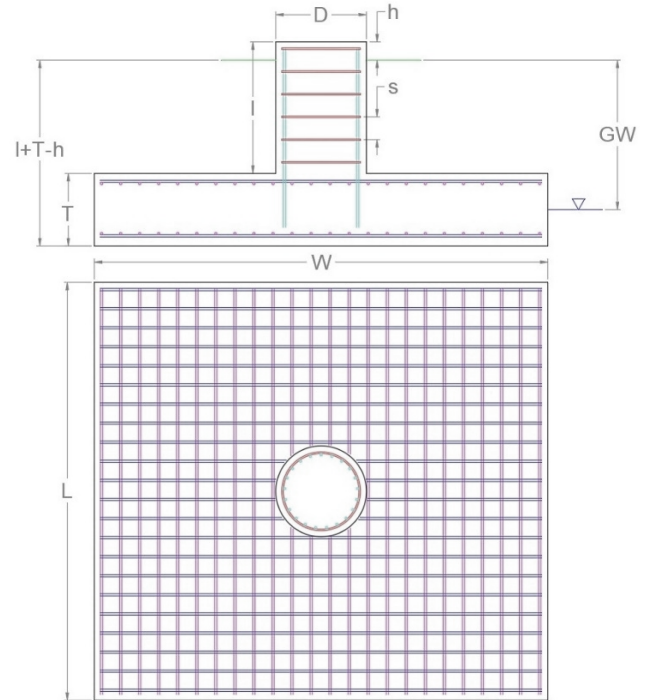
Horizontal Eccentricity Ratio, a=e _x /l:	0.167	
Spacing Ratio, k:	0.214	
Weld Coefficient, C:	4.040	
Effective Fillet Size:	0.313	in
Applied Compression, P _u :	33.99	k
Compressive Capacity, ΦP _n :	53.11	k
Vertical Eccentricity Ratio, a=e _x /l:	0.595	
Weld Coefficient, C:	2.320	
Applied Shear, V _u :	0.04	k
Shear Capacity, ΦV _n :	30.50	k
Weld Result, P _u /ΦP _n + V _u /ΦV _n :	64.1%	✓

APPLIED GLOBAL REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
1,340.22	29.04	18.32

FOUNDATION PARAMETERS

Mat Length:	L	23.5	ft
Mat Width:	W	23.5	ft
Mat Thickness:	T	2.25	ft
Base Depth:	L+T-h	5	ft
Pier Shape:		Round	
Pier Diameter:	D	7	ft
Pier Height above Grade:	h	1	ft
Concrete Compressive Strength:		4,000	psi
Mat Top Rebar:		(29) #9 bars [60 ksi]	
Mat Bottom Rebar:		(29) #9 bars [60 ksi]	
Pier Vertical Rebar:		(57) #8 bars [60 ksi]	
Pier Rebar Ties:	s	#4 bars @ 12.0" c/c [60 ksi]	
Rebar Clear Cover:		3.0	in
Tower Eccentricity:	ecc	0	ft
Tower Leg Count		1	



SOIL PARAMETERS

Water Table Depth [BGL]:	GW	7	ft
Soil Unit Weight:		160	pcf
Ultimate Skin Friction:			psf
Ultimate Bearing Pressure:		20,000	psf
Bearing Pressure Type:		Gross	
Coefficient of Shear Friction:		0.35	

SOIL STRENGTH ANALYSIS

Soil Strength Reduction Factor, Φ_s	Uplift Strength Reduction Factor, Φ_s	Asset Dead Load Factor	Dead Load Factor
0.75	0.75	0.9	1.2

SOIL OVERTURNING ANALYSIS

Design Moment, $M_{u,Design}$ (k-ft)	Nominal Overturning Capacity, $\Phi_m M_n$ (k-ft)	Soil Overturning Usage, $M_{u,Design} / \Phi_m M_n$
1,450.14	5,100.24	28.4% ✔

SOIL BEARING ANALYSIS

Net Bearing Pressure, $P_{u,Net}$ (psf)	Nominal Bearing Capacity, $\Phi_b P_n$ (k-ft)	Bearing Pressure Controlling Load Direction	Soil Bearing Usage, $P_{u,net} / \Phi_b P_n$
1,042.00	15,000.00	Diagonal to Pad Edge	6.9% ✔

SOIL SLIDING SHEAR ANALYSIS

Applied Shear Force, V_u (k)	Friction Resistance (k)	Passive Pressure (psf)	Passive Pressure Resistance (k)	Nominal Shear Capacity, $\Phi_s V_n$ (k)	Soil Sliding Shear Usage, $V_u / \Phi_s V_n$
18.32	0.00	620.0	32.78	144.89	13.0% ✔

MAT REINFORCING STEEL STRENGTH ANALYSIS

Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
29,000	0.9	0.75	0.65

MAT REINFORCING ONE WAY SHEAR ANALYSIS

One Way Design Shear, V_u (k)	Nominal One Way Shear Capacity, $\Phi_c V_n$ (k)	One Way Shear Controlling Load Direction	Mat One Way Shear Usage, $V_u / \Phi_c V_n$
38.82	611.97	Parallel to Pad Edge	6.3%

MAT REINFORCING PUNCHING SHEAR ANALYSIS

Punching Shear Design Stress, v_u (psi)	Nominal Punching Shear Capacity, $\Phi_c v_n$ (psi)	Mat Punching Shear Usage, $v_u / \Phi_c v_n$
29.4	189.7	15.5%

MAT REINFORCING MOMENT TRANSFER ANALYSIS

Moment Transfer Effective Flexural Width, w_f (in)	Neutral Axis Depth (in)	Pier Moment at Joint, M_{ut} (k-in)	Nominal Moment Transfer Capacity, $\Phi M_{sc,f}$ (k-in)	Mat Moment Transfer Usage, $0.6 M_{ut} / \Phi M_{sc,f}$
13.75	1.90	0.00	21,179.1	0.0%

MAT REINFORCING FLEXURE ANALYSIS – UPPER STEEL

Factored Moment, M_u (k-ft)	Nominal Flexural Capacity, ΦM_n (k-ft)	Flexural Steel Controlling Load Direction	Mat Upper Rebar Flexure Usage, $M_u / \Phi M_n$
565.52	2,884.54	Parallel to Pad Edge	19.6%

MAT REINFORCING FLEXURE ANALYSIS – LOWER STEEL

Factored Moment, M_u (k-ft)	Nominal Flexural Capacity, ΦM_n (k-ft)	Flexural Steel Controlling Load Direction	Mat Lower Rebar Flexure Usage, $M_u / \Phi M_n$
587.10	2,884.54	Parallel to Pad Edge	20.4%

PIER REINFORCING STEEL STRENGTH ANALYSIS

Rebar Cage Diameter (in)	Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
76.00	29,000	0.9	0.75	0.65

PIER REINFORCING MOMENT ANALYSIS

Design Moment, M_u (k-ft)	Nominal Moment Capacity, $\Phi_b M_n$ (k-ft)	Bending Reinforcement Ratio	Pier Rebar Flexure Usage, $M_u / \Phi_b M_n$
1,408.92	7,261.57	0.008	19.4%

PIER REINFORCING COMPRESSION ANALYSIS

Design Compression, P_u (k)	Nominal Compressive Capacity, $\Phi_p P_n$ (k)	Pier Rebar Compressive Usage, $P_u / \Phi_p P_n$
29.04	9,742.88	0.3%

PIER REINFORCING SHEAR ANALYSIS

Design Shear, V_u (k)	Nominal Shear Capacity, $\Phi_v V_n$ (k)	Pier Rebar Shear Usage, $V_u / \Phi_v V_n$
18.32	627.92	2.9%

RAN Template: 67D5D998E 6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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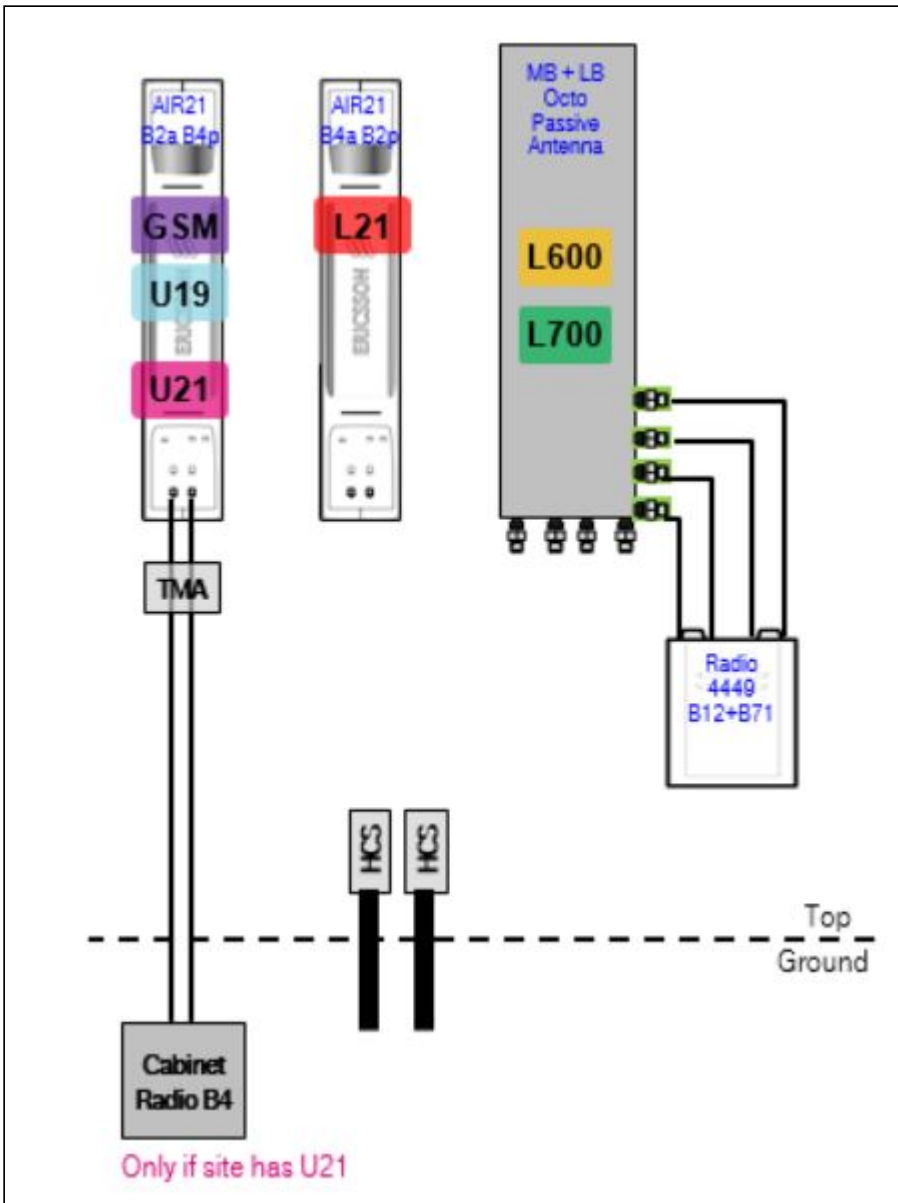
Section 1 - Site Information

Site ID: CTNH805A **Site Name:** Amtrak_Guilford **Latitude:** 41.267245
Status: Preliminary **Site Class:** Monopole **Longitude:** -72.716205
Version: 6 **Site Type:** Structure Non Building **Address:** 79 Moose Hill Road
Project Type: Anchor **Plan Year:** 2023 **City, State:** Guilford, CT
Approved: 08/07/2023 5:55:59 PM **Market:** CONNECTICUT CT **Region:** NORTHEAST
Approved By: Marissa.Flores164@T-Mobile.com **Vendor:** Ericsson
Last Modified: 08/07/2023 5:55:59 PM **Landlord:** American Tower
Last Modified By: Marissa.Flores164@T-Mobile.com

RAN Template: 67D5D998E 6160		AL Template: 67D5998E_1xAIR+1OP+1QP		
Sector Count: 3	Antenna Count: 9	Coax Line Count: 0	TMA Count: 0	RRU Count: 6

Section 2 - Existing Template Images

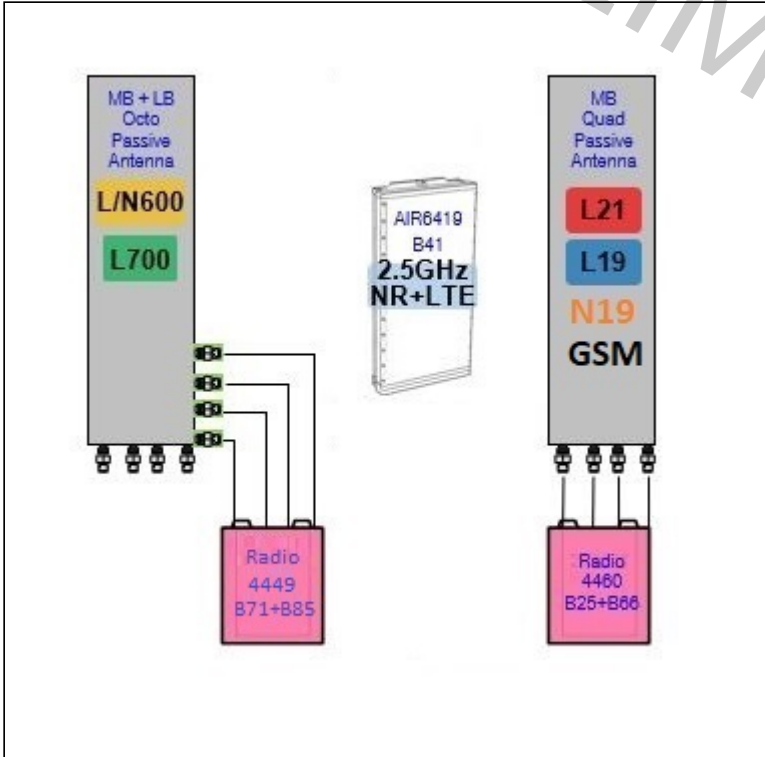
67D02C.JPG



Notes:

Section 3 - Proposed Template Images

67D5D998E_OP+AIR+QP with GSM-.jpg



Notes:

PRELIMINARY

Section 4 - Siteplan Images

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PRELIMINARY

PRELIMINARY

RAN Template: 67D5D998E 6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67D92C Outdoor

Enclosure	1		
Enclosure Type	RBS 6131		
Radio	RU22 (x6) U2100 (DECOMMISSIONED)		
Baseband	BB 6630 L1900 L2100	BB 6648 N600 L600 L700	DUG20 G1900 DUW30 U2100 (DECOMMISSIONED)
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 50m (x3)		

Proposed RAN Equipment

Template: 67D5D998E 6160

	1	2	3
Enclosure Type	Enclosure 6160 AC V1	RBS 6131	B160
Baseband	RP 6651 N2500	BB 6630 N1900 L1900 L2100	BB 6648 N600 L600 L700
Transport System	CSR IXRe V2 (Gen2)		
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 50m (x2)	Hybrid Trunk 6/24 4AWG 50m (x3)	

RAN Scope of Work:

- Remove all unused equipment's from RAN section.
- Add (1) 6160 and (1) B160 cabinets.
- Add (1) RP6651 for NR2500/L2500
- Add (1) IXRe router to 6160.
- Reuse existing (3) Hybrid Trunk 6/24 4AWG 50m and add (2) 6x24 HCS 50M.

PRELIMINARY

RAN Template: 67D5D998E 6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Section 6 - A&L Equipment

Existing Template: 67D92C_2xAIR+1OP
Proposed Template: 67D5998E_1xAIR+1OP+1QP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2			3		
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		
Azimuth	0		0			0		
M. Tilt	0		0			0		
Height (ft)	108		108			108		
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech	L1900 G1900		N600 L700 L600	N600 L700 L600				L2100
Dark Tech								
Restricted Tech								
Decomm. Tech		U2100						
E. Tilt	2	2	2	2			2	2
Cables	Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 120 ft. (x2)	Coax Jumper (x2) Fiber Jumper - 15 ft.	Coax Jumper (x2)				Fiber Jumper - 15 ft. (x2)
TMA's		Generic Twin Style 1B - AWS (At Antenna)						
Diplexer / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

New Platform with Three Mounts per Sector.
AIR21 B2A/B4P for GSM, U1900, and U2100 in Position 1.
Add (1) LB/MB Octo to Position 2.
Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.
AIR21 B2P/B4A for L2100 in Position 3.

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

RAN Template: 67D5D998E 6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Sector 1 (Proposed) view from behind								
Coverage Type	A - Outdoor Macro							
Antenna	1		2			3		
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)			Commscope_VV-65A-R1 (Quad)		
Azimuth	0		0			0		
M. Tilt	0		0			0		
Height (ft)	108		108			108		
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech	N2500	N2500	L700 L600 N600	L700 L600 N600			L2100 G1900 L1900 N1900	L2100 L1900 N1900
Dark Tech								
Restricted Tech								
Decomm. Tech								
E. Tilt			2	2			2	2
Cables	Fiber Jumper (x4)	Fiber Jumper (x4)	Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2)			Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2)
TMAs								
Diplexer / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	Radio 4449 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Replace AIR21 KRC118023-1_B2P_B4A with VV-65A-R1 at P3.
 Replace AIR21 KRC118023-1_B2P_B4A with AIR6419 at P2.
 Add (1) 4460 Radio and connect it to quad antenna at P3.
 Remove all unused material.

Antenna skewing on all sectors. rotating the mount to reduce the skewing TBD.

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

RAN Template: 67D5D998E 6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro		
Antenna	1	2	3
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	RFS - APXVAARR24_43-U-NA20 (Octo)	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)
Azimuth			

120	120			120				
M. Tilt	0			0				0
Height (ft)	108			108				108
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech	L1900 G1900		N600 L700 L600	N600 L700 L600				L2100
Dark Tech								
Restricted Tech								
Decomm. Tech		U2100						
E. Tilt	2	2	2	2			2	
Cables	Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 120 ft. (x2)	Coax Jumper (x2) Fiber Jumper - 15 ft.	Coax Jumper (x2)				Fiber Jumper - 15 ft. (x2)
TMA's		Generic Twin Style 1B - AWS (At Antenna)						
Diplexer / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

New Platform with Three Mounts per Sector.
 AIR21 B2A/B4P for GSM, U1900, and U2100 in Position 1.
 Add (1) LB/MB Octo to Position 2.
 Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.
 AIR21 B2P/B4A for L2100 in Position 3.

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

RAN Template: 67D5D998E 6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
--	--

Sector 2 (Proposed) view from behind									
Coverage Type	A - Outdoor Macro								
Antenna	1		2			3			
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)			Commscope_VV-65A-R1 (Quad)			
Azimuth	120		120			120			
M. Tilt	0		0			0			
Height (ft)	108		108			108			
Ports	P1	P2	P3	P4	P5	P6	P7	P8	
Active Tech	N2500	N2500	L700 L600 N600	L700 L600 N600			N1900 L1900 G1900 L2100	N1900 L1900 L2100	
Dark Tech									
Restricted Tech									
Decomm. Tech									
E. Tilt			2	2			2	2	
Cables	Fiber Jumper (x4)	Fiber Jumper (x4)	Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2)			Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2)	
TMAs									
Diplexer / Combiners									
Radio			Radio 4449 B71+B85 (At Antenna)	Radio 4449 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	
Sector Equipment									

Unconnected Equipment:

Scope of Work:

Replace AIR21 KRC118023-1_B2P_B4A with VV-65A-R1 at P3.
 Replace AIR21 KRC118023-1_B2P_B4A with AIR6419 at P2.
 Add (1) 4460 Radio and connect it to quad antenna at P3.
 Remove all unused material.

Antenna skewing on all sectors. rotating the mount to reduce the skewing TBD.

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

RAN Template: 67D5D998E 6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro		
Antenna	1	2	3
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	RFS - APXVAARR24_43-U-NA20 (Octo)	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)
Azimuth			

240	240			240				
M. Tilt	0			0				0
Height (ft)	108			108				108
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech	L1900 G1900		N600 L700 L600	N600 L700 L600				L2100
Dark Tech								
Restricted Tech								
Decomm. Tech		U2100						
E. Tilt	2	2	2	2			2	
Cables	Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 120 ft. (x2)	Coax Jumper (x2) Fiber Jumper - 15 ft.	Coax Jumper (x2)				Fiber Jumper - 15 ft. (x2)
TMA's		Generic Twin Style 1B - AWS (At Antenna)						
Diplexer / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

New Platform with Three Mounts per Sector.
 AIR21 B2A/B4P for GSM, U1900, and U2100 in Position 1.
 Add (1) LB/MB Octo to Position 2.
 Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.
 AIR21 B2P/B4A for L2100 in Position 3.

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

RAN Template: 67D5D998E 6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Sector 3 (Proposed) view from behind									
Coverage Type	A - Outdoor Macro								
Antenna	1		2			3			
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)			Commscope_VV-65A-R1 (Quad)			
Azimuth	240		240			240			
M. Tilt	0		0			0			
Height (ft)	108		108			108			
Ports	P1	P2	P3	P4	P5	P6	P7	P8	
Active Tech	N2500	N2500	L600 L700 N600	L600 L700 N600			G1900 L1900 N1900 L2100	L1900 N1900 L2100	
Dark Tech									
Restricted Tech									
Decomm. Tech									
E. Tilt			2	2			2	2	
Cables	Fiber Jumper (x4)	Fiber Jumper (x4)	Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2)			Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2)	
TMA's									
Diplexer / Combiners									
Radio			Radio 4449 B71+B85 (At Antenna)	Radio 4449 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	
Sector Equipment									

Unconnected Equipment:

Scope of Work:

Replace AIR21 KRC118023-1_B2P_B4A with VV-65A-R1 at P3.
 Replace AIR21 KRC118023-1_B2P_B4A with AIR6419 at P2.
 Add (1) 4460 Radio and connect it to quad antenna at P3.
 Remove all unused material.

Antenna skewing on all sectors. rotating the mount to reduce the skewing TBD.

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

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

T-Mobile Existing Facility

Site ID: CTNH805A

Amtrak_Guilford
Moose Hill Road
Guilford, Connecticut 06437

October 6, 2023

EBI Project Number: 6223003754

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	2.93%

October 6, 2023

T-Mobile

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

Emissions Analysis for Site: CTNH805A - Amtrak_Guilford

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **Moose Hill Road in Guilford, 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 Moose Hill Road in Guilford, Connecticut using the equipment information listed below. Modeling of the antennas and associated equipment was completed using RoofMaster™ software, which is a widely-used predictive modeling program that has been developed to predict RF power density values for rooftop and tower telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. Using the computational methods set forth in Federal Communications (FCC) Office of Engineering & Technology (OET) Bulletin 65, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields” (OET-65), RoofMaster™ calculates predicted power density in a scalable grid based on the contributions of all RF sources characterized in the study scenario. At each grid location, the cumulative power density is expressed as a percentage of the FCC limits. Manufacturer antenna pattern data is utilized in these calculations. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

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 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. **All calculations were performed using Far Field Analysis.**

For all calculations, telecommunications equipment was modeled using the following assumptions:

- 1) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) 1 GSM channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 10 Watts per Channel.
- 5) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 80 Watts per Channel.
- 6) 1 NR channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 80 Watts per Channel.
- 7) 1 LTE channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 120/160 Watts per Channel.
- 8) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 90 Watts.
- 9) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 30 Watts.
- 10) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 11) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications 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.

- I2) The antennas used in this modeling are the ERICSSON SON_AIR6419 B4I NR TB 02.09.21 2500 TMO for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24 43-U-NA20 02DT 600 for the 600 MHz / 600 MHz / 700 MHz channel(s), the COMMSCOPE VV-65A-RIB 02DT 1900 for the 1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the ERICSSON SON_AIR6419 B4I NR TB 02.09.21 2500 TMO for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24 43-U-NA20 02DT 600 for the 600 MHz / 600 MHz / 700 MHz channel(s), the COMMSCOPE VV-65A-RIB 02DT 1900 for the 1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the ERICSSON SON_AIR6419 B4I NR TB 02.09.21 2500 TMO for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24 43-U-NA20 02DT 600 for the 600 MHz / 600 MHz / 700 MHz channel(s), the COMMSCOPE VV-65A-RIB 02DT 1900 for the 1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications 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.
- I3) The antenna mounting height centerline of the proposed antennas is 108 feet above ground level (AGL).
- I4) Emissions values for additional carriers were calculated in Far Field utilizing the antenna models provided in the structural analysis.
- I5) All calculations were done in Far Field mode 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 SON_AIR6419 B41 NR TB 02.09.21 2500 TMO	Make / Model:	ERICSSON SON_AIR6419 B41 NR TB 02.09.21 2500 TMO	Make / Model:	ERICSSON SON_AIR6419 B41 NR TB 02.09.21 2500 TMO
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120.00 Watts	Total TX Power (W):	120.00 Watts	Total TX Power (W):	120.00 Watts
ERP (W):	15,505.97	ERP (W):	15,505.97	ERP (W):	15,505.97
Antenna A1 MPE %:	5.36%	Antenna B1 MPE %:	5.36%	Antenna C1 MPE %:	5.36%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24 43-U-NA20 02DT 600	Make / Model:	RFS APXVAARR24 43-U-NA20 02DT 600	Make / Model:	RFS APXVAARR24 43-U-NA20 02DT 600
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	13.14 dBd / 13.14 dBd / 13.2 dBd	Gain:	13.14 dBd / 13.14 dBd / 13.2 dBd	Gain:	13.14 dBd / 13.14 dBd / 13.2 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts
ERP (W):	2,891.53	ERP (W):	2,891.53	ERP (W):	2,891.53
Antenna A2 MPE %:	2.41%	Antenna B2 MPE %:	2.41%	Antenna C2 MPE %:	2.41%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	COMMSCOPE VV- 65A-RIB 02DT 1900	Make / Model:	COMMSCOPE VV- 65A-RIB 02DT 1900	Make / Model:	COMMSCOPE VV- 65A-RIB 02DT 1900
Frequency Bands:	1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.25 dBd / 15.25 dBd / 15.25 dBd / 15.87 dBd	Gain:	15.25 dBd / 15.25 dBd / 15.25 dBd / 15.87 dBd	Gain:	15.25 dBd / 15.25 dBd / 15.25 dBd / 15.87 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	330.00 Watts	Total TX Power (W):	330.00 Watts	Total TX Power (W):	330.00 Watts
ERP (W):	10,296.29	ERP (W):	10,296.29	ERP (W):	10,296.29
Antenna A3 MPE %:	3.56%	Antenna B3 MPE %:	3.56%	Antenna C3 MPE %:	3.56%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Combined Sectors):	2.57%
Dish	0.36%
Site Total MPE % :	2.93%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	1.71%
T-Mobile Sector B Total:	2.50%
T-Mobile Sector C Total:	2.51%
T-Mobile Total MPE % :	2.57%

T-Mobile Maximum MPE Power Values (Sector C)

T-Mobile Frequency Band / Technology (Sector C)	# 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 2500 MHz NR	1	14429.20852	108	49.86073858	2500 MHz NR	1000.0	4.99%
T-Mobile 2500 MHz NR	1	1076.765804	108	3.720809648	2500 MHz NR	1000.0	0.37%
T-Mobile 600 MHz LTE	1	720.3772538	108	2.489293983	600 MHz LTE	400.0	0.62%
T-Mobile 600 MHz NR	1	1440.754508	108	4.978587965	600 MHz NR	400.0	1.24%
T-Mobile 700 MHz LTE	1	730.3986996	108	2.523923511	700 MHz LTE	467.0	0.54%
T-Mobile 1900 MHz GSM	1	290.4022654	108	1.003497276	1900 MHz GSM	1000.0	0.10%
T-Mobile 1900 MHz LTE	1	2323.218124	108	8.027978208	1900 MHz LTE	1000.0	0.80%
T-Mobile 1900 MHz NR	1	2323.218124	108	8.027978208	1900 MHz NR	1000.0	0.80%
T-Mobile 2100 MHz LTE	1	5359.447027	108	18.51979524	2100 MHz LTE	1000.0	1.85%
						T-Mobile Total:	2.57%

- NOTE: Total T-Mobile MPE values reflect all T-Mobile antennas as reported by RoofMaster™ combined modeling.
- 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:	1.71%
Sector B:	2.50%
Sector C:	2.51%
T-Mobile Maximum MPE % (Sector C):	2.51%
T-Mobile Combined Sectors MPE %:	2.57%
Site Total:	2.93%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **2.93%** of the allowable FCC established general population limit sampled at the ground level at a distance of 208 feet away from the tower. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions or documents available on the Connecticut Siting Council website.

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.