



March 24, 2021

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

RE: **Notice of Exempt Modification for T-Mobile
Crown Site ID# 876377; T-Mobile Site ID# CTHA329A
7 Sherwood Forest Lane, Killingworth, CT 06419
Latitude: 41° 20' 17.24" / Longitude: -72° 33' 23.44"**

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 150-foot mount on the existing 150-foot Monopole Tower located at 7 Sherwood Forest Lane in Killingworth. The property is owned by the Anderson Family Trust and the Tower is owned by Crown Castle. T-Mobile now intends to replace six (6) existing antennas and add three (3) new antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Planned Modifications:

Tower:

Remove and Replace:

(3) RFS/Celwave – APXVTM14-ALU-120 Antennas **(REMOVE)** - (3) RFS – APX16DWV-16DWV-S-E-A20 Antennas **(REPLACE)**

(3) Commscope – NNVV-65B-R4 Antennas **(REMOVE)** – (3) RFS – APXVAALL24_43-U-NA20 Antennas **(REPLACE)**

(3) Alcatel Lucent – TD-RRH8X20-25 Radios **(REMOVE)** – (3) Ericsson – 4424 B25 Radios **(REPLACE)**

(6) Alcatel Lucent – RRH2X50-800 Radios **(REMOVE)** – (3) Ericsson – 4415 B66A Radios **(REPLACE)**

Install New:

(3) AIR6449 B41 Antennas

(3) Ericsson Radio 4449 B71+B85

(4) 1 5/8" HCS 6/24 4AWG 100m cables

Remove:

(3) Alcatel Lucent – PCS 1900MHz 4X45W-65MHz Radios

Ground:

Install New:

- (1) SSC 6160 cabinet
- (1) B160 battery cabinet
- (1) BB6648
- (3) BB6630
- (1) DUG20
- (1) PSU 4813 voltage booster
- (1) IXRe router

Remove:

- (2) Sprint cabinets

This facility was approved by the Town of Killingworth Planning and Zoning Commission on March 21, 2000 by way of a Special Exception. This approval was given with conditions which this exempt modification is in compliance with.

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 Catherine Iino, First Selectwoman for the Town of Killingworth, Cathie Jefferson, Zoning Enforcement Officer, and the Anderson Family Trust as the property owners.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification 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 Communication 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-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Melanie A. Bachman

Page 3

Sincerely,



Richard Zajac
Site Acquisition Specialist
4545 East River Road, Suite 320
West Henrietta, NY
(585) 445-5896
Richard.zajac@crowncastle.com

cc:

The Honorable Catherine Iino, First Selectwoman (*via email only to ciino@townofkillingworth.com*)
Town of Killingworth
323 Route 81
Killingworth, CT 06419

Cathie S. Jefferson, Zoning Enforcement Officer (*via email only to cjefferson@townofkillingworth.com*)
Town of Killingworth
323 Route 81
Killingworth, CT 06419

Anderson Family Trust
380 May Apple Lane
Martinsburg, WV 25403

Zajac, Richard

From: Zajac, Richard
Sent: Wednesday, March 24, 2021 11:03 AM
To: ciino@townofkillingworth.com
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 7 Sherwood Forest Lane.pdf

Good morning Ms. Iino,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 7 Sherwood Forest Lane in Killingworth.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,
RICH ZAJAC
Site Acquisition Specialist
T: (585) 445-5896 M: (607) 346-7212
F: (724) 416-4461
CROWN CASTLE
4545 East River Road, Suite 320
West Henrietta, NY 14586

Zajac, Richard

From: Zajac, Richard
Sent: Wednesday, March 24, 2021 11:07 AM
To: cjefferson@townofkillingworth.com
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 7 Sherwood Forest Lane.pdf

Good morning Ms. Jefferson,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 7 Sherwood Forest Lane in Killingworth.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,
RICH ZAJAC
Site Acquisition Specialist
T: (585) 445-5896 M: (607) 346-7212
F: (724) 416-4461
CROWN CASTLE
4545 East River Road, Suite 320
West Henrietta, NY 14586

ORIGIN ID: ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR
WEBSTER, NY 14580
UNITED STATES US

SHIP DATE: 24MAR21
ACTWGT: 1.00 LB
CAD: 112911364/NET4340

BILL SENDER

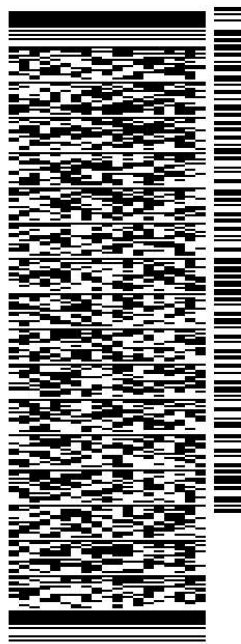
TO ANDERSON FAMILY TRUST

380 MAY APPLE LANE

MARTINSBURG WV 25403

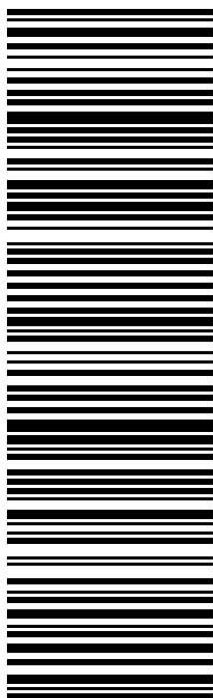
(585) 445-5896 REF: 7990017680
INV/ PO: DEPT:

56DJ3/AC39/FE4A



TRK# 7732 4965 6412 THU - 25 MAR 4:30P
0201 STANDARD OVERNIGHT

XC WDBA 25403
WV-US IAD



After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Exhibit A

Original Facility Approval

*Town of Killingworth
Inland Wetlands and Watercourses Commission
Killingworth, Connecticut 06419*

Certified # Z 455 232 287

Memorandum of Decision

At its Regular Meeting of February 22, 2000, the Commission approved the application of Sherwood R. Anderson (applicant, Sprint Spectrum, L.P.) for construction of a telecommunication facility, a 150 foot monopole, and upgrading of an existing woods road on Route 81, Map 37, Parcel 3.

This permit is granted subject to the following conditions:

1. The work is to be done exactly as shown on the revised plan "Sprint PCS, Anderson Property, Clinton Road (Connecticut Route 81), Killingworth, CT CT33XC543" prepared by Goodkind & O'Dea, Inc. Consulting Engineers and Planners, dated 11/19/99, with two revisions (12/15/99 and 2/22/00), consisting of 10 sheets.
2. All construction is to be carried out in a workman-like manner.
3. During construction, appropriate and effective measures must be taken to prevent silting and water discoloration downstream.
4. If during construction, it becomes apparent that rain and surface drainage runoff will cause silting or water discoloration of the adjacent wetlands and/or watercourse, then appropriate and effective protection against these conditions must be taken.
5. No excavation may commence until all erosion and sedimentation controls, as defined on the approved plans, are in place and have been inspected and approved by the Killingworth IWWC or its agent.
6. The Commission is to be notified when this project begins and when it is completed.
7. The Commission, or its representative, shall be free to make interim inspections of the site as it deems necessary.
8. In no way is it to be construed that this permit allows the applicant to perform any other activity than that which is stated above. Any additional activity requires an additional permit or an amendment to this permit.

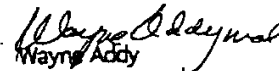
page 2 - Memorandum of Decision # Z 455 232 287

9. This permit shall be valid for five (5) years from the date of the legal notice publication. However, the regulated activity or use authorized by the permit must be completed within two (2) years from the time such activity is commenced, unless otherwise specified.

10. Any application to renew this permit should be submitted at least sixty-five (65) days prior to the expiration date.

This permit is granted in the belief that there will be minimal adverse impact on the environment.

For the Commission,


Wayne Addy
Chairman

IN RE APPLICATION
SPECIAL EXCEPTION
SPRINT SPECTRUM L.P.

KILLINGWORTH PLANNING
AND ZONING COMMISSION
MARCH 21, 2000

MEMORANDUM OF DECISION

An application #149 of SPRINT SPECTRUM L.P. for a Special Exception under Section 120 of the Zoning Regulations for Communication Tower was submitted to the Planning & Zoning Commission at its meeting of February 1, 2000. The property is located at Route 81 and is shown on Tax Map 37, Parcel 3. The owner as recorded in the Killingworth Land Records (Volume 87, Page 642) is Sherwood R. Anderson. The application was considered under the standards prescribed in Section 120G of the Zoning Regulations.

The Commission, at its meeting of March 21, 2000, voted to approve the application for Special Exception with the following conditions:

1. Leased area must encompass the full zone of the tower.
2. Lighting be limited to time of service repairs.

Charles E. Martens
Charles E. Martens, Chairman

Dated at Killingworth, Connecticut this 3rd day of April, 2000.

Certified a true and correct copy of that
which is on file with the Killingworth
Planning & Zoning Commission

Date: 4/5/00 Time: 12:50 PM

Clerk of KP&ZC: Smileth R. Brown
U

Rec'd 4/5/00 at 12:50 PM
James G. Garry Trust

IN RE APPLICATION
SPECIAL EXCEPTION
SPRINT SPECTRUM L.P.

KILLINGWORTH PLANNING
AND ZONING COMMISSION
MARCH 21, 2000

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Charles E. Martens
Charles E. Martens, Chairman

Dated at Killingworth, Connecticut this 3rd day of April, 2000.

Certified a true and correct copy of that
which is on file with the Killingworth
Planning & Zoning Commission

Date: 4/5/00 Time: 12:50 PM

Clerk of KP&ZC: Julia R. Brown

Received for record April 6, 2000
at 10 h 00 m A M and recorded by
James P. [Signature] Town Clerk

08
KILLINGWORTH PLANNING & ZONING COMMISSION

TOWN OFFICE BUILDING
323 ROUTE 81
KILLINGWORTH, CONNECTICUT 06419-1298

April 5, 2000

Sprint Spectrum LP
1 International Boulevard
Mahwah, NJ 07495

RE: Memorandum of Decision
March 21, 2000

Gentlemen:

Please be advised that your application for Special Exception for Telecommunications Tower dated 1/18/00 was approved with conditions by the Planning & Zoning Commission at its March 21, 2000 meeting. A copy of the Memorandum of Decision is enclosed. The Notice of Decision was published in The Hartford Courant on Friday, March 31, 2000.

Sincerely,

Charles E. Martens, Jr.

Charles E. Martens, Jr. (jr)
Chairman

CEM/jrb

CERTIFIED MAIL, RRR
Z 285 870 490

Exhibit B

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2016.



Information on the Property Records for the Municipality of Killingworth was last updated on 3/20/2021.

Parcel Information

Location:	7 SHERWOOD FOREST LANE	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00247300	Map Block Lot:	37-03	Acres:	2.14
490 Acres:	0.00	Zone:	R-2	Volume / Page:	0218/0491
Developers Map / Lot:	SM1902/SPRINT E	Census:	6401		

Value Information

	Appraised Value	Assessed Value
Land	247,499	173,250
Buildings	0	0
Detached Outbuildings	0	0
Total	247,499	173,250

Owner's Information

Owner's Data

ANDERSON SHERWOOD & DIAN TRUSTEES
GLOBAL SIGNAL ACQ II LLC
PMB 331, 4017 WASHINGTON RD
MCMURRAY PA 15317

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
ANDERSON SHERWOOD & DIAN TRUSTEES	0218	0491	06/07/2006	Warranty Deed	Yes	\$0
ANDERSON SHERWOOD R	0218	0225	05/26/2005		No	\$0
ANDERSON SHERWOOD R	0087	0642	11/06/1985		No	\$0

Building Permits

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
F20-055	Comm Renovations	08/14/2020		Closed	AT&T TO MODIFY EXISTING ANTENNA ARRAY ON EXISTING CELL TOWER BY REMOVING & REPLACING 6 ANTENNAS WIT
F18-138	Comm Renovations	09/10/2018		Closed	SPRINT TO REPLACE (3) ANTENNAS, ADD (3) ANTENNAS, ADD (12) RRH. AS PER APPLICATION
F17-344	Commercial	04/24/2018		Closed	MODIFY EXSTG AT&T ANTENNA: REMOVE/REPLACE (3) ANTENNAS; ADD (3) REMOTE RADIO UNITS (RRU); INSTALL H
14-062	Electrical	04/22/2014		Closed	REPLACE 6 ANTENNAS
12-397	Commercial	12/11/2012		Closed	CELL TOWER MAINTENANCE
12-377	Building	12/05/2012		Closed	
12-071	Building	03/03/2012		Closed	ADD 6 LINES TO EXISTING INSTALLATION
09-E032	Electrical	07/25/2009		Closed	ELECTRICAL INSTALL;

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
09-C002	Commercial Addition	07/05/2009		Closed	ADDITION TO CELL TOWER;

Information Published With Permission From The Assessor

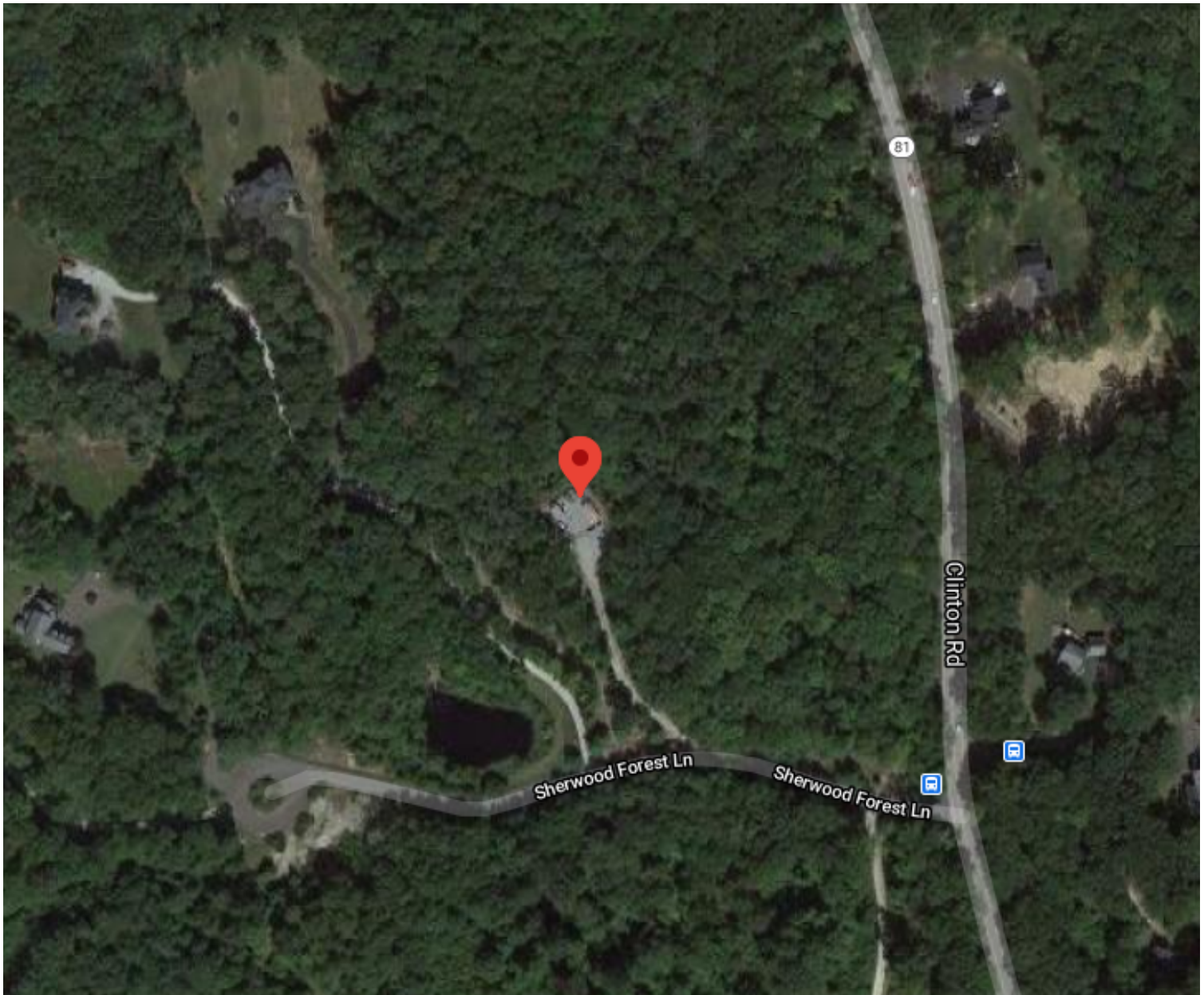
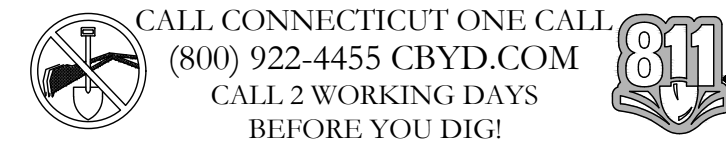


Exhibit C

Construction Drawings



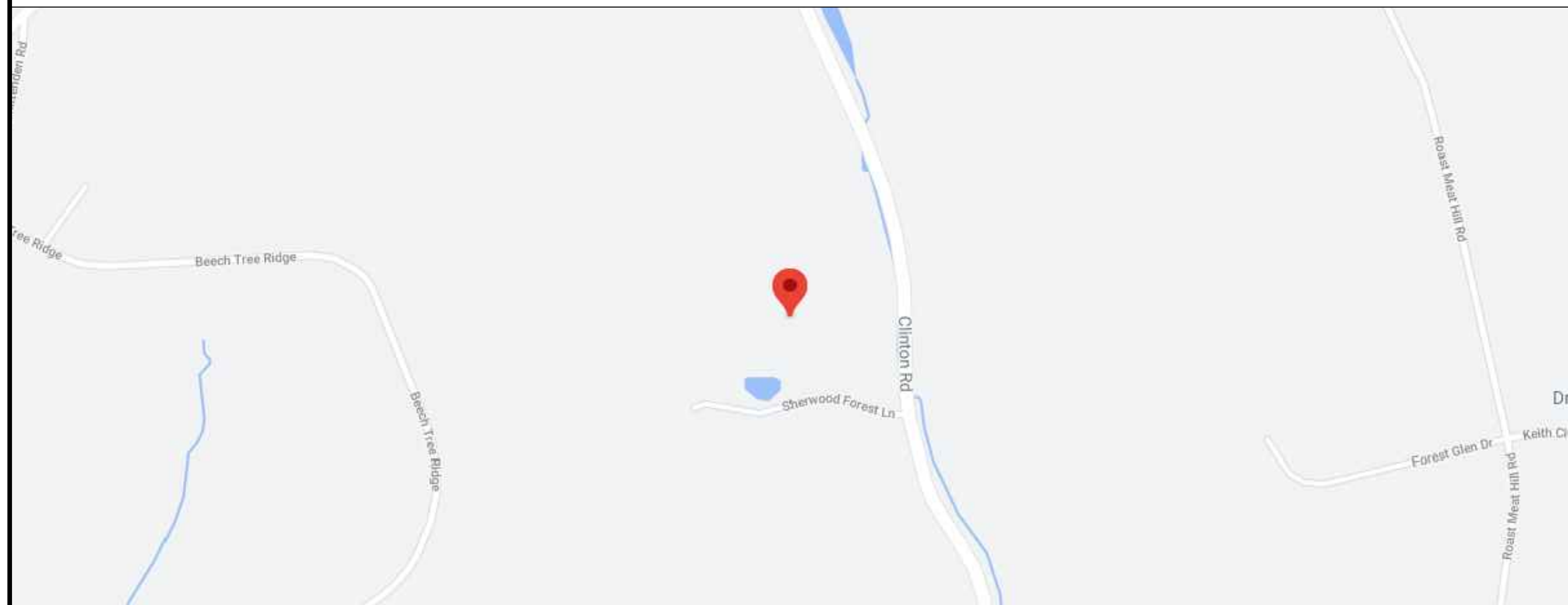
T-MOBILE SPRINT-RETAIN SITE CONFIGURATION: 67D5998C_1xAIR+1QP+1OP (GSM ONLY)

DRAWING INDEX

[illegible]

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22x34. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2018 INTERNATIONAL MECHANICAL CODE
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: TOWER ENGINEERING PROFESSIONALS
DATED: 02/09/2021
MOUNT ANALYSIS: BY INFINIGY ENGINEER, PLLC
DATED: 02/01/2021

ORDER ID: 538757 RFDS VERSION: 1
REVISION: 0 DATED: 01/12/2021

ANALYSIS CRITERIA:

APPLICABLE CODES:	TTA-222-H / ASCE 7-16
WIND SPEED:	V = 130 MPH (ULTIMATE 3 SECOND GUST)
EXPOSURE CATEGORY:	B
RISK CATEGORY:	II
TOPOGRAPHIC CATEGORY:	1
SEISMIC Ss:	0.172
SEISMIC S1:	0.060
SERVICE WIND SPEED:	60 MPH

APPROVALS

<u>APPROVAL</u>	<u>SIGNATURE</u>	<u>DATE</u>
RF	_____	_____
CONST.	_____	_____
FAA	_____	_____
OPS	_____	_____
RE	_____	_____
SR DEV MGR	_____	_____
REG DIR	_____	_____

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

PROJECT TEAM

A&E FIRM:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603

JOSEPH T. CRESS - PROJECT MANAGER
(919) 661-6351

GRAHAM M. ANDRES - CIVIL ENGINEER
(919) 661-6351

GRAHAM M. ANDRES - ELECTRICAL ENGINEER
(919) 661-6351

CROWN CASTLE
USA INC. DISTRICT
CONTACTS:

4511 N. HIMES AVE., SUITE 210
TAMPA, FL 33614

NTSITA CRENSHAW - A&E SPECIALIST
(813) 342-3871

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE
BROADBAND CONNECTIVITY AND CAPACITY TO THE
EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:

- REMOVE (6) ANTENNAS
- REMOVE (12) RRHs
- REMOVE (4) CABLES
- REUSE (1) CABLE
- REUSE (1) GPS
- REUSE (1) PLATFORM MOUNT W/ HANDRAIL
- INSTALL (9) ANTENNAS
- INSTALL (9) RRHs
- INSTALL (4) HYBRID CABLES
- INSTALL (6) BACK TO BACK RRH MOUNTS

GROUND SCOPE OF WORK:

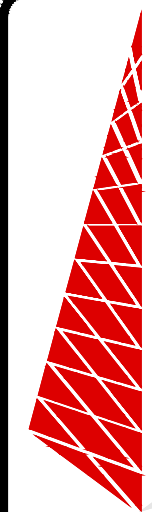
- REMOVE LEGACY SPRINT CABINET(S), AS NEEDED
- REUSE EXISTING SPRINT/NEXTEL PAD, ICE BRIDGE, AND UTILITY EQUIPMENT
- INSTALL (3) BB 6630, (1) BB 6648, (1) DUG20, (1) IXRE ROUTER
- INSTALL (1) PSU 4813 BOOSTER
- INSTALL (2) CABINETS

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002



1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430



TOWER
ENGINEERING
PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 217201.495954

T-MOBILE SITE NUMBER:
CTHA329A

BU #: 876383
CLINTON/ANDERSON'S
PROPERTY

7 SHERWOOD FOREST LN
KILLINGWORTH, CT 06419

EXISTING 150'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	JW	PRELIMINARY	BSE
0	03/10/21	JW	CONSTRUCTION	BSE

SEAL:



03/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

SHEET NUMBER:

T-1

REVISION:

0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS." IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: T-MOBILE
TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
#4 BARS AND SMALLER.....40 ksi
#5 BARS AND LARGER.....60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER.....2"
#5 BARS AND SMALLER.....1-1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
SLAB AND WALLS.....3/4"
BEAMS AND COLUMNS.....1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE; UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
 - 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
 - 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TO CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° F IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECIMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
277/480V, 3Ø	GROUND	GREEN
	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
DC VOLTAGE	NEUTRAL	GREY
	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

ABBREVIATIONS:

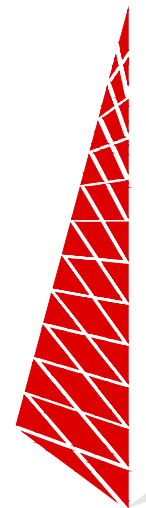
ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430



TOWER
ENGINEERING
PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 217201.495954

T-MOBILE SITE NUMBER:
CTHA329A

BU #: 876383
CLINTON/ANDERSON'S
PROPERTY

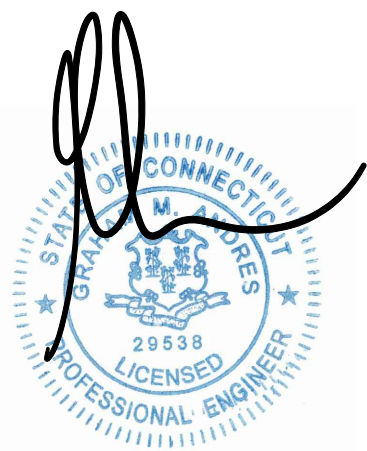
7 SHERWOOD FOREST LN
KILLINGWORTH, CT 06419

EXISTING 150'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	JW	PRELIMINARY	BSE
0	03/10/21	JW	CONSTRUCTION	BSE

SEAL:



03/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

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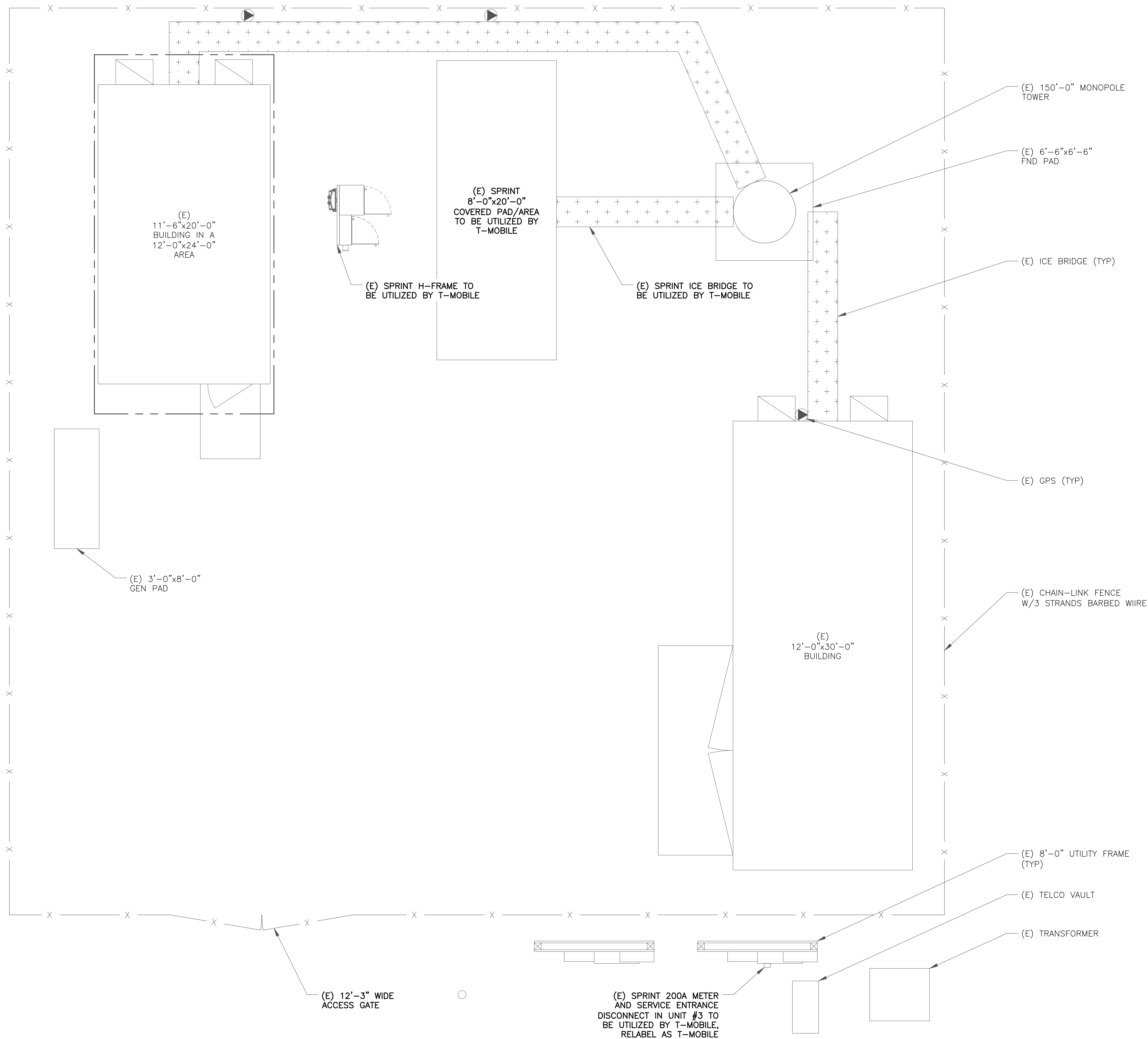
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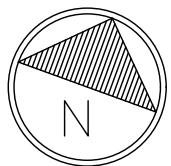
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NOTE:
SITE PLAN SHOWN BELOW WAS REPRODUCED FROM
INFORMATION PROVIDED BY CROWN CASTLE AND SITE
WALK CONDUCTED BY TEP. CONTRACTOR TO VERIFY ALL
EXISTING INFORMATION IS AS INDICATED ON SITE PLAN.
CONTRACTOR IS TO ESTABLISH THE EXISTENCE AND
LOCATION OF ALL EXISTING UNDERGROUND AND
OVERHEAD UTILITIES. IMMEDIATELY NOTIFY THE
CONSTRUCTION MANAGER OF ANY DISCREPANCIES.

FLOODPLAIN NOTE:
THE TOWER IS LOCATED IN ZONE "X" AREAS
DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL
CHANCE FLOODPLAIN ACCORDING TO FEMA COMMUNITY
PANAL #09007C0310G, DATED 08/28/2008.



1 SITE PLAN
SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (11x17)



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35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN
CASTLE

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EXISTING 150'-0"
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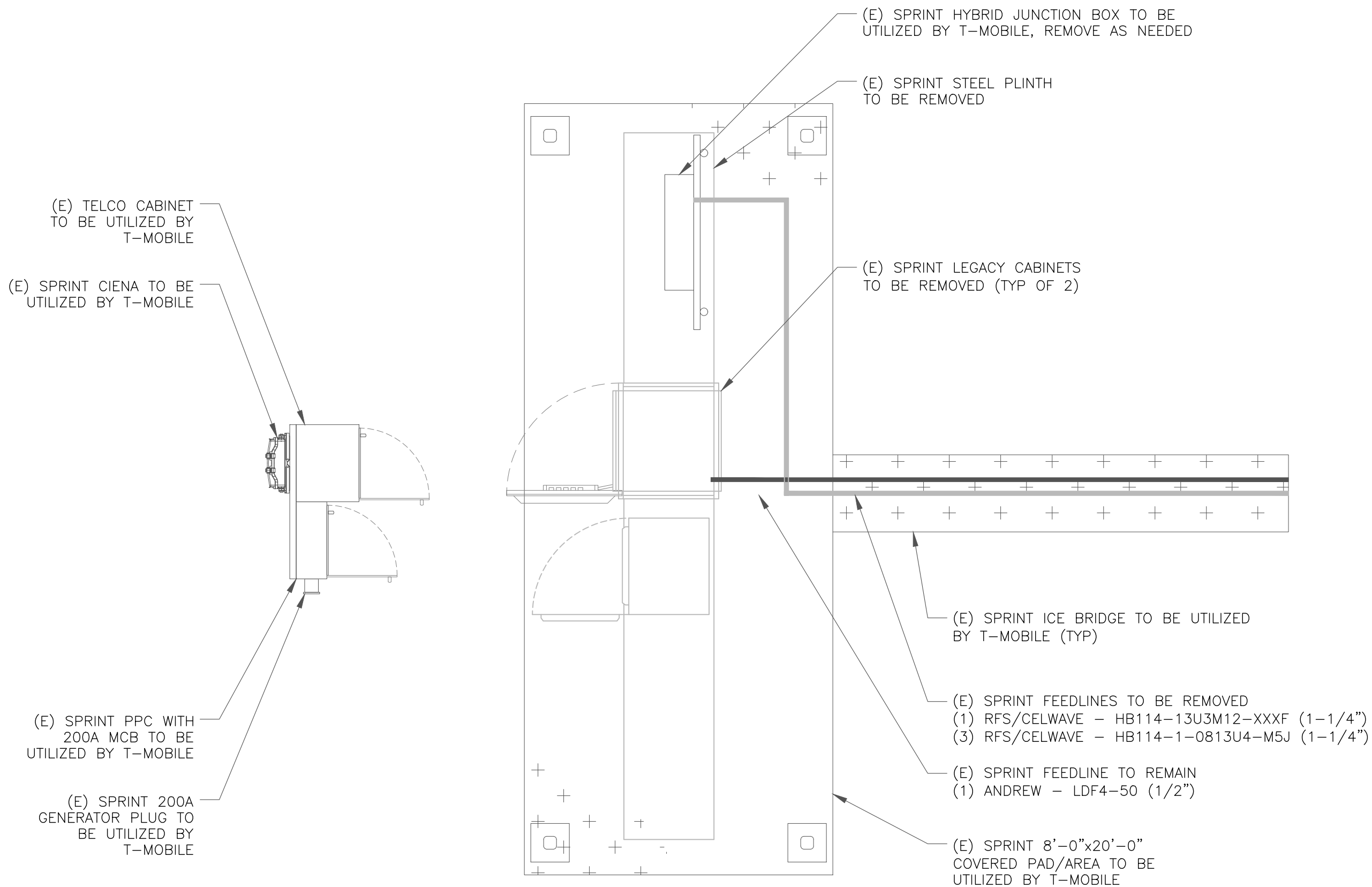
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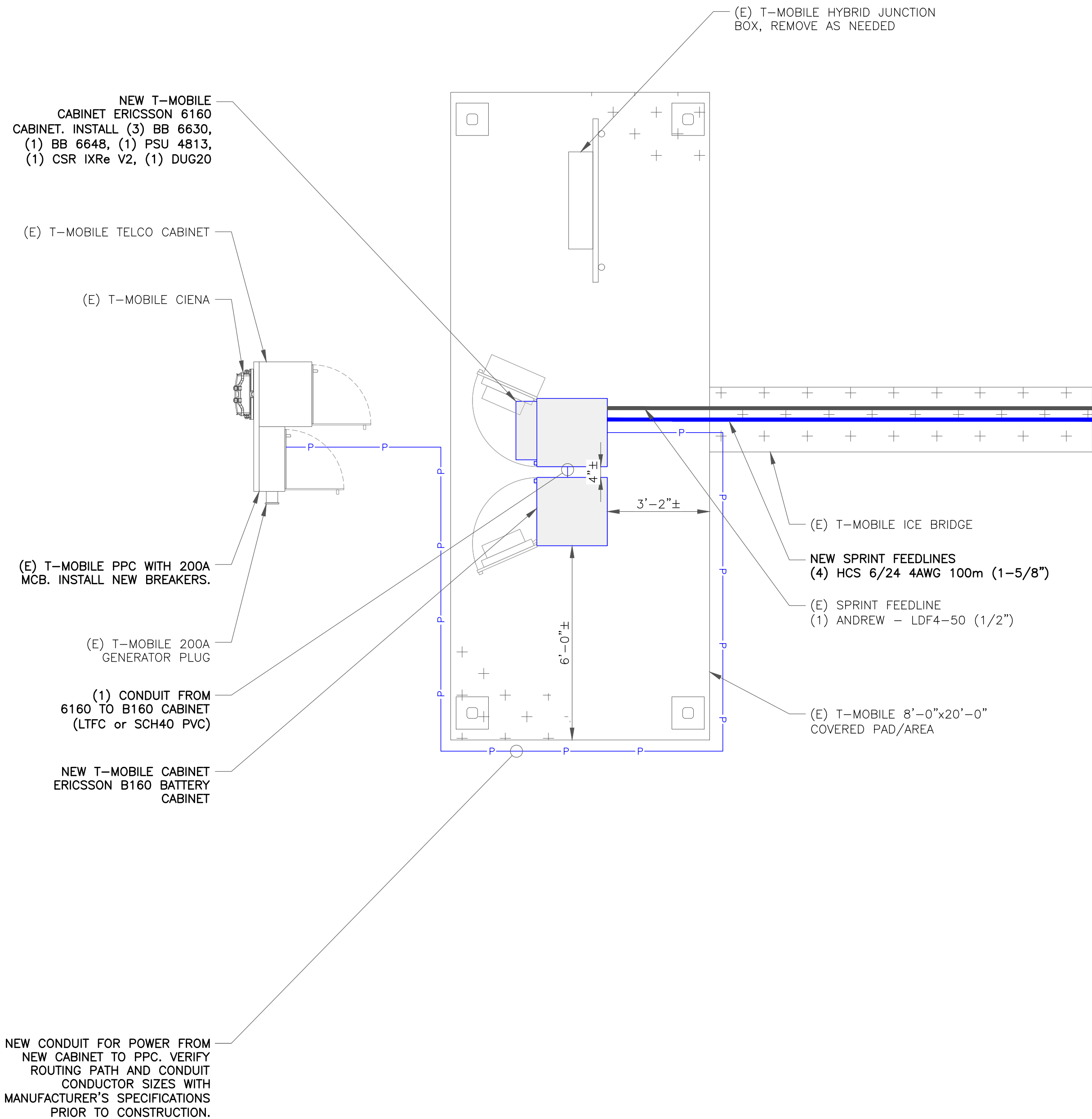
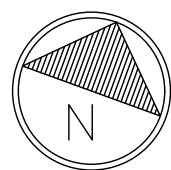
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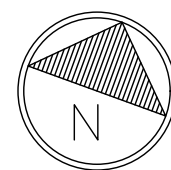
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CHANCE FLOODPLAIN ACCORDING TO FEMA COMMUNITY
PANEL #09007C0310G, DATED 08/28/2008.



1 EXISTING EQUIPMENT PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)



2 FINAL EQUIPMENT PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)



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CLINTON/ANDERSON'S
PROPERTY**

7 SHERWOOD FOREST LN
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**EXISTING 150'-0"
MONOPOLE**

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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0	03/10/21	JW	CONSTRUCTION	BSE

SEAL:



03/10/21

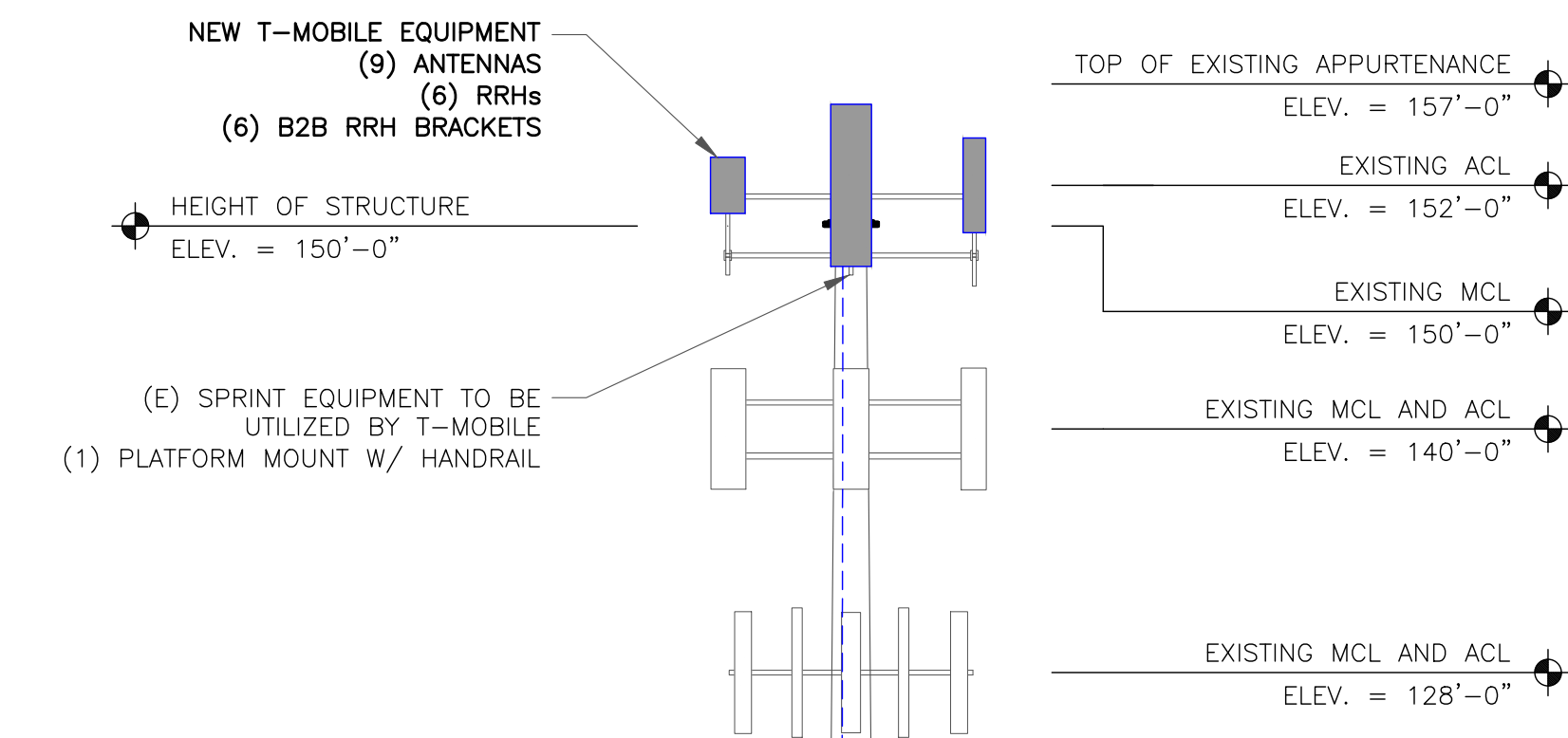
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C-1.2

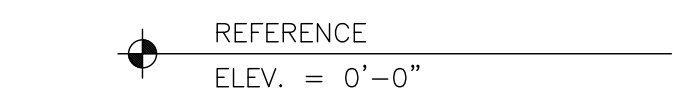
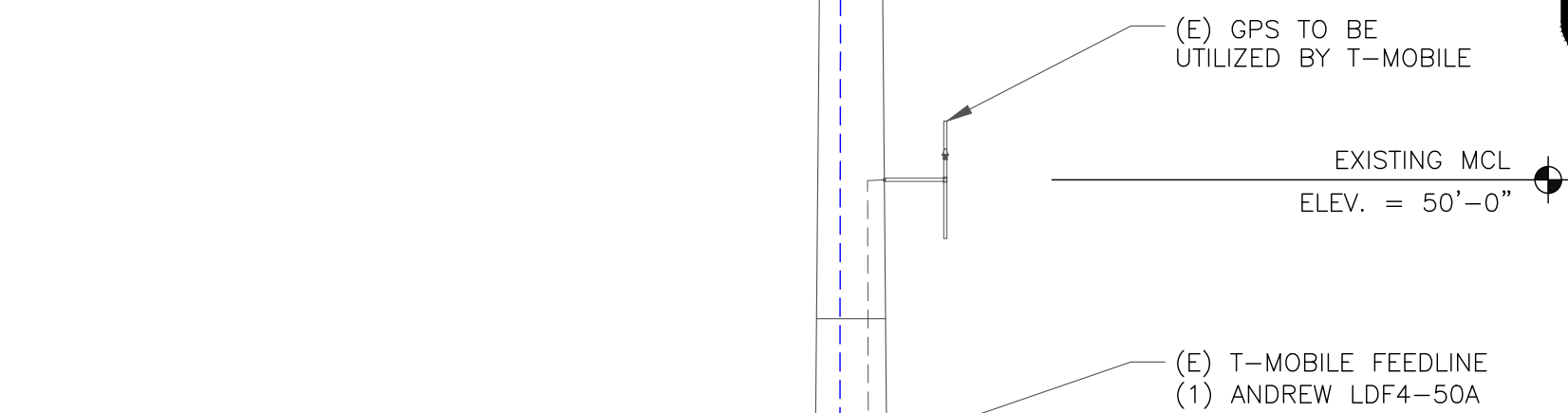
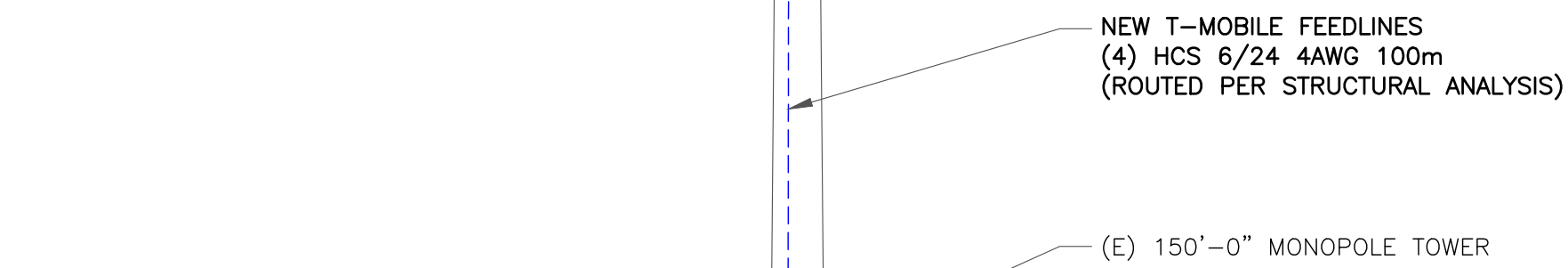
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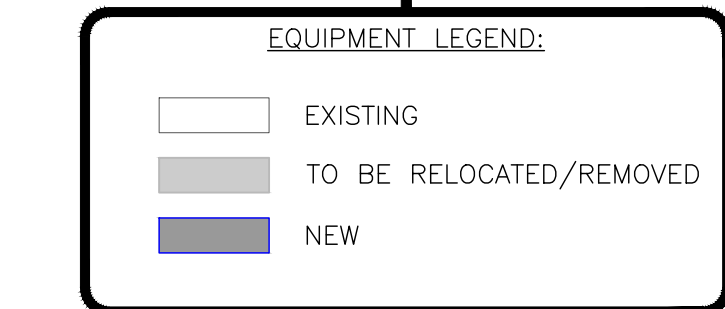


T-MOBILE EQUIPMENT
ANTENNA CL: 152'-0"
MOUNT CL: 150'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



1 FINAL ELEVATION
SCALE: NOT TO SCALE



INSTALLER NOTE:
EXISTING AND PROPOSED ANTENNA/EQUIPMENT POSITIONING SHOWN PER RFDS. FIELD CONDITIONS MAY VARY.

TOWER ANALYSIS NOTES:

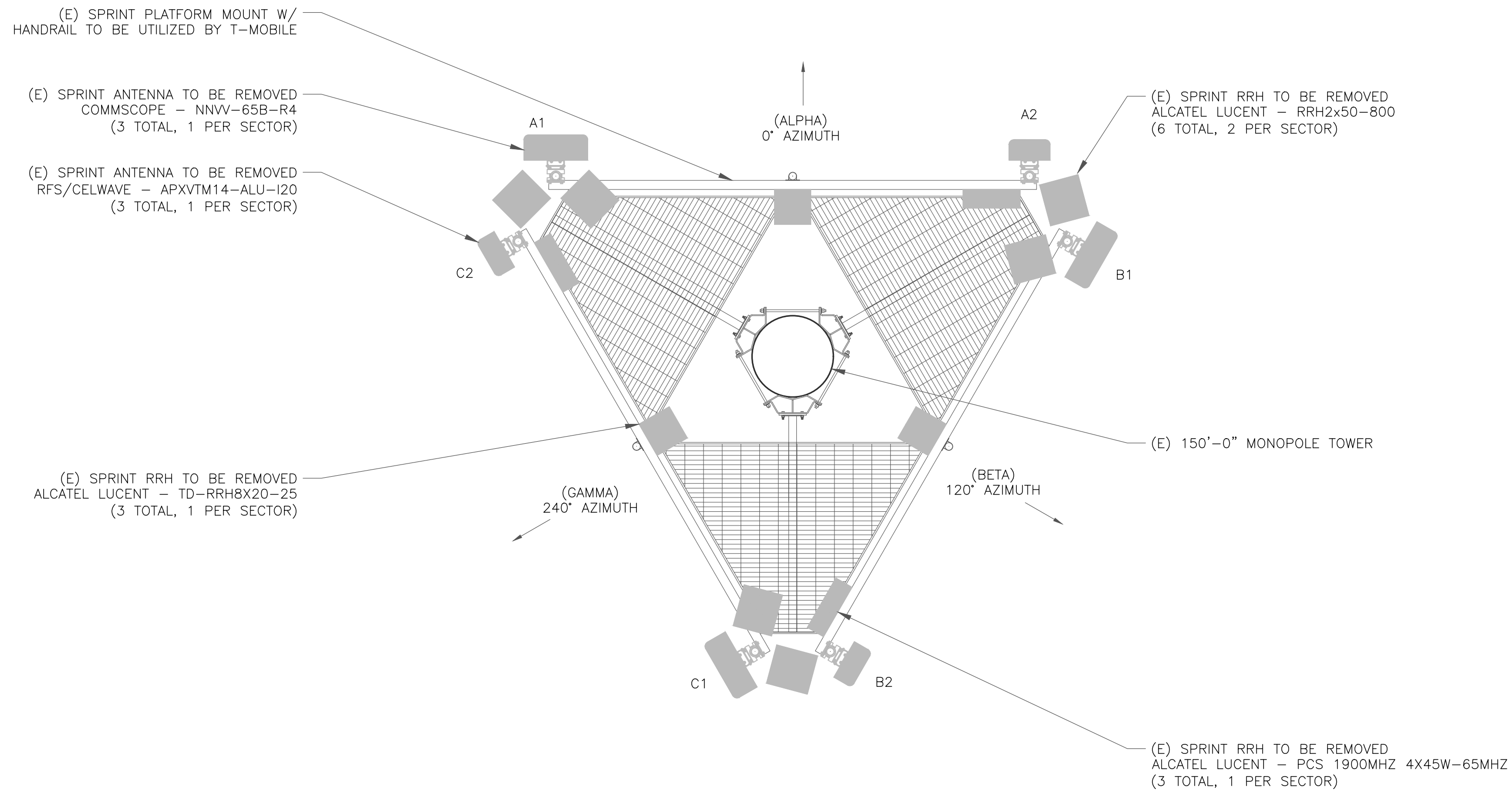
1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING TOWER ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE TOWER ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED TOWER MODIFICATION DESIGN OR TOWER REPLACEMENT SHALL BE APPROVED BY EOR.

MOUNT ANALYSIS NOTES:

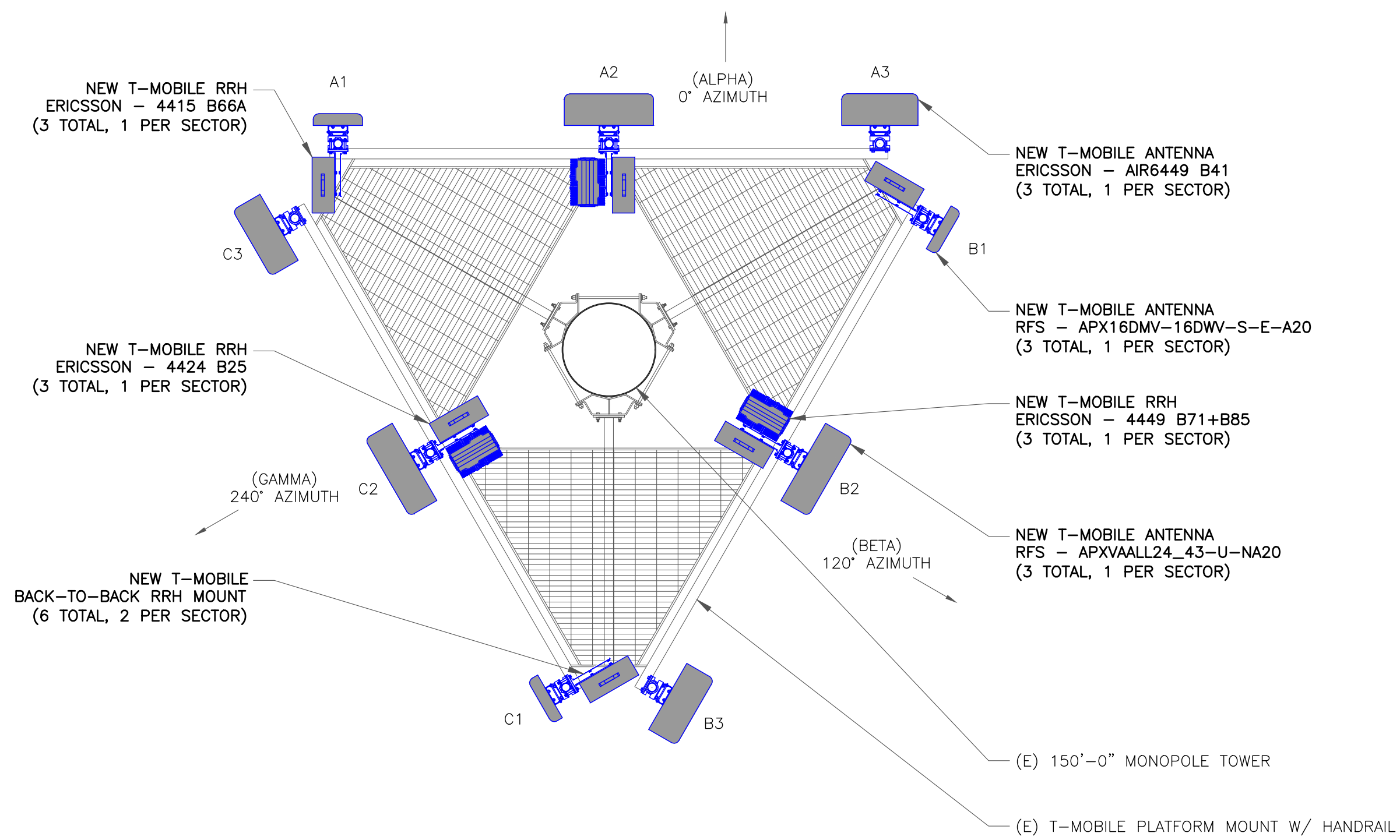
1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING MOUNT ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE MOUNT ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED MOUNT MODIFICATION DESIGN OR MOUNT REPLACEMENT SHALL BE APPROVED BY EOR.

"LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NCC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE

RRH NOTE:
CONTRACTOR TO ENSURE RRHS ARE INSTALLED MIN 8" AWAY FROM ANTENNA

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 217201.495954

T-MOBILE SITE NUMBER:
CTHA329A


BU #: 876383
CLINTON/ANDERSON'S PROPERTY

7 SHERWOOD FOREST LN
KILLINGWORTH, CT 06419

EXISTING 150'-0" MONOPOLE

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	JW	PRELIMINARY	BSE
0	03/10/21	JW	CONSTRUCTION	BSE

SEAL:



03/10/21

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C-2

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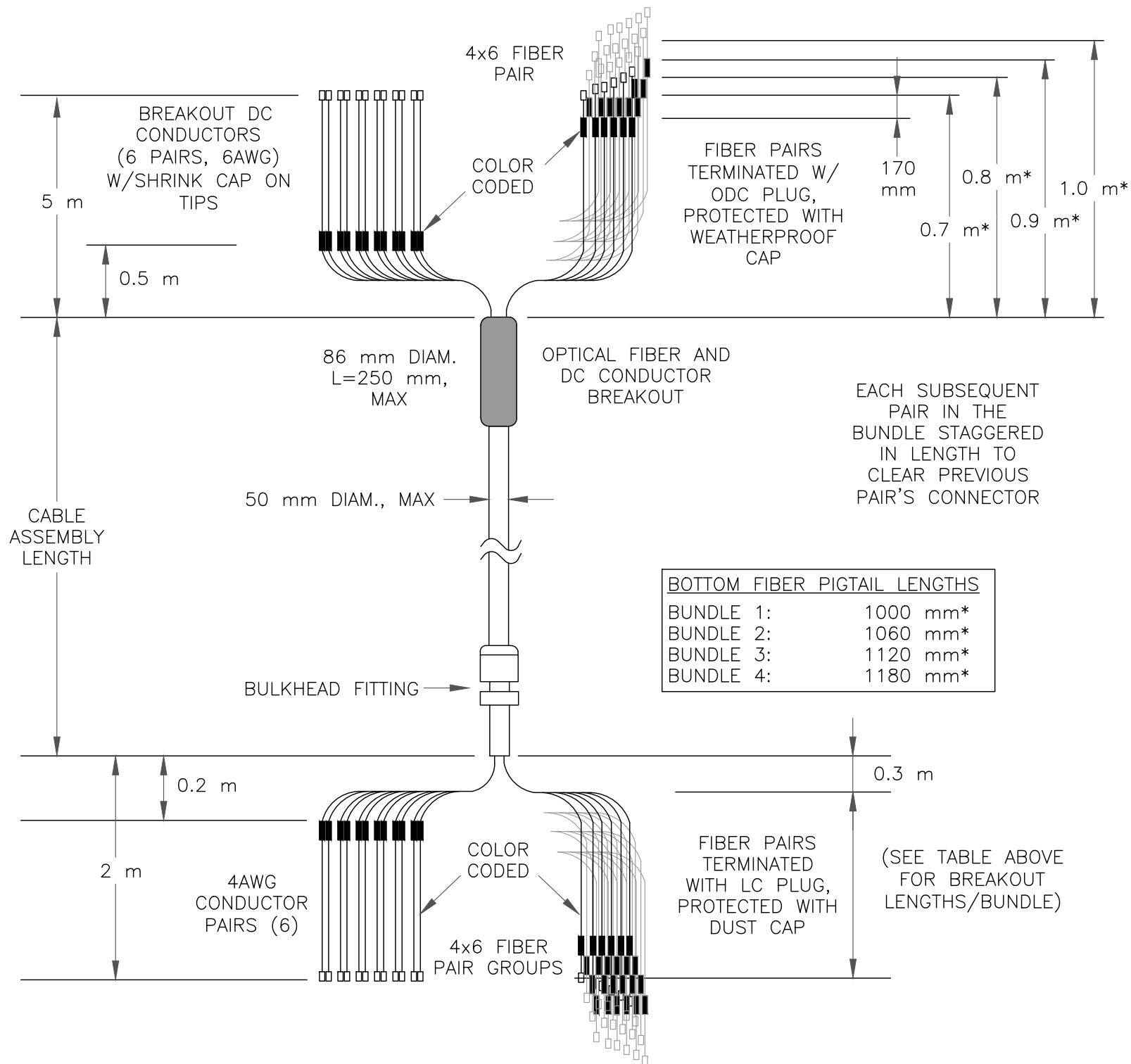
FINAL ANTENNA SCHEDULE										
SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	L2100	152'-0"	0°	RFS	APX16DWV-16DWV-S-E-A20 (QUAD)	0°	2°	(1) ERICSSON - RADIO 4415 B66A	(1) HCS 6/24 4AWG 100m
ALPHA	A2	L700, L600, N600, L1900, G1900	152'-0"	0°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	5° 2'	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25	(1) HCS 6/24 4AWG 100m
ALPHA	A3	L2500, N2500	152'-0"	0°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	0°	2°	-	HYBRID (SHARED)
BETA	B1	L2100	152'-0"	120°	RFS	APX16DWV-16DWV-S-E-A20 (QUAD)	0°	2°	(1) ERICSSON - RADIO 4415 B66A	HYBRID (SHARED)
BETA	B2	L700, L600, N600, L1900, G1900	152'-0"	120°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	5° 2'	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25	(1) HCS 6/24 4AWG 100m
BETA	B3	L2500, N2500	152'-0"	120°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	0°	2°	-	HYBRID (SHARED)
GAMMA	C1	L2100	152'-0"	240°	RFS	APX16DWV-16DWV-S-E-A20 (QUAD)	0°	2°	(1) ERICSSON - RADIO 4415 B66A	HYBRID (SHARED)
GAMMA	C2	L700, L600, N600, L1900, G1900	152'-0"	240°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	5° 2'	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25	(1) HCS 6/24 4AWG 100m
GAMMA	C3	L2500, N2500	152'-0"	240°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	0°	2°	-	HYBRID (SHARED)

PROPOSED ANTENNA/EQUIPMENT SHOWN IN BOLD

FINAL CABLE SCHEDULE			
STATUS	CABLE TYPE	SIZE	QUANTITY
NEW	HCS	6/24 4AWG 100m	4
CABLE QUANTITY			4

NOTE:
(3) HYBRID SHARED BETWEEN APX/4415/4449/4424 PER SECTOR
(1) HYBRID SHARED BETWEEN 6449 ANTENNAS PER SECTOR

1 PROPOSED ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE



2 HCS DETAIL
SCALE: NOT TO SCALE

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PROFESSIONALS

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BU #: 876383
CLINTON/ANDERSON'S
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SEAL:



03/10/21

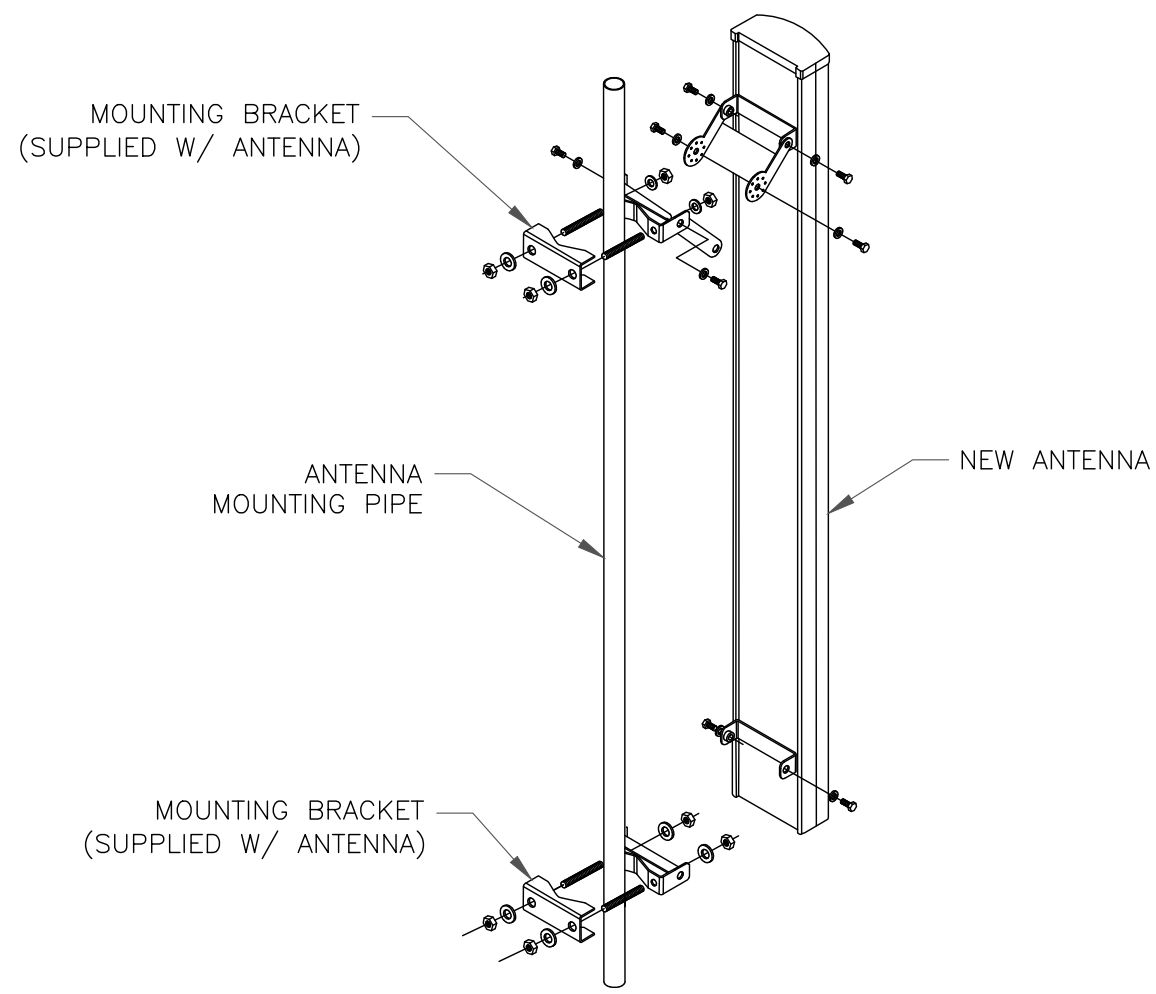
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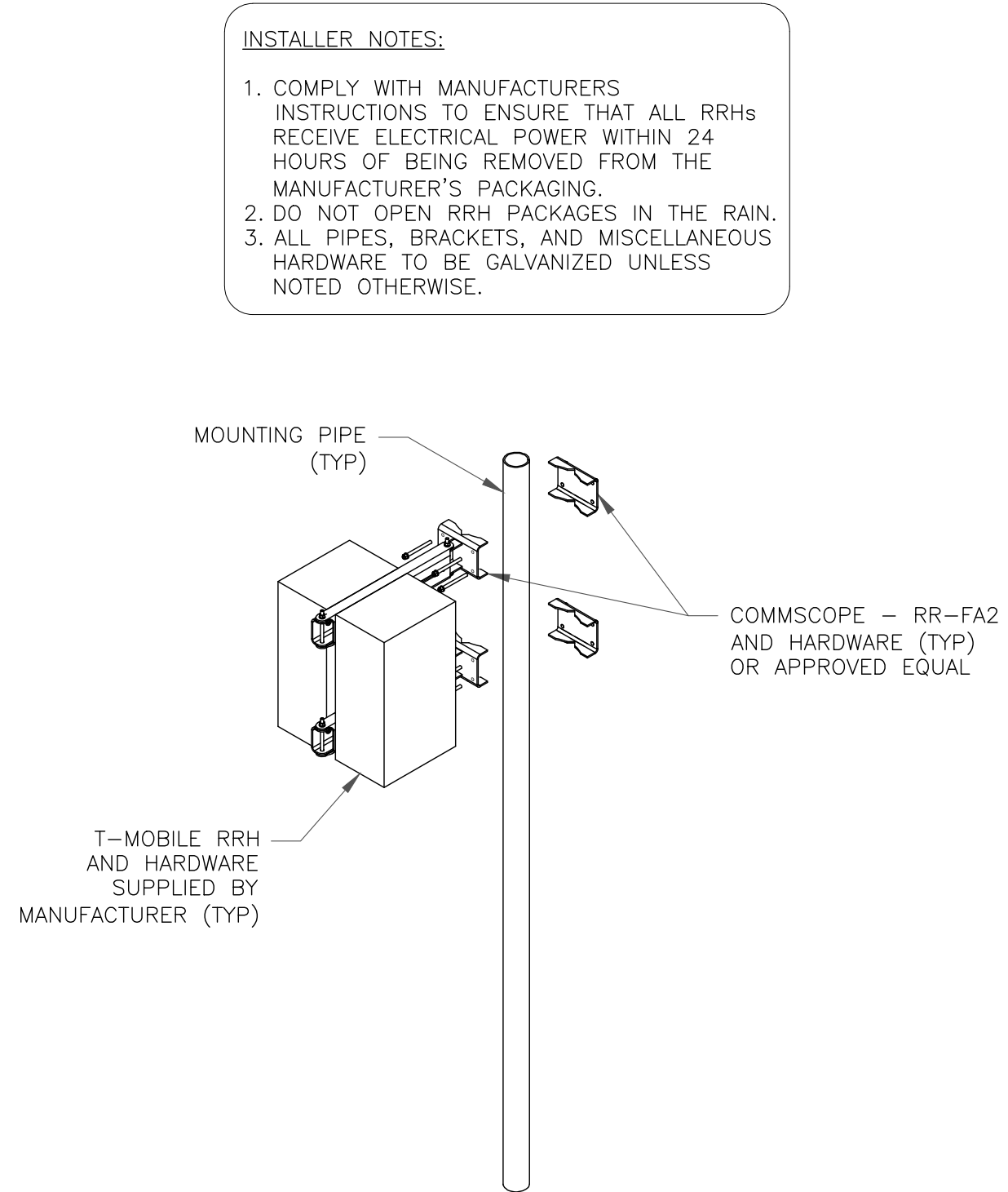
C-3

REVISION:

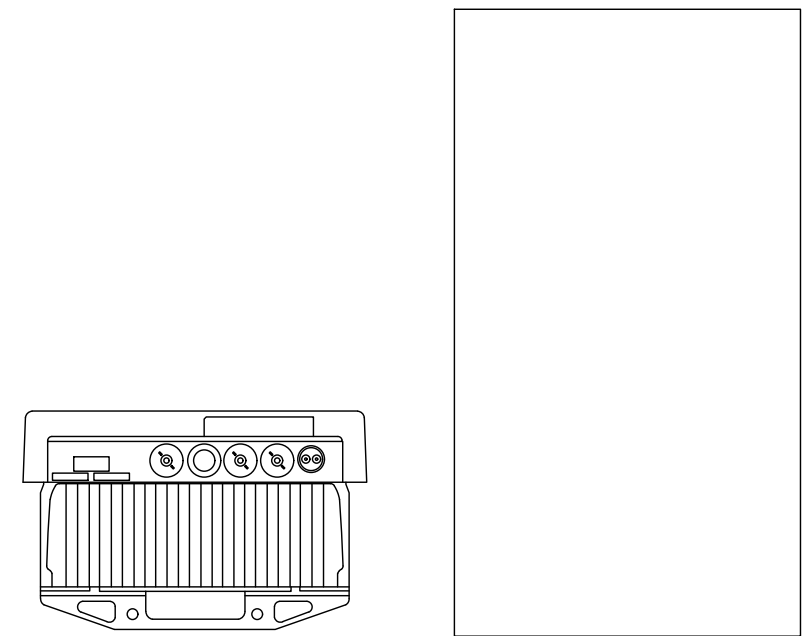
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1 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

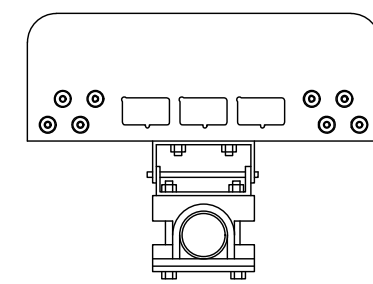


2 RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE



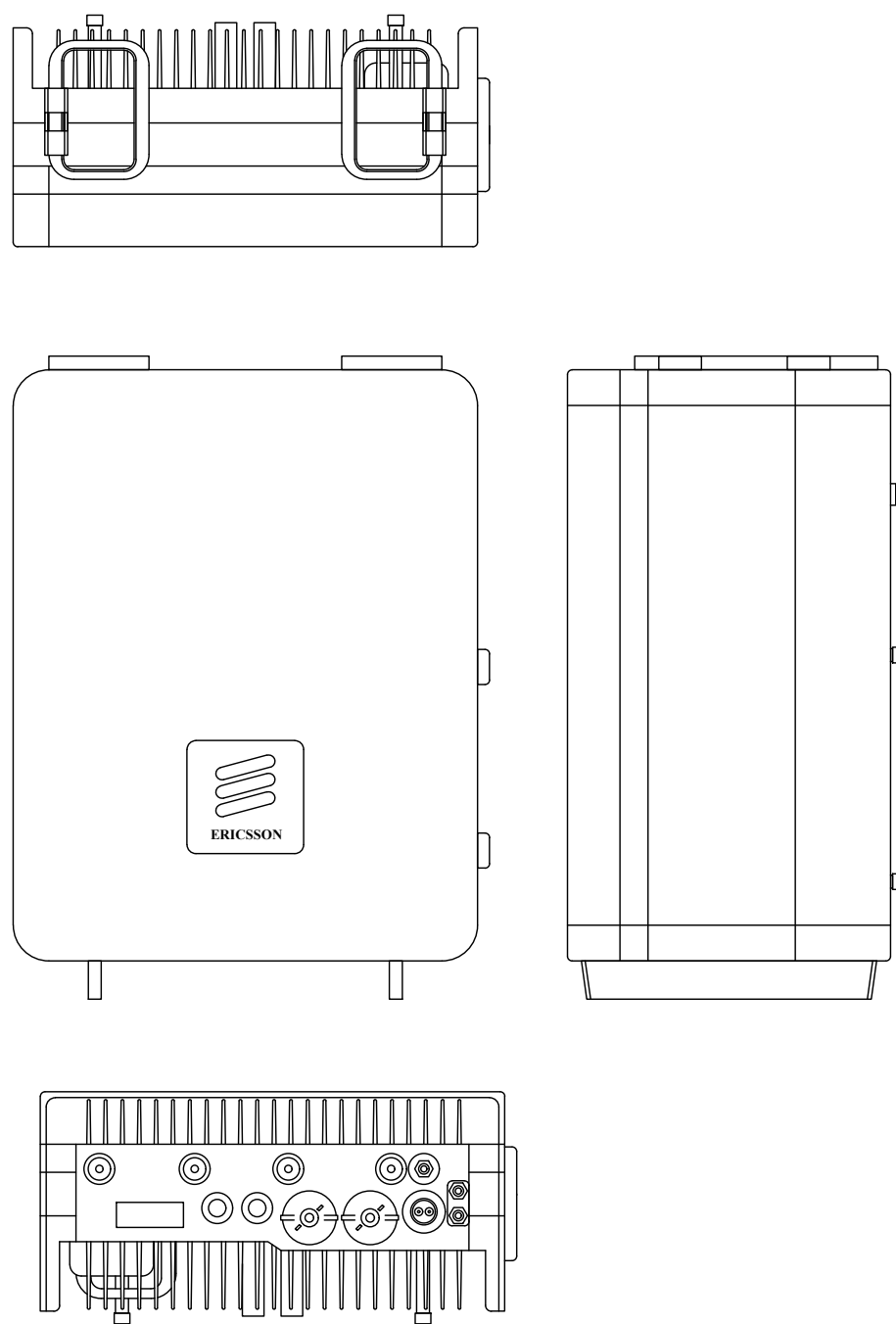
ERICSSON - AIR6449 B41
WEIGHT: 104.0 LBS
SIZE (HxWxD): 33.10x20.60x8.60 IN.

3 ERICSSON - AIR6449 B41
SCALE: NOT TO SCALE



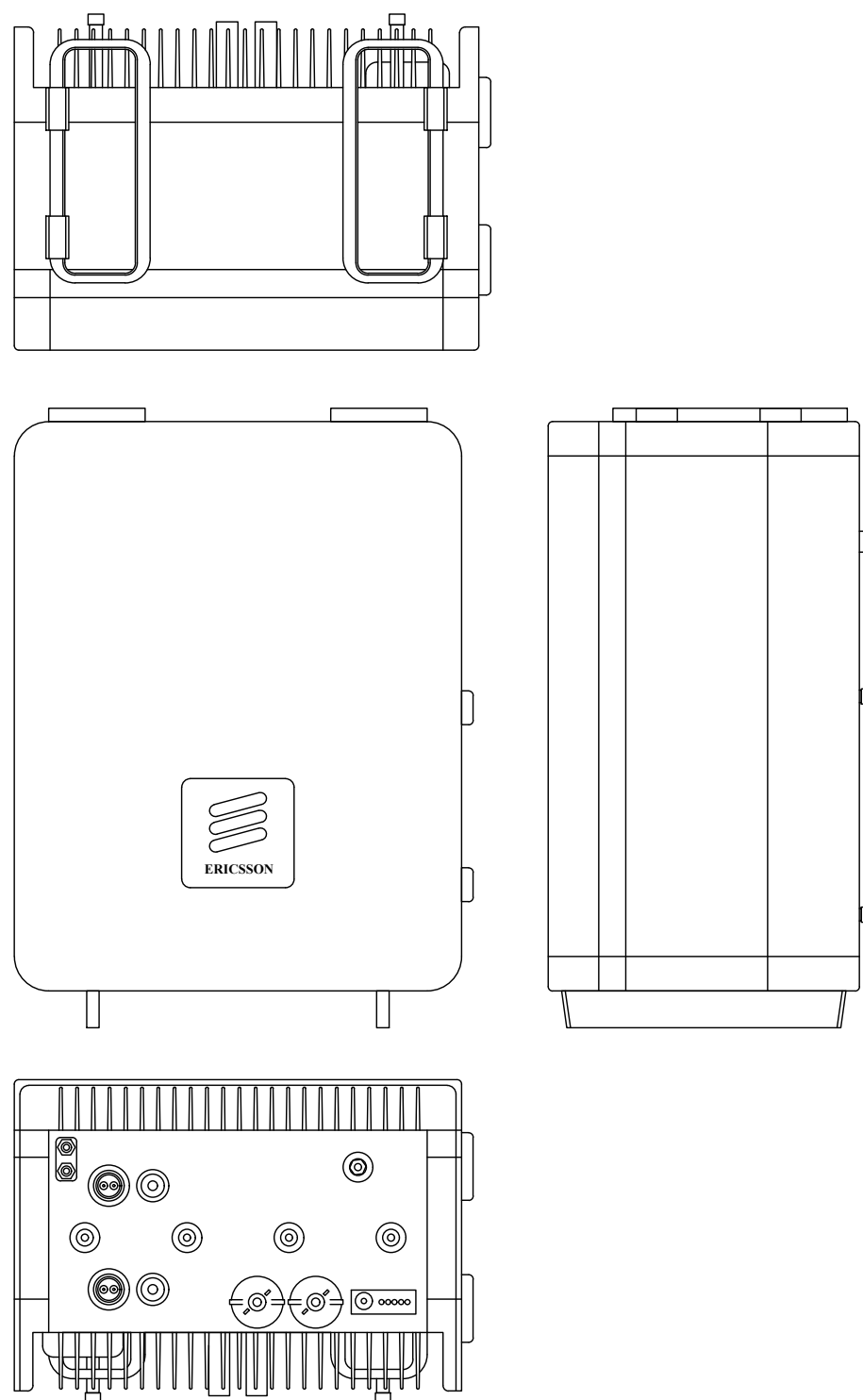
RFS/CELWAVE - APXVAALL24_43-U-NA20
WEIGHT (WITHOUT MOUNTING HARDWARE): 149.9 LBS
SIZE (HxWxD): 95.9x24.0x8.5 IN.

4 RFS/CELWAVE - APXVAALL24_43-U-NA20
SCALE: NOT TO SCALE



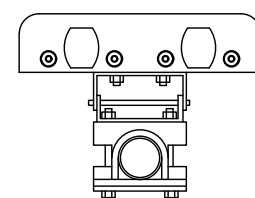
ERICSSON - RADIO 4415 B66A
WEIGHT: 49.6 LBS
SIZE (HxWxD): 16.50x13.50x6.30 IN.

5 ERICSSON - RADIO 4415 B66A
SCALE: NOT TO SCALE



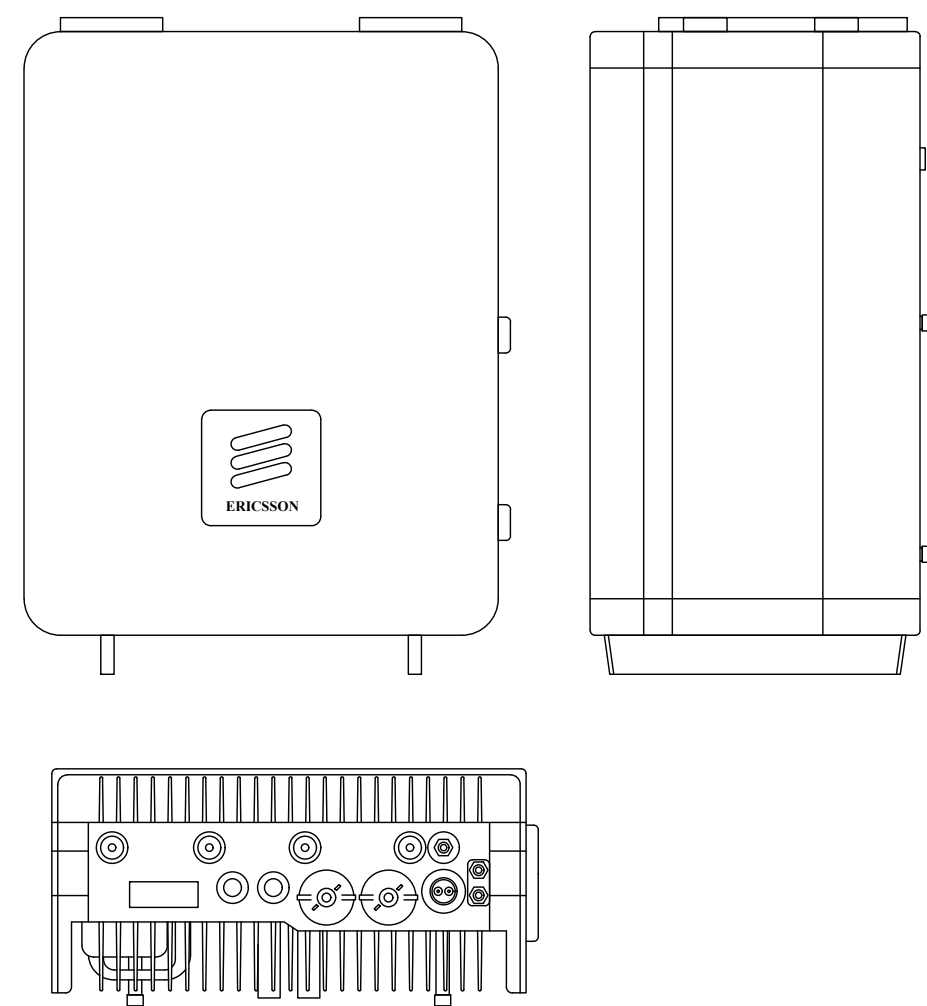
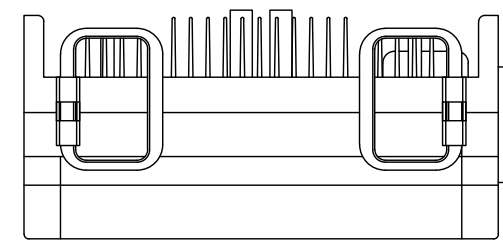
ERICSSON - RADIO 4449 B71/B85
WEIGHT: 73.21 LBS
SIZE (HxWxD): 17.91x13.20x10.63 IN.

6 ERICSSON - RADIO 4449 B71/B85
SCALE: NOT TO SCALE



RFS - APX16DWV-16DWV-S-E-A20
WEIGHT (WITHOUT MOUNTING HARDWARE): 40.7 LBS
SIZE (HxWxD): 55.9x13.3x3.15 IN.

7 RFS - APX16DWV-16DWV-S-E-A20
SCALE: NOT TO SCALE



ERICSSON - RADIO 4424 B25
WEIGHT: 86.0 LBS
SIZE (HxWxD): 17.1x14.4x11.3 IN.

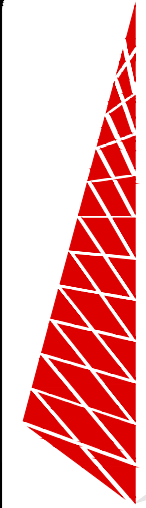
8 ERICSSON - RADIO 4424 B25
SCALE: NOT TO SCALE

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN
CASTLE

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SEAL:



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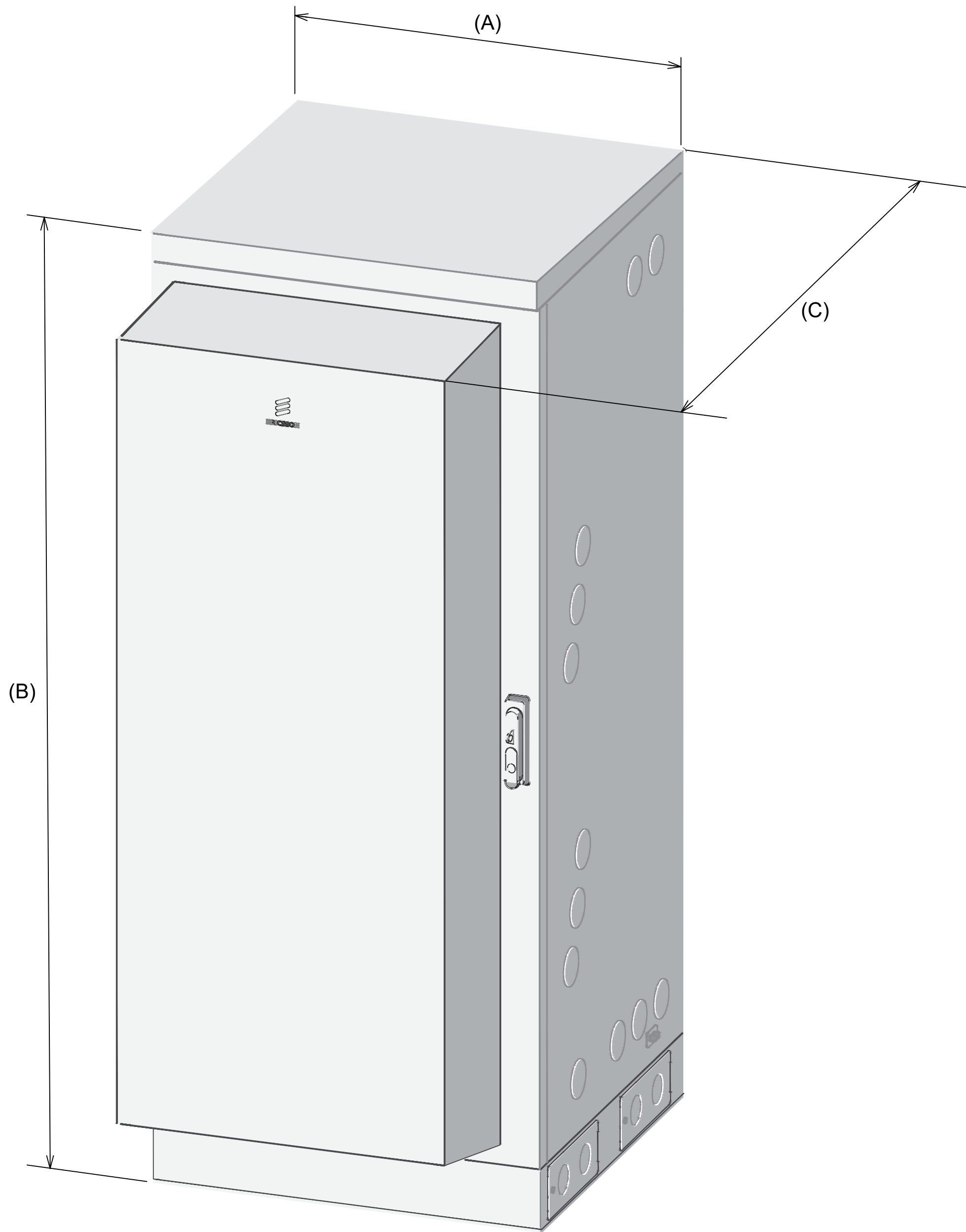
C-4

REVISION:

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INSTALLER NOTES:

1. INFORMATION SHOWN PROVIDED BY T-MOBILE. CONTRACTOR TO REFERENCE CABINET MANUFACTURER'S SPECIFICATIONS FOR FURTHER DETAILS.
2. CONTRACTOR TO FOLLOW THE LATEST VERSION OF T-MOBILE REGIONAL CONSTRUCTION STANDARDS. CONTACT T-MOBILE FOR DETAILS.



Dimensions	
Width (A)	650 mm / 25.5906 in
Height (B)	1450 mm / 57.08661 in (without base frame) 1600 mm / 62.99213 in (with base frame)
Depth (C)	850 mm / 33.4646 in
Weight	
Empty enclosure	176 kg / 388.014 lb



T-Mobile

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SHEET NUMBER:

C-5

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NOTE:
LOAD CALCULATIONS TAKEN FROM
INFORMATION PROVIDED BY CROWN
CASTLE & BASED ON THE RFDS
DATED 01/12/2021. CONTRACTOR
TO VERIFY LOADS WITH
MANUFACTURER'S SPECIFICATIONS
PRIOR TO CONSTRUCTION

EXISTING 200A M.C.B, 240/120 VAC, 1Ø, 3W PANEL SCHEDULE											
LOAD SERVED	VOLT AMPERES (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPERES (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
SPARE	—		—	1	A	2	10A	0		FAN (OFF)	
SURGE SUPPRESSOR		100	60A	3	B	4	15A		180	TELCO GFCI	
	100			5	A	6	15A	180		GFCI	
*MMBTS		9600	*100A	7	B	8	15A		500	LIGHT	
	9600			9	A	10	15A	1440		UNKNOWN	
SPARE		—	—	11	B	12			1440		
SPARE	—		—	13	A	14	—	—		SPARE	
SPARE		—	—	15	B	16	—		—	SPARE	
SPARE	—		—	17	A	18	—	—		SPARE	
SPARE		—	—	19	B	20	—		—	SPARE	
SPARE	—		—	21	A	22	—	—		SPARE	
SPARE		—	—	23	B	24	—		—	SPARE	
VOLT AMPS	9700	9700						1620	2120	VOLT AMPS	
L1 VOLT AMPERES				11320		11820		L2 VOLT AMPERES			
				11820		MAX VOLT AMPERES					
				98.5		MAX AMPS					
				123.1		MAX AMPS x 125%					

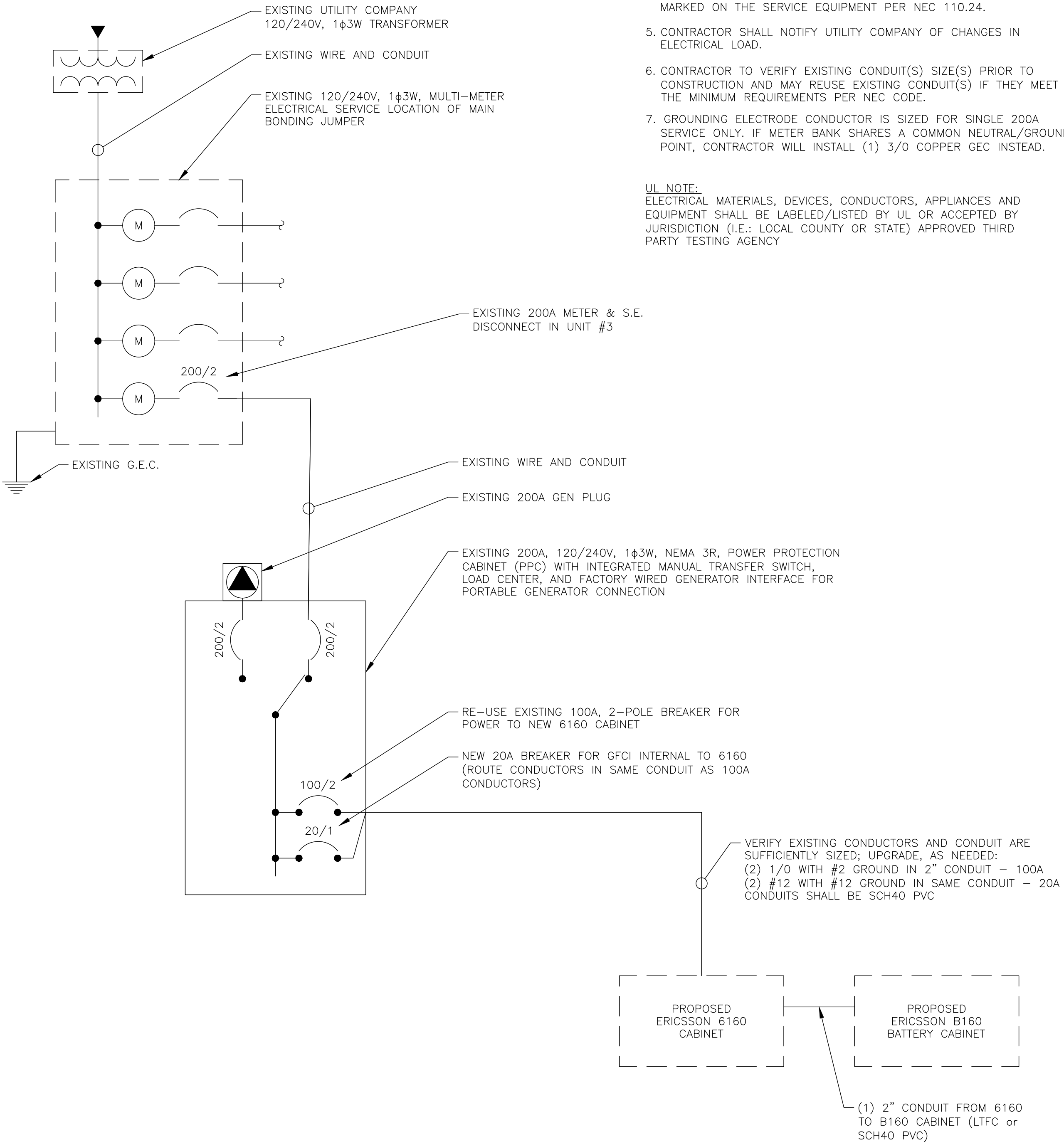
*NOTE – REUSE BREAKER FOR NEW CABINET INSTALL, NOTIFY TEP IF BREAKER IS TO REMAIN.

PROPOSED 200A M.C.B, 240/120 VAC, 1Ø, 3W PANEL SCHEDULE											
LOAD SERVED	VOLT AMPERES (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPERES (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
SPARE	—		—	1	A	2	10A	0		FAN (OFF)	
SURGE SUPPRESSOR		100	60A	3	B	4	15A		180	TELCO GFCI	
	100			5	A	6	15A	180		GFCI	
6160 ENCLOSURE		7405	*100A	7	B	8	15A		500	LIGHT	
	7405			9	A	10	15A	1440		UNKNOWN	
GFCI INTERNAL IN 6160		180	20	11	B	12			1440		
SPARE	—		—	13	A	14	—	—		SPARE	
SPARE		—	—	15	B	16	—		—	SPARE	
SPARE	—		—	17	A	18	—	—		SPARE	
SPARE		—	—	19	B	20	—		—	SPARE	
SPARE	—		—	21	A	22	—	—		SPARE	
SPARE		—	—	23	B	24	—		—	SPARE	
VOLT AMPS	7505	7685						1620	2120	VOLT AMPS	
L1 VOLT AMPERES				9125		9805		L2 VOLT AMPERES			
				9805		MAX VOLT AMPERES					
				81.7		MAX AMPS					
				102.1		MAX AMPS x 125%					

PROPOSED BREAKERS & LOADS IN BOLD

GENERAL NOTES:

- ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 UNLESS NOTED OTHERWISE.
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL GROUNDING AND BONDING PER THE NEC.



ONE-LINE DIAGRAM NOTES:

- ELECTRICAL SERVICE IS 200A, 120/240V, 1Ø, 3W.
- FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT, REFER TO VENDOR PRINTS PROVIDED BY EQUIPMENT MANUFACTURER.

UTILITY NOTES:

- CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND ENSURE ALL ELECTRICAL EQUIPMENT IS SUITABLE FOR AVAILABLE FAULT CURRENT.
- CONTRACTOR SHALL COORDINATE UTILITY SERVICES WITH LOCAL UTILITY COMPANIES. VERIFY ALL REQUIREMENTS WITH UTILITY COMPANY STANDARDS.
- ONE-LINE DIAGRAM IS FOR SCHEMATIC PURPOSES ONLY AND IS NOT INDICATIVE OF THE ACTUAL EQUIPMENT LAYOUT.
- ALL EQUIPMENT WILL HAVE A MINIMUM AIC OF 10 KA. CONTRACTOR TO DETERMINE AVAILABLE FAULT CURRENT BEFORE ENERGIZING EQUIPMENT. THE AMOUNT OF AVAILABLE FAULT CURRENT SHALL BE MARKED ON THE SERVICE EQUIPMENT PER NEC 110.24.
- CONTRACTOR SHALL NOTIFY UTILITY COMPANY OF CHANGES IN ELECTRICAL LOAD.
- CONTRACTOR TO VERIFY EXISTING CONDUIT(S) SIZE(S) PRIOR TO CONSTRUCTION AND MAY REUSE EXISTING CONDUIT(S) IF THEY MEET THE MINIMUM REQUIREMENTS PER NEC CODE.
- GROUNDING ELECTRODE CONDUCTOR IS SIZED FOR SINGLE 200A SERVICE ONLY. IF METER BANK SHARES A COMMON NEUTRAL/GROUND POINT, CONTRACTOR WILL INSTALL (1) 3/0 COPPER GEC INSTEAD.

UL NOTE:

ELECTRICAL MATERIALS, DEVICES, CONDUCTORS, APPLIANCES AND EQUIPMENT SHALL BE LABELED/LISTED BY UL OR ACCEPTED BY JURISDICTION (I.E.: LOCAL COUNTY OR STATE) APPROVED THIRD PARTY TESTING AGENCY

T-Mobile

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Professional Engineer Seal

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SHEET NUMBER:

E-1

REVISION:

0

1 AC PANEL SCHEDULES
SCALE: NOT TO SCALE

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-MOBILE GROUNDING NOTES:

ALL GROUNDS MUST ROUTE DOWNHILL FOR ENTIRE DURATION OF ROUTE

PROVIDE LABOR, MATERIALS, INSPECTION, AND TESTING TO PROVIDE CODE COMPLIANCE FOR ELECTRIC, TELEPHONE, AND GROUNDING/LIGHTNING SYSTEMS.

ICE BRIDGE/ EQUIPMENT POST:

#2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED TO GROUND RING (BOTH ENDS), FINAL WELD COLD GALVANIZED, IN ½" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, ANCHORED TO PAD/PLATFORM TO AVOID TRIP HAZARD USING HAMMER SET ANCHORS.

PEDESTALS, PLINTHS, SSC CABINET, FCOA CABINETS:

- #2 SOLID COPPER TINNED, 2 HOLE LUG WITH FLAT AND LOCK WASHER AT EQUIPMENT; EXOTHERMICALLY WELDED TO GROUND RING, FINAL WELD COLD GALVANIZED, IN ½" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, ANCHORED TO PAD TO AVOID TRIP HAZARD USING HAMMER SET ANCHORS. EACH PART REQUIRES A SEPARATE DOWNLEAD, NO DAISY CHAINS.
- ALL COMPONENTS INSIDE FCOA CABINETS REQUIRE A DEDICATED GROUND.

#6 THHN STRANDED (GREEN JACKET), CONNECTED AT EQUIPMENT SIDE USING OVP TERMINAL BLOCK CONNECTION; MECHANICALLY CONNECTED TO GROUND REFERENCE AT MASTER BUSS BAR USING 2 HOLE LUG WITH FLAT AND LOCK WASHER, IN ½" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, AND ANCHORED TO PAD/PLATFORM TO AVOID TRIP HAZARD.

ANTENNA/ COVP/ RRU MAST PIPES:

- ALL VERTICAL MAST PIPES: #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED TO TOP OF PIPE (PIPE, DOWN MOLD), FINAL WELD COLD GALVANIZED, BONDED TO TOP BUSS BAR WITH 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.
- EXISTING/REUSED PIPES: #2 SOLID COPPER TINNED, BONDED WITH COLD WATER CLAMP TO TOP OF PIPE, BONDED TO TOP BUSS WITH 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER

AIR TERMINALS:

TO BE INSTALLED, ONLY IF REQUIRED

TMA's, DIPLEXERS AND TRIPLEXERS:

- #6 THHN, WITH PROPER COPPER COMPRESSION LUG, FLATS AND LOCK WASHERS
- ALL GROUND LUGS ON TMA MUST BE GROUNDED WITH SEPARATE DOWNLEAD TO BUSS BAR (NO DAISY CHAINS)

ELEVATED STEEL PLATFORMS WITH LUNAR FEET:

#2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (FLAT PLATE MOLD) TO OUTSIDE PERIMETER BEAMS IN FOUR (4) PLACES, FINAL WELD COLD GALVANIZED, BONDED DIRECTLY TO SUBGRADE GROUND RING.

STEEL CANOPY (STEEL PLATFORM OR CONCRETE PAD):

- #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (PIPE, DOWN MOLD) TO BOTTOM OF ALL VERTICAL SUPPORT POSTS, TYPICALLY FOUR (4) PIPES, FINAL WELD COLD GALVANIZED, BONDED DIRECTLY TO SUBGRADE GROUND RING.
- #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (PIPE, UP MOLD) TO TOP OF ALL VERTICAL SUPPORT POSTS, TYPICALLY FOUR (4) PIPES, FINAL WELD COLD GALVANIZED, BONDED UP TO CANOPY GRIP-STRUT USING 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.

#6 THHN, WITH PROPER COPPER COMPRESSION LUG, ANTI-OXIDANT TO SECTOR BUSS BAR

FSBE ALARM BOX:

#6 THHN WITH ONE HOLE LUG BONDED TO PREVIOUSLY GROUNDED FCOA, PLINTH OR BUSS BAR.

SURGE SUPPRESSORS:

#6 THHN TO PREVIOUSLY GROUNDED BUSS BAR USING PROPER LUGS

FYGA/FYGB BRACKET:

- #6 THHN TO PREVIOUSLY GROUNDED BUSS BAR USING PROPER LUGS
- THROUGH BOLTS WITH FLAT, LOCK ON BRACKET

- PLATFORM / PAD BUSS BAR SHOULD BE MINIMUM 12" TINNED COPPER WITH INSULATORS, AND SHOULD HAVE TWO (2) EXOTHERMICALLY WELDED DOWN LEADS DIRECTLY TO GROUND RING USING #2 SOLID COPPER TINNED WIRE.
- SECTOR BUSS BAR SHOULD BE PROPERLY SIZED TO ACCOMMODATE NECESSARY GROUNDING FOR EQUIPMENT ON EACH MOUNT, AND MAY BE SOLID COPPER (TINNED NOT REQUIRED). DO NOT USE INSULATORS ON SECTOR BUSS BARS ATTACH DIRECTLY TO TOWER MOUNT STEEL.

- NO GROUND KITS ON HYBRID TRUNKS (TOP OR BOTTOM)
- NO GROUND KITS ON MICROWAVE IF CABLES (TOP OR BOTTOM)
- MICROWAVE SURGE SUPPRESSORS ARE NOT TO BE INSTALLED UPSTAIRS ON TOWER, DOWNSTAIRS ONLY (BULKHEAD PREFERRED)
- MICROWAVE ODU MUST BE GROUNDED TO TOWER TOP SECTOR OR COLLECTOR BUSS BAR

- ALL TMA'S AND DIPLEXERS MUST BE GROUNDED TO BUSS BAR. NO DAISY CHAIN ON TWIN/DUAL TMA

- ALL LUGS SHOULD BE PROPERLY SIZED FOR CONDUCTOR, BURNDY TINNED COPPER COMPRESSION STYLE
 - INDOOR (OR INSIDE CABINET) SHOULD HAVE WINDOW
 - OUTDOOR SHOULD NOT HAVE WINDOW

- CONTRACTOR TO VERIFY EXISTENCE AND LOCATION OF EXISTING SITE GROUND SYSTEM.

- CONTRACTOR SHALL VERIFY THAT GROUNDING ELECTRODES SHALL BE CONNECTED IN A RING USING #2 AWG BARE TINNED COPPER WIRE. THE TOP OF THE GROUND RODS AND THE RING CONDUCTOR SHALL BE 30" BELOW FINISHED GRADE, OR TO FROST DEPTH, WHICHEVER IS GREATER. GROUNDING ELECTRODES SHALL BE DRIVEN ON 10'-0" CENTERS (PROVIDE AND INSTALL AS REQUIRED, REQUIRED PER PLAN BELOW).

- GROUNDING CONDUCTORS SHALL BE OF EQUAL LENGTH, MATERIAL, AND BONDING TECHNIQUE.

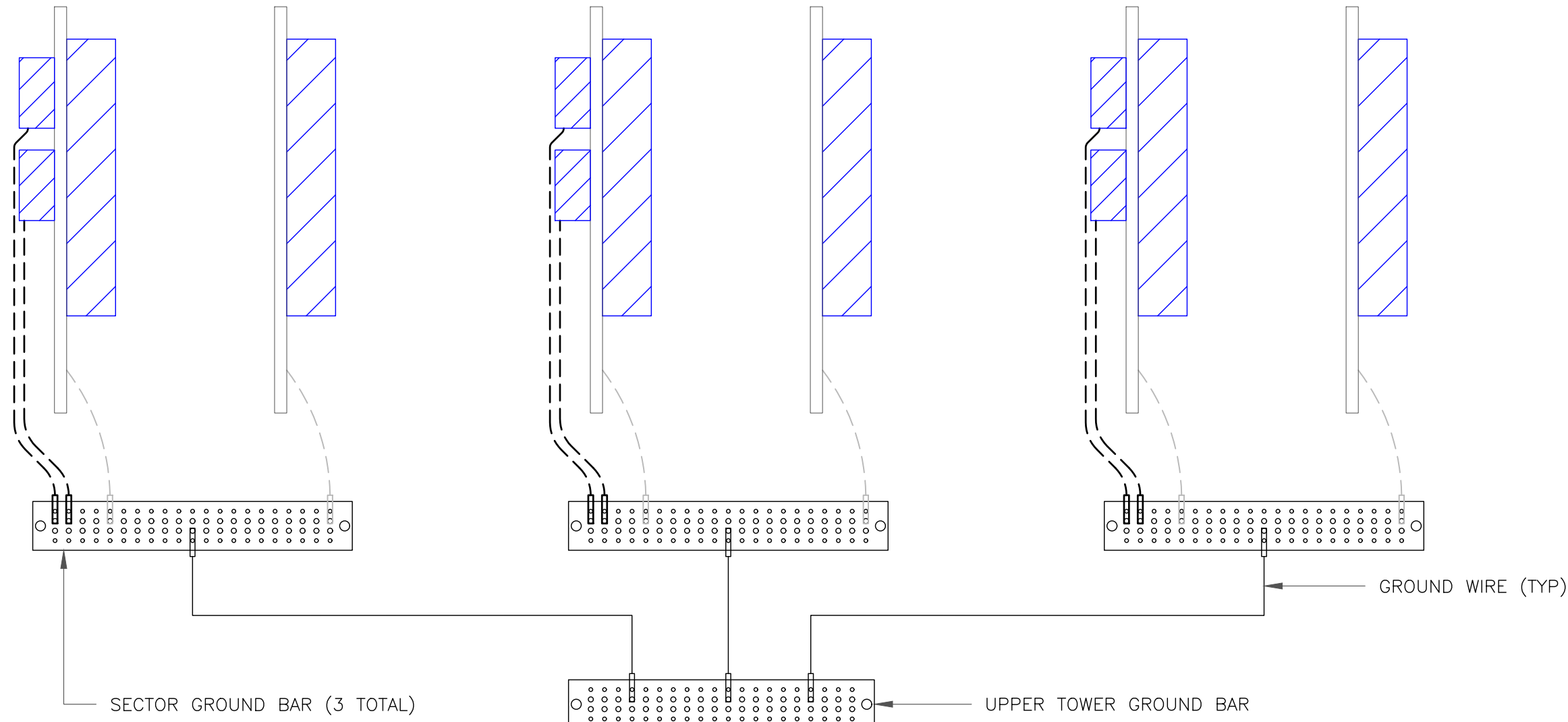
- CONTRACTOR SHALL ENSURE GROUND RING IS WITHIN 12 TO 36 INCHES OF THE EQUIPMENT PAD. PROVIDE AND INSTALL GROUNDING CONNECTIONS SHOWN BELOW AS NEEDED PER EXISTING SITE GROUNDING SYSTEM. CONTRACTOR SHALL VERIFY ALL EXISTING SITE GROUNDING CONDITIONS BEFORE STARTING WORK OR PURCHASING EQUIPMENT.

- ALL DOWN CONDUCTORS MUST GO DOWN.

ALPHA

BETA

GAMMA



NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

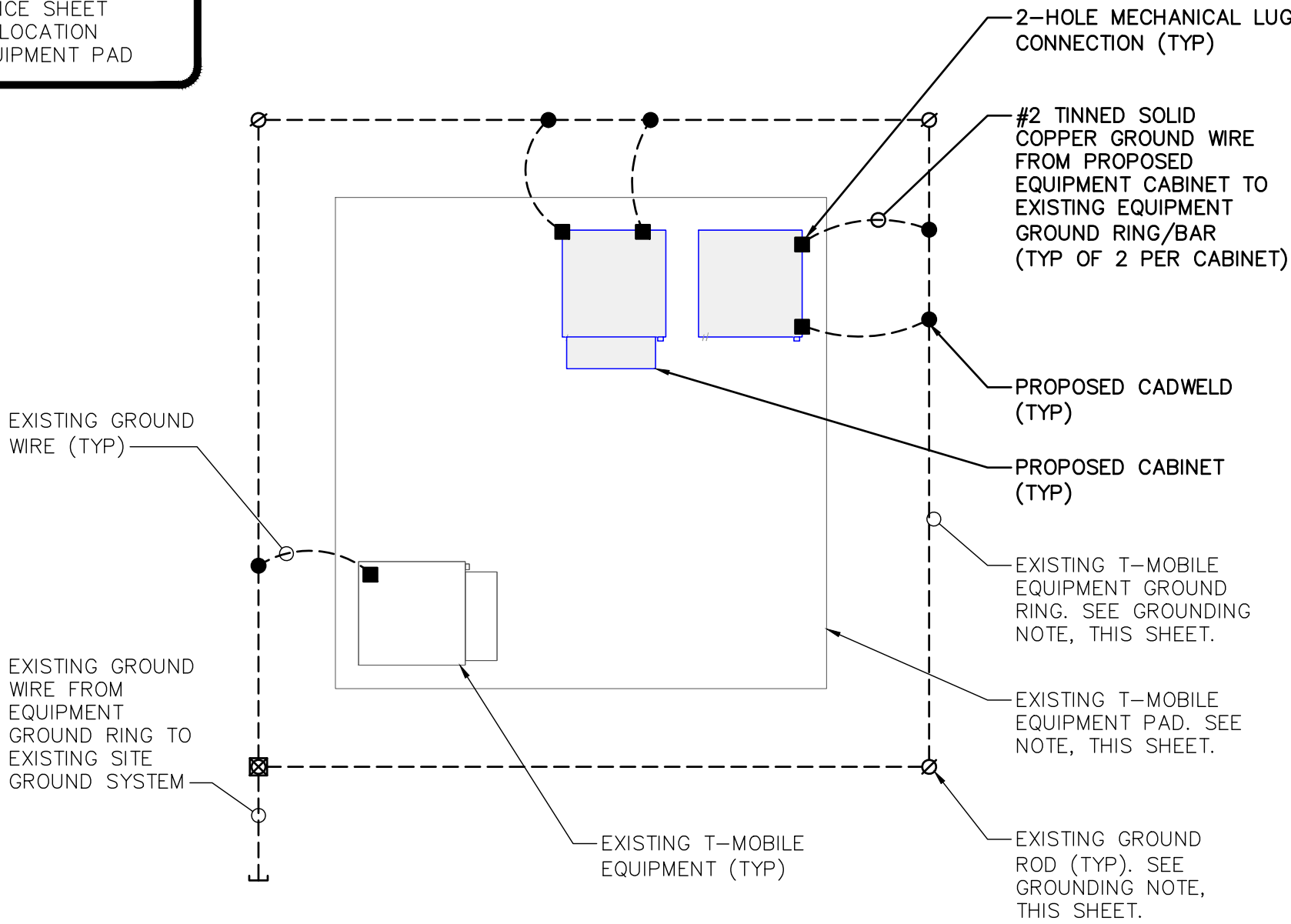
GROUNDING SHOWN TYPICAL PER SECTOR.

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

NOTE:

CONTRACTOR TO REFERENCE SHEET C-1.1 & 1.2 FOR EXACT LOCATION AND ORIENTATION OF EQUIPMENT PAD



2 TYPICAL CABINET GROUNDING DIAGRAM

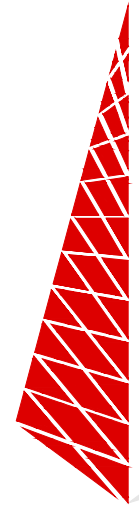
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T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN
CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430



TOWER
ENGINEERING
PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 217201.495954

T-MOBILE SITE NUMBER:
CTHA329A

BU #: 876383
CLINTON/ANDERSON'S
PROPERTY

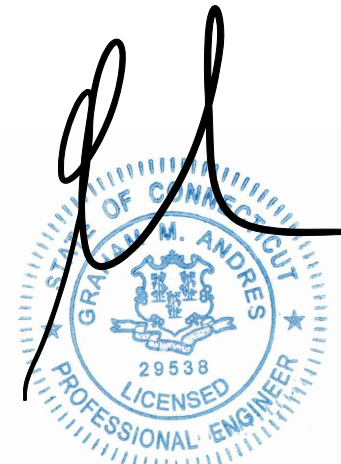
7 SHERWOOD FOREST LN
KILLINGWORTH, CT 06419

EXISTING 150'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	JW	PRELIMINARY	BSE
0	03/10/21	JW	CONSTRUCTION	BSE

SEAL:



03/10/21

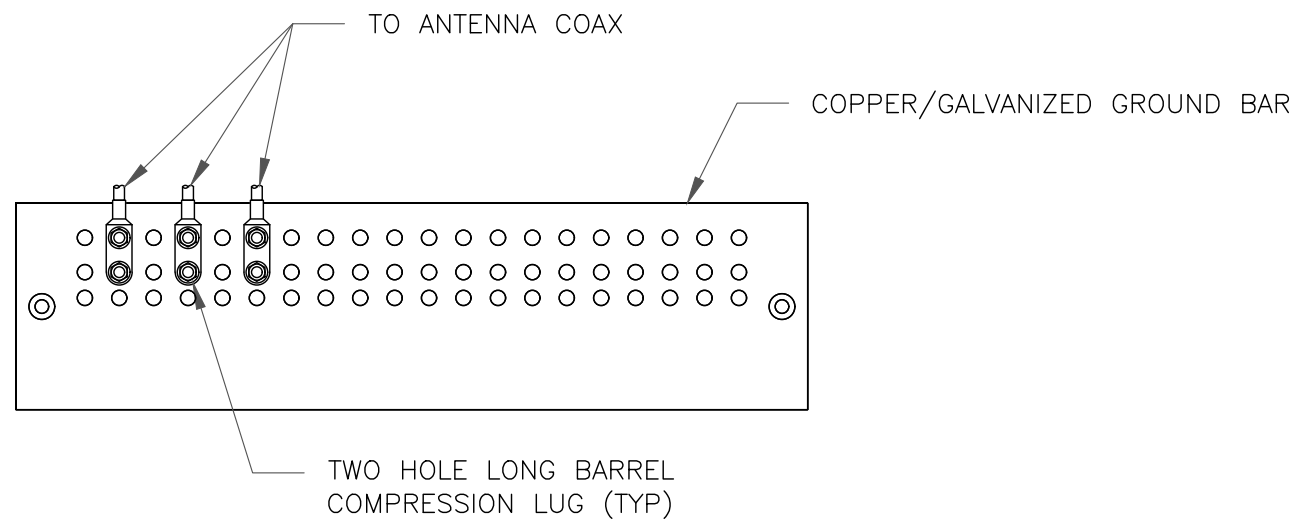
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REVISION:

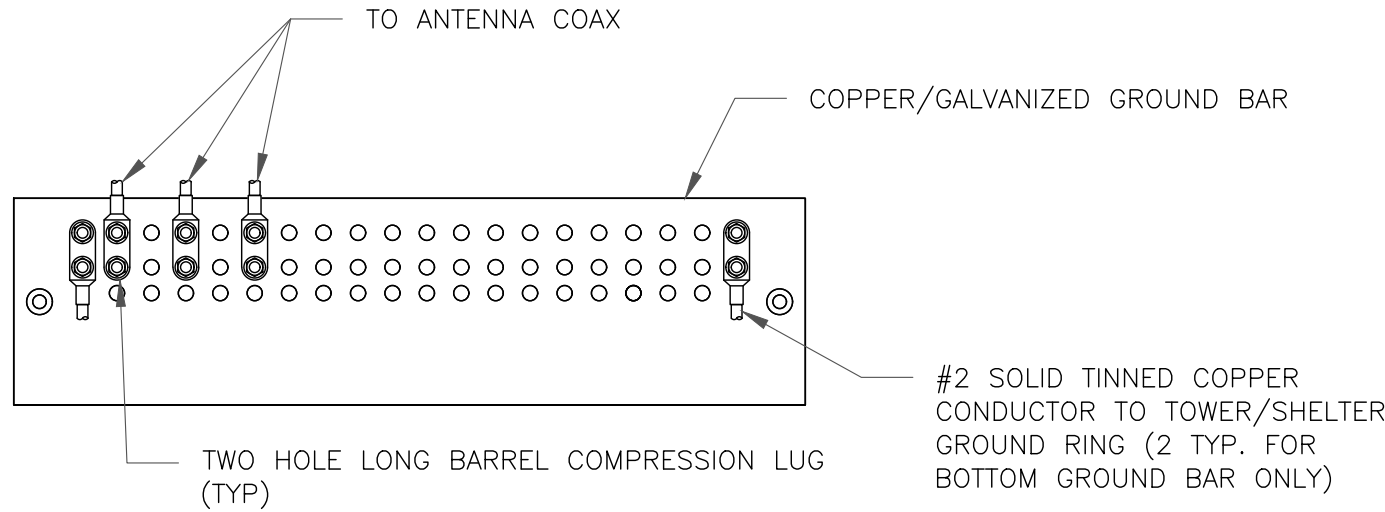
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NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

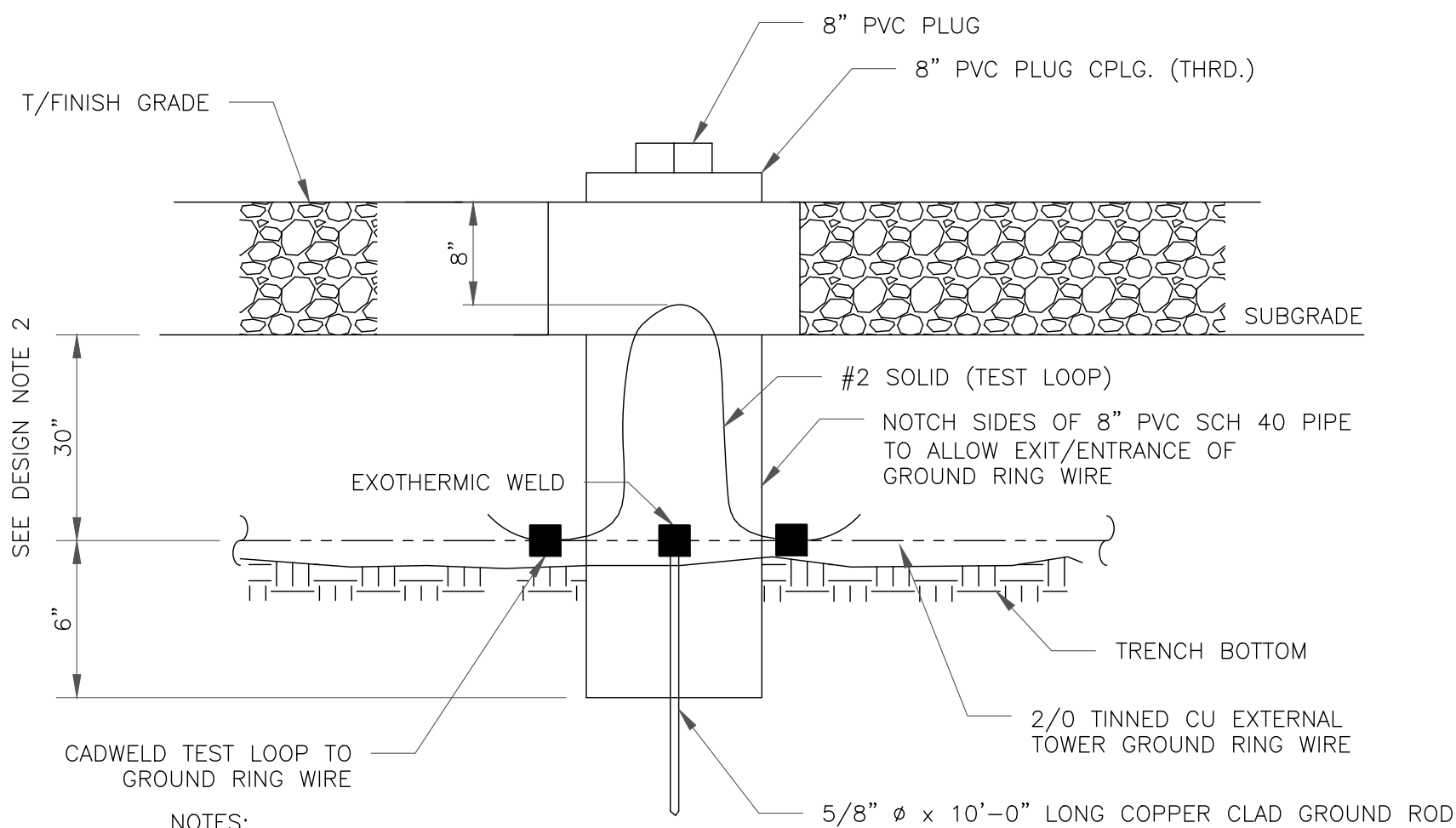
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

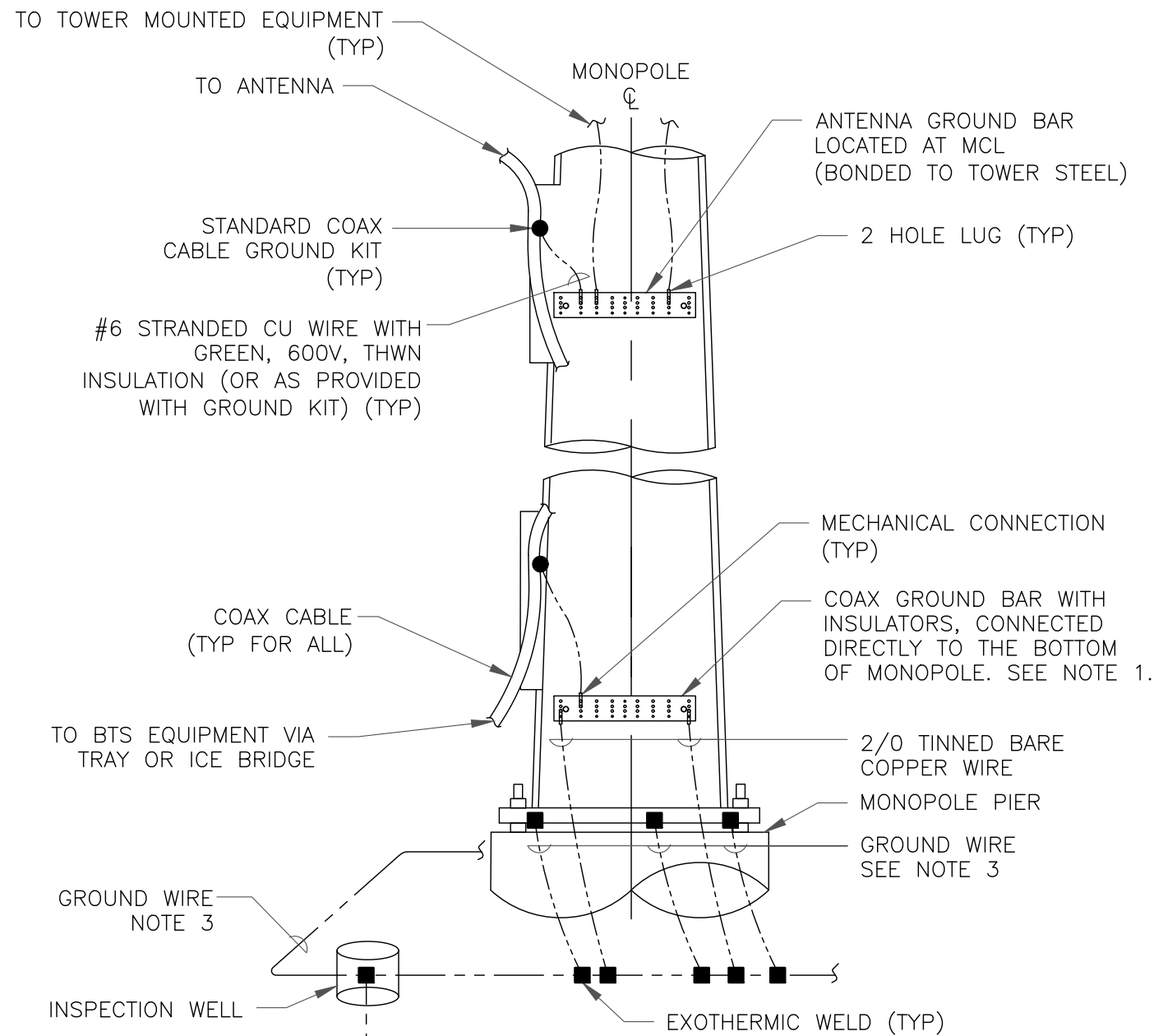
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

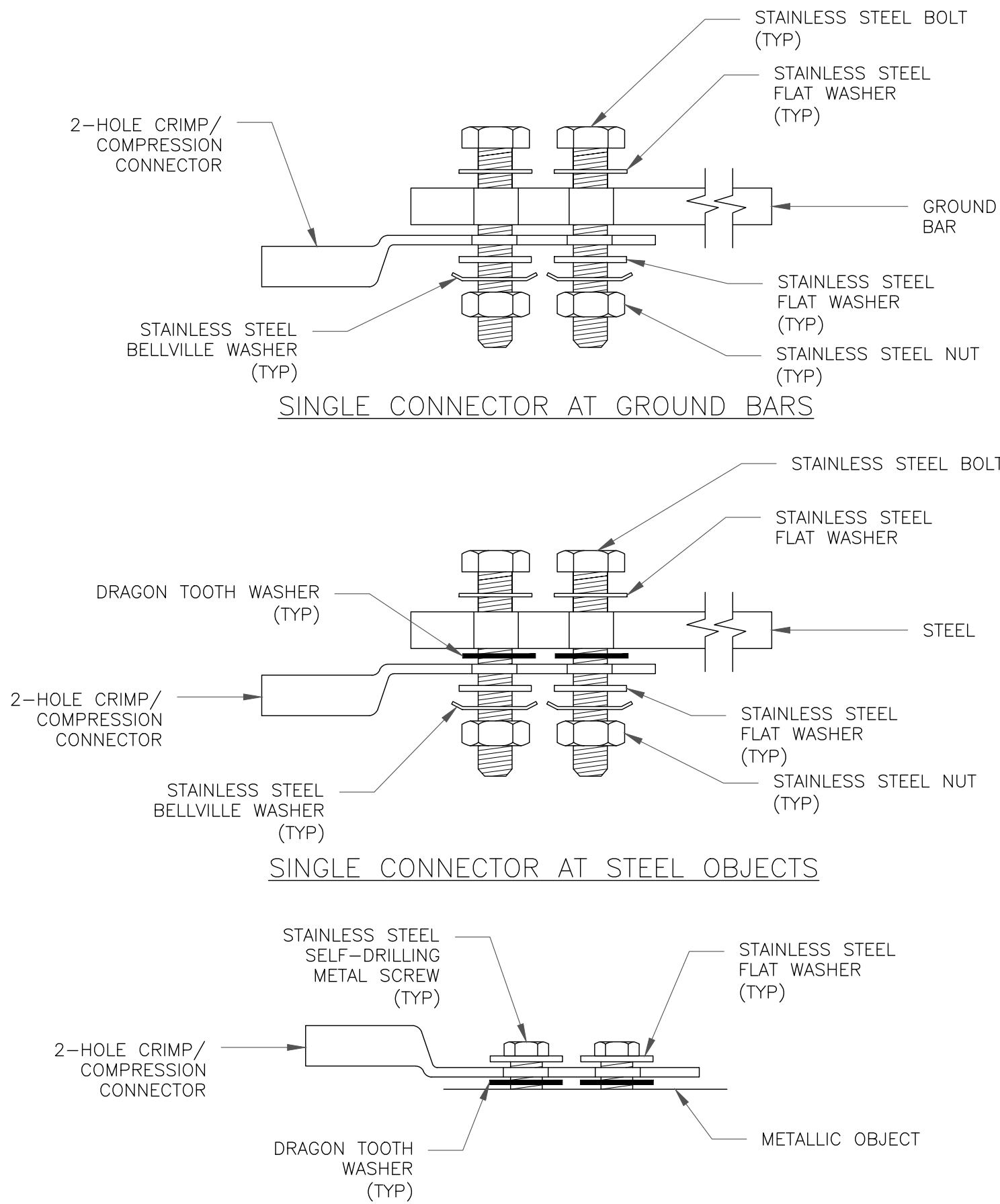
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



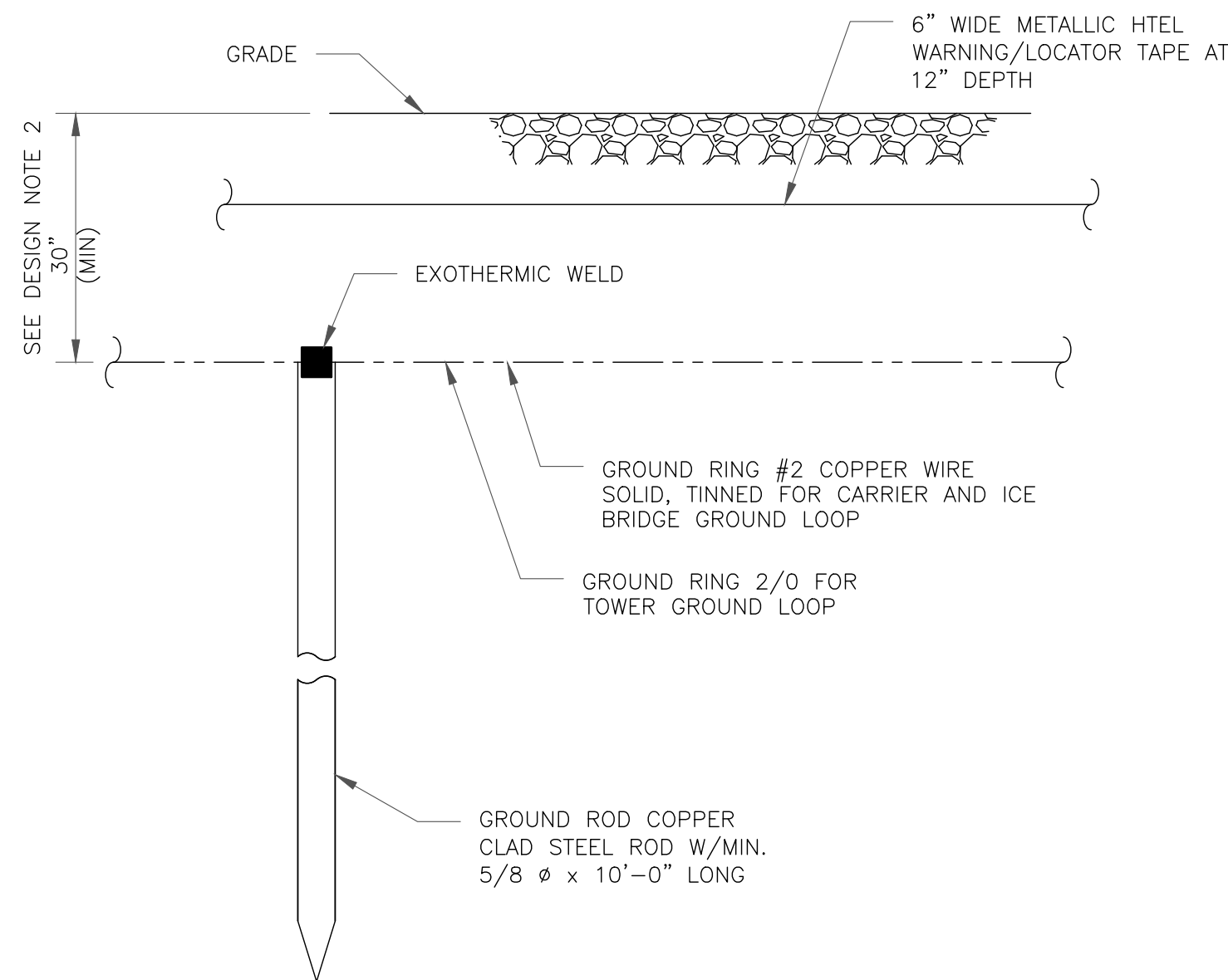
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

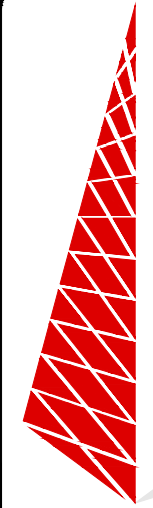
6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN
CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430



TOWER
ENGINEERING
PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
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TEP JOB #: 217201.495954

T-MOBILE SITE NUMBER:
CTHA329A

BU #: 876383
CLINTON/ANDERSON'S
PROPERTY

7 SHERWOOD FOREST LN
KILLINGWORTH, CT 06419

EXISTING 150'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	JW	PRELIMINARY	BSE
0	03/10/21	JW	CONSTRUCTION	BSE

SEAL:

Professional Engineer
29538
03/10/21

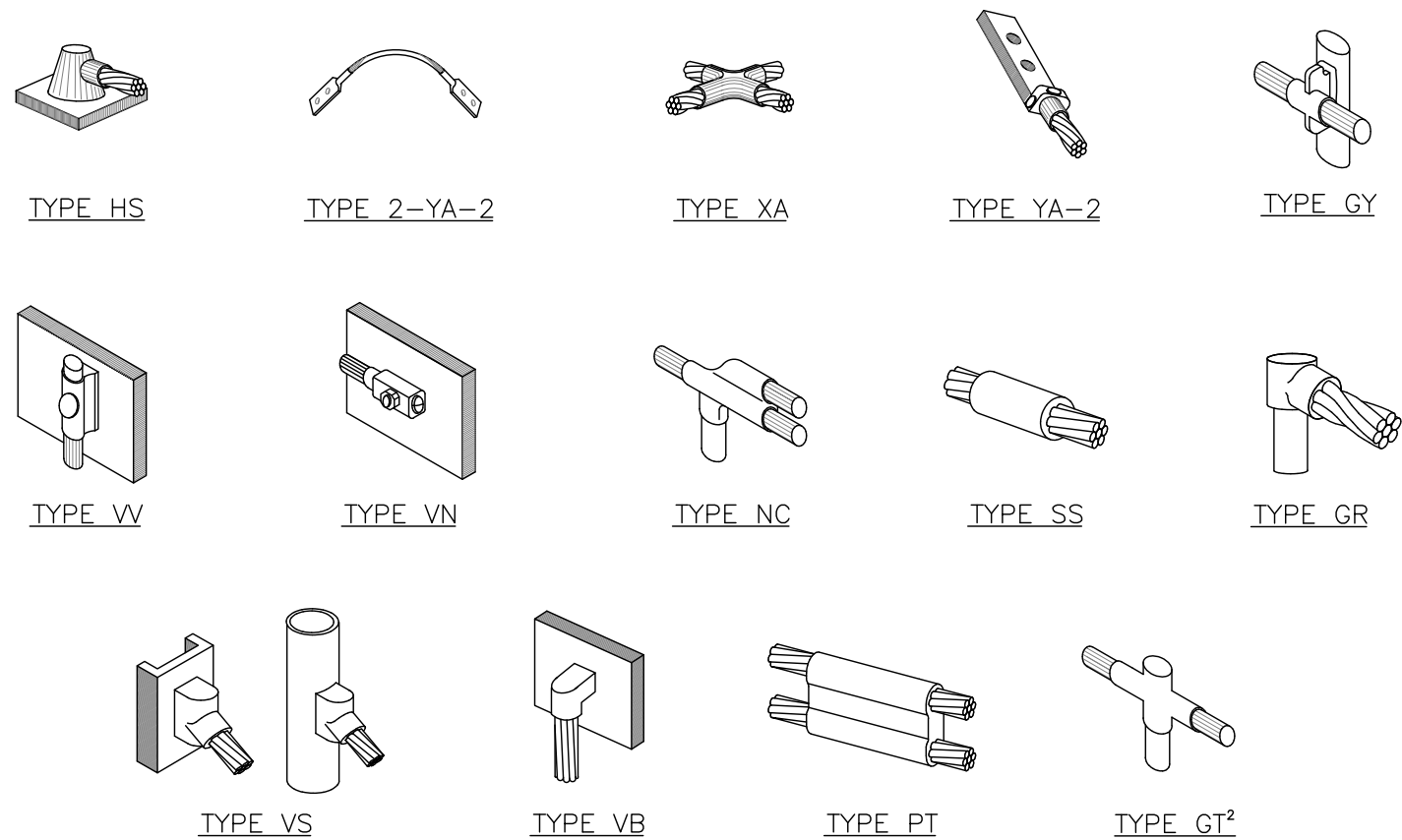
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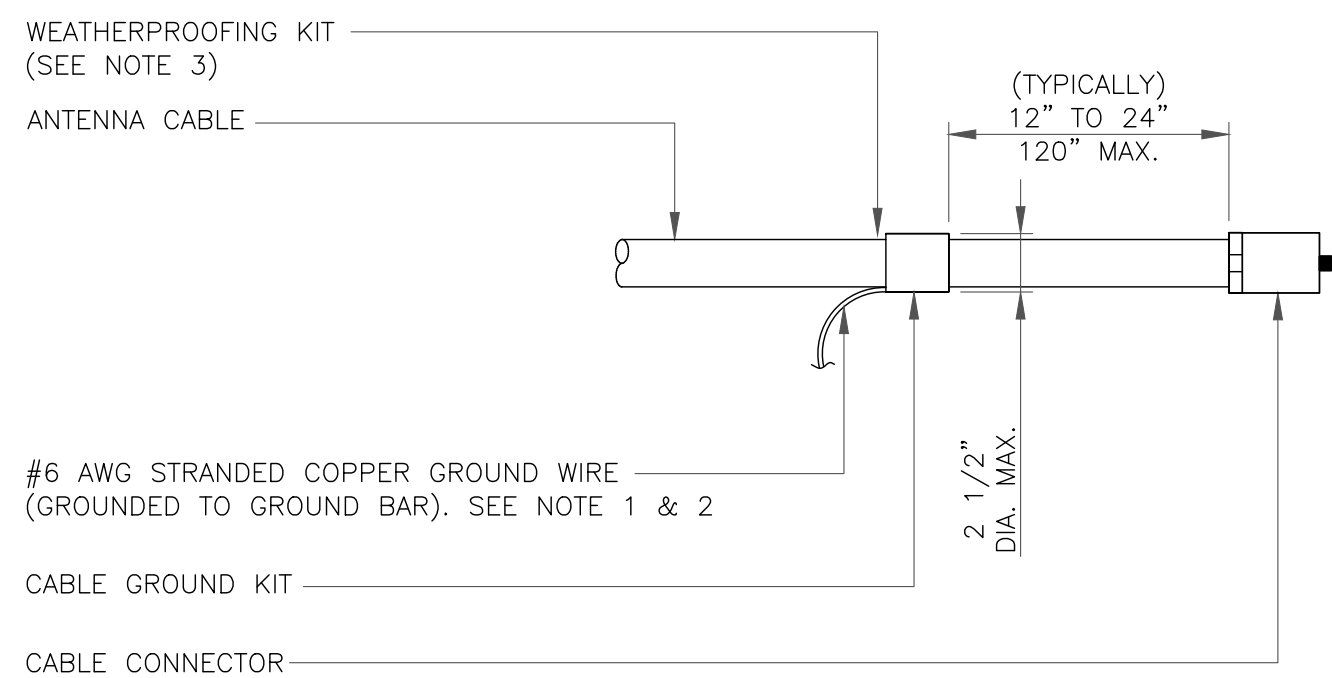
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NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

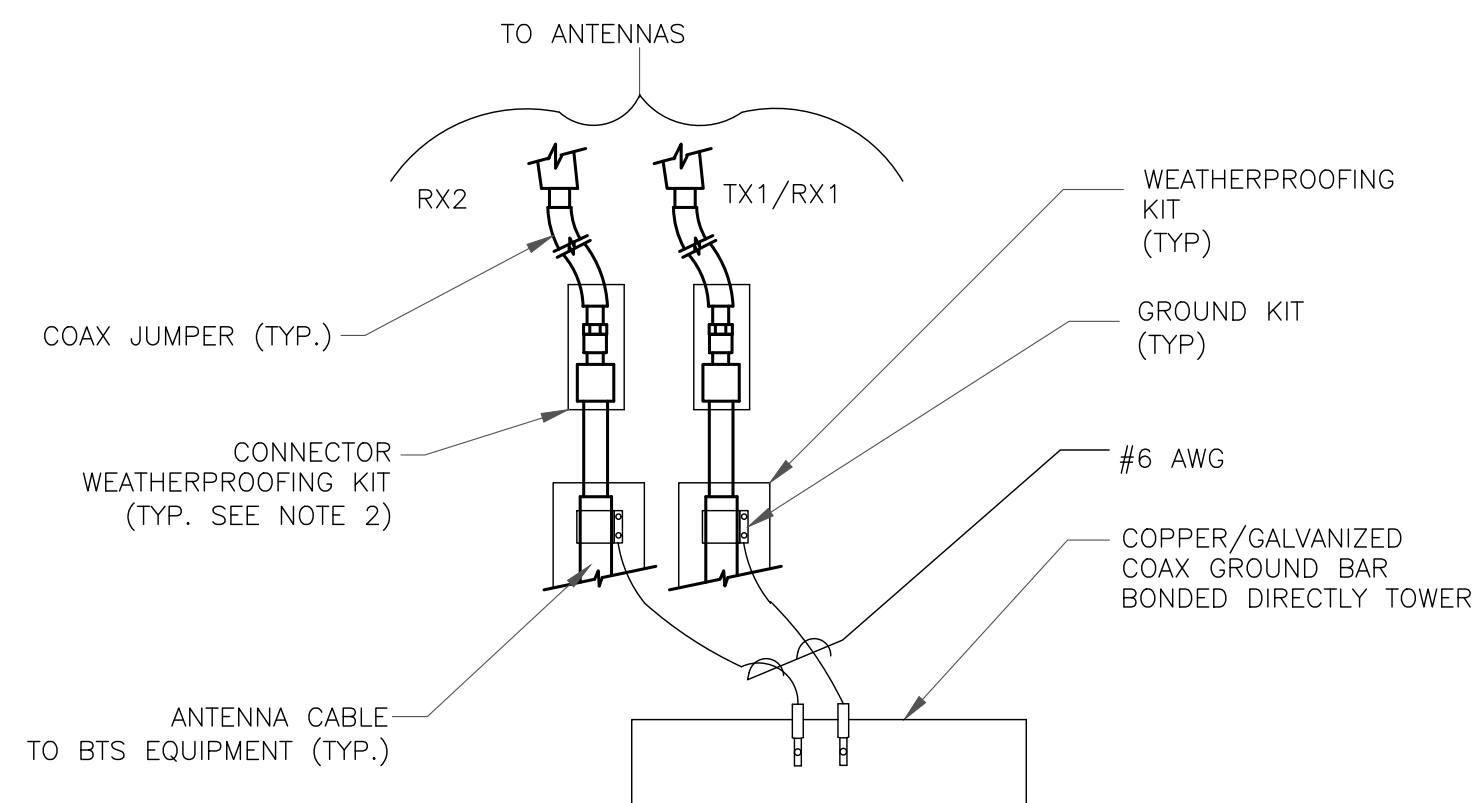
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

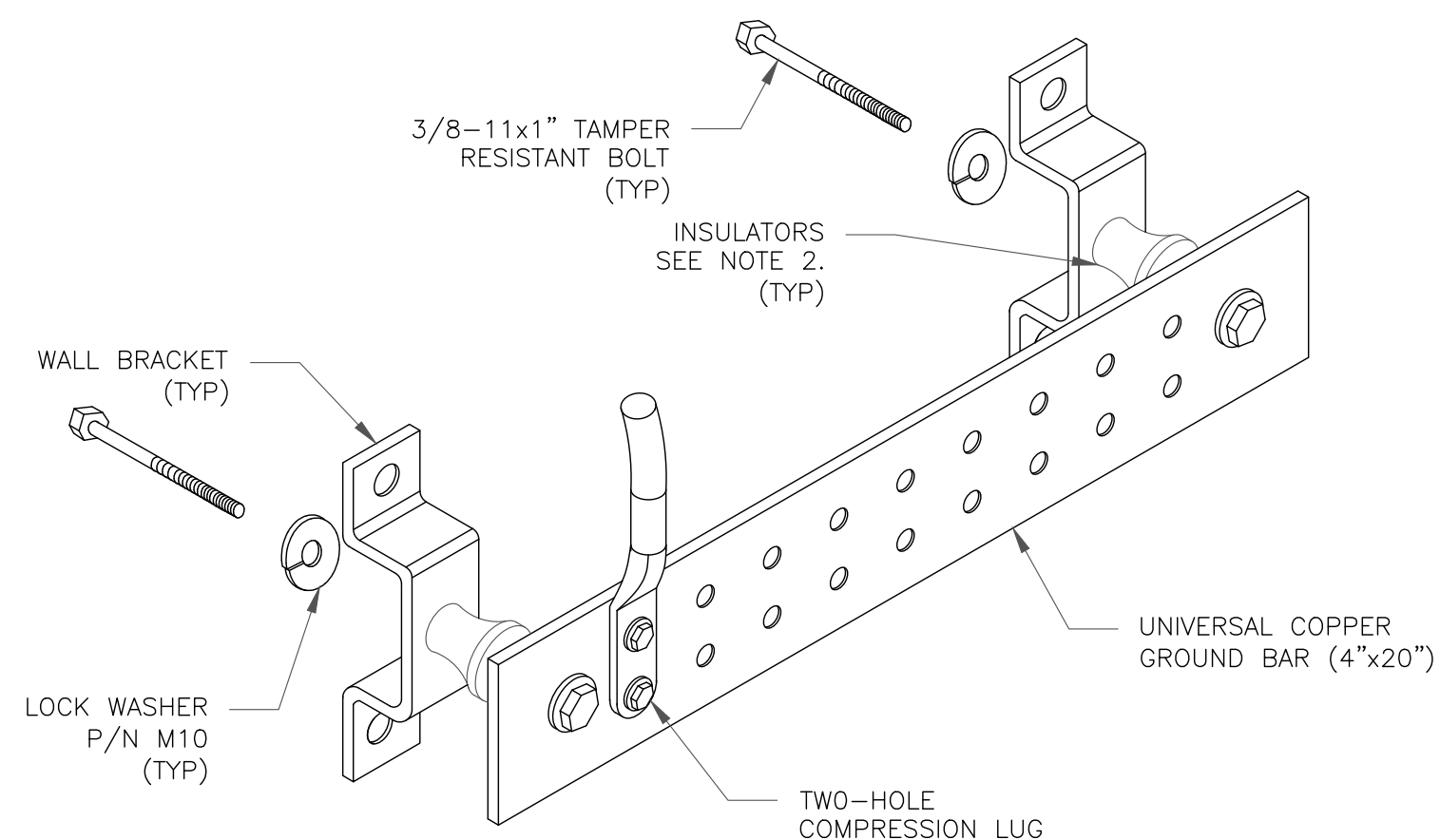
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

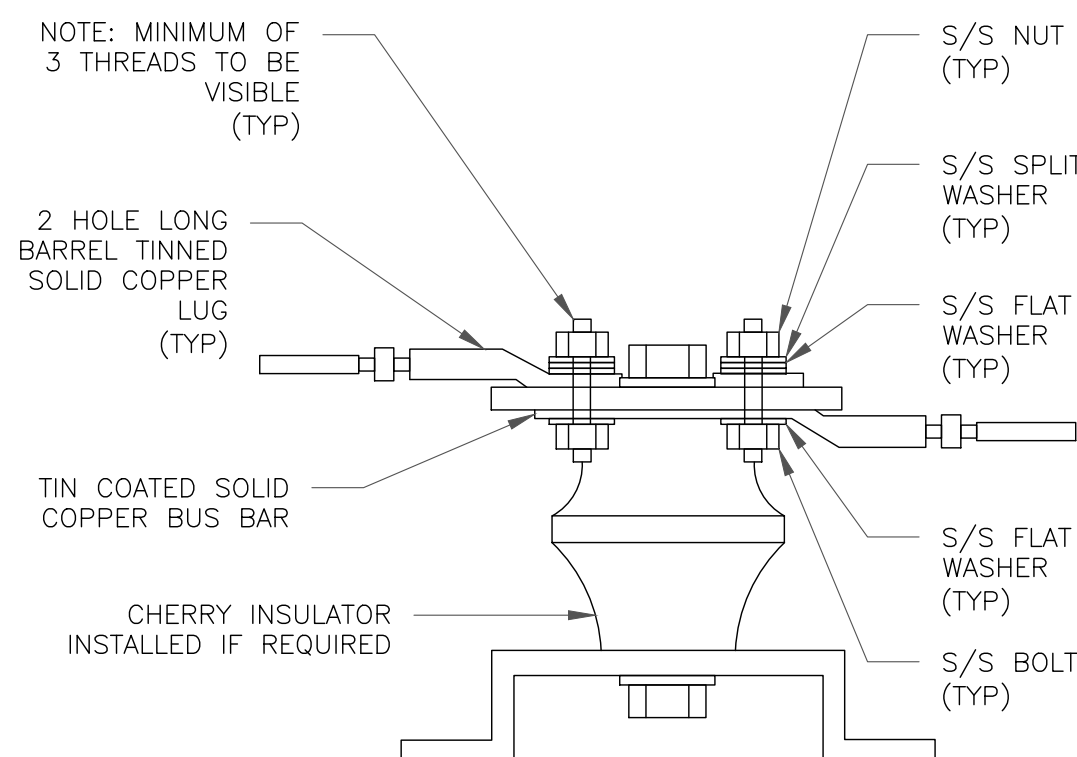
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

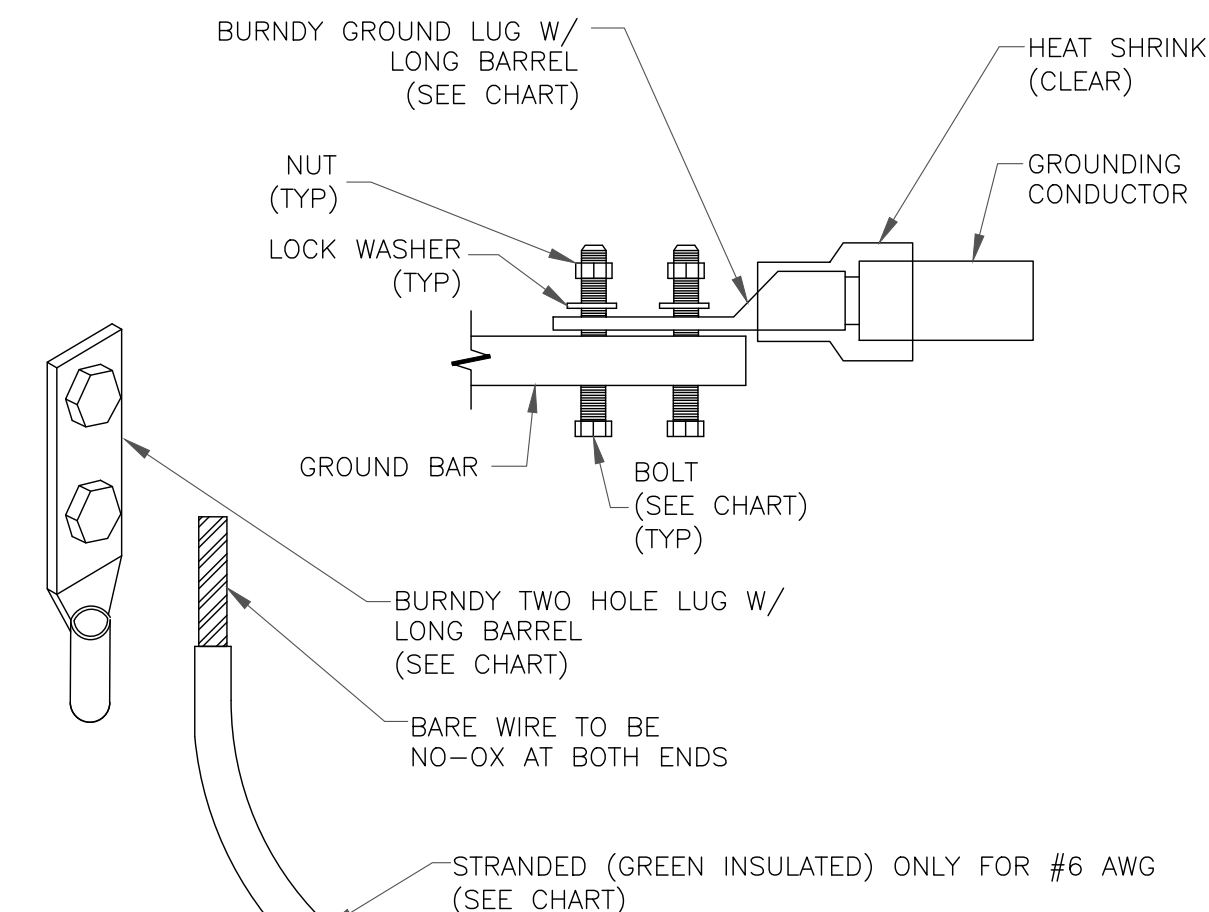
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

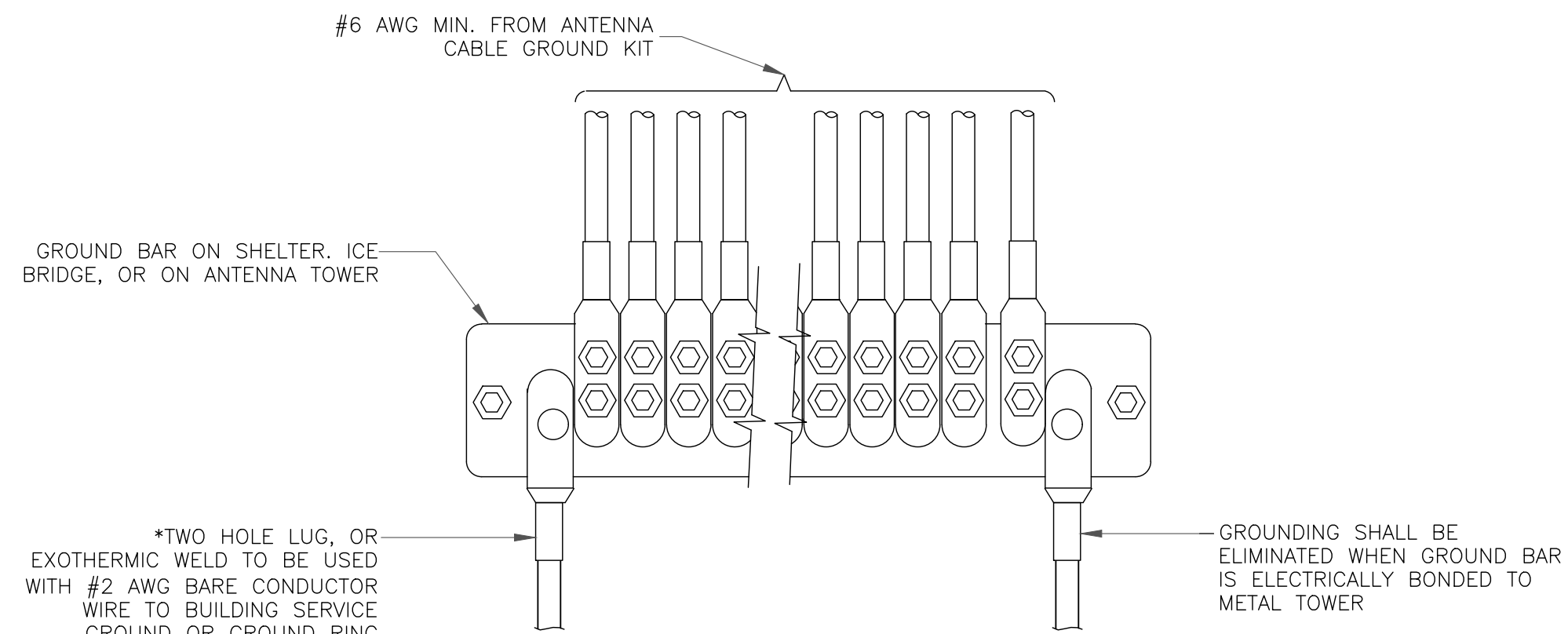
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



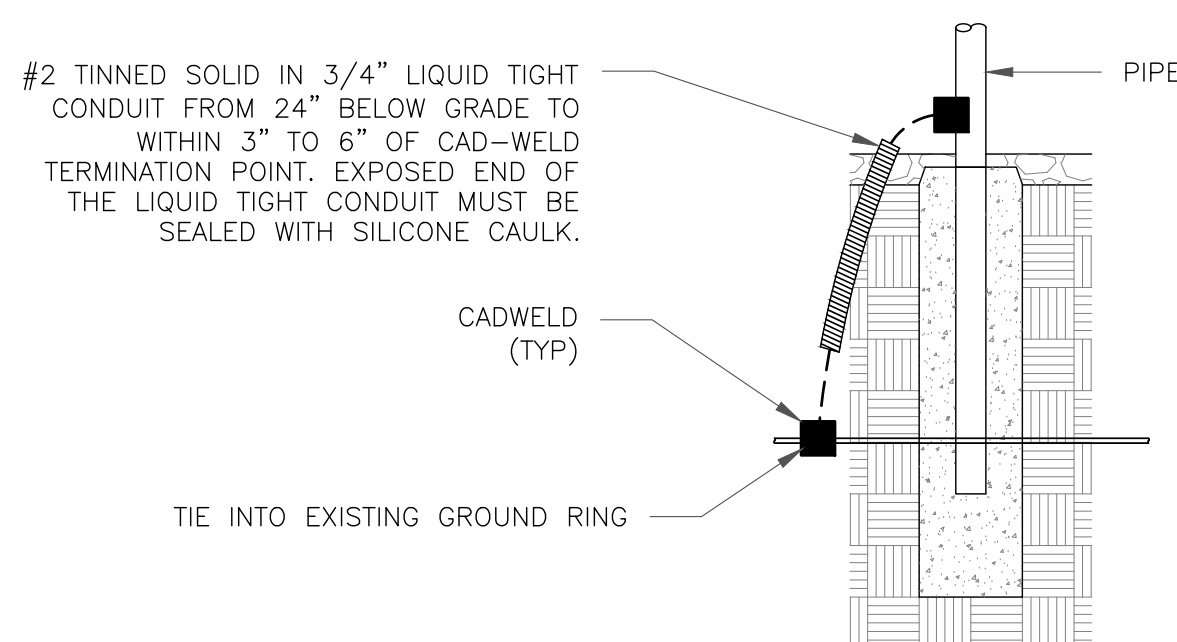
NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS
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RALEIGH, NC 27603
(919) 661-6351
TEP JOB #: 217201.495954

T-MOBILE SITE NUMBER:
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CLINTON/ANDERSON'S PROPERTY

7 SHERWOOD FOREST LN
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EXISTING 150'-0"
MONOPOLE

ISSUED FOR:

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A	03/01/21	JW	PRELIMINARY	BSE
0	03/10/21	JW	CONSTRUCTION	BSE

SEAL:

Professional Engineer
29538
J. W. ANDERSON

03/10/21

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REVISION:

0

Exhibit D

Structural Analysis Report

Date: **February 9, 2021**



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation:

Sprint PCS Co-Locate

Site Number:

CTHA329A

Site Name:

N/A

Crown Castle Designation:

BU Number:

876383

Site Name:

Clinton / Anderson's Property

JDE Job Number:

628906

Work Order Number:

1919187

Order Number:

538757 Rev. 0

Engineering Firm Designation:

TEP Project Number:

207201.495769

Site Data:

7 Sherwood Forest Lane, Killingworth, Middlesex County, CT 06419

Latitude 41° 20' 17.24", Longitude -72° 33' 23.44"

150 Foot - Monopole Tower

Tower Engineering Professionals is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration

Sufficient Capacity - 84.4%

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Scott R. Perry / JCR

Respectfully submitted by:

Shawn Hoffmeyer, P.E.



Electronic Copy

02/09/21

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4) ANALYSIS RESULTS

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Table 5 - Tower Component Stresses vs. Capacity

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5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 150-ft monopole tower designed by Engineered Endeavors, Inc. The tower has been modified per reinforcement drawings prepared by Paul J. Ford and Company in July of 2019.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	B
Topographic Factor:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150.0	152.0	3	RFS Celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	4	1-5/8
		3	RFS Celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe		
		3	Ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	Ericsson	RADIO 4415 B66A		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	Ericsson	RADIO 4424 B25_TMO		
	150.0	1	Tower Mounts	Platform Mount [LP 602-1]	1	1/2
50.0	51.0	1	Lucent	KS24019-L112A		
	50.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
140.0	143.0	3	Powerwave Technologies	7770.00 w/ Mount Pipe	12 2 2 2	1-5/8 3/8 7/16 7/8
		1	CCI Antennas	OPA65R-BU6D w/ Mount Pipe		
		1	CCI Antennas	DMP65R-BU6D w/ Mount Pipe		
		1	CCI Antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		2	CCI Antennas	OPA65R-BU8D w/ Mount Pipe		
		2	CCI Antennas	HPA-65R-BUU-H8 w/ Mount Pipe		
		2	CCI Antennas	DMP65R-BU8D w/ Mount Pipe		
		6	Powerwave Technologies	LGP21401		
		1	Raycap	DC6-48-60-18-8F		
		6	Powerwave Technologies	LGP21901		
		3	Ericsson	RRUS 4478 B14_CCIV2		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 4449 B5/B12		
		1	Raycap	DC6-48-60-18-8C-EV		
	140.0	1	Tower Mounts	Platform Mount [LP 303-1_HR-1]		
128.0	128.0	6	Andrew	DB846F65ZAXY w/ Mount Pipe	19	1-5/8
		6	Kathrein	742 213 w/ Mount Pipe		
		3	Antel	BXA-70063/6CF w/ Mount Pipe		
		3	Alcatel Lucent	RRH2X40-AWS		
		1	RFS Celwave	DB-T1-6Z-8AB-0Z		
		1	Tower Mounts	T-Arm Mount [TA 602-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	2122536	CCISites
Tower Foundation Drawings	1440547	CCISites
Tower Manufacturer Drawings	1613582	CCISites
Tower Reinforcement Drawings	2418226	CCISites
Post-Modification Inspection	2471721	CCISites

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 Standard.

3.2) Assumptions

- 1) The tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	ϕP_{allow} (lb)	% Capacity	Pass / Fail
L1	150 - 112.08	Pole	TP26.59x18x0.1875	1	-10.54	933.44	84.4	Pass
L2	112.08 - 76.58	Pole	TP34.14x25.3474x0.3125	2	-16.79	1995.19	70.1	Pass
L3	76.58 - 43.16	Pole	TP40.97x32.4352x0.3125	3	-24.34	2400.02	83.9	Pass
L4	43.16 - 0	Pole	TP50x39.0798x0.375	4	-38.89	3628.14	74.5	Pass
							Summary	
						Pole (L1)	84.4	Pass
						RATING =	84.4	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	76.4	Pass
1,2	Base Plate	-	78.9	Pass
1,2	Base Foundation Soil Interaction	-	73.2	Pass
1,2	Base Foundation Structural	-	67.5	Pass

Structure Rating (max from all components) =	84.4%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H Section 15.5

4.1) Recommendations

- 1) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	
Length (ft)	37.92	38.33	38.25	48.83	
Number of Sides	18	18	18	18	
Thickness (in)	0.1875	0.3125	0.3125	0.3750	
Socket Length (ft)	3.83	4.83	5.67	39.0798	
Top Dia (in)	18.0000	25.3474	32.4352	50.0000	
Bot Dia (in)	26.5900	34.1400	40.9700		
Grade		A572-65			
Weight (K)	1.7	3.9	4.7	8.7	19.0

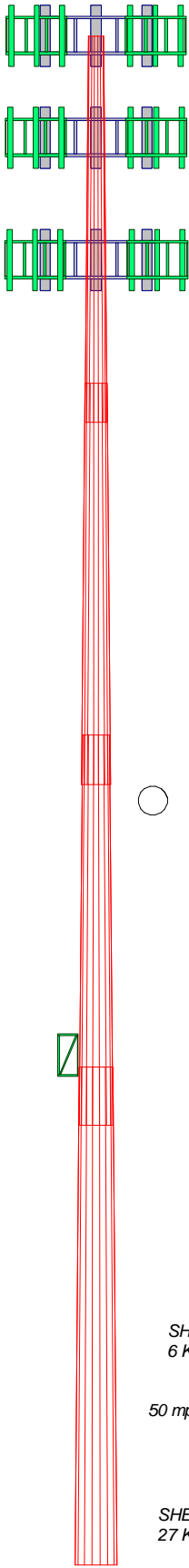
150.0 ft

112.1 ft

76.6 ft

43.2 ft

0.0 ft



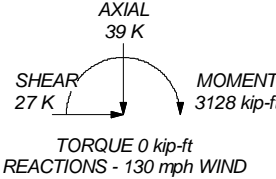
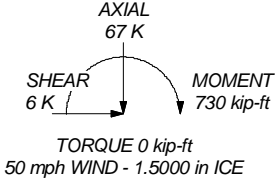
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 84.4%

ALL REACTIONS
ARE FACTORED



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Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower base elevation above sea level: 288.00 ft.

Basic wind speed of 130 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.5000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.05.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	✓ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	✓ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
Use Code Stress Ratios	Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
✓ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	✓ Bypass Mast Stability Checks	✓ Consider Feed Line Torque
Always Use Max Kz	✓ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	✓ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	✓ Sort Capacity Reports By Component	✓ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are
		Known

Tapered Pole Section Geometry

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Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-112.08	37.92	3.83	18	18.0000	26.5900	0.1875	0.7500	A572-65 (65 ksi)
L2	112.08-76.58	39.33	4.83	18	25.3474	34.1400	0.3125	1.2500	A572-65 (65 ksi)
L3	76.58-43.16	38.25	5.67	18	32.4352	40.9700	0.3125	1.2500	A572-65 (65 ksi)
L4	43.16-0.00	48.83		18	39.0798	50.0000	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	18.2488	10.6007	424.9328	6.3234	9.1440	46.4712	850.4248	5.3013	2.8380	15.136
	26.9713	15.7128	1383.8238	9.3729	13.5077	102.4469	2769.4685	7.8579	4.3498	23.199
L2	26.5597	24.8315	1966.2175	8.8874	12.8765	152.6984	3935.0222	12.4181	3.9111	12.516
	34.6185	33.5527	4850.6965	12.0088	17.3431	279.6900	9707.7757	16.7795	5.4586	17.468
L3	33.9817	31.8617	4153.6583	11.4036	16.4771	252.0870	8312.7820	15.9339	5.1586	16.508
	41.5538	40.3272	8422.0227	14.4334	20.8128	404.6567	16855.1273	20.1674	6.6607	21.314
L4	40.9124	46.0684	8719.0978	13.7402	19.8526	439.1926	17449.6683	23.0386	6.2181	16.581
	50.7135	59.0662	18377.1094	17.6169	25.4000	723.5082	36778.3998	29.5387	8.1400	21.707

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 150.00-112.08				1	1	1			
L2 112.08-76.58				1	1	1			
L3 76.58-43.16				1	1	1			
L4 43.16-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	C	No	Surface Ar (CaAa)	150.00 - 0.00	1	1	0.000 0.000	0.3750		0.22
AVA7-50(1-5/8)	C	No	Surface Ar (CaAa)	128.00 - 0.00	7	6	0.000 0.000	2.0100		0.70
**										

Feed Line/Linear Appurtenances - Entered As Area

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
150									
HB158-21U6S24-xx M_TMO(1-5/8)	C	No	No	Inside Pole	150.00 - 0.00	4	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50
128									
AVA7-50(1-5/8)	B	No	No	Inside Pole	128.00 - 0.00	12	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
140									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	140.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
FB-L98B-002-75000 (3/8)	A	No	No	Inside Pole	140.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG122ST-BRD A(7/16)	A	No	No	Inside Pole	140.00 - 0.00	2	No Ice	0.00	0.14
							1/2" Ice	0.00	0.14
							1" Ice	0.00	0.14
							2" Ice	0.00	0.14
WR-VG66ST-BRD_ CCIV2(7/8)	A	No	No	Inside Pole	140.00 - 0.00	2	No Ice	0.00	0.88
							1/2" Ice	0.00	0.88
							1" Ice	0.00	0.88
							2" Ice	0.00	0.88
2" Flexible Conduit	A	No	No	Inside Pole	140.00 - 0.00	2	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34
50									
LDF4-50A(1/2")	C	No	No	Inside Pole	50.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
**									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	150.00-112.08	A	0.000	0.000	0.000	0.000	0.35
		B	0.000	0.000	0.000	0.000	0.13
		C	0.000	0.000	20.622	0.000	0.47
L2	112.08-76.58	A	0.000	0.000	0.000	0.000	0.45
		B	0.000	0.000	0.000	0.000	0.30
		C	0.000	0.000	44.144	0.000	0.54
L3	76.58-43.16	A	0.000	0.000	0.000	0.000	0.42
		B	0.000	0.000	0.000	0.000	0.28
		C	0.000	0.000	41.558	0.000	0.51
L4	43.16-0.00	A	0.000	0.000	0.000	0.000	0.55
		B	0.000	0.000	0.000	0.000	0.36

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
		C	0.000	0.000	53.669	0.000	0.66

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	150.00-112.08	A	1.462	0.000	0.000	0.000	0.000	0.35
		B		0.000	0.000	0.000	0.000	0.13
		C		0.000	0.000	42.332	0.000	0.93
L2	112.08-76.58	A	1.415	0.000	0.000	0.000	0.000	0.45
		B		0.000	0.000	0.000	0.000	0.30
		C		0.000	0.000	78.209	0.000	1.41
L3	76.58-43.16	A	1.353	0.000	0.000	0.000	0.000	0.42
		B		0.000	0.000	0.000	0.000	0.28
		C		0.000	0.000	72.920	0.000	1.30
L4	43.16-0.00	A	1.218	0.000	0.000	0.000	0.000	0.55
		B		0.000	0.000	0.000	0.000	0.36
		C		0.000	0.000	92.955	0.000	1.64

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.00-112.08	0.0000	4.0212	0.0000	3.8350
L2	112.08-76.58	0.0000	6.8261	0.0000	6.0147
L3	76.58-43.16	0.0000	7.2256	0.0000	6.5010
L4	43.16-0.00	0.0000	7.5718	0.0000	6.9256

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8	112.08 - 150.00	1.0000	1.0000
L1	9	AVA7-50(1-5/8)	112.08 - 128.00	1.0000	1.0000
L2	1	Safety Line 3/8	76.58 - 112.08	1.0000	1.0000
L2	9	AVA7-50(1-5/8)	76.58 - 112.08	1.0000	1.0000
L3	1	Safety Line 3/8	43.16 - 76.58	1.0000	1.0000
L3	9	AVA7-50(1-5/8)	43.16 - 76.58	1.0000	1.0000
L4	1	Safety Line 3/8	0.00 - 43.16	1.0000	1.0000
L4	9	AVA7-50(1-5/8)	0.00 - 43.16	1.0000	1.0000

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Discrete Tower Loads

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 14.69 1/2" Ice 15.46 1" Ice 16.23 2" Ice 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 14.69 1/2" Ice 15.46 1" Ice 16.23 2" Ice 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 14.69 1/2" Ice 15.46 1" Ice 16.23 2" Ice 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 6.29 1/2" Ice 6.86 1" Ice 7.45 2" Ice 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 6.29 1/2" Ice 6.86 1" Ice 7.45 2" Ice 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 6.29 1/2" Ice 6.86 1" Ice 7.45 2" Ice 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 5.87 1/2" Ice 6.23 1" Ice 6.61 2" Ice 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 5.87 1/2" Ice 6.23 1" Ice 6.61 2" Ice 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 5.87 1/2" Ice 6.23 1" Ice 6.61 2" Ice 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
RADIO 4415 B66A	A	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 1.86 1/2" Ice 2.03 1" Ice 2.20 2" Ice 2.58	0.87 1.00 1.13 1.43	0.05 0.06 0.08 0.12
RADIO 4415 B66A	B	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 1.86 1/2" Ice 2.03 1" Ice 2.20 2" Ice 2.58	0.87 1.00 1.13 1.43	0.05 0.06 0.08 0.12
RADIO 4415 B66A	C	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 1.86 1/2" Ice 2.03 1" Ice 2.20	0.87 1.00 1.13	0.05 0.06 0.08

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
RADIO 4449 B71 B85A_T-MOBILE	A	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	2" Ice No Ice 1/2" Ice 1" Ice 2" Ice	2.58 1.97 2.15 2.33 2.72	1.43 1.59 1.75 1.92 2.28	0.12 0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	B	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	C	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4424 B25_TMO	A	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
RADIO 4424 B25_TMO	B	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
RADIO 4424 B25_TMO	C	From Centroid-Le g	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
Transition Ladder	A	From Centroid-Le g	2.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.00 8.00 10.00 14.00	6.00 8.00 10.00 14.00	0.16 0.24 0.32 0.48
Platform Mount [LP 602-1]	C	None		0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	31.07 34.82 38.48 45.60	31.07 34.82 38.48 45.60	1.34 1.97 2.67 4.31
140									
7770.00 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
OPA65R-BU6D w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.25 13.00 13.76 15.34	6.05 6.71 7.39 8.79	0.09 0.18 0.27 0.51
DMP65R-BU6D w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.96 12.70 13.46 15.02	5.97 6.63 7.30 8.69	0.11 0.20 0.30 0.53
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	9.22 9.98 10.76	6.25 6.96 7.70	0.07 0.14 0.22

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
OPA65R-BU8D w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	2" Ice 12.36 No Ice 17.46 1/2" Ice 18.46 1" Ice 19.48 2" Ice 21.58	9.22 8.58 9.49 10.42 12.33	0.42 0.11 0.22 0.35 0.66
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	2" Ice 12.25 No Ice 13.19 1/2" Ice 14.16 1" Ice 16.14 2" Ice 15.89	8.33 9.23 10.15 12.05 7.89	0.10 0.19 0.30 0.54 0.14
DMP65R-BU8D w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	1/2" Ice 16.81 1" Ice 17.76 2" Ice 19.70 No Ice 17.46 1/2" Ice 18.46 1" Ice 19.48 2" Ice 21.58	8.74 9.60 11.37 8.58 9.49 10.42 12.33	0.25 0.38 0.68 0.11 0.22 0.35 0.66
OPA65R-BU8D w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 15.89 1/2" Ice 16.81 1" Ice 17.76 2" Ice 19.70 No Ice 12.25 1/2" Ice 13.19 1" Ice 14.16 2" Ice 16.14	7.89 8.74 9.60 11.37 8.33 9.23 10.15 12.05	0.14 0.25 0.38 0.68 0.10 0.19 0.30 0.54
DMP65R-BU8D w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 15.89 1/2" Ice 16.81 1" Ice 17.76 2" Ice 19.70 No Ice 12.25 1/2" Ice 13.19 1" Ice 14.16 2" Ice 16.14	7.89 8.74 9.60 11.37 8.33 9.23 10.15 12.05	0.14 0.25 0.38 0.68 0.10 0.19 0.30 0.54
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 12.25 1/2" Ice 13.19 1" Ice 14.16 2" Ice 16.14 No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69	8.33 9.23 10.15 12.05 0.21 0.27 0.35 0.52	0.10 0.19 0.30 0.54 0.01 0.02 0.03 0.05
(2) LGP21401	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69 No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69	0.21 0.27 0.35 0.52 0.21 0.27 0.35 0.52	0.01 0.02 0.03 0.05 0.01 0.02 0.03 0.05
(2) LGP21401	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69 No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69	0.21 0.27 0.35 0.52 0.21 0.27 0.35 0.52	0.01 0.02 0.03 0.05 0.01 0.02 0.03 0.05
(2) LGP21401	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69 No Ice 1.10 1/2" Ice 1.24 1" Ice 1.38 2" Ice 1.69	0.21 0.27 0.35 0.52 0.21 0.27 0.35 0.52	0.01 0.02 0.03 0.05 0.01 0.02 0.03 0.05
DC6-48-60-18-8F	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1.21 1/2" Ice 1.89 1" Ice 2.11 2" Ice 2.57 No Ice 0.23 1/2" Ice 0.29 1" Ice 0.36 2" Ice 0.53	1.21 1.89 2.11 2.57 0.16 0.21 0.28 0.42	0.03 0.05 0.08 0.14 0.01 0.01 0.01 0.02
(2) LGP21901	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 0.23 1/2" Ice 0.29 1" Ice 0.36 2" Ice 0.53 No Ice 0.23 1/2" Ice 0.29 1" Ice 0.36 2" Ice 0.53	0.16 0.21 0.28 0.42 0.16 0.21 0.28 0.42	0.01 0.01 0.01 0.02 0.01 0.01 0.01 0.02
(2) LGP21901	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 0.23 1/2" Ice 0.29 1" Ice 0.36 2" Ice 0.53 No Ice 0.23 1/2" Ice 0.29 1" Ice 0.36 2" Ice 0.53	0.16 0.21 0.28 0.42 0.16 0.21 0.28 0.42	0.01 0.01 0.01 0.02 0.01 0.01 0.01 0.02
(2) LGP21901	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 0.23 1/2" Ice 0.29 1" Ice 0.36 2" Ice 0.53 No Ice 0.23 1/2" Ice 0.29 1" Ice 0.36 2" Ice 0.53	0.16 0.21 0.28 0.42 0.16 0.21 0.28 0.42	0.01 0.01 0.01 0.02 0.01 0.01 0.01 0.02
RRUS 4478 B14_CCIV2	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 2.02 1/2" Ice 2.20 1" Ice 2.39 2" Ice 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
RRUS 4478 B14_CCIV2	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15
RRUS 4478 B14_CCIV2	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15
RRUS 32 B2	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B2	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B2	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 4449 B5/B12	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
DC6-48-60-18-8C-EV	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.14 1.79 2.00 2.45	1.14 1.79 2.00 2.45	0.03 0.05 0.07 0.13
Platform Mount [LP 303-1_HR-1]	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.09 21.47 25.72 33.96	17.09 21.47 25.72 33.96	1.50 1.88 2.35 3.52
**									
(2) DB846F65ZAXY w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.10 6.80 7.51 8.98	6.81 7.52 8.24 9.73	0.06 0.12 0.19 0.37
(2) DB846F65ZAXY w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.10 6.80 7.51 8.98	6.81 7.52 8.24 9.73	0.06 0.12 0.19 0.37
(2) DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.10 6.80 7.51 8.98	6.81 7.52 8.24 9.73	0.06 0.12 0.19 0.37
(2) 742 213 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.54 4.13 4.74 6.01	2.98 3.57 4.17 5.42	0.05 0.09 0.14 0.27

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	Client Crown Castle	Designed by Scott R. Perry

Load Combinations

<i>Comb. No.</i>	<i>Description</i>
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

<i>Section No.</i>	<i>Elevation</i>	<i>Horz. Deflection</i>	<i>Gov. Load Comb.</i>	<i>Tilt</i>	<i>Twist</i>
	<i>ft</i>	<i>in</i>		<i>°</i>	<i>°</i>

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 112.08	28.383	42	1.8417	0.0009
L2	115.91 - 76.58	16.278	42	1.4292	0.0002
L3	81.41 - 43.16	7.609	48	0.9456	0.0001
L4	48.83 - 0	2.596	48	0.5003	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	42	28.383	1.8417	0.0009	21065
140.00	7770.00 w/ Mount Pipe	42	24.630	1.7251	0.0006	10532
128.00	(2) DB846F65ZAXY w/ Mount Pipe	42	20.288	1.5817	0.0004	4787
50.00	KS24019-L112A	48	2.721	0.5148	0.0000	3820

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 112.08	142.232	8	9.2435	0.0053
L2	115.91 - 76.58	81.679	8	7.1786	0.0013
L3	81.41 - 43.16	38.203	20	4.7513	0.0004
L4	48.83 - 0	13.033	20	2.5131	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	8	142.232	9.2435	0.0053	4392
140.00	7770.00 w/ Mount Pipe	8	123.466	8.6604	0.0039	2194
128.00	(2) DB846F65ZAXY w/ Mount Pipe	8	101.745	7.9427	0.0024	993
50.00	KS24019-L112A	20	13.662	2.5857	0.0001	763

Compression Checks

Pole Design Data

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 112.08 (1)	TP26.59x18x0.1875	37.92	0.00	0.0	15.1965	-10.54	888.99	0.012
L2	112.08 - 76.58 (2)	TP34.14x25.3474x0.3125	39.33	0.00	0.0	32.4816	-16.79	1900.18	0.009
L3	76.58 - 43.16 (3)	TP40.97x32.4352x0.3125	38.25	0.00	0.0	39.0723	-24.34	2285.73	0.011
L4	43.16 - 0 (4)	TP50x39.0798x0.375	48.83	0.00	0.0	59.0662	-38.89	3455.37	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 112.08 (1)	TP26.59x18x0.1875	462.43	531.97	0.869	0.00	531.97	0.000
L2	112.08 - 76.58 (2)	TP34.14x25.3474x0.3125	1147.96	1582.77	0.725	0.00	1582.77	0.000
L3	76.58 - 43.16 (3)	TP40.97x32.4352x0.3125	1885.55	2168.53	0.870	0.00	2168.53	0.000
L4	43.16 - 0 (4)	TP50x39.0798x0.375	3127.52	4060.77	0.770	0.00	4060.77	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	φV _n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T _u kip-ft	φT _n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 112.08 (1)	TP26.59x18x0.1875	18.44	266.70	0.069	0.12	596.39	0.000
L2	112.08 - 76.58 (2)	TP34.14x25.3474x0.3125	21.34	570.05	0.037	0.12	1634.84	0.000
L3	76.58 - 43.16 (3)	TP40.97x32.4352x0.3125	23.86	685.72	0.035	0.12	2365.58	0.000
L4	43.16 - 0 (4)	TP50x39.0798x0.375	26.91	1036.61	0.026	0.03	4505.02	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 112.08 (1)	0.012	0.869	0.000	0.069	0.000	0.886	1.050	4.8.2
L2	112.08 - 76.58 (2)	0.009	0.725	0.000	0.037	0.000	0.736	1.050	4.8.2
L3	76.58 - 43.16 (3)	0.011	0.870	0.000	0.035	0.000	0.881	1.050	4.8.2
L4	43.16 - 0 (4)	0.011	0.770	0.000	0.026	0.000	0.782	1.050	4.8.2

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Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150 - 112.08	Pole	TP26.59x18x0.1875	1	-10.54	933.44	84.4	Pass
L2	112.08 - 76.58	Pole	TP34.14x25.3474x0.3125	2	-16.79	1995.19	70.1	Pass
L3	76.58 - 43.16	Pole	TP40.97x32.4352x0.3125	3	-24.34	2400.02	83.9	Pass
L4	43.16 - 0	Pole	TP50x39.0798x0.375	4	-38.89	3628.14	74.5	Pass
							Summary	
							Pole (L1)	84.4
							RATING =	84.4
								Pass

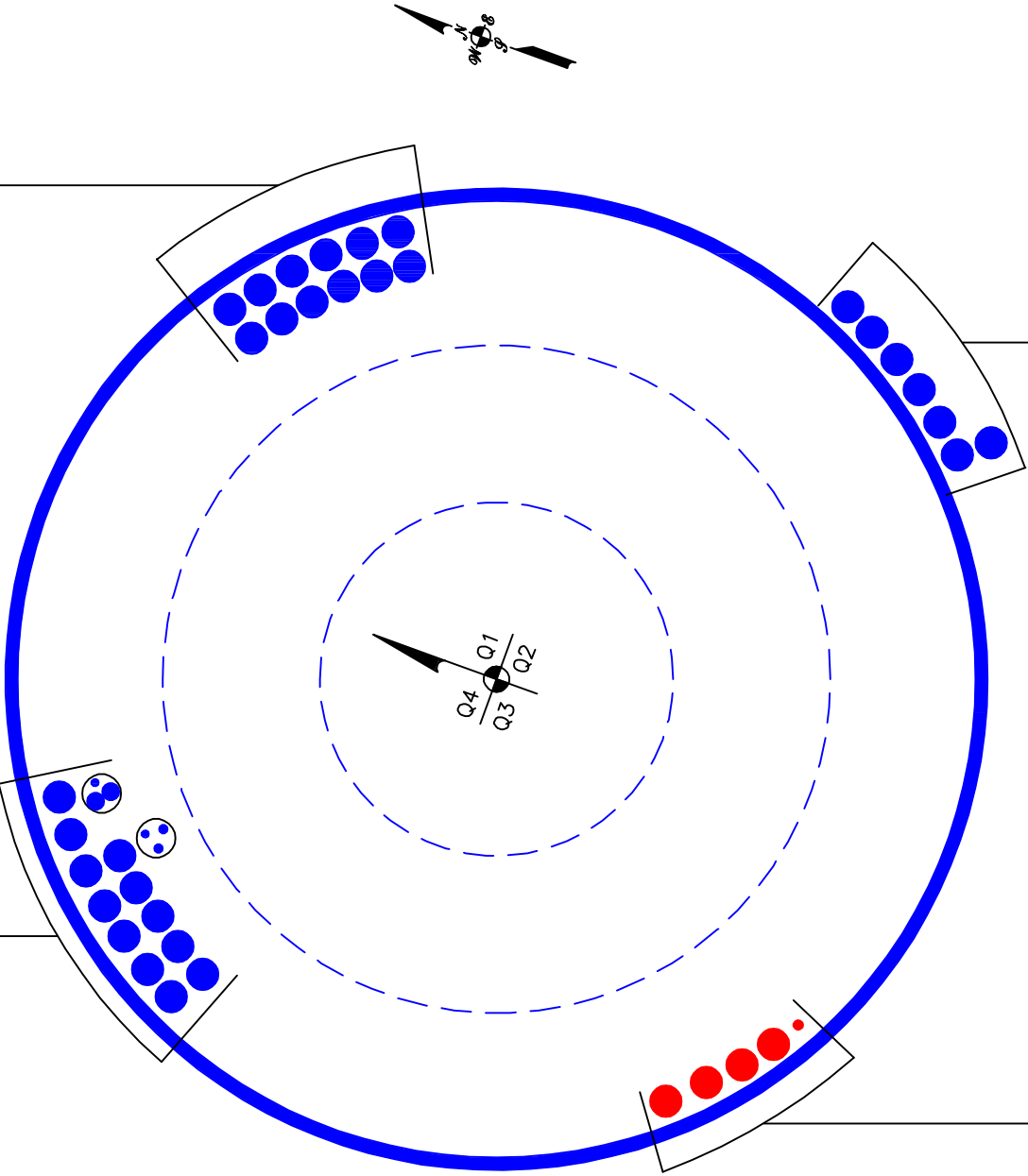
APPENDIX B
BASE LEVEL DRAWING

(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 128 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(7) 1-5/8" TO 128 FT LEVEL

(OTHER CONSIDERED EQUIPMENT - IN CONDUIT)
(2) 3/8" TO 140 FT LEVEL
(2) 7/16" TO 140 FT LEVEL
(2) 7/8" TO 140 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 140 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(4) 1-5/8" TO 150 FT LEVEL
(1) 1/2" TO 50 FT LEVEL



APPENDIX C

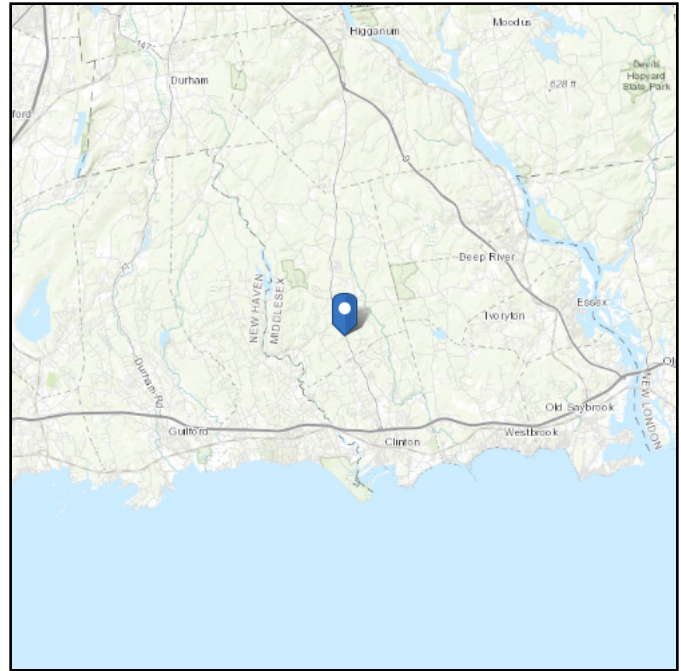
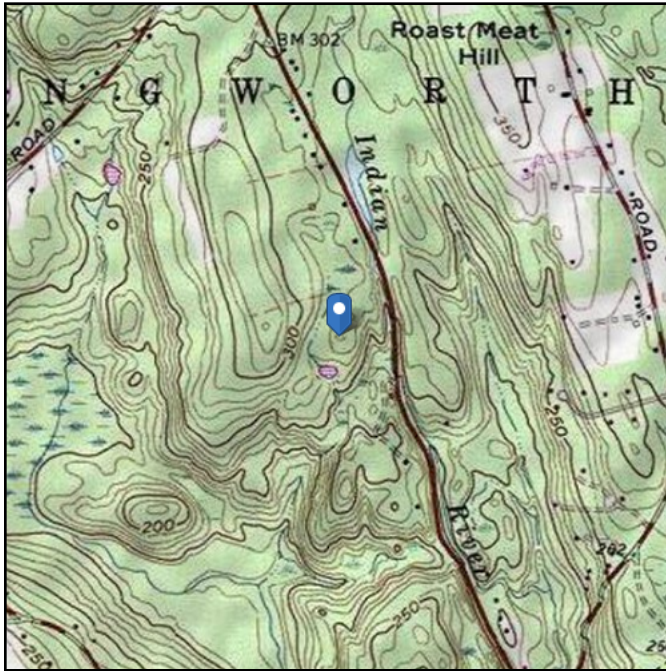
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 288.38 ft (NAVD 88)
Latitude: 41.338122
Longitude: -72.556511



Wind

Results:

Wind Speed:	129 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	96 Vmph
100-year MRI	106 Vmph

Wind speed updated per
local jurisdictional requirements

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Mon Feb 08 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

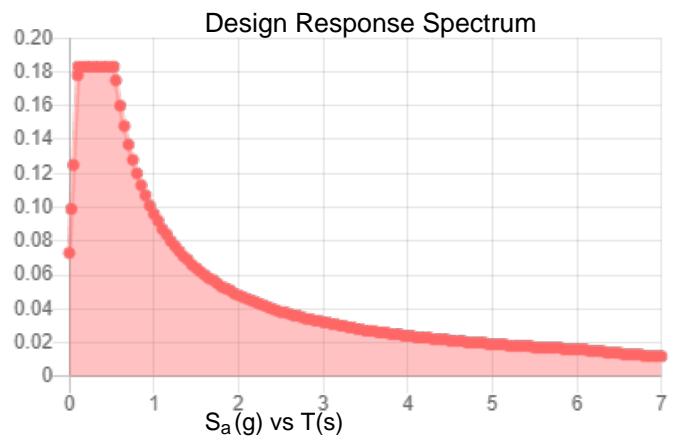
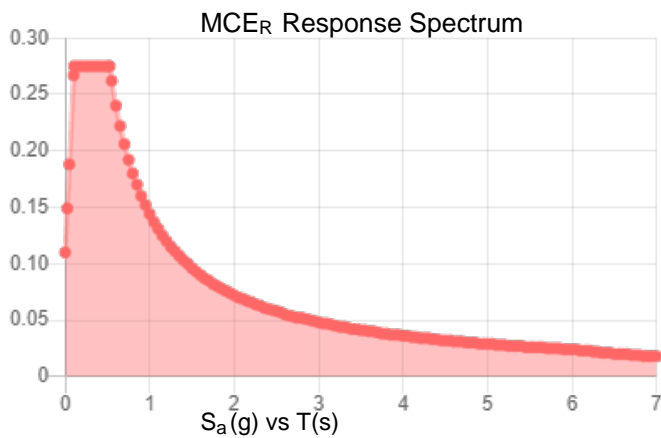
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.172	S_{DS} :	0.183
S_1 :	0.06	S_{D1} :	0.096
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.087
S_{MS} :	0.275	PGA_M :	0.139
S_{M1} :	0.144	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Mon Feb 08 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Mon Feb 08 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Monopole Base Plate Connection

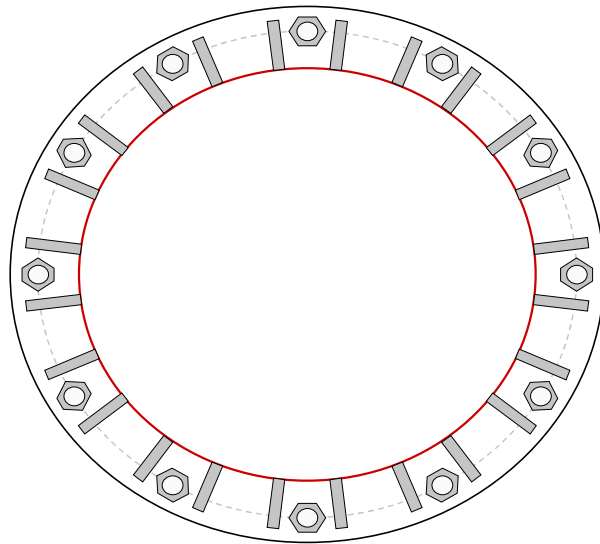


Site Info	
BU #	876383
Site Name	ton / Anderson's Prop
Order #	538757 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
I_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	3127.52
Axial Force (kips)	38.89
Shear Force (kips)	26.91

*TIA-222-H Section 15.5 Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary (units of kips, kip-in)	
(12) 2-1/4" \varnothing bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 59" BC		$Pu_c = 215.15$	$\phi Pn_c = 268.39$ Stress Rating
Base Plate Data		$Vu = 2.24$	$\phi Vn = 120.77$ 76.4%
65" OD x 1.75" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi)		$Mu = n/a$	$\phi Mn = n/a$ Pass
Stiffener Data		Base Plate Summary	
(24) 18"H x 6"W x 1.25"T, Notch: 0.75"		Max Stress (ksi):	44.75 (Roark's Flexural)
plate: $F_y = 50$ ksi ; weld: $F_y = 70$ ksi		Allowable Stress (ksi):	54
horiz. weld: 0.5" groove, 45° dbl bevel, 0.5" fillet		Stress Rating:	78.9% Pass
vert. weld: 0.375" fillet		Stiffener Summary	
Pole Data		Horizontal Weld:	48.7% Pass
50" x 0.375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)		Vertical Weld:	32.5% Pass
		Plate Flexure+Shear:	6.3% Pass
		Plate Tension+Shear:	29.3% Pass
		Plate Compression:	30.9% Pass
		Pole Summary	
		Punching Shear:	8.8% Pass

Pier and Pad Foundation



BU #: 876383
 Site Name: Clinton / Anderson
 App. Number: 538757 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

Top & Bot. Pad Rein. Different?: ☒
 Block Foundation?: ☐
 Rectangular Pad?: ☐

Superstructure Analysis Reactions		
Compression, P_{comp} :	39	kips
Base Shear, V_{u_comp} :	27	kips
Moment, M_u :	3128	ft-kips
Tower Height, H :	150	ft
BP Dist. Above Fdn, bp_{dist} :	4	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, d_{pier} :	6.5	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, S_c :	8	
Pier Rebar Quantity, mc :	39	
Pier Tie/Spiral Size, S_t :	4	
Pier Tie/Spiral Quantity, mt :	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	5	ft
Pad Width, W_1 :	24.5	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2} :	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2} :	28	
Pad Rebar Size (Bottom dir. 2), Sp_2 :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	40	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	100	pcf
Ultimate Gross Bearing, Q_{ult} :	20.000	ksf
Cohesion, C_u :		ksf
Friction Angle, ϕ :	30	degrees
SPT Blow Count, N_{blows} :	6	
Base Friction, μ :		
Neglected Depth, N :	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	144.55	27.00	17.8%	Pass
Bearing Pressure (ksf)	15.00	3.57	23.8%	Pass
Overtuning (kip*ft)	4485.65	3285.50	73.2%	Pass
Pier Flexure (Comp.) (kip*ft)	4507.70	3195.50	67.5%	Pass
Pier Compression (kip)	20168.46	58.01	0.3%	Pass
Pad Flexure (kip*ft)	4299.49	1459.20	32.3%	Pass
Pad Shear - 1-way (kips)	760.87	222.42	27.8%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.033	19.3%	Pass
Flexural 2-way (Comp) (kip*ft)	4622.01	1917.30	39.5%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*:	73.2%
Structural Rating*:	67.5%

<--Toggle between Gross and Net

Exhibit E

Mount Analysis

Date: **February 1, 2021**

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject: Mount Analysis Report

Carrier Designation: Sprint PCS Retain
Carrier Site Number: CTHA329A
Carrier Site Name: N/A

Crown Castle Designation: Crown Castle BU Number: 876383
Crown Castle Site Name: CLINTON / ANDERSON'S PROPERTY
Crown Castle JDE Job Number: 628906
Crown Castle Order Number: 538757 Rev. 0

Engineering Firm Designation: Infinigy Engineering, PLLC Report Designation: 1039-Z0001-B

Site Data: 7 Sherwood Forest Lane, Killingworth, Middlesex County, CT, 06419
Latitude 41°20'17.24", Longitude -72°33'23.44"

Structure Information: Tower Height & Type: 150.0 ft Monopole
Mount Elevation: 150.0 ft
Mount Type: 10.5 ft Platform

Dear Darcy Tarr,

Infinigy Engineering, PLLC is pleased to submit this "**Mount Analysis Report**" to determine the structural integrity of Sprint PCS's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

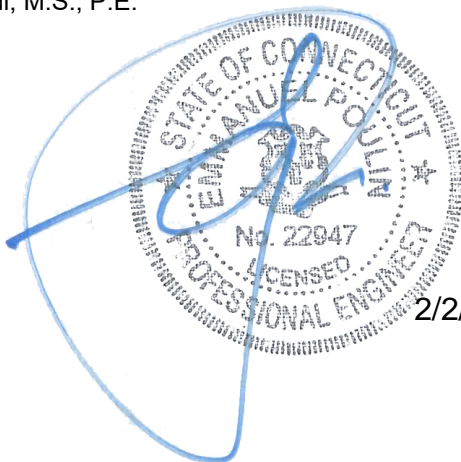
Platform

Sufficient - 51.7%

This analysis has been performed in accordance with the 2018 Connecticut State Building Code and Appendix N based upon an ultimate 3-second gust wind speed of 130 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Jacques S. Grimaldi, M.S., P.E.

Respectfully Submitted by:
Emmanuel Poulin, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. 22947



2/2/21

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1) INTRODUCTION

This is an existing 3 sector 10.5 ft Platform, designed by Engineered Endeavors Incorporated.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 Connecticut State Building Code and Appendix N
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	130 mph
Exposure Category:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.173
Seismic S_1:	0.061
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
150.0	152.0	3	Ericsson	AIR6449 B41 T-MOBILE	10.5 ft Platform Addition of (1) 8' pipe mount per sector
		3	RFS/Celwave	APX16DWV-16DWV-S-E-A20	
		3	RFS/Celwave	APXVAALL24 43-U-NA20 TMO	
		3	Ericsson	RADIO 4415 B66A	
		3	Ericsson	RADIO 4424 B25 TMO	
		3	Ericsson	RADIO 4449 B71 B85A_ T-MOBILE	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Sprint PCS Application	538757 Rev. 0	CCI Sites
Loading Document	Sprint PCS	RFDS Version: 1	TSA
Tower Manufacturer Drawings	Engineered Endeavors Incorporated	1613582	CCI Sites

3.1) Analysis Method

RISA-3D (Version 19.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.1.4, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision B).

3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
- 5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
- 6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Infinigy Engineering, PLLC should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP5	150.0	51.7	Pass
	Horizontal(s)	M5		34.3	Pass
	Handrail(s)	M53		48.6	Pass
	Support Channel(s)	M7		49.9	Pass
	Mount Connection(s)	-		4.1	Pass

Structure Rating (max from all components) =	51.7%
---	--------------

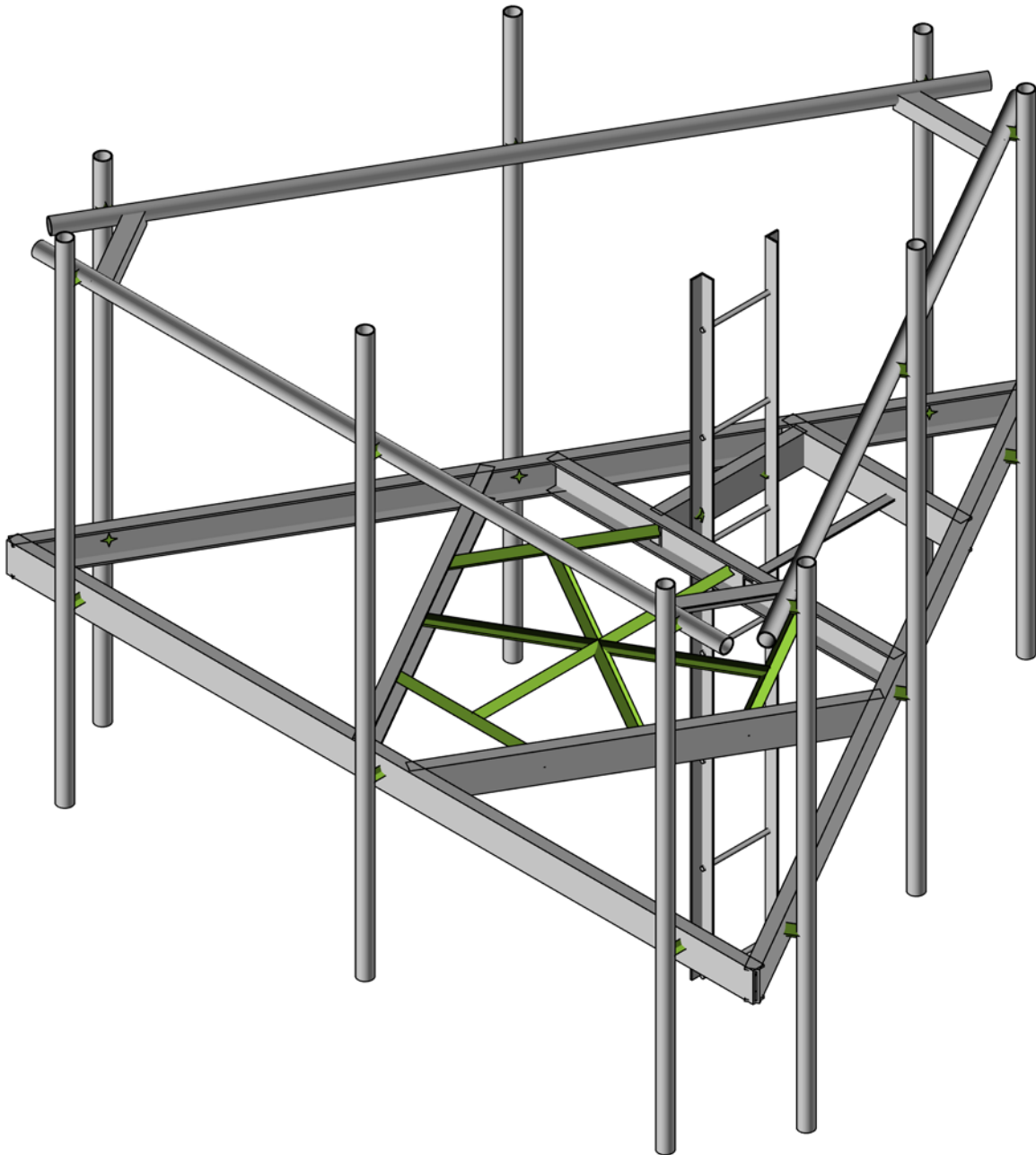
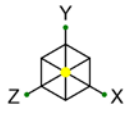
Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for detailed mount connection calculations.

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Infinigy Engineering, PLLC

JG

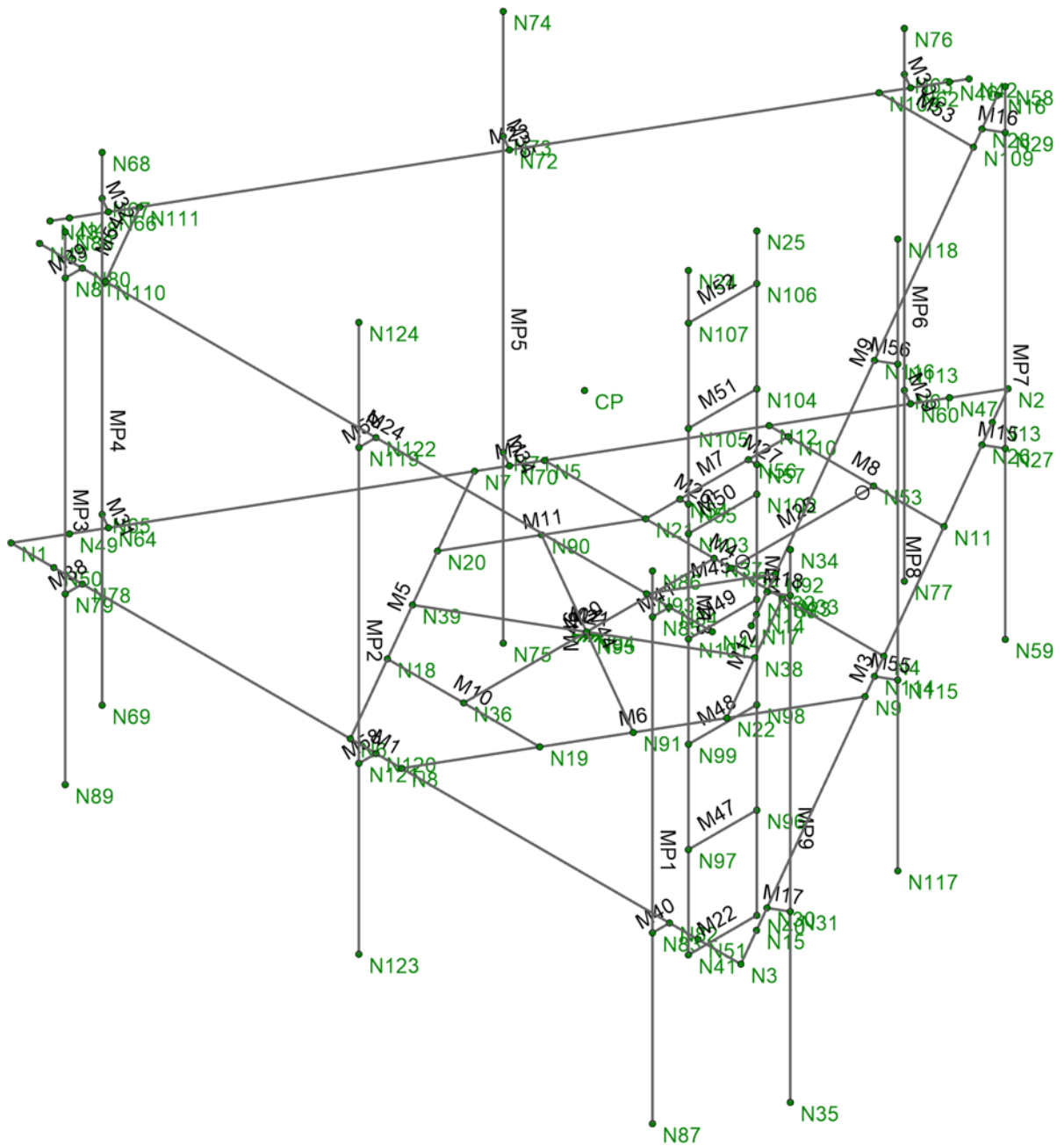
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Feb 01, 2021

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Infinigy Engineering, PLLC

JG

1039-Z0001-B

876383

Wireframe

Feb 01, 2021

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APPENDIX B
SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION		
Client:	Crown Castle	
Carrier:	Sprint PCS	
Engineer:	Jacques Grimaldi	

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil	
Ground Elevation:	288.38	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	150.0	ft
Tower Height AGL:	150.0	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.95	
Ground Ele. Factor (K_e):	0.99	*Rev H Only
Rooftop Speed-Up (K_s):	1.00	*Rev H Only
Topographic Factor (K_{zt}):	1.00	
Gust Effect Factor (G_h):	1.0	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

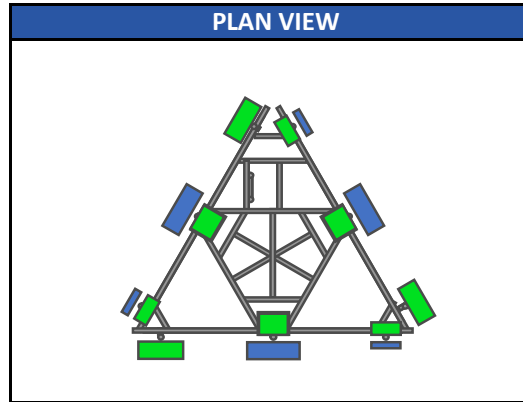
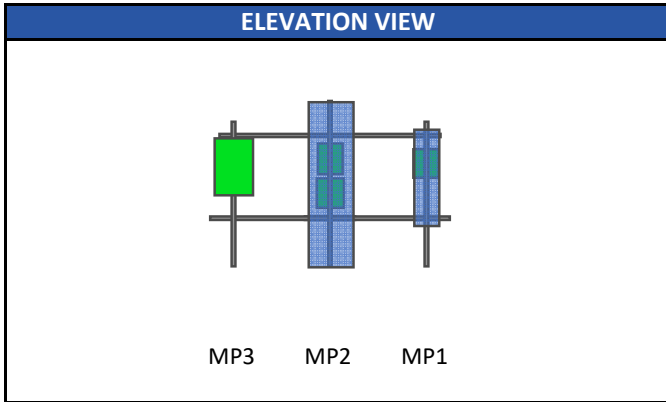
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	130	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	90.26	psf
Round Pressure:	54.16	psf
Ice Wind Pressure:	8.01	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.173	g
1-Second Accel. (S_1):	0.061	g
Short-Period Design (S_{DS}):	0.18	
1-Second Design (S_{D1}):	0.10	
Short-Period Coeff. (F_a):	1.60	
1-Second Coeff. (F_v):	2.40	
Amplification Factor (a_p):	1.00	
Response Mod. (R_p):	2.50	
Overstrength (Ω_o):	1.00	



Infinigy Load Calculator V2.1.4

Program Inputs

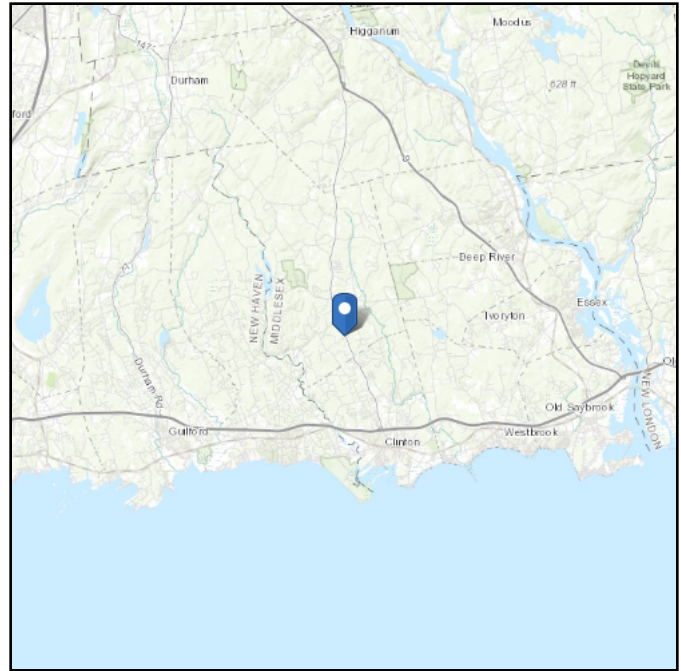
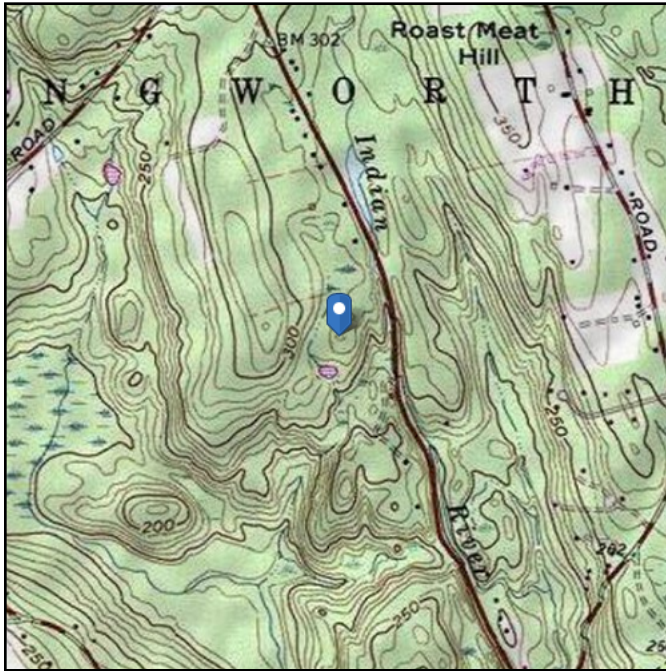
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ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 288.38 ft (NAVD 88)
Latitude: 41.338122
Longitude: -72.556511



Wind

Results:

Wind Speed:
10-year MRI
25-year MRI
50-year MRI
100-year MRI

130 Vmph per 2018 Connecticut State Building Code and Appendix N

78 Vmph

88 Vmph

96 Vmph

106 Vmph

Data Source:

ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed:

Sun Jan 31 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

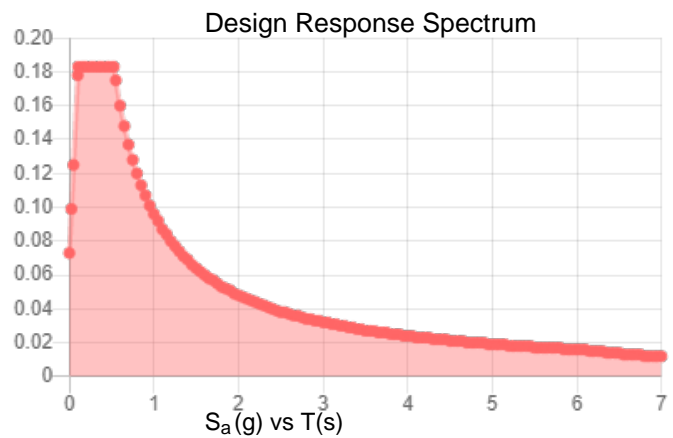
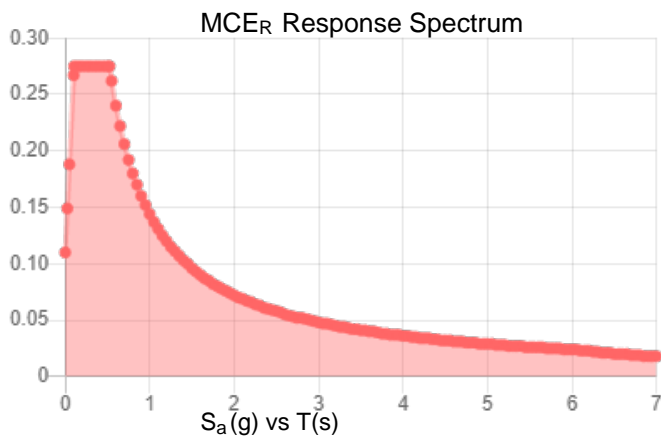
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.173	S_{DS} :	0.183
S_1 :	0.061	S_{D1} :	0.096
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.087
S_{MS} :	0.275	PGA _M :	0.139
S_{M1} :	0.144	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Sun Jan 31 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Sun Jan 31 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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APPENDIX C
SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N3	N1		Horizontal	Beam	Channel	A36 Gr.36	Typical
2	M2	N2	N1	180	Horizontal	Beam	Channel	A36 Gr.36	Typical
3	M3	N2	N3		Horizontal	Beam	Channel	A36 Gr.36	Typical
4	M4	N4	N5	180	Support Channel	Beam	Channel	A36 Gr.36	Typical
5	M5	N6	N7		Support Channel	Beam	Channel	A36 Gr.36	Typical
6	M6	N8	N9	180	Support Channel	Beam	Channel	A36 Gr.36	Typical
7	M7	N21	N10	180	Support Channel	Beam	Channel	A36 Gr.36	Typical
8	M8	N11	N12		Support Channel	Beam	Channel	A36 Gr.36	Typical
9	M9	N16	N17	90	Handrails	Beam	Pipe	A53 Gr.B	Typical
10	M10	N18	N19		RIGID	None	None	RIGID	Typical
11	M11	N20	N21		RIGID	None	None	RIGID	Typical
12	M12	N22	N23		RIGID	None	None	RIGID	Typical
13	M13	N24	N41	180	Ladder Rail	Column	Single Angle	A36 Gr.36	Typical
14	M14	N25	N40	90	Ladder Rail	Column	Single Angle	A36 Gr.36	Typical
15	M15	N26	N27		RIGID	None	None	RIGID	Typical
16	M16	N28	N29		RIGID	None	None	RIGID	Typical
17	M17	N30	N31		RIGID	None	None	RIGID	Typical
18	M18	N32	N33		RIGID	None	None	RIGID	Typical
19	MP9	N34	N35		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
20	M20	N36	N37		RIGID	None	None	RIGID	Typical
21	M21	N38	N39		RIGID	None	None	RIGID	Typical
22	M22	N40	N41		Ladder Step	Beam	BAR	A36 Gr.36	Typical
23	M23	N42	N43	180	Handrails	Beam	Pipe	A53 Gr.B	Typical
24	M24	N44	N45	90	Handrails	Beam	Pipe	A53 Gr.B	Typical
25	M25	N52	N53	90	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
26	M26	N54	N55		RIGID	None	None	RIGID	Typical
27	M27	N56	N57		RIGID	None	None	RIGID	Typical
28	MP7	N58	N59		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
29	M29	N60	N61		RIGID	None	None	RIGID	Typical
30	M30	N62	N63		RIGID	None	None	RIGID	Typical
31	M31	N64	N65		RIGID	None	None	RIGID	Typical
32	M32	N66	N67		RIGID	None	None	RIGID	Typical
33	MP4	N68	N69		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
34	M34	N70	N71		RIGID	None	None	RIGID	Typical
35	M35	N72	N73		RIGID	None	None	RIGID	Typical
36	MP5	N74	N75		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
37	MP6	N76	N77		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
38	M38	N78	N79		RIGID	None	None	RIGID	Typical
39	M39	N80	N81		RIGID	None	None	RIGID	Typical
40	M40	N82	N83		RIGID	None	None	RIGID	Typical
41	M41	N84	N85		RIGID	None	None	RIGID	Typical
42	MP1	N86	N87		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
43	MP3	N88	N89		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
44	M44	N90	N91		RIGID	None	None	RIGID	Typical
45	M45	N92	N93	180	Handrail Corner Angle	Beam	Single Angle	A36 Gr.36	Typical
46	M46	N95	N94		RIGID	None	None	RIGID	Typical
47	M47	N96	N97		Ladder Step	Beam	BAR	A36 Gr.36	Typical
48	M48	N98	N99		Ladder Step	Beam	BAR	A36 Gr.36	Typical
49	M49	N100	N101		Ladder Step	Beam	BAR	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
50	M50	N102	N103		Ladder Step	Beam	BAR	A36 Gr.36	Typical
51	M51	N104	N105		Ladder Step	Beam	BAR	A36 Gr.36	Typical
52	M52	N106	N107		Ladder Step	Beam	BAR	A36 Gr.36	Typical
53	M53	N108	N109	180	Handrail Corner Angle	Beam	Single Angle	A36 Gr.36	Typical
54	M54	N110	N111	180	Handrail Corner Angle	Beam	Single Angle	A36 Gr.36	Typical
55	M55	N114	N115		RIGID	None	None	RIGID	Typical
56	M56	N116	N113		RIGID	None	None	RIGID	Typical
57	MP8	N118	N117		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
58	M58	N120	N121		RIGID	None	None	RIGID	Typical
59	M59	N122	N119		RIGID	None	None	RIGID	Typical
60	MP2	N124	N123		Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General Members				
2	RIGID		27	269.5	0
3	Total General		27	269.5	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	0.625 SR	7	84	7.308
7	A36 Gr.36	C5X9	8	618.2	462.779
8	A36 Gr.36	L1.5x1.5x4	1	25	4.87
9	A36 Gr.36	L2.5x2.5x3	3	49.6	12.683
10	A36 Gr.36	L2x2x4	2	208	55.679
11	A53 Gr.B	PIPE_2.0	12	1146	331.465
12	Total HR Steel		33	2130.8	874.783

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	Self Weight	DL		-1			36		8
2	Wind Load AZI 0	WLZ					72		
3	Wind Load AZI 30	None					72		
4	Wind Load AZI 60	None					72		
5	Wind Load AZI 90	WLX					72		
6	Wind Load AZI 120	None					72		
7	Wind Load AZI 150	None					72		
8	Wind Load AZI 180	None					72		
9	Wind Load AZI 210	None					72		
10	Wind Load AZI 240	None					72		
11	Wind Load AZI 270	None					72		
12	Wind Load AZI 300	None					72		
13	Wind Load AZI 330	None					72		
14	Distr. Wind Load Z	WLZ						60	
15	Distr. Wind Load X	WLX						60	
16	Ice Weight	OL1					36	60	8
17	Ice Wind Load AZI 0	OL2					72		
18	Ice Wind Load AZI 30	None					72		
19	Ice Wind Load AZI 60	None					72		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
20	Ice Wind Load AZI 90	OL3					72		
21	Ice Wind Load AZI 120	None					72		
22	Ice Wind Load AZI 150	None					72		
23	Ice Wind Load AZI 180	None					72		
24	Ice Wind Load AZI 210	None					72		
25	Ice Wind Load AZI 240	None					72		
26	Ice Wind Load AZI 270	None					72		
27	Ice Wind Load AZI 300	None					72		
28	Ice Wind Load AZI 330	None					72		
29	Distr. Ice Wind Load Z	OL2						60	
30	Distr. Ice Wind Load X	OL3						60	
31	Seismic Load Z	ELZ			-0.092		36		
32	Seismic Load X	ELX	-0.092				36		
33	Service Live Loads	LL				1			
34	Maintenance Load 1	LL				1			
35	Maintenance Load 2	LL				1			
36	Maintenance Load 3	LL				1			
37	Maintenance Load 4	LL				1			
38	Maintenance Load 5	LL				1			
39	Maintenance Load 6	LL				1			
40	Maintenance Load 7	LL				1			
41	Maintenance Load 8	LL				1			
42	Maintenance Load 9	LL				1			
43	BLC 1 Transient Area Loads	None						96	
44	BLC 16 Transient Area Loads	None						96	

Load Combinations

	Description	Solve	P	Delta	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor
1	1.4DL	Yes	Y	1	1.4									
2	1.2DL + 1WL AZI 0	Yes	Y	1	1.2	2	1	14	1	15				
3	1.2DL + 1WL AZI 30	Yes	Y	1	1.2	3	1	14	0.866	15	0.5			
4	1.2DL + 1WL AZI 60	Yes	Y	1	1.2	4	1	14	0.5	15	0.866			
5	1.2DL + 1WL AZI 90	Yes	Y	1	1.2	5	1	14		15	1			
6	1.2DL + 1WL AZI 120	Yes	Y	1	1.2	6	1	14	-0.5	15	0.866			
7	1.2DL + 1WL AZI 150	Yes	Y	1	1.2	7	1	14	-0.866	15	0.5			
8	1.2DL + 1WL AZI 180	Yes	Y	1	1.2	8	1	14	-1	15				
9	1.2DL + 1WL AZI 210	Yes	Y	1	1.2	9	1	14	-0.866	15	-0.5			
10	1.2DL + 1WL AZI 240	Yes	Y	1	1.2	10	1	14	-0.5	15	-0.866			
11	1.2DL + 1WL AZI 270	Yes	Y	1	1.2	11	1	14		15	-1			
12	1.2DL + 1WL AZI 300	Yes	Y	1	1.2	12	1	14	0.5	15	-0.866			
13	1.2DL + 1WL AZI 330	Yes	Y	1	1.2	13	1	14	0.866	15	-0.5			
14	0.9DL + 1WL AZI 0	Yes	Y	1	0.9	2	1	14	1	15				
15	0.9DL + 1WL AZI 30	Yes	Y	1	0.9	3	1	14	0.866	15	0.5			
16	0.9DL + 1WL AZI 60	Yes	Y	1	0.9	4	1	14	0.5	15	0.866			
17	0.9DL + 1WL AZI 90	Yes	Y	1	0.9	5	1	14		15	1			
18	0.9DL + 1WL AZI 120	Yes	Y	1	0.9	6	1	14	-0.5	15	0.866			
19	0.9DL + 1WL AZI 150	Yes	Y	1	0.9	7	1	14	-0.866	15	0.5			
20	0.9DL + 1WL AZI 180	Yes	Y	1	0.9	8	1	14	-1	15				

Load Combinations (Continued)

	Description	Solve	PD	Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
21	0.9DL + 1WL AZI 210	Yes	Y	1	0.9	9	1	14	-0.866	15	-0.5			
22	0.9DL + 1WL AZI 240	Yes	Y	1	0.9	10	1	14	-0.5	15	-0.866			
23	0.9DL + 1WL AZI 270	Yes	Y	1	0.9	11	1	14		15	-1			
24	0.9DL + 1WL AZI 300	Yes	Y	1	0.9	12	1	14	0.5	15	-0.866			
25	0.9DL + 1WL AZI 330	Yes	Y	1	0.9	13	1	14	0.866	15	-0.5			
26	1.2D + 1.0Di	Yes	Y	1	1.2	16	1							
27	1.2D + 1.0Di + 1.0Wi AZI 0	Yes	Y	1	1.2	16	1	17	1	29	1	30		
28	1.2D + 1.0Di + 1.0Wi AZI 30	Yes	Y	1	1.2	16	1	18	1	29	0.866	30	0.5	
29	1.2D + 1.0Di + 1.0Wi AZI 60	Yes	Y	1	1.2	16	1	19	1	29	0.5	30	0.866	
30	1.2D + 1.0Di + 1.0Wi AZI 90	Yes	Y	1	1.2	16	1	20	1	29		30	1	
31	1.2D + 1.0Di + 1.0Wi AZI 120	Yes	Y	1	1.2	16	1	21	1	29	-0.5	30	0.866	
32	1.2D + 1.0Di + 1.0Wi AZI 150	Yes	Y	1	1.2	16	1	22	1	29	-0.866	30	0.5	
33	1.2D + 1.0Di + 1.0Wi AZI 180	Yes	Y	1	1.2	16	1	23	1	29	-1	30		
34	1.2D + 1.0Di + 1.0Wi AZI 210	Yes	Y	1	1.2	16	1	24	1	29	-0.866	30	-0.5	
35	1.2D + 1.0Di + 1.0Wi AZI 240	Yes	Y	1	1.2	16	1	25	1	29	-0.5	30	-0.866	
36	1.2D + 1.0Di + 1.0Wi AZI 270	Yes	Y	1	1.2	16	1	26	1	29		30	-1	
37	1.2D + 1.0Di + 1.0Wi AZI 300	Yes	Y	1	1.2	16	1	27	1	29	0.5	30	-0.866	
38	1.2D + 1.0Di + 1.0Wi AZI 330	Yes	Y	1	1.2	16	1	28	1	29	0.866	30	-0.5	
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.237	31	1	32						
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.237	31	0.866	32	0.5					
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.237	31	0.5	32	0.866					
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.237	31		32	1					
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.237	31	-0.5	32	0.866					
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.237	31	-0.866	32	0.5					
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.237	31	-1	32						
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.237	31	-0.866	32	-0.5					
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.237	31	-0.5	32	-0.866					
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.237	31		32	-1					
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.237	31	0.5	32	-0.866					
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.237	31	0.866	32	-0.5					
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.863	31	1	32						
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.863	31	0.866	32	0.5					
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.863	31	0.5	32	0.866					
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.863	31		32	1					
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.863	31	-0.5	32	0.866					
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.863	31	-0.866	32	0.5					
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.863	31	-1	32						
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.863	31	-0.866	32	-0.5					
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.863	31	-0.5	32	-0.866					
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.863	31		32	-1					
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.863	31	0.5	32	-0.866					
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.863	31	0.866	32	-0.5					
63	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 0	Yes	Y	1	1	2	0.213	14	0.213	15		33	1.5	
64	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 30	Yes	Y	1	1	3	0.213	14	0.184	15	0.107	33	1.5	
65	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 60	Yes	Y	1	1	4	0.213	14	0.107	15	0.184	33	1.5	
66	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 90	Yes	Y	1	1	5	0.213	14		15	0.213	33	1.5	
67	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 120	Yes	Y	1	1	6	0.213	14	-0.107	15	0.184	33	1.5	
68	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 150	Yes	Y	1	1	7	0.213	14	-0.184	15	0.107	33	1.5	
69	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 180	Yes	Y	1	1	8	0.213	14	-0.213	15		33	1.5	

Load Combinations (Continued)

	Description	Solve	P	Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
70	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 210	Yes	Y	1	1	9	0.213	14	-0.184	15	-0.107	33	1.5	
71	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 240	Yes	Y	1	1	10	0.213	14	-0.107	15	-0.184	33	1.5	
72	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 270	Yes	Y	1	1	11	0.213	14		15	-0.213	33	1.5	
73	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 300	Yes	Y	1	1	12	0.213	14	0.107	15	-0.184	33	1.5	
74	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 330	Yes	Y	1	1	13	0.213	14	0.184	15	-0.107	33	1.5	
75	1.2DL + 1.5LL	Yes	Y	1	1.2	33	1.5							
76	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	34	1.5	2	0.053	14	0.053	15		
77	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	34	1.5	3	0.053	14	0.046	15	0.027	
78	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	34	1.5	4	0.053	14	0.027	15	0.046	
79	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	34	1.5	5	0.053	14		15	0.053	
80	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	34	1.5	6	0.053	14	-0.027	15	0.046	
81	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	34	1.5	7	0.053	14	-0.046	15	0.027	
82	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	34	1.5	8	0.053	14	-0.053	15		
83	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	34	1.5	9	0.053	14	-0.046	15	-0.027	
84	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	34	1.5	10	0.053	14	-0.027	15	-0.046	
85	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	34	1.5	11	0.053	14		15	-0.053	
86	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	34	1.5	12	0.053	14	0.027	15	-0.046	
87	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	34	1.5	13	0.053	14	0.046	15	-0.027	
88	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	35	1.5	2	0.053	14	0.053	15		
89	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	35	1.5	3	0.053	14	0.046	15	0.027	
90	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	35	1.5	4	0.053	14	0.027	15	0.046	
91	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	35	1.5	5	0.053	14		15	0.053	
92	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	35	1.5	6	0.053	14	-0.027	15	0.046	
93	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	35	1.5	7	0.053	14	-0.046	15	0.027	
94	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	35	1.5	8	0.053	14	-0.053	15		
95	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	35	1.5	9	0.053	14	-0.046	15	-0.027	
96	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	35	1.5	10	0.053	14	-0.027	15	-0.046	
97	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	35	1.5	11	0.053	14		15	-0.053	
98	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	35	1.5	12	0.053	14	0.027	15	-0.046	
99	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	35	1.5	13	0.053	14	0.046	15	-0.027	
100	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	36	1.5	2	0.053	14	0.053	15		
101	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	36	1.5	3	0.053	14	0.046	15	0.027	
102	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	36	1.5	4	0.053	14	0.027	15	0.046	
103	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	36	1.5	5	0.053	14		15	0.053	
104	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	36	1.5	6	0.053	14	-0.027	15	0.046	
105	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	36	1.5	7	0.053	14	-0.046	15	0.027	
106	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	36	1.5	8	0.053	14	-0.053	15		
107	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	36	1.5	9	0.053	14	-0.046	15	-0.027	
108	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	36	1.5	10	0.053	14	-0.027	15	-0.046	
109	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	36	1.5	11	0.053	14		15	-0.053	
110	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	36	1.5	12	0.053	14	0.027	15	-0.046	
111	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	36	1.5	13	0.053	14	0.046	15	-0.027	
112	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	37	1.5	2	0.053	14	0.053	15		
113	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	37	1.5	3	0.053	14	0.046	15	0.027	
114	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	37	1.5	4	0.053	14	0.027	15	0.046	
115	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	37	1.5	5	0.053	14		15	0.053	
116	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	37	1.5	6	0.053	14	-0.027	15	0.046	
117	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	37	1.5	7	0.053	14	-0.046	15	0.027	
118	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	37	1.5	8	0.053	14	-0.053	15		

Load Combinations (Continued)

	Description	Solve	P	Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
119	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	37	1.5	9	0.053	14	-0.046	15	-0.027	
120	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	37	1.5	10	0.053	14	-0.027	15	-0.046	
121	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	37	1.5	11	0.053	14		15	-0.053	
122	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	37	1.5	12	0.053	14	0.027	15	-0.046	
123	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	37	1.5	13	0.053	14	0.046	15	-0.027	
124	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	38	1.5	2	0.053	14	0.053	15		
125	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	38	1.5	3	0.053	14	0.046	15	0.027	
126	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	38	1.5	4	0.053	14	0.027	15	0.046	
127	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	38	1.5	5	0.053	14		15	0.053	
128	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	38	1.5	6	0.053	14	-0.027	15	0.046	
129	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	38	1.5	7	0.053	14	-0.046	15	0.027	
130	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	38	1.5	8	0.053	14	-0.053	15		
131	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	38	1.5	9	0.053	14	-0.046	15	-0.027	
132	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	38	1.5	10	0.053	14	-0.027	15	-0.046	
133	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	38	1.5	11	0.053	14		15	-0.053	
134	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	38	1.5	12	0.053	14	0.027	15	-0.046	
135	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	38	1.5	13	0.053	14	0.046	15	-0.027	
136	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	39	1.5	2	0.053	14	0.053	15		
137	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	39	1.5	3	0.053	14	0.046	15	0.027	
138	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	39	1.5	4	0.053	14	0.027	15	0.046	
139	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	39	1.5	5	0.053	14		15	0.053	
140	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	39	1.5	6	0.053	14	-0.027	15	0.046	
141	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	39	1.5	7	0.053	14	-0.046	15	0.027	
142	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	39	1.5	8	0.053	14	-0.053	15		
143	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	39	1.5	9	0.053	14	-0.046	15	-0.027	
144	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	39	1.5	10	0.053	14	-0.027	15	-0.046	
145	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	39	1.5	11	0.053	14		15	-0.053	
146	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	39	1.5	12	0.053	14	0.027	15	-0.046	
147	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	39	1.5	13	0.053	14	0.046	15	-0.027	
148	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	40	1.5	2	0.053	14	0.053	15		
149	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	40	1.5	3	0.053	14	0.046	15	0.027	
150	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	40	1.5	4	0.053	14	0.027	15	0.046	
151	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	40	1.5	5	0.053	14		15	0.053	
152	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	40	1.5	6	0.053	14	-0.027	15	0.046	
153	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	40	1.5	7	0.053	14	-0.046	15	0.027	
154	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	40	1.5	8	0.053	14	-0.053	15		
155	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	40	1.5	9	0.053	14	-0.046	15	-0.027	
156	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	40	1.5	10	0.053	14	-0.027	15	-0.046	
157	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	40	1.5	11	0.053	14		15	-0.053	
158	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	40	1.5	12	0.053	14	0.027	15	-0.046	
159	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	40	1.5	13	0.053	14	0.046	15	-0.027	
160	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	41	1.5	2	0.053	14	0.053	15		
161	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	41	1.5	3	0.053	14	0.046	15	0.027	
162	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	41	1.5	4	0.053	14	0.027	15	0.046	
163	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	41	1.5	5	0.053	14		15	0.053	
164	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	41	1.5	6	0.053	14	-0.027	15	0.046	
165	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	41	1.5	7	0.053	14	-0.046	15	0.027	
166	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	41	1.5	8	0.053	14	-0.053	15		
167	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	41	1.5	9	0.053	14	-0.046	15	-0.027	

Load Combinations (Continued)

	Description	Solve	P	Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
168	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	41	1.5	10	0.053	14	-0.027	15	-0.046	
169	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	41	1.5	11	0.053	14		15	-0.053	
170	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	41	1.5	12	0.053	14	0.027	15	-0.046	
171	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	41	1.5	13	0.053	14	0.046	15	-0.027	
172	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	42	1.5	2	0.053	14	0.053	15		
173	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	42	1.5	3	0.053	14	0.046	15	0.027	
174	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	42	1.5	4	0.053	14	0.027	15	0.046	
175	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	42	1.5	5	0.053	14		15	0.053	
176	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	42	1.5	6	0.053	14	-0.027	15	0.046	
177	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	42	1.5	7	0.053	14	-0.046	15	0.027	
178	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	42	1.5	8	0.053	14	-0.053	15		
179	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	42	1.5	9	0.053	14	-0.046	15	-0.027	
180	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	42	1.5	10	0.053	14	-0.027	15	-0.046	
181	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	42	1.5	11	0.053	14		15	-0.053	
182	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	42	1.5	12	0.053	14	0.027	15	-0.046	

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	N95	max	5138.199	5	8417.649	36	5305.395	14	7589.929	2	3981.877	23	6983.112	23						
2		min	-5138.198	23	2267.611	54	-5305.396	8	-6955.291	20	-3981.075	17	-7144.532	5						
3	Totals:	max	5138.199	5	8417.649	36	5305.395	14												
4		min	-5138.198	23	2267.611	54	-5305.396	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	MP5	PIPE_2.0	0.517	67	9	0.083	67		12	14916.096	32130	1871.625	1871.625	1.871	H1-1b											
2	MP8	PIPE_2.0	0.508	67	7	0.078	67		8	14916.096	32130	1871.625	1871.625	1.903	H1-1b											
3	MP2	PIPE_2.0	0.5	67	2	0.076	67		4	14916.096	32130	1871.625	1871.625	2.287	H1-1b											
4	M7	C5X9	0.499	0	12	0.222	5.985	z	5	74436.578	85536	1909.122	11853	1.674	H1-1b											
5	M53	L2.5x2.5x3	0.486	16.547	5	0.092	0	y	5	27229.407	29192.4	872.574	1971.83	1.5	H2-1											
6	MP6	PIPE_2.0	0.444	54.25	6	0.109	54.25		5	17855.085	32130	1871.625	1871.625	2.361	H1-1b											
7	MP7	PIPE_2.0	0.437	54.25	10	0.104	54.25		11	17855.085	32130	1871.625	1871.625	2.289	H1-1b											
8	M54	L2.5x2.5x3	0.422	16.547	10	0.085	0	y	9	27229.407	29192.4	872.574	1971.83	1.5	H2-1											
9	MP3	PIPE_2.0	0.41	54.25	10	0.099	54.25		9	17855.085	32130	1871.625	1871.625	2.373	H1-1b											
10	M45	L2.5x2.5x3	0.398	0	7	0.085	16.547	y	7	27229.407	29192.4	872.574	1971.83	1.5	H2-1											
11	MP1	PIPE_2.0	0.397	54.25	6	0.095	54.25		7	17855.085	32130	1871.625	1871.625	2.325	H1-1b											
12	MP4	PIPE_2.0	0.379	54.25	2	0.092	54.25		3	17855.085	32130	1871.625	1871.625	2.252	H1-1b											
13	MP9	PIPE_2.0	0.377	54.25	2	0.099	54.25		13	17855.085	32130	1871.625	1871.625	2.186	H1-1b											
14	M9	PIPE_2.0	0.349	11.063	10	0.172	105.708		6	10172.867	32130	1871.625	1871.625	1.321	H1-1b											
15	M23	PIPE_2.0	0.349	11.063	6	0.174	12.292		10	10172.867	32130	1871.625	1871.625	1.798	H1-1b											
16	M5	C5X9	0.343	42.154	6	0.098	17.358	y	5	38865.728	85536	1909.122	11853	1.632	H1-1b											
17	M6	C5X9	0.322	17.358	10	0.098	17.358	y	10	38865.728	85536	1909.122	11853	1.65	H1-1b											
18	M24	PIPE_2.0	0.322	106.937	10	0.171	105.708		2	10172.867	32130	1871.625	1871.625	1.564	H1-1b											
19	M13	L2x2x4	0.319	35.75	11	0.026	56.333	z	8	30368.666	30585.6	690.934	1576.849	1.013	H2-1											
20	M14	L2x2x4	0.313	35.75	2	0.04	35.75	y	2	30368.666	30585.6	690.934	1576.849	1.101	H2-1											
21	M2	C5X9	0.307	60	6	0.403	60	z	5	85152.442	85536	1909.122	11853	1.062	H1-1b											
22	M3	C5X9	0.275	60	11	0.389	60	z	11	85153.804	85536	1909.122	11853	1.016	H1-1b											
23	M1	C5X9	0.267	60	7	0.374	68	z	9	85153.804	85536	1909.122	11853	1.013	H1-1b											

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

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
24	M48	0.625 SR	0.257	12	2	0.037	0		87286.892	9940.196	103.544	103.544	2.274	H1-1b
25	M49	0.625 SR	0.238	12	2	0.042	0		87286.892	9940.196	103.544	103.544	2.274	H1-1b
26	M47	0.625 SR	0.221	12	2	0.022	0		87286.892	9940.196	103.544	103.544	2.275	H1-1b
27	M4	C5X9	0.212	17.358	2	0.049	17.358	y	338865.728	85536	1909.122	11853	2.015	H1-1b
28	M22	0.625 SR	0.182	12	2	0.01	0		87286.892	9940.196	103.544	103.544	2.275	H1-1b
29	M8	C5X9	0.126	30.667	4	0.044	27.472	z	469371.456	85536	1909.122	11853	3	H1-1b
30	M50	0.625 SR	0.107	12	2	0.016	12		257286.892	9940.196	103.544	103.544	2.251	H1-1b
31	M52	0.625 SR	0.067	12	8	0.019	0		27286.892	9940.196	103.544	103.544	2.251	H1-1b
32	M51	0.625 SR	0.055	12	8	0.017	0		37286.892	9940.196	103.544	103.544	2.301	H1-1b
33	M25	L1.5x1.5x4	0.04	12.49	12	0.005	24.981	z	2815152.943	22275	360.338	834.027	1.136	H2-1

APPENDIX D
ADDITIONAL CALCUATIONS

Bolt Calculation Tool, V1.4

PROJECT DATA	
Site Name:	LINTON / ANDERSON'S PROPERTY
Site Number:	876383
Job Code:	1039-Z0001-B
Connection Description:	Platform to Pole

APPLIED LOADS		
Bolt Tension:	887.71	lbs
Bolt Shear:	737.46	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.75	in
Bolt Grade:	A325	-
# of Bolts:	12	-
Threads Excluded?	No	-

BOLT CHECK		
Tensile Strength	30101.39	
Shear Strength	17892.35	
Tensile Usage	2.9%	
Shear Usage	4.1%	
Interaction Check	0.00	≤1.05
Result	Pass	

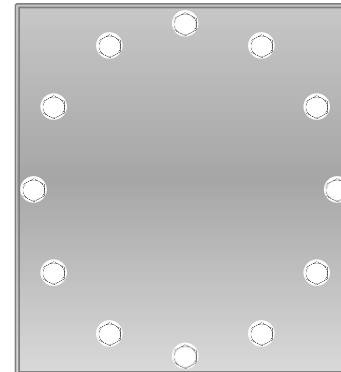


Exhibit F

Power Density/RF Emissions Report



EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA329A

7 Sherwood Forest Lane
Killingworth, Connecticut 06419

March 16, 2021

EBI Project Number: 6221001251

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	16.67%



March 16, 2021

T-Mobile

Attn: Jason Overbey, RF Manager

35 Griffin Road South

Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTHA329A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **7 Sherwood Forest Lane in Killingworth, 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 7 Sherwood Forest Lane in Killingworth, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

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



- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 9) 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.
- 10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.



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- 12) The antenna mounting height centerline of the proposed antennas is 152 feet above ground level (AGL).
- 13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 14) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	152 feet	Height (AGL):	152 feet	Height (AGL):	152 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna AI MPE %:	0.79%	Antenna BI MPE %:	0.79%	Antenna CI MPE %:	0.79%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd
Height (AGL):	152 feet	Height (AGL):	152 feet	Height (AGL):	152 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	12,569.87	ERP (W):	12,569.87	ERP (W):	12,569.87
Antenna A2 MPE %:	3.09%	Antenna B2 MPE %:	3.09%	Antenna C2 MPE %:	3.09%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd
Height (AGL):	152 feet	Height (AGL):	152 feet	Height (AGL):	152 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	12,888.76	ERP (W):	12,888.76	ERP (W):	12,888.76
Antenna A3 MPE %:	2.17%	Antenna B3 MPE %:	2.17%	Antenna C3 MPE %:	2.17%



Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	6.05%
Sprint	2.59%
AT&T	4.16%
Verizon	3.87%
Site Total MPE % :	16.67%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	6.05%
T-Mobile Sector B Total:	6.05%
T-Mobile Sector C Total:	6.05%
Site Total MPE % :	16.67%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz LTE	2	2334.27	152.0	7.87	2100 MHz LTE	1000	0.79%
T-Mobile 600 MHz LTE	2	591.73	152.0	2.00	600 MHz LTE	400	0.50%
T-Mobile 600 MHz NR	1	1577.94	152.0	2.66	600 MHz NR	400	0.67%
T-Mobile 700 MHz LTE	2	695.22	152.0	2.35	700 MHz LTE	467	0.50%
T-Mobile 1900 MHz GSM	4	1052.26	152.0	7.10	1900 MHz GSM	1000	0.71%
T-Mobile 1900 MHz LTE	2	2104.51	152.0	7.10	1900 MHz LTE	1000	0.71%
T-Mobile 2500 MHz LTE	1	6444.38	152.0	10.87	2500 MHz LTE	1000	1.09%
T-Mobile 2500 MHz NR	1	6444.38	152.0	10.87	2500 MHz NR	1000	1.09%
						Total:	6.05%

• 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:	6.05%
Sector B:	6.05%
Sector C:	6.05%
T-Mobile Maximum MPE % (Sector A):	6.05%
Site Total:	16.67%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **16.67%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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