



January 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:
806368 - T-Mobile Site ID: CT11248A
374 Three Mile Road, Glastonbury, CT 06033
Latitude: 41° 41' 36.93" / Longitude: -72° 32' 50.11"**

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) total antennas at the 114-foot mount on the existing 145-foot Monopole Tower, located at 374 Three Mile Road, Glastonbury, CT. The tower is owned by Crown Castle and the property is owned by Mr. and Mrs. John Flanagan. T-Mobile now intends to replace three (3) antennas at the 114-foot mount, as well as add a 7'x6' extension to their ground equipment pad. 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) AIR21 KRC1180231_B2P_B4A Antenna (**REMOVE**) - (3) AIR6449 B41 2500 MHz Antenna (**REPLACE**)

Install New:

(3) Radio 4415 B25
(3) SDX1926Q-43 diplexers
(1) 6x12 HCS fiber cable

Existing to Remain:

(3) APXVAARR24_43-U-NA20 600/700 MHz Antenna
(3) AIR32 KRD901146-1_B66A_B2A 1900/2100 MHz Antenna
(3) Radio 4449 B71+B85
(3) Generic Twin Style 1B - AWS TMA

Ground:

Install new:

- (1) 6160 SSC Cabinet
- (1) B160 battery cabinet
- (1) BB6630
- (1) BB6048
- (1) PSU4813 voltage booster
- (1) iXRe router
- (1) 7'x6' equipment pad expansion

The facility was approved by the Connecticut Siting Council on October 21, 1996. The Council's Decision and Order included conditions which this proposed 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 Richard J. Johnson, Town of Glastonbury Town Manager, Khara Dodds, Director of Land Use & Planning Services, and Mr. and Mrs. John Flanagan, the property 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,



Richard Zajac
Site Acquisition Specialist
4545 East River Road, Suite 320
West Henrietta, NY 14586
(585) 445-5896
richard.zajac@crowncastle.com

Melanie A. Bachman

Page 3

cc:

Richard J. Johnson, Town Manager
Town of Glastonbury
Town Hall - 2nd Floor
2155 Main Street
Glastonbury, CT 06033
860.652.7500

Khara Dodds, Director of Land Use & Planning
Services Town of Glastonbury
Town Hall - 3rd Floor
2155 Main Street
Glastonbury, CT 06033
860.652.7510

Mr. and Mrs. John Flanagan, Property Owner
366 Three Mile Road
Glastonbury, CT 06033

(585) 445-5896

ORIGIN ID: ONHA
RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR

WEBSTER, NY 14580
UNITED STATES US

SHIP DATE: 15 JAN 21
ACT WGT: 1.00 LB
CAD: 112911364/NET4280

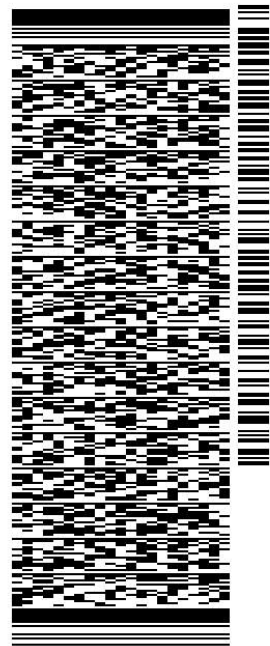
BILL SENDER

TO RICHARD J. JOHNSON

TOWN OF GLASTONBURY
2155 MAIN STREET
TOWN HALL - 2ND FLOOR
GLASTONBURY CT 06033

(860) 652-7500 REF: 7990017880
INV/ PO: DEPT:

56BJ111136/B766

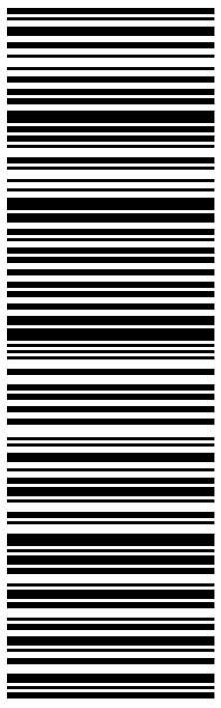


TRK# 7826 5579 5858
0201

MON - 18 JAN 4:30P
STANDARD OVERNIGHT

XE BDLA

06033
CT-US BDL



After printing this label:

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

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

ORIGIN ID:ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR

WEBSTER, NY 14580
UNITED STATES US

SHIP DATE: 15 JAN 21
ACT WGT: 1.00 LB
CAD: 112911364/NET4280

BILL SENDER

TO KHARA DODDS - LAND USE & PLANNING

TOWN OF GLASTONBURY

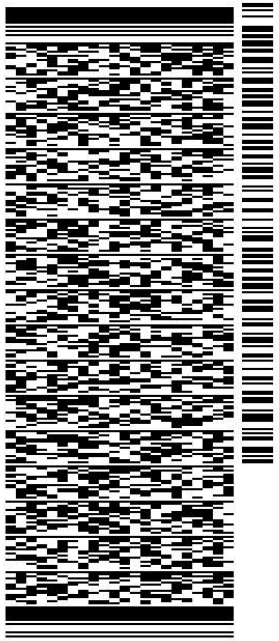
2155 MAIN STREET

TOWN HALL - 3RD FLOOR

GLASTONBURY CT 06033

(860) 652-7510 REF: 799001 7690
INV/ DEPT:
PO:

56BJ111136/B766



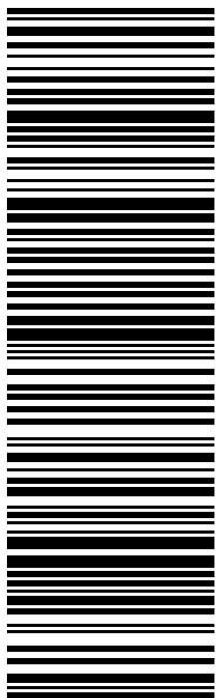
J202020070601ur

TRK# 7826 5681 9145
0201

MON - 18 JAN 4:30P
STANDARD OVERNIGHT

XE BDLA

06033
CT-US BDL



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629 KAYLEIGH DR
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UNITED STATES US

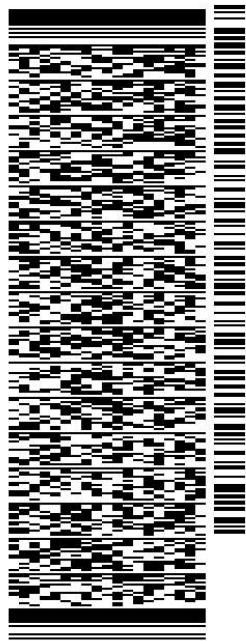
BILL SENDER

TO **MR. AND MRS. JOHN FLANAGAN**

366 THREE MILE ROAD

GLASTONBURY CT 06033

(585) 445-5896 REF: 799001 7680
INV/ PO: DEPT:



J202020070601ur

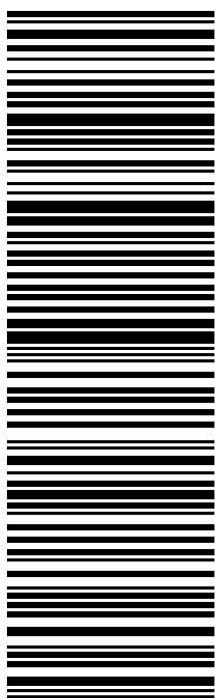
56BJ111136/B766

TRK# 7826 5702 3830
0201

MON - 18 JAN 4:30P
STANDARD OVERNIGHT

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06033
CT-US BDL



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Exhibit A

Original Facility Approval

DOCKET NO. 174 - An application of Cellco Partnership d/b/a Bell Atlantic NYNEX Mobile for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications facility and associated equipment located within an approximately 30-acre parcel at 366 Three Mile Road, in the East Glastonbury section of the Town of Glastonbury, Connecticut. The proposed alternate one site is located within the same approximately 30-acre parcel at 366 Three Mile Road. The proposed alternate two site is located within an approximately 50-acre parcel at 1952 New London Turnpike, in the East Glastonbury section of the Town of Glastonbury, Connecticut.

Connecticut Siting Council

October 21, 1996

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 cellular telecommunications tower and equipment building at the proposed prime site in Glastonbury, Connecticut, 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 Bell Atlantic NYNEX Mobile (BANM) for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and building at the proposed prime site, located within a 30-acre parcel at Three Mile Road, Glastonbury, Connecticut. We find the effects on scenic resources and adjacent land uses of the first alternate site and second alternate site to be significant, and therefore deny certification of these sites.

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 communications service, sufficient to accommodate the antennas of Springwich Cellular Limited Partnership and the Town of Glastonbury, and not to exceed a height of 150 feet above ground level (AGL).
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 relocation of the tower within the leased parcel to prevent the fall zone of the tower from crossing the nearby Connecticut Light and Power Company transmission lines; plans for the tower foundation; specifications for the placement of all antennas to be attached to this tower; plans for the equipment building and security fence; plans for the access road and utility line installation from Three Mile Road; plans for site clearing and tree trimming; plans for water drainage and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and plans for the

construction of an architecturally treated gate at the entrance to the access road from Three Mile Road; and plans for the installation of a propane tank to fuel the emergency generator.

3. 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.

4. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.

7. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

8. The Certificate Holder shall notify the Council upon completion of construction and provide the final cost to construct the facility.

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

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

Bell Atlantic NYNEX Mobile

ITS REPRESENTATIVE

Kenneth C. Baldwin, Esq.
Brian C. S. Freeman, Esq.
Robinson & Cole
One Commercial Plaza
Hartford, CT 06103-3597

Mr. David S. Malko, P.E.
Sandy M. Ranciato, Manager - Real Estate/Zoning
Bell Atlantic NYNEX Mobile

PARTY

Town of Glastonbury

20 Alexander Drive
Wallingford, CT 06492

ITS REPRESENTATIVE

William S. Fish, Jr., Esq.

Kevin S. Murphy, Esq.

Tyler, Cooper & Alcorn

CityPlace - 35th Floor

Hartford, CT 06103-3488

ITS REPRESENTATIVE

Peter J. Tyrrell, Esq.

INTERVENOR

Springwich Cellular Limited Partnership

Springwich Cellular Limited Partnership

500 Enterprise Drive

Rocky Hill, CT 06067-3900

Exhibit B

Property Card

374 THREE MILE RD

Location 374 THREE MILE RD

Mblu 18/ 7060/ S0035/ /

Acct# 70600374

Owner FLANAGAN JOSEPHINE
I+JOHN R

Assessment \$805,500

Appraisal \$1,217,500

PID 13664

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$173,300	\$1,044,200	\$1,217,500

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$121,300	\$684,200	\$805,500

Owner of Record

Owner FLANAGAN JOSEPHINE I+JOHN R

Sale Price \$0

Co-Owner

Certificate

Address 366 THREE MILE RD
GLASTONBURY, CT 06033

Book & Page 2725/0212

Sale Date 12/31/2009

Instrument 01

Ownership History

Ownership History						
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date	
FLANAGAN JOSEPHINE I TRUSTEE	\$0		2725/0205	01	12/31/2009	
FLANAGAN JOSEPHINE I TRUSTEE	\$0		2725/ 210	01	12/31/2009	
FLANAGAN JOSEPHINE I TRUSTEE	\$0		1884/0085	79	07/30/2003	
FLANAGAN JOSEPHINE I TR+JOSEPHINE I	\$0		1828/0149	79	06/02/2003	

Building Information

Building 1 : Section 1

Year Built:

Living Area:

0

Replacement Cost: \$0

Replacement Cost

Less Depreciation: \$0

Building Photo



(<http://images.vgsi.com/photos/GlastonburyCTPhotos/\02\00\02\54.jpg>)

Building Layout

Building Layout

(http://images.vgsi.com/photos/GlastonburyCTPhotos//Sketches/13664_13)

Building Sub-Areas (sq ft)
No Data for Building Sub-Areas

Building Attributes	
Field	Description
Style	Outbuildings
Model	
Occupancy	
Exterior Wall 1	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Floor/Cover 1	
Floor/Cover 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Rooms:	
Extra Kitchens	
Style Sub Class	
Bsmt Garages	
Fireplaces	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 300
 Description Industrial Vacant
 Zone RR
 Category

Land Line Valuation

Size (Acres) 9.08
 Assessed Value \$684,200
 Appraised Value \$1,044,200

Outbuildings

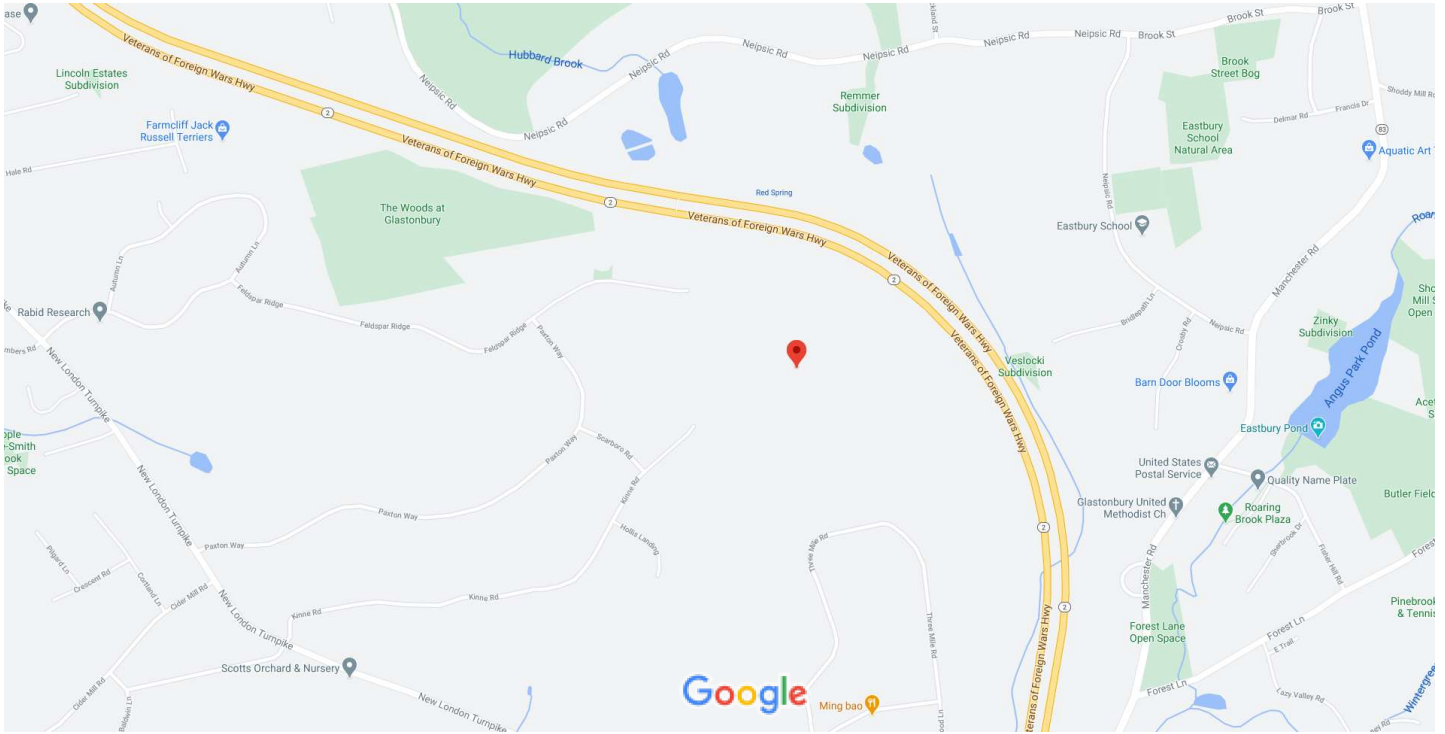
Outbuildings	Legend

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD4	Cell Shed			924 S.F.	\$173,300	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$173,300	\$1,044,200	\$1,217,500

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$121,300	\$684,200	\$805,500



Map data ©2021 500 ft

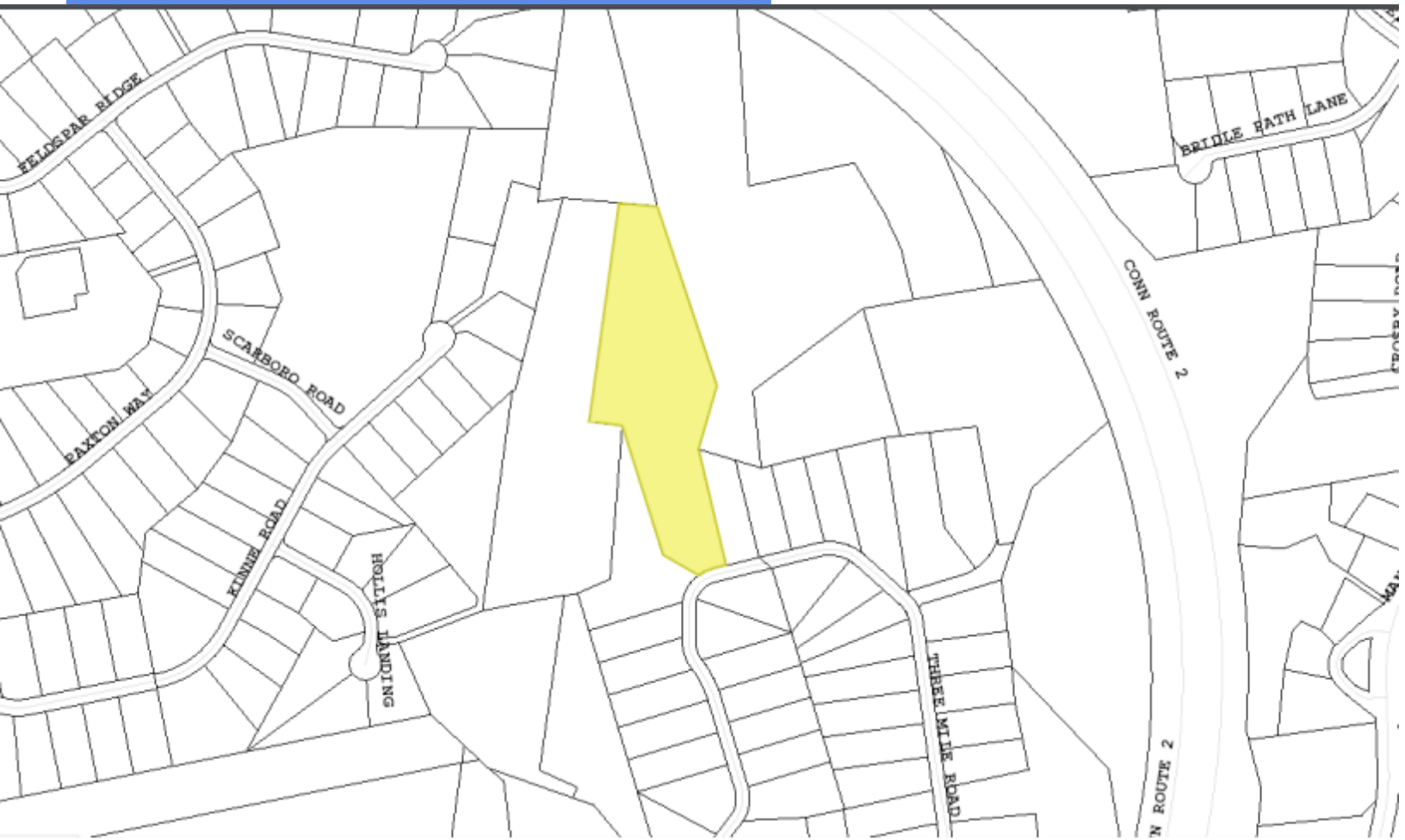


Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CT11248A
T-MOBILE SITE NAME: GLASTONBURY
SITE TYPE: MONOPOLE
TOWER HEIGHT: 145'-0"

BUSINESS UNIT #: 806368
SITE ADDRESS: 374 THREE MILE ROAD
GLASTONBURY, CT 6033
COUNTY: HARTFORD
JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5A997DB OUTDOOR

T-Mobile
 4 SYLVAN WAY
 PARSIPPANY, NJ 07054

CROWN CASTLE
 3530 TORINGDON WAY, SUITE 300
 CHARLOTTE, NC 28277

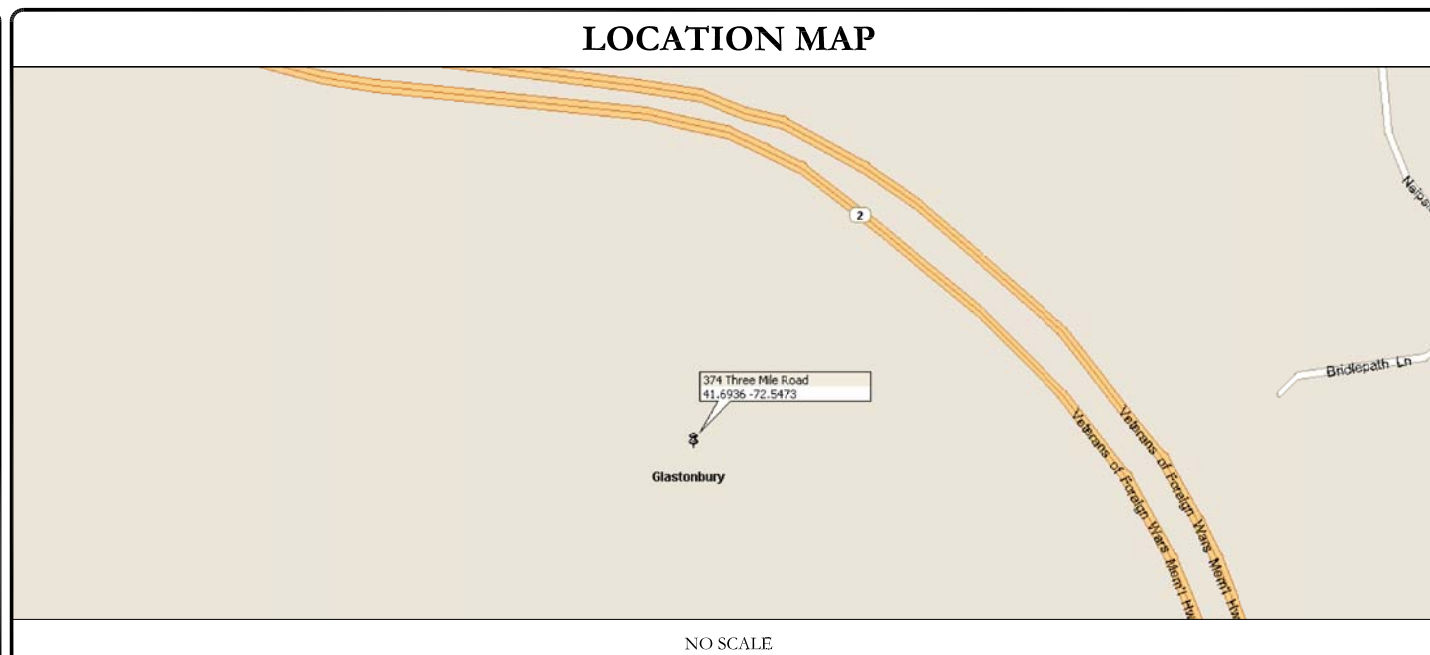
B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

T-MOBILE SITE NUMBER: CT11248A
BU #: 806368
HRT 049B 943215
 374 THREE MILE ROAD
 GLASTONBURY, CT 6033
 EXISTING
 145'-0" MONOPOLE

SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME:	HRT 049B 943215
SITE ADDRESS:	374 THREE MILE ROAD GLASTONBURY, CT 6033
COUNTY:	HARTFORD
MAP/PARCEL #:	13664
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.693592°
LONGITUDE:	-72.547253°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	532'
CURRENT ZONING:	RR
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	FLANAGAN JOSEPHINE I+JOHN R 366 THREE MILE RD GLASTONBURY, CT 06033
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054
ELECTRIC PROVIDER:	NOT PROVIDED
TELCO PROVIDER:	NOT PROVIDED

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
ATTACHED	GENERATOR DRAWINGS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24X36. 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 DESCRIPTION	
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.	
TOWER SCOPE OF WORK: <ul style="list-style-type: none"> REMOVE (3) ANTENNAS RELOCATE (3) TMAS INSTALL (3) ANTENNAS INSTALL (3) RADIOS INSTALL (1) FIBER CABLE INSTALL (3) DIPLEXERS 	
GROUND SCOPE OF WORK: <ul style="list-style-type: none"> INSTALL (1) 6160 SSC CABINET INSTALL (1) B160 BATTERY CABINET INSTALL (1) BB 6630 INSTALL (1) BB 6048 INSTALL (1) PSU4813 VOLTAGE BOOSTER INSTALL (1) IXRE ROUTER 	
NOTE: PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER	

PROJECT TEAM	
A&E FIRM:	CROWN CASTLE USA INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 CROWN.AE.APPROVAL@CROWNCastle.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277
	PATRICIA PELON - PROJECT MANAGER TRICIA.PELON@CROWNCastle.COM
	N/A - CONSTRUCTION MANAGER N/A

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	IBC 2015/2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	IMC 2015/2018 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	NEC 2015/2018 CONNECTICUT STATE BUILDING CODE
REFERENCE DOCUMENTS:	
STRUCTURAL ANALYSIS:	N/A
DATED:	
MOUNT ANALYSIS:	PJF & COMPANY
DATED:	10/14/20
RFDS REVISION:	8
DATED:	9/23/20
ORDER ID:	529719
REVISION:	0

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.

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/3/20	JTS	CONSTRUCTION	MTJ
1	11/24/20	LHT	CONSTRUCTION	GEH

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/21

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

SHEET NUMBER: T-1	REVISION: 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" 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-OUT-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 GROUNDING 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 GROUNDINGS 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°F 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 (F_y) 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 OR WEATHER: 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 THE 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 WORK FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, 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 (WIREMOLD 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 LOCKRUT 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
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
DC VOLTAGE	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

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

ABBREVIATIONS:

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

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:
CT11248A


BU #: 806368
HRT 049B 943215

374 THREE MILE ROAD
GLASTONBURY, CT 6033

EXISTING
145'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/3/20	JTS	CONSTRUCTION	MTJ
1	11/24/20	LHT	CONSTRUCTION	GEH



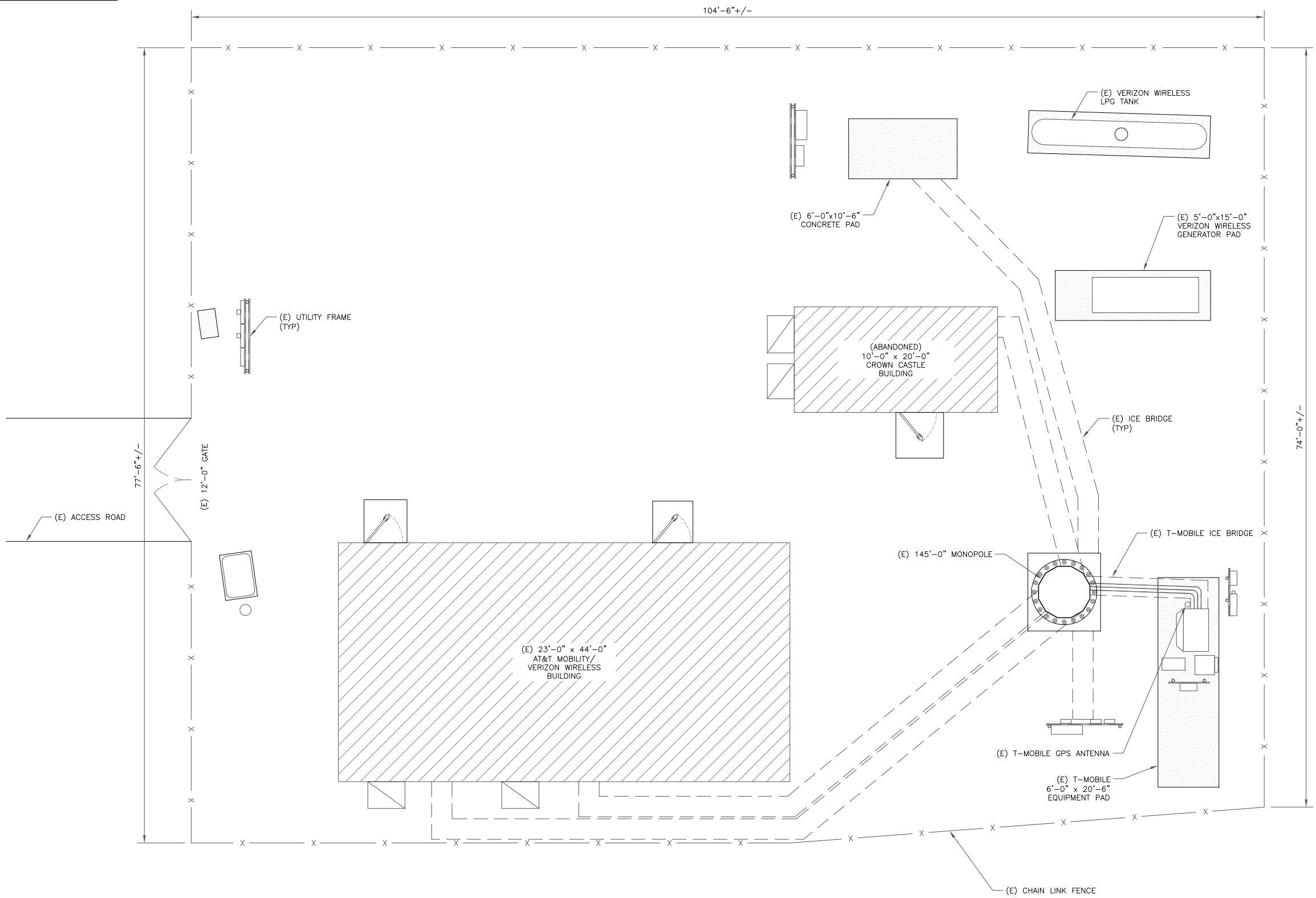
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SHEET NUMBER: T-2 **REVISION:** 1

SITE PLAN DISCLAIMER:
 PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OR FROM ASSESSORS MAPS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET



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SHEET NUMBER: C-1.1
REVISION: 1

1 OVERALL SITE PLAN
 SCALE: 3/16"=1'-0" (FULL SIZE)
 3/32"=1'-0" (11x17)



83033.004.01_HRT_049B_CC_TMO_NE_CD_Upgrade.dwg - Sheet C-1.1 - User: ghoyes - Nov 24, 2020 - 8:29am

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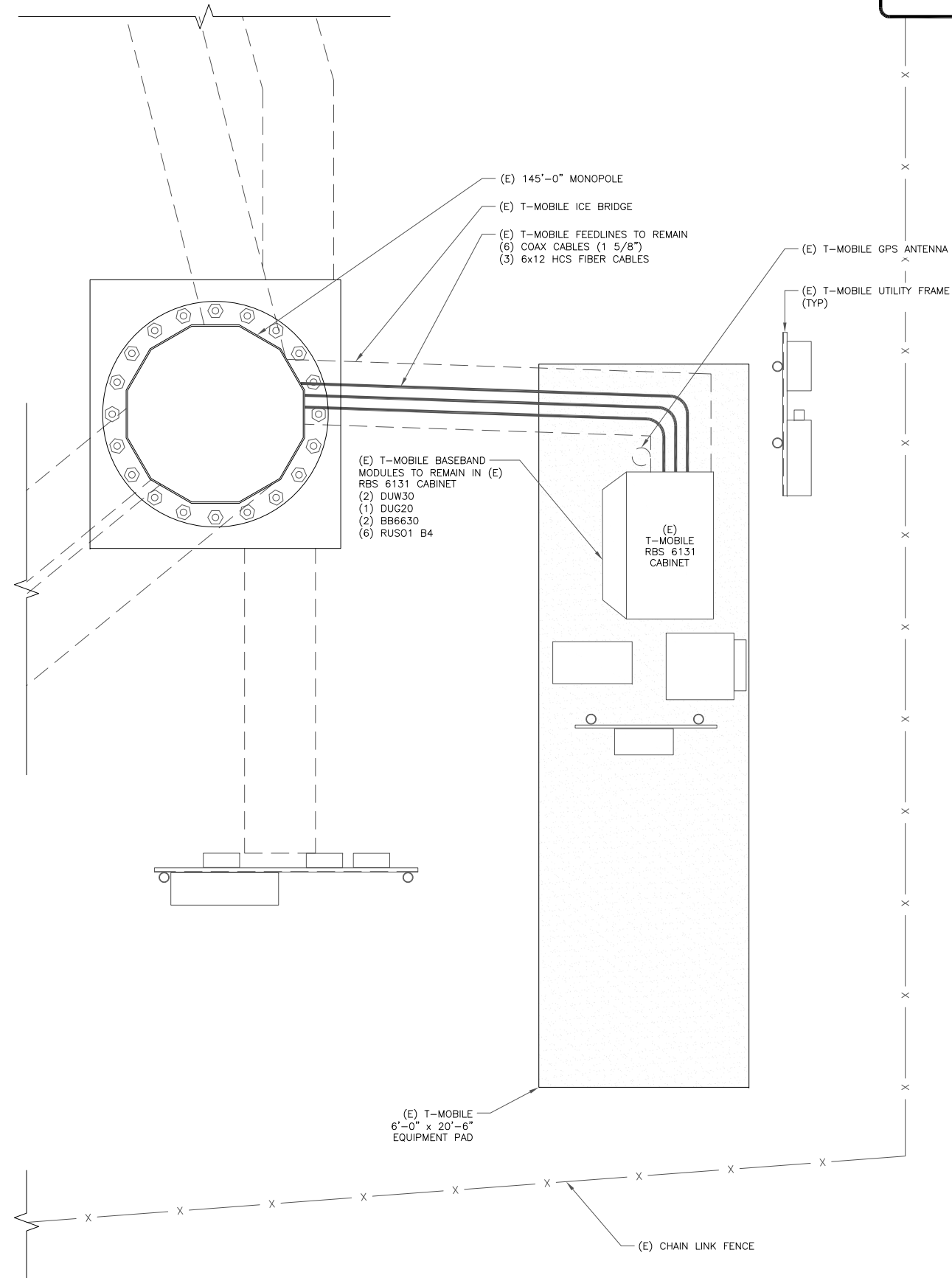
C-1.2

REVISION:

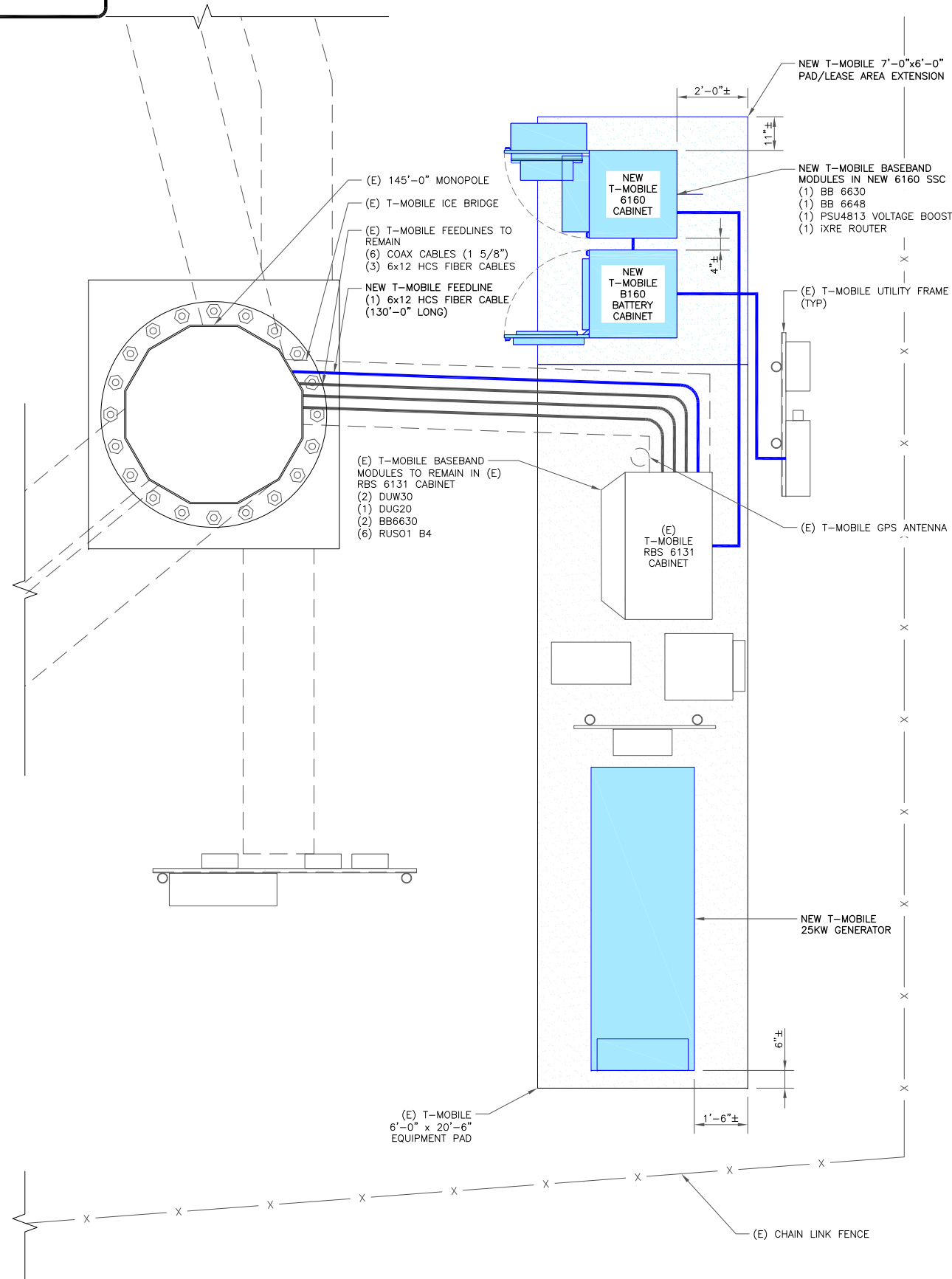
1

EQUIPMENT LEGEND:

- EXISTING
- TO BE RELOCATED/REMOVED
- NEW



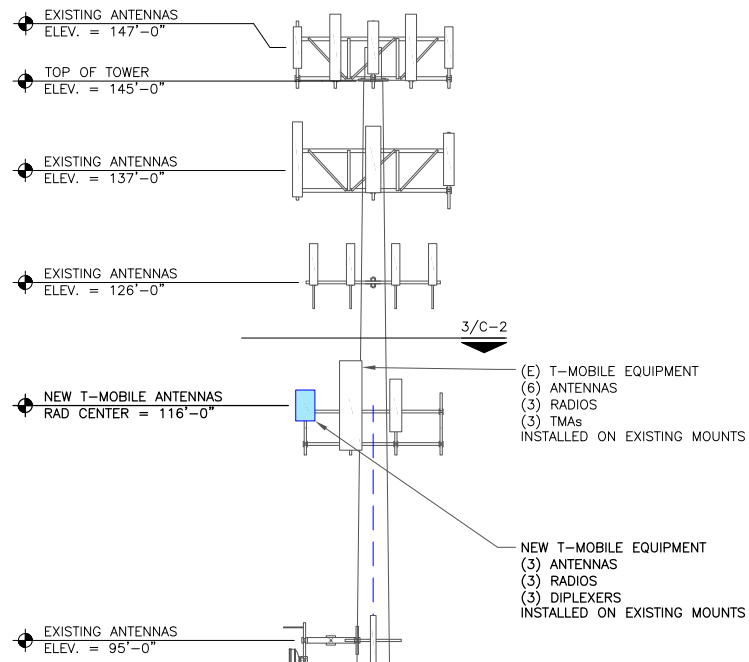
1 EXISTING EQUIPMENT PLAN
SCALE: $\frac{1}{2}''=1'-0''$ (FULL SIZE)
 $\frac{1}{4}''=1'-0''$ (11x17)



2 FINAL EQUIPMENT PLAN
SCALE: $\frac{1}{2}''=1'-0''$ (FULL SIZE)
 $\frac{1}{4}''=1'-0''$ (11x17)



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T-MOBILE EQUIPMENT

ANTENNA CL: 116'-0"
MOUNT CL: 114'-0"

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

(E) 145'-0" MONOPOLE

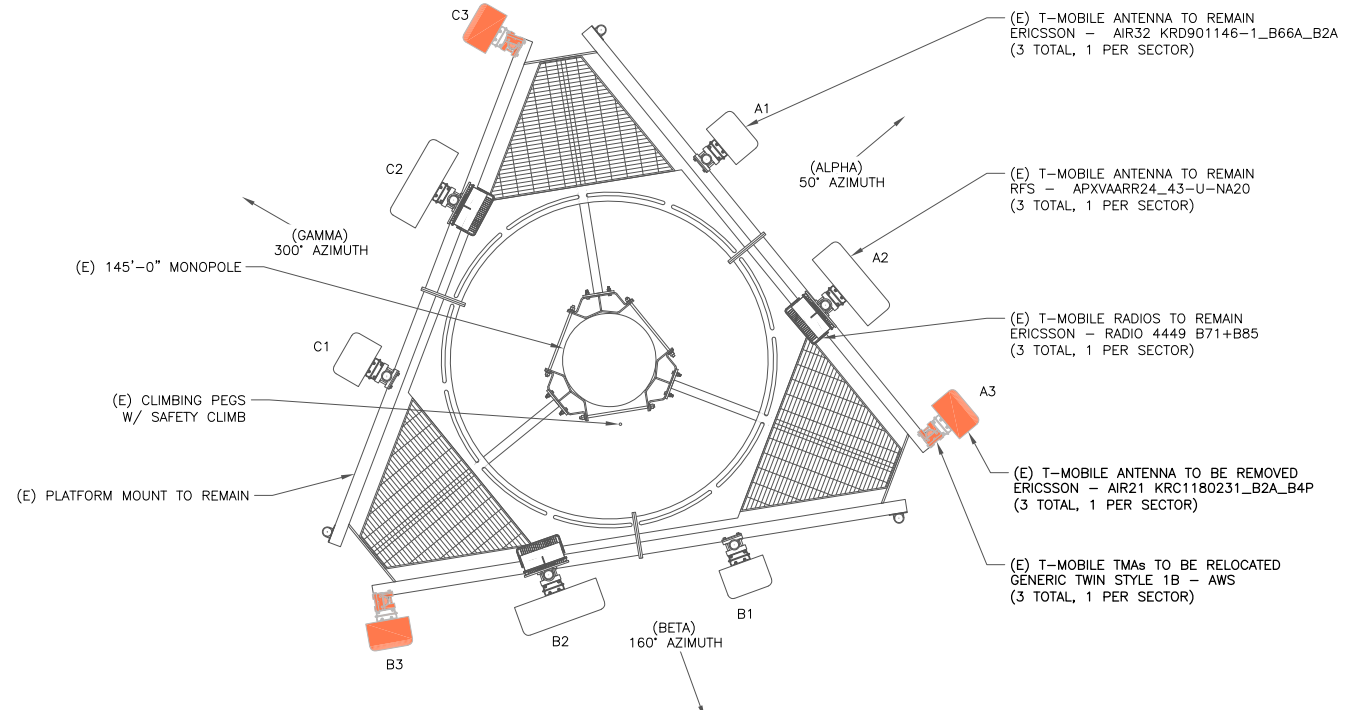
(E) T-MOBILE FEEDLINES
(6) COAX CABLES (1-5/8")
(3) 6x12 HCS FIBER CABLES

NEW T-MOBILE FEEDLINE
(1) 6x12 HCS FIBER CABLE

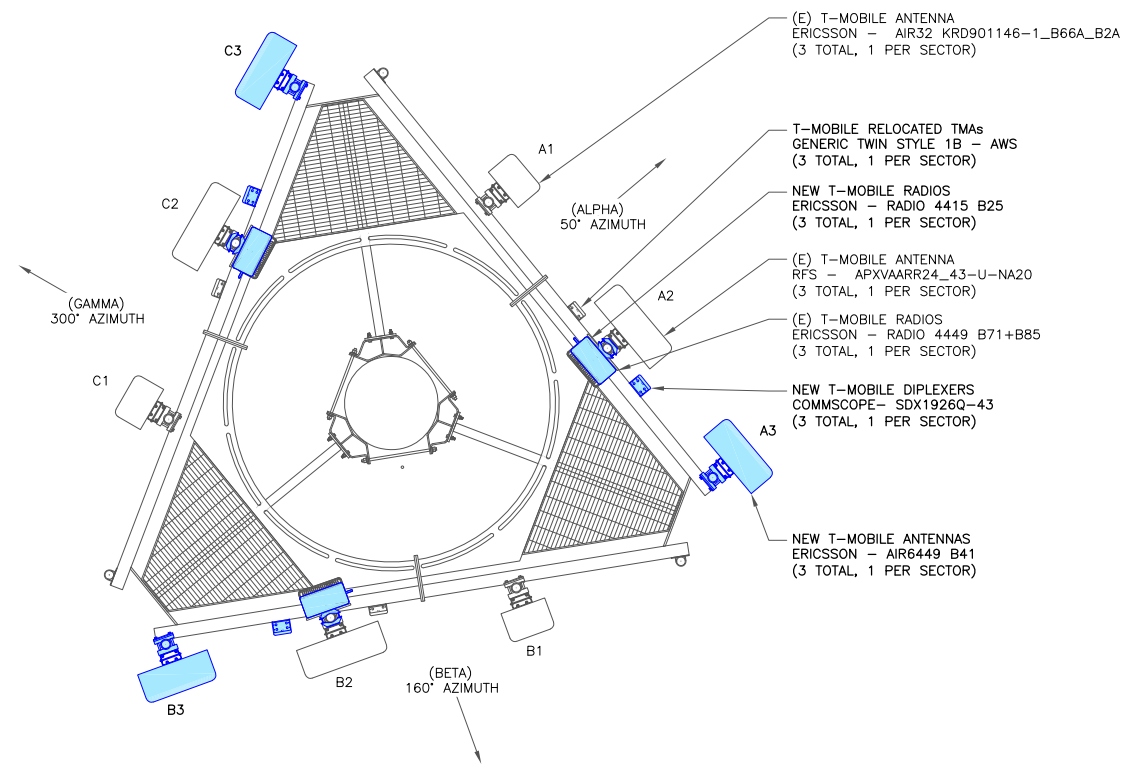
(E) ABANDONED T-MOBILE FEEDLINE
(1) 6x12 HCS FIBER CABLE

532' AMSL

1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE



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SHEET NUMBER:

C-2

REVISION:

1

T-MOBILE SITE NUMBER:
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HRT **049B 943215**

374 THREE MILE ROAD
GLASTONBURY, CT 6033

EXISTING
145'-0" MONOPOLE

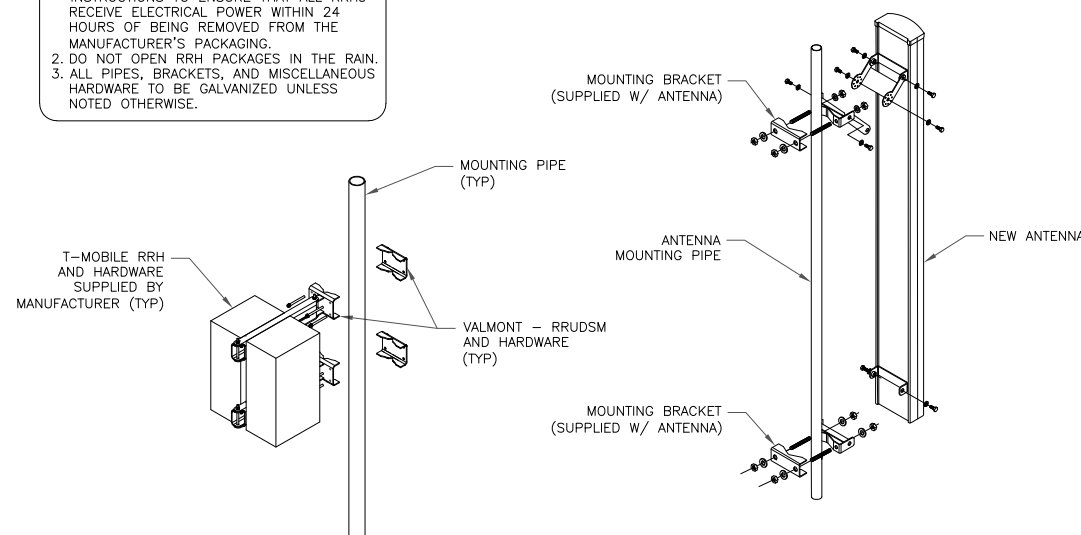
RF SYSTEM SCHEDULE												
SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	CABLE TYPE	CABLE DIAMETER	CABLE LENGTH
ALPHA	A-1	L2100/L1900/G1900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	50°	0°	2°/2°/2°/2°	116'-0"	-	(2) COAX	1 5/8"	130'-0"
	A-2	L700/L600/N600/L1900/U2100	RFS	APXVAARR24_43-U-NA20	50°	0°	2°/2°	116'-0"	GENERIC TWIN STYLE 1B - AWS RRU 4449 B71+B85 RRU 4415 B25	(1) FIBER (1) FIBER	6x12 HCS 6x12 HCS	130'-0"
	A-3	L2500/N2500	ERICSSON	AIR6449 B41	50°	0°	2°/2°	116'-0"	-	-	-	-
BETA	B-1	L2100/L1900/G1900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	160°	0°	2°/2°/2°/2°	116'-0"	-	(2) COAX	1 5/8"	130'-0"
	B-2	L700/L600/N600/L1900/U2100	RFS	APXVAARR24_43-U-NA20	160°	0°	2°/2°	116'-0"	GENERIC TWIN STYLE 1B - AWS RRU 4449 B71+B85 RRU 4415 B25	(1) FIBER	6x12 HCS	130'-0"
	B-3	L2500/N2500	ERICSSON	AIR6449 B41	160°	0°	2°/2°	116'-0"	-	-	-	-
GAMMA	C-1	L2100/L1900/G1900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	300°	0°	2°/2°/2°/2°	116'-0"	-	(2) COAX	1 5/8"	130'-0"
	C-2	L700/L600/N600/L1900/U2100	RFS	APXVAARR24_43-U-NA20	300°	0°	2°/2°	116'-0"	GENERIC TWIN STYLE 1B - AWS RRU 4449 B71+B85 RRU 4415 B25	(1) FIBER	6x12 HCS	130'-0"
	C-3	L2500/N2500	ERICSSON	AIR6449 B41	300°	0°	2°/2°	116'-0"	-	-	-	-

1 ANTENNA & FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

ISSUED FOR:

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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.



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE



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SHEET NUMBER:

C-3

REVISION:

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BU #: 806368
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374 THREE MILE ROAD
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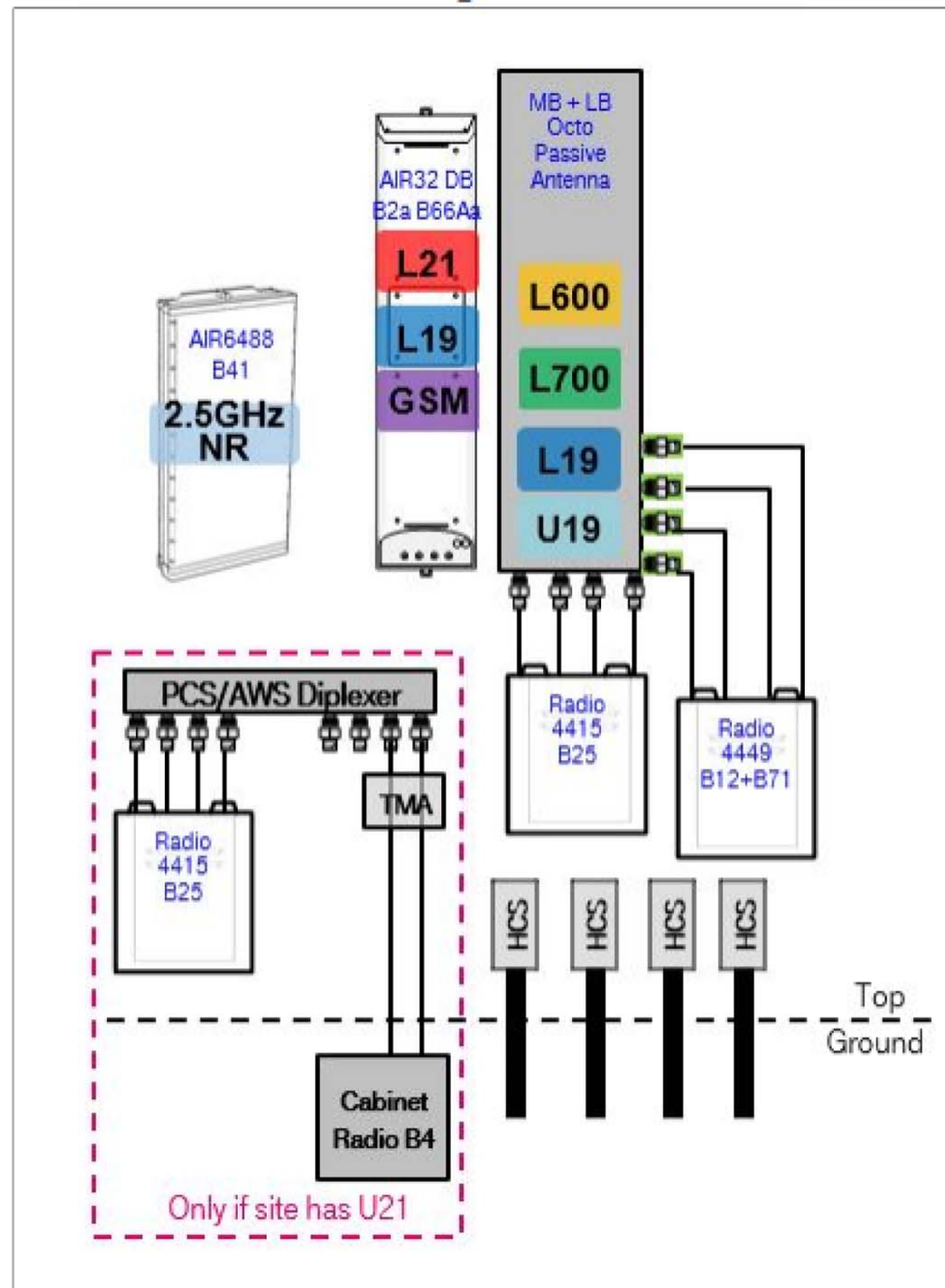
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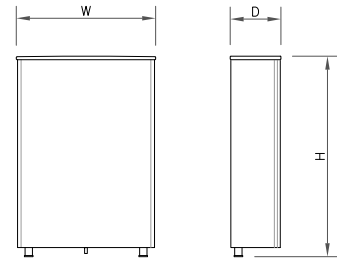
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REVISION:

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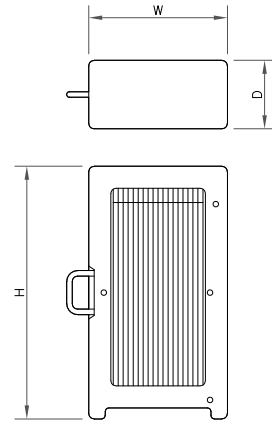


1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE



ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4415 B25
WIDTH	13.40"
DEPTH	5.90"
HEIGHT	16.50"
WEIGHT	46.00 LBS

2 RRU SPECS
SCALE: NOT TO SCALE



DIPLEXER SPECIFICATIONS	
MANUFACTURER	COMMSCOPE
MODEL #	SDX1926Q-43
WIDTH	6.93"
DEPTH	2.91"
HEIGHT	4.17"
WEIGHT	6.17 LBS

3 DIPLEXER SPECS
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
CT11248A

BU #: **806368**
HRT **049B 943215**

374 THREE MILE ROAD
GLASTONBURY, CT 6033

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SHEET NUMBER: **C-5** REVISION: **1**

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SHEET NUMBER:

E-1

REVISION:

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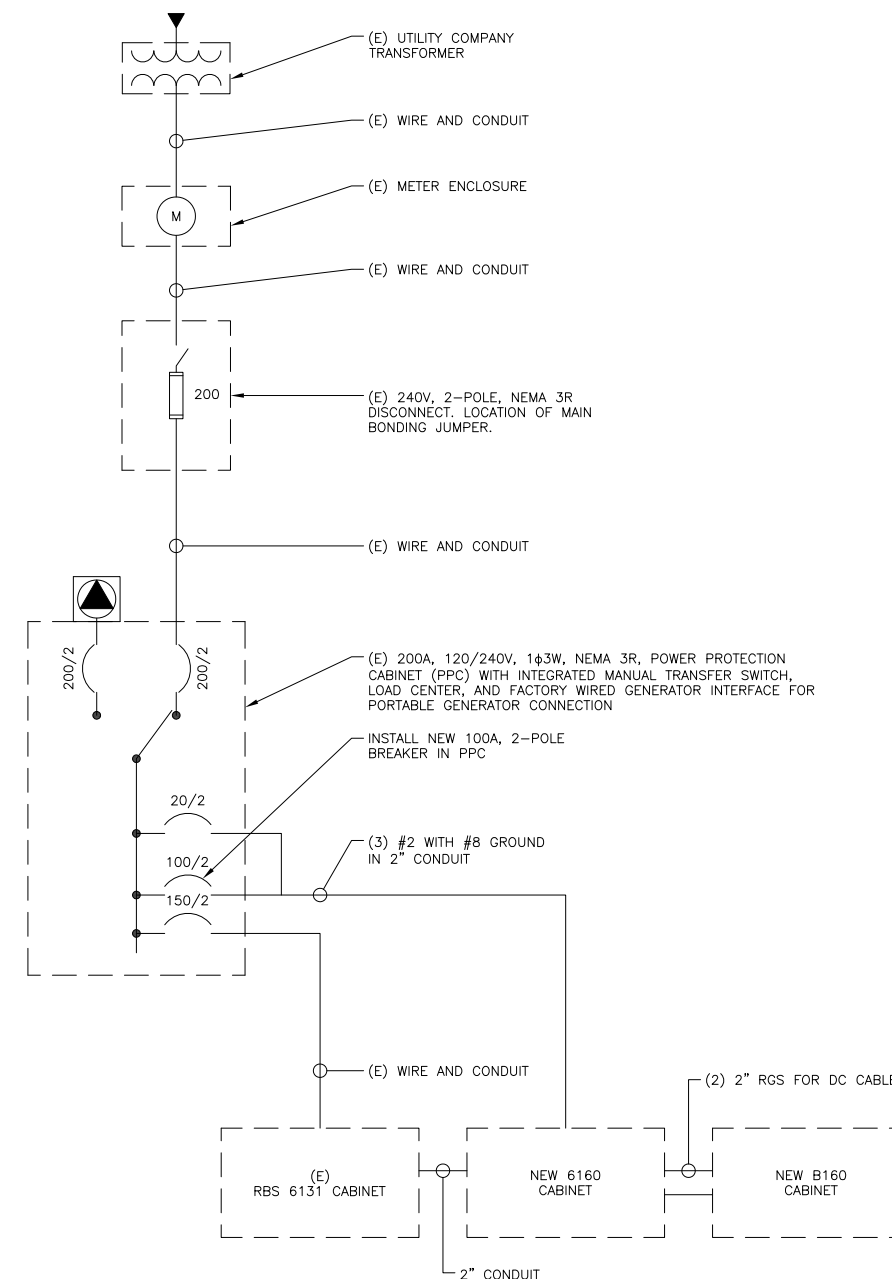
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
SURGE	2	60A	1	2	10A	1	CABINET PLUG
RBS 6131	2	125A	3	4	10A	1	
RBS 6160	2	100A	5	6			
6160 GFCI	2	20A	7	8			
			9	10			
			11	12			
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			
			25	26			
			27	28			
			29	30			

RATED VOLTAGE: 120/240 1 PHASE, 3 WIRE
 BRANCH POLES: 12 24 30 42 APPROVED MF'RS
 RATED AMPS: 100 200 400
 CABINET: SURFACE FLUSH NEMA 1 3R 4X
 MAIN LUGS ONLY MAIN 200 AMPS BREAKER FUSED SWITCH HINGED DOOR KEYPED DOOR LATCH
 FUSED CIRCUIT BREAKER BRANCH DEVICES TO BE GFCI BREAKERS FULL NEUTRAL BUS GROUND BAR
 ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL

REPLACE EXISTING BREAKER IN POSITION 9 AND 11 WITH A NEW 2P 100A BREAKER
 REPLACE EXISTING BREAKER IN POSITION 13 AND 115 WITH A NEW 2P 20A BREAKER
 IF 100A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL Q012040M200RB (OR APPROVED EQUAL).
 UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
 FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T-MOBILE PANEL DETAIL
SCALE: NOT TO SCALE

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

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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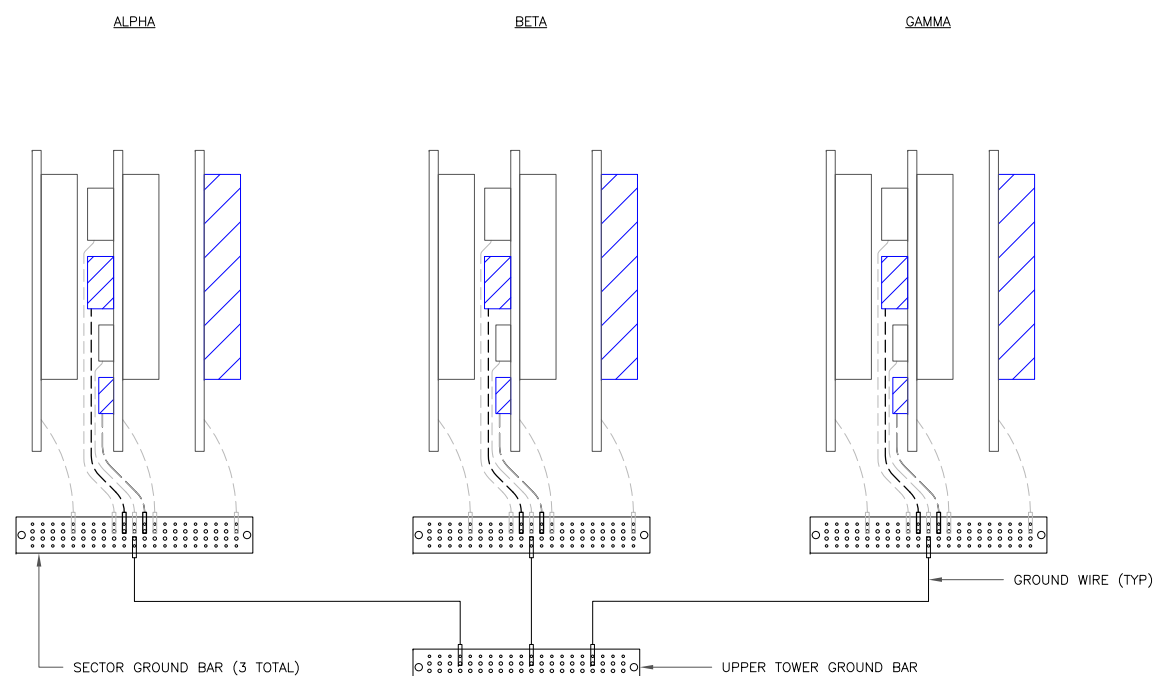
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G-1

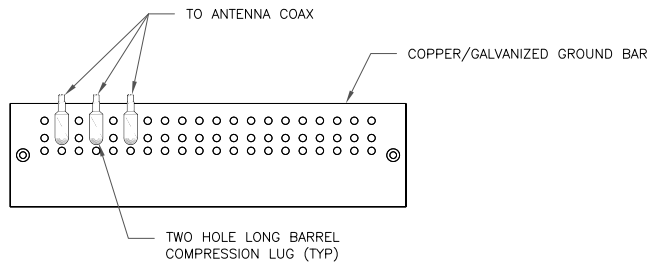
REVISION:

1



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

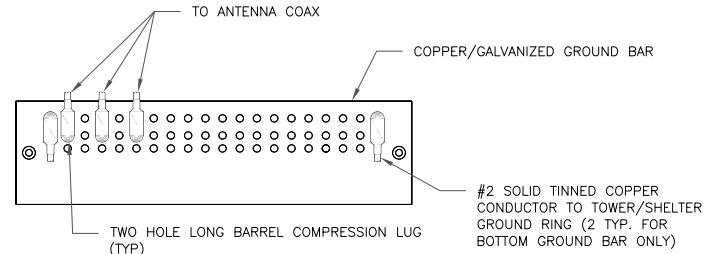
1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



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.

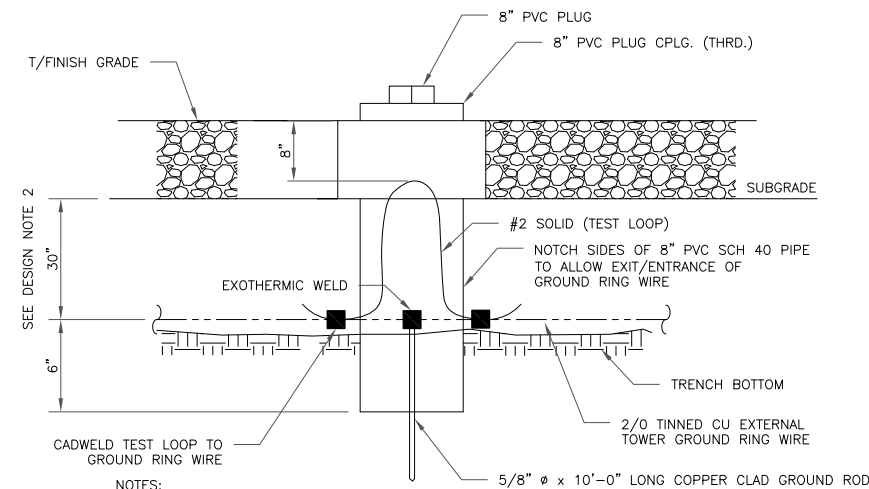
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



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.

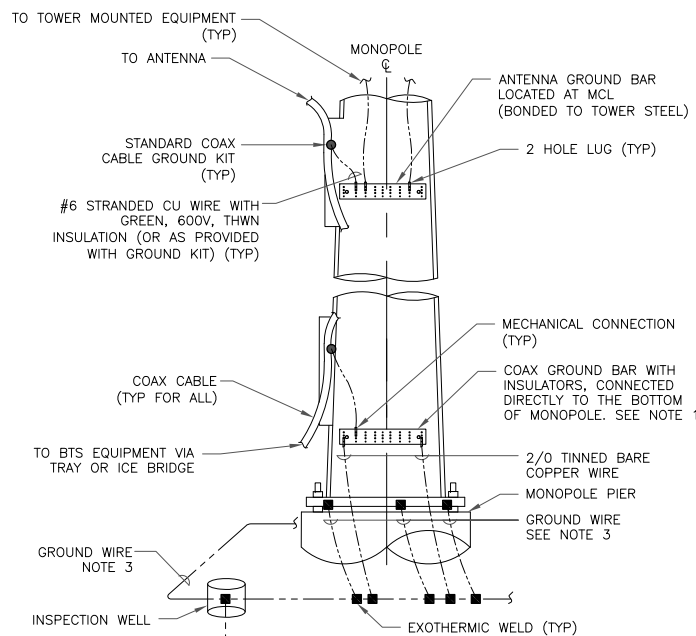
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

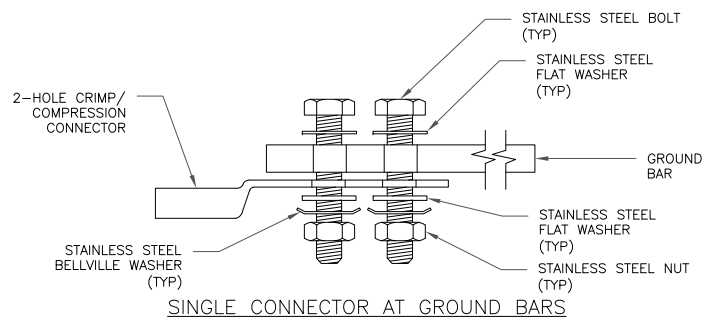
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



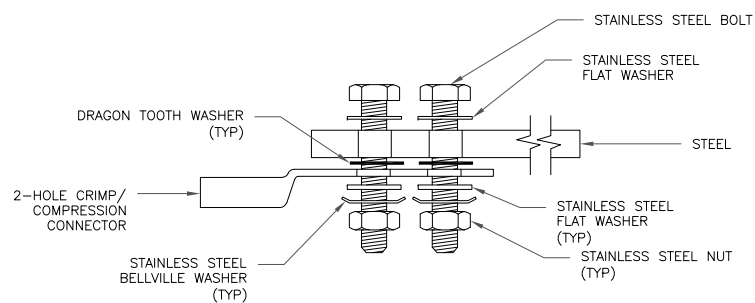
NOTES:

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

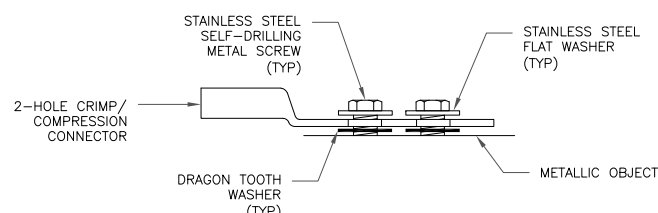
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

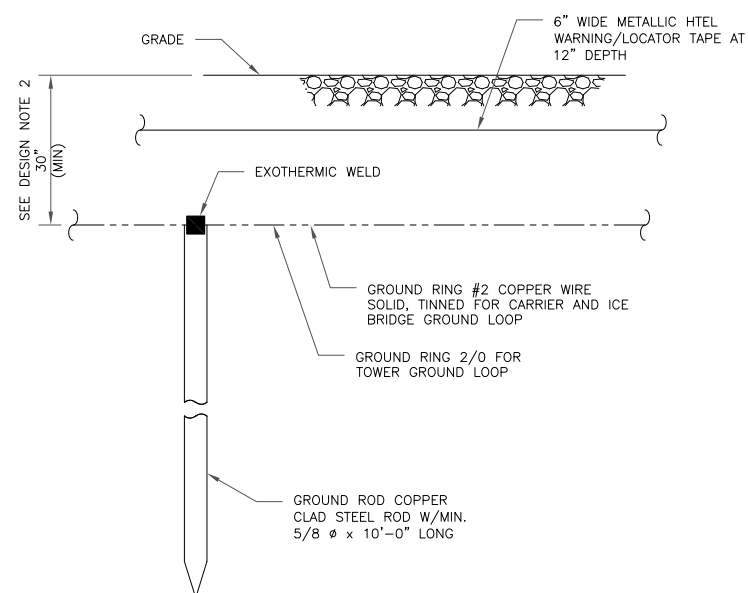


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CT11248A

BU #: 806368
HRT 049B 943215

374 THREE MILE ROAD
GLASTONBURY, CT 6033

EXISTING
145'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/3/20	JTS	CONSTRUCTION	MTJ
1	11/24/20	LHT	CONSTRUCTION	GEH



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

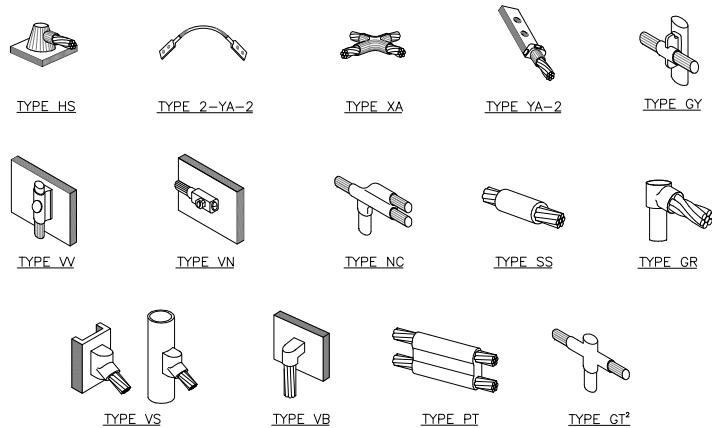
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SHEET NUMBER:

G-2

REVISION:

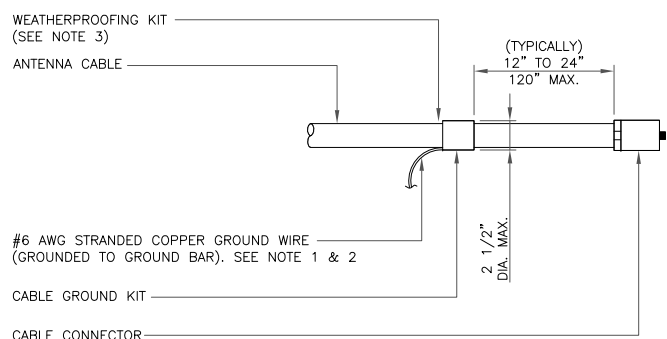
1



NOTE:

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

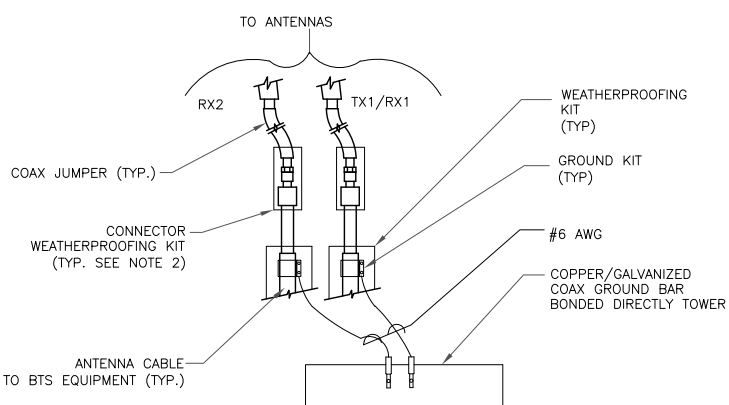
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

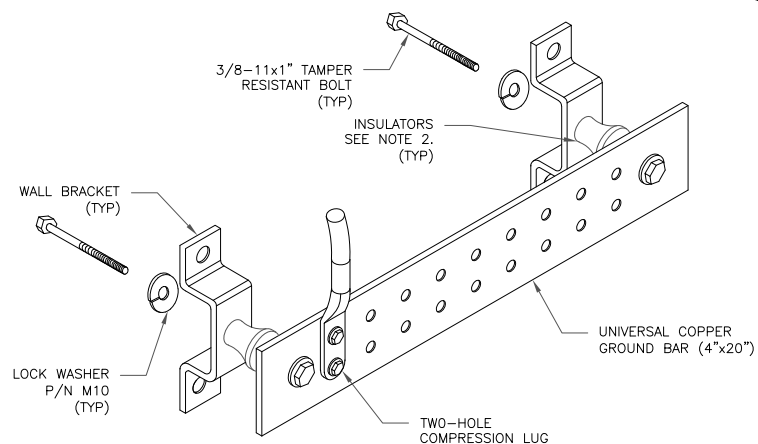
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

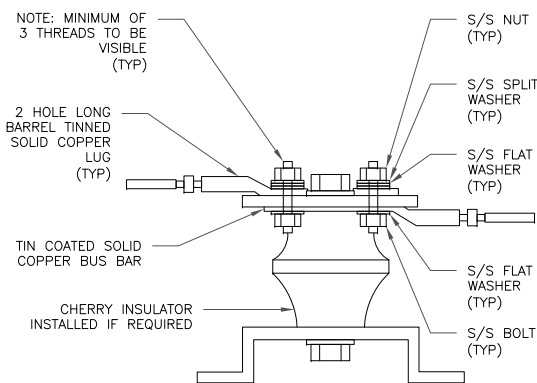
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

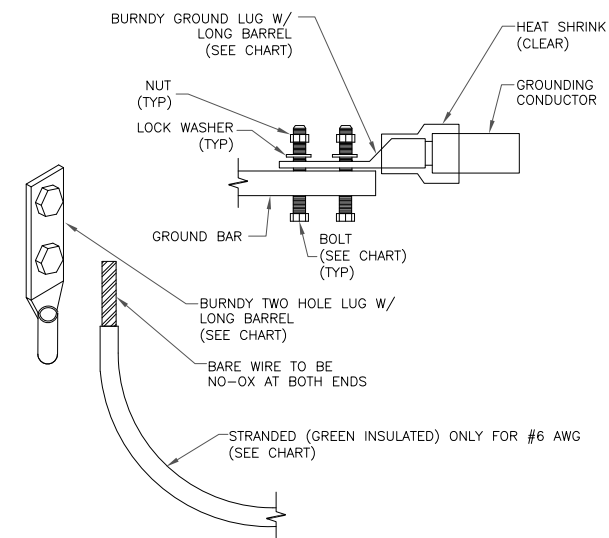
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

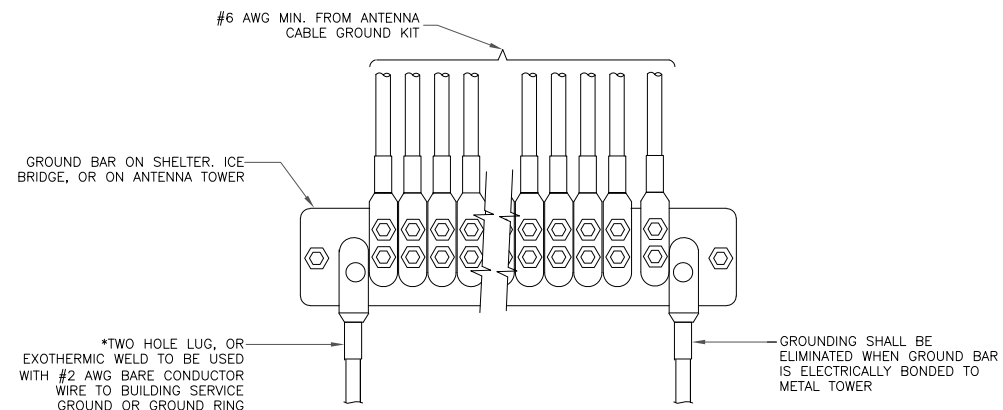
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



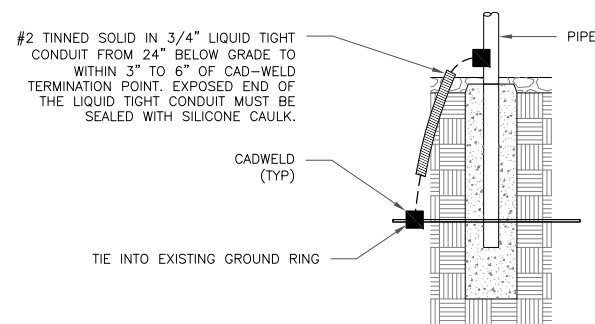
NOTES:

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

2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE



T-MOBILE SITE NUMBER:
CT11248A

BU #: **806368**
HRT **049B 943215**

374 THREE MILE ROAD
GLASTONBURY, CT 6033

EXISTING
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SHEET NUMBER:

G-3

REVISION:

1

Exhibit D

Structural Analysis Report



Crown Castle
 2000 Corporate Drive
 Canonsburg, PA 15317
 (724) 416-2000

Date: **November 02, 2020**

Stephanie Lipscomb
 Crown Castle
 370 Mallory Station Road # 505
 Franklin, TN 37067

Subject: **Structural Analysis Report**

Carrier Designation: **T-Mobile Co-Locate**
Carrier Site Number: CT11248A
Carrier Site Name: Glastonbury

Crown Castle Designation: **Crown Castle BU Number:** 806368
Crown Castle Site Name: HRT 049B 943215
Crown Castle JDE Job Number: 620134
Crown Castle Work Order Number: 1890944
Crown Castle Order Number: 529719 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1890944

Site Data: **374 Three Mile Rd., GLASTONBURY, Hartford County, CT**
Latitude 41° 41' 36.93", Longitude -72° 32' 50.11"
144.813 Foot - Monopole Tower

Dear Stephanie Lipscomb,

Crown Castle 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:

LC5: Proposed Equipment Configuration **Sufficient Capacity-47.8%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Kibreab Gebremariam

Respectfully submitted by:

Terry P. Styran, P.E.
 Senior Project Engineer



Terry P Styran
 2020.11.03
 19:36:58 -05'00'

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7) APPENDIX C

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1) INTRODUCTION

This tower is a 144.813 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC.. The tower has been modified per reinforcement drawings prepared by GPD Associates, in March of 2005. Reinforcement consists of addition of base plate stiffeners. However, we didn't include this modification since the Anchor rod and Base plate are passing without the modification at a lower rate.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	2 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)
114.0	116.0	3	commscope	SDX1926Q-43	10	1-5/8
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RRUS 4415 B25_CCIV2		
		3	ericsson	AIR -32 B2A/B66AA w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B71/B85A		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		1		Handrail Kit [NA 507-1]		
		1	tower mounts	Platform Mount [LP 601-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.0	148.0	3	alcatel lucent	B66A RRH4X45	14 1	1-5/8 1-1/4
		3	alcatel lucent	RRH2X60-700		
		3	alcatel lucent	RRH2X60-PCS		
		9	andrew	SBNHH-1D65B w/ Mount Pipe		
		2	antel	LPA-80063/6CF w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		4	swedcom	SC-E 6014 REV2 w/ Mount Pipe		
	147.0	1	tower mounts	Platform Mount [LP 1001-1]		
145.0	6	rfs celwave	FD9R6004/2C-3L			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
137.0	138.0	1	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 2 1 1	1-1/4 3/4 1/2 3/8
		2	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe		
		3	communication components inc.	DTMABP7819VG12A		
		3	ericsson	RRUS 11 B12		
		3	ericsson	RRUS 32 B2		
		1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe		
		12	powerwave technologies	7020.00		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		2	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe		
		3	powerwave technologies	TT19-08BP111-001		
		1	raycap	DC6-48-60-18-8F		
127.0	127.0	1	cci tower mounts	Platform Mount [LP 1001-1]	1	1/2
		1	cci tower mounts	Side Arm Mount [SO 306-1]		
		1	sigfox	CAVITY FILTER		
		1	sigfox	CXL 900-3LW		
95.0	97.0	1	commscope	HT65A-F-2X2 w/ Mount Pipe	2 1	1-1/4 1-1/8
		1	nokia	FWHR		
	96.0	1	repeater technologies	DA1900-39		
	95.0	2	cci tower mounts	T-Arm Mount [TA 702-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors Incorporated	262188	CCISITES
4-POST-MODIFICATION INSPECTION	GPD Group	1090825	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD Associates	1037241	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

- 1) 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. Crown Castle 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	144.813 - 92.3333	Pole	TP35.675x20.5x0.3438	1	-21.14	2304.69	38.3	Pass
L2	92.3333 - 44.5208	Pole	TP48.658x33.5537x0.4375	2	-35.44	4009.58	41.9	Pass
L3	44.5208 - 0	Pole	TP60.5x45.8987x0.4688	3	-56.83	5565.70	46.5	Pass
							Summary	
						Pole (L3)	46.5	Pass
						Rating =	46.5	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	40.7	Pass
1	Base Plate	0	47.8	Pass
1	Base Foundation (Soil Interaction) (Compared w/ Design Loads)	0	46.0	Pass

Structure Rating (max from all components) =	47.8%
---	--------------

Notes:

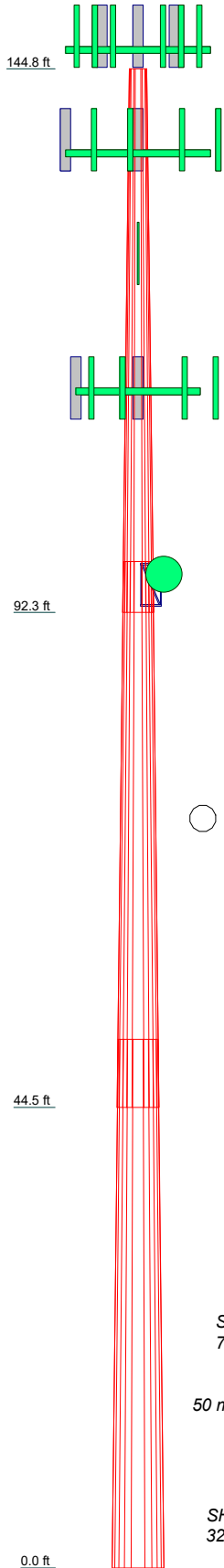
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed. Rating per TIA-222-H Section 15.5

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3
Length (ft)	52.48	52.77	51.10
Number of Sides	12	12	12
Thickness (in)	0.3438	0.4375	0.4688
Socket Length (ft)	4.96	6.58	45.8987
Top Dia (in)	20.5000	33.5537	60.5000
Bot Dia (in)	35.6750	48.6580	60.5000
Grade		A572-65	
Weight (K)	5.5	10.3	13.8
			29.6



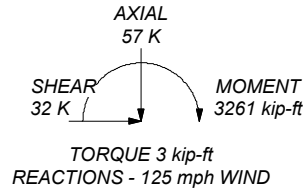
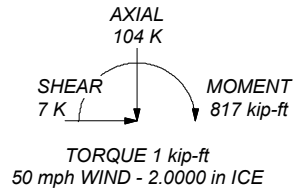
MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 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 0.00 ft
8. TIA-222-H Annex S
9. TOWER RATING: 46.5%

ALL REACTIONS
ARE FACTORED



CROWN CASTLE
The pathway to Possible

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX:

Job: BU# 806368		
Project:		
Client: Crown Castle	Drawn by: KGebremariam	App'd:
Code: TIA-222-H	Date: 11/02/20	Scale: NTS
Path:	Dwg No. E-1	

Tower Input Data

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

The following design criteria apply:

- 1) Tower is located in Hartford County, Connecticut.
- 2) Tower base elevation above sea level: 467.00 ft.
- 3) Basic wind speed of 125 mph.
- 4) Risk Category II.
- 5) Exposure Category B.
- 6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 7) Topographic Category: 1.
- 8) Crest Height: 0.00 ft.
- 9) Nominal ice thickness of 2.0000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Deflections calculated using a wind speed of 60 mph.
- 14) TIA-222-H Annex S.
- 15) A non-linear (P-delta) analysis was used.
- 16) Pressures are calculated at each section.
- 17) Stress ratio used in pole design is 1.05.
- 18) Tower analysis based on target reliabilities in accordance with Annex S.
- 19) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 20) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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	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	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 <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ 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
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		

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	144.81-92.33	52.48	4.96	12	20.5000	35.6750	0.3438	1.3750	A572-65 (65 ksi)

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
L2	92.33-44.52	52.77	6.58	12	33.5537	48.6580	0.4375	1.7500	A572-65 (65 ksi)
L3	44.52-0.00	51.10		12	45.8987	60.5000	0.4688	1.8750	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/Q in ²	w in	w/t
L1	21.1019	22.3104	1156.9477	7.2159	10.6190	108.9507	2344.2898	10.9805	4.5728	13.303
	36.8122	39.1073	6231.0543	12.6486	18.4796	337.1847	12625.8054	19.2474	8.6396	25.134
L2	36.0523	46.6525	6530.4456	11.8556	17.3808	375.7268	13232.4532	22.9609	7.8199	17.874
	50.2201	67.9306	20161.1364	17.2629	25.2048	799.8913	40851.9282	33.4334	11.8678	27.127
L3	49.2998	68.5708	18063.8246	16.2639	23.7755	759.7656	36602.2060	33.7485	11.0446	23.562
	62.4689	90.6097	41678.8054	21.4912	31.3390	1329.9341	84452.5593	44.5953	14.9578	31.91

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	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 144.81-92.33				1	1	1			
L2 92.33-44.52				1	1	1			
L3 44.52-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
*** 147 R ***										
HB158-1-08U8-S8J18(1-5/8)	C	No	Surface Ar (CaAa)	144.81 - 0.00	3	3	-0.030 0.064	1.9800		1.30
LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	114.00 - 0.00	3	3	0.200 0.250	1.9800		0.82
*** 95 R ***										
TYPE SOOW(1-1/8)	B	No	Surface Ar (CaAa)	95.00 - 0.00	1	1	0.230 0.253	1.1600		0.96
LDF6-50A(1-1/4)	B	No	Surface Ar (CaAa)	95.00 - 0.00	2	2	0.160 0.223	1.5500		0.60
*** 87 ***										
LDF6-50A(1-1/4)	B	No	Surface Ar (CaAa)	87.00 - 0.00	3	3	-0.040 0.054	1.5500		0.60
Safety Line 3/8	B	No	Surface Ar (CaAa)	136.00 - 0.00	1	1	0.070 0.090	0.3750		0.22

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 plf
HB114-21U3M12-XXXF(1-1/4)	C	No	No	Inside Pole	144.81 - 0.00	1	No Ice	0.00	1.22
							1/2" Ice	0.00	1.22
							1" Ice	0.00	1.22
							2" Ice	0.00	1.22
HJ7-50A(1-5/8)	C	No	No	Inside Pole	144.81 - 0.00	12	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
							2" Ice	0.00	1.04
*** 137 ***									
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	137.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
LCF12-50J(1/2)	C	No	No	Inside Pole	137.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	137.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
LCF114-50J(1-1/4)	C	No	No	Inside Pole	137.00 - 0.00	12	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
*** 126 Reserved ***									
EC4-50(1/2)	A	No	No	Inside Pole	126.00 - 0.00	1	No Ice	0.00	0.16
							1/2" Ice	0.00	0.16
							1" Ice	0.00	0.16
							2" Ice	0.00	0.16
*** 118 ***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	114.00 - 0.00	7	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82

2" innerduct conduit	C	No	No	Inside Pole	137.00 - 0.00	1	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20

Feed Line/Linear Appurtenances Section Areas

Tower Section n	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	144.81-92.33	A	0.000	0.000	12.870	0.000	0.06
		B	0.000	0.000	2.774	0.000	0.02
		C	0.000	0.000	31.173	0.000	1.49
L2	92.33-44.52	A	0.000	0.000	28.401	0.000	0.13
		B	0.000	0.000	41.914	0.000	0.19
		C	0.000	0.000	28.401	0.000	1.59
L3	44.52-0.00	A	0.000	0.000	26.445	0.000	0.12
		B	0.000	0.000	41.338	0.000	0.19
		C	0.000	0.000	26.445	0.000	1.48

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section <i>n</i>	Tower Elevation <i>ft</i>	Face or Leg	Ice Thickness <i>in</i>	A_R <i>ft²</i>	A_F <i>ft²</i>	C_{AA} <i>In Face ft²</i>	C_{AA} <i>Out Face ft²</i>	Weight <i>K</i>
L1	144.81-92.33	A	1.929	0.000	0.000	26.535	0.000	0.40
		B		0.000	0.000	22.139	0.000	0.30
		C		0.000	0.000	64.270	0.000	2.32
L2	92.33-44.52	A	1.827	0.000	0.000	58.555	0.000	0.88
		B		0.000	0.000	130.981	0.000	1.87
		C		0.000	0.000	58.555	0.000	2.35
L3	44.52-0.00	A	1.629	0.000	0.000	53.388	0.000	0.77
		B		0.000	0.000	123.157	0.000	1.69
		C		0.000	0.000	53.388	0.000	2.14

Feed Line Center of Pressure

Section	Elevation <i>ft</i>	CP_x <i>in</i>	CP_z <i>in</i>	CP_x <i>Ice in</i>	CP_z <i>Ice in</i>
L1	144.81-92.33	-0.5634	1.6250	0.1184	1.4075
L2	92.33-44.52	1.8824	-0.6384	3.2134	-0.9099
L3	44.52-0.00	2.1960	-0.7806	3.8173	-1.1333

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	HB158-1-08U8-S8J18(1-5/8)	92.33 - 144.81	1.0000	1.0000
L1	16	LDF7-50A(1-5/8)	92.33 - 114.00	1.0000	1.0000
L1	18	TYPE SOOW(1-1/8)	92.33 - 95.00	1.0000	1.0000
L1	20	LDF6-50A(1-1/4)	92.33 - 95.00	1.0000	1.0000
L1	25	Safety Line 3/8	92.33 - 136.00	1.0000	1.0000
L2	2	HB158-1-08U8-S8J18(1-5/8)	44.52 - 92.33	1.0000	1.0000
L2	16	LDF7-50A(1-5/8)	44.52 - 92.33	1.0000	1.0000
L2	18	TYPE SOOW(1-1/8)	44.52 - 92.33	1.0000	1.0000
L2	20	LDF6-50A(1-1/4)	44.52 - 92.33	1.0000	1.0000
L2	22	LDF6-50A(1-1/4)	44.52 - 87.00	1.0000	1.0000
L2	25	Safety Line 3/8	44.52 - 92.33	1.0000	1.0000
L3	2	HB158-1-08U8-S8J18(1-5/8)	0.00 - 44.52	1.0000	1.0000
L3	16	LDF7-50A(1-5/8)	0.00 - 44.52	1.0000	1.0000
L3	18	TYPE SOOW(1-1/8)	0.00 - 44.52	1.0000	1.0000
L3	20	LDF6-50A(1-1/4)	0.00 - 44.52	1.0000	1.0000
L3	22	LDF6-50A(1-1/4)	0.00 - 44.52	1.0000	1.0000
L3	25	Safety Line 3/8	0.00 - 44.52	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft ²	ft ²	K	
*** 147 Reserved ***											
Platform Mount [LP 1001-1]	C	None				0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	44.83 50.34 56.62 73.47	44.83 50.34 56.62 73.47	3.02 3.95 5.04 7.68
(2) SC-E 6014 REV2 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.56 3.91 4.26 4.98	4.22 4.78 5.35 6.55	0.03 0.07 0.12 0.22
(2) SC-E 6014 REV2 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.56 3.91 4.26 4.98	4.22 4.78 5.35 6.55	0.03 0.07 0.12 0.22
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 -3.50 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 -3.50 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 -3.50 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 3.50 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 3.50 1.00			0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral						Vert
			ft	ft	°	ft	ft ²	ft ²	K	
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00		0.0000	147.00	No Ice	4.09	3.30	0.07
			3.50				1/2"	4.49	3.68	0.13
			1.00				Ice	4.89	4.07	0.20
							1" Ice	5.72	4.87	0.39
							2" Ice			
(2) LPA-80063/6CF w/ Mount Pipe	C	From Leg	4.00		0.0000	147.00	No Ice	9.83	10.22	0.05
			0.00				1/2"	10.40	11.38	0.14
			1.00				Ice	10.93	12.27	0.25
							1" Ice	12.03	14.09	0.48
							2" Ice			
(2) FD9R6004/2C-3L	A	From Leg	4.00		0.0000	147.00	No Ice	0.31	0.08	0.00
			0.00				1/2"	0.39	0.12	0.01
			-2.00				Ice	0.47	0.17	0.01
							1" Ice	0.65	0.29	0.02
							2" Ice			
(2) FD9R6004/2C-3L	B	From Leg	4.00		0.0000	147.00	No Ice	0.31	0.08	0.00
			0.00				1/2"	0.39	0.12	0.01
			-2.00				Ice	0.47	0.17	0.01
							1" Ice	0.65	0.29	0.02
							2" Ice			
(2) FD9R6004/2C-3L	C	From Leg	4.00		0.0000	147.00	No Ice	0.31	0.08	0.00
			0.00				1/2"	0.39	0.12	0.01
			-2.00				Ice	0.47	0.17	0.01
							1" Ice	0.65	0.29	0.02
							2" Ice			
RRH2X60-700	A	From Leg	4.00		0.0000	147.00	No Ice	3.50	1.82	0.06
			0.00				1/2"	3.76	2.05	0.08
			1.00				Ice	4.03	2.29	0.11
							1" Ice	4.58	2.79	0.17
							2" Ice			
RRH2X60-700	B	From Leg	4.00		0.0000	147.00	No Ice	3.50	1.82	0.06
			0.00				1/2"	3.76	2.05	0.08
			1.00				Ice	4.03	2.29	0.11
							1" Ice	4.58	2.79	0.17
							2" Ice			
RRH2X60-700	C	From Leg	4.00		0.0000	147.00	No Ice	3.50	1.82	0.06
			0.00				1/2"	3.76	2.05	0.08
			1.00				Ice	4.03	2.29	0.11
							1" Ice	4.58	2.79	0.17
							2" Ice			
(2) DB-T1-6Z-8AB-OZ	A	From Leg	4.00		0.0000	147.00	No Ice	4.80	2.00	0.04
			0.00				1/2"	5.07	2.19	0.08
			1.00				Ice	5.35	2.39	0.12
							1" Ice	5.93	2.81	0.21
							2" Ice			
RRH2X60-PCS	A	From Leg	4.00		0.0000	147.00	No Ice	2.20	1.72	0.06
			0.00				1/2"	2.39	1.90	0.08
			1.00				Ice	2.59	2.09	0.10
							1" Ice	3.01	2.48	0.16
							2" Ice			
RRH2X60-PCS	B	From Leg	4.00		0.0000	147.00	No Ice	2.20	1.72	0.06
			0.00				1/2"	2.39	1.90	0.08
			1.00				Ice	2.59	2.09	0.10
							1" Ice	3.01	2.48	0.16
							2" Ice			
RRH2X60-PCS	C	From Leg	4.00		0.0000	147.00	No Ice	2.20	1.72	0.06
			0.00				1/2"	2.39	1.90	0.08
			1.00				Ice	2.59	2.09	0.10
							1" Ice	3.01	2.48	0.16
							2" Ice			
B66A RRH4X45	A	From Leg	4.00		0.0000	147.00	No Ice	2.58	1.63	0.07
			0.00				1/2"	2.79	1.81	0.09
			1.00				Ice	3.01	2.00	0.11
							1" Ice	3.48	2.40	0.17
							2" Ice			

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
B66A RRH4X45	B	From Leg	4.00 0.00 1.00	0.0000	147.00	No Ice	2.58	1.63	0.07
						1/2" Ice	2.79	1.81	0.09
						Ice	3.01	2.00	0.11
						1" Ice	3.48	2.40	0.17
						2" Ice			
B66A RRH4X45	C	From Leg	4.00 0.00 1.00	0.0000	147.00	No Ice	2.58	1.63	0.07
						1/2" Ice	2.79	1.81	0.09
						Ice	3.01	2.00	0.11
						1" Ice	3.48	2.40	0.17
						2" Ice			
*** 137 Existing*** Platform Mount [LP 1001-1]	C	None		0.0000	137.00	No Ice	47.70	47.70	3.02
						1/2" Ice	59.50	59.50	3.62
						Ice	71.30	71.30	4.22
						1" Ice	94.90	94.90	5.43
						2" Ice			
7770.00 w/ MountPipe	A	From Leg	4.00 -7.00 1.00	0.0000	137.00	No Ice	5.75	4.25	0.06
						1/2" Ice	6.18	5.01	0.10
						Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ MountPipe	B	From Leg	4.00 -7.00 1.00	0.0000	137.00	No Ice	5.75	4.25	0.06
						1/2" Ice	6.18	5.01	0.10
						Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ MountPipe	C	From Leg	4.00 -7.00 1.00	0.0000	137.00	No Ice	5.75	4.25	0.06
						1/2" Ice	6.18	5.01	0.10
						Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	137.00	No Ice	9.22	6.25	0.07
						1/2" Ice	9.98	6.96	0.14
						Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	137.00	No Ice	12.25	8.33	0.10
						1/2" Ice	13.19	9.23	0.19
						Ice	14.16	10.15	0.30
						1" Ice	16.14	12.05	0.54
						2" Ice			
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	137.00	No Ice	12.25	8.33	0.10
						1/2" Ice	13.19	9.23	0.19
						Ice	14.16	10.15	0.30
						1" Ice	16.14	12.05	0.54
						2" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 -7.00 1.00	0.0000	137.00	No Ice	4.63	3.27	0.07
						1/2" Ice	5.06	3.69	0.13
						Ice	5.51	4.12	0.20
						1" Ice	6.43	5.00	0.38
						2" Ice			
P65-17-XLH-RR w/ Mount Pipe	B	From Leg	4.00 -7.00 1.00	0.0000	137.00	No Ice	7.48	5.29	0.09
						1/2" Ice	8.17	5.96	0.17
						Ice	8.88	6.64	0.26
						1" Ice	10.33	8.05	0.49
						2" Ice			
P65-17-XLH-RR w/ Mount Pipe	C	From Leg	4.00 -7.00 1.00	0.0000	137.00	No Ice	7.48	5.29	0.09
						1/2" Ice	8.17	5.96	0.17
						Ice	8.88	6.64	0.26
						1" Ice	10.33	8.05	0.49
						2" Ice			
(4) 7020.00	A	From Leg	4.00 0.00 1.00	0.0000	137.00	No Ice	0.10	0.17	0.00
						1/2" Ice	0.15	0.24	0.01
						Ice	0.20	0.31	0.01
						1" Ice	0.33	0.48	0.02
						2" Ice			

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	
(4) 7020.00	B	From Leg	4.00 0.00 1.00	0.0000	137.00	2" Ice			
						No Ice	0.10	0.17	0.00
						1/2"	0.15	0.24	0.01
						Ice	0.20	0.31	0.01
(4) 7020.00	C	From Leg	4.00 0.00 1.00	0.0000	137.00	1" Ice	0.33	0.48	0.02
						2" Ice			
						No Ice	0.10	0.17	0.00
						1/2"	0.15	0.24	0.01
TT19-08BP111-001	A	From Leg	4.00 0.00 1.00	0.0000	137.00	Ice	0.20	0.31	0.01
						1" Ice	0.33	0.48	0.02
						2" Ice			
						No Ice	0.55	0.44	0.02
TT19-08BP111-001	B	From Leg	4.00 0.00 1.00	0.0000	137.00	1/2"	0.64	0.53	0.02
						Ice	0.74	0.63	0.03
						1" Ice	0.97	0.84	0.05
						2" Ice			
TT19-08BP111-001	C	From Leg	4.00 0.00 1.00	0.0000	137.00	No Ice	0.55	0.44	0.02
						1/2"	0.64	0.53	0.02
						Ice	0.74	0.63	0.03
						1" Ice	0.97	0.84	0.05
RRUS 32 B2	A	From Leg	4.00 0.00 1.00	0.0000	137.00	2" Ice			
						No Ice	2.73	1.67	0.05
						1/2"	2.95	1.86	0.07
						Ice	3.18	2.05	0.10
RRUS 32 B2	B	From Leg	4.00 0.00 1.00	0.0000	137.00	1" Ice	3.66	2.46	0.16
						2" Ice			
						No Ice	2.73	1.67	0.05
						1/2"	2.95	1.86	0.07
RRUS 32 B2	C	From Leg	4.00 0.00 1.00	0.0000	137.00	Ice	3.18	2.05	0.10
						1" Ice	3.66	2.46	0.16
						2" Ice			
						No Ice	2.73	1.67	0.05
RRUS 11 B12	A	From Leg	4.00 0.00 1.00	0.0000	137.00	1/2"	2.95	1.86	0.07
						Ice	3.18	2.05	0.10
						1" Ice	3.66	2.46	0.16
						2" Ice			
RRUS 11 B12	B	From Leg	4.00 0.00 1.00	0.0000	137.00	No Ice	2.83	1.18	0.05
						1/2"	3.04	1.33	0.07
						Ice	3.26	1.48	0.10
						1" Ice	3.71	1.83	0.15
RRUS 11 B12	C	From Leg	4.00 0.00 1.00	0.0000	137.00	2" Ice			
						No Ice	2.83	1.18	0.05
						1/2"	3.04	1.33	0.07
						Ice	3.26	1.48	0.10
DTMABP7819VG12A	A	From Leg	4.00 0.00 1.00	0.0000	137.00	1" Ice	3.71	1.83	0.15
						2" Ice			
						No Ice	0.98	0.34	0.02
						1/2"	1.10	0.42	0.03
DTMABP7819VG12A	B	From Leg	4.00 0.00 1.00	0.0000	137.00	Ice	1.23	0.51	0.04
						1" Ice	1.52	0.71	0.06
						2" Ice			
						No Ice	0.98	0.34	0.02
DTMABP7819VG12A	C	From Leg	4.00 0.00 1.00	0.0000	137.00	1/2"	1.10	0.42	0.03
						Ice	1.23	0.51	0.04
						1" Ice	1.52	0.71	0.06
						2" Ice			

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	
DTMABP7819VG12A	C	From Leg	4.00 0.00 1.00	0.0000	137.00	2" Ice			
						No Ice	0.98	0.34	0.02
						1/2"	1.10	0.42	0.03
						Ice	1.23	0.51	0.04
						1" Ice	1.52	0.71	0.06
DC6-48-60-18-8F	A	From Leg	4.00 0.00 1.00	0.0000	137.00	2" Ice			
						No Ice	1.21	1.21	0.02
						1/2"	1.89	1.89	0.04
						Ice	2.11	2.11	0.07
						1" Ice	2.57	2.57	0.13
*** 126 Reserved *** Side Arm Mount [SO 306-1]	C	From Face	0.00 0.00 0.00	0.0000	127.00	2" Ice			
						No Ice	0.98	2.18	0.04
						1/2"	1.70	3.80	0.06
						Ice	2.42	5.42	0.08
						1" Ice	3.86	8.66	0.12
CXL 900-3LW	C	From Face	4.00 0.00 0.00	0.0000	127.00	2" Ice			
						No Ice	0.14	0.14	0.00
						1/2"	0.33	0.33	0.00
						Ice	0.48	0.48	0.01
						1" Ice	0.81	0.81	0.02
LNA	C	From Face	4.00 0.00 0.00	0.0000	127.00	2" Ice			
						No Ice	0.14	0.05	0.00
						1/2"	0.19	0.09	0.00
						Ice	0.25	0.13	0.00
						1" Ice	0.39	0.24	0.01
CAVITY FILTER	C	From Face	4.00 0.00 0.00	0.0000	127.00	2" Ice			
						No Ice	0.19	0.08	0.00
						1/2"	0.25	0.12	0.00
						Ice	0.32	0.17	0.01
						1" Ice	0.47	0.29	0.02
*** 118 Proposed*** Platform Mount [LP 601-1]	C	None		0.0000	114.00	2" Ice			
						No Ice	28.50	28.50	1.12
						1/2"	31.69	31.69	1.68
						Ice	34.87	34.87	2.28
						1" Ice	41.23	41.23	3.65
Handrail Kit [NA 507-1]	C	None		0.0000	114.00	2" Ice			
						No Ice	4.80	4.80	0.25
						1/2"	6.70	6.70	0.29
						Ice	8.60	8.60	0.34
						1" Ice	12.40	12.40	0.44
Transition Ladder	C	From Face	2.00 0.00 -4.00	0.0000	114.00	2" Ice			
						No Ice	6.00	6.00	0.16
						1/2"	8.00	8.00	0.24
						Ice	10.00	10.00	0.32
						1" Ice	14.00	14.00	0.48
AIR-32 B2A/B66AAw/ Mount Pipe	A	From Leg	4.00 -6.00 0.00	0.0000	114.00	2" Ice			
						No Ice	6.75	6.07	0.15
						1/2"	7.20	6.87	0.21
						Ice	7.65	7.58	0.28
						1" Ice	8.57	9.06	0.44
AIR-32 B2A/B66AAw/ Mount Pipe	B	From Leg	4.00 -6.00 0.00	0.0000	114.00	2" Ice			
						No Ice	6.75	6.07	0.15
						1/2"	7.20	6.87	0.21
						Ice	7.65	7.58	0.28
						1" Ice	8.57	9.06	0.44
AIR-32 B2A/B66AAw/ Mount Pipe	C	From Leg	4.00 -6.00 0.00	0.0000	114.00	2" Ice			
						No Ice	6.75	6.07	0.15
						1/2"	7.20	6.87	0.21
						Ice	7.65	7.58	0.28
						1" Ice	8.57	9.06	0.44
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00	0.0000	114.00	2" Ice			
						No Ice	14.69	6.87	0.19
						1/2"	15.46	7.55	0.31

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			Ice 16.23	8.25	0.46
						1" Ice 17.82	9.67	0.79
						2" Ice		
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00	0.0000	114.00	No Ice 14.69	6.87	0.19
			0.00			1/2" 15.46	7.55	0.31
			0.00			Ice 16.23	8.25	0.46
						1" Ice 17.82	9.67	0.79
						2" Ice		
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00	0.0000	114.00	No Ice 14.69	6.87	0.19
			0.00			1/2" 15.46	7.55	0.31
			0.00			Ice 16.23	8.25	0.46
						1" Ice 17.82	9.67	0.79
						2" Ice		
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00	0.0000	114.00	No Ice 5.87	3.27	0.13
			0.00			1/2" 6.23	3.73	0.18
			2.00			Ice 6.61	4.20	0.23
						1" Ice 7.38	5.20	0.36
						2" Ice		
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00	0.0000	114.00	No Ice 5.87	3.27	0.13
			0.00			1/2" 6.23	3.73	0.18
			2.00			Ice 6.61	4.20	0.23
						1" Ice 7.38	5.20	0.36
						2" Ice		
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00	0.0000	114.00	No Ice 5.87	3.27	0.13
			0.00			1/2" 6.23	3.73	0.18
			2.00			Ice 6.61	4.20	0.23
						1" Ice 7.38	5.20	0.36
						2" Ice		
RADIO 4449 B71/B85A	A	From Leg	4.00	0.0000	114.00	No Ice 1.64	1.31	0.07
			0.00			1/2" 1.80	1.46	0.09
			0.00			Ice 1.97	1.61	0.11
						1" Ice 2.33	1.94	0.16
						2" Ice		
RADIO 4449 B71/B85A	B	From Leg	4.00	0.0000	114.00	No Ice 1.64	1.31	0.07
			0.00			1/2" 1.80	1.46	0.09
			0.00			Ice 1.97	1.61	0.11
						1" Ice 2.33	1.94	0.16
						2" Ice		
RADIO 4449 B71/B85A	C	From Leg	4.00	0.0000	114.00	No Ice 1.64	1.31	0.07
			0.00			1/2" 1.80	1.46	0.09
			0.00			Ice 1.97	1.61	0.11
						1" Ice 2.33	1.94	0.16
						2" Ice		
KRY 112 144/1	A	From Leg	4.00	0.0000	114.00	No Ice 0.35	0.17	0.01
			0.00			1/2" 0.43	0.23	0.01
			0.00			Ice 0.51	0.30	0.02
						1" Ice 0.70	0.46	0.03
						2" Ice		
KRY 112 144/1	B	From Leg	4.00	0.0000	114.00	No Ice 0.35	0.17	0.01
			0.00			1/2" 0.43	0.23	0.01
			0.00			Ice 0.51	0.30	0.02
						1" Ice 0.70	0.46	0.03
						2" Ice		
KRY 112 144/1	C	From Leg	4.00	0.0000	114.00	No Ice 0.35	0.17	0.01
			0.00			1/2" 0.43	0.23	0.01
			0.00			Ice 0.51	0.30	0.02
						1" Ice 0.70	0.46	0.03
						2" Ice		
RRUS 4415 B25_CCIV2	A	From Leg	4.00	0.0000	114.00	No Ice 1.84	0.82	0.05
			0.00			1/2" 2.01	0.94	0.06
			2.00			Ice 2.19	1.07	0.08
						1" Ice 2.57	1.37	0.12
						2" Ice		
RRUS 4415 B25_CCIV2	B	From Leg	4.00	0.0000	114.00	No Ice 1.84	0.82	0.05
			0.00			1/2" 2.01	0.94	0.06

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
			2.00			Ice	2.19	1.07	0.08
						1" Ice	2.57	1.37	0.12
						2" Ice			
RRUS 4415 B25_CCIV2	C	From Leg	4.00	0.0000	114.00	No Ice	1.84	0.82	0.05
			0.00			1/2"	2.01	0.94	0.06
			2.00			Ice	2.19	1.07	0.08
						1" Ice	2.57	1.37	0.12
						2" Ice			
SDX1926Q-43	A	From Leg	4.00	0.0000	114.00	No Ice	0.24	0.10	0.01
			0.00			1/2"	0.31	0.14	0.01
			2.00			Ice	0.38	0.19	0.01
						1" Ice	0.55	0.32	0.02
						2" Ice			
SDX1926Q-43	B	From Leg	4.00	0.0000	114.00	No Ice	0.24	0.10	0.01
			0.00			1/2"	0.31	0.14	0.01
			2.00			Ice	0.38	0.19	0.01
						1" Ice	0.55	0.32	0.02
						2" Ice			
SDX1926Q-43	C	From Leg	4.00	0.0000	114.00	No Ice	0.24	0.10	0.01
			0.00			1/2"	0.31	0.14	0.01
			2.00			Ice	0.38	0.19	0.01
						1" Ice	0.55	0.32	0.02
						2" Ice			
*** 95 Reserved ***									
T-Arm Mount[TA 702-1]	B	From Face	0.00	60.0000	95.00	No Ice	2.78	2.23	0.11
			0.00			1/2"	3.39	2.43	0.14
			0.00			Ice	4.00	2.63	0.17
						1" Ice	5.22	3.03	0.23
						2" Ice			
T-Arm Mount[TA 702-1]	C	From Face	0.00	60.0000	95.00	No Ice	2.78	2.23	0.11
			0.00			1/2"	3.39	2.43	0.14
			0.00			Ice	4.00	2.63	0.17
						1" Ice	5.22	3.03	0.23
						2" Ice			
6' x 2" Mount Pipe	C	From Face	0.00	60.0000	95.00	No Ice	1.43	1.43	0.02
			-2.50			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
HT65A-F-2X2 w/ Mount Pipe	B	From Face	3.00	0.0000	95.00	No Ice	1.98	1.93	0.04
			-2.50			1/2"	2.29	2.24	0.08
			2.00			Ice	2.62	2.56	0.12
						1" Ice	3.30	3.24	0.22
						2" Ice			
FWHR	B	From Face	3.00	0.0000	95.00	No Ice	1.03	0.51	0.03
			0.00			1/2"	1.16	0.60	0.04
			2.00			Ice	1.30	0.70	0.05
						1" Ice	1.59	0.92	0.08
						2" Ice			
Ice Shield 1.5' x 2.0'	C	From Leg	3.00	0.0000	95.00	No Ice	0.30	0.40	0.03
			-2.50			1/2"	0.41	0.55	0.04
			4.00			Ice	0.54	0.70	0.06
						1" Ice	0.80	1.04	0.12
						2" Ice			
*** 87 Abandoned ***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	
*** 95 R ***											
repeater technologies DA1900-39	C	Paraboloid w/Shroud (HP)	From Face	3.00 -2.50 1.00	-30.0000		95.00	3.54	No Ice 1/2" Ice 1" Ice 2" Ice	9.86 10.32 10.77 11.68	0.05 0.10 0.15 0.26

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
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service

Comb. No.	Description
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	144.813 - 92.3333	Pole	Max Tension	33	0.00	-0.00	0.00
			Max. Compression	26	-50.46	1.49	-2.61
			Max. Mx	20	-21.16	693.35	-1.15
			Max. My	14	-21.14	0.48	-702.39
			Max. Vy	8	20.05	-693.20	-0.33
			Max. Vx	2	-20.18	-0.43	700.87
			Max. Torque	11			-2.32
L2	92.3333 - 44.5208	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.07	-1.62	-2.86
			Max. Mx	8	-35.45	-1766.73	-6.69
			Max. My	2	-35.44	5.03	1785.70
			Max. Vy	20	-25.84	1766.48	8.60
			Max. Vx	2	-26.09	5.03	1785.70
			Max. Torque	9			-2.61
L3	44.5208 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-103.67	-3.70	-1.86
			Max. Mx	20	-56.83	3229.02	19.93
			Max. My	2	-56.83	11.72	3260.82
			Max. Vy	20	-31.40	3229.02	19.93
			Max. Vx	2	-31.64	11.72	3260.82
			Max. Torque	9			-2.61

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	32	103.67	-3.69	-6.38
	Max. H _x	20	56.84	31.38	0.22
	Max. H _z	2	56.84	0.13	31.62
	Max. M _x	2	3260.82	0.13	31.62
	Max. M _z	8	3228.59	-31.36	-0.13
	Max. Torsion	21	2.34	31.38	0.22
	Min. Vert	19	42.63	27.11	-15.76
	Min. H _x	8	56.84	-31.36	-0.13
	Min. H _z	14	56.84	-0.10	-31.52
	Min. M _x	14	-3254.09	-0.10	-31.52
	Min. M _z	20	-3229.02	31.38	0.22
	Min. Torsion	9	-2.61	-31.36	-0.13

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
Dead Only	47.37	0.00	0.00	0.99	-0.66	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	56.84	-0.13	-31.62	-3260.82	11.72	-0.66
0.9 Dead+1.0 Wind 0 deg - No Ice	42.63	-0.13	-31.62	-3234.19	11.85	-0.66

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 30 deg- No Ice	56.84	15.50	-27.39	-2824.72	-1597.41	0.59
0.9 Dead+1.0 Wind 30 deg- No Ice	42.63	15.50	-27.39	-2801.68	-1583.98	0.59
1.2 Dead+1.0 Wind 60 deg- No Ice	56.84	27.15	-15.69	-1618.34	-2795.84	2.20
0.9 Dead+1.0 Wind 60 deg- No Ice	42.63	27.15	-15.69	-1605.25	-2772.55	2.21
1.2 Dead+1.0 Wind 90 deg- No Ice	56.84	31.36	0.13	13.58	-3228.59	2.60
0.9 Dead+1.0 Wind 90 deg- No Ice	42.63	31.36	0.13	13.18	-3201.72	2.61
1.2 Dead+1.0 Wind 120 deg - No Ice	56.84	27.14	15.85	1636.09	-2794.78	2.36
0.9 Dead+1.0 Wind 120 deg - No Ice	42.63	27.14	15.85	1622.27	-2771.49	2.36
1.2 Dead+1.0 Wind 150 deg - No Ice	56.84	15.72	27.32	2820.29	-1617.87	1.73
0.9 Dead+1.0 Wind 150 deg - No Ice	42.63	15.72	27.32	2796.66	-1604.31	1.73
1.2 Dead+1.0 Wind 180 deg - No Ice	56.84	0.10	31.52	3254.09	-10.56	0.63
0.9 Dead+1.0 Wind 180 deg - No Ice	42.63	0.10	31.52	3226.87	-10.28	0.63
1.2 Dead+1.0 Wind 210 deg - No Ice	56.84	-15.56	27.32	2820.99	1602.36	-0.89
0.9 Dead+1.0 Wind 210 deg - No Ice	42.63	-15.56	27.32	2797.34	1589.31	-0.90
1.2 Dead+1.0 Wind 240 deg - No Ice	56.84	-27.11	15.76	1627.83	2790.15	-2.22
0.9 Dead+1.0 Wind 240 deg - No Ice	42.63	-27.11	15.76	1614.05	2767.30	-2.23
1.2 Dead+1.0 Wind 270 deg - No Ice	56.84	-31.38	-0.22	-19.93	3229.02	-2.34
0.9 Dead+1.0 Wind 270 deg - No Ice	42.63	-31.38	-0.22	-20.11	3202.57	-2.34
1.2 Dead+1.0 Wind 300 deg - No Ice	56.84	-27.21	-15.92	-1640.68	2799.69	-2.31
0.9 Dead+1.0 Wind 300 deg - No Ice	42.63	-27.21	-15.92	-1627.45	2776.79	-2.31
1.2 Dead+1.0 Wind 330 deg - No Ice	56.84	-15.76	-27.40	-2825.70	1620.75	-1.70
0.9 Dead+1.0 Wind 330 deg - No Ice	42.63	-15.76	-27.40	-2802.66	1607.60	-1.70
1.2 Dead+1.0 Ice	103.67	0.00	0.00	1.86	-3.70	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice	103.67	-0.03	-7.38	-812.01	-0.62	-0.12
1.2 Dead+1.0 Wind 30 deg+1.0 Ice	103.67	3.64	-6.39	-702.72	-404.98	0.20
1.2 Dead+1.0 Wind 60 deg+1.0 Ice	103.67	6.37	-3.66	-402.05	-705.19	0.57
1.2 Dead+1.0 Wind 90 deg+1.0 Ice	103.67	7.35	0.03	5.27	-814.21	0.67
1.2 Dead+1.0 Wind 120 deg+1.0 Ice	103.67	6.37	3.70	410.55	-705.78	0.60
1.2 Dead+1.0 Wind 150 deg+1.0 Ice	103.67	3.69	6.38	706.33	-410.34	0.41
1.2 Dead+1.0 Wind 180 deg+1.0 Ice	103.67	0.02	7.36	814.37	-6.55	0.12
1.2 Dead+1.0 Wind 210 deg+1.0 Ice	103.67	-3.65	6.38	705.66	398.55	-0.26
1.2 Dead+1.0 Wind 240 deg+1.0 Ice	103.67	-6.36	3.68	407.56	696.69	-0.57
1.2 Dead+1.0 Wind 270 deg+1.0 Ice	103.67	-7.36	-0.05	-2.84	806.91	-0.62
1.2 Dead+1.0 Wind 300 deg+1.0 Ice	103.67	-6.38	-3.72	-407.77	699.34	-0.59
1.2 Dead+1.0 Wind 330 deg+1.0 Ice	103.67	-3.70	-6.40	-703.71	403.51	-0.41

Load Combination	Vertical	Shear _x	Shear _z	Overtuning Moment, M _x	Overtuning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 0 deg - Service	47.37	-0.03	-6.86	-703.26	2.03	-0.15
Dead+Wind 30 deg - Service	47.37	3.36	-5.94	-609.10	-345.39	0.13
Dead+Wind 60 deg - Service	47.37	5.89	-3.40	-348.64	-604.14	0.48
Dead+Wind 90 deg - Service	47.37	6.80	0.03	3.70	-697.57	0.57
Dead+Wind 120 deg - Service	47.37	5.89	3.44	354.00	-603.91	0.51
Dead+Wind 150 deg - Service	47.37	3.41	5.93	609.67	-349.81	0.37
Dead+Wind 180 deg - Service	47.37	0.02	6.84	703.33	-2.79	0.14
Dead+Wind 210 deg - Service	47.37	-3.38	5.93	609.82	345.45	-0.19
Dead+Wind 240 deg - Service	47.37	-5.88	3.42	352.21	601.89	-0.48
Dead+Wind 270 deg - Service	47.37	-6.81	-0.05	-3.54	696.65	-0.51
Dead+Wind 300 deg - Service	47.37	-5.90	-3.46	-353.47	603.96	-0.50
Dead+Wind 330 deg - Service	47.37	-3.42	-5.95	-609.32	349.42	-0.37

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	0.00	-47.37	0.00	0.00	47.37	0.00	0.000%
2	-0.13	-56.84	-31.62	0.13	56.84	31.62	0.000%
3	-0.13	-42.63	-31.62	0.13	42.63	31.62	0.000%
4	15.50	-56.84	-27.39	-15.50	56.84	27.39	0.000%
5	15.50	-42.63	-27.39	-15.50	42.63	27.39	0.000%
6	27.15	-56.84	-15.69	-27.15	56.84	15.69	0.000%
7	27.15	-42.63	-15.69	-27.15	42.63	15.69	0.000%
8	31.36	-56.84	0.13	-31.36	56.84	-0.13	0.000%
9	31.36	-42.63	0.13	-31.36	42.63	-0.13	0.000%
10	27.14	-56.84	15.85	-27.14	56.84	-15.85	0.000%
11	27.14	-42.63	15.85	-27.14	42.63	-15.85	0.000%
12	15.72	-56.84	27.32	-15.72	56.84	-27.32	0.000%
13	15.72	-42.63	27.32	-15.72	42.63	-27.32	0.000%
14	0.10	-56.84	31.52	-0.10	56.84	-31.52	0.000%
15	0.10	-42.63	31.52	-0.10	42.63	-31.52	0.000%
16	-15.56	-56.84	27.32	15.56	56.84	-27.32	0.000%
17	-15.56	-42.63	27.32	15.56	42.63	-27.32	0.000%
18	-27.11	-56.84	15.76	27.11	56.84	-15.76	0.000%
19	-27.11	-42.63	15.76	27.11	42.63	-15.76	0.000%
20	-31.38	-56.84	-0.22	31.38	56.84	0.22	0.000%
21	-31.38	-42.63	-0.22	31.38	42.63	0.22	0.000%
22	-27.21	-56.84	-15.92	27.21	56.84	15.92	0.000%
23	-27.21	-42.63	-15.92	27.21	42.63	15.92	0.000%
24	-15.76	-56.84	-27.40	15.76	56.84	27.40	0.000%
25	-15.76	-42.63	-27.40	15.76	42.63	27.40	0.000%
26	0.00	-103.67	0.00	0.00	103.67	-0.00	0.000%
27	-0.03	-103.67	-7.38	0.03	103.67	7.38	0.000%
28	3.64	-103.67	-6.39	-3.64	103.67	6.39	0.000%
29	6.37	-103.67	-3.66	-6.37	103.67	3.66	0.000%
30	7.35	-103.67	0.03	-7.35	103.67	-0.03	0.000%
31	6.37	-103.67	3.70	-6.37	103.67	-3.70	0.000%
32	3.69	-103.67	6.38	-3.69	103.67	-6.38	0.000%
33	0.02	-103.67	7.36	-0.02	103.67	-7.36	0.000%
34	-3.65	-103.67	6.38	3.65	103.67	-6.38	0.000%
35	-6.36	-103.67	3.68	6.36	103.67	-3.68	0.000%
36	-7.36	-103.67	-0.05	7.36	103.67	0.05	0.000%
37	-6.38	-103.67	-3.71	6.38	103.67	3.72	0.000%
38	-3.70	-103.67	-6.40	3.70	103.67	6.40	0.000%
39	-0.03	-47.37	-6.86	0.03	47.37	6.86	0.000%
40	3.36	-47.37	-5.94	-3.36	47.37	5.94	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
41	5.89	-47.37	-3.40	-5.89	47.37	3.40	0.000%
42	6.80	-47.37	0.03	-6.80	47.37	-0.03	0.000%
43	5.89	-47.37	3.44	-5.89	47.37	-3.44	0.000%
44	3.41	-47.37	5.93	-3.41	47.37	-5.93	0.000%
45	0.02	-47.37	6.84	-0.02	47.37	-6.84	0.000%
46	-3.38	-47.37	5.93	3.38	47.37	-5.93	0.000%
47	-5.88	-47.37	3.42	5.88	47.37	-3.42	0.000%
48	-6.81	-47.37	-0.05	6.81	47.37	0.05	0.000%
49	-5.90	-47.37	-3.46	5.90	47.37	3.46	0.000%
50	-3.42	-47.37	-5.95	3.42	47.37	5.95	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	0.00017845
3	Yes	4	0.00000001	0.00011127
4	Yes	5	0.00000001	0.00011251
5	Yes	5	0.00000001	0.00005369
6	Yes	5	0.00000001	0.00010705
7	Yes	5	0.00000001	0.00005095
8	Yes	4	0.00000001	0.00034160
9	Yes	4	0.00000001	0.00022521
10	Yes	5	0.00000001	0.00012001
11	Yes	5	0.00000001	0.00005744
12	Yes	5	0.00000001	0.00010770
13	Yes	5	0.00000001	0.00005117
14	Yes	4	0.00000001	0.00015003
15	Yes	4	0.00000001	0.00009093
16	Yes	5	0.00000001	0.00011089
17	Yes	5	0.00000001	0.00005282
18	Yes	5	0.00000001	0.00011749
19	Yes	5	0.00000001	0.00005622
20	Yes	4	0.00000001	0.00026614
21	Yes	4	0.00000001	0.00017403
22	Yes	5	0.00000001	0.00010691
23	Yes	5	0.00000001	0.00005083
24	Yes	5	0.00000001	0.00011907
25	Yes	5	0.00000001	0.00005694
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00012469
28	Yes	4	0.00000001	0.00021531
29	Yes	4	0.00000001	0.00020010
30	Yes	4	0.00000001	0.00013919
31	Yes	4	0.00000001	0.00024382
32	Yes	4	0.00000001	0.00020784
33	Yes	4	0.00000001	0.00012687
34	Yes	4	0.00000001	0.00021063
35	Yes	4	0.00000001	0.00023469
36	Yes	4	0.00000001	0.00013582
37	Yes	4	0.00000001	0.00020105
38	Yes	4	0.00000001	0.00023135
39	Yes	4	0.00000001	0.00001333
40	Yes	4	0.00000001	0.00003561
41	Yes	4	0.00000001	0.00003205
42	Yes	4	0.00000001	0.00001914
43	Yes	4	0.00000001	0.00004374
44	Yes	4	0.00000001	0.00003251
45	Yes	4	0.00000001	0.00001313
46	Yes	4	0.00000001	0.00003414
47	Yes	4	0.00000001	0.00004096
48	Yes	4	0.00000001	0.00001764
49	Yes	4	0.00000001	0.00003226
50	Yes	4	0.00000001	0.00004187

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	144.813 - 92.3333	12.307	45	0.8052	0.0038
L2	97.2917 - 44.5208	5.327	45	0.5438	0.0012
L3	51.1042 -0	1.410	45	0.2571	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.00	Platform Mount [LP 1001-1]	45	12.307	0.8052	0.0038	69230
137.00	Platform Mount [LP 1001-1]	45	11.060	0.7642	0.0032	44307
127.00	Side Arm Mount [SO 306-1]	45	9.491	0.7112	0.0025	19433
114.00	Platform Mount [LP 601-1]	45	7.548	0.6404	0.0018	11234
96.00	repeater technologies DA1900-39	45	5.173	0.5360	0.0011	7380
95.00	T-Arm Mount [TA 702-1]	45	5.055	0.5299	0.0011	7368

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	144.813 - 92.3333	57.008	2	3.7326	0.0172
L2	97.2917 - 44.5208	24.697	2	2.5197	0.0054
L3	51.1042 -0	6.538	2	1.1923	0.0016

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.00	Platform Mount [LP 1001-1]	2	57.008	3.7326	0.0176	15045
137.00	Platform Mount [LP 1001-1]	2	51.238	3.5424	0.0148	9628
127.00	Side Arm Mount [SO 306-1]	2	43.974	3.2965	0.0117	4222
114.00	Platform Mount [LP 601-1]	2	34.982	2.9678	0.0083	2439
96.00	repeater technologies DA1900-39	2	23.981	2.4835	0.0053	1600
95.00	T-Arm Mount [TA 702-1]	2	23.435	2.4553	0.0052	1597

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 $\frac{P_u}{\phi P_n}$
L1	144.813 - 92.3333 (1)	TP35.675x20.5x0.3438	52.48	0.00	0.0	37.520 3	-21.14	2194.94	0.010
L2	92.3333 - 44.5208 (2)	TP48.658x33.5537x0.437 5	52.77	0.00	0.0	65.276 1	-35.44	3818.65	0.009
L3	44.5208 -0 (3)	TP60.5x45.8987x0.4688	51.10	0.00	0.0	90.609 7	-56.83	5300.67	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{rx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M_{uy} kip-ft	ϕM_{ry} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
L1	144.813 - 92.3333 (1)	TP35.675x20.5x0.3438	702.39	1793.08	0.392	0.00	1793.08	0.000
L2	92.3333 - 44.5208 (2)	TP48.658x33.5537x0.437 5	1785.71	4149.03	0.430	0.00	4149.03	0.000
L3	44.5208 -0 (3)	TP60.5x45.8987x0.4688	3260.84	6827.62	0.478	0.00	6827.62	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	144.813 - 92.3333 (1)	TP35.675x20.5x0.3438	20.18	644.43	0.031	1.51	1963.41	0.001
L2	92.3333 - 44.5208 (2)	TP48.658x33.5537x0.437 5	26.09	1145.60	0.023	0.66	4669.30	0.000
L3	44.5208 -0 (3)	TP60.5x45.8987x0.4688	31.64	1590.20	0.020	0.66	8397.08	0.000

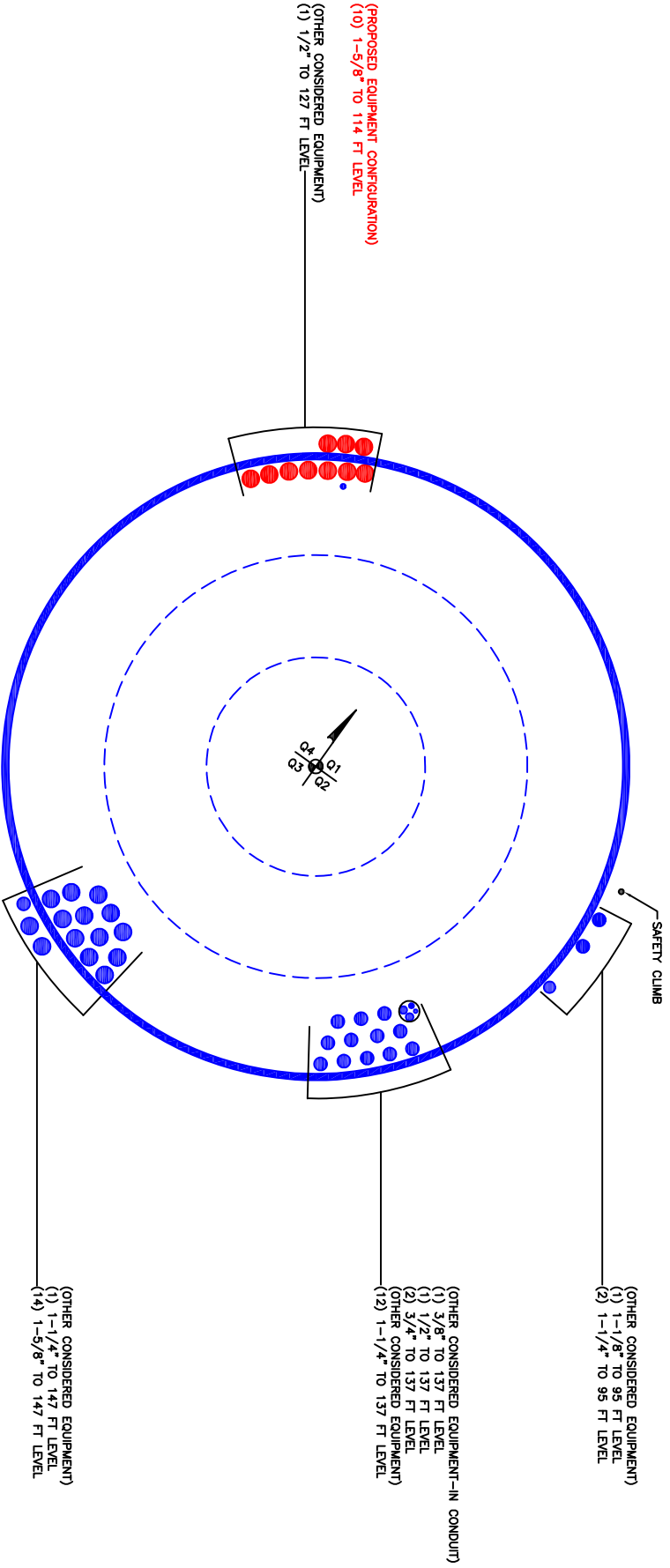
Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	Ratio $\frac{M_{uy}}{\phi M_{ry}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	144.813 - 92.3333 (1)	0.010	0.392	0.000	0.031	0.001	0.402	1.050	4.8.2
L2	92.3333 - 44.5208 (2)	0.009	0.430	0.000	0.023	0.000	0.440	1.050	4.8.2
L3	44.5208 -0 (3)	0.011	0.478	0.000	0.020	0.000	0.489	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\emptyset P_{allow} / K$	% Capacity	Pass Fail	
L1	144.813 - 92.3333	Pole	TP35.675x20.5x0.3438	1	-21.14	2304.69	38.3	Pass	
L2	92.3333 - 44.5208	Pole	TP48.658x33.5537x0.4375	2	-35.44	4009.58	41.9	Pass	
L3	44.5208 - 0	Pole	TP60.5x45.8987x0.4688	3	-56.83	5565.70	46.5	Pass	
							Summary		
							Pole (L3)	46.5	Pass
							RATING =	46.5	Pass

APPENDIX B
BASE LEVEL DRAWING



(PROPOSED EQUIPMENT CONFIGURATION)

(10) 1-5/8" TO 114 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)

(1) 1/2" TO 127 FT LEVEL

SAFETY CLIMB

(OTHER CONSIDERED EQUIPMENT)

(1) 1-1/8" TO 95 FT LEVEL

(2) 1-1/4" TO 95 FT LEVEL

(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)

(1) 3/8" TO 137 FT LEVEL

(1) 1/2" TO 137 FT LEVEL

(2) 3/4" TO 137 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)

(12) 1-1/4" TO 137 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)

(1) 1-1/4" TO 147 FT LEVEL

(14) 1-5/8" TO 147 FT LEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

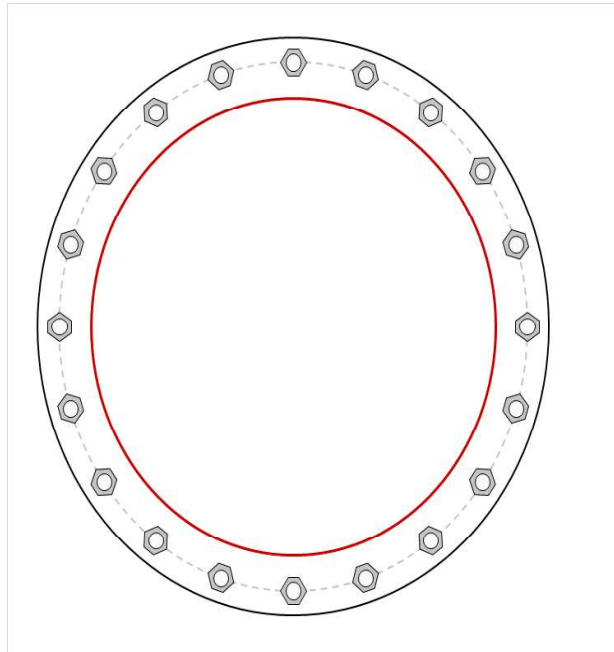


Site Info	
BU #	806368
Site Name	
Order #	529719 rev# 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	1.875

Applied Loads	
Moment (kip-ft)	3260.85
Axial Force (kips)	56.83
Shear Force (kips)	31.64

*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
(20) 2-1/4" ϕ bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 70" BC
Base Plate Data
76.5" OD x 2.25" Plate (A871; Fy=60 ksi, Fu=75 ksi)
Stiffener Data
N/A
Pole Data
60.5" x 0.46875" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
Pu_c = 114.59	$\phi Pn_c = 268.39$	Stress Rating
Vu = 1.58	$\phi Vn = 120.77$	40.7%
Mu = n/a	$\phi Mn = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	27.09	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	47.8%	Pass

Monopole Base Reaction Comparison Test



BU # :	806368
Site Name:	
Order Number:	529719 rev# 0
Design TIA:	TIA-222-F
Current TIA:	TIA-222-H
Component:	Monopole Base
Reference Doc ID:	262188

TIA-222-F Compared To TIA-222-H

MONOPOLE BASE FOUNDATION REACTION COMPARISON

REACTIONS	DESIGN REACTIONS	*MODIFIED DESIGN REACTIONS	CURRENT REACTIONS	% CAPACITY
MOMENT (kip-ft)	5001.6	6752.2	3261.0	46.0%
SHEAR (kips)	44.6	60.2	32.0	50.6%

Design loads from: CClites Doc #262188

Although the shear capacity is at 50.6%, the moment reaction is the governing criteria for a monopole drilled pier foundation. Therefore, the overall capacity for this foundation is 46.0%.

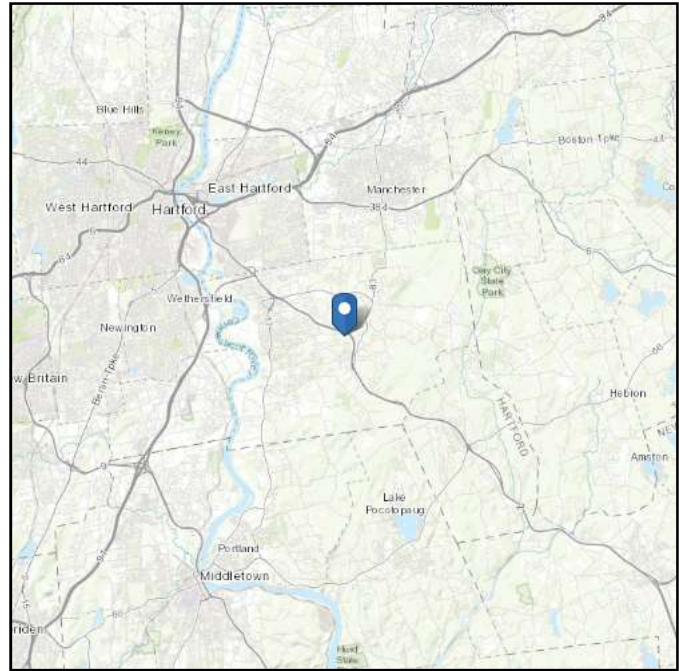
*Design loads were multiplied by 1.35 for comparison as allowed by TIA-222-H, Section 15.6.

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 467.15 ft (NAVD 88)
Latitude: 41.693592
Longitude: -72.547253



Wind

Results:

Wind Speed:	125 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	102 Vmph

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

Date Accessed: Mon Nov 02 2020

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

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

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

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 5 F
Gust Speed: 50 mph

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

Date Accessed: Mon Nov 02 2020

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.

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.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.



BU: 806369
 WO: 1890944
 Order: 529719

Structure: A
 Rev: 0

Location

	Decimal Degrees	Deg	Min	Sec
Lat:	41.693592	+	41	41
Long:	-72.547253	-	72	32
				36.93
				50.11

Code and Site Parameters

Seismic Design Code: ASCE 7-10
 Site Soil: D Stiff Soil (Default)
 Risk Category: II

USGS Seismic Reference

S_S: 0.1810 g
 S₁: 0.0640 g
 T_L: 6 s

Seismic Design Category Determination

Importance Factor, I_e: 1
 Acceleration-based site coefficient, F_a: 1.6000
 Velocity-based site coefficient, F_v: 2.4000

Design spectral response acceleration short period, S_{DS}: 0.1931 g
 Design spectral response acceleration 1 s period, S_{D1}: 0.1024 g

Seismic Design Category Based on S_{DS}: B
 Seismic Design Category Based on S_{D1}: B
 Seismic Design Category Based on S₁: N/A

Controlling Seismic Design Category: B

Exhibit E

Mount Analysis

Date: October 14, 2020

Darcy Tarr
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679

Subject: Mount Analysis Report

Carrier Designation: T-Mobile Equipment Change-out
Carrier Site Number: CT11248A
Carrier Site Name: Glastonbury

Crown Castle Designation: Crown Castle BU Number: 806368
Crown Castle Site Name: HRT 049B 943215
Crown Castle JDE Job Number: 620134
Crown Castle Purchase Order Number: 1576217
Crown Castle Order Number: 529719 Rev. 0

Engineering Firm Designation: Paul J Ford and Company Project Number: A37520-2225.001.7190
(Revised RISA Model)

Site Data: 374 Three Mile Rd., Glastonbury, Hartford County, CT 06033
Latitude 41.693592°, Longitude -72.547253°

Structure Information: Tower Height & Type: 145 Foot Monopole
Mount Elevation: 114 Foot
Mount Type: (3)-Sector 12 Foot Platform

Dear Darcy Tarr,

Paul J Ford and Company is pleased to submit this "Mount Analysis Report" to determine the structural integrity of the T-Mobile 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 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:

12' Platform

SUFFICIENT (79.9%)

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by:

JLM

Respectfully submitted by:



Jared Forbes, E.I.
Structural Designer
jforbes@pauljford.com

JMF

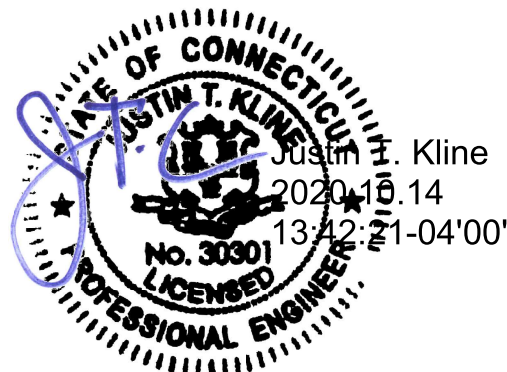


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- 4) ANALYSIS RESULTS**
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- 5) STANDARD CONDITIONS**
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- 7) APPENDIX B**
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- 8) APPENDIX C**
 - ADDITIONAL CALCULATIONS

1) INTRODUCTION

The existing mount under consideration is a (3)-Sector 12' Platform mount, mapped by RKS on 04/05/19.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 mph
Exposure Category:	B
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.179
Seismic S₁:	0.063
Maintenance Loading Wind Speed:	30 mph
Maintenance Load at Mid/End-Points, L_v:	250 lb
Maintenance Load at Mount Pipes, L_m:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
114	116	3	ERICSSON	RRUS 4415 B25_CCIV2	(3)-Sector 12' Platform
		3	COMMSCOPE	SDX1926Q-43	
		3	ERICSSON	KRY 112 144/1	
		3	ERICSSON	RADIO 4449 B71 B85A	
		3	ERICSSON	AIR6449 B41_T-MOBILE	
		3	ERICSSON	AIR -32 B2A/B66AA	
		3	RFS CELWAVE	APXVAARR24_43-U-NA20_T-MOBILE	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Mount Mapping	File #: 37519-1551 Dated: 04/05/2019	8352814	CCISites
Photos	Dated: 08/26/2020	-	CCISites
Order	ID: 529719 Rev. 0 Dated: 10/05/2020	-	CCISites
Radio Frequency Data Sheet	RFDS ID #: CT11248A Version 8.00, Dated: 09/23/2020	-	Crown Castle

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 tower and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Paul J. Ford and Company 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 C).

3.2) Assumptions

- 1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
- 2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
- 3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
- 4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This 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) *Steel grades are as follows, unless noted otherwise:*
 - a) Channel, Solid Round, Angle, Plate, Unistrut ASTM A36 (GR 36)
 - b) Pipe ASTM A53 (GR 35)
 - c) HSS (Rectangular) ASTM 500 (GR B-46)
 - d) HSS (Round) ASTM 500 (GR B-42)
 - e) Threaded Rods ASTM A36 (GR 36)
 - f) Connection Bolts ASTM A325
 - g) U-Bolts SAE J429 (GR 2)
- 6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 3- Mount Component Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Face Horizontals	114	49.1	Pass
1,2	Support Rails		35.8	Pass
1,2	Grating Support Members		76.1	Pass
1,2	Standoff Members		63.3	Pass
1,2	Mount Pipes		41.0	Pass
1,2	Mount to Tower Connection		47.5	Pass

Mount Rating (max from all components) =	76.1%
---	--------------

Notes:

- 1) See additional documentation in "Appendix B – 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. No modifications are required at this time.

**STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING
SERVICES ON EXISTING MOUNTS BY PAUL J. FORD AND COMPANY**

- 1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.
- 2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.
- 3) The mount has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.
- 4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.
- 5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

APPENDIX A

SOFTWARE INPUT CALCULATION

Mount Loading per TIA-222-H (Version v3.0 - Effective 9/14/2020)

Structure & Wind Speed

Structure Type = **Mount**
 Ultimate Wind Speed = **125** mph
 Ice Wind Speed = **50** mph
 Service Wind Speed = **30** mph
 Non-Op Wind Speed = **0** mph
 Op Wind Speed = **0** mph
 Ice Thickness = **2** in

Analysis Settings

Analysis Score = **Client**
 Analysis Wind Direction Incent = **30°**
 EPA Calculation Method = **TIA**
 Construction Duration =

Topography

Risk Category = **II**
 Exposure Category = **B**
 Topographic Category = **I**
 Structure Base Height (C_s) = **0** ft
 Crest Height (H) = **0** ft

Maintenance Point Loads

Load	Label	Node #	Node #
L ₁ = 500 lbs	N177	177	1
L ₂ = 500 lbs	N155	151	2
L ₃ = 500 lbs	N153	149	3
L ₄ = 500 lbs			

Velocity Pressure Coefficients

Z₁ = 1200 ft (Table 2-4)
 α = 7.00 (Table 2-4)
 K_z = 1.03 (Section 2.6.5.2)
 K_{zmax} = 2.0
 K_{zmin} = 0.0
 K_z = 1.00 (Section 16.5)
 K_z = 1.00 (Section 2.6.8)
 K_z = 1.00 (Section 16.5)
 K_z = 1.00 (Annex S - Wind Force)
 q_z = 38.59 psf (Section 2.6.11.6)

Override

K_z = 1.00 (Section 2.6.5.2.1)
 K_z = 0.95 (Section 16.5)
 K_z = 1.00 (Section 2.6.8)
 K_z = 1.00 (Section 16.5)
 K_z = 1.00 (Annex S - Wind Force)
 q_z = 38.59 psf (Section 2.6.11.6)

Ice Loading

h = **1.00** in (Ice Grating Height)
 I = **1.00** (Table 2-3)
 K_{ice} = **1.00** (Annex S - Ice)
 q_{ice} = **6.24 psf** (Section 2.6.11.6)
 K_{ice} = **1.19** (Section 2.6.10)
 K_{ice} = **2.28 in** (Section 2.6.10)
 W_{ice} = **15.23 psf** (Grating Ice Weight)

Wind Pressure

K_s = **0.9** (on all Appurt / Member Forces)
 (S) (G_s) (K_s) = **38.59 psf**
 (B) (G_s) (K_s) = **6.24 psf**
Override

Risa3D Source: G:\TOOVER375_Crown_Cable\2020\37520-2225-001.7190_MARIsar155_Client_2020-10-12\194922_Client.r3d (103 Total Population Members)

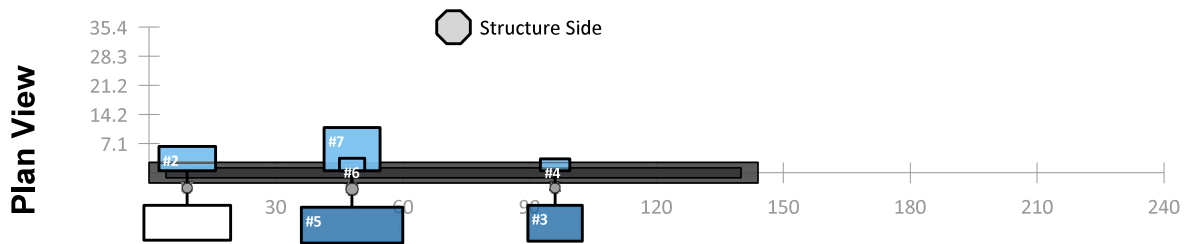
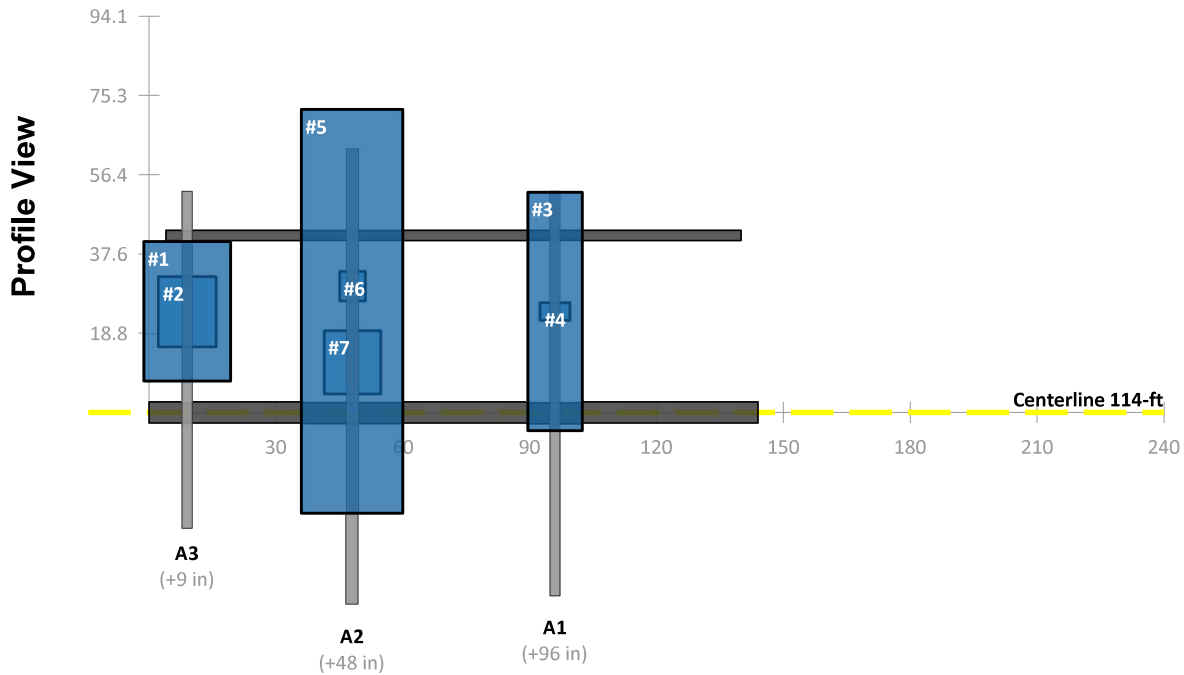
Antennas

Item	Include Loading	Status	Mounting Location	Manufacturer	Antenna	Height (ft)	Width (ft)	Depth (ft)	Flat or Round	Weight (lbs)	Sector / Face	Position	Quantity	Orientation	Use Top/Bottom Mounting (CFD)	Top/Bottom Mounting Spacing (in)	Override Spacing (in)	Max. Antenna C/L (ft)	Min. Antenna C/L (ft)	Antenna C/L (ft)	Antenna Top Mount Location From Pipe Bottom (ft)	Antenna Bottom Mount Location From Pipe Bottom (ft)	Override Top Antenna Location (ft)	Override Bottom Antenna Location (ft)	Normal Wind Force per Antenna (lbs)	Transverse Wind Force per Antenna (lbs)
1	Yes	Proposed	Mount	ERICSSON	AIR6449 B4L_T-MOBILE	33.11	20.51	8.54	Flat	114.63	A	3	1	Normal	No	27.11		117.245	112.639	116	65.05	37.95			196.558	96.893
2	Yes	Proposed	Mount	ERICSSON	AIR6449 B4L_T-MOBILE	33.11	20.51	8.54	Flat	114.63	B	3	1	Normal	No	27.11		117.245	112.639	116	65.05	37.95			196.558	96.893
3	Yes	Proposed	Mount	ERICSSON	AIR6449 B4L_T-MOBILE	33.11	20.51	8.54	Flat	114.63	C	3	1	Normal	No	27.11		117.245	112.639	116	65.05	37.95			196.558	96.893
4	Yes	Proposed	Mount	ERICSSON	RRUS 4415 B25_CCIV2	16.5	13.4	5.9	Flat	46	A	3	1	Normal	No	10.50		117.938	112.146	116	56.75	46.25			64.647	23.777
5	Yes	Proposed	Mount	ERICSSON	RRUS 4415 B25_CCIV2	16.5	13.4	5.9	Flat	46	B	3	1	Normal	No	10.50		117.938	112.146	116	56.75	46.25			64.647	23.777
6	Yes	Proposed	Mount	ERICSSON	RRUS 4415 B25_CCIV2	16.5	13.4	5.9	Flat	46	C	3	1	Normal	No	10.50		117.938	112.146	116	56.75	46.25			64.647	23.777
7	Yes	Existing	Mount	ERICSSON	AIR-32 B2A/BB6AA	56.6	12.9	8.7	Flat	132.2	A	1	1	Normal	No	50.60		116.267	112.483	116	92.80	41.20			226.410	165.339
8	Yes	Existing	Mount	ERICSSON	AIR-32 B2A/BB6AA	56.6	12.9	8.7	Flat	132.2	B	1	1	Normal	No	50.60		116.267	112.483	116	91.80	41.20			226.410	165.339
9	Yes	Existing	Mount	ERICSSON	AIR-32 B2A/BB6AA	56.6	12.9	8.7	Flat	132.2	C	1	1	Normal	No	50.60		116.267	112.483	116	92.80	41.20			226.410	165.339
10	Yes	Proposed	Mount	COMMSCOPE	SDX1926Q-43	4.173	6.929	2.913	Flat	6.17	A	1	1	Normal	No	1.00		116.333	110.417	116	68.00	67.00			8.454	3.954
11	Yes	Proposed	Mount	COMMSCOPE	SDX1926Q-43	4.173	6.929	2.913	Flat	6.17	B	1	1	Normal	No	1.00		116.333	110.417	116	67.00	68.00			8.454	3.954
12	Yes	Proposed	Mount	COMMSCOPE	SDX1926Q-43	4.173	6.929	2.913	Flat	6.17	C	1	1	Normal	No	1.00		116.333	110.417	116	68.00	67.00			8.454	3.954
13	Yes	Existing	Mount	RFS CELWAVE	APVVAARR24_43-JAAR0_CCI CFD	95.9	24	8.7	Flat	153.3	A	2	1	Normal	Yes	89.90	54	116.968	112.458	116	96.50	45.50			514.723	186.662
14	Yes	Existing	Mount	RFS CELWAVE	APVVAARR24_43-JAAR0_CCI CFD	95.9	24	8.7	Flat	153.3	B	2	1	Normal	Yes	89.90	54	116.968	112.458	116	96.50	45.50			514.723	186.662
15	Yes	Existing	Mount	RFS CELWAVE	APVVAARR24_43-JAAR0_CCI CFD	95.9	24	8.7	Flat	153.3	C	2	1	Normal	Yes	89.90	54	116.968	112.458	116	97.50	43.50			514.723	186.662
16	Yes	Existing	Mount	ERICSSON	KRY 112 1441	7	6	3	Flat	11	A	2	1	Normal	No	1.00		119.167	110.250	116.5	76.00	75.00			12.280	6.140
17	Yes	Existing	Mount	ERICSSON	KRY 112 1441	7	6	3	Flat	11	B	2	1	Normal	No	1.00		119.167	110.250	116.5	76.00	75.00			12.280	6.140
18	Yes	Existing	Mount	ERICSSON	RADIO 4448 B71/BB5A	14.86	13.19	10.51	Flat	74.95	A	2	1	Normal	No	3.96		118.083	110.167	116.5	77.00	76.00			57.695	45.972
19	Yes	Existing	Mount	ERICSSON	RADIO 4448 B71/BB5A	14.86	13.19	10.51	Flat	74.95	B	2	1	Normal	No	3.96		118.083	110.167	116.5	61.99	53.02			57.695	45.972
20	Yes	Existing	Mount	ERICSSON	RADIO 4448 B71/BB5A	14.86	13.19	10.51	Flat	74.95	B	2	1	Normal	No	3.96		118.083	110.167	116.5	84.99	56.02			57.695	45.972
21	Yes	Existing	Mount	ERICSSON	RADIO 4448 B71/BB5A	14.86	13.19	10.51	Flat	74.95	C	2	1	Normal	No	3.96		118.752	110.498	115	62.99	54.02			57.695	45.972

Dishes

Item	Include Loading	Status	Mounting Location	Manufacturer	Microwave Dish	Dia (in)	Dish Type	Weight (lbs)	Sector / Face	Position	Top/Bottom Mounting Spacing	Max. Dish C/L (ft)	Min. Dish C/L (ft)	Override Spacing (in)	Override Top Mount Location (ft)	Dish Bottom Mount Location From Mount Pipe Bottom	Dish Top Mount Location From Mount Pipe Bottom	Dish C/L (ft)	Override Top Mount Location (ft)	Override Bottom Mount Location (ft)
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ALL SECTORS TYPICAL



Ref ID	Type	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Center Line (ft)	Mount Pipe	Tangential Offset (in)	Normal Offset (in)
#1	Antenna	ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	116.00	A3	0.00	3.00
#2	TME/RRH	ERICSSON	RRUS 4415 B25_CCIV2	16.50	13.40	5.90	116.00	A3	0.00	-3.00
#3	Antenna	ERICSSON	AIR -32 B2A/B66AA	56.60	12.90	8.70	116.00	A1	0.00	3.00
#4	TME/RRH	COMMSCOPE	SDX1926Q-43	4.17	6.93	2.91	116.00	A1	0.00	-3.00
#5	Antenna	RFS CELWAVE	APXVAARR24_43-U-NA20	95.90	24.00	8.70	116.00	A2	0.00	3.00
#6	TME/RRH	ERICSSON	KRY 112 144/1	7.00	6.00	3.00	116.50	A2	0.00	-3.00
#7	TME/RRH	ERICSSON	RADIO 4449 B71/B85A	14.96	13.19	10.51	115.00	A2	0.00	-3.00

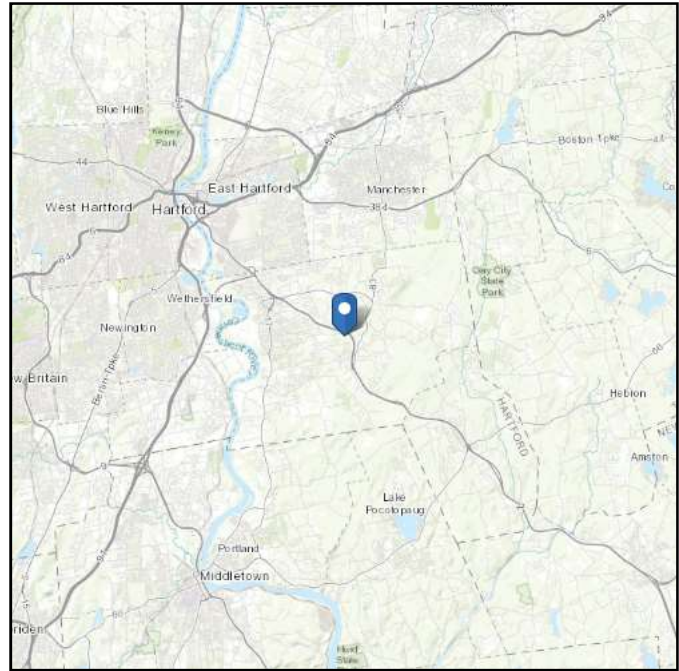
1. A 6" tolerance for proposed equipment is acceptable.
2. Contractor to verify location of existing equipment prior to installation of proposed equipment. Notify for any deviations.
3. Install shall not cause harm to the structure, climbing facility, safety climb, or any system installed on the structure

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 467.15 ft (NAVD 88)
Latitude: 41.693592
Longitude: -72.547253



Wind

Results:

Wind Speed:	125 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	102 Vmph

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

Date Accessed: Mon Apr 29 2019

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

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

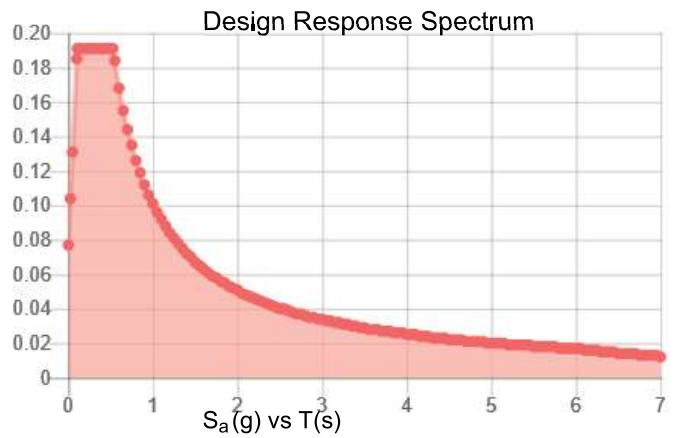
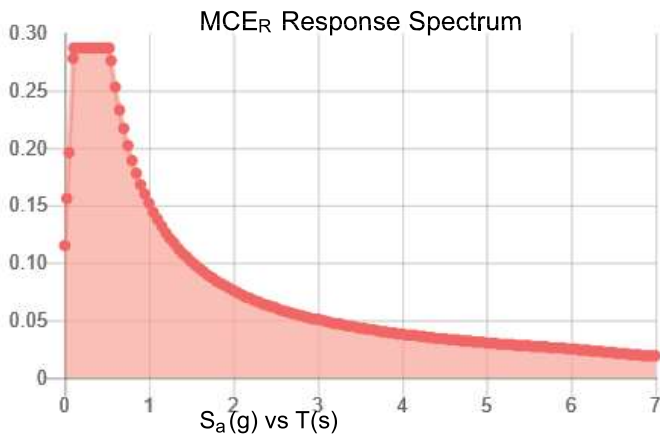
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.179	S_{DS} :	0.191
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.09
S_{MS} :	0.287	PGA _M :	0.145
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Mon Apr 29 2019

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.

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

Date Accessed: Mon Apr 29 2019

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.

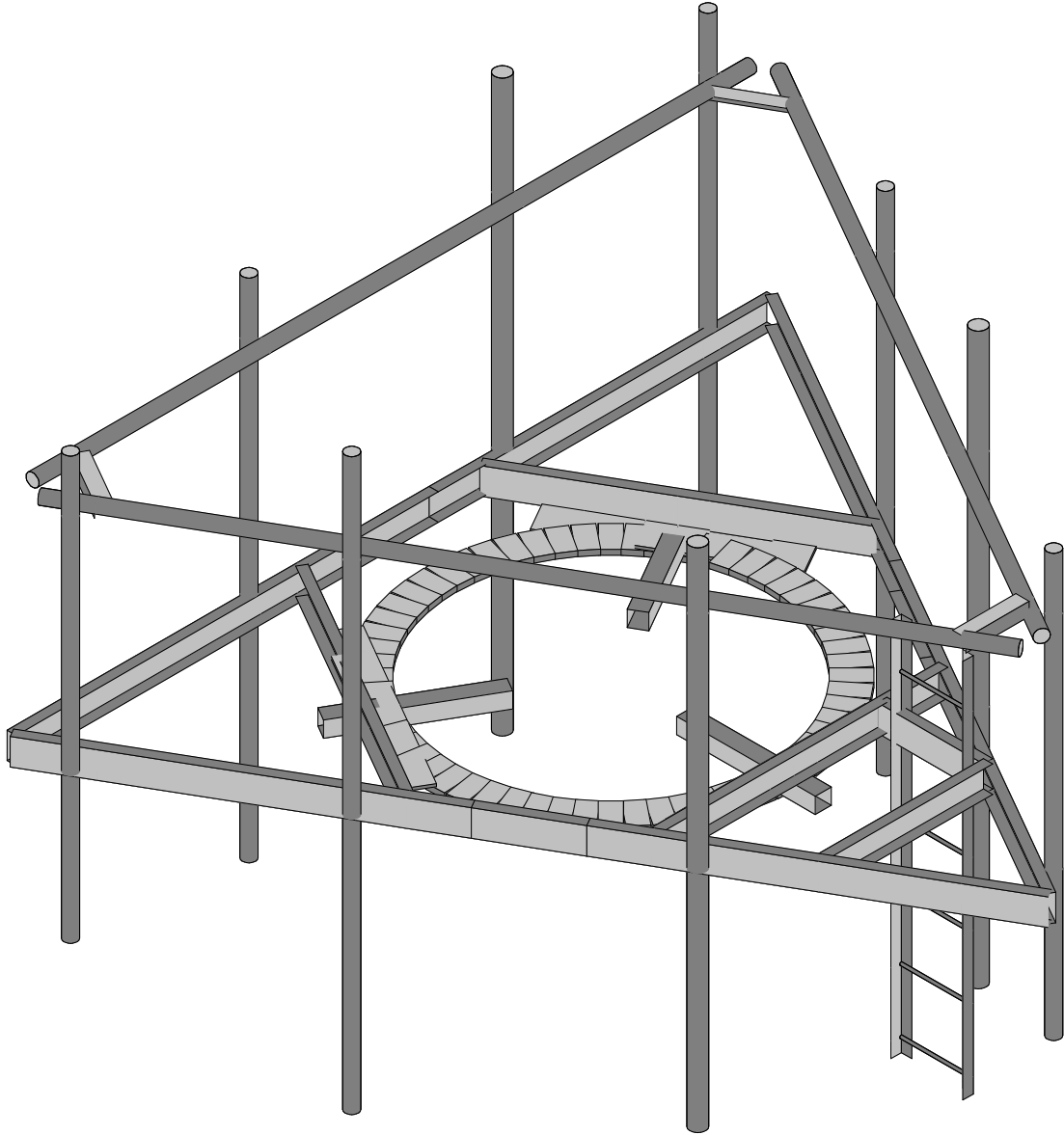
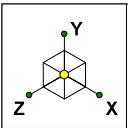
The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated 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.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

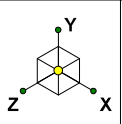
APPENDIX B

SOFTWARE ANALYSIS OUTPUT

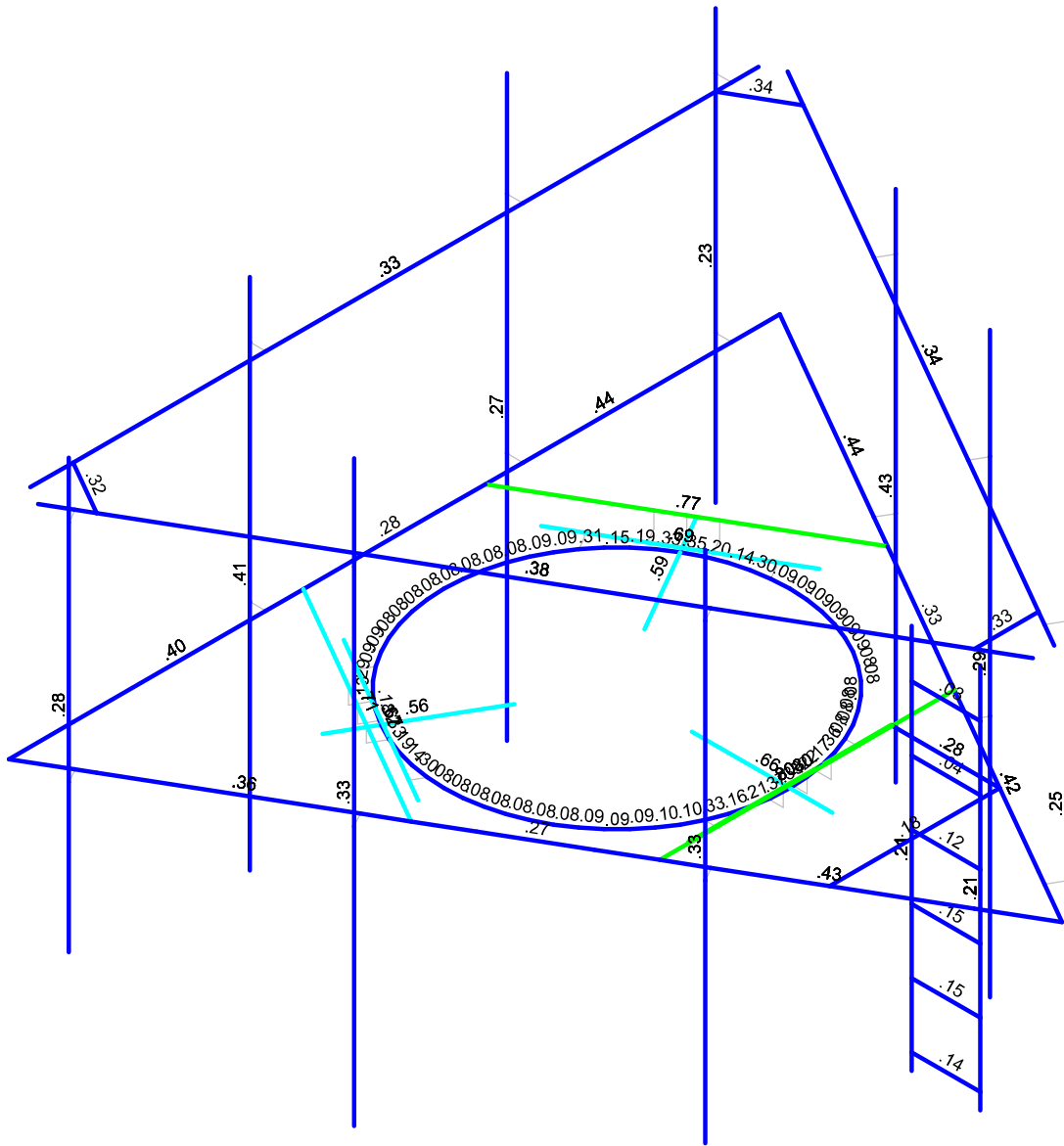


Envelope Only Solution

Paul J. Ford and Company	BU 806368 / HRT 049B 943215	SK - 1
JLM		Oct 14, 2020 at 10:55 AM
37520-2225.001.7190		Risa155_Client_2020-10-12T1849...



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



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Paul J. Ford and Company	BU 806368 / HRT 049B 943215	SK - 2
JLM		Oct 14, 2020 at 10:55 AM
37520-2225.001.7190		Risa155_Client_2020-10-12T1849...



Company : Paul J. Ford and Company
 Designer : JLM
 Job Number : 37520-2225.001.7190
 Model Name : BU 806368 / HRT 049B 943215

Oct 14, 2020
 10:56 AM
 Checked By: _____

(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?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
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	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - 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?	Yes
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



(Global) Model Settings, Continued

Seismic Code	ASCE 7-05
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr. B (35 ksi)	29000	11154	.3	.65	.49	35	1.5	60	1.2

Member Primary Data

	Label	I Joint	J Joint	K Joint Rotate...	Section/Shape	Type	Design Li...	Material	Design ...
1	M4	N37	N34	180	C5X6.7	None	None	A36 Gr.36	Typical
2	M5	N61	N36	180	C5X6.7	None	None	A36 Gr.36	Typical
3	M6	N35	N60	180	C5X6.7	None	None	A36 Gr.36	Typical
4	M7	N11	N10	180	C5X6.7	None	None	A36 Gr.36	Typical
5	M8	N11	N12		C5X6.7	None	None	A36 Gr.36	Typical
6	M9	N13	N14	90	L2x2x3	None	None	A36 Gr.36	Typical
7	M10	N15	N16		L2x2x3	None	None	A36 Gr.36	Typical
8	M11	N17	N18		SR 1/2"	None	None	A36 Gr.36	Typical
9	M12	N19	N20		SR 1/2"	None	None	A36 Gr.36	Typical
10	M13	N21	N22		SR 1/2"	None	None	A36 Gr.36	Typical
11	M14	N23	N24		SR 1/2"	None	None	A36 Gr.36	Typical
12	M15	N25	N26		SR 1/2"	None	None	A36 Gr.36	Typical
13	M16	N27	N28		SR 1/2"	None	None	A36 Gr.36	Typical
14	M23	N39	N38	90	PL 6" x 1"	None	None	A36 Gr.36	Typical
15	M24	N38	N97	90	PL 6" x 1"	None	None	A36 Gr.36	Typical
16	M25	N97	N96	90	PL 6" x 1"	None	None	A36 Gr.36	Typical
17	M26	N96	N95	90	PL 6" x 1"	None	None	A36 Gr.36	Typical
18	M27	N95	N94	90	PL 6" x 1"	None	None	A36 Gr.36	Typical
19	M28	N94	N93	90	PL 6" x 1"	None	None	A36 Gr.36	Typical
20	M29	N93	N92	90	PL 6" x 1"	None	None	A36 Gr.36	Typical



Company : Paul J. Ford and Company
 Designer : JLM
 Job Number : 37520-2225.001.7190
 Model Name : BU 806368 / HRT 049B 943215

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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate...	Section/Shape	Type	Design Li...	Material	Design ...
21	M30	N92	N91		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
22	M31	N91	N90		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
23	M32	N90	N89		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
24	M33	N89	N88		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
25	M34	N88	N87		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
26	M35	N87	N86		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
27	M36	N86	N85		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
28	M37	N85	N84		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
29	M38	N84	N83		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
30	M39	N83	N82		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
31	M40	N82	N81		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
32	M41	N81	N80		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
33	M42	N80	N79		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
34	M43	N79	N78		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
35	M44	N78	N77		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
36	M45	N77	N76		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
37	M46	N76	N75		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
38	M47	N75	N74		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
39	M48	N74	N73		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
40	M49	N73	N72		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
41	M50	N72	N71		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
42	M51	N71	N70		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
43	M52	N70	N69		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
44	M53	N69	N68		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
45	M54	N68	N67		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
46	M55	N67	N66		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
47	M56	N66	N65		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
48	M57	N65	N64		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
49	M58	N64	N63		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
50	M59	N63	N62		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
51	M60	N62	N61A		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
52	M61	N61A	N60A		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
53	M62	N60A	N59		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
54	M63	N59	N58		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
55	M64	N58	N57		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
56	M65	N57	N56		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
57	M66	N56	N55		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
58	M67	N55	N54		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
59	M68	N54	N53		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
60	M69	N53	N52		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
61	M70	N52	N51		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
62	M71	N51	N50		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
63	M72	N50	N49		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
64	M73	N49	N48		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
65	M74	N48	N47		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
66	M75	N47	N46		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
67	M76	N46	N45		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
68	M77	N45	N44		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
69	M78	N44	N43		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
70	M79	N43	N42		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
71	M80	N42	N41		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
72	M81	N41	N40		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
73	M82	N40	N39		90	PL 6" x 1"	None	None	A36 Gr.36	Typical
74	M83	N102	N99			RIGID	None	None	RIGID	Typical
75	M84	N101	N98			RIGID	None	None	RIGID	Typical
76	M85	N103	N100			RIGID	None	None	RIGID	Typical
77	M86	N110	N109		90	PL 6x0.5	None	None	A36 Gr.36	Typical



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 Designer : JLM
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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint Rotate...	Section/Shape	Type	Design Li...	Material	Design ...
78	M87	N102	N107A		RIGID	None	None	RIGID	Typical
79	M88	N101	N106		RIGID	None	None	RIGID	Typical
80	M89	N103	N108		RIGID	None	None	RIGID	Typical
81	M90	N94	N110A		RIGID	None	None	RIGID	Typical
82	M91	N42	N109A		RIGID	None	None	RIGID	Typical
83	M92	N110A	N112		RIGID	None	None	RIGID	Typical
84	M93	N109A	N111		RIGID	None	None	RIGID	Typical
85	M94	N119	N116		RIGID	None	None	RIGID	Typical
86	M95	N118	N115		RIGID	None	None	RIGID	Typical
87	M96	N120	N117		RIGID	None	None	RIGID	Typical
88	M97	N125	N124	90	PL 6x0.5	None	None	A36 Gr.36	Typical
89	M98	N119	N122		RIGID	None	None	RIGID	Typical
90	M99	N118	N121		RIGID	None	None	RIGID	Typical
91	M100	N120	N123		RIGID	None	None	RIGID	Typical
92	M101	N54	N127		RIGID	None	None	RIGID	Typical
93	M102	N62	N126		RIGID	None	None	RIGID	Typical
94	M103	N127	N129		RIGID	None	None	RIGID	Typical
95	M104	N126	N128		RIGID	None	None	RIGID	Typical
96	M105	N136	N133		RIGID	None	None	RIGID	Typical
97	M106	N135	N132		RIGID	None	None	RIGID	Typical
98	M107	N137	N134		RIGID	None	None	RIGID	Typical
99	M108	N142	N141	90	PL 6x0.5	None	None	A36 Gr.36	Typical
100	M109	N136	N139		RIGID	None	None	RIGID	Typical
101	M110	N135	N138		RIGID	None	None	RIGID	Typical
102	M111	N137	N140		RIGID	None	None	RIGID	Typical
103	M112	N74	N144		RIGID	None	None	RIGID	Typical
104	M113	N82	N143		RIGID	None	None	RIGID	Typical
105	M114	N144	N146		RIGID	None	None	RIGID	Typical
106	M115	N143	N145		RIGID	None	None	RIGID	Typical
107	M116	N148	N147		HSS3X3X5	None	None	A500 Gr.46	Typical
108	M117	N150	N149		HSS3X3X5	None	None	A500 Gr.46	Typical
109	M118	N152	N151		HSS3X3X5	None	None	A500 Gr.46	Typical
110	M119	N154	N153		RIGID	None	None	RIGID	Typical
111	M120	N156	N155		RIGID	None	None	RIGID	Typical
112	M121	N158	N157		RIGID	None	None	RIGID	Typical
113	C3	N160	N159		PIPE 2.0 HRA	None	None	A53 Gr. B (35 ...	Typical
114	C2	N162	N161		PIPE 2.5	None	None	A53 Gr. B (35 ...	Typical
115	C1	N164	N163		PIPE 2.0 HRA	None	None	A53 Gr. B (35 ...	Typical
116	M125	N166	N165		RIGID	None	None	RIGID	Typical
117	M126	N168	N167		RIGID	None	None	RIGID	Typical
118	M127	N170	N169		RIGID	None	None	RIGID	Typical
119	B3	N172A	N171		PIPE 2.0 HRA	None	None	A53 Gr. B (35 ...	Typical
120	B2	N174	N173A		PIPE 2.0 HRA	None	None	A53 Gr. B (35 ...	Typical
121	B1	N176	N175		PIPE 2.5	None	None	A53 Gr. B (35 ...	Typical
122	M131	N178	N177		RIGID	None	None	RIGID	Typical
123	M132	N180	N179		RIGID	None	None	RIGID	Typical
124	M133	N182	N181		RIGID	None	None	RIGID	Typical
125	A3	N184	N183		PIPE 2.0 HRA	None	None	A53 Gr. B (35 ...	Typical
126	A2	N186	N185		PIPE 2.5	None	None	A53 Gr. B (35 ...	Typical
127	A1	N188	N187		PIPE 2.0 HRA	None	None	A53 Gr. B (35 ...	Typical
128	CBC2	N189	N190		PIPE 2.0 HRA	None	None	A53 Gr. B (35 ...	Typical
129	M138	N192	N191		RIGID	None	None	RIGID	Typical
130	M139	N194	N193		RIGID	None	None	RIGID	Typical
131	M140	N196	N195		RIGID	None	None	RIGID	Typical
132	CBB2	N197	N198		PIPE 2.0 HRA	None	None	A53 Gr. B (35 ...	Typical
133	M142	N200	N199		RIGID	None	None	RIGID	Typical
134	M143	N202	N201		RIGID	None	None	RIGID	Typical



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 Designer : JLM
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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint Rotate...	Section/Shape	Type	Design Li...	Material	Design ...
135	M144	N204	N203		RIGID	None	None	RIGID	Typical
136	CBA2	N205	N206		PIPE 2.0_HRA	None	None	A53 Gr. B (35 ...	Typical
137	M146	N208	N207		RIGID	None	None	RIGID	Typical
138	M147	N210	N209		RIGID	None	None	RIGID	Typical
139	M148	N212	N211		RIGID	None	None	RIGID	Typical
140	M149	N216	N213	90	L2.5x2.5x4	None	None	A36 Gr.36	Typical
141	M150	N218	N215	90	L2.5x2.5x4	None	None	A36 Gr.36	Typical
142	M151	N214	N217	90	L2.5x2.5x4	None	None	A36 Gr.36	Typical
143	CBB1	N1	N33	180	C5X6.7	None	None	A36 Gr.36	Typical
144	CBA1	N2	N34A	180	C5X6.7	None	None	A36 Gr.36	Typical
145	CBC1	N3	N32	180	C5X6.7	None	None	A36 Gr.36	Typical
146	M146A	N32	N35A	180	C5X6.7	None	None	A36 Gr.36	Typical
147	M147A	N34A	N37A	180	C5X6.7	None	None	A36 Gr.36	Typical
148	M148A	N33	N36A	180	C5X6.7	None	None	A36 Gr.36	Typical
149	M149A	N35A	N1	180	C5X6.7	None	None	A36 Gr.36	Typical
150	M150A	N37A	N3	180	C5X6.7	None	None	A36 Gr.36	Typical
151	M151A	N36A	N2	180	C5X6.7	None	None	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic...
1	M4						Yes	** NA **			None
2	M5						Yes	** NA **			None
3	M6						Yes	** NA **			None
4	M7						Yes	** NA **			None
5	M8						Yes	** NA **			None
6	M9						Yes	** NA **			None
7	M10						Yes	** NA **			None
8	M11						Yes	** NA **			None
9	M12						Yes	** NA **			None
10	M13						Yes	** NA **			None
11	M14						Yes	** NA **			None
12	M15						Yes	** NA **			None
13	M16						Yes	** NA **			None
14	M23						Yes	** NA **			None
15	M24						Yes	** NA **			None
16	M25						Yes	** NA **			None
17	M26						Yes	** NA **			None
18	M27						Yes	** NA **			None
19	M28						Yes	** NA **			None
20	M29						Yes	** NA **			None
21	M30						Yes	** NA **			None
22	M31						Yes	** NA **			None
23	M32						Yes	** NA **			None
24	M33						Yes	** NA **			None
25	M34						Yes	** NA **			None
26	M35						Yes	** NA **			None
27	M36						Yes	** NA **			None
28	M37						Yes	** NA **			None
29	M38						Yes	** NA **			None
30	M39						Yes	** NA **			None
31	M40						Yes	** NA **			None
32	M41						Yes	** NA **			None
33	M42						Yes	** NA **			None
34	M43						Yes	** NA **			None
35	M44						Yes	** NA **			None



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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
36	M45						Yes	** NA **			None
37	M46						Yes	** NA **			None
38	M47						Yes	** NA **			None
39	M48						Yes	** NA **			None
40	M49						Yes	** NA **			None
41	M50						Yes	** NA **			None
42	M51						Yes	** NA **			None
43	M52						Yes	** NA **			None
44	M53						Yes	** NA **			None
45	M54						Yes	** NA **			None
46	M55						Yes	** NA **			None
47	M56						Yes	** NA **			None
48	M57						Yes	** NA **			None
49	M58						Yes	** NA **			None
50	M59						Yes	** NA **			None
51	M60						Yes	** NA **			None
52	M61						Yes	** NA **			None
53	M62						Yes	** NA **			None
54	M63						Yes	** NA **			None
55	M64						Yes	** NA **			None
56	M65						Yes	** NA **			None
57	M66						Yes	** NA **			None
58	M67						Yes	** NA **			None
59	M68						Yes	** NA **			None
60	M69						Yes	** NA **			None
61	M70						Yes	** NA **			None
62	M71						Yes	** NA **			None
63	M72						Yes	** NA **			None
64	M73						Yes	** NA **			None
65	M74						Yes	** NA **			None
66	M75						Yes	** NA **			None
67	M76						Yes	** NA **			None
68	M77						Yes	** NA **			None
69	M78						Yes	** NA **			None
70	M79						Yes	** NA **			None
71	M80						Yes	** NA **			None
72	M81						Yes	** NA **			None
73	M82						Yes	** NA **			None
74	M83						Yes	** NA **			None
75	M84						Yes	** NA **			None
76	M85						Yes	** NA **			None
77	M86						Yes	** NA **			None
78	M87						Yes	** NA **			None
79	M88						Yes	** NA **			None
80	M89						Yes	** NA **			None
81	M90						Yes	** NA **			None
82	M91						Yes	** NA **			None
83	M92						Yes	** NA **			None
84	M93						Yes	** NA **			None
85	M94						Yes	** NA **			None
86	M95						Yes	** NA **			None
87	M96						Yes	** NA **			None
88	M97						Yes	** NA **			None
89	M98						Yes	** NA **			None
90	M99						Yes	** NA **			None
91	M100						Yes	** NA **			None
92	M101						Yes	** NA **			None



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 Designer : JLM
 Job Number : 37520-2225.001.7190
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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic..
93	M102						Yes	** NA **			None
94	M103						Yes	** NA **			None
95	M104						Yes	** NA **			None
96	M105						Yes	** NA **			None
97	M106						Yes	** NA **			None
98	M107						Yes	** NA **			None
99	M108						Yes	** NA **			None
100	M109						Yes	** NA **			None
101	M110						Yes	** NA **			None
102	M111						Yes	** NA **			None
103	M112						Yes	** NA **			None
104	M113						Yes	** NA **			None
105	M114						Yes	** NA **			None
106	M115						Yes	** NA **			None
107	M116						Yes	** NA **			None
108	M117						Yes	** NA **			None
109	M118						Yes	** NA **			None
110	M119						Yes	** NA **			None
111	M120						Yes	** NA **			None
112	M121						Yes	** NA **			None
113	C3						Yes	** NA **			None
114	C2						Yes	** NA **			None
115	C1						Yes	** NA **			None
116	M125						Yes	** NA **			None
117	M126						Yes	** NA **			None
118	M127						Yes	** NA **			None
119	B3						Yes	** NA **			None
120	B2						Yes	** NA **			None
121	B1						Yes	** NA **			None
122	M131						Yes	** NA **			None
123	M132						Yes	** NA **			None
124	M133						Yes	** NA **			None
125	A3						Yes	** NA **			None
126	A2						Yes	** NA **			None
127	A1						Yes	** NA **			None
128	CBC2						Yes	** NA **			None
129	M138						Yes	** NA **			None
130	M139						Yes	** NA **			None
131	M140						Yes	** NA **			None
132	CBB2						Yes	** NA **			None
133	M142						Yes	** NA **			None
134	M143						Yes	** NA **			None
135	M144						Yes	** NA **			None
136	CBA2						Yes	** NA **			None
137	M146						Yes	** NA **			None
138	M147						Yes	** NA **			None
139	M148						Yes	** NA **			None
140	M149						Yes	** NA **			None
141	M150						Yes	** NA **			None
142	M151						Yes	** NA **			None
143	CBB1						Yes	** NA **			None
144	CBA1						Yes	** NA **			None
145	CBC1						Yes	** NA **			None
146	M146A						Yes	** NA **			None
147	M147A						Yes	** NA **			None
148	M148A						Yes	** NA **			None
149	M149A						Yes	** NA **			None



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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
150	M150A						Yes	** NA **			None
151	M151A						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M4	C5X6.7	55			Lbyy						Lateral
2	M5	C5X6.7	55			Lbyy						Lateral
3	M6	C5X6.7	55			Lbyy						Lateral
4	M7	C5X6.7	31.781			Lbyy						Lateral
5	M8	C5X6.7	20.108			Lbyy						Lateral
6	M9	L2x2x3	72			Lbyy						Lateral
7	M10	L2x2x3	72			Lbyy						Lateral
8	M11	SR 1/2"	12.835			Lbyy						Lateral
9	M12	SR 1/2"	12.835			Lbyy						Lateral
10	M13	SR 1/2"	12.835			Lbyy						Lateral
11	M14	SR 1/2"	12.835			Lbyy						Lateral
12	M15	SR 1/2"	12.835			Lbyy						Lateral
13	M16	SR 1/2"	12.835			Lbyy						Lateral
14	M23	PL 6" x 1"	3.378									Lateral
15	M24	PL 6" x 1"	3.378									Lateral
16	M25	PL 6" x 1"	3.378									Lateral
17	M26	PL 6" x 1"	3.378									Lateral
18	M27	PL 6" x 1"	3.378									Lateral
19	M28	PL 6" x 1"	3.378									Lateral
20	M29	PL 6" x 1"	3.378									Lateral
21	M30	PL 6" x 1"	3.378									Lateral
22	M31	PL 6" x 1"	3.378									Lateral
23	M32	PL 6" x 1"	3.378									Lateral
24	M33	PL 6" x 1"	3.378									Lateral
25	M34	PL 6" x 1"	3.378									Lateral
26	M35	PL 6" x 1"	3.378									Lateral
27	M36	PL 6" x 1"	3.378									Lateral
28	M37	PL 6" x 1"	3.378									Lateral
29	M38	PL 6" x 1"	3.378									Lateral
30	M39	PL 6" x 1"	3.378									Lateral
31	M40	PL 6" x 1"	3.378									Lateral
32	M41	PL 6" x 1"	3.378									Lateral
33	M42	PL 6" x 1"	3.378									Lateral
34	M43	PL 6" x 1"	3.378									Lateral
35	M44	PL 6" x 1"	3.378									Lateral
36	M45	PL 6" x 1"	3.378									Lateral
37	M46	PL 6" x 1"	3.378									Lateral
38	M47	PL 6" x 1"	3.378									Lateral
39	M48	PL 6" x 1"	3.378									Lateral
40	M49	PL 6" x 1"	3.378									Lateral
41	M50	PL 6" x 1"	3.378									Lateral
42	M51	PL 6" x 1"	3.378									Lateral
43	M52	PL 6" x 1"	3.378									Lateral
44	M53	PL 6" x 1"	3.378									Lateral
45	M54	PL 6" x 1"	3.378									Lateral
46	M55	PL 6" x 1"	3.378									Lateral
47	M56	PL 6" x 1"	3.378									Lateral
48	M57	PL 6" x 1"	3.378									Lateral
49	M58	PL 6" x 1"	3.378									Lateral
50	M59	PL 6" x 1"	3.378									Lateral



Company : Paul J. Ford and Company
 Designer : JLM
 Job Number : 37520-2225.001.7190
 Model Name : BU 806368 / HRT 049B 943215

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Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
51	M60	PL 6" x 1"	3.378									Lateral
52	M61	PL 6" x 1"	3.378									Lateral
53	M62	PL 6" x 1"	3.378									Lateral
54	M63	PL 6" x 1"	3.378									Lateral
55	M64	PL 6" x 1"	3.378									Lateral
56	M65	PL 6" x 1"	3.378									Lateral
57	M66	PL 6" x 1"	3.378									Lateral
58	M67	PL 6" x 1"	3.378									Lateral
59	M68	PL 6" x 1"	3.378									Lateral
60	M69	PL 6" x 1"	3.378									Lateral
61	M70	PL 6" x 1"	3.378									Lateral
62	M71	PL 6" x 1"	3.378									Lateral
63	M72	PL 6" x 1"	3.378									Lateral
64	M73	PL 6" x 1"	3.378									Lateral
65	M74	PL 6" x 1"	3.378									Lateral
66	M75	PL 6" x 1"	3.378									Lateral
67	M76	PL 6" x 1"	3.378									Lateral
68	M77	PL 6" x 1"	3.378									Lateral
69	M78	PL 6" x 1"	3.378									Lateral
70	M79	PL 6" x 1"	3.378									Lateral
71	M80	PL 6" x 1"	3.378									Lateral
72	M81	PL 6" x 1"	3.378									Lateral
73	M82	PL 6" x 1"	3.378									Lateral
74	M86	PL 6x0.5	38									Lateral
75	M97	PL 6x0.5	38									Lateral
76	M108	PL 6x0.5	38									Lateral
77	M116	HSS3X3X5	26.272									Lateral
78	M117	HSS3X3X5	26.272									Lateral
79	M118	HSS3X3X5	26.272									Lateral
80	C3	PIPE_2.0_...	80									Lateral
81	C2	PIPE 2.5	108									Lateral
82	C1	PIPE_2.0_...	96									Lateral
83	B3	PIPE_2.0_...	80									Lateral
84	B2	PIPE_2.0_...	108									Lateral
85	B1	PIPE 2.5	96									Lateral
86	A3	PIPE_2.0_...	80									Lateral
87	A2	PIPE 2.5	108									Lateral
88	A1	PIPE_2.0_...	96									Lateral
89	CBC2	PIPE_2.0_...	136									Lateral
90	CBB2	PIPE_2.0_...	136									Lateral
91	CBA2	PIPE_2.0_...	136									Lateral
92	M149	L2.5x2.5x4	12									Lateral
93	M150	L2.5x2.5x4	12									Lateral
94	M151	L2.5x2.5x4	12									Lateral
95	CBB1	C5X6.7	64	144	144							Lateral
96	CBA1	C5X6.7	64	144	144							Lateral
97	CBC1	C5X6.7	64	144	144							Lateral
98	M146A	C5X6.7	16	144	144							Lateral
99	M147A	C5X6.7	16	144	144							Lateral
100	M148A	C5X6.7	16	144	144							Lateral
101	M149A	C5X6.7	64	144	144							Lateral
102	M150A	C5X6.7	64	144	144							Lateral
103	M151A	C5X6.7	64	144	144							Lateral



Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...)	Surface(...)
1	Dead	None		-1.1			42		5	
2	Wind 0	None					84	206		
3	Wind 30	None					84	206		
4	Wind 60	None					84	206		
5	Wind 90	None					84	206		
6	Wind 120	None					84	206		
7	Wind 150	None					84	206		
8	Ice Load	None					42	103		
9	Ice 0	None					84	206		
10	Ice 30	None					84	206		
11	Ice 60	None					84	206		
12	Ice 90	None					84	206		
13	Ice 120	None					84	206		
14	Ice 150	None					84	206		
15	Lm1	None				1				
16	Lm2	None				1				
17	Lm3	None				1				
18	Lm4	None				1				
19	Lv1	None				1				
20	Lv2	None				1				
21	Lv3	None				1				
22	Lv4	None				1				
23	BLC 1 Transient Area Loads	None						27		

Load Combinations

	Description	Solve PDe...	SRSSB...	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	1.4 D	Yes	Y	1	1.4											
2	1.2 D + 1.0 Wo @ 0	Yes	Y	1	1.2	2	1									
3	1.2 D + 1.0 Wo @ 30	Yes	Y	1	1.2	3	1									
4	1.2 D + 1.0 Wo @ 60	Yes	Y	1	1.2	4	1									
5	1.2 D + 1.0 Wo @ 90	Yes	Y	1	1.2	5	1									
6	1.2 D + 1.0 Wo @ 120	Yes	Y	1	1.2	6	1									
7	1.2 D + 1.0 Wo @ 150	Yes	Y	1	1.2	7	1									
8	1.2 D + 1.0 Wo @ 180	Yes	Y	1	1.2	2	-1									
9	1.2 D + 1.0 Wo @ 210	Yes	Y	1	1.2	3	-1									
10	1.2 D + 1.0 Wo @ 240	Yes	Y	1	1.2	4	-1									
11	1.2 D + 1.0 Wo @ 270	Yes	Y	1	1.2	5	-1									
12	1.2 D + 1.0 Wo @ 300	Yes	Y	1	1.2	6	-1									
13	1.2 D + 1.0 Wo @ 330	Yes	Y	1	1.2	7	-1									
14	1.2 D + 1.0 Di + 1.0 Wi @ 0	Yes	Y	1	1.2	8	1	9	1							
15	1.2 D + 1.0 Di + 1.0 Wi @ 30	Yes	Y	1	1.2	8	1	10	1							
16	1.2 D + 1.0 Di + 1.0 Wi @ 60	Yes	Y	1	1.2	8	1	11	1							
17	1.2 D + 1.0 Di + 1.0 Wi @ 90	Yes	Y	1	1.2	8	1	12	1							
18	1.2 D + 1.0 Di + 1.0 Wi @ 120	Yes	Y	1	1.2	8	1	13	1							
19	1.2 D + 1.0 Di + 1.0 Wi @ 150	Yes	Y	1	1.2	8	1	14	1							
20	1.2 D + 1.0 Di + 1.0 Wi @ 180	Yes	Y	1	1.2	8	1	9	-1							
21	1.2 D + 1.0 Di + 1.0 Wi @ 210	Yes	Y	1	1.2	8	1	10	-1							
22	1.2 D + 1.0 Di + 1.0 Wi @ 240	Yes	Y	1	1.2	8	1	11	-1							
23	1.2 D + 1.0 Di + 1.0 Wi @ 270	Yes	Y	1	1.2	8	1	12	-1							
24	1.2 D + 1.0 Di + 1.0 Wi @ 300	Yes	Y	1	1.2	8	1	13	-1							
25	1.2 D + 1.0 Di + 1.0 Wi @ 330	Yes	Y	1	1.2	8	1	14	-1							
26	1.2 D + 1.5 Lm1 + 1.0 Wm @...	Yes	Y	1	1.2	15	1.5	2	.058							
27	1.2 D + 1.5 Lm1 + 1.0 Wm @...	Yes	Y	1	1.2	15	1.5	3	.058							
28	1.2 D + 1.5 Lm1 + 1.0 Wm @...	Yes	Y	1	1.2	15	1.5	4	.058							



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Load Combinations (Continued)

	Description	Solve	PDe	SRSSB	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa
29	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	5	.058									
30	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	6	.058									
31	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	7	.058									
32	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	2	.058									
33	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	3	.058									
34	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	4	.058									
35	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	5	.058									
36	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	6	.058									
37	1.2 D + 1.5 Lm1 + 1.0 Wm @	Yes	Y		1	1.2	15	1.5	7	.058									
38	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	2	.058									
39	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	3	.058									
40	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	4	.058									
41	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	5	.058									
42	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	6	.058									
43	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	7	.058									
44	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	2	.058									
45	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	3	.058									
46	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	4	.058									
47	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	5	.058									
48	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	6	.058									
49	1.2 D + 1.5 Lm2 + 1.0 Wm @	Yes	Y		1	1.2	16	1.5	7	.058									
50	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	2	.058									
51	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	3	.058									
52	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	4	.058									
53	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	5	.058									
54	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	6	.058									
55	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	7	.058									
56	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	2	.058									
57	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	3	.058									
58	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	4	.058									
59	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	5	.058									
60	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	6	.058									
61	1.2 D + 1.5 Lm3 + 1.0 Wm @	Yes	Y		1	1.2	17	1.5	7	.058									
62	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	2	.058									
63	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	3	.058									
64	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	4	.058									
65	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	5	.058									
66	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	6	.058									
67	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	7	.058									
68	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	2	-0...									
69	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	3	-0...									
70	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	4	-0...									
71	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	5	-0...									
72	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	6	-0...									
73	1.2 D + 1.5 Lm4 + 1.0 Wm @	Yes	Y		1	1.2	18	1.5	7	-0...									
74	1.2 D + 1.5 Lv1	Yes	Y		1	1.2	19	1.5											
75	1.2 D + 1.5 Lv2	Yes	Y		1	1.2	20	1.5											
76	1.2 D + 1.5 Lv3	Yes	Y		1	1.2	21	1.5											
77	1.2 D + 1.5 Lv4	Yes	Y		1	1.2	22	1.5											
78	1.0 D	Yes	Y		1	1													

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N148	max	2580.56	11	4447.018	17	1278.801	2	.414	2	1.062	8	6.588	17
2		min	-1645.973	5	-110.893	11	-1294.791	8	-.369	8	-1.057	2	-.406	11



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Envelope Joint Reactions (Continued)

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC		
3	N150	max	1020.084	11	3934.145	25	1299.334	13	5.094	25	.894	4	.218	6
4		min	-1473.387	5	-230.618	7	-2009.116	7	-456	7	-.869	10	-2.867	24
5	N152	max	821.611	9	3741.397	21	1921.039	3	.474	3	.778	12	.328	4
6		min	-1302.401	3	-279.597	3	-1194.902	9	-4.868	21	-.822	6	-2.725	22
7	Totals:	max	4120.406	11	10923.393	19	4109.234	2						
8		min	-4120.418	5	3210.511	78	-4109.232	8						

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

Member	Shape	Code Check	Lo...	LC	Shear Check	Locfi...	LC	phi*P...	phi*P...	phi*...	phi*...	Eqn		
1	M86	PL 6x0.5	.799	5.9...	16	.499	5.938	y	5	9778...	97200	1.012	12.15	H1-...
2	M4	C5X6.7	.798	22...	24	.436	22.9...	y	17	3274...	63828	1.604	9.585	H1-...
3	M5	C5X6.7	.767	32...	16	.274	32.0...	y	25	3274...	63828	1.604	9.585	H1-...
4	M6	C5X6.7	.711	22...	17	.268	32.0...	y	21	3274...	63828	1.604	9.585	H1-...
5	M97	PL 6x0.5	.693	32...	14	.449	5.937	y	13	9778...	97200	1.012	12.15	H1-...
6	M108	PL 6x0.5	.669	5.9...	20	.447	5.937	y	9	9778...	97200	1.012	12.15	H1-...
7	M116	HSS3X3X5	.665	0	17	.158	0	y	16	1169...	1217...	10.005	10.005	H1-...
8	M117	HSS3X3X5	.588	0	25	.139	0	y	14	1169...	1217...	10.005	10.005	H1-...
9	M118	HSS3X3X5	.563	0	21	.134	0	y	20	1169...	1217...	10.005	10.005	H1-...
10	M150A	C5X6.7	.443	8.6...	17	.447	9.333	y	4	5120...	63828	1.604	9.585	H1-...
11	CBC1	C5X6.7	.441	55...	13	.516	54.6...	z	5	5120...	63828	1.604	9.585	H1-...
12	M151A	C5X6.7	.433	9.3...	15	.447	9.333	y	8	5120...	63828	1.604	9.585	H1-...
13	A1	PIPE_2.0_HRA	.430	44	5	.123	44	3	1491...	32130	1.872	1.872	H1-...	
14	CBA1	C5X6.7	.419	55...	5	.471	54.6...	z	9	5120...	63828	1.604	9.585	H1-...
15	C1	PIPE_2.0_HRA	.408	44	13	.123	44	11	1491...	32130	1.872	1.872	H1-...	
16	M149A	C5X6.7	.400	8.6...	13	.440	9.333	y	12	5120...	63828	1.604	9.585	H1-...
17	M23	PL 6" x 1"	.392	3.3...	16	.064	3.378	y	10	1930...	1944...	4.05	24.3	H1-...
18	CBB2	PIPE_2.0_HRA	.376	43...	8	.164	127.5	7	7658...	32130	1.872	1.872	H1-...	
19	M24	PL 6" x 1"	.371	0	18	.056	0	y	12	1930...	1944...	4.05	24.3	H1-...
20	CBB1	C5X6.7	.364	55...	3	.467	54.6...	y	7	5120...	63828	1.604	9.585	H1-...
21	M80	PL 6" x 1"	.361	0	17	.065	3.378	y	10	1930...	1944...	4.05	24.3	H1-...
22	M64	PL 6" x 1"	.349	0	14	.047	0	y	8	1930...	1944...	4.05	24.3	H1-...
23	CBA2	PIPE_2.0_HRA	.342	43...	4	.174	127.5	3	7658...	32130	1.872	1.872	H1-...	
24	M151	L2.5x2.5x4	.340	12	11	.183	0	y	4	3731...	38556	1.114	2.537	H2-1
25	B2	PIPE_2.0_HRA	.335	49.5	4	.119	49.5	7	1214...	32130	1.872	1.872	H1-...	
26	M63	PL 6" x 1"	.335	3.3...	24	.046	3.378	y	6	1930...	1944...	4.05	24.3	H1-...
27	M27	PL 6" x 1"	.334	3.3...	17	.057	0	y	12	1930...	1944...	4.05	24.3	H1-...
28	M43	PL 6" x 1"	.333	3.3...	20	.047	3.378	y	2	1930...	1944...	4.05	24.3	H1-...
29	M150	L2.5x2.5x4	.332	12	3	.176	0	y	8	3731...	38556	1.114	2.537	H2-1
30	B1	PIPE_2.5	.330	43	9	.125	43	7	3003...	50715	3.596	3.596	H1-...	
31	M147A	C5X6.7	.330	16	16	.062	16	y	12	5120...	63828	1.604	9.585	H1-...
32	CBC2	PIPE_2.0_HRA	.329	43...	12	.172	127.5	11	7658...	32130	1.872	1.872	H1-...	
33	M149	L2.5x2.5x4	.320	12	7	.175	0	y	12	3731...	38556	1.114	2.537	H2-1
34	M44	PL 6" x 1"	.318	0	22	.044	0	y	4	1930...	1944...	4.05	24.3	H1-...
35	M60	PL 6" x 1"	.311	0	25	.054	0	y	24	1930...	1944...	4.05	24.3	H1-...
36	M67	PL 6" x 1"	.304	3.3...	25	.057	3.378	y	14	1930...	1944...	4.05	24.3	H1-...
37	M40	PL 6" x 1"	.300	0	21	.059	0	y	20	1930...	1944...	4.05	24.3	H1-...
38	A2	PIPE_2.5	.295	46...	12	.115	46.1...	3	2613...	50715	3.596	3.596	H1-...	
39	M47	PL 6" x 1"	.286	3.3...	21	.053	3.378	y	22	1930...	1944...	4.05	24.3	H1-...
40	M8	C5X6.7	.285	20...	9	.129	16.5...	z	2	5837...	63828	1.604	9.585	H1-...
41	M146A	C5X6.7	.282	16	12	.059	16	y	8	5120...	63828	1.604	9.585	H1-...
42	B3	PIPE_2.0_HRA	.276	27.5	5	.140	27.5	6	1885...	32130	1.872	1.872	H1-...	
43	C2	PIPE_2.5	.274	47...	8	.115	47.25	11	2613...	50715	3.596	3.596	H1-...	
44	M148A	C5X6.7	.270	0	18	.062	16	y	4	5120...	63828	1.604	9.585	H1-...
45	A3	PIPE_2.0_HRA	.249	27.5	13	.153	69.1...	3	1885...	32130	1.872	1.872	H1-...	
46	C3	PIPE_2.0_HRA	.231	27.5	9	.143	69.1...	11	1885...	32130	1.872	1.872	H1-...	



Company : Paul J. Ford and Company
 Designer : JLM
 Job Number : 37520-2225.001.7190
 Model Name : BU 806368 / HRT 049B 943215

Oct 14, 2020
 10:56 AM
 Checked By: _____

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

Member	Shape	Code Check	Lo...	LC	Shear Check	Locj...	LC	phi*P...	phi*P...	phi*...	phi*...	Eqn
47	M82	PL 6" x 1"	.224	3.3..16	.066	3.378	y 10	1930..1944..	4.05	24.3	...	H1-...
48	M25	PL 6" x 1"	.215	0 18	.059	0	y 12	1930..1944..	4.05	24.3	...	H1-...
49	M10	L2x2x3	.211	54 8	.022	39	y 5	4761..2339..	.558	1.069	...	H2-1
50	M9	L2x2x3	.210	54 8	.031	54	z 5	4761..2339..	.558	1.069	...	H2-1
51	M65	PL 6" x 1"	.205	0 14	.049	0	y 8	1930..1944..	4.05	24.3	...	H1-...
52	M42	PL 6" x 1"	.192	3.3..20	.051	0	y 20	1930..1944..	4.05	24.3	...	H1-...
53	M62	PL 6" x 1"	.192	3.3..24	.048	3.378	y 6	1930..1944..	4.05	24.3	...	H1-...
54	M45	PL 6" x 1"	.184	0 22	.047	0	y 4	1930..1944..	4.05	24.3	...	H1-...
55	M7	C5X6.7	.178	0 25	.022	13.9..	y 20	5107..63828	1.604	9.585	...	H1-...
56	M81	PL 6" x 1"	.172	0 17	.066	3.378	y 10	1930..1944..	4.05	24.3	...	H1-...
57	M26	PL 6" x 1"	.157	3.3..17	.059	3.378	y 18	1930..1944..	4.05	24.3	...	H1-...
58	M14	SR 1/2"	.151	0 11	.034	12.8..	5	3652..6361..	.053	.053	...	H1-...
59	M15	SR 1/2"	.150	0 11	.031	12.8..	5	3652..6361..	.053	.053	...	H1-...
60	M61	PL 6" x 1"	.149	0 25	.061	0	y 24	1930..1944..	4.05	24.3	...	H1-...
61	M16	SR 1/2"	.143	0 11	.028	12.8..	5	3652..6361..	.053	.053	...	H1-...
62	M41	PL 6" x 1"	.141	0 21	.065	0	y 20	1930..1944..	4.05	24.3	...	H1-...
63	M66	PL 6" x 1"	.140	3.3..25	.062	3.378	y 14	1930..1944..	4.05	24.3	...	H1-...
64	M46	PL 6" x 1"	.135	3.3..21	.059	3.378	y 22	1930..1944..	4.05	24.3	...	H1-...
65	M13	SR 1/2"	.121	12... 5	.031	12.8..	5	3652..6361..	.053	.053	...	H1-...
66	M28	PL 6" x 1"	.100	0 15	.088	3.378	y 4	1930..1944..	4.05	24.3	...	H1-...
67	M29	PL 6" x 1"	.095	0 17	.081	3.378	y 4	1930..1944..	4.05	24.3	...	H1-...
68	M68	PL 6" x 1"	.093	0 25	.083	0	y 12	1930..1944..	4.05	24.3	...	H1-...
69	M30	PL 6" x 1"	.093	0 18	.074	0	y 4	1930..1944..	4.05	24.3	...	H1-...
70	M69	PL 6" x 1"	.092	0 14	.077	0	y 12	1930..1944..	4.05	24.3	...	H1-...
71	M48	PL 6" x 1"	.091	0 19	.081	3.378	y 8	1930..1944..	4.05	24.3	...	H1-...
72	M70	PL 6" x 1"	.090	0 14	.070	0	y 12	1930..1944..	4.05	24.3	...	H1-...
73	M31	PL 6" x 1"	.090	0 18	.068	0	y 4	1930..1944..	4.05	24.3	1	H1-...
74	M59	PL 6" x 1"	.089	3.3..25	.084	3.378	y 2	1930..1944..	4.05	24.3	...	H1-...
75	M71	PL 6" x 1"	.089	0 14	.065	0	y 12	1930..1944..	4.05	24.3	...	H1-...
76	M32	PL 6" x 1"	.087	0 18	.064	0	y 4	1930..1944..	4.05	24.3	...	H1-...
77	M72	PL 6" x 1"	.087	0 14	.061	0	y 12	1930..1944..	4.05	24.3	1	H1-...
78	M49	PL 6" x 1"	.086	0 21	.075	0	y 8	1930..1944..	4.05	24.3	...	H1-...
79	M58	PL 6" x 1"	.086	3.3..25	.077	3.378	y 2	1930..1944..	4.05	24.3	...	H1-...
80	M73	PL 6" x 1"	.085	0 15	.058	0	y 12	1930..1944..	4.05	24.3	...	H1-...
81	M33	PL 6" x 1"	.085	0 19	.060	0	y 4	1930..1944..	4.05	24.3	...	H1-...
82	M79	PL 6" x 1"	.084	3.3..17	.089	0	y 6	1930..1944..	4.05	24.3	...	H1-...
83	M75	PL 6" x 1"	.084	3.3..16	.065	3.378	y 6	1930..1944..	4.05	24.3	...	H1-...
84	M76	PL 6" x 1"	.084	3.3..16	.069	0	y 6	1930..1944..	4.05	24.3	...	H1-...
85	M74	PL 6" x 1"	.084	3.3..16	.061	3.378	y 6	1930..1944..	4.05	24.3	...	H1-...
86	M78	PL 6" x 1"	.084	3.3..17	.082	0	y 6	1930..1944..	4.05	24.3	...	H1-...
87	M77	PL 6" x 1"	.084	3.3..16	.075	0	y 6	1930..1944..	4.05	24.3	...	H1-...
88	M50	PL 6" x 1"	.084	0 22	.069	0	y 8	1930..1944..	4.05	24.3	...	H1-...
89	M34	PL 6" x 1"	.083	0 19	.058	3.378	y 10	1930..1944..	4.05	24.3	...	H1-...
90	M39	PL 6" x 1"	.083	3.3..21	.083	3.378	y 10	1930..1944..	4.05	24.3	...	H1-...
91	M57	PL 6" x 1"	.083	3.3..24	.071	3.378	y 2	1930..1944..	4.05	24.3	...	H1-...
92	M38	PL 6" x 1"	.082	3.3..20	.076	3.378	y 10	1930..1944..	4.05	24.3	...	H1-...
93	M37	PL 6" x 1"	.082	3.3..20	.071	3.378	y 10	1930..1944..	4.05	24.3	...	H1-...
94	M36	PL 6" x 1"	.082	3.3..20	.066	3.378	y 10	1930..1944..	4.05	24.3	...	H1-...
95	M35	PL 6" x 1"	.082	3.3..20	.061	3.378	y 10	1930..1944..	4.05	24.3	...	H1-...
96	M51	PL 6" x 1"	.081	0 22	.063	0	y 8	1930..1944..	4.05	24.3	...	H1-...
97	M56	PL 6" x 1"	.081	3.3..24	.065	3.378	y 2	1930..1944..	4.05	24.3	...	H1-...
98	M52	PL 6" x 1"	.079	0 22	.059	0	y 8	1930..1944..	4.05	24.3	...	H1-...
99	M55	PL 6" x 1"	.079	3.3..24	.061	3.378	y 2	1930..1944..	4.05	24.3	...	H1-...
100	M54	PL 6" x 1"	.077	3.3..24	.057	3.378	y 2	1930..1944..	4.05	24.3	...	H1-...
101	M53	PL 6" x 1"	.077	0 23	.056	0	y 8	1930..1944..	4.05	24.3	...	H1-...
102	M12	SR 1/2"	.042	12... 5	.013	12.8..	5	3652..6361..	.053	.053	...	H1-...
103	M11	SR 1/2"	.032	12... 23	.009	12.8..	24	3652..6361..	.053	.053	...	H1-...

APPENDIX C

ADDITIONAL CALCULATIONS

MOUNT TO TOWER CONNECTION CHECKS-LRFD

TIA Rev.	H-15.5	AISC	15th
Mount Type	3-Sector	Checks	Bolts & Welds

REACTIONS FROM RIS3D

NODE	LC	Horizontal Shear (k)	Vertical Shear (k)	Axial along member(k)	Moment about horizontal axis (ft-k)	Moment about Vertical axis (ft-k)	Torque (ft-k)
ENVELOPE	N148	1.29	4.45	2.58	6.59	1.06	0.41

Bolt Information	Type	Dia (in)	Quantity	Vertical Bolt spacing (D) (in)	Horizontal Bolt spacing (B) (in)
	A325N	0.625	4	6	6

CHECKS	Forces	Strength	Rating
TENSION (K)	8.30	20.7	40.1%
	Reduced Tensile Rating		
SHEAR (k)	1.45	12.4	11.7%

Note: Tension reduction not required if tension or shear capacity < 30%

Standoff Member	Type	Width (b) (in)	Depth (d) (in)	thickness (in)	Weld Size	Weld Assumed?	Stiffeners present
	Rectangle	3	3	0.3125	0.484375	yes	No

WELDS CHECKS	Resultant (k)	Strength (k)	Rating
	5.38	10.79	49.9%

Controlling Rating per TIA-222-H Section 15.5:	47.5%
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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: CT11248A

Glastonbury
374 Three Mile Road
Glastonbury, Connecticut 06033

November 11, 2020

EBI Project Number: 6220005839

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	30.50%

November 11, 2020

T-Mobile

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

Emissions Analysis for Site: CT11248A - Glastonbury

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **374 Three Mile Road in Glastonbury, 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 374 Three Mile Road in Glastonbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 4 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 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 7) 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.
- 8) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 9) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 11) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, 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.
- 12) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 13) The antenna mounting height centerline of the proposed antennas is 116 feet above ground level (AGL).
- 14) 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.
- 15) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	116 feet	Height (AGL):	116 feet	Height (AGL):	116 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,841.53	ERP (W):	12,841.53	ERP (W):	12,841.53
Antenna A1 MPE %:	3.43%	Antenna B1 MPE %:	3.43%	Antenna C1 MPE %:	3.43%
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 / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd
Height (AGL):	116 feet	Height (AGL):	116 feet	Height (AGL):	116 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	11,055.53	ERP (W):	11,055.53	ERP (W):	11,055.53
Antenna A2 MPE %:	4.46%	Antenna B2 MPE %:	4.46%	Antenna C2 MPE %:	4.46%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	116 feet	Height (AGL):	116 feet	Height (AGL):	116 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	38,477.89	ERP (W):	38,477.89	ERP (W):	38,477.89
Antenna A3 MPE %:	10.28%	Antenna B3 MPE %:	10.28%	Antenna C3 MPE %:	10.28%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	18.17%
SIGFOX	0.03%
Nextel	0.4%
Verizon	4.07%
AT&T	3.39%
Sprint	0.65%
XM Sat Radio	3.79%
Site Total MPE % :	30.50%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	18.17%
T-Mobile Sector B Total:	18.17%
T-Mobile Sector C Total:	18.17%
Site Total MPE % :	30.50%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1028.30	116.0	10.99	1900 MHz GSM	1000	1.10%
T-Mobile 1900 MHz LTE	2	2056.61	116.0	10.99	1900 MHz LTE	1000	1.10%
T-Mobile 2100 MHz LTE	2	2307.55	116.0	12.33	2100 MHz LTE	1000	1.23%
T-Mobile 600 MHz LTE	2	591.73	116.0	3.16	600 MHz LTE	400	0.79%
T-Mobile 600 MHz NR	1	1577.94	116.0	4.22	600 MHz NR	400	1.05%
T-Mobile 700 MHz LTE	2	648.82	116.0	3.47	700 MHz LTE	467	0.74%
T-Mobile 1900 MHz LTE	2	2203.69	116.0	11.78	1900 MHz LTE	1000	1.18%
T-Mobile 2100 MHz UMTS	2	1294.56	116.0	6.92	2100 MHz UMTS	1000	0.69%
T-Mobile 2500 MHz LTE	1	19238.94	116.0	51.40	2500 MHz LTE	1000	5.14%
T-Mobile 2500 MHz NR	1	19238.94	116.0	51.40	2500 MHz NR	1000	5.14%
						Total:	18.17%

• 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:	18.17%
Sector B:	18.17%
Sector C:	18.17%
T-Mobile Maximum MPE % (Sector A):	18.17%
Site Total:	30.50%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **30.50%** 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.