



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

December 15, 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#842864; T-Mobile Site ID#CTNH510A
201 Granite Road., GUILFORD, CT 06437
Latitude: 41° 17' 30.8"/ Longitude: -72° 43' 58.0"**

Dear Ms. Bachman:

T-Mobile currently maintains (9) antennas at the 84-foot mounts on the existing 110-foot Monopole Tower located at **201 Granite Road., GUILFORD**. The property is owned by Winterfell Gables (CT) Owner LLC and the Tower by Crown Castle. T-Mobile now intends to replace three (3) 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) Ericsson – AIR21 KRC118023-1_B2A_B4P Antennas (**REMOVE**), (3) Ericsson – AIR6449 B41 Antennas (**REPLACE**)

(3) Ericsson – AIR32 KRD901146-1_B66A_B2A Antennas (**REMOVE**)

(3) Existing T-Arm Mount (**REMOVE**), (3) New Platform Mount (**REPLACE**)

RELOCATE

(3) RFS – APXVAARR24_43-U-NA20 Antennas (**RELOCATE**)

(3) Ericsson – Radio 4449 B71+B85 (**RELOCATE**)

INSTALL

(3) Ericsson – Radio 4460 B25+B66 (**INSTALL**)

(2) Hybrid Cables (**INSTALL**)

Ground:

INSTALL:

(1) 6160 Battery Cabinet

(1) BB 6648 for L2500 and N2500

(1) BB630 for L1900/L2100

(1) BB630 for L600/N600/L700

(1) B160 Battery Cabinet

(1) IXRE Router in (P) Cabinet

(1) PSU4813 Booster in (P) Cabinet

The Foundation for a Wireless World.

CrownCastle.com



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

- (1) BB6648 in (P) Cabinet
- (1) BB6630 in (P) Cabinet
- (1) 2" LTFC BET. 6160 & B160
- (2) 2" PVC (SCH. 40) BET. 6160 & PPC
- (1) 1" PVC (SCH. 40) BET. 6160 & AAV

The Facility was approved by the Connecticut Siting Council on October 14, 2003, Docket#252. The approval was with conditions which this exempt modification complies 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 Matthew T. Hoey III, The Town of Guilford First Selectman, George Kral, Town Planner, Winterfell Gables (CT) Owner LLC, the property owner, and Crown Castle tower owner

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).

Sincerely,

Ersilia Davis

Ersilia Davis
Crown Castle, Agent for Applicant
1777 Sentry Parkway W | VEVA 17, Suite 400
Blue Bell, PA 19422
edavis@nbcllc.com
(551)804-0667



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

cc:

Matthew T. Hoey III, First Selectman
31 Park Street
Guilford, CT 06437
(203) 453-8015
(Via Fedex)

George Kral, Town Planner
50 Boston Street
Guilford, CT 06437
(203) 453-8039
(Via Fedex)

Winterfell Gables (CT) Owner LLC, Property Owner
590 Madison Ave 34th FL
New York, NY 10022
(212) 547-2600
(Via Fedex)

Crown Castle, Tower Owner



TRACK ANOTHER SHIPMENT

775506926070



[ADD NICKNAME](#)

Delivered
Thursday, 12/16/2021 at 11:12 am



DELIVERED

Signed for by: K.KAREN

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FROM

Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

Matthew T. Hoey III, First Selectman
Town of Guilford

31 Park Street
GUILFORD, CT US 06437
203-453-8015

[MANAGE DELIVERY](#)

Travel History

TIME ZONE

Local Scan Time

Thursday, December 16,
2021

11:12 AM	GUILFORD, CT	Delivered
10:03 AM	NORTH HAVEN, CT	On FedEx vehicle for delivery
8:47 AM	NORTH HAVEN, CT	At local FedEx facility
4:05 AM	NEWARK, NJ	Departed FedEx hub

Wednesday, December 15,
2021

10:55 PM	NEWARK, NJ	Arrived at FedEx hub
10:10 PM	NEWBURGH, NY	Left FedEx origin facility



TRACK ANOTHER SHIPMENT

775507021200



ADD NICKNAME

Delivered
Thursday, 12/16/2021 at 11:10 am



DELIVERED

Signed for by: L.LISA



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FROM

Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

George Kral, Town Planner
Town of Guilford

50 Boston Street
GUILFORD, CT US 06437
203-453-8039

MANAGE DELIVERY

Travel History

TIME ZONE

Local Scan Time

Thursday, December 16, 2021

11:10 AM	GUILFORD, CT	Delivered
10:03 AM	NORTH HAVEN, CT	On FedEx vehicle for delivery
8:46 AM	NORTH HAVEN, CT	At local FedEx facility
4:05 AM	NEWARK, NJ	Departed FedEx hub

Wednesday, December 15, 2021



TRACK ANOTHER SHIPMENT

775507113638



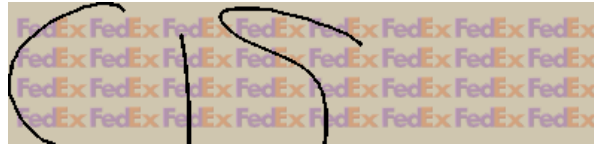
[ADD NICKNAME](#)

Delivered
Thursday, 12/16/2021 at 9:45 am



DELIVERED

Signed for by: C.MAYERS



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FROM

Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

Winterfell Gables (CT) Owner LLC

590 Madison Ave
34th FL
NEW YORK, NY US 10022
212-547-2600

[MANAGE DELIVERY](#)

Travel History

TIME ZONE

Local Scan Time



Thursday, December 16,
2021

9:45 AM	NEW YORK, NY	Delivered
9:08 AM	NEW YORK, NY	On FedEx vehicle for delivery
8:24 AM	NEW YORK, NY	At local FedEx facility
7:09 AM	NEWARK, NJ	Departed FedEx hub

Wednesday, December 15,
2021

Exhibit A

Original Facility Approval

Connecticut Siting Council^(/CSC)

[CT.gov Home](#) [\(/\)](#) [Connecticut Siting Council](#) [\(/CSC\)](#) DO 252 Guilford

[Decisions \(/CSC/Decisions/Decisions\)](#) >

[Meetings and Minutes \(/CSC/Common-Elements/v4-template/Council-Activity\)](#) >

[Pending Matters \(/CSC/1_Applications-and-Other-Pending-Matters/Pending-Matters\)](#) >

[About Us \(/CSC/Common-Elements/Common-Elements/Connecticut-Siting-Council---Description\)](#) >

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DOCKET NO. 252 - AT&T Wireless PCS, LLC d/b/a AT&T Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at one of two sites at 201 Granite Road, Guilford, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		October 14, 2003

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to AT&T Wireless PCS d/b/a AT&T Wireless for the construction, maintenance and operation of a wireless telecommunications facility at Site B, located at 201 Granite Road, Guilford, Connecticut. The Council denies certification of Site A, also located at 201 Granite Road, Guilford, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless and other entities, both public and private, but such tower shall not exceed a height of 100 feet above ground level. The tower and foundation shall be designed and constructed capable of being extended from 100 feet above ground level to 140 feet above ground level, subject to Council approval by a Petition for a Declaratory Ruling pursuant to Sections 16-50j-38 through 16-50j-40 of the Regulations of Connecticut State Agencies.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a. a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping, methods to reduce tree clearing at the site compound and access road; and
 - b. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. The Certificate Holder shall provide space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
6. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
8. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Hartford Courant, the New Haven Register, the Shoreline Times, and the Guilford Courier.

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

The parties and intervenors to this proceeding are:

Applicant

AT&T Wireless PCS, LLC d/b/a AT&T Wireless (AT&T)

Its Representative

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
90 Maple Avenue
White Plains, New York 10601
(914) 761-1300

Intervenor

Guilford Land Conservation Trust, Inc.

Its Representative

William M. Bloss, Esq.
Jacobs, Grudberg, Belt & Dow, P.C.
350 Orange Street
PO Box 606
New Haven, Connecticut 06503
(203) 772-3100

Exhibit B

Property Card

All information is for assessment purposes only. Assessments are calculated at 70% of the estimated October 1, 2017 market value which was the date of the last revaluation as completed by eQuality Valuation Services, LLC.



Information on the Property Records for the Municipality of Guilford was last updated on 12/11/2021.



Parcel Information

Location:	201 GRANITE RD	Map and Parcel:	071011	Census Tract:	1902
Zoning:	R-8	Developer's Map:		Developer's Lot:	
Total Acreage:	58.31	Farm, Forest, Open Space Acres:		Unique ID:	6477
Location:	201 GRANITE RD	Map and Parcel:	071011	Census Tract:	1902
Zoning:	R-8	Developer's Map:		Developer's Lot:	
Total Acreage:	58.31	Farm, Forest, Open Space Acres:		Unique ID:	6477

Value Information

	Appraised Value	Assessed Value
Land	1,008,000	705,600
Buildings	15,192,510	10,634,760
Detached Outbuildings	311,200	217,840
Total	16,511,710	11,558,200

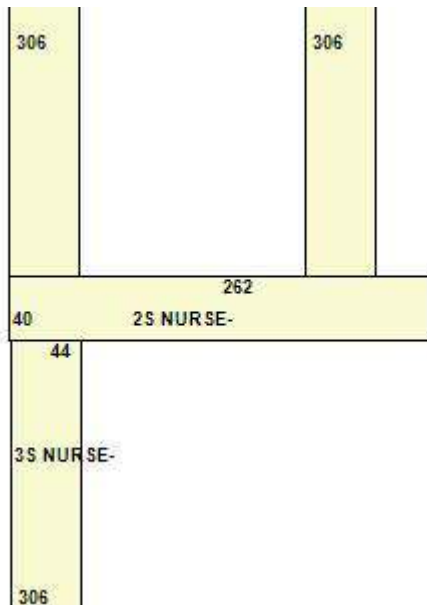
Owner's Information

Owner's Data

WINTERFELL GABLES (CT) OWNER LLC
590 MADISON AVE 34TH FL
NEW YORK NY 10022

Building 1

Photo Not Available



Category:	ELDERLY	Use:	NURSING HOME	GLA:	142,136
Stories:	2.00	Construction:	AVERAGE	Year Built:	1993
Condition:	AVERAGE	Heating:	FHA	Fuel:	GAS
Cooling Percent:	100%	Siding:	STUCCO	Roof Material:	METAL

Special Features

WET SPRINKLERS

142136

Attached Components

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
PAVING	1993			8,000

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
WINTERFELL GABLES (CT) OWNER LLC	0884	0672	05/26/2015	Warranty Deed	\$32,535,600
HARVEST GUILFORD RET RES LLC	0741	1146	03/23/2007	Warranty Deed	\$15,751,149

Information Published With Permission From The Assessor

Exhibit C

Construction Drawings



T-MOBILE SITE NUMBER: CTNH510A **BUSINESS UNIT #: 842864**
T-MOBILE SITE NAME: AT&T GUILFORD MONOPOLE **SITE ADDRESS: 201 GRANITE ROAD**
SITE TYPE: MONOPOLE **COUNTY: NEW HAVEN**
TOWER HEIGHT: 110'-0" **JURISDICTION: TOWN OF NEW HAVEN**

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5998E_1xAIR+10P

T-Mobile
 12920 SE 38TH STREET
 BELLEVUE, WA 98006

CROWN CASTLE
 1500 CORPORATE DRIVE
 CANONSBURG, PA 15317

INFINIGY
 FROM ZERO TO INFINIGY
 the solutions are endless
 1033 Watervliet Shaker Rd | Albany, NY 12205
 Phone: 518-690-0790 | Fax: 518-690-0793
 www.infinigy.com

T-MOBILE SITE NUMBER: CTNH510A
BU #: 842864
GUILFORD SW
 201 GRANITE ROAD
 GUILFORD, CT 06437
 EXISTING 110'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/12/2021	TJ	FINAL	SS
1	11/19/2021	TJ	SITE PLAN CORRECTED	SS

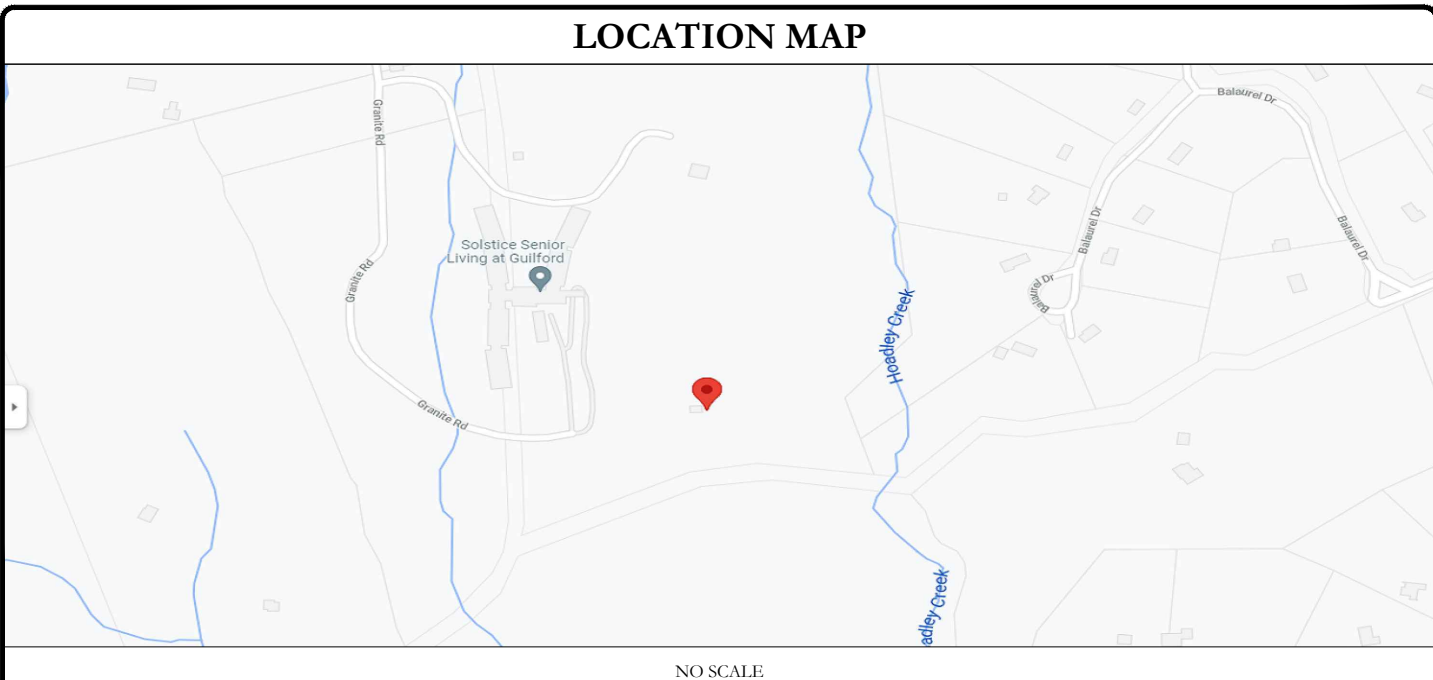
SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	GUILFORD SW
SITE ADDRESS:	201 GRANITE ROAD GUILFORD, CT 06437
COUNTY:	NEW HAVEN
MAP/PARCEL #:	071011
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.29190000° (41°17'30.8")
LONGITUDE:	-72.73278000° (-72°43'58.0")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	125.0 FT
CURRENT ZONING:	R-8
JURISDICTION:	TOWN OF NEW HAVEN
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	WINTERFELL GABLES (CT) OWNER LLC 590 MADISON AVE 34TH FL NEW YORK NY 10022
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 12920 SE 38TH STREET BELLEVUE, WA 98006
ELECTRIC PROVIDER:	NORWICH PUBLIC UTILITIES
TELCO PROVIDER:	AT&T CONNECTICUIT

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR ----. 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.



PROJECT TEAM

A&E FIRM:	INFINIGY 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1500 CORPORATE DRIVE CANONSBURG, PA 15317
	TRICIA PELON - PROJECT MANAGER TRICAIS.PELON@CROWNCastle.COM
	CHRISTOPHER P MILLER - CONSTRUCTION MANAGER CHRISP.MILLER@CROWNCastle.COM CONTACT : 585-739-1780

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 EXISTING (3) T-ARM MOUNT
- INSTALL (3) ANTENNAS
- INSTALL (3) RRHS
- INSTALL (2) HYBRID CABLES
- INSTALL NEW PLATFORM MOUNT

GROUND SCOPE OF WORK:

- INSTALL (1) 6160 & (1) B160 BATTERY CABINET
- INSTALL (1) IXRE ROUTER IN (P) CABINET
- INSTALL (1) PSU4813 VOLTAGE BOOSTER IN (P) CABINET
- INSTALL (1) BB6648 IN (P) CABINET
- INSTALL (2) BB6630 IN (P) CABINET

NOTE:
 PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

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 CT STATE BUILDING CODE
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	OTHERS
DATED:	
MOUNT ANALYSIS:	TRYLON
DATED:	OCTOBER 08, 2021
RFDS REVISION:	5
DATED:	9/13/2021
ORDER ID:	586788
REVISION:	0

CALL CONNECTICUT ONE CALL (800) 922-4455 CBYD.COM CALL 2 WORKING DAYS BEFORE YOU DIG!

APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.	_____	_____
LAND USE PLANNER	_____	_____
T-MOBILE	_____	_____
OPERATIONS	_____	_____
RF	_____	_____
NETWORK	_____	_____
BACKHAUL	_____	_____
CONSTRUCTION MANAGER	_____	_____

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.

STATE OF CONNECTICUT
 SHUHEI SAKANOU
 34916
 LICENSED PROFESSIONAL ENGINEER

11/12/2021

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: 1
-----------------------------	-----------------------

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

- 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.
- "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.
- 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.
- 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).
- 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.
- 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.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- 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.
- 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.
- 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.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- 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.

GREENFIELD GROUNDING NOTES:

- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE CONTRACTOR SHALL PERFORM IEEE FALL-OFF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
- METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
- EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION-RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
- GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (I.E., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
- ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
- BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

GENERAL NOTES:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- 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° AT TIME OF PLACEMENT.
- 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.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WFF) 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
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"
- 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:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- 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.
- 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.
- 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).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- 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.
- 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.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- 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° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SIZES/FITTINGS ARE NOT ACCEPTABLE.
- CABETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREFOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
- 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
120/208V, 3Ø	GROUND	GREEN
	A PHASE	BLACK
	B PHASE	RED
277/480V, 3Ø	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
DC VOLTAGE	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

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

APWA UNIFORM COLOR CODE:

- WHITE PROPOSED EXCAVATION
- PINK TEMPORARY SURVEY MARKINGS
- RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
- ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
- BLUE POTABLE WATER
- PURPLE RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
- GREEN SEWERS AND DRAIN LINES

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T-MOBILE SITE NUMBER:
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BU #: 842864
GUILFORD SW
201 GRANITE ROAD
GUILFORD, CT 06437

EXISTING 110'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/12/2021	TJ	FINAL	SS
1	11/19/2021	TJ	SITE PLAN CORRECTED	SS

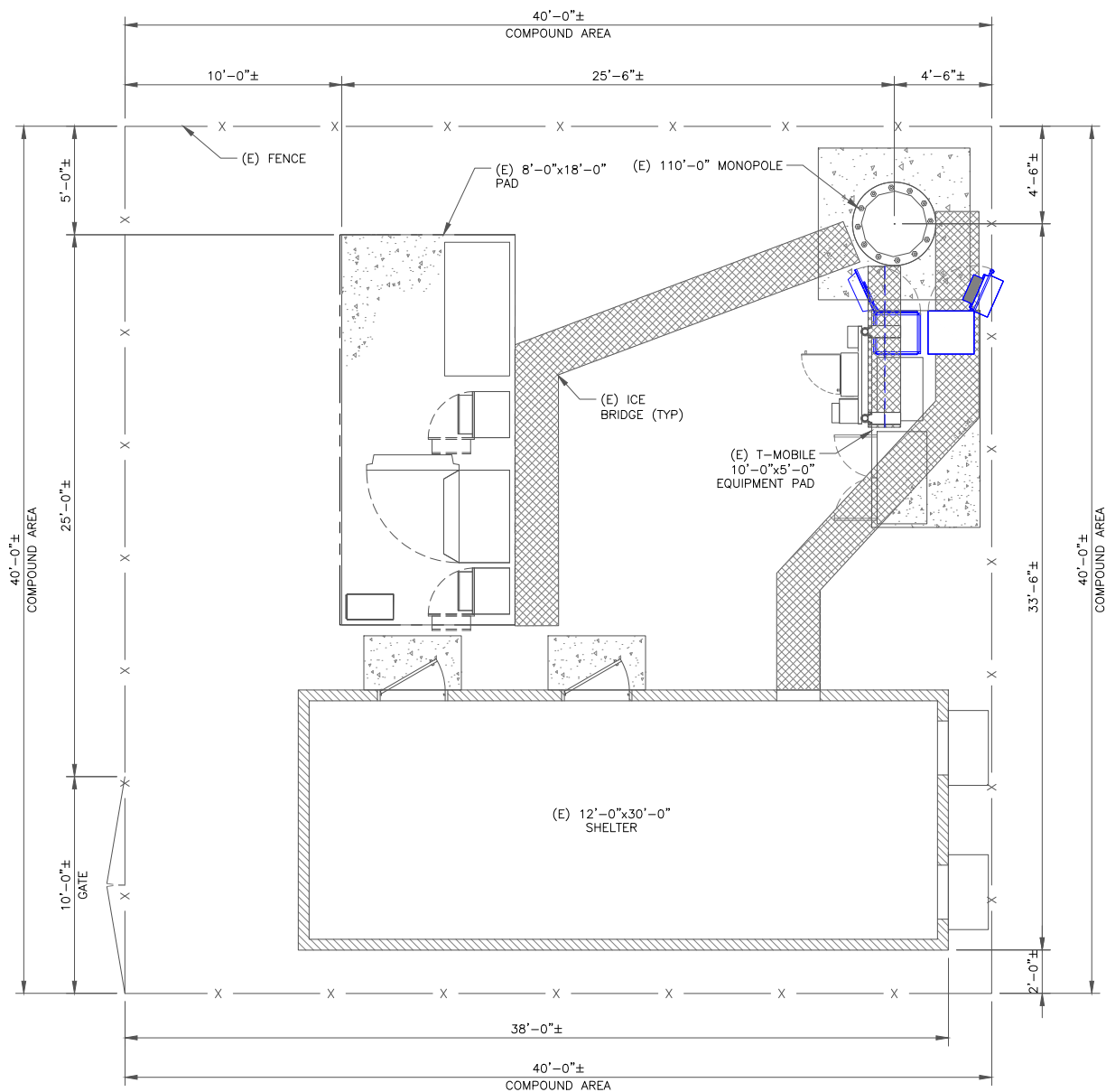
STATE OF CONNECTICUT
SHUHEI SAKANOE
34916
LICENSED PROFESSIONAL ENGINEER

11/12/2021
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-2** REVISION: **1**

NOTE:

- PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T-MOBILE EQUIPMENT.



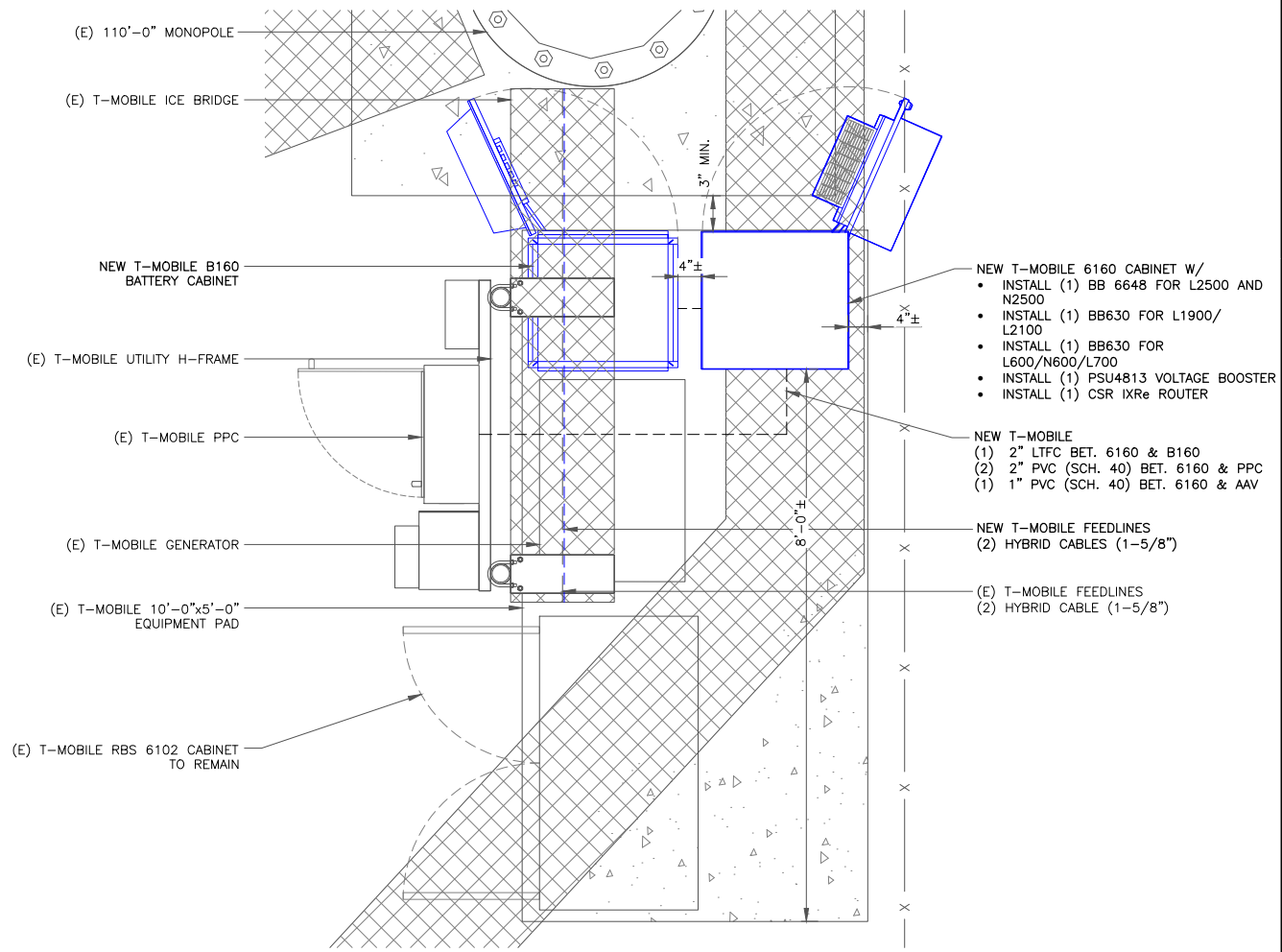
1 SITE PLAN

SCALE: 1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)



NOTES:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 ENLARGED SITE PLAN

SCALE: 3/4"=1'-0" (FULL SIZE)
3/8"=1'-0" (11x17)



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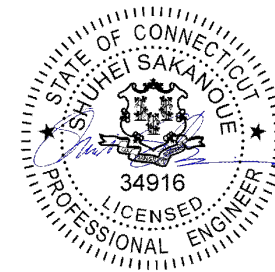
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GUILFORD SW

201 GRANITE ROAD
GUILFORD, CT 06437

EXISTING 110'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/12/2021	TJ	FINAL	SS
1	11/19/2021	TJ	SITE PLAN CORRECTED	SS



11/12/2021

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SHEET NUMBER:

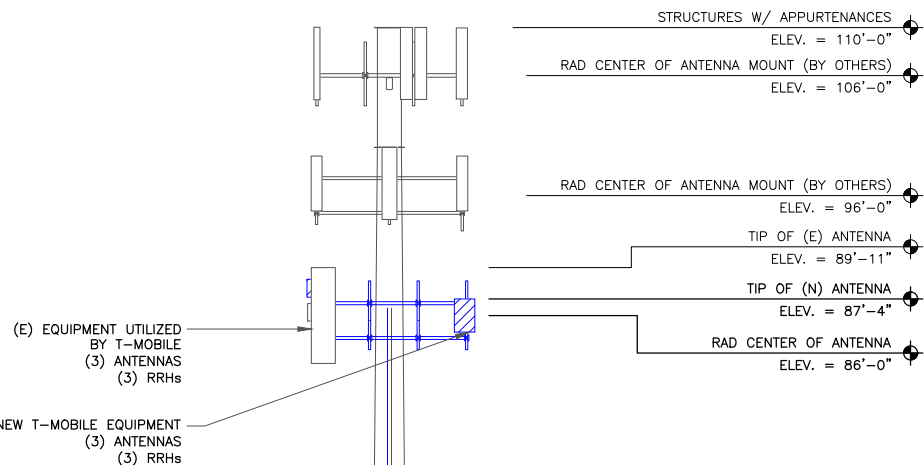
C-1

REVISION:

1

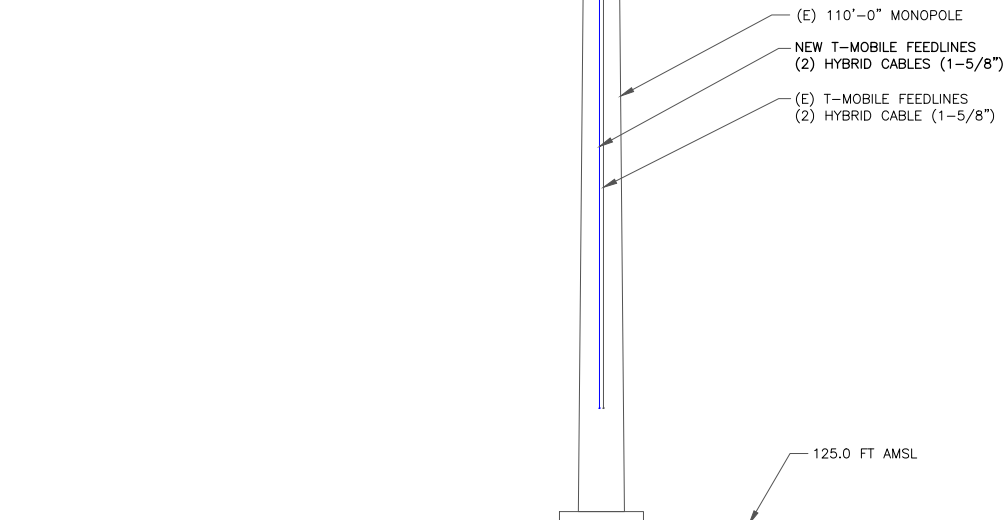
NOTES:

- ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
- INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

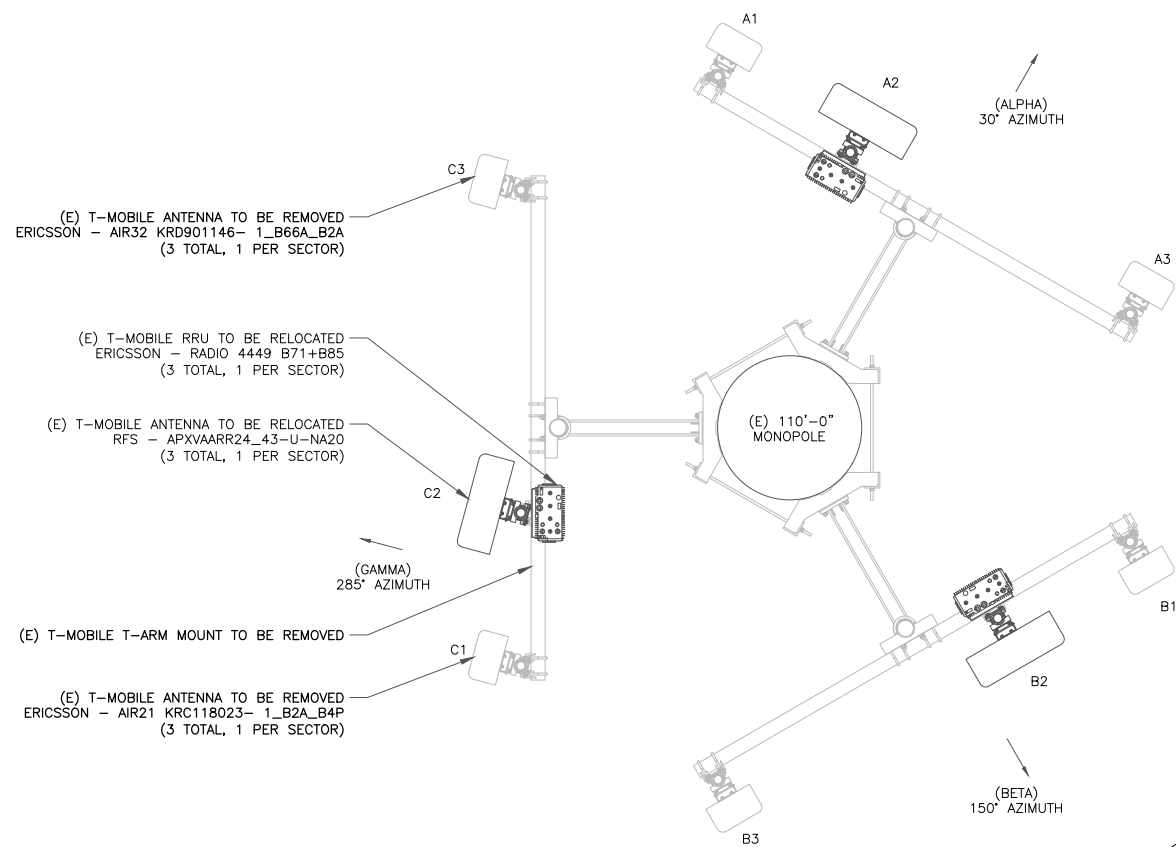


T-MOBILE EQUIPMENT
ANTENNA CL: 142'-0"
MOUNT CL: 140'-0"

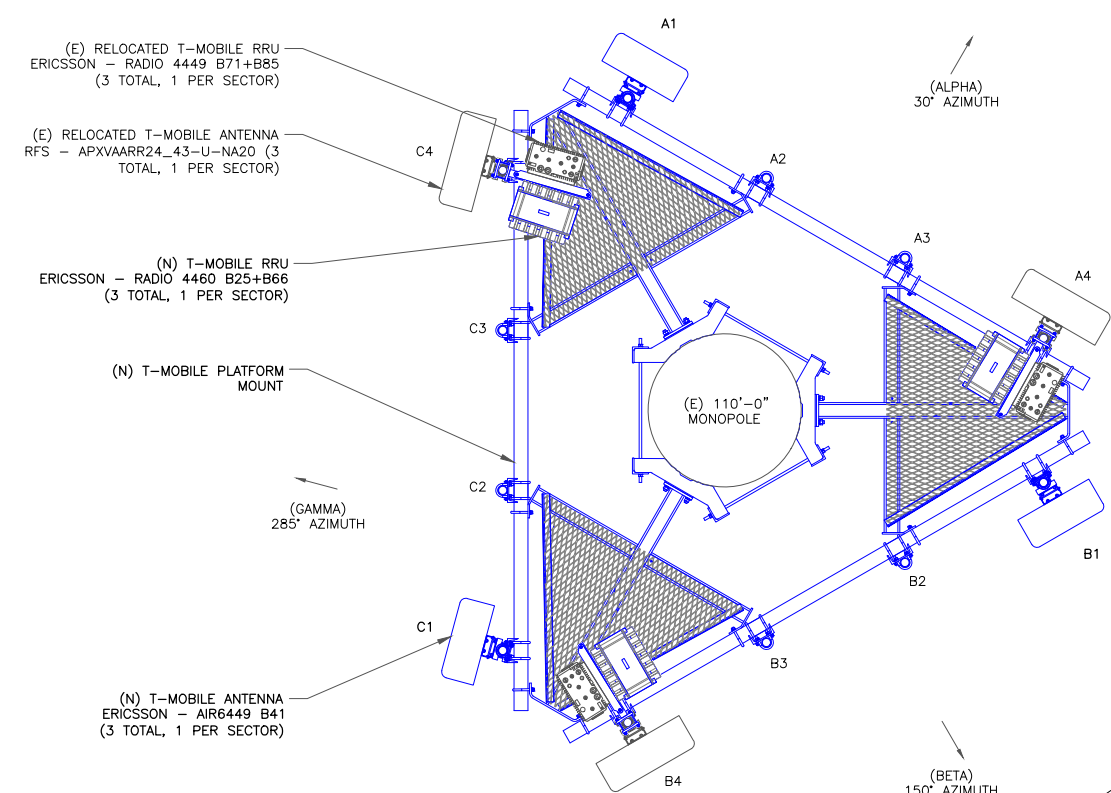
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 NOT USED
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
SHUHEI SAKANQUE
34916
LICENSED PROFESSIONAL ENGINEER

11/12/2021

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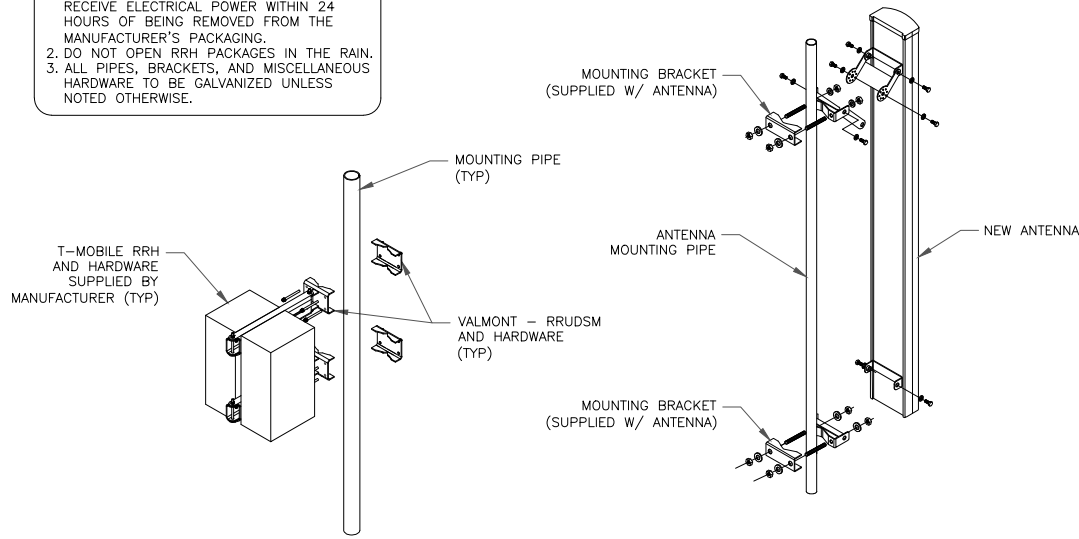
SHEET NUMBER: **C-2** REVISION: **1**

ANTENNA SCHEDULE										
SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	LTE 2500, N2500	142'-0"	30°	ERICSSON	AIR6449 B41	0°	2°/2'	-	(2) 1-5/8" HYBRID (SHARED)
ALPHA	A2	-	-	-	-	-	-	-		
ALPHA	A3	-	-	-	-	-	-	-		
ALPHA	A4	LTE 600/700/1900/L2100, N600,G1900,U1900	142'-0"	30°	RFS	APXVAARR24_43-U-NA20	0°	2°/2°/2°/2°	(1) ERICSSON - RRUS 4449 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	
BETA	B1	LTE 2500, N2500	142'-0"	150°	ERICSSON	AIR6449 B41	0°	2°/2'	-	(2) 1-5/8" HYBRID (SHARED)
BETA	B2	-	-	-	-	-	-	-		
BETA	B3	-	-	-	-	-	-	-		
BETA	B4	LTE 600/700/1900/L2100, N600,G1900,U1900	142'-0"	150°	RFS	APXVAARR24_43-U-NA20	0°	2°/2°/2°/2°	(1) ERICSSON - RRUS 4449 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	
GAMMA	C1	LTE 2500, N2500	142'-0"	285°	ERICSSON	AIR6449 B41	0°	2°/2'	-	(2) 1-5/8" HYBRID (SHARED)
GAMMA	C2	-	-	-	-	-	-	-		
GAMMA	C3	-	-	-	-	-	-	-		
GAMMA	C4	LTE 600/700/1900/L2100, N600,G1900,U1900	142'-0"	285°	RFS	APXVAARR24_43-U-NA20	0°	2°/2°/2°/2°	(1) ERICSSON - RRUS 4449 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



NOTE:

1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

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LICENSED PROFESSIONAL ENGINEER

11/12/2021

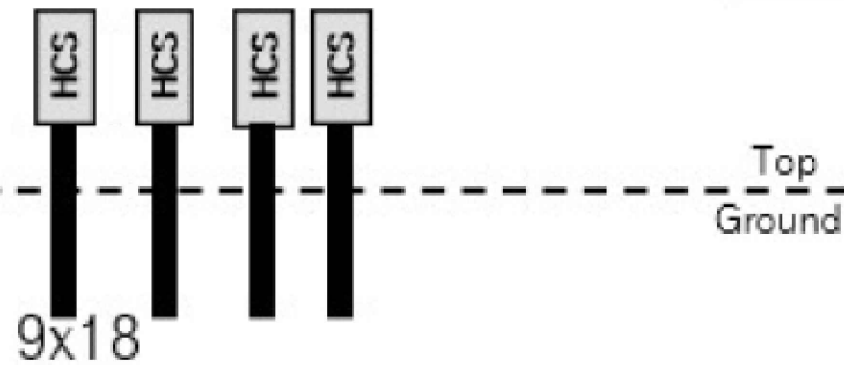
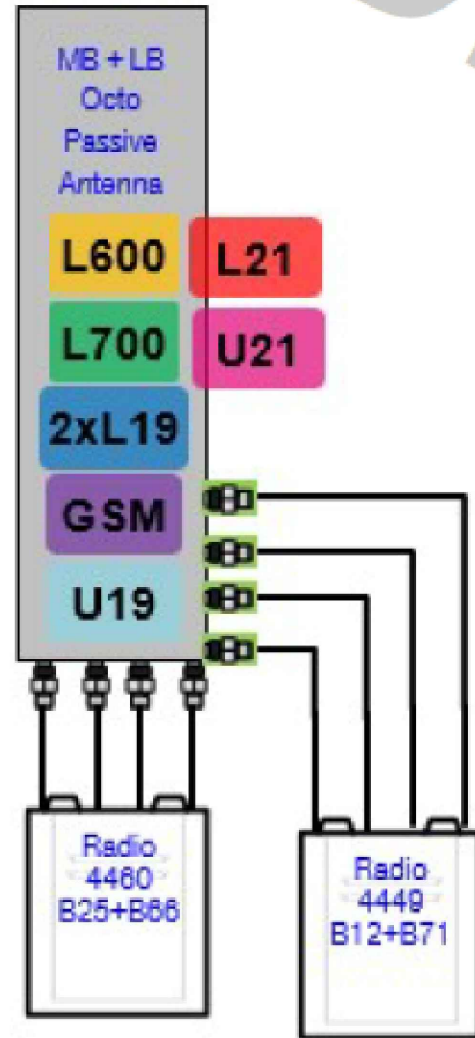
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SHEET NUMBER: **C-3** REVISION: **1**

67D5A998E.jpg

Final Config: 67D5A998E

DRAFT



Notes:

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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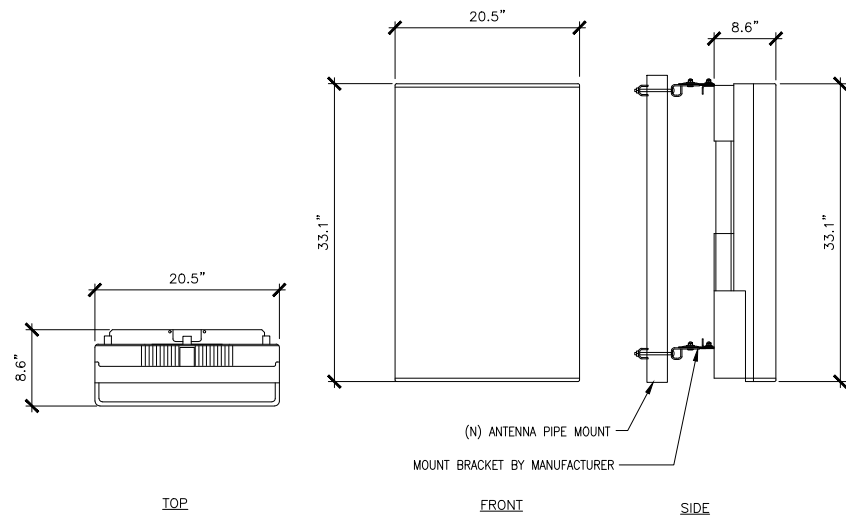
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SHEET NUMBER: **C-4** REVISION: **1**

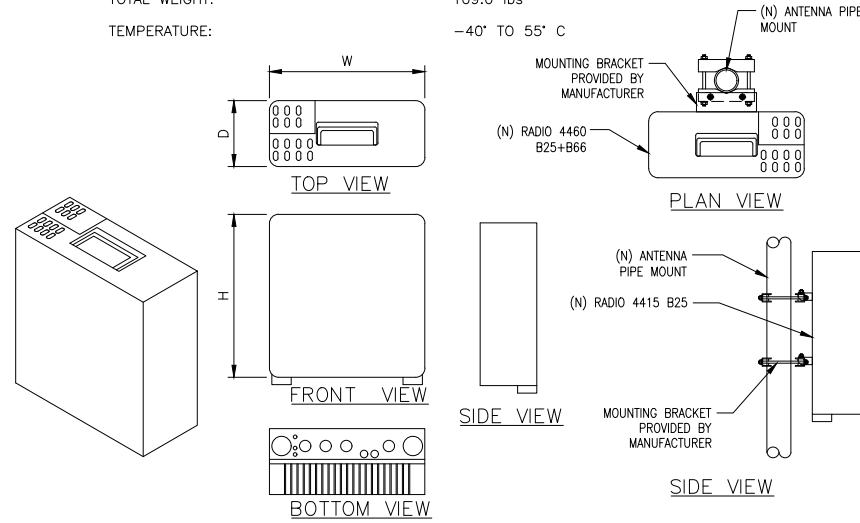
MANUFACTURER: ERICSSON
 MODEL: AIR6449 B41
 WEIGHT: 104 LBS (W/ MOUNT BRACKET 113)
 DIMENSIONS: 33.1"H. X 20.5"W. X 8.6"D.
 FREQUENCY: REFER TO RF DATA SHEET



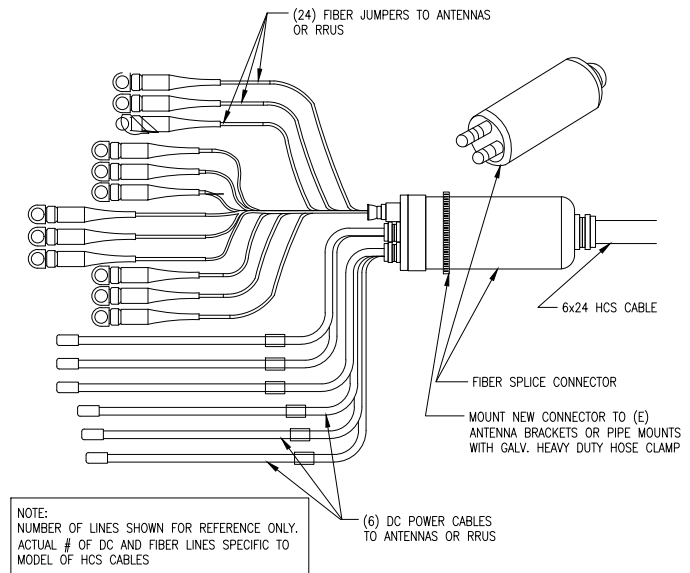
1 (N) AIR6449 B41 ANTENNA SPEC
 SCALE: NOT TO SCALE

ERICSSON RADIO-4460 B25+B66

DIMENSIONS, WxDxH: 17.00"x15.10"x11.90"
 POWER CONSUMPTION: 660 WATTS
 TOTAL WEIGHT: 109.0 lbs
 TEMPERATURE: -40° TO 55° C



2 (N) RADIO 4460 B25+B66 SPEC
 SCALE: NOT TO SCALE



3 (N) 6X24 HCS CABLE DETAIL
 SCALE: NOT TO SCALE

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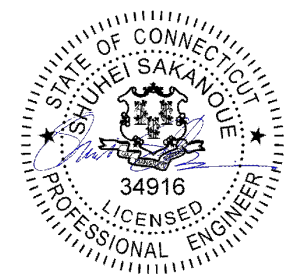
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SHEET NUMBER:

C-5

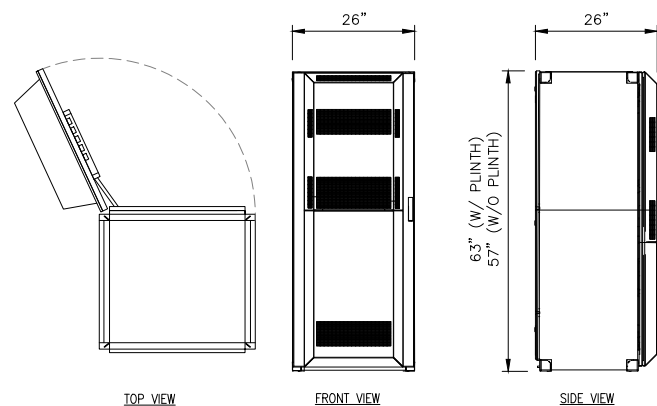
REVISION:

1

4 NOT USED
 SCALE: NOT TO SCALE

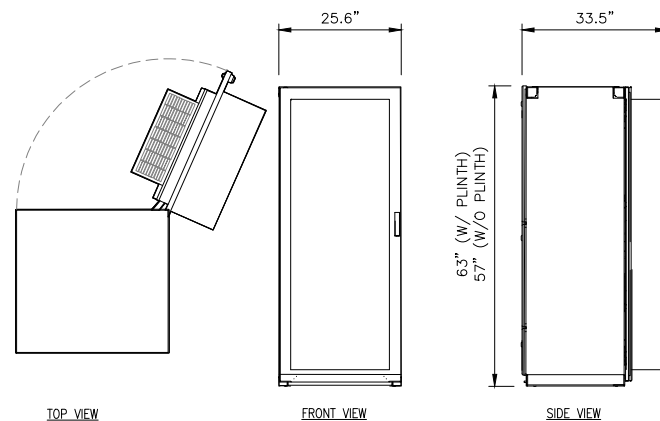
5 NOT USED
 SCALE: NOT TO SCALE

6 NOT USED
 SCALE: NOT TO SCALE



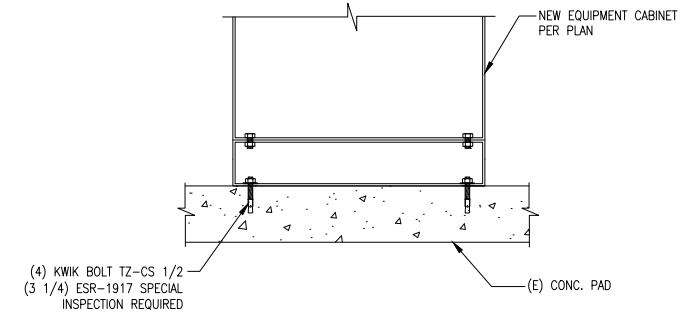
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

1 (N) B160 CABINET DETAIL
SCALE: NOT TO SCALE

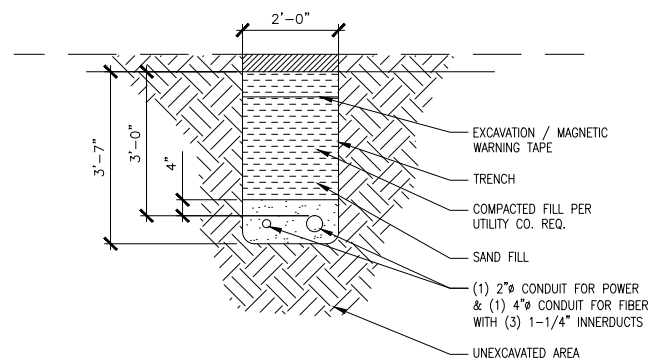


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

2 (N) 6160 CABINET DETAIL
SCALE: NOT TO SCALE



3 (N) EQUIPMENT CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE



4 (N) CONDUIT TRENCH DETAIL
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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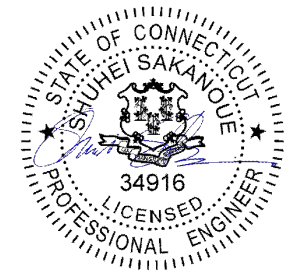
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SHEET NUMBER:
C-6

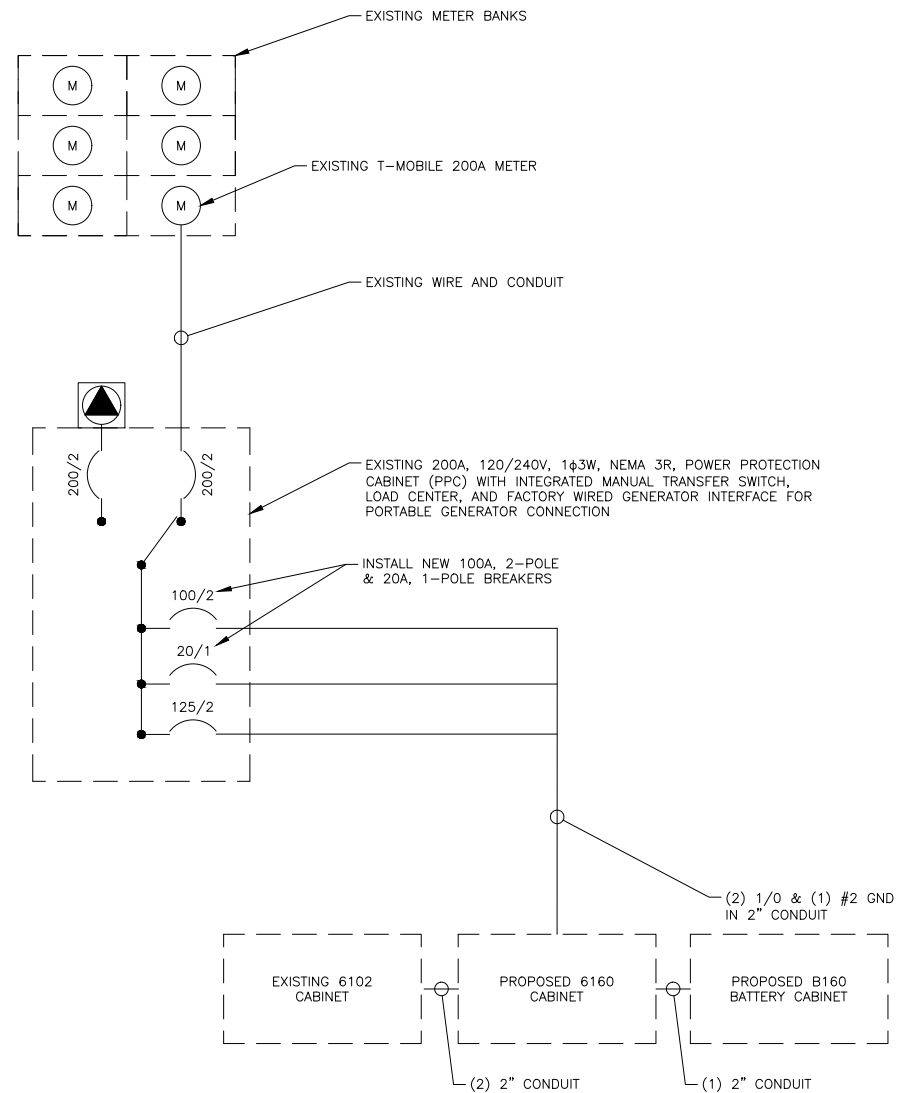
REVISION:
1

T-MOBILE PANEL SCHEDULE											
MAIN: 200A MAIN BREAKER			VOTAGE/PHASE: 120/240V, 1-PHASE, 3-WIRE				SHORT CIRCUIT CURRENT RATING: --				
MOUNTING: INSIDE PPC ENCLOSURE			ENCLOSURE: NEMA 3R				SURGE PROTECTION DEVICE: YES				
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	PHASE LOADS (VA)		CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
					A	B					
SURGE ARRESTOR	1	NC	30	1	2	2	60	NC	1	UNKNOWN	
LED SPOT	200	NC	20	5	380	2	4	NC	1	FIBER	
6160	3500	C	100	7	8500	8	125	NC	5000	6102	
6160 GFI	3500	C		9	8500	10		NC	5000		
BLANK				11	180	12					
				13	0	14					
				15	0	16					
				17	0	18					
				19	0	20					
				21	0	22					
23	0	24									
BASE LOAD (VA) =					8882	8682					
25% OF CONTINUOUS LOAD (VA) =					2125	2125	C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD				
TOTAL LOAD (VA) =					11007	10807	NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED VALUES.				
TOTAL LOAD (A) =					92	90					

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

- ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-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.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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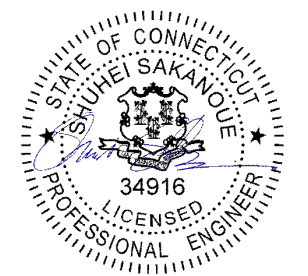
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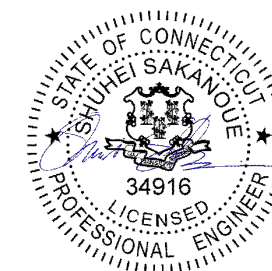
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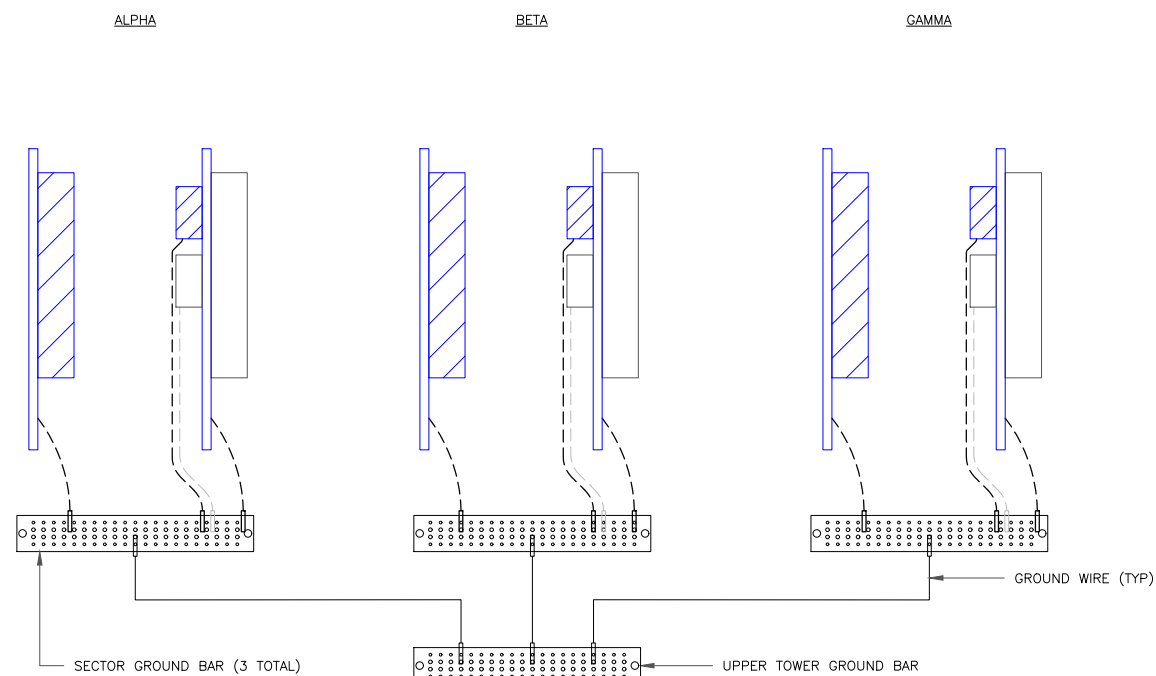


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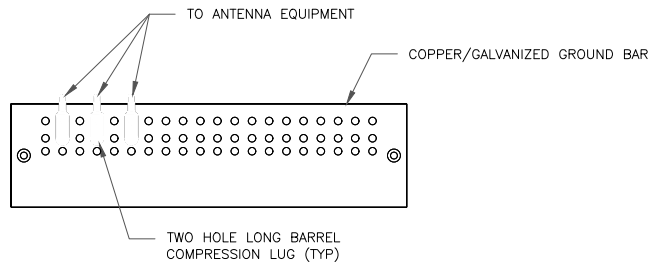
SHEET NUMBER: REVISION:

G-1 1



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

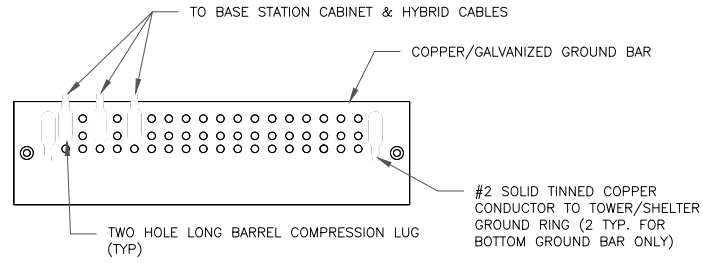
1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



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.

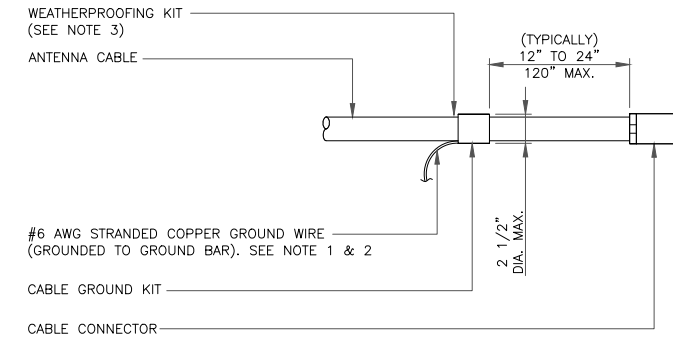
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



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.

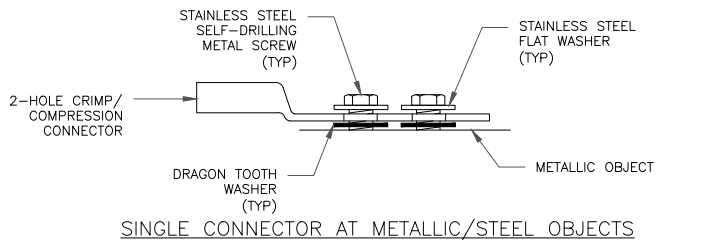
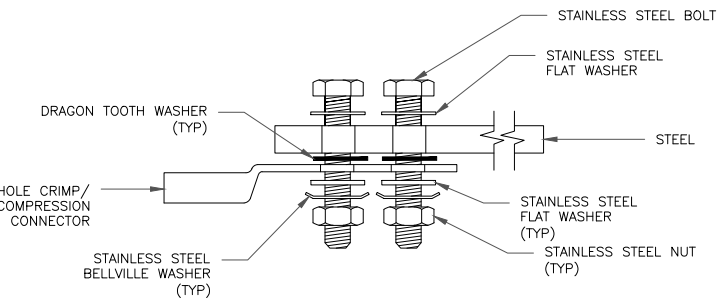
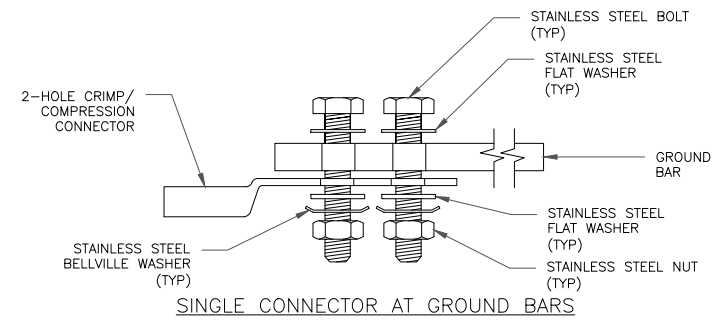
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



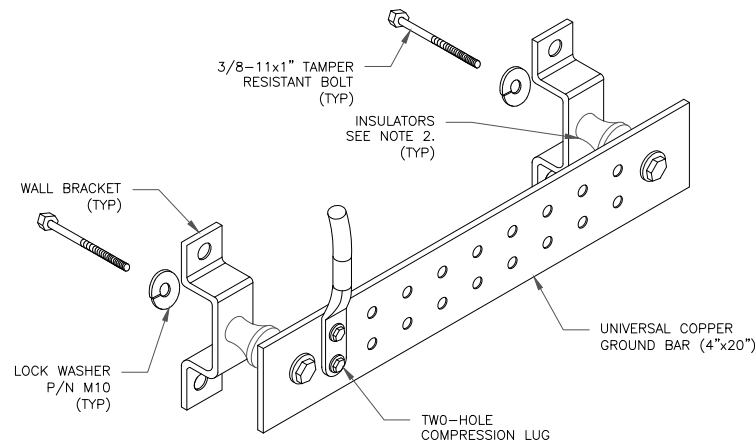
NOTES:

1. 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



4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
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.

5 GROUND BAR DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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SHEET NUMBER: **G-2** REVISION: **1**

Exhibit D

Structural Analysis Report

Date: **October 21, 2021**



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1717 S, Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Subject: **Structural Analysis Report**

Carrier Designation: **Metro PCS Co-Locate**
Site Number: CTNH510A

Crown Castle Designation: **BU Number:** 842864
Site Name: Guilford SW
JDE Job Number: 686820
Work Order Number: 2029003
Order Number: 586788 Rev. 0

Engineering Firm Designation: **B+T Group Project Number:** 93996.007.01

Site Data: **201 Granite Road, Guilford, New Haven County, CT**
Latitude 41° 17' 31.14", Longitude -72° 43' 58.28"
109 Foot - Monopole Tower

B+T Group 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:

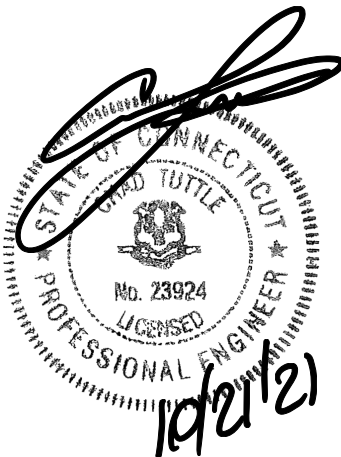
LC7: Proposed Equipment Configuration

Sufficient Capacity – 44.4%

This analysis utilizes an ultimate 3-second gust wind speed of 122 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria

Structural analysis prepared by: Austin Steward

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 02/10/2022



Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

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1) INTRODUCTION

This is a 99 ft. Monopole tower designed by Engineered Endeavors, Inc. in November 2003.

The tower has been modified per reinforcement drawings prepared by B+T Group in February 2014. Reinforcement consists of a 10-ft tower extension, bringing the total tower height to 109 ft.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	122 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 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)
87.0	87.0	1	Site Pro 1	HRK12 Handrail Kit	4	1-5/8
		1	Site Pro 1	RMQP-496 Platform Mount		
	86.0	3	Ericsson	AIR6449 B41_T-MOBILE		
		3	Ericsson	RADIO 4449 B12/B71		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	RFS Celwave	APXVAARR24_43-U-NA20		

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)
106.0	107.0	3	Amphenol	BXA-70063-6CF-EDIN-X	2	1-5/8
		6	Commscope	NHH-65B-R2B		
		2	Raycap	RRFDC-3315-PF-48		
		3	Samsung Telecomm.	MT6407-77A		
		3	Samsung Telecomm.	RFV01U-D1A		
		3	Samsung Telecomm.	RFV01U-D2A		
	106.0	3	Commscope	BSAMNT-SBS-1-2 Brackets		
		1	--	Platform Mount [LP 303-1]		
96.0	97.0	1	Andrew	SBNHH-1D65A	12 2 3 1	1-1/4 3/4 1/2 3/8
		2	CCI Antennas	HPA-65R-BUU-H6		
		3	Ericsson	RRUS 11		
		3	Ericsson	RRUS 32 B2		
		6	Powerwave Tech.	7770.00		
	96.0	6	Powerwave Tech.	7020.00		
		12	Powerwave Tech.	LGP21401		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		2	Raycap	DC6-48-60-18-8F		
		1	--	Platform Mount [LP 303-1_HR-1]		
77.0	77.0	3	Fujitsu	TA08025-B604	1	1-3/8
		3	Fujitsu	TA08025-B605		
		3	JMA Wireless	MX08FRO665-21		
		1	Raycap	RDIDC-9181-PF-48		
		1	--	Commscope MC-PK8-DSH		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	4492171	CCI Sites
Mount Replacement Analysis Report	10008450	CCI Sites
Tower Extension Drawing	4492170	CCI Sites
Post Modification Inspection	5415537	CCI Sites
Foundation Drawing	4492141	CCI Sites
Geotech Report	4713222	CCI Sites
Crown CAD Package	Date: 10/04/2021	CCI Sites

3.1) Analysis Method

tnxTower (version 8.1.1.0), 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. B+T Group 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 (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	109 - 99.5	Pole	TP24x24x0.375	1	-4.574	920.561	6.4	Pass
L2	99.5 - 99	Pole	TP26.42x24x0.375	2	-4.605	920.561	6.4	Pass
L3	99 - 46.93	Pole	TP37.125x26.42x0.313	3	-21.697	2178.456	33.4	Pass
L4	46.93 - 0	Pole	TP46x35.443x0.375	4	-34.655	3335.692	42.7	Pass
							Summary	
						Pole (L4)	42.7	Pass
						Rating =	42.7	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Flange Connection	99.0	9.6	Pass
1,2	Anchor Rods	Base	36.6	Pass
1,2	Base Plate	Base	44.4	Pass
1,2	Base Foundation (Structure)	Base	39.2	Pass
1,2	Base Foundation (Soil Interaction)	Base	38.8	Pass

Structure Rating (max from all components) =	44.4%
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Notes:

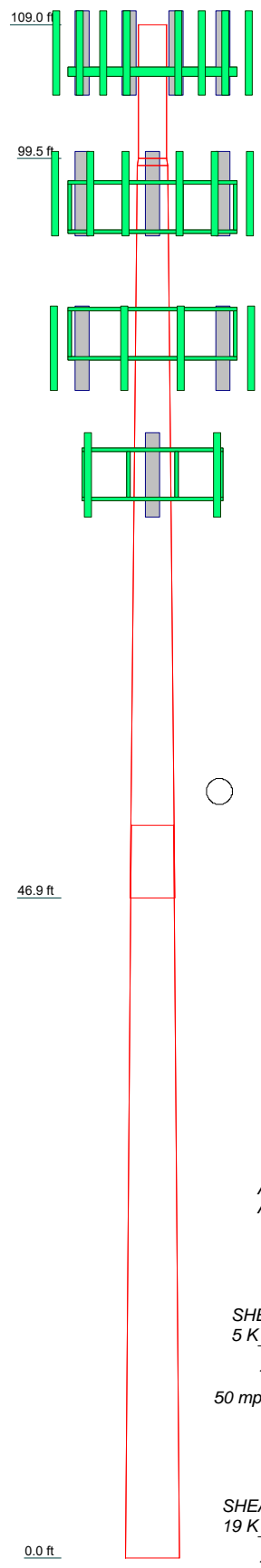
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H Section 15.5.

4.1) Recommendations

The tower and its foundations 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)	0.500	9.500	52.070	52.070
Number of Sides	1	1	18	18
Thickness (in)	0.375	0.375	0.313	0.375
Socket Length (ft)			5.140	
Top Dia (in)		24.000	26.420	35.443
Bot Dia (in)		24.000	37.125	46.000
Grade			A53-B-35	A572-65
Weight (K)	0.9	0.0	5.5	8.5



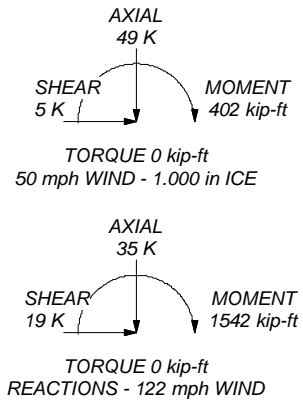
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 122 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 42.7%

ALL REACTIONS
ARE FACTORED



B+T Group
1717 S, Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

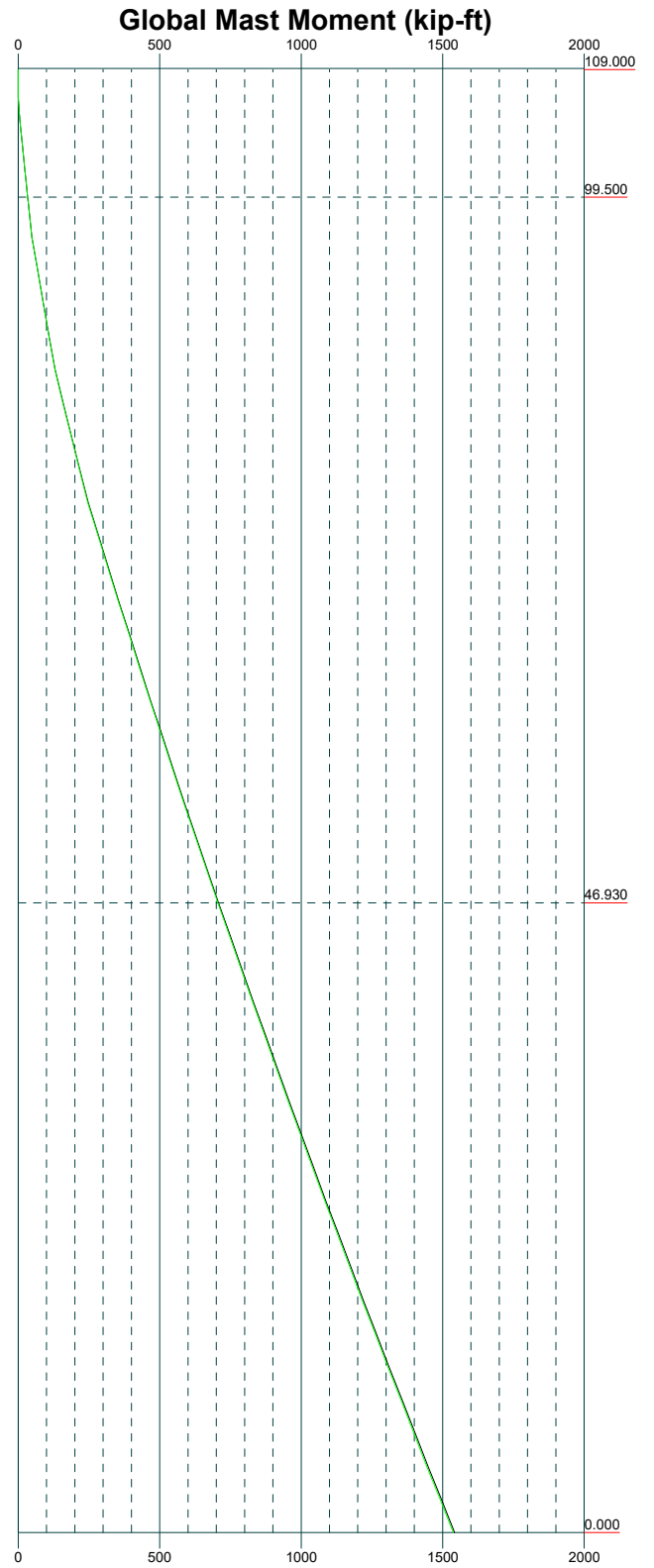
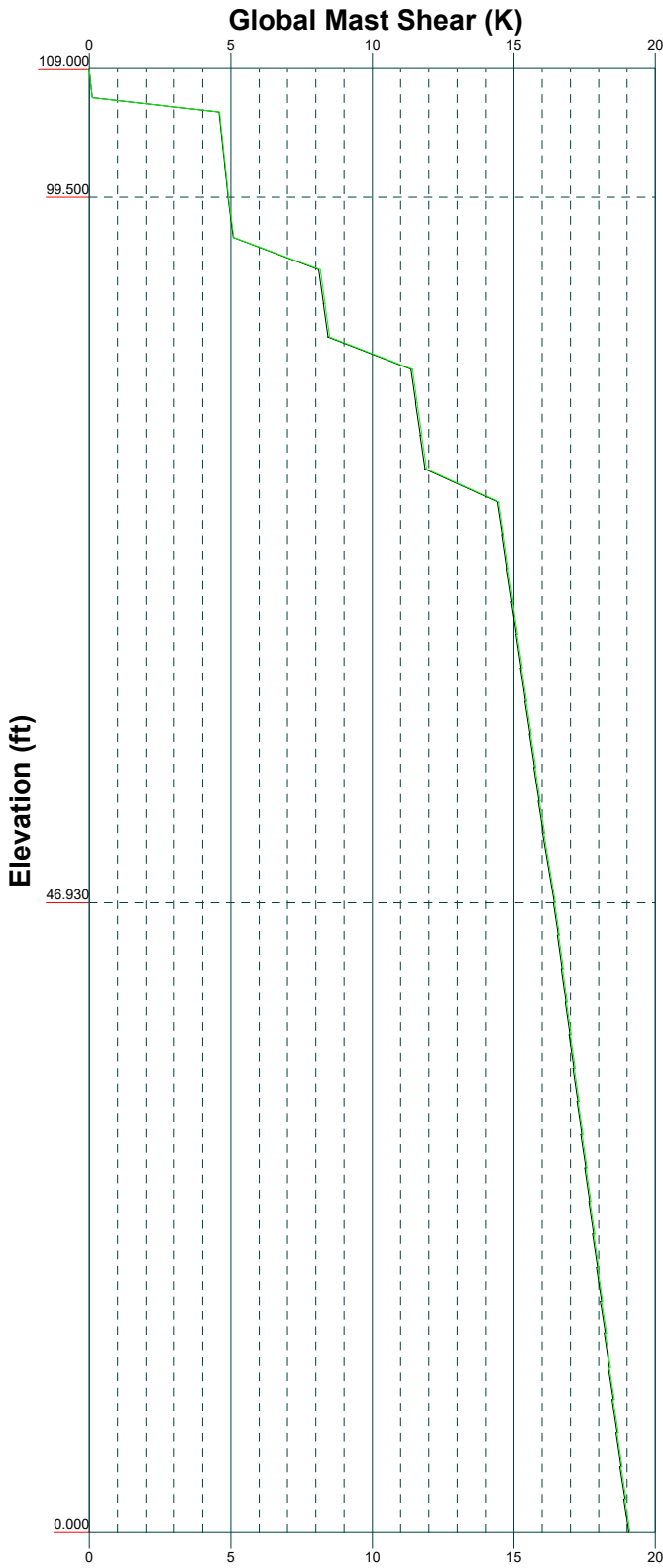
Job: 93996.007.01 - GUILFORD SW, CT (BU# 84286)		
Project:	Client: Crown Castle	Drawn by: Suhas Poojary
Code: TIA-222-H	Date: 10/20/21	App'd: NTS
Path:		Dwg No. E-1

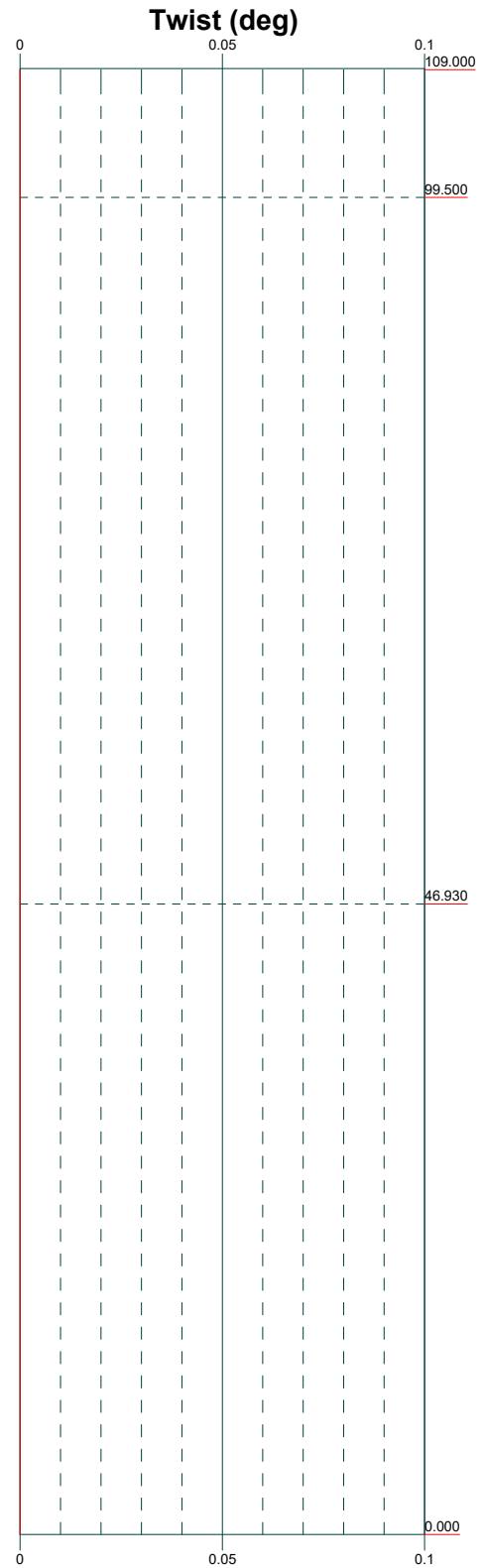
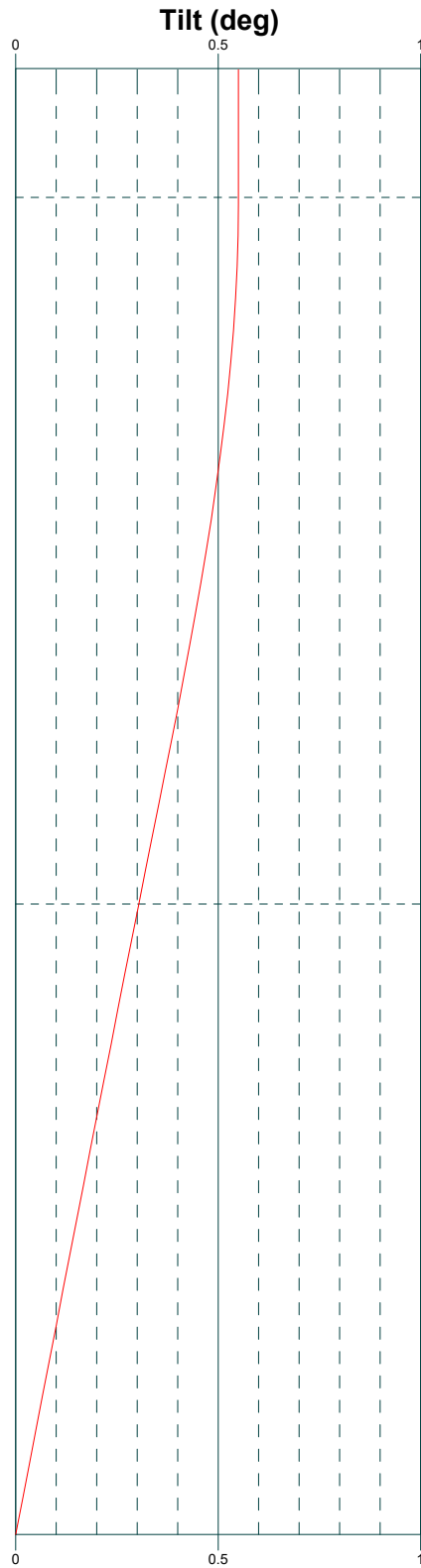
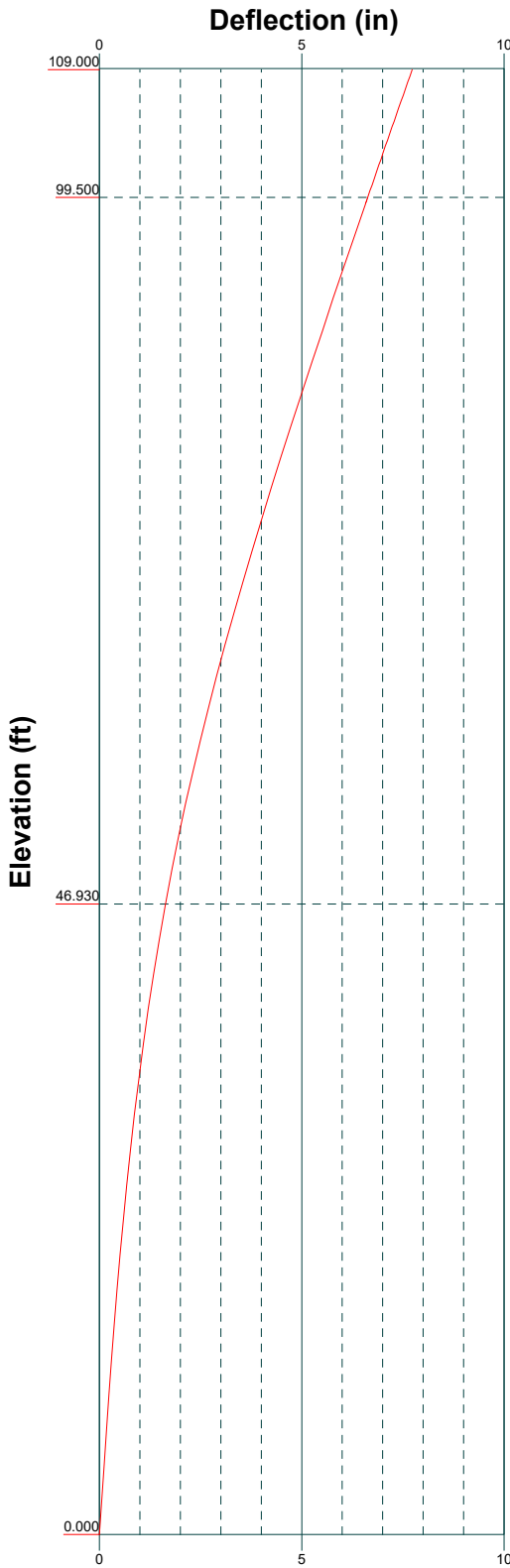
Vx

Vz

Mx

Mz





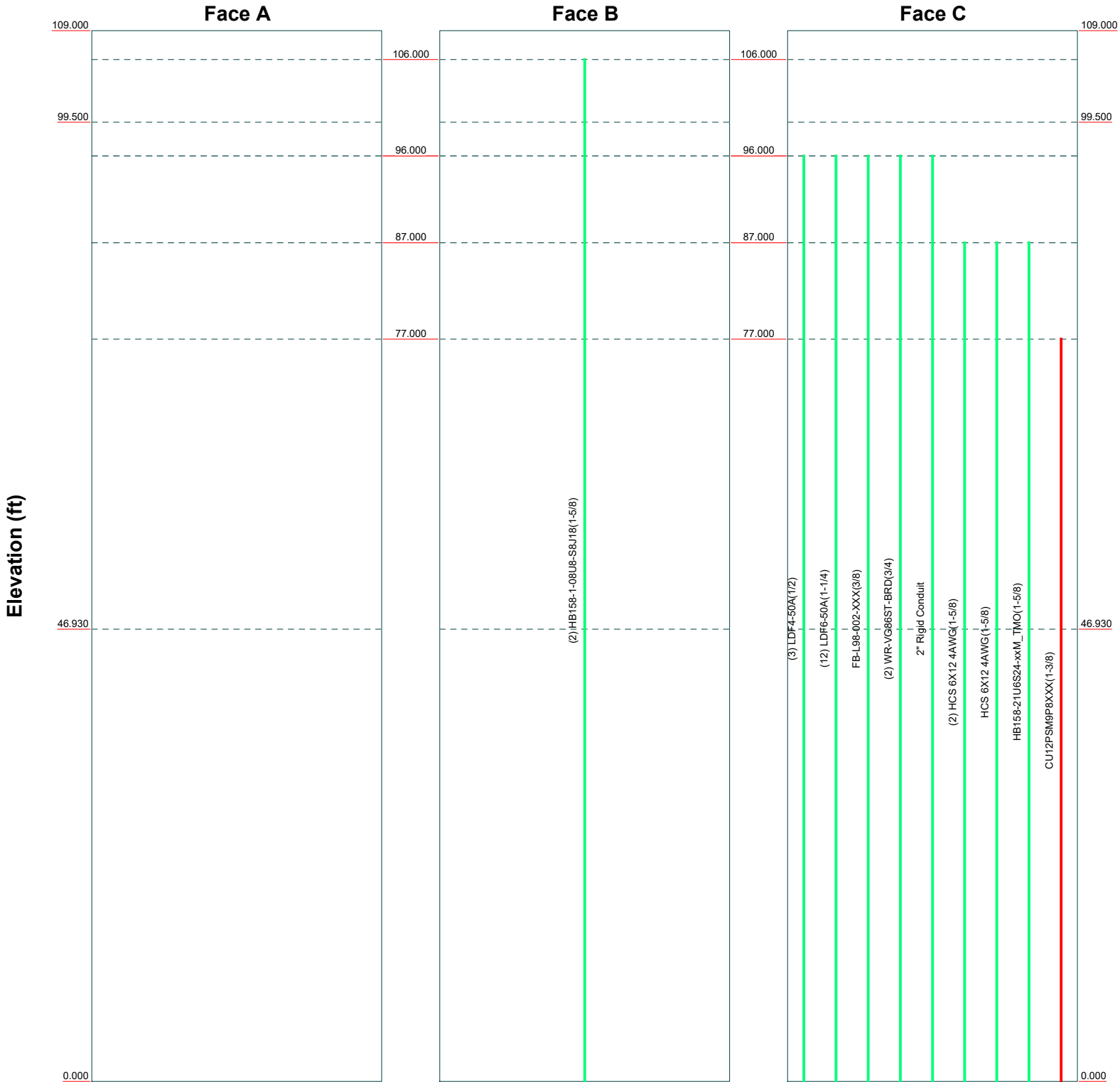
B+T Group
 1717 S, Boulder, Suite 300
 Tulsa, OK 74119
 Phone: (918) 587-4630
 FAX: (918) 295-0265

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Project:		
Client: Crown Castle	Drawn by: Suhas Poojary	App'd:
Code: TIA-222-H	Date: 10/20/21	Scale: NTS
Path:	Dwg No. E-5	

Feed Line Distribution Chart

0' - 109'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



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 1717 S, Boulder, Suite 300
 Tulsa, OK 74119
 Phone: (918) 587-4630
 FAX: (918) 295-0265

Job: 93996.007.01 - GUILFORD SW, CT (BU# 84286)		
Project:		
Client: Crown Castle	Drawn by: Suhas Poojary	App'd:
Code: TIA-222-H	Date: 10/20/21	Scale: NTS
Path:	Dwg No. E-7	

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	Client Crown Castle	Designed by Suhas Poojary

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Tower base elevation above sea level: 106.000 ft.

Basic wind speed of 122 mph.

Risk Category II.

Exposure Category B.

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

Topographic Category: 1.

Crest Height: 0.000 ft.

Nominal ice thickness of 1.000 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

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

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 60 mph.

TIA-222-H Annex S.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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

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

Maximum demand-capacity ratio is: 1.05.

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

Options

- | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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Tapered Pole Section Geometry

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	109.000-99.500	9.500	0.000	Round	24.000	24.000	0.375		A53-B-35 (35 ksi)
L2	99.500-99.000	0.500	0.000	Round	24.000	26.420	0.375		A53-B-35 (35 ksi)
L3	99.000-46.930	52.070	5.140	18	26.420	37.125	0.313	1.250	A572-65 (65 ksi)
L4	46.930-0.000	52.070		18	35.443	46.000	0.375	1.500	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	I ² /Q in ²	w in	w/t
L1	24.000	27.833	1942.299	8.354	12.000	161.858	3884.597	13.908	0.000	0
	24.000	27.833	1942.299	8.354	12.000	161.858	3884.597	13.908	0.000	0
L2	24.000	27.833	1942.299	8.354	12.000	161.858	3884.597	13.908	0.000	0
	26.420	30.684	2602.281	9.209	13.210	196.993	5204.563	15.333	0.000	0
L3	26.779	25.895	2229.925	9.268	13.421	166.147	4462.784	12.950	4.100	13.12
	37.650	36.513	6251.444	13.068	18.860	331.475	12511.113	18.260	5.984	19.149
L4	36.990	41.740	6485.132	12.449	18.005	360.181	12978.797	20.874	5.578	14.875
	46.652	54.305	14281.844	16.197	23.368	611.171	28582.480	27.158	7.436	19.829

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 109.000-99.500				1	1	1			
L2 99.500-99.000				1	1	1			
L3 99.000-46.930				1	1	1			
L4 46.930-0.000				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 klf
* CU12PSM9P8XXX(1-3/8) *	C	No	Surface Ar (CaAa)	77.000 - 0.000	1	1	0.300 - 0.330	1.411		0.002

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Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight klf
HB158-1-08U8-S8J 18(1-5/8)	B	No	No	Inside Pole	106.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
*									
LDF4-50A(1/2)	C	No	No	Inside Pole	96.000 - 0.000	3	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
LDF6-50A(1-1/4)	C	No	No	Inside Pole	96.000 - 0.000	12	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
FB-L98-002-XXX(3/8)	C	No	No	Inside Pole	96.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	96.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
2" Rigid Conduit	C	No	No	Inside Pole	96.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
*									
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	87.000 - 0.000	2	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	87.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
HB158-21U6S24-xx M_TMO(1-5/8)	C	No	No	Inside Pole	87.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
*									

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	109.000-99.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.017
		C	0.000	0.000	0.000	0.000	0.000
L2	99.500-99.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.001
		C	0.000	0.000	0.000	0.000	0.000
L3	99.000-46.930	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.135
		C	0.000	0.000	4.243	0.000	1.012
L4	46.930-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.122
		C	0.000	0.000	6.622	0.000	1.081

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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 _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	109.000-99.500	A	0.954	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.017
		C		0.000	0.000	0.000	0.000	0.000
L2	99.500-99.000	A	0.949	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.001
		C		0.000	0.000	0.000	0.000	0.000
L3	99.000-46.930	A	0.919	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.135
		C		0.000	0.000	9.771	0.000	1.091
L4	46.930-0.000	A	0.819	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.122
		C		0.000	0.000	15.249	0.000	1.204

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	109.000-99.500	0.000	0.000	0.000	0.000
L2	99.500-99.000	0.000	0.000	0.000	0.000
L3	99.000-46.930	-0.434	0.559	-0.567	0.731
L4	46.930-0.000	-0.687	0.885	-0.909	1.172

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
L3	15	CU12PSM9P8XXX(1-3/8)	46.93 - 77.00	1.0000	1.0000
L4	15	CU12PSM9P8XXX(1-3/8)	0.00 - 46.93	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K	
NHH-65B-R2B w/ Mount Pipe	A	From Leg	4.000	0.000	106.000	No Ice	4.090	3.290	0.069
			0.000			1/2" Ice	4.480	3.670	0.132
			1.000			1" Ice	4.880	4.060	0.205
NHH-65B-R2B w/ Mount Pipe	B	From Leg	4.000	0.000	106.000	No Ice	4.090	3.290	0.069
			0.000			1/2" Ice	4.480	3.670	0.132
			1.000			1" Ice	4.880	4.060	0.205
NHH-65B-R2B w/ Mount Pipe	C	From Leg	4.000	0.000	106.000	No Ice	4.090	3.290	0.069
			0.000			1/2" Ice	4.480	3.670	0.132
			1.000			1" Ice	4.880	4.060	0.205
NHH-65B-R2B	A	From Leg	4.000	0.000	106.000	No Ice	4.160	2.490	0.044
			0.000			1/2" Ice	4.560	2.880	0.094
			1.000			1" Ice	4.980	3.270	0.150
NHH-65B-R2B	B	From Leg	4.000	0.000	106.000	No Ice	4.160	2.490	0.044
			0.000			1/2" Ice	4.560	2.880	0.094
			1.000			1" Ice	4.980	3.270	0.150
NHH-65B-R2B	C	From Leg	4.000	0.000	106.000	No Ice	4.160	2.490	0.044
			0.000			1/2" Ice	4.560	2.880	0.094
			1.000			1" Ice	4.980	3.270	0.150
BXA-70063-6CF-EDIN-X w/ Mount Pipe	A	From Leg	4.000	0.000	106.000	No Ice	7.400	5.390	0.058
			0.000			1/2" Ice	8.140	6.100	0.113
			1.000			1" Ice	8.900	6.830	0.178
BXA-70063-6CF-EDIN-X w/ Mount Pipe	B	From Leg	4.000	0.000	106.000	No Ice	7.400	5.390	0.058
			0.000			1/2" Ice	8.140	6.100	0.113
			1.000			1" Ice	8.900	6.830	0.178
BXA-70063-6CF-EDIN-X w/ Mount Pipe	C	From Leg	4.000	0.000	106.000	No Ice	7.400	5.390	0.058
			0.000			1/2" Ice	8.140	6.100	0.113
			1.000			1" Ice	8.900	6.830	0.178
RRFDC-3315-PF-48	A	From Leg	4.000	0.000	106.000	No Ice	3.364	2.192	0.032
			0.000			1/2" Ice	3.597	2.395	0.061
			1.000			1" Ice	3.838	2.606	0.093
RRFDC-3315-PF-48	B	From Leg	4.000	0.000	106.000	No Ice	3.364	2.192	0.032
			0.000			1/2" Ice	3.597	2.395	0.061
			1.000			1" Ice	3.838	2.606	0.093
RFV01U-D1A	A	From Leg	4.000	0.000	106.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			1.000			1" Ice	2.223	1.543	0.124
RFV01U-D1A	B	From Leg	4.000	0.000	106.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			1.000			1" Ice	2.223	1.543	0.124
RFV01U-D1A	C	From Leg	4.000	0.000	106.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			1.000			1" Ice	2.223	1.543	0.124
RFV01U-D2A	A	From Leg	4.000	0.000	106.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			1.000			1" Ice	2.223	1.284	0.106
RFV01U-D2A	B	From Leg	4.000	0.000	106.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			1.000			1" Ice	2.223	1.284	0.106
RFV01U-D2A	C	From Leg	4.000	0.000	106.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			1.000			1" Ice	2.223	1.284	0.106
MT6407-77A	A	From Leg	4.000	0.000	106.000	No Ice	4.692	1.840	0.082
			0.000			1/2" Ice	4.980	2.063	0.111
			1.000			1" Ice	5.275	2.292	0.144
MT6407-77A	B	From Leg	4.000	0.000	106.000	No Ice	4.692	1.840	0.082
			0.000			1/2" Ice	4.980	2.063	0.111
			1.000			1" Ice	5.275	2.292	0.144

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	Project				Date		16:34:57 10/20/21	
	Client		Crown Castle		Designed by		Suhas Poojary	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
MT6407-77A	C	From Leg	4.000	0.000	0.000	106.000	No Ice 4.692	1.840	0.082
			0.000				1/2" Ice 4.980	2.063	0.111
			1.000				1" Ice 5.275	2.292	0.144
(2) 8' x 2" Mount Pipe	A	From Leg	4.000	0.000	0.000	106.000	No Ice 1.900	1.900	0.029
			0.000				1/2" Ice 2.728	2.728	0.044
			0.000				1" Ice 3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	0.000	106.000	No Ice 1.900	1.900	0.029
			0.000				1/2" Ice 2.728	2.728	0.044
			0.000				1" Ice 3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	0.000	106.000	No Ice 1.900	1.900	0.029
			0.000				1/2" Ice 2.728	2.728	0.044
			0.000				1" Ice 3.401	3.401	0.063
Side Arm Mount [SO 102-3]	C	None		0.000	0.000	106.000	No Ice 3.600	3.600	0.075
							1/2" Ice 4.180	4.180	0.105
							1" Ice 4.750	4.750	0.135
Platform Mount [LP 303-1]	C	None		0.000	0.000	106.000	No Ice 14.690	14.690	1.250
							1/2" Ice 18.010	18.010	1.569
							1" Ice 21.340	21.340	1.942
Mount Reinforcement Specifications	C	None		0.000	0.000	106.000	No Ice 28.630	28.630	0.280
							1/2" Ice 37.310	37.310	0.670
							1" Ice 45.800	45.800	0.940
*									
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	96.000	No Ice 9.220	6.250	0.074
			0.000				1/2" Ice 9.980	6.960	0.143
			1.000				1" Ice 10.760	7.700	0.224
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	96.000	No Ice 3.040	2.450	0.054
			0.000				1/2" Ice 3.340	2.750	0.104
			1.000				1" Ice 3.650	3.050	0.162
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	96.000	No Ice 9.220	6.250	0.074
			0.000				1/2" Ice 9.980	6.960	0.143
			1.000				1" Ice 10.760	7.700	0.224
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	96.000	No Ice 5.746	4.254	0.055
			0.000				1/2" Ice 6.179	5.014	0.103
			1.000				1" Ice 6.607	5.711	0.157
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	96.000	No Ice 5.746	4.254	0.055
			0.000				1/2" Ice 6.179	5.014	0.103
			1.000				1" Ice 6.607	5.711	0.157
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	96.000	No Ice 5.746	4.254	0.055
			0.000				1/2" Ice 6.179	5.014	0.103
			1.000				1" Ice 6.607	5.711	0.157
RRUS 11	A	From Leg	4.000	0.000	0.000	96.000	No Ice 2.784	1.187	0.048
			0.000				1/2" Ice 2.992	1.334	0.068
			1.000				1" Ice 3.207	1.490	0.092
RRUS 11	B	From Leg	4.000	0.000	0.000	96.000	No Ice 2.784	1.187	0.048
			0.000				1/2" Ice 2.992	1.334	0.068
			1.000				1" Ice 3.207	1.490	0.092
RRUS 11	C	From Leg	4.000	0.000	0.000	96.000	No Ice 2.784	1.187	0.048
			0.000				1/2" Ice 2.992	1.334	0.068
			1.000				1" Ice 3.207	1.490	0.092
RRUS 32 B2	A	From Leg	4.000	0.000	0.000	96.000	No Ice 2.731	1.668	0.053
			0.000				1/2" Ice 2.953	1.855	0.074
			1.000				1" Ice 3.182	2.049	0.098
RRUS 32 B2	B	From Leg	4.000	0.000	0.000	96.000	No Ice 2.731	1.668	0.053
			0.000				1/2" Ice 2.953	1.855	0.074
			1.000				1" Ice 3.182	2.049	0.098
RRUS 32 B2	C	From Leg	4.000	0.000	0.000	96.000	No Ice 2.731	1.668	0.053
			0.000				1/2" Ice 2.953	1.855	0.074

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	Project	Date
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Client	Designed by	
	Crown Castle	Suhas Poojary

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA}		Weight K	
			Horz Lateral ft	Vert ft			Front ft ²	Side ft ²		
(2) 7020.00	A	From Leg	1.000		0.000	96.000	1" Ice	3.182	2.049	0.098
			4.000				No Ice	0.102	0.175	0.002
			0.000				1/2" Ice	0.147	0.239	0.005
(2) 7020.00	B	From Leg	0.000		0.000	96.000	1" Ice	0.199	0.311	0.009
			4.000				No Ice	0.102	0.175	0.002
			0.000				1/2" Ice	0.147	0.239	0.005
(2) 7020.00	C	From Leg	0.000		0.000	96.000	1" Ice	0.199	0.311	0.009
			4.000				No Ice	0.102	0.175	0.002
			0.000				1/2" Ice	0.147	0.239	0.005
(4) LGP21401	A	From Leg	0.000		0.000	96.000	1" Ice	0.199	0.311	0.009
			4.000				No Ice	1.104	0.207	0.014
			0.000				1/2" Ice	1.239	0.274	0.021
(4) LGP21401	B	From Leg	0.000		0.000	96.000	1" Ice	1.381	0.348	0.030
			4.000				No Ice	1.104	0.207	0.014
			0.000				1/2" Ice	1.239	0.274	0.021
(4) LGP21401	C	From Leg	0.000		0.000	96.000	1" Ice	1.381	0.348	0.030
			4.000				No Ice	1.104	0.207	0.014
			0.000				1/2" Ice	1.239	0.274	0.021
DC6-48-60-18-8F	B	From Leg	0.000		0.000	96.000	1" Ice	1.381	0.348	0.030
			4.000				No Ice	1.212	1.212	0.033
			0.000				1/2" Ice	1.892	1.892	0.055
DC6-48-60-18-8F	C	From Leg	0.000		0.000	96.000	1" Ice	2.105	2.105	0.080
			4.000				No Ice	1.212	1.212	0.033
			0.000				1/2" Ice	1.892	1.892	0.055
Platform Mount [LP 303-1_HR-1]	C	None	0.000		0.000	96.000	1" Ice	2.105	2.105	0.080
							No Ice	17.090	17.090	1.495
							1/2" Ice	21.470	21.470	1.881
*							1" Ice	25.720	25.720	2.346
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000		0.000	87.000	No Ice	14.690	6.870	0.186
			0.000				1/2" Ice	15.460	7.550	0.315
			-1.000				1" Ice	16.230	8.250	0.458
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000		0.000	87.000	No Ice	14.690	6.870	0.186
			0.000				1/2" Ice	15.460	7.550	0.315
			-1.000				1" Ice	16.230	8.250	0.458
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000		0.000	87.000	No Ice	14.690	6.870	0.186
			0.000				1/2" Ice	15.460	7.550	0.315
			-1.000				1" Ice	16.230	8.250	0.458
RADIO 4449 B12/B71	A	From Leg	4.000		0.000	87.000	No Ice	1.650	1.163	0.074
			0.000				1/2" Ice	1.810	1.301	0.090
			-1.000				1" Ice	1.978	1.447	0.109
RADIO 4449 B12/B71	B	From Leg	4.000		0.000	87.000	No Ice	1.650	1.163	0.074
			0.000				1/2" Ice	1.810	1.301	0.090
			-1.000				1" Ice	1.978	1.447	0.109
RADIO 4449 B12/B71	C	From Leg	4.000		0.000	87.000	No Ice	1.650	1.163	0.074
			0.000				1/2" Ice	1.810	1.301	0.090
			-1.000				1" Ice	1.978	1.447	0.109
AIR6449 B41_T-MOBILE	A	From Leg	4.000		0.000	87.000	No Ice	5.270	2.030	0.115
			0.000				1/2" Ice	5.700	2.360	0.154
			-1.000				1" Ice	6.140	2.700	0.197
AIR6449 B41_T-MOBILE	B	From Leg	4.000		0.000	87.000	No Ice	5.270	2.030	0.115
			0.000				1/2" Ice	5.700	2.360	0.154
			-1.000				1" Ice	6.140	2.700	0.197
AIR6449 B41_T-MOBILE	C	From Leg	4.000		0.000	87.000	No Ice	5.270	2.030	0.115
			0.000				1/2" Ice	5.700	2.360	0.154
			-1.000				1" Ice	6.140	2.700	0.197
RADIO 4460 B2/B25	A	From Leg	4.000		0.000	87.000	No Ice	2.139	1.686	0.109

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	Project				Date		16:34:57 10/20/21	
	Client		Crown Castle		Designed by		Suhas Poojary	

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
B66_TMO			0.000			1/2" Ice 2.321	1.850	0.131
			-1.000			1" Ice 2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000	0.000	87.000	No Ice 2.139	1.686	0.109
			0.000			1/2" Ice 2.321	1.850	0.131
			-1.000			1" Ice 2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000	0.000	87.000	No Ice 2.139	1.686	0.109
			0.000			1/2" Ice 2.321	1.850	0.131
			-1.000			1" Ice 2.511	2.022	0.156
(3) 8' x 2" Mount Pipe	A	From Leg	4.000	0.000	87.000	No Ice 1.900	1.900	0.029
			0.000			1/2" Ice 2.728	2.728	0.044
			0.000			1" Ice 3.401	3.401	0.063
(3) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	87.000	No Ice 1.900	1.900	0.029
			0.000			1/2" Ice 2.728	2.728	0.044
			0.000			1" Ice 3.401	3.401	0.063
(3) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	87.000	No Ice 1.900	1.900	0.029
			0.000			1/2" Ice 2.728	2.728	0.044
			0.000			1" Ice 3.401	3.401	0.063
Platform Mount [LP 303-1_HR-1]	C	None		0.000	87.000	No Ice 17.090	17.090	1.495
						1/2" Ice 21.470	21.470	1.881
						1" Ice 25.720	25.720	2.346
*								
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000	0.000	77.000	No Ice 8.010	4.230	0.108
			0.000			1/2" Ice 8.520	4.690	0.194
			0.000			1" Ice 9.040	5.160	0.292
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000	0.000	77.000	No Ice 8.010	4.230	0.108
			0.000			1/2" Ice 8.520	4.690	0.194
			0.000			1" Ice 9.040	5.160	0.292
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000	0.000	77.000	No Ice 8.010	4.230	0.108
			0.000			1/2" Ice 8.520	4.690	0.194
			0.000			1" Ice 9.040	5.160	0.292
TA08025-B604	A	From Leg	4.000	0.000	77.000	No Ice 1.964	0.981	0.064
			0.000			1/2" Ice 2.138	1.112	0.081
			0.000			1" Ice 2.320	1.250	0.100
TA08025-B604	B	From Leg	4.000	0.000	77.000	No Ice 1.964	0.981	0.064
			0.000			1/2" Ice 2.138	1.112	0.081
			0.000			1" Ice 2.320	1.250	0.100
TA08025-B604	C	From Leg	4.000	0.000	77.000	No Ice 1.964	0.981	0.064
			0.000			1/2" Ice 2.138	1.112	0.081
			0.000			1" Ice 2.320	1.250	0.100
TA08025-B605	A	From Leg	4.000	0.000	77.000	No Ice 1.964	1.129	0.075
			0.000			1/2" Ice 2.138	1.267	0.093
			0.000			1" Ice 2.320	1.411	0.114
TA08025-B605	B	From Leg	4.000	0.000	77.000	No Ice 1.964	1.129	0.075
			0.000			1/2" Ice 2.138	1.267	0.093
			0.000			1" Ice 2.320	1.411	0.114
TA08025-B605	C	From Leg	4.000	0.000	77.000	No Ice 1.964	1.129	0.075
			0.000			1/2" Ice 2.138	1.267	0.093
			0.000			1" Ice 2.320	1.411	0.114
RDIDC-9181-PF-48	B	From Leg	4.000	0.000	77.000	No Ice 2.012	1.168	0.022
			0.000			1/2" Ice 2.189	1.311	0.040
			0.000			1" Ice 2.373	1.461	0.060
(2) 8' x 2" Mount Pipe	A	From Leg	4.000	0.000	77.000	No Ice 1.900	1.900	0.029
			0.000			1/2" Ice 2.728	2.728	0.044
			0.000			1" Ice 3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	77.000	No Ice 1.900	1.900	0.029
			0.000			1/2" Ice 2.728	2.728	0.044
			0.000			1" Ice 3.401	3.401	0.063

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	Client Crown Castle	Designed by Suhas Poojary

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral ft	Vert ft					
(2) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	0.000	77.000	No Ice 1.900	1.900	0.029
			0.000				1/2" Ice 2.728	2.728	0.044
			0.000				1" Ice 3.401	3.401	0.063
Commscope MC-PK8-DSH (1)	C	None		0.000	0.000	77.000	No Ice 34.240	34.240	1.749
							1/2" Ice 62.950	62.950	2.099
							1" Ice 91.660	91.660	2.450
*									

Load Combinations

Comb. No.	Description
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

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Comb. No.	Description
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	109 - 99.5	Pole	Max Tension	14	0.000	-0.000	0.000
			Max. Compression	26	-8.144	-0.417	0.240
			Max. Mx	8	-4.576	-33.276	-0.026
			Max. My	2	-4.574	-0.039	33.343
			Max. Vy	8	4.897	-33.276	-0.026
			Max. Vx	14	4.916	-0.269	-33.151
			Max. Torque	12			0.334
L2	99.5 - 99	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-8.221	-0.417	0.240
			Max. Mx	8	-4.636	-35.731	-0.033
			Max. My	2	-4.635	-0.031	35.807
			Max. Vy	8	4.923	-35.731	-0.033
			Max. Vx	14	4.942	-0.277	-35.616
			Max. Torque	12			0.334
L3	99 - 46.93	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.524	-0.414	-0.371
			Max. Mx	8	-21.700	-622.049	0.074
			Max. My	14	-21.697	0.090	-624.420
			Max. Vy	8	16.045	-622.049	0.074
			Max. Vx	14	16.088	0.090	-624.420
			Max. Torque	18			-0.340
L4	46.93 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.606	-0.414	-0.775
			Max. Mx	8	-34.655	-1537.539	0.159
			Max. My	14	-34.655	0.351	-1542.296
			Max. Vy	8	19.065	-1537.539	0.159
			Max. Vx	14	19.107	0.351	-1542.296
			Max. Torque	19			-0.190

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	48.606	0.001	-5.028
	Max. H _x	20	34.668	19.042	-0.005
	Max. H _z	2	34.668	-0.005	19.084
	Max. M _x	2	1541.527	-0.005	19.084

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M _z	8	1537.539	-19.042	0.005
	Max. Torsion	7	0.189	-16.494	9.546
	Min. Vert	23	26.001	16.489	9.538
	Min. H _x	8	34.668	-19.042	0.005
	Min. H _z	14	34.668	0.005	-19.084
	Min. M _x	14	-1542.296	0.005	-19.084
	Min. M _z	20	-1537.154	19.042	-0.005
	Min. Torsion	19	-0.190	16.494	-9.546

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	28.890	0.000	0.000	0.310	-0.153	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	34.668	0.005	-19.084	-1541.527	-0.737	-0.059
0.9 Dead+1.0 Wind 0 deg - No Ice	26.001	0.005	-19.084	-1529.798	-0.682	-0.060
1.2 Dead+1.0 Wind 30 deg - No Ice	34.668	9.525	-16.529	-1335.224	-769.337	-0.143
0.9 Dead+1.0 Wind 30 deg - No Ice	26.001	9.525	-16.529	-1325.076	-763.388	-0.144
1.2 Dead+1.0 Wind 60 deg - No Ice	34.668	16.494	-9.546	-771.044	-1331.847	-0.189
0.9 Dead+1.0 Wind 60 deg - No Ice	26.001	16.494	-9.546	-765.224	-1321.585	-0.189
1.2 Dead+1.0 Wind 90 deg - No Ice	34.668	19.042	-0.005	-0.159	-1537.539	-0.184
0.9 Dead+1.0 Wind 90 deg - No Ice	26.001	19.042	-0.005	-0.253	-1525.701	-0.184
1.2 Dead+1.0 Wind 120 deg - No Ice	34.668	16.489	9.538	770.872	-1331.303	-0.131
0.9 Dead+1.0 Wind 120 deg - No Ice	26.001	16.489	9.538	764.863	-1321.046	-0.131
1.2 Dead+1.0 Wind 150 deg - No Ice	34.668	9.517	16.525	1335.450	-768.395	-0.043
0.9 Dead+1.0 Wind 150 deg - No Ice	26.001	9.517	16.525	1325.109	-762.454	-0.042
1.2 Dead+1.0 Wind 180 deg - No Ice	34.668	-0.005	19.084	1542.296	0.351	0.058
0.9 Dead+1.0 Wind 180 deg - No Ice	26.001	-0.005	19.084	1530.369	0.396	0.059
1.2 Dead+1.0 Wind 210 deg - No Ice	34.668	-9.525	16.529	1335.993	768.950	0.143
0.9 Dead+1.0 Wind 210 deg - No Ice	26.001	-9.525	16.529	1325.648	763.102	0.144
1.2 Dead+1.0 Wind 240 deg - No Ice	34.668	-16.494	9.546	771.814	1331.461	0.190
0.9 Dead+1.0 Wind 240 deg - No Ice	26.001	-16.494	9.546	765.796	1321.299	0.190
1.2 Dead+1.0 Wind 270 deg - No Ice	34.668	-19.042	0.005	0.929	1537.154	0.186
0.9 Dead+1.0 Wind 270 deg - No Ice	26.001	-19.042	0.005	0.826	1525.416	0.186
1.2 Dead+1.0 Wind 300 deg - No Ice	34.668	-16.489	-9.538	-770.102	1330.918	0.131

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
0.9 Dead+1.0 Wind 300 deg - No Ice	26.001	-16.489	-9.538	-764.291	1320.761	0.131
1.2 Dead+1.0 Wind 330 deg - No Ice	34.668	-9.517	-16.525	-1334.681	768.010	0.042
0.9 Dead+1.0 Wind 330 deg - No Ice	26.001	-9.517	-16.525	-1324.537	762.169	0.041
1.2 Dead+1.0 Ice+1.0 Temp	48.606	0.000	0.000	0.775	-0.414	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	48.606	0.001	-5.028	-400.755	-0.534	-0.011
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	48.606	2.511	-4.355	-346.997	-200.905	-0.020
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	48.606	4.349	-2.515	-200.043	-347.563	-0.024
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	48.606	5.021	-0.001	0.731	-401.213	-0.021
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	48.606	4.348	2.513	201.528	-347.478	-0.012
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	48.606	2.510	4.354	348.544	-200.757	-0.001
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	48.606	-0.001	5.028	402.387	-0.364	0.011
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	48.606	-2.511	4.355	348.630	200.007	0.020
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	48.606	-4.349	2.515	201.676	346.665	0.024
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	48.606	-5.021	0.001	0.902	400.315	0.021
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	48.606	-4.348	-2.513	-199.895	346.580	0.012
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	48.606	-2.510	-4.354	-346.912	199.859	0.001
Dead+Wind 0 deg - Service	28.890	0.001	-4.350	-349.543	-0.283	-0.013
Dead+Wind 30 deg - Service	28.890	2.171	-3.768	-302.732	-174.679	-0.029
Dead+Wind 60 deg - Service	28.890	3.760	-2.176	-174.719	-302.314	-0.036
Dead+Wind 90 deg - Service	28.890	4.341	-0.001	0.196	-348.986	-0.034
Dead+Wind 120 deg - Service	28.890	3.759	2.174	175.143	-302.190	-0.023
Dead+Wind 150 deg - Service	28.890	2.170	3.767	303.246	-174.466	-0.006
Dead+Wind 180 deg - Service	28.890	-0.001	4.350	350.180	-0.036	0.013
Dead+Wind 210 deg - Service	28.890	-2.171	3.768	303.369	174.360	0.029
Dead+Wind 240 deg - Service	28.890	-3.760	2.176	175.356	301.995	0.036
Dead+Wind 270 deg - Service	28.890	-4.341	0.001	0.442	348.667	0.034
Dead+Wind 300 deg - Service	28.890	-3.759	-2.174	-174.505	301.871	0.023
Dead+Wind 330 deg - Service	28.890	-2.170	-3.767	-302.608	174.147	0.005

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-28.890	0.000	0.000	28.890	0.000	0.000%
2	0.005	-34.668	-19.084	-0.005	34.668	19.084	0.000%
3	0.005	-26.001	-19.084	-0.005	26.001	19.084	0.000%
4	9.525	-34.668	-16.529	-9.525	34.668	16.529	0.000%
5	9.525	-26.001	-16.529	-9.525	26.001	16.529	0.000%
6	16.494	-34.668	-9.546	-16.494	34.668	9.546	0.000%
7	16.494	-26.001	-9.546	-16.494	26.001	9.546	0.000%
8	19.042	-34.668	-0.005	-19.042	34.668	0.005	0.000%
9	19.042	-26.001	-0.005	-19.042	26.001	0.005	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
10	16.489	-34.668	9.538	-16.489	34.668	-9.538	0.000%
11	16.489	-26.001	9.538	-16.489	26.001	-9.538	0.000%
12	9.517	-34.668	16.525	-9.517	34.668	-16.525	0.000%
13	9.517	-26.001	16.525	-9.517	26.001	-16.525	0.000%
14	-0.005	-34.668	19.084	0.005	34.668	-19.084	0.000%
15	-0.005	-26.001	19.084	0.005	26.001	-19.084	0.000%
16	-9.525	-34.668	16.529	9.525	34.668	-16.529	0.000%
17	-9.525	-26.001	16.529	9.525	26.001	-16.529	0.000%
18	-16.494	-34.668	9.546	16.494	34.668	-9.546	0.000%
19	-16.494	-26.001	9.546	16.494	26.001	-9.546	0.000%
20	-19.042	-34.668	0.005	19.042	34.668	-0.005	0.000%
21	-19.042	-26.001	0.005	19.042	26.001	-0.005	0.000%
22	-16.489	-34.668	-9.538	16.489	34.668	9.538	0.000%
23	-16.489	-26.001	-9.538	16.489	26.001	9.538	0.000%
24	-9.517	-34.668	-16.525	9.517	34.668	16.525	0.000%
25	-9.517	-26.001	-16.525	9.517	26.001	16.525	0.000%
26	0.000	-48.606	0.000	0.000	48.606	0.000	0.000%
27	0.001	-48.606	-5.028	-0.001	48.606	5.028	0.000%
28	2.511	-48.606	-4.355	-2.511	48.606	4.355	0.000%
29	4.349	-48.606	-2.515	-4.349	48.606	2.515	0.000%
30	5.021	-48.606	-0.001	-5.021	48.606	0.001	0.000%
31	4.348	-48.606	2.513	-4.348	48.606	-2.513	0.000%
32	2.510	-48.606	4.354	-2.510	48.606	-4.354	0.000%
33	-0.001	-48.606	5.028	0.001	48.606	-5.028	0.000%
34	-2.511	-48.606	4.355	2.511	48.606	-4.355	0.000%
35	-4.349	-48.606	2.515	4.349	48.606	-2.515	0.000%
36	-5.021	-48.606	0.001	5.021	48.606	-0.001	0.000%
37	-4.348	-48.606	-2.513	4.348	48.606	2.513	0.000%
38	-2.510	-48.606	-4.354	2.510	48.606	4.354	0.000%
39	0.001	-28.890	-4.350	-0.001	28.890	4.350	0.000%
40	2.171	-28.890	-3.768	-2.171	28.890	3.768	0.000%
41	3.760	-28.890	-2.176	-3.760	28.890	2.176	0.000%
42	4.341	-28.890	-0.001	-4.341	28.890	0.001	0.000%
43	3.759	-28.890	2.174	-3.759	28.890	-2.174	0.000%
44	2.170	-28.890	3.767	-2.170	28.890	-3.767	0.000%
45	-0.001	-28.890	4.350	0.001	28.890	-4.350	0.000%
46	-2.171	-28.890	3.768	2.171	28.890	-3.768	0.000%
47	-3.760	-28.890	2.176	3.760	28.890	-2.176	0.000%
48	-4.341	-28.890	0.001	4.341	28.890	-0.001	0.000%
49	-3.759	-28.890	-2.174	3.759	28.890	2.174	0.000%
50	-2.170	-28.890	-3.767	2.170	28.890	3.767	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00009635
3	Yes	4	0.00000001	0.00006018
4	Yes	5	0.00000001	0.00025651
5	Yes	5	0.00000001	0.00012491
6	Yes	5	0.00000001	0.00026460
7	Yes	5	0.00000001	0.00012909
8	Yes	4	0.00000001	0.00024809
9	Yes	4	0.00000001	0.00016650
10	Yes	5	0.00000001	0.00025647

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11	Yes	5	0.0000001	0.00012491
12	Yes	5	0.0000001	0.00026084
13	Yes	5	0.0000001	0.00012710
14	Yes	4	0.0000001	0.00010612
15	Yes	4	0.0000001	0.00006727
16	Yes	5	0.0000001	0.00026397
17	Yes	5	0.0000001	0.00012873
18	Yes	5	0.0000001	0.00025514
19	Yes	5	0.0000001	0.00012425
20	Yes	4	0.0000001	0.00023644
21	Yes	4	0.0000001	0.00015868
22	Yes	5	0.0000001	0.00026207
23	Yes	5	0.0000001	0.00012786
24	Yes	5	0.0000001	0.00025844
25	Yes	5	0.0000001	0.00012598
26	Yes	4	0.0000001	0.00000001
27	Yes	5	0.0000001	0.00009484
28	Yes	5	0.0000001	0.00010711
29	Yes	5	0.0000001	0.00010719
30	Yes	5	0.0000001	0.00009503
31	Yes	5	0.0000001	0.00010742
32	Yes	5	0.0000001	0.00010757
33	Yes	5	0.0000001	0.00009527
34	Yes	5	0.0000001	0.00010728
35	Yes	5	0.0000001	0.00010700
36	Yes	5	0.0000001	0.00009463
37	Yes	5	0.0000001	0.00010664
38	Yes	5	0.0000001	0.00010669
39	Yes	4	0.0000001	0.00001072
40	Yes	4	0.0000001	0.00008855
41	Yes	4	0.0000001	0.00009804
42	Yes	4	0.0000001	0.00001443
43	Yes	4	0.0000001	0.00008950
44	Yes	4	0.0000001	0.00009331
45	Yes	4	0.0000001	0.00001080
46	Yes	4	0.0000001	0.00009706
47	Yes	4	0.0000001	0.00008767
48	Yes	4	0.0000001	0.00001430
49	Yes	4	0.0000001	0.00009502
50	Yes	4	0.0000001	0.00009113

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	109 - 99.5	7.727	45	0.552	0.000
L2	99.5 - 99	6.631	45	0.548	0.000
L3	99 - 46.93	6.574	45	0.548	0.000
L4	52.07 - 0	1.965	45	0.341	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
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Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
106.000	NHH-65B-R2B w/ Mount Pipe	45	7.381	0.551	0.000	116518
96.000	HPA-65R-BUU-H6 w/ Mount Pipe	45	6.231	0.544	0.000	45103
87.000	APXVAARR24_43-U-NA20 w/ Mount Pipe	45	5.219	0.522	0.000	20829
77.000	MX08FRO665-21 w/ Mount Pipe	45	4.150	0.483	0.000	12973

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	109 - 99.5	34.064	14	2.434	0.002
L2	99.5 - 99	29.231	14	2.417	0.002
L3	99 - 46.93	28.979	14	2.415	0.002
L4	52.07 - 0	8.661	14	1.502	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
106.000	NHH-65B-R2B w/ Mount Pipe	14	32.534	2.431	0.002	27104
96.000	HPA-65R-BUU-H6 w/ Mount Pipe	14	27.465	2.399	0.002	10289
87.000	APXVAARR24_43-U-NA20 w/ Mount Pipe	14	23.005	2.304	0.001	4738
77.000	MX08FRO665-21 w/ Mount Pipe	14	18.295	2.129	0.001	2949

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	109 - 99.5 (1)	TP24x24x0.375	9.500	0.000	0.0	27.833	-4.574	876.725	0.005
L2	99.5 - 99 (2)	TP26.42x24x0.375	0.500	0.000	0.0	27.833	-4.605	876.725	0.005
L3	99 - 46.93 (3)	TP37.125x26.42x0.313	52.070	0.000	0.0	35.465	-21.697	2074.720	0.010
L4	46.93 - 0 (4)	TP46x35.443x0.375	52.070	0.000	0.0	54.305	-34.655	3176.850	0.011

Pole Bending Design Data

tnxTower B+T Group 1717 S, Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 93996.007.01 - GUILFORD SW, CT (BU# 842864)	Page 16 of 16
	Project	Date 16:34:57 10/20/21
	Client Crown Castle	Designed by Suhas Poojary

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	109 - 99.5 (1)	TP24x24x0.375	33.343	538.742	0.062	0.000	538.742	0.000
L2	99.5 - 99 (2)	TP26.42x24x0.375	33.343	538.742	0.062	0.000	538.742	0.000
L3	99 - 46.93 (3)	TP37.125x26.42x0.313	624.420	1841.675	0.339	0.000	1841.675	0.000
L4	46.93 - 0 (4)	TP46x35.443x0.375	1542.292	3531.475	0.437	0.000	3531.475	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	109 - 99.5 (1)	TP24x24x0.375	4.916	263.018	0.019	0.289	546.307	0.001
L2	99.5 - 99 (2)	TP26.42x24x0.375	4.942	263.018	0.019	0.289	546.307	0.001
L3	99 - 46.93 (3)	TP37.125x26.42x0.313	16.088	622.415	0.026	0.058	1948.975	0.000
L4	46.93 - 0 (4)	TP46x35.443x0.375	19.107	953.056	0.020	0.058	3808.033	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	109 - 99.5 (1)	0.005	0.062	0.000	0.019	0.001	0.067	1.050	4.8.2 ✓
L2	99.5 - 99 (2)	0.005	0.062	0.000	0.019	0.001	0.068	1.050	4.8.2 ✓
L3	99 - 46.93 (3)	0.010	0.339	0.000	0.026	0.000	0.350	1.050	4.8.2 ✓
L4	46.93 - 0 (4)	0.011	0.437	0.000	0.020	0.000	0.448	1.050	4.8.2 ✓

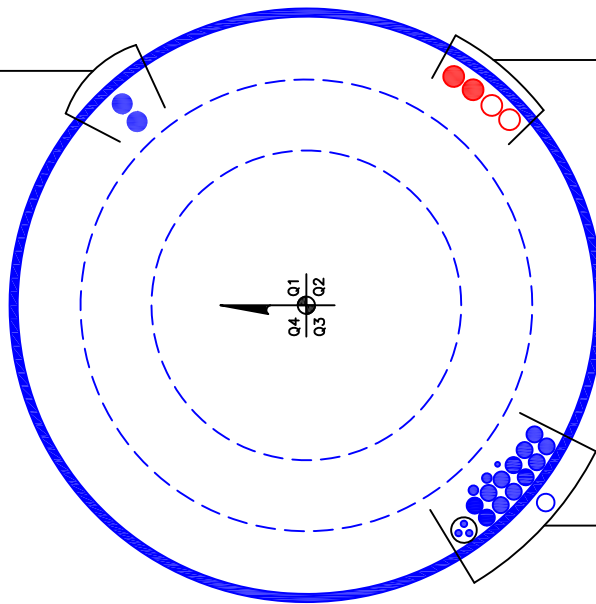
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	109 - 99.5	Pole	TP24x24x0.375	1	-4.574	920.561	6.4	Pass
L2	99.5 - 99	Pole	TP26.42x24x0.375	2	-4.605	920.561	6.4	Pass
L3	99 - 46.93	Pole	TP37.125x26.42x0.313	3	-21.697	2178.456	33.4	Pass
L4	46.93 - 0	Pole	TP46x35.443x0.375	4	-34.655	3335.692	42.7	Pass
Summary								
Pole (L4)							42.7	Pass
RATING =							42.7	Pass

APPENDIX B
BASE LEVEL DRAWING

(OTHER CONSIDERED EQUIPMENT)
(2) 1-5/8" TO 106 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(4) 1-5/8" TO 87 FT LEVEL



(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/8" TO 77 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(3) 1/2" TO 96 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 96 FT LEVEL
(2) 3/4" TO 96 FT LEVEL
(12) 1-1/4" TO 96 FT LEVEL

BUSINESS UNIT: 842864

APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

Elevation = 99 ft.



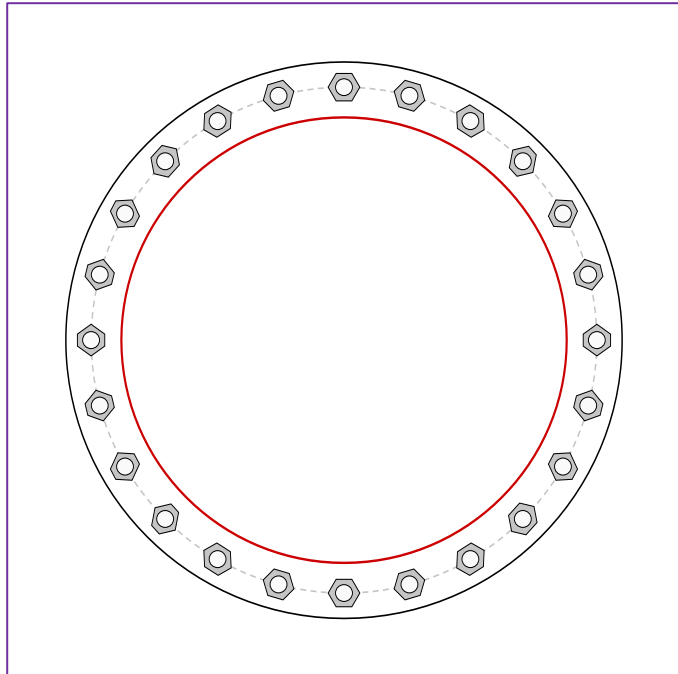
BU #	842864
Site Name	GUILFORD SW, CT
Order #	586788, Rev# 0

Applied Loads	
Moment (kip-ft)	35.81
Axial Force (kips)	4.64
Shear Force (kips)	4.94

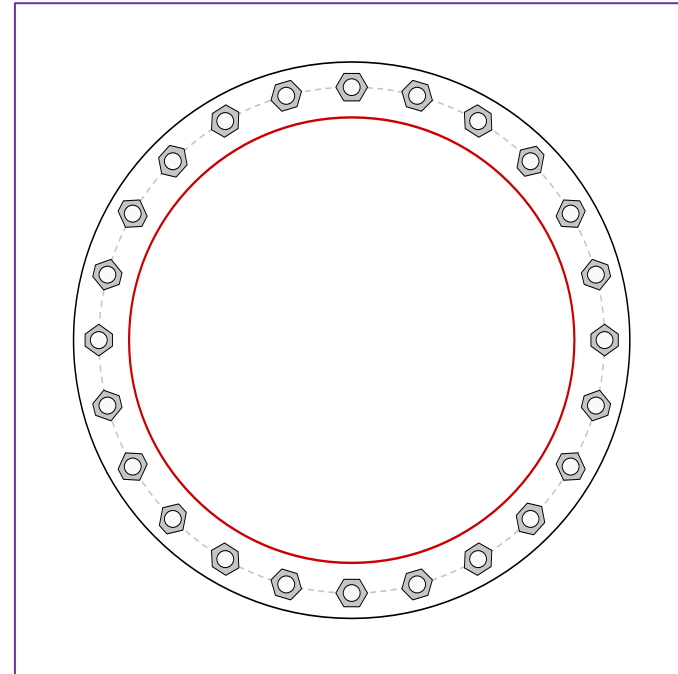
TIA-222 Revision	H
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*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(24) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 30" BC

Top Plate Data

33" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

26.42" x 0.375" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Plate Data

33" OD x 1.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

26.42" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	2.19
Allowable (kips)	54.54
Stress Rating:	3.8% Pass

Top Plate Capacity

Max Stress (ksi):	3.27	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	9.6%	Pass
Tension Side Stress Rating:	3.5%	Pass

Bottom Plate Capacity

Max Stress (ksi):	1.45	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	2.6%	Pass
Tension Side Stress Rating:	1.2%	Pass

Monopole Base Plate Connection

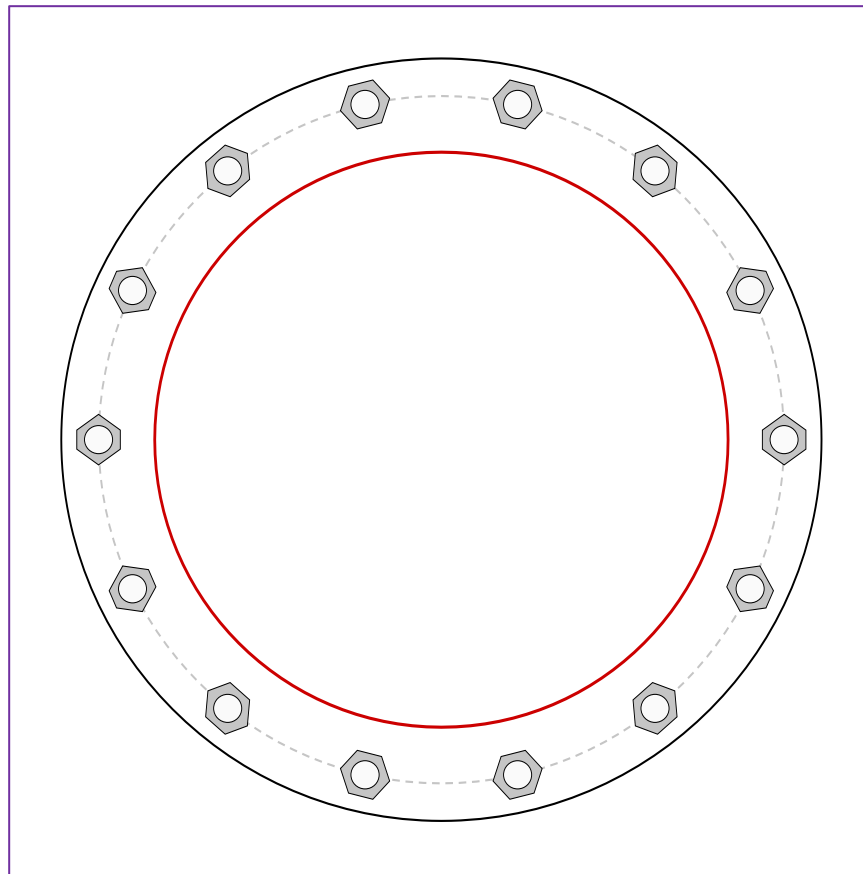


Site Info	
BU #	842864
Site Name	GUILFORD SW, CT
Order #	586788, Rev# 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.5

Applied Loads	
Moment (kip-ft)	1542.30
Axial Force (kips)	34.66
Shear Force (kips)	19.11

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
(14) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 55" BC
Base Plate Data
61" OD x 2" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi)
Stiffener Data
N/A
Pole Data
46" x 0.375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary		<i>(units of kips, kip-in)</i>
$P_{u,t} = 93.6$	$\phi P_{n,t} = 243.75$	Stress Rating
$V_u = 1.36$	$\phi V_n = 149.1$	36.6%
$M_u = n/a$	$\phi M_n = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	25.2	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	44.4%	Pass

Pier and Pad Foundation



BU #: 842864
 Site Name: GUILFORD SW, C
 App. Number: 586788, Rev# 0

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	34.66	kips
Base Shear, Vu_{comp} :	19.11	kips
Moment, M_u :	1542.3	ft-kips
Tower Height, H :	109	ft
BP Dist. Above Fdn, bp_{dist} :	2.75	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	258.63	19.11	7.0%	Pass
<i>Bearing Pressure (ksf)</i>	12.63	2.24	17.7%	Pass
<i>Overturning (kip*ft)</i>	4375.48	1699.56	38.8%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	3978.43	1637.85	39.2%	Pass
<i>Pier Compression (kip)</i>	31187.52	78.76	0.2%	Pass
<i>Pad Flexure (kip*ft)</i>	3273.03	511.21	14.9%	Pass
<i>Pad Shear - 1-way (kips)</i>	770.99	90.95	11.2%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.190	0.019	9.4%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	4186.18	982.71	22.4%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	7	ft
Ext. Above Grade, E :	1	ft
Pier Rebar Size, Sc :	8	
Pier Rebar Quantity, mc :	30	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Structural Rating*:	39.2%
Soil Rating*:	38.8%

Pad Properties		
Depth, D :	7	ft
Pad Width, W_1 :	21.5	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2} :	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2} :	22	
Pad Rebar Size (Bottom dir. 2), Sp_2 :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	30	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	4	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	120	pcf
Ultimate Net Bearing, Q_{net} :	16.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	30	degrees
SPT Blow Count, N_{blows} :	5	
Base Friction, μ :	0.5	
Neglected Depth, N :	3.50	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

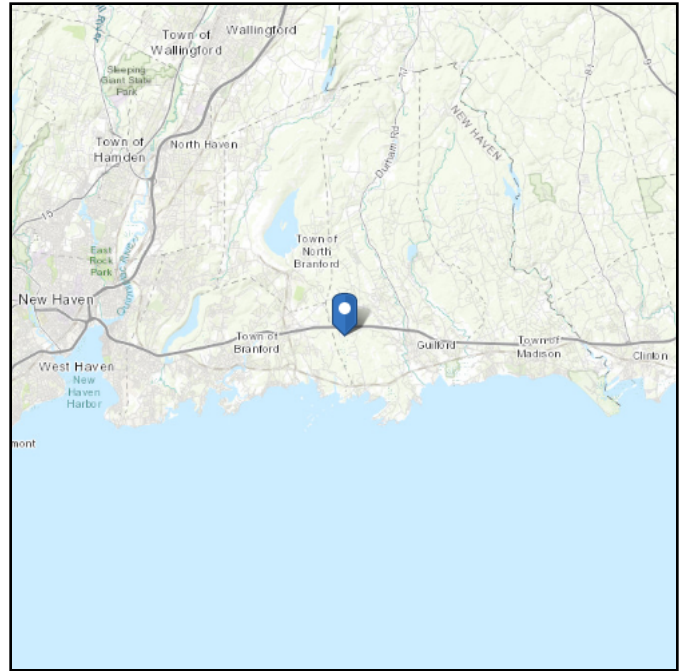
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ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 105.75 ft (NAVD 88)
Latitude: 41.291983
Longitude: -72.732856



Wind

Results:

Wind Speed:	122 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	93 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Oct 19 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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

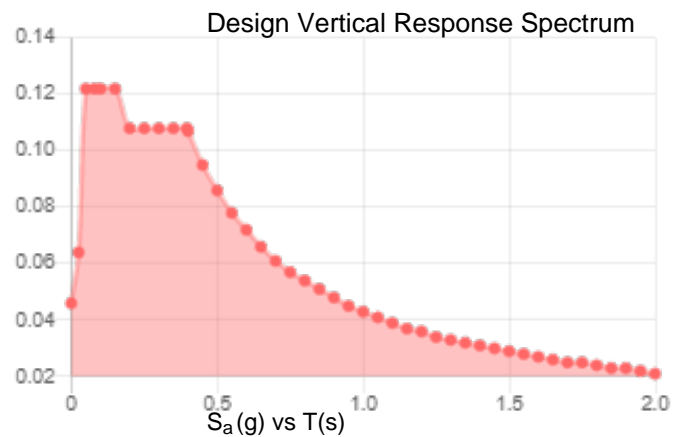
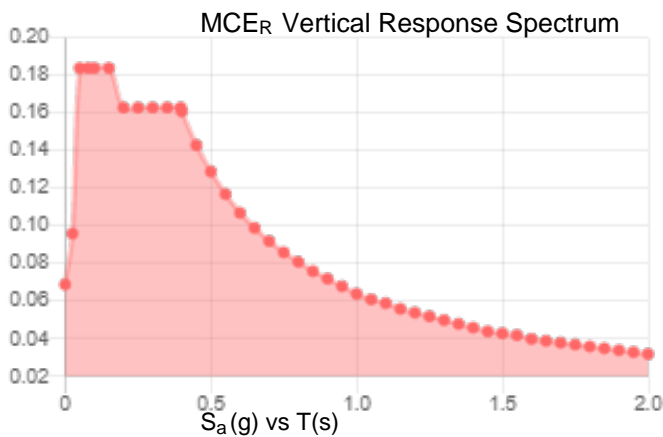
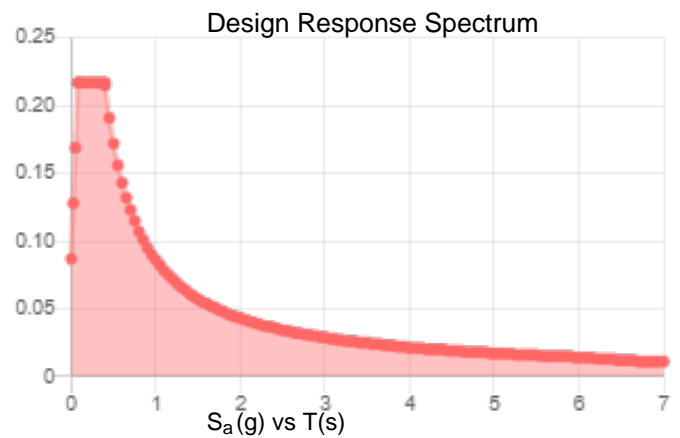
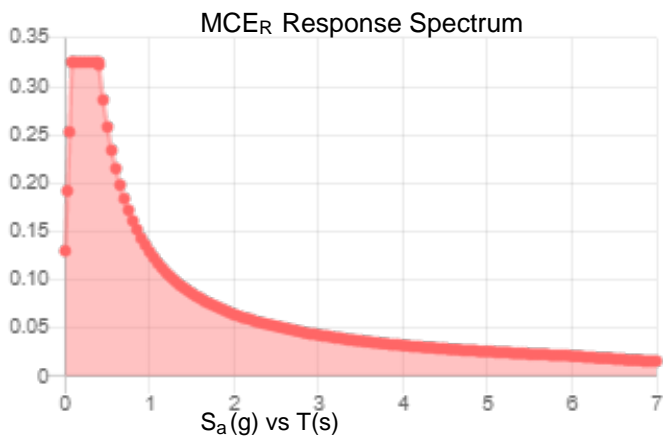
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.203	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.114
F_v :	2.4	PGA _M :	0.179
S_{MS} :	0.325	F_{PGA} :	1.573
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.217	C_v :	0.706

Seismic Design Category B



Data Accessed:

Tue Oct 19 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Tue Oct 19 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 500-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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

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Exhibit E

Mount Analysis

Date: **October 8, 2021**

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



Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject: **Mount Replacement Analysis Report**

Carrier Designation: **T-Mobile Anchor**
Carrier Site Number: CTNH510A
Carrier Site Name: N/A

Crown Castle Designation: **Crown Castle BU Number:** 842864
Crown Castle Site Name: GUILFORD SW
Crown Castle JDE Job Number: 686820
Crown Castle Order Number: 586788 Rev. 1

Engineering Firm Designation: **Trylon Report Designation:** 193334

Site Data: **201 Granite Road, Guilford, New Haven County, CT, 06437**
Latitude 41°17'31.14" Longitude -72°43'58.28"

Structure Information: **Tower Height & Type:** **109.0 ft Monopole**
Mount Elevation: **87.0 ft**
Mount Type: **12.5 ft Platform**

Dear Darcy Tarr,

Trylon is pleased to submit this **“Mount Replacement Analysis Report”** to determine the structural integrity of T-Mobile’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***
***Sufficient upon completion of the changes listed in the ‘Recommendations’ section of this report.**

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

Mount analysis prepared by: Jordan Everson, E.I.T.

Respectfully Submitted by:
Cliff Abernathy, P.E.

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3) ANALYSIS PROCEDURE

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3.2) Assumptions

4) ANALYSIS RESULTS

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4.1) Recommendations

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6) APPENDIX B

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7) APPENDIX C

Software Analysis Output

8) APPENDIX D

Additional Calculations

9) APPENDIX E

Supplemental Drawings

1) INTRODUCTION

This is a proposed 3 sector 12.5 ft Platform, designed by Site Pro 1.

2) ANALYSIS CRITERIA

Building Code: 2015 IBC
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: 0.176
Seismic S₁: 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
87.0	86.0	3	ERICSSON	AIR6449 B41_T-MOBILE	12.5 ft Platform [Site Pro 1 RMQP-496 w/HRK12]
		3	RFS/CELWAVE	APXVAARR24_43-U-NA20	
		3	ERICSSON	RADIO 4449 B12/B71	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	586788 Rev. 0	CCI Sites
Mount Manufacturer Drawings	Site Pro 1	RMQP-496	Trylon
Mount Manufacturer Drawings	Site Pro 1	HRK12	Trylon

3.1) Analysis Method

RISA-3D (Version 17.0.4), 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.

A tool internally developed, using Microsoft Excel, by Trylon was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

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. Trylon 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)	MP7	87.0	57.2	Pass
	Horizontal(s)	H2		13.3	Pass
	Standoff(s)	M1		31.0	Pass
	Bracing(s)	M84		27.3	Pass
	Handrail(s)	M71		37.5	Pass
	Mount Connection(s)	--		25.5	Pass

Structure Rating (max from all components) =	57.2%
-----------------------------------------------------	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H, Section 15.5

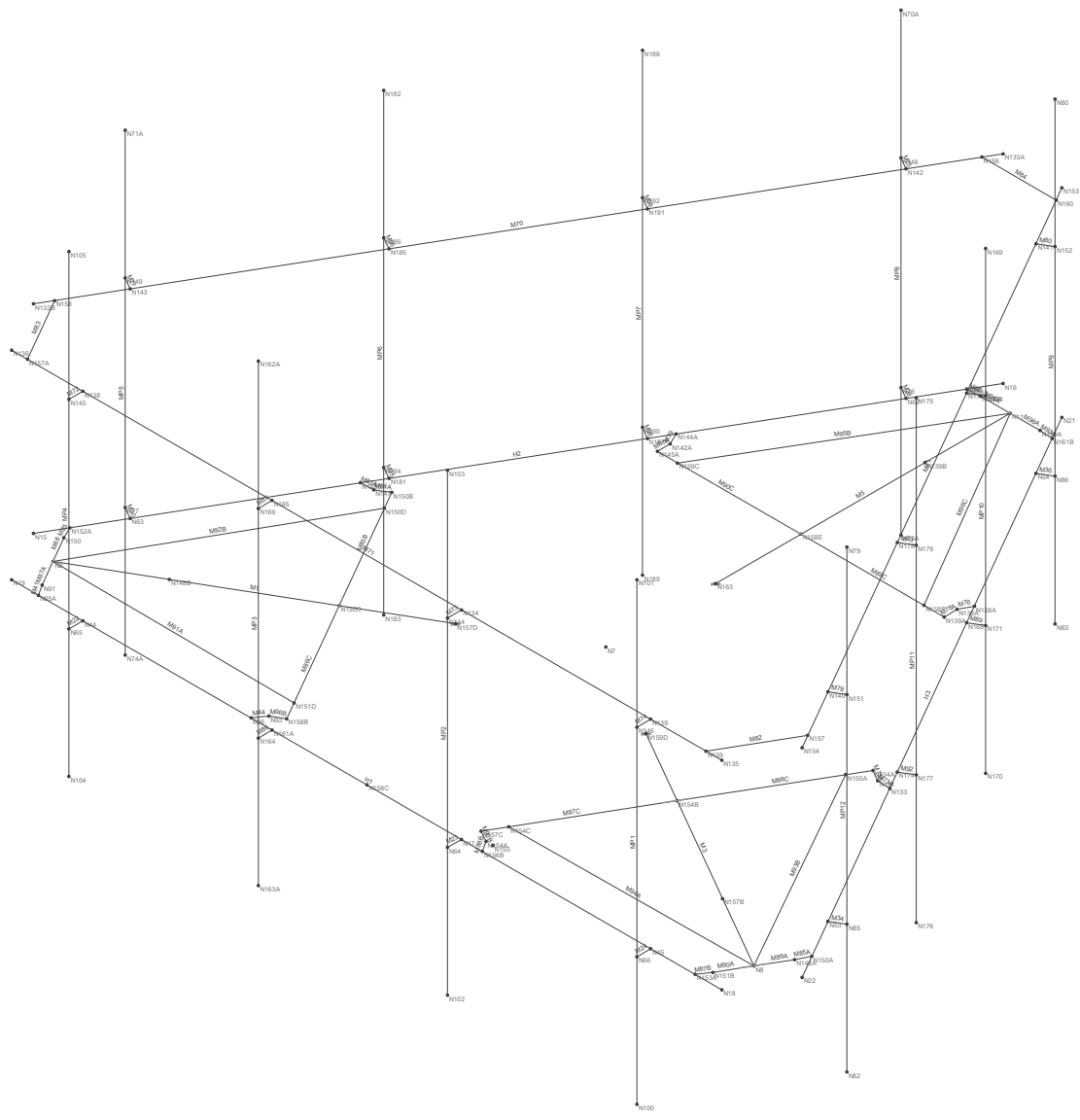
4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Site Pro 1 RMQP-496 with Site Pro 1 HRK12 installed 42" above the horizontal.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Trylon
JE

842864

Wireframe
Oct 7, 2021 at 5:03 PM
RMQP-496_loaded.r3d

APPENDIX B
SOFTWARE INPUT 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: 105.75 ft (NAVD 88)
Latitude: 41.291983
Longitude: -72.732856

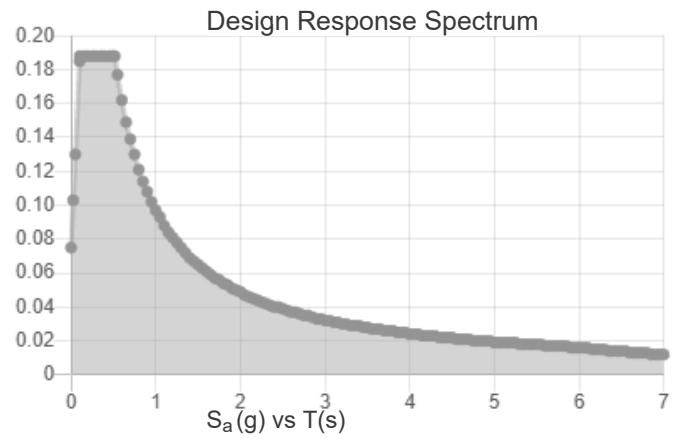
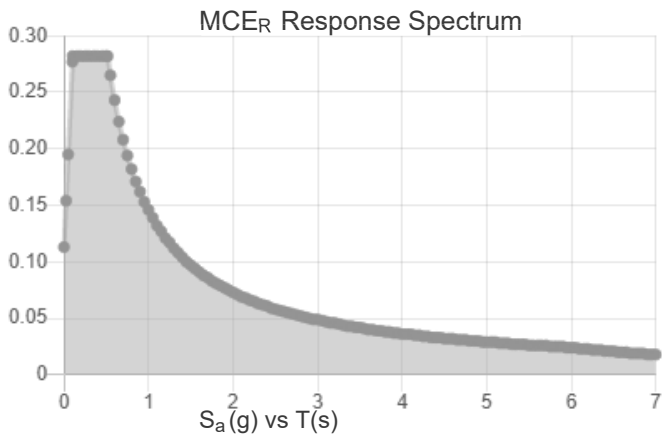


Site Soil Class: D - Stiff Soil

Results:

S_s :	0.176	S_{DS} :	0.188
S_1 :	0.061	S_{D1} :	0.097
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.09
S_{MS} :	0.282	PGA_M :	0.145
S_{M1} :	0.146	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Wed Jul 28 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: Wed Jul 28 2021

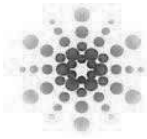
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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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Trylon

1825 W. Walnut Hill Lane Suite 120
Irving, TX 75038

TIA LOAD CALCULATOR 2.0

PROJECT DATA		
Job Code:	193334	
Carrier Site ID:	842864	
Carrier Site Name:	GUILFORD SW	

CODES AND STANDARDS		
Building Code:	2015 IBC	
Local Building Code:	2018 CSBC	
Design Standard:	TIA-222-H	

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	87.0	ft.
Number of Sectors:	4	--
Structure Type:	Monopole	--
Structure Height:	109.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Stiff Soil	--
Ground Elevation:	105.75	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	130	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	0.95	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (G_h):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	38.88	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	38.88	psf
Mount Ice Thickness (t_{iz}):	1.65	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	69.99	psf
Round Member Pressure:	41.99	psf
Ice Wind Pressure:	7.21	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel. (S_s):	0.176	g
1 Second Accel. (S_1):	0.061	g
Short Period Des. (S_{DS}):	0.19	g
1 Second Des. (S_{D1}):	0.10	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (C_s):	0.09	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

APPENDIX C
SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	AWC NDS-18: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: Strength
Aluminum Code	AA ADM1-10: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8



Company : Trylon
 Designer : JE
 Job Number :
 Model Name : 842864

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Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N163	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N157D	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N159D	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...)	Surface(Pl...)
1	Self Weight	DL			-1		18	84	3
2	Structure Wind X	WLX						84	
3	Structure Wind Y	WLY						84	
4	Wind Load 0 AZI	WLX					36		
5	Wind Load 30 AZI	None					36		
6	Wind Load 45 AZI	None					36		
7	Wind Load 60 AZI	None					36		
8	Wind Load 90 AZI	WLY					36		
9	Wind Load 120 AZI	None					36		
10	Wind Load 135 AZI	None					36		
11	Wind Load 150 AZI	None					36		
12	Ice Weight	OL1					18	84	3
13	Ice Structure Wind X	OL2						84	
14	Ice Structure Wind Y	OL3						84	
15	Ice Wind Load 0 AZI	OL2					36		
16	Ice Wind Load 30 AZI	None					36		
17	Ice Wind Load 45 AZI	None					36		
18	Ice Wind Load 60 AZI	None					36		
19	Ice Wind Load 90 AZI	OL3					36		
20	Ice Wind Load 120 AZI	None					36		
21	Ice Wind Load 135 AZI	None					36		
22	Ice Wind Load 150 AZI	None					36		
23	Seismic Load X	ELX	-.113				18		
24	Seismic Load Y	ELY		-.113			18		
25	Live Load 1 (Lv)	None					1		
26	Live Load 2 (Lv)	None					1		
27	Live Load 3 (Lv)	None					1		
28	Live Load 4 (Lv)	None					1		
29	Live Load 5 (Lv)	None					1		
30	Live Load 6 (Lv)	None					1		
31	Live Load 7 (Lv)	None					1		
32	Live Load 8 (Lv)	None					1		
33	Live Load 9 (Lv)	None					1		
34	Maintenance Load 1 (...)	None					1		
35	Maintenance Load 2 (...)	None					1		
36	Maintenance Load 3 (...)	None					1		
37	Maintenance Load 4 (...)	None					1		
38	Maintenance Load 5 (...)	None					1		
39	Maintenance Load 6 (...)	None					1		
40	Maintenance Load 7 (...)	None					1		
41	Maintenance Load 8 (...)	None					1		
42	Maintenance Load 9 (...)	None					1		
43	Maintenance Load 10 (...)	None					1		



Company : Trylon
 Designer : JE
 Job Number :
 Model Name : 842864

Oct 7, 2021
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 Checked By: _____

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(Pl...
44	Maintenance Load 11...	None					1		
45	Maintenance Load 12...	None					1		
46	BLC 1 Transient Area..	None						21	
47	BLC 12 Transient Are..	None						21	

Load Combinations

	Description	S...	PDelta	S... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...
1	1.4DL	Yes	Y	DL	1.4													
2	1.2DL + 1WL 0 AZI	Yes	Y	DL	1.2	2	1	3		4	1							
3	1.2DL + 1WL 30 AZI	Yes	Y	DL	1.2	2	.866	3	.5	5	1							
4	1.2DL + 1WL 45 AZI	Yes	Y	DL	1.2	2	.707	3	.707	6	1							
5	1.2DL + 1WL 60 AZI	Yes	Y	DL	1.2	2	.5	3	.866	7	1							
6	1.2DL + 1WL 90 AZI	Yes	Y	DL	1.2	2		3	1	8	1							
7	1.2DL + 1WL 120 AZI	Yes	Y	DL	1.2	2	-.5	3	.866	9	1							
8	1.2DL + 1WL 135 AZI	Yes	Y	DL	1.2	2	-.7...	3	.707	10	1							
9	1.2DL + 1WL 150 AZI	Yes	Y	DL	1.2	2	-.8...	3	.5	11	1							
10	1.2DL + 1WL 180 AZI	Yes	Y	DL	1.2	2	-.1	3		4	-1							
11	1.2DL + 1WL 210 AZI	Yes	Y	DL	1.2	2	-.8...	3	-.5	5	-1							
12	1.2DL + 1WL 225 AZI	Yes	Y	DL	1.2	2	-.7...	3	-.7...	6	-1							
13	1.2DL + 1WL 240 AZI	Yes	Y	DL	1.2	2	-.5	3	-.8...	7	-1							
14	1.2DL + 1WL 270 AZI	Yes	Y	DL	1.2	2		3	-.1	8	-1							
15	1.2DL + 1WL 300 AZI	Yes	Y	DL	1.2	2	.5	3	-.8...	9	-1							
16	1.2DL + 1WL 315 AZI	Yes	Y	DL	1.2	2	.707	3	-.7...	10	-1							
17	1.2DL + 1WL 330 AZI	Yes	Y	DL	1.2	2	.866	3	-.5	11	-1							
18	0.9DL + 1WL 0 AZI	Yes	Y	DL	.9	2	1	3		4	1							
19	0.9DL + 1WL 30 AZI	Yes	Y	DL	.9	2	.866	3	.5	5	1							
20	0.9DL + 1WL 45 AZI	Yes	Y	DL	.9	2	.707	3	.707	6	1							
21	0.9DL + 1WL 60 AZI	Yes	Y	DL	.9	2	.5	3	.866	7	1							
22	0.9DL + 1WL 90 AZI	Yes	Y	DL	.9	2		3	1	8	1							
23	0.9DL + 1WL 120 AZI	Yes	Y	DL	.9	2	-.5	3	.866	9	1							
24	0.9DL + 1WL 135 AZI	Yes	Y	DL	.9	2	-.7...	3	.707	10	1							
25	0.9DL + 1WL 150 AZI	Yes	Y	DL	.9	2	-.8...	3	.5	11	1							
26	0.9DL + 1WL 180 AZI	Yes	Y	DL	.9	2	-.1	3		4	-1							
27	0.9DL + 1WL 210 AZI	Yes	Y	DL	.9	2	-.8...	3	-.5	5	-1							
28	0.9DL + 1WL 225 AZI	Yes	Y	DL	.9	2	-.7...	3	-.7...	6	-1							
29	0.9DL + 1WL 240 AZI	Yes	Y	DL	.9	2	-.5	3	-.8...	7	-1							
30	0.9DL + 1WL 270 AZI	Yes	Y	DL	.9	2		3	-.1	8	-1							
31	0.9DL + 1WL 300 AZI	Yes	Y	DL	.9	2	.5	3	-.8...	9	-1							
32	0.9DL + 1WL 315 AZI	Yes	Y	DL	.9	2	.707	3	-.7...	10	-1							
33	0.9DL + 1WL 330 AZI	Yes	Y	DL	.9	2	.866	3	-.5	11	-1							
34	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	1	14		15	1					
35	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	.866	14	.5	16	1					
36	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	.707	14	.707	17	1					
37	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	.5	14	.866	18	1					
38	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13		14	1	19	1					
39	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	-.5	14	.866	20	1					
40	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	-.7...	14	.707	21	1					
41	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	-.8...	14	.5	22	1					
42	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	-.1	14		15	-1					
43	1.2DL + 1DLi + 1W...	Yes	Y	DL	1.2	O...	1	13	-.8...	14	-.5	16	-1					



Company : Trylon
 Designer : JE
 Job Number :
 Model Name : 842864

Oct 7, 2021
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 Checked By: _____

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

Member	Shape	Code Check	Loc[in]	LC	Shear	...	Loc[in]	Dir	LC	phi*Pnc	...	phi*Pnt	...	phi*Mn	...	phi*Mn	...	Cb	Eqn
5	MP3	PIPE 2.0	.460	69	207	.070	69	2	14916.0...	32130	1871.625	1871.625	3	H1-1b					
6	MP2	PIPE 2.0	.431	69	114	.086	69	1	14916.0...	32130	1871.625	1871.625	1	H1-1b					
7	MP11	PIPE 2.0	.417	69	243	.089	69	2	14916.0...	32130	1871.625	1871.625	2	H1-1b					
8	MP5	PIPE 2.0	.411	69	37	.126	69	35	14916.0...	32130	1871.625	1871.625	2	H1-1b					
9	M71	PIPE 2.0	.394	14.062	34	.246	4.687	35	25978.8...	32130	1871.625	1871.625	1	H1-1b					
10	MP12	PIPE 2.0	.372	69	192	.088	69	10	14916.0...	32130	1871.625	1871.625	2	H1-1b					
11	MP1	PIPE 2.0	.371	69	99	.131	69	1	14916.0...	32130	1871.625	1871.625	4	H1-1b					
12	M70	PIPE 2.0	.329	56.25	42	.167	135.9...	34	25978.8...	32130	1871.625	1871.625	1	H1-1b					
13	M1	HSS4X4X4	.325	0	13	.122	0	z	34	131968...	139518	16180.5	16180.5	1	H1-1b				
14	M81	PIPE 2.0	.316	93.75	34	.196	134.3...	10	25978.8...	32130	1871.625	1871.625	1	H1-1b					
15	MP8	PIPE 2.0	.311	69	164	.131	69	3	14916.0...	32130	1871.625	1871.625	4	H1-1b					
16	M5	HSS4X4X4	.293	0	39	.103	0	y	5	131968...	139518	16180.5	16180.5	1	H1-1b				
17	M84	L2.5x2.5x4	.287	0	37	.121	0	z	2	36453.5...	38556	1113.554	2537.388	1	H2-1				
18	MP9	PIPE 2.0	.275	69	184	.132	69	10	14916.0...	32130	1871.625	1871.625	4	H1-1b					
19	M83	L2.5x2.5x4	.270	0	35	.158	15.731	y	35	36453.4...	38556	1113.554	2537.388	2	H2-1				
20	M88B	PL6x.375	.269	2.704	34	.141	0	y	42	70544.2	72900	569.533	9112.5	1	H1-1b				
21	M82A	PL6x.375	.239	2.704	43	.187	0	y	47	70544.2	72900	569.533	9112.5	1	H1-1b				
22	M82	L2.5x2.5x4	.231	0	106	.089	0	y	42	36453.4...	38556	1113.554	2537.388	1	H2-1				
23	M96B	PL6x.375	.226	2.75	203	.477	0	y	34	70464.9...	72900	569.533	9005.789	1	H1-1b				
24	M84A	PL6x.375	.224	2.75	266	.498	2.75	y	49	70464.9...	72900	569.533	9112.5	1	H1-1b				
25	M95A	6"x1/2" Plate	.223	4.338	39	.063	0	y	17	92685.8...	97200	1012.5	12150	1	H1-1b				
26	M3	HSS4X4X4	.215	0	17	.086	0	z	42	131968...	139518	16180.5	16180.5	1	H1-1b				
27	M79	PL6x.375	.210	2.704	45	.148	0	y	17	70544.2	72900	569.533	9112.5	1	H1-1b				
28	M96A	6"x1/2" Plate	.208	0	39	.060	4.338	y	3	92687.0...	97200	1012.5	12150	1	H1-1b				
29	M91	6"x1/2" Plate	.199	2.704	39	.103	0	y	2	95420.3...	97200	1012.5	12150	1	H1-1b				
30	M95B	L2x2x3	.197	51.353	34	.009	0	z	7	9346.157	23392.8	557.717	1208.65	2	H2-1				
31	M93A	6"x1/2" Plate	.194	2.704	38	.076	0	y	10	95420.3...	97200	1012.5	12150	1	H1-1b				
32	M90A	6"x1/2" Plate	.191	0	34	.083	4.338	y	41	92686.4...	97200	1012.5	12150	1	H1-1b				
33	M90B	PL6x.375	.180	2.75	115	.470	0	y	42	70464.9...	72900	569.533	9012.227	1	H1-1b				
34	M96C	L2x2x3	.178	51.353	42	.009	0	y	5	9346.27	23392.8	557.717	1075.195	1	H2-1				
35	M44	PL6x.375	.171	2.704	42	.176	0	y	48	70544.2	72900	569.533	9112.5	1	H1-1b				
36	M87A	6"x1/2" Plate	.169	4.338	10	.105	4.338	y	3	92686.4...	97200	1012.5	12130.5	1	H1-1b				
37	M87B	6"x1/2" Plate	.165	2.704	34	.136	0	y	42	95420.3...	97200	1012.5	12150	1	H1-1b				
38	M76	PL6x.375	.156	2.704	187	.166	0	y	3	70544.2	72900	569.533	9112.5	1	H1-1b				
39	M81A	PL6x.375	.155	2.75	10	.404	0	y	2	70465.57	72900	569.533	9112.5	1	H1-1b				
40	M88	6"x1/2" Plate	.152	0	10	.090	4.338	y	48	92686.4...	97200	1012.5	12150	1.1	H1-1b				
41	M90C	HSS4X4X4	.150	0	6	.063	24.174	z	2	136307...	139518	16180.5	16180.5	1	H1-1b				
42	M78A	PL6x.375	.150	2.75	2	.248	0	y	10	70464.9...	72900	569.533	9112.5	1	H1-1b				
43	M41	6"x1/2" Plate	.147	2.704	10	.120	0	y	1	95420.3...	97200	1012.5	12150	1	H1-1b				
44	M75A	PL6x.375	.147	2.75	243	.367	0	y	42	70464.9...	72900	569.533	9112.5	1	H1-1b				
45	H2	PIPE 3.0	.140	93.75	13	.139	98.437	34	59302.8...	65205	5748.75	5748.75	1	H1-1b					
46	M93B	L2x2x3	.140	51.353	10	.007	0	z	14	9346.076	23392.8	557.717	1196.561	2	H2-1				
47	M92B	L2x2x3	.139	51.353	2	.008	0	y	14	9346.21	23392.8	557.717	1168.533	1	H2-1				
48	M85	6"x1/2" Plate	.135	2.704	10	.130	2.704	y	49	95420.3...	97200	1012.5	12150	1	H1-1b				
49	M73A	PL6x.375	.135	2.704	249	.142	0	y	43	70544.2	72900	569.533	9112.5	1	H1-1b				
50	M91A	L2x2x3	.133	51.353	42	.008	51.353	z	6	9346.076	23392.8	557.717	1149.832	1	H2-1				
51	H3	PIPE 3.0	.129	98.438	38	.091	51.563	2	59302.8...	65205	5748.75	5748.75	1	H1-1b					
52	H1	PIPE 3.0	.125	50	45	.164	51.562	2	59302.8...	65205	5748.75	5748.75	1	H1-1b					
53	M89A	6"x1/2" Plate	.121	4.338	2	.083	4.338	y	43	92686.4...	97200	1012.5	12150	1	H1-1b				
54	M94A	L2x2x3	.120	51.353	49	.008	51.353	y	6	9346.209	23392.8	557.717	1144.129	1	H2-1				
55	M86C	HSS4X4X4	.118	0	13	.077	24.174	z	43	136307...	139518	16180.5	16180.5	1	H1-1b				
56	M89C	HSS4X4X4	.117	28.3	7	.048	4.127	z	10	136307...	139518	16180.5	16180.5	1	H1-1b				



Company : Trylon
 Designer : JE
 Job Number :
 Model Name : 842864

Oct 7, 2021
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 Checked By: _____

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

Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...]	phi*Mn ...	phi*Mn ...	Cb	Eqn
57	M85B	HSS4X4X4	.115	28.301	13	.055	4.127	z	2	136307...	139518	16180.5	16180.5	1...H1-1b
58	M85A	6"x1/2" Plate	.110	2.704	2	.099	0	y	42	95420.3...	97200	1012.5	12150	1...H1-1b
59	M87C	HSS4X4X4	.088	28.301	17	.067	4.127	z	49	136307...	139518	16180.5	16180.5	1...H1-1b
60	M88C	HSS4X4X4	.075	0	17	.050	24.174	z	10	136307...	139518	16180.5	16180.5	1...H1-1b

APPENDIX D
ADDITIONAL CALCUATIONS

BOLT TOOL 1.5.2

Project Data	
Job Code:	193334
Carrier Site ID:	842864
Carrier Site Name:	GUILFORD SW

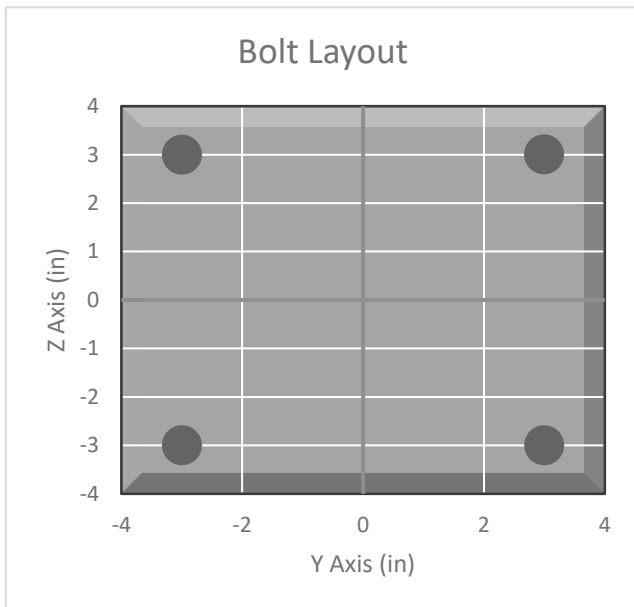
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in

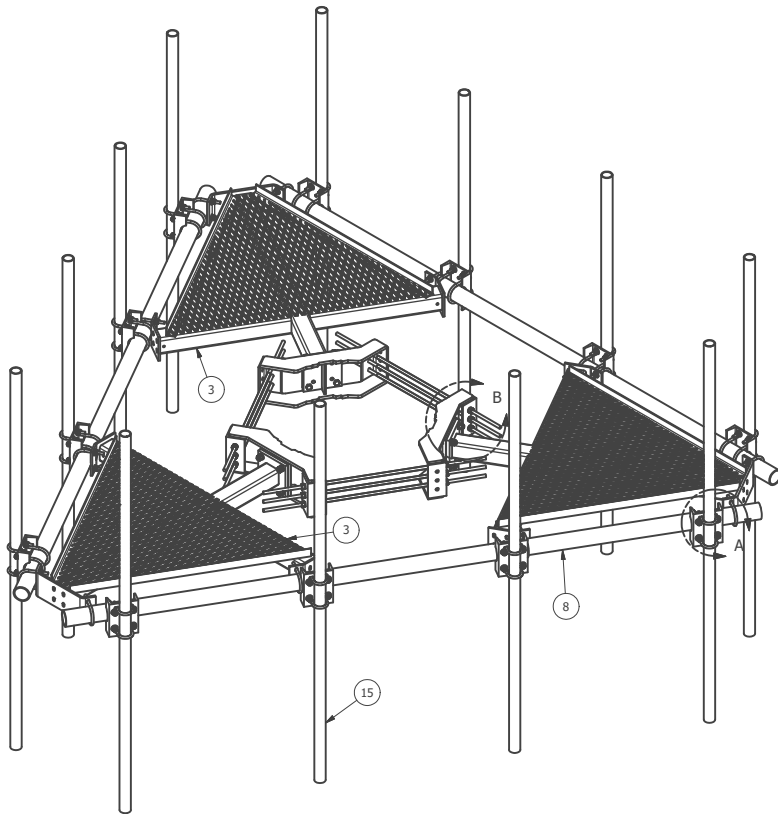
Connection Description
Standoff to Collar

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	5439.8	lbs
Shear Force (V_u):	391.2	lbs
Tension Usage:	25.5%	--
Shear Usage:	2.7%	--
Interaction:	25.5%	Pass
Controlling Member:	M5	--
Controlling LC:	39	--

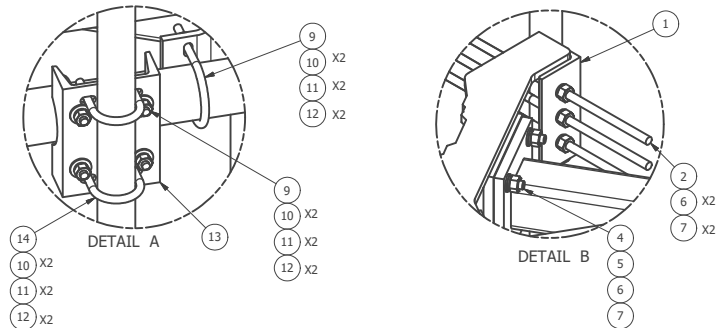
*Rating per TIA-222-H Section 15.5



APPENDIX E
SUPPLEMENTAL DRAWINGS



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.40	3.59
2	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.40	3.59
3	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
4	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
5	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
6	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
7	30	A58NUT	5/8" HDG A325 HEX NUT		0.13	3.90
8	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150.000 in	94.80	284.40
9	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.26	9.25
10	120	G12FW	1/2" HDG USS FLATWASHER		0.03	4.09
11	120	G12LW	1/2" HDG LOCKWASHER		0.01	1.67
12	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
13	12	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	103.33
14	24	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	6.17
15	12	B	ANTENNA MOUNTING PIPE	C	D	E



2-3/8" O.D. VERTICAL MOUNTING PIPES					
ASSEMBLY NO. "A"	PART NO. "B"	LENGTH, "C"	UNIT WEIGHT, "D"	NET WEIGHT, "E"	TOTAL WEIGHT
RMQP-463	P263	63"	20.18	242.16	1591.11
RMQP-472	P272	72"	23.07	276.84	1625.79
RMQP-484	P284	84"	26.91	322.92	1671.87
RMQP-496	P296	96"	30.76	369.12	1718.07
RMQP-4126	P2126	126"	40.75	489.00	1837.95

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	ADDED 10' 6" ANTENNA MOUNTING PIPES		CEK	7/9/2015
	REVISION HISTORY			

TOLERANCE NOTE
 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE - ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.080"$)

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

DESCRIPTION
 LOW PROFILE CO-LOCATION PLATFORM
 FOR 12 ANTENNAS WITH 12' 6" FACE WIDTH
 FOR 12" - 38" DIAMETER POLES

DRAWN BY
 CEK 1/20/2012

CPD NO.
 semb

DRAWING USAGE
 CUSTOMER

ENG. APPROVAL
 BMC 7/9/2015

SITE PRO 1
 A valmont COMPANY

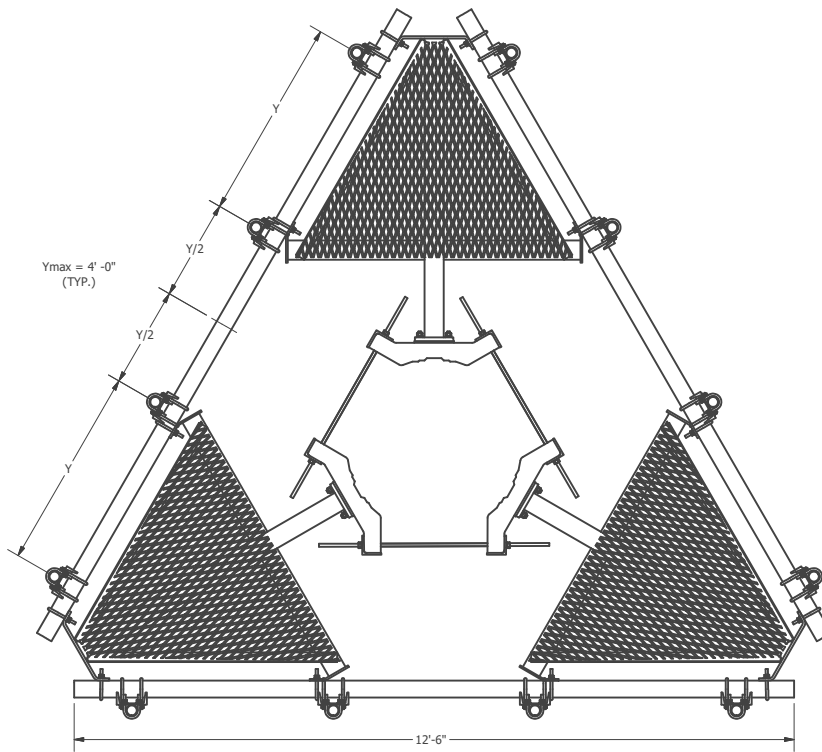
Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

Engineering Support Team:
 1-888-753-7446

PART NO.
SEE ASSEMBLY NO. "A"

DWG. NO.
 RMQP-4XX

PAGE 2



Ymax = 4' - 0"
(TYP.)

TOLERANCE NOTE

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

PROPRIETARY NOTE

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

DESCRIPTION

LOW PROFILE CO-LOCATION PLATFORM
 FOR 12 ANTENNAS WITH 12' 6" FACE WIDTH
 FOR 12" - 38" DIAMETER POLES



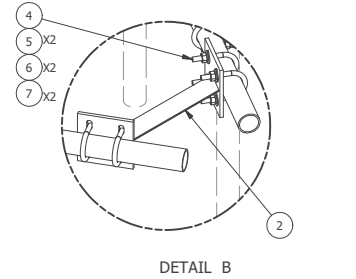
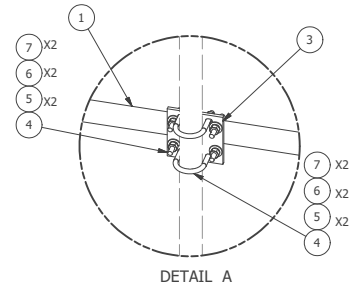
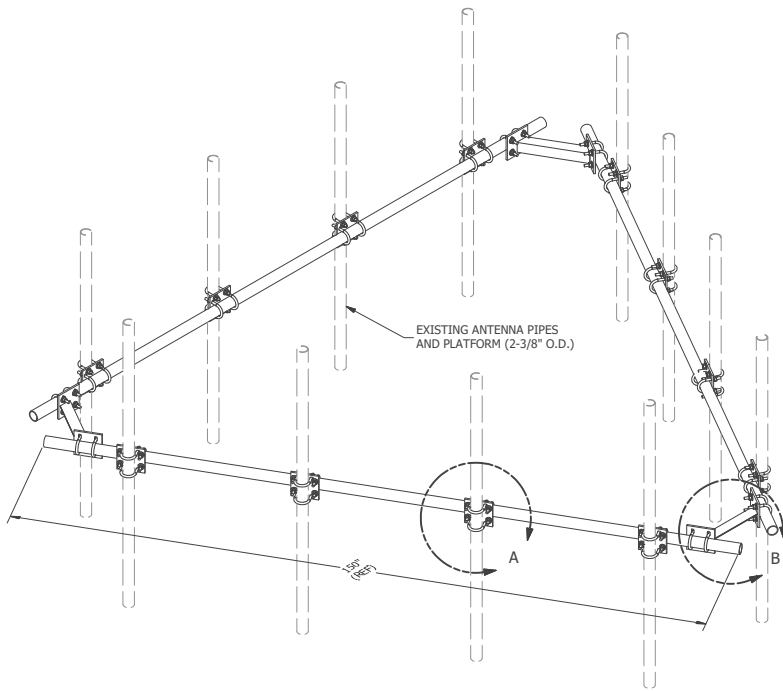
Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX
 Engineering Support Team:
 1-888-753-7446

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	ADDED 10' 6" ANTENNA MOUNTING PIPES		CEK	7/9/2015
REVISION HISTORY				

DRAWN BY CEK	1/20/2012	CPD NO. semb	DRAWING USAGE CUSTOMER
ENG. APPROVAL		CHECKED BY BMC	7/9/2015

PART NO.	SEE ASSEMBLY NO. "A"	PAGE 2 OF 2
DWG. NO.	RMQP-4XX	

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	44.50
4	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	37.51
5	120	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	4.09
6	120	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
					TOTAL WT. #	272.43



TOLERANCE NOTES

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

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

DESCRIPTION
**HANDRAIL KIT
 FOR 12'-6" FACE**



Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX
 Engineering Support Team:
 1-888-753-7446

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP		CEK	7/10/2014
REVISION HISTORY				

CPD NO.	DRAWN BY	ENG. APPROVAL
	KCB 5/30/2012	
CLASS	DRAWING USAGE	CHECKED BY
81	01 CUSTOMER	BMC 7/13/2014

PART NO.	HRK12
DWG. NO.	HRK12

Exhibit F

Power Density/RF Emissions Report

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

T-Mobile Existing Facility

Site ID: CTNH510A

AT&T Guilford Monopole
201 Granite Road
Guilford, Connecticut 06437

November 24, 2021

EBI Project Number: 6221007050

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	46.98%

November 24, 2021

T-Mobile

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

Emissions Analysis for Site: CTNH510A - AT&T Guilford Monopole

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **201 Granite Road in Guilford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 201 Granite Road in Guilford, 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) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 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 Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) 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.
- 12) 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.
- 13) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied

specifications, 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.

- 14) The antenna mounting height centerline of the proposed antennas is 86 feet above ground level (AGL).
- 15) 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.
- 16) 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 #:	I	Antenna #:	I	Antenna #:	I
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	86 feet	Height (AGL):	86 feet	Height (AGL):	86 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna AI MPE %:	20.42%	Antenna BI MPE %:	20.42%	Antenna CI MPE %:	20.42%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd
Height (AGL):	86 feet	Height (AGL):	86 feet	Height (AGL):	86 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	500 Watts	Total TX Power (W):	500 Watts	Total TX Power (W):	500 Watts
ERP (W):	15,848.33	ERP (W):	15,848.33	ERP (W):	15,848.33
Antenna A2 MPE %:	12.06%	Antenna B2 MPE %:	12.06%	Antenna C2 MPE %:	12.06%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	32.48%
AT&T	5.82%
Verizon	8.68%
Site Total MPE % :	46.98%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	32.48%
T-Mobile Sector B Total:	32.48%
T-Mobile Sector C Total:	32.48%
Site Total MPE % :	46.98%

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 2500 MHz LTE IC & 2C Traffic	1	11044.63	86.0	62.04	2500 MHz LTE IC & 2C Traffic	1000	6.20%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	86.0	6.03	2500 MHz LTE IC & 2C Broadcast	1000	0.60%
T-Mobile 2500 MHz NR Traffic	1	22089.26	86.0	124.08	2500 MHz NR Traffic	1000	12.41%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	86.0	12.07	2500 MHz NR Broadcast	1000	1.21%
T-Mobile 600 MHz LTE	2	591.73	86.0	6.65	600 MHz LTE	400	1.66%
T-Mobile 600 MHz NR	1	1577.94	86.0	8.86	600 MHz NR	400	2.22%
T-Mobile 700 MHz LTE	2	648.82	86.0	7.29	700 MHz LTE	467	1.56%
T-Mobile 1900 MHz UMTS	2	1101.85	86.0	12.38	1900 MHz UMTS	1000	1.24%
T-Mobile 1900 MHz LTE	2	2203.69	86.0	24.76	1900 MHz LTE	1000	2.48%
T-Mobile 2100 MHz LTE	2	2589.11	86.0	29.09	2100 MHz LTE	1000	2.91%
						Total:	32.48%

• 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:	32.48%
Sector B:	32.48%
Sector C:	32.48%
T-Mobile Maximum MPE % (Sector A):	32.48%
Site Total:	46.98%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **46.98%** 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.

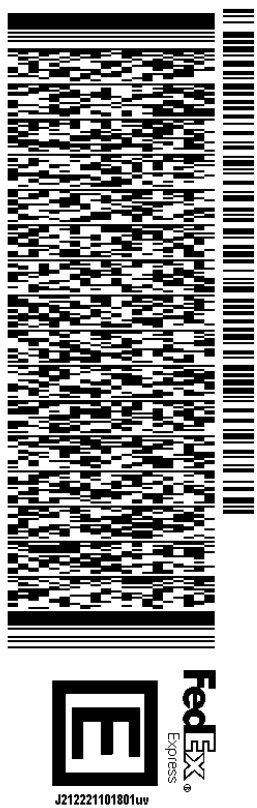
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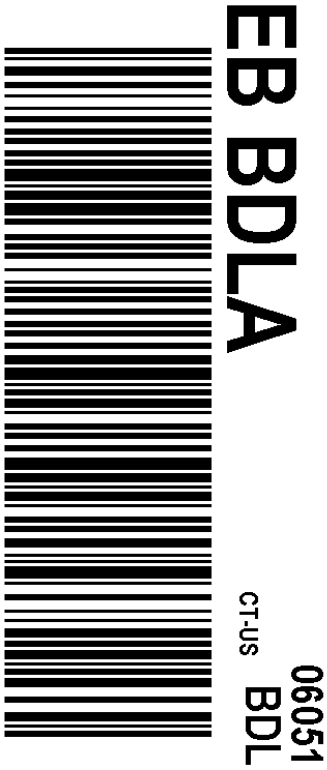
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