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

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

CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

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

August 23rd, 2022

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

RE: **Notice of Exempt Modification for Verizon Wireless**
Crown Site ID#806355; Verizon Site ID# 467205
281 Wood House Road Fairfield, CT 06824
Latitude: 41.19593200 / Longitude: -73.28136900

Dear Ms. Bachman:

Verizon currently maintains (15) antennas at the 162-foot mounts on the existing 171-foot Monopole Tower located at **281 Wood House Road Fairfield, CT 06824.** The property is owned by J Fernandes Properties, LLC and the Tower by Crown Castle. Verizon now intends to replace (9) antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Planned Modifications:

Tower:

REMOVE AND REPLACE
(3) RYMSA Wireless MG 03-800TV Antennas (**REMOVE**), (3) Samsung MT6407 77A Antennas (**REPLACE)**
(6) Andrew SBNHH 1085B antennas (**REMOVE**) (6) JMA MX06FR0660-03 Antennas **(REPLACE)**
(3) Nokia UHIE B66A RRHs (**REMOVE**) (3) Samsung B5/B13 RRHs **(REPLACE)**
(3) Nokia UHFA B25 RRHs **(REMOVE)** (3) Samsung B2/B66A RRHs **(REPLACE)**
(3) Nokia UHBA B13 RRHs (**REMOVE**)
(2) 1 5/8" Hybrid Cables **(REMOVE)** (2) 6 x 12 LI 1 5/8" Hybrid Cables (**REPLACE)**
INSTALL
(3) Dual Antenna mounting brackets

Ground:

N/A

The facility was approved by Connecticut Siting Council by way of a Certificate of Environmental Compatibility on February 17th, 1988.

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 Brenda L. Kupchick First

CROWN CASTLE

1 Cityplace Dr, Suite 490

Creve Coeur, MO 63141

Phone: (314) 513-0147

www.crowncastle.com

Selectwoman for the Town of Fairfield, Jim Wendt, Planning Director for the Town of Fairfield and J Fernandes Properties LLC, 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, Verizon Wireless 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,
Katie Adams
Crown Castle, Agent for Verizon Wireless
kadams@nbcllc.com
(781) 392-7547
cc:

Brenda L. Kupchick, First Selectwoman *(Via Federal Express)*
Sullivan Independence Hall
725 Old Post Road
Fairfield, CT 06824
203-256-3030

Jim Wendt, Planning Director *(Via Federal Express)*
Sullivan Independence Hall
725 Old Post Road
Fairfield, CT 06824
203-256-3050

J Fernandes Properties LLC *(Via Federal Express)*
281 Wood House Road
Fairfield, CT 06824-1823

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Friday, August 26, 2022 9:36 AM
To: Katie Adams
Subject: FedEx Shipment 777765981314: Your package has been delivered

Hi. Your package was delivered Fri, 08/26/2022 at 9:30am.

Delivered to 725 OLD POST RD, FAIRFIELD, CT 06824

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777765981314
FROM	NB+C 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	Sullivan Independence Hall Jim Wendt, Planning Director 725 Old Post Road FAIRFIELD, CT, US, 06824
REFERENCE	100788 - CSC

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Friday, August 26, 2022 9:37 AM
To: Katie Adams
Subject: FedEx Shipment 777765962845: Your package has been delivered

Hi. Your package was delivered Fri, 08/26/2022 at 9:30am.

Delivered to 725 OLD POST RD, FAIRFIELD, CT 06824

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777765962845
FROM	NB+C 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	Sullivan Independence Hall Brenda L. Kupchick 725 Old Post Road FAIRFIELD, CT, US, 06824
REFERENCE	100788 - CSC

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Friday, August 26, 2022 12:35 PM
To: Katie Adams
Subject: FedEx Shipment 777755566390: Your package has been delivered
Attachments: DeliveryPicture.jpeg

Hi. Your package was delivered Fri, 08/26/2022 at 12:29pm.

Delivered to 281 WOOD HOUSE RD, FAIRFIELD, CT 06824

OBTAIN PROOF OF DELIVERY

Delivery picture not showing? View in browser.

TRACKING NUMBER	777755566390
FROM	NB+C 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	J Fernandes Properties LLC 281 Wood House Road FAIRFIELD, CT, US, 06824
REFERENCE	100788 CSC
SHIPPER REFERENCE	100788 CSC
SHIP DATE	Thu 8/25/2022 06:42 PM
DELIVERED TO	Residence
PACKAGING TYPE	FedEx Pak
ORIGIN	CHELMSFORD, MA, US, 01824
DESTINATION	FAIRFIELD, CT, US, 06824
SPECIAL HANDLING	Deliver Weekday Residential Delivery
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	2.00 LB
SERVICE TYPE	FedEx Standard Overnight

Exhibit A

Original Facility Approval

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401
New Britain, Connecticut 06051
Phone: 827-7682

BK

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

Pursuant to section 16-50k of the General Statutes of Connecticut, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need in Docket No. 86 to Metro Mobile CTS of Fairfield County Inc., for tower sites in Greenwich and Fairfield, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on February 17, 1988.

By order of the Council,

Gloria Dibble Pond

Gloria Dibble Pond, Chairperson

February 17, 1988

1009E

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL
136 Main Street, Suite 401
New Britain, Connecticut 06051-4225
Phone: 827-7682

August 6, 1992

David S. Malko
Manager, Engineering and
Regulatory Services
Bell Atlantic Metro Mobile
20 Alexander Drive
Wallingford, CT 06492

RE: Metro Mobile CTS of Fairfield County, Inc., notice of intent to allow Springwich Cellular Limited Partnership to install cellular telecommunications antennas and associated equipment on an existing facility site located off Wood House Road, Fairfield, Connecticut.

Dear Mr. Malko:

At a meeting held August 4, 1992, the Connecticut Siting Council acknowledged your notice of an exempt modification for an existing tower site on Wood House Road in Fairfield, Connecticut.

As proposed in your notice dated July 21, 1992, the modification is in compliance with the exception criteria specified in Regulations of State Agencies 16-50j-72 for changes to an existing facility site that would not increase the tower height, extend the boundary of the tower site, increase noise levels at the tower site boundary by 6 decibels, and add radio frequency transmitting capability which increases the total power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to Section 22a-162 of the Connecticut General Statutes.

The Council is pleased to acknowledge this first shared use of existing cellular towers by two cellular carriers which meets the Council's long-time goal and the public interest of sharing facilities to avoid the proliferation of additional tower structures.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/TEF/cp

cc: Peter Van Wilgan

5766E-3

Exhibit B

Property Card

281 WOOD HOUSE ROAD

Location	281 WOOD HOUSE ROAD	**Mblu**	118/ 57/ / /
Acct#	06700	**Owner**	J FERNANDES PROPERTIES LLC
Assessment	$563,850	**Appraisal**	$805,500
PID	8854	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$422,600	$382,900	$805,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$295,820	$268,030	$563,850

Owner of Record

Owner	J FERNANDES PROPERTIES LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824-1823	**Book & Page**	5620/0132
		Sale Date	12/08/2017
		Instrument	02

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
J FERNANDES PROPERTIES LLC	$0		5620/0132	02	12/08/2017
J FERNANDES HOME IMPROVEMENT	$450,000		5592/0251	25	09/20/2017
GHOSH MOITRAYEE & RANJAN	$172,000		0706/0293		06/13/1983

Building Information

Building 1 : Section 1

Year Built:	1968
Living Area:	2,426
Replacement Cost:	$423,187

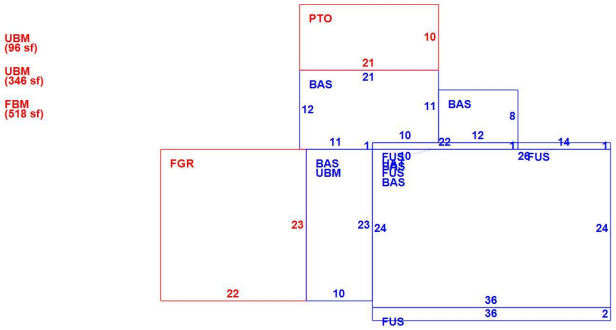
Building Percent Good: 77
Replacement Cost
Less Depreciation: $325,900

Building Attributes	
Field	**Description**
Style:	Colonial
Model	Residential
Grade:	05
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	8 Rooms
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	01
FCPZ	
Num Park	
Fireplaces	
Fndtn Cndtn	
Basement	

Building Photo

(http://images.vgsi.com/photos2/FairfieldCTPhotos//\0087\IMG_5839_8767

Building Layout



(ParcelSketch.ashx?pid=8854&bid=8636)

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,454	1,454
FUS	Upper Story, Finished	972	972
FBM	Basement, Finished	518	0
FGR	Garage	506	0
PTO	Patio	210	0
UAT	Attic, Unfinished	864	0
UBM	Basement, Unfinished	672	0
		5,196	2,426

Extra Features

Extra Features				
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL3	2.0 STORY FIREPLACE	1.00 UNITS	$5,800	1
FPL1	1.0 STORY FIREPLACE	1.00 UNITS	$3,900	1

Land

Land Use

Use Code	1010
Description	Single Fam MDL-01
Zone	AAA
Neighborhood	0057
Alt Land Appr	No
Category	

Land Line Valuation

Size (Sqr Feet)	87188
Depth	0
Assessed Value	$268,030
Appraised Value	$382,900

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
MSC40	UTIL BLD			1.00 UNIT	$31,000	1
MSC40	UTIL BLD			1.00 UNIT	$31,000	1
MSC19	EQUIP SHED			1.00 UNIT	$10,000	1
GEN1	GENERATOR			1.00 UNITS	$15,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$422,600	$382,900	$805,500
2019	$387,400	$368,600	$756,000
2018	$387,400	$368,600	$756,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$295,820	$268,030	$563,850
2019	$271,180	$258,020	$529,200
2018	$271,180	$258,020	$529,200

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Exhibit C

Construction Drawings

verizon

VERIZON SITE NUMBER:	467205
VERIZON SITE NAME:	FAIRFIELD CT
SITE TYPE:	MONOPOLE
TOWER HEIGHT:	171'-0"

BUSINESS UNIT #:	806355
SITE ADDRESS:	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824
COUNTY:	FAIRFIELD
JURISDICTION:	CONNECTICUT SITING COUNCIL

VERIZON 850 ADD

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BRG 126 943086
SITE ADDRESS:	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824
COUNTY:	FAIRFIELD
MAP/PARCEL #:	1180570000
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.195917°
LONGITUDE:	-73.281361°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	326'
CURRENT ZONING:	RESIDENCE AAA DISTRICT
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:	J FERNANDES PROPERTIES LLC 281 WOOD HOUSE ROAD FAIRFIELD, CT 06824-1823
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	VERIZON WIRELESS NETWORK REAL ESTATE 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
ELECTRIC PROVIDER:	UNITED ILLUMINATING CO. 800-722-5584
TELCO PROVIDER:	LIGHTOWER 855-91-FIBER

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS MARVIN.PHILLIPS@BTGRP.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 WILLIAM GATES - PROJECT MANAGER WILLIAM.GATES@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM
VERIZON CONTACT:	ANDREW LEONE ALEONE@STRUCTURECONSULTING.NET

DRAWING INDEX

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. 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.

APPROVALS

SIGNATURE	DATE

CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT	https://pmi.vzwsmart.com
SMART TOOL VENDOR PROJECT NUMBER	10151011
VzW LOCATION CODE (PSLC)	467205

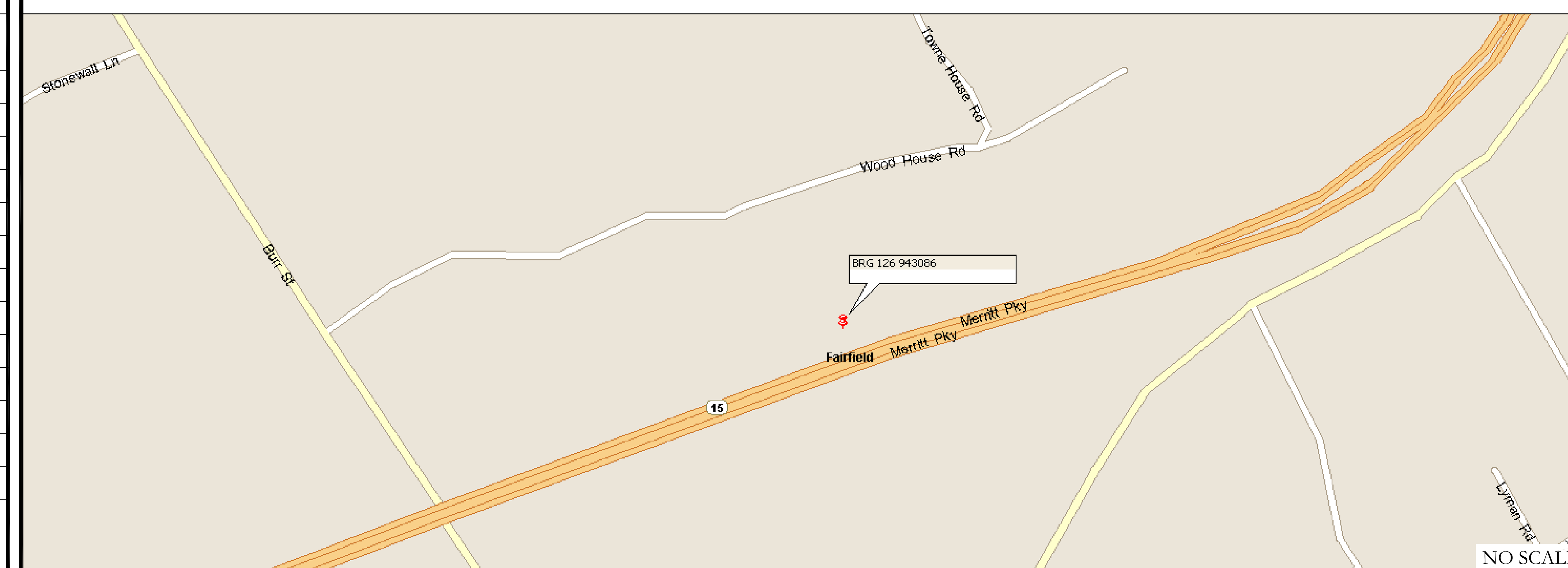
*** PMI AND REQUIREMENTS ALSO EMBEDDED IN MOUNT ANALYSIS REPORT

MOUNT MODIFICATION REQUIRED	Y

VzW APPROVED SMART KIT VENDORS

REFER TO MOUNT MODIFICATION DRAWINGS PAGE FOR VzW SMART KIT APPROVED VENDORS

LOCATION MAP



DRIVING DIRECTIONS FROM JOHN F. KENNEDY INTERNATIONAL AIRPORT:
GET ON I-678 N FROM 130TH PL, HEAD SOUTH ON I-678 S, TAKE EXIT B TOWARD 130TH PL, KEEP RIGHT AT THE Y JUNCTION AND MERGE WITH 130TH PL, TURN RIGHT ONTO BERGEN RD, AT FEDERAL CIR, TAKE THE 5TH EXIT ONTO THE I-678 RAMP TO AIRPORT/NY-878/NY-27/BELT PKWY, FOLLOW I-678 N AND HUTCHINSON RIVER PKWY N TO CT-15 S IN FAIRFIELD, MERGE WITH I-678 N CONTINUE ONTO HUTCHINSON RIVER PKWY N, KEEP RIGHT AT THE Y JUNCTION TO STAY ON HUTCHINSON RIVER PKWY N, ENTERING CONNECTICUT, CONTINUE ONTO CT-15 N, TAKE EXIT 44 TOWARD CT-58/FAIRFIELD/REDDING, USE ANY LANE TO TURN LEFT ONTO CONGRESS ST, TURN LEFT AT THE 1ST CROSS STREET ONTO CT-58 N, USE ANY LANE TO TURN LEFT TO MERGE WITH CT-15 S TOWARD N.Y. CITY, DESTINATION WILL BE ON THE RIGHT.

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 CONNECTICUT SBC/2015 IBC
MECHANICAL	2018 CONNECTICUT SBC/2015 IMC
ELECTRICAL	2018 CONNECTICUT SBC/2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWNCASTLE
DATED:	6/1/22
MOUNT ANALYSIS:	MASER CONSULTING CONNECTICUT
DATED:	6/16/22
RFDS REVISION:	0
DATED:	4/29/22
ORDER ID:	618040
REVISION:	0

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

PROJECT DESCRIPTION

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

TOWER SCOPE OF WORK:

- REMOVE (9) ANTENNAS
- REMOVE (9) RRHs
- REMOVE (2) HYBRID CABLES
- INSTALL (9) ANTENNAS
- INSTALL (3) DUAL ANTENNA BRACKETS
- INSTALL (6) RRHs
- INSTALL (2) HYBRID CABLES
- INSTALL MOUNT MODIFICATIONS AS PER MOUNT MODIFICATION DRAWINGS BY MASER CONSULTING CONNECTICUT DATED JUNE 16, 2022

GROUND SCOPE OF WORK:

- NONE

INSTALLER NOTE:
NO PROPOSED LOADING TO BE ADDED UNTIL MOUNT MODIFICATIONS ARE INSTALLED PER MOUNT ANALYSIS BY MASER CONSULTING CONNECTICUT DATED JUNE 16, 2022.

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

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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

VERIZON SITE NUMBER:
467205

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/3/22	GAC	CONSTRUCTION	LR

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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:	REVISION:
T-1	0

80964.020.01_806355_BRG 126 943086.dwg — Sheet:T-1 — User: lisa.rider — Aug 03, 2022 — 11:57am

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

GREENFIELD GROUNDING NOTES:

1. 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.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL 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.
3. 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.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. 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.
6. 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.
7. 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.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. 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.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. 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).

ELECTRICAL INSTALLATION NOTES:

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

CONDUCTOR COLOR CODE

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

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

APWA UNIFORM COLOR CODE:

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

ABBREVIATIONS:

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

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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

VERIZON SITE NUMBER:
467205

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/3/22	GAC	CONSTRUCTION	LR

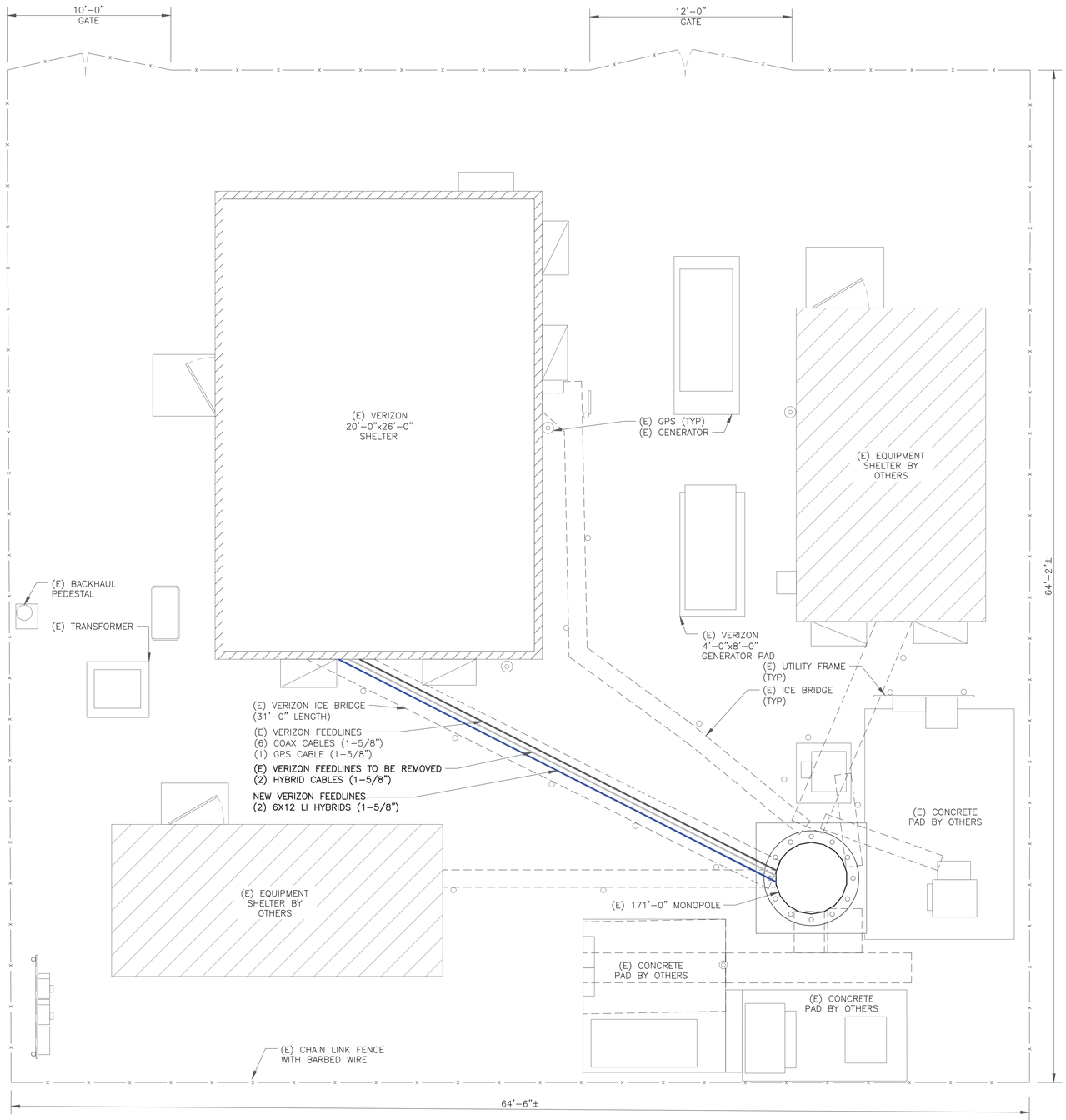
No. 23924
8/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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

SHEET NUMBER: T-2
REVISION: 0

LOOK UP!



1 SITE PLAN
SCALE: 4' 3' 2' 1' 0 4'
1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN CASTLE
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281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/3/22	GAC	CONSTRUCTION	LR

STATE OF CONNECTICUT
No. 23024
LICENSED PROFESSIONAL ENGINEER
8/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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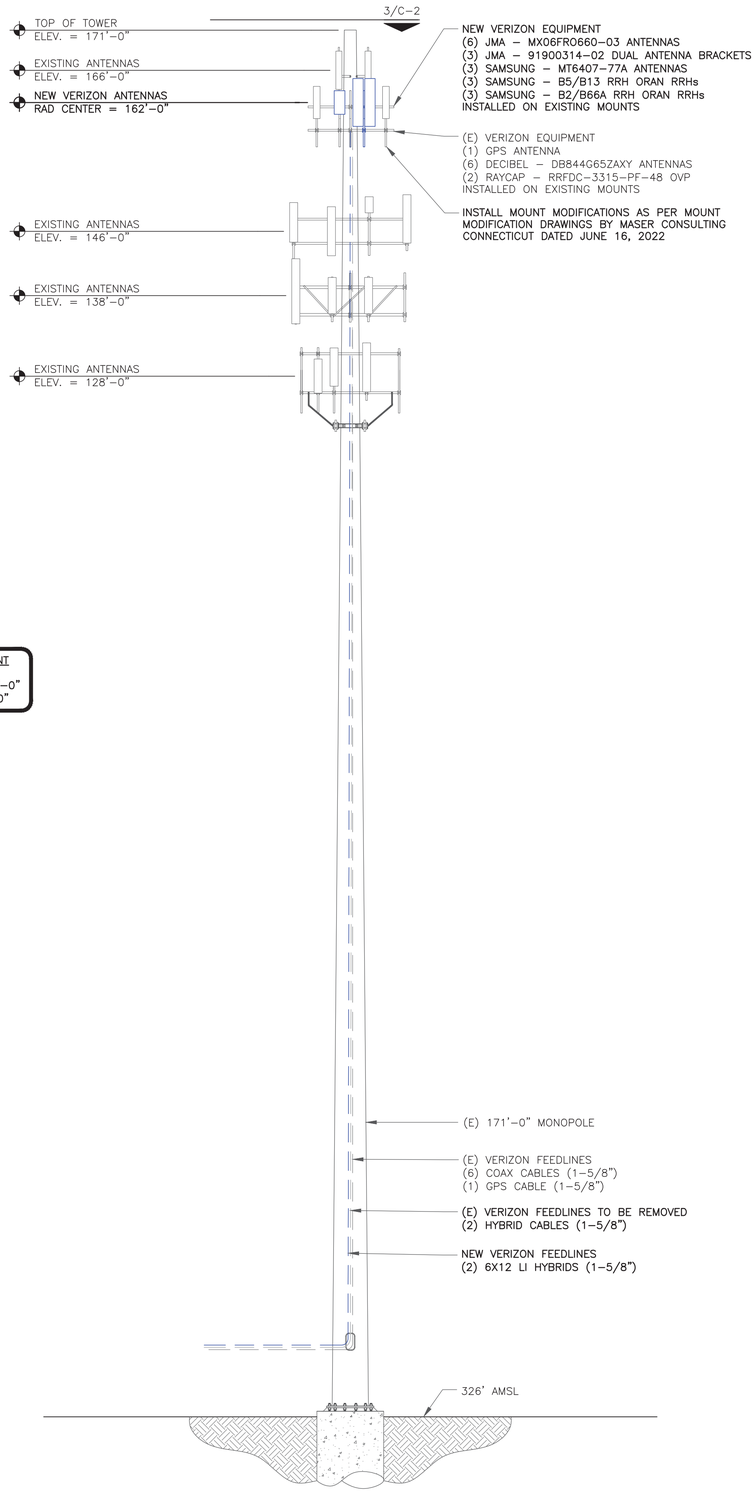
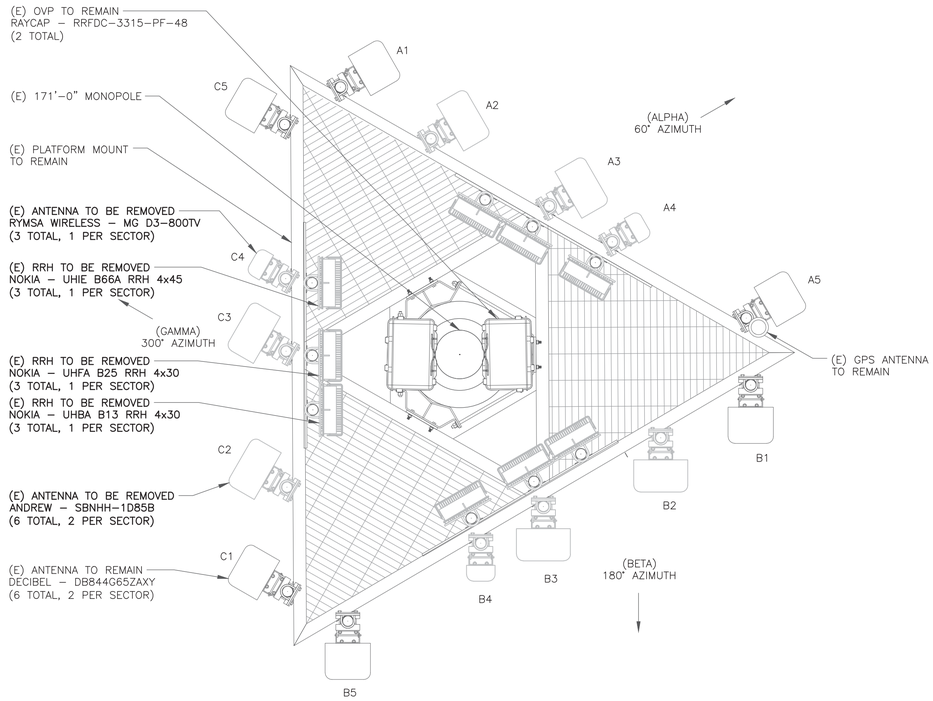
SHEET NUMBER: C-1
REVISION: 0



VERIZON EQUIPMENT

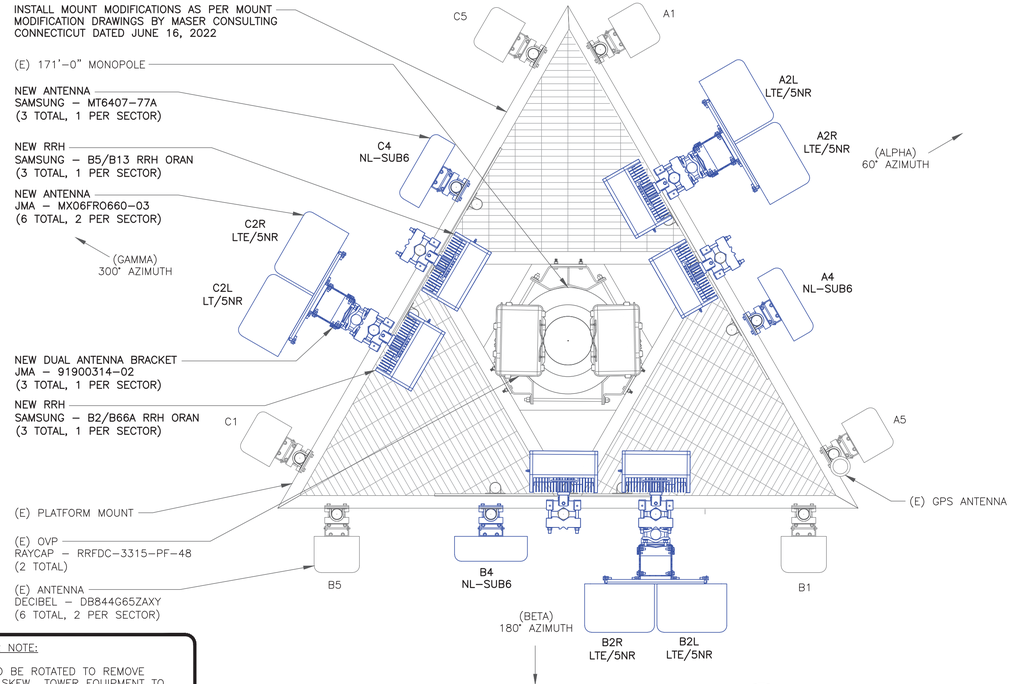
ANTENNA CL: 162'-0"
MOUNT CL: 160'-0"

1 TOWER ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE

N



INSTALLER NOTE:

MOUNT TO BE ROTATED TO REMOVE ANTENNA SKEW. TOWER EQUIPMENT TO BE PLACED PER MOUNT ANALYSIS.

3 NEW ANTENNA PLAN
SCALE: NOT TO SCALE

N

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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
467205

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/3/22	GAC	CONSTRUCTION	LR

STATE OF CONNECTICUT
SCOTT M. MASER
No. 23924
LICENSED
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SHEET NUMBER: C-2

REVISION: 0

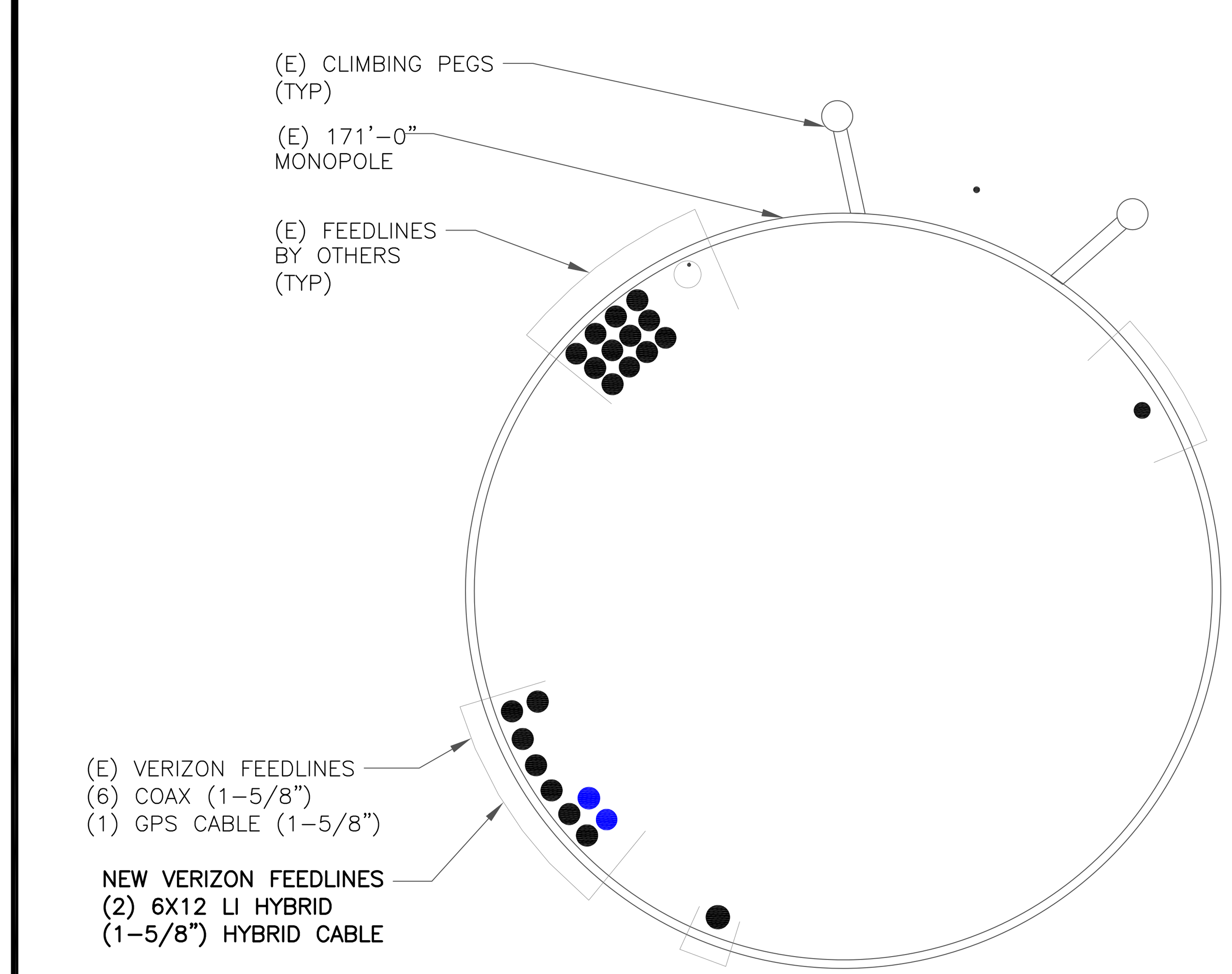
ANTENNA/RRH SCHEDULE

SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	MECHANICAL DOWNTILTS	ELECTRICAL DOWNTILTS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	EXISTING	DECIBEL	DB844G65ZAXY	162'–0"	60°	6°	0°	–	–
A2L	NEW	JMA	MX06FRO660–03	162'–0"	60°	0°	9°/9°/ 9°/2°/2°	–	–
A2R	NEW	JMA	MX06FRO660–03	162'–0"	60°	0°	9°/9°/ 9°/2°/2°	SAMSUNG	(1) B2/B66A RRH ORAN
A3	–	–	–	–	–	–	–	SAMSUNG	(1) B5/B13 RRH ORAN
A4	NEW	SAMSUNG	MT6407–77A	162'–0"	60°	0°	6°	–	INTEGRATED WITHIN
A5	EXISTING	DECIBEL	DB844G65ZAXY	162'–0"	60°	6°	0°	–	–
B1	EXISTING	DECIBEL	DB844G65ZAXY	162'–0"	180°	6°	0°	–	–
B2L	NEW	JMA	MX06FRO660–03	162'–0"	180°	0°	11°/11°/ 11°/2°/2°	–	–
B2R	NEW	JMA	MX06FRO660–03	162'–0"	180°	0°	11°/11°/ 11°/2°/2°	SAMSUNG	(1) B2/B66A RRH ORAN
B3	–	–	–	–	–	–	–	SAMSUNG	(1) B5/B13 RRH ORAN
B4	NEW	SAMSUNG	MT6407–77A	162'–0"	180°	0°	6°	–	INTEGRATED WITHIN
B5	EXISTING	DECIBEL	DB844G65ZAXY	162'–0"	180°	6°	0°	–	–
C1	EXISTING	DECIBEL	DB844G65ZAXY	162'–0"	300°	4°	0°	–	–
C2L	NEW	JMA	MX06FRO660–03	162'–0"	300°	0°	7°/7°/7° /3°/3°	–	–
C2R	NEW	JMA	MX06FRO660–03	162'–0"	300°	0°	7°/7°/7° /3°/3°	SAMSUNG	(1) B2/B66A RRH ORAN
C3	–	–	–	–	–	–	–	SAMSUNG	(1) B5/B13 RRH ORAN
C4	NEW	SAMSUNG	MT6407–77A	162'–0"	300°	0°	6°	–	INTEGRATED WITHIN
C5	EXISTING	DECIBEL	DB844G65ZAXY	162'–0"	300°	4°	0°	–	–

1 VERIZON TOWER EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1–5/8"	212'–0"±	6
EXISTING	COAX (GPS)	1–5/8"	210'–0"±	1
NEW	HYBRID	1–5/8"	212'–0"±	2
TOTAL CABLE QTY:				9



2 BASE LEVEL DETAIL
SCALE: NOT TO SCALE

N

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VERIZON SITE NUMBER:
467205

BU #: **806355**
BRG 126 943086

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EXISTING 171'-0" MONOPOLE

ISSUED FOR:

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No. 23824 LICENSED PROFESSIONAL ENGINEER
8/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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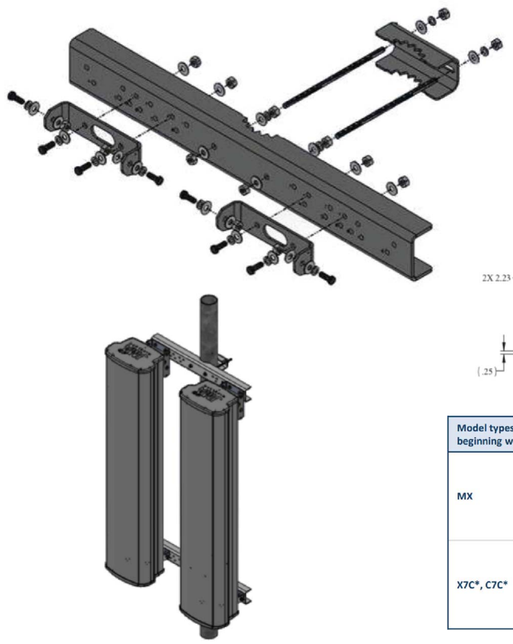
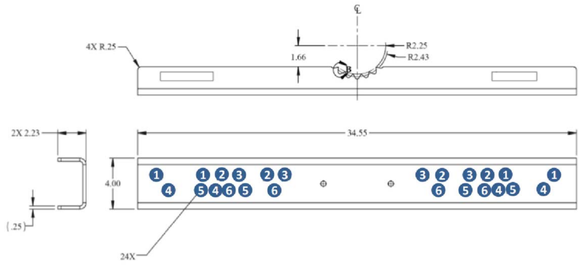
SHEET NUMBER: C-3
REVISION: 0

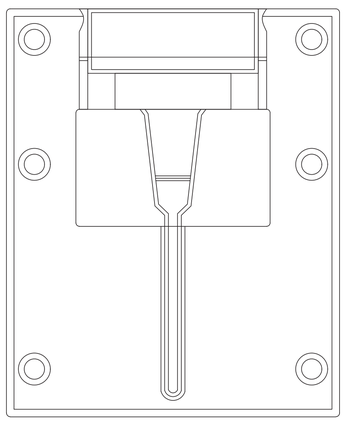




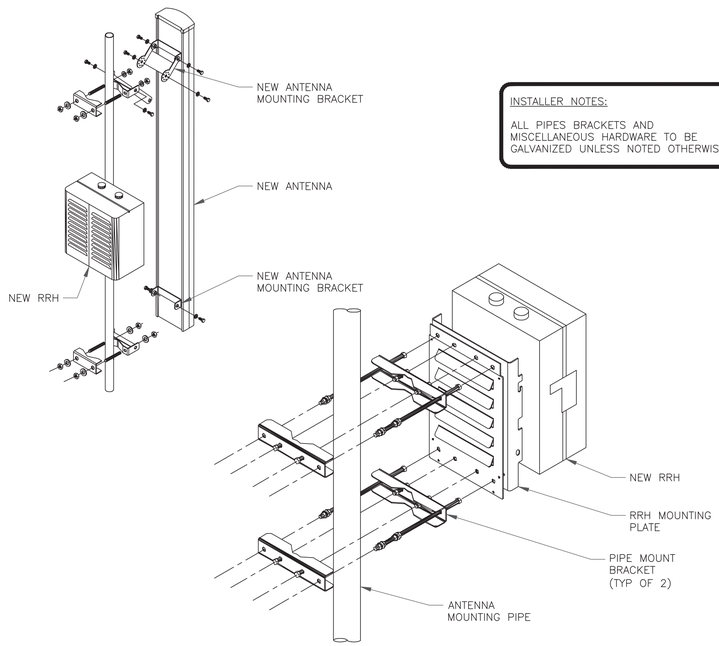
Model types beginning with:	Antenna width	Corresponding hole position	Resulting spacing between antennas
MX	15.4" (wide spacing)	1	12"
	15.4" (narrow spacing)	2	2"
	12"	3	2"
	20"	5	3/4"
X7C*, C7C*	12.5"	3	2"
	24.0"	4	2"
	18.8"	5	2"
	14.6"	6	2"

1 JMA – 91900314-02
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE



3 SAMSUNG – EP97-01585A BRACKET DETAIL
SCALE: NOT TO SCALE



INSTALLER NOTES:

ALL PIPES BRACKETS AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.

4 ANTENNA & RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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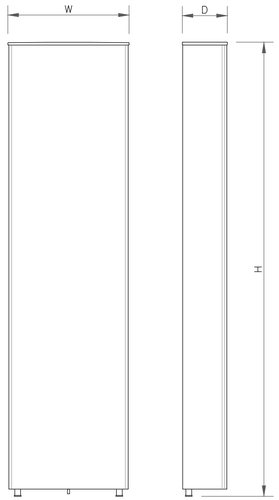
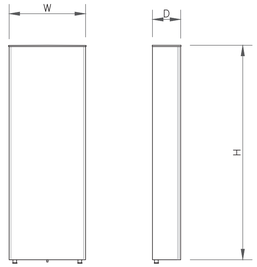
SHEET NUMBER: C-4

REVISION: 0



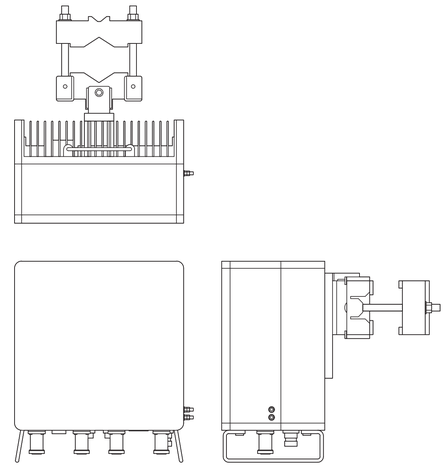
ANTENNA SPECS	
MANUFACTURER	JMA WIRELESS
MODEL #	MX06FRO660-03
WIDTH	15.40"
DEPTH	10.70"
HEIGHT	71.30"
WEIGHT	78.00 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



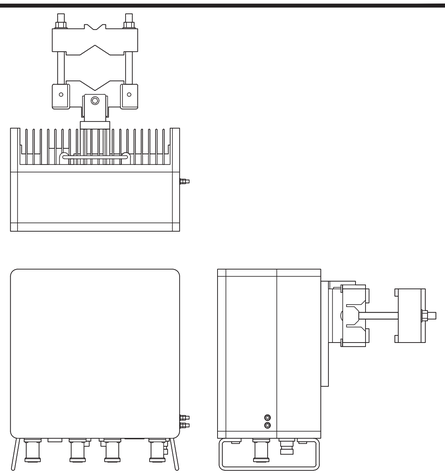
ANTENNA SPECS	
MANUFACTURER	SAMSUNG
MODEL #	MT6407-77A
WIDTH	16.06"
DEPTH	5.51"
HEIGHT	35.06"
WEIGHT	81.57 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B5/B13 RRH ORAN
WIDTH	14.96"
DEPTH	9.06"
HEIGHT	14.96"
WEIGHT	72.50 LBS

3 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B2/B66A RRH ORAN
WIDTH	14.96"
DEPTH	10.04"
HEIGHT	14.96"
WEIGHT	74.70 LBS

4 RRU SPECS
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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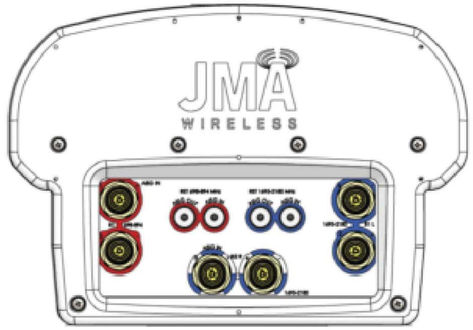
SHEET NUMBER: C-5

REVISION: 0



- Port 1 & 2 are for low band (698-896 MHz).
- Port 3,4,5, & 6 are for high band (1695-2360 MHz).
- Antenna Smart Bias Tee (SBT) is through port 1 for low band and port 3 for high band.
- AISG cable is only needed when drawn in the diagrams below, if it is not drawn then SBT is enough to control all RET motors.
- Not all SBT ports are needed to control RET, only green port connection to green port will control RET.

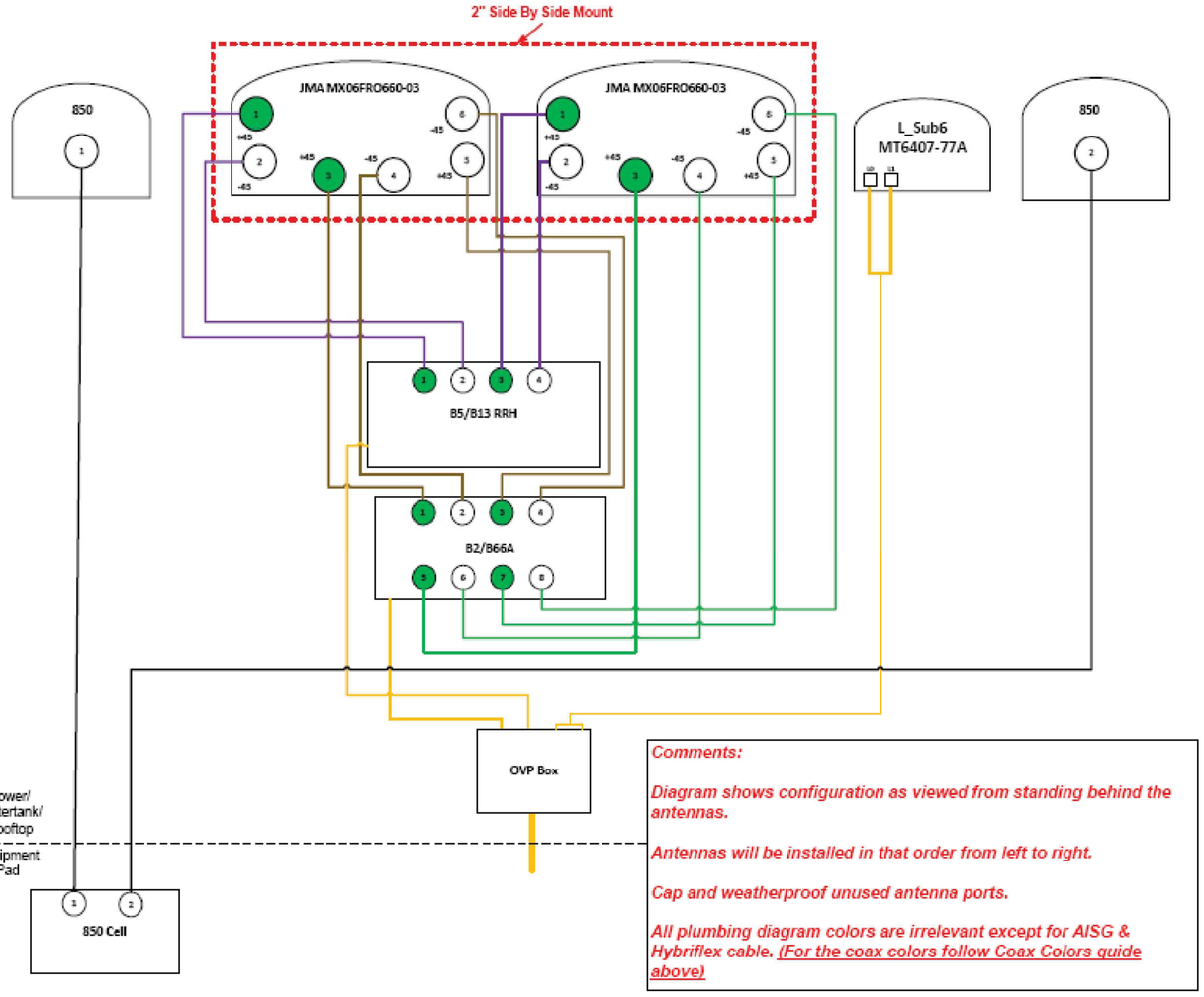
RET DC signal pass for RET
(Port that will control RET)

DC signal capable Port

AISG Cable

RET DC signal pass for RET
(Port that will control RET)

Hybriflex cables



Comments:

Diagram shows configuration as viewed from standing behind the antennas.

Antennas will be installed in that order from left to right.

Cap and weatherproof unused antenna ports.

All plumbing diagram colors are irrelevant except for AISG & Hybriflex cable. (For the coax colors follow Coax Colors quide above)

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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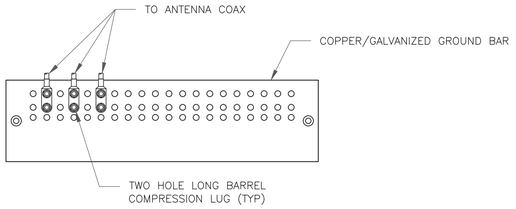
SHEET NUMBER: C-6

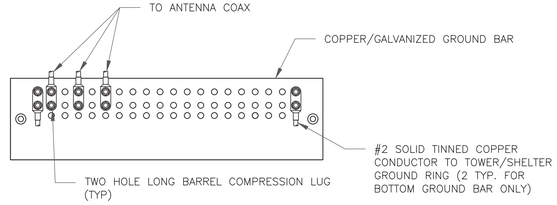
REVISION: 0



NOTES:

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

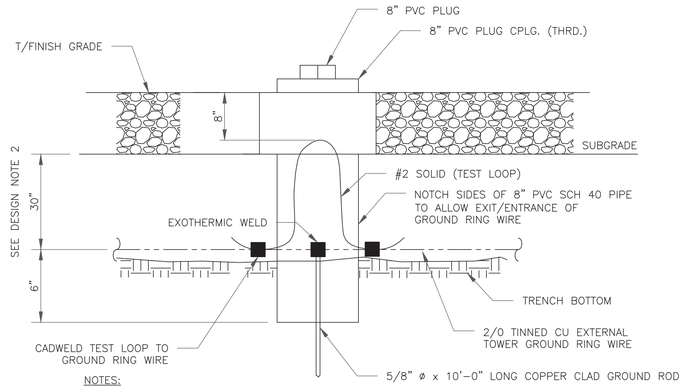
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

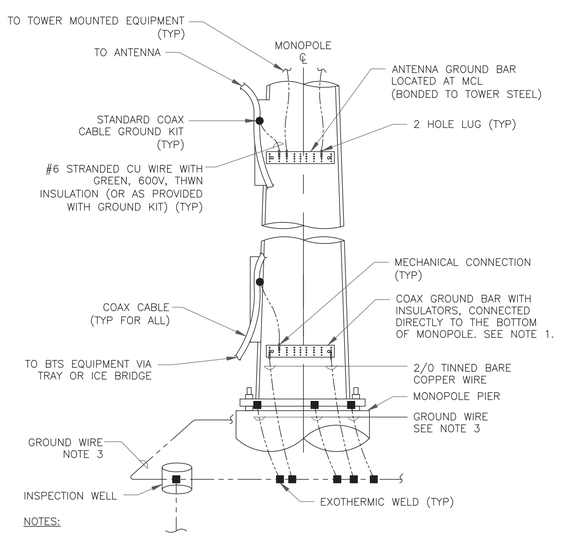
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

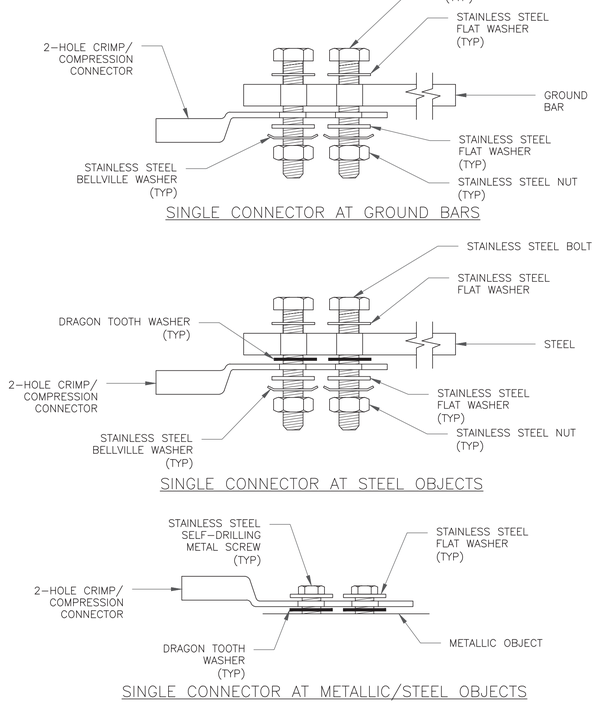
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



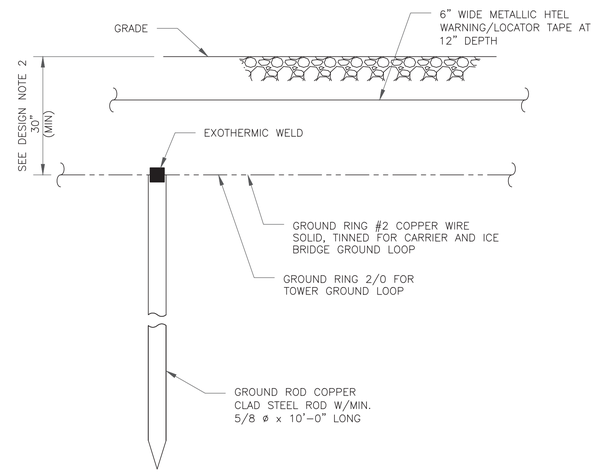
NOTES:

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

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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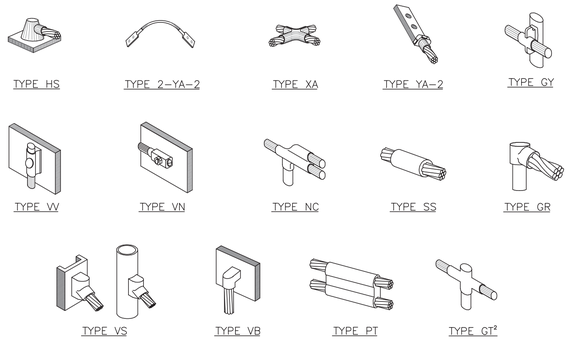
SHEET NUMBER: G-1

REVISION: 0

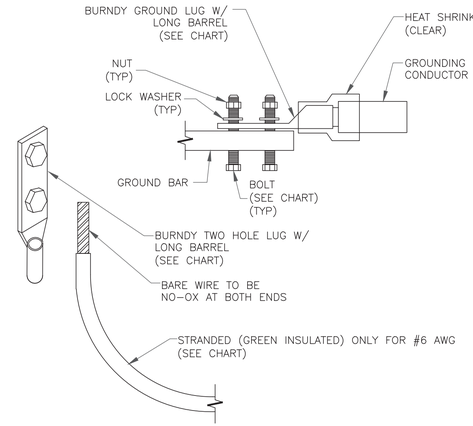


NOTE:

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

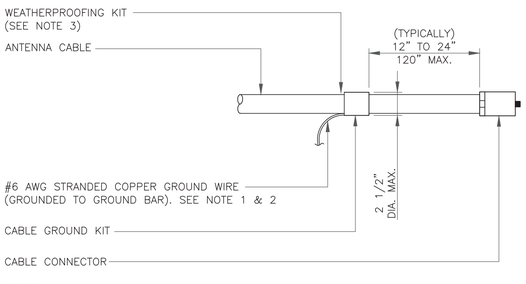
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



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.

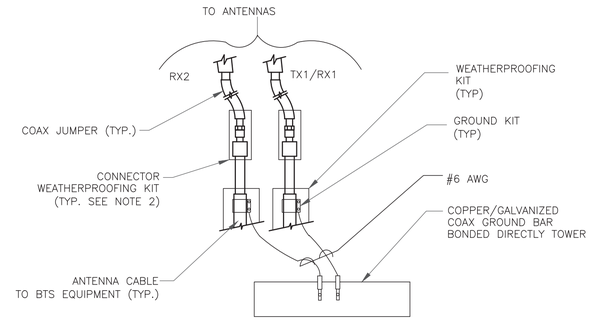
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



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.

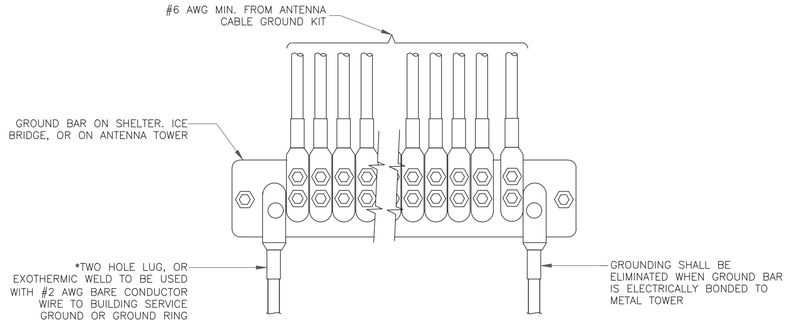
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



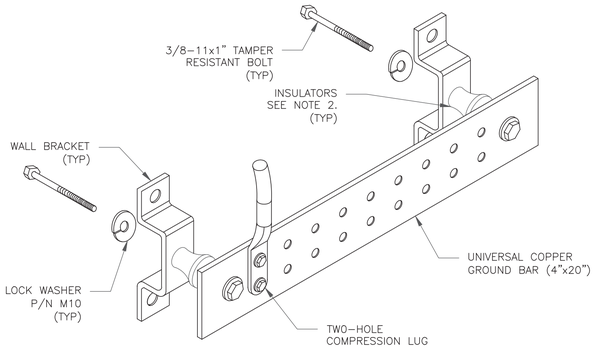
NOTES:

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



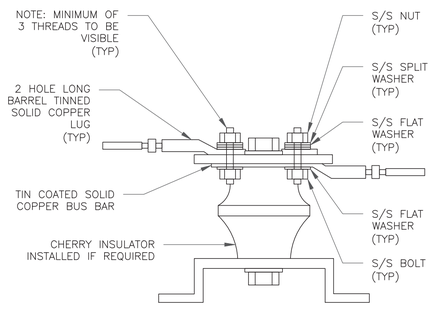
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



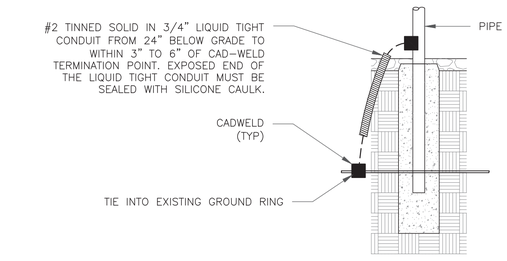
NOTES:

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



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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

VERIZON SITE NUMBER:
467205

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING 171'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/3/22	GAC	CONSTRUCTION	LR

STATE OF CONNECTICUT
No. 23024
LICENSED
PROFESSIONAL ENGINEER
8/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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SHEET NUMBER: G-2

REVISION: 0

MOUNT MODIFICATION DRAWINGS
EXISTING 10.67' PLATFORM

TOWER OWNER: CROWN CASTLE
TOWER OWNER SITE NUMBER: 806355

CARRIER SITE NAME: FAIRFIELD CT
CARRIER SITE NUMBER: 467205
FUZE ID: 16092555

281 WOODHOUSE AVE.
FAIRFIELD, CT 06824
FAIRFIELD COUNTY

LATITUDE: 41.195927° N
LONGITUDE: 73.281361° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), V = 118 MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC METHOD II
TOPOGRAPHY CONSIDERED N/A
MEAN BASE ELEVATION (AMSL) = 334.76'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), V = 50 MPH
ICE THICKNESS = 1.00 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, S_S = .220
LONG TERM MCER GROUND MOTION, S_1 = .055

PROJECT INFORMATION

APPLICANT/LESSEE

COMPANY: VERIZON WIRELESS

CLIENT REPRESENTATIVE

COMPANY: VERIZON WIRELESS

PROJECT MANAGER

COMPANY: COLLIERS ENGINEERING & DESIGN
CONTACT: PETER ALBANO
PHONE: 856.797.0412
E-MAIL: PETER.ALBANO@COLLIERSENGINEERING.COM

CONTRACTOR PMI REQUIREMENTS

PMI LOCATION: HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #: 10151011
VZW LOCATION CODE (PSLC): 467205
ANALYSIS DATE: 6/16/2022

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX

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SCALE: AS SHOWN
JOB NUMBER: 22777103A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
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.	.	.	.	.
0	06/16/22	ISSUED FOR CONSTRUCTION	PD	DRH

Digitally signed by Derek R. Hartzell
Date: 2022.06.16 15:05:41-04'00'
STATE OF CONNECTICUT DEREK R. HARTZELL 32710 LICENSED PROFESSIONAL ENGINEER
COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. JPC.0000131

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SITE NAME:
FAIRFIELD CT
467205
281 WOODHOUSE AVE.
FAIRFIELD, CT 06824
FAIRFIELD COUNTY

Colliers Engineering & Design
STAMFORD
1055 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN CT, P.C.
DOING BUSINESS AS MASER CONSULTING

SHEET TITLE: TITLE SHEET

SHEET NUMBER: ST-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

BILL OF MATERIALS

SECTION 1 - VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
3	VZWSMART	VZWSMART-MSK3D	PIPE TO PIPE CLAMPS		42	126

SECTION 2 - OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
3	-	-	84" LONG, P2 1/2 STD	GALVANIZED	41	122
24	-	-	18" LONG, 5/8" DIA. F1554 GR 36 THREADED ROD	GALVANIZED	2	38
-	-	-	1/2" DIA. J429 GR-2 U-BOLT	GALVANIZED	-	
					TOTAL:	286

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.

2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE

CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM

METROSITE FABRICATORS, LLC

CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION

CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM

SABRE INDUSTRIES, INC.

CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

SITE PRO 1

CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM

VZWSMART KITS - APPROVED VENDORS

NEWAVE

CONTACT	NEWAVE SALES TEAM
PHONE	(971) 239-4762
EMAIL	SALES@NEWAVETC.COM
WEBSITE	WWW.NEWAVETC.COM

BETTER METAL, LLC

CONTACT	DAVID STANSBERRY
PHONE	(615) 535-0990 (O), (615) 631-2520 (M)
EMAIL	DLS@BETTERMETAL.COM
WEBSITE	WWW.BETTERMETAL.COM

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN

JOB NUMBER: 22777103A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
0	06/16/22	ISSUED FOR CONSTRUCTION	PD	DRH

Digitally signed by Derek R. Hartzell
Date: 2022.06.16 15:06:13-04'00'

STATE OF CONNECTICUT · DEREK R. HARTZELL · 32710 · LICENSED PROFESSIONAL ENGINEER

COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. JPC.0000131

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SITE NAME:

FAIRFIELD CT
467205

281 WOODHOUSE AVE.
FAIRFIELD, CT 06824
FAIRFIELD COUNTY

Colliers Engineering & Design

STAMFORD
1055 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.0800
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SHEET TITLE: BILL OF MATERIALS

SHEET NUMBER: SBOM-1

PROJECT NOTES

1. SEE MODIFICATION NOTES
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
11. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).

GENERAL NOTES

1. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
4. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
6. 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/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
8. WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
9. ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
10. CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
11. CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
12. DO NOT SCALE DRAWINGS.
13. DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
14. ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
15. THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

1. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
   a. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
   b. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
   c. AISC CODE OF STANDARD PRACTICE
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE

3. ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
4. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
   a. SUBMIT SHOP DRAWINGS TO
      PETER.ALBANO@COLLIERSENGINEERING.COM
   b. PROVIDE MASER CONSULTING PROJECT # AND MASER CONSULTING PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
5. DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
7. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
8. CONTRACTOR SHALL PROTECT CUT ENDS OF ALL FIELD-CUT STEEL WITH TWO (2) COATS OF COLD GALVANIZATION (ZINGA OR ZINC COTE).
9. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
10. WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
11. FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
12. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
13. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
14. ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINGA OR ZINC COTE), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
15. ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

WELDING NOTES

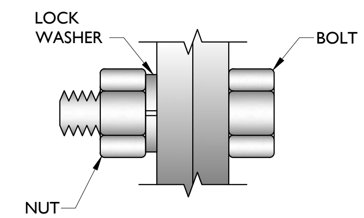
1. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH AWS D1.0 (LATEST EDITION). THIS SHALL INCLUDE A CERTIFIED WELD INSPECTION (CWI) FOR ACCEPTANCE OR REJECTION OF ALL WELDING OPERATIONS, PRE, DURING, AND POST INSTALLATION, USING THE ACCEPTANCE CRITERIA OF AWS D1.1.
2. CONTRACTOR IS RESPONSIBLE FOR COMMISSIONING A THIRD PARTY CERTIFIED WELD INSPECTOR (CWI) THROUGHOUT THE ENTIRETY OF THE PROJECT. A PASSING CWI REPORT SHALL BE PROVIDED TO THE ENGINEER UPON COMPLETION OF THE PROJECT.
3. THE CERTIFIED WELD INSPECTOR SHALL INDICATE, IN A WRITTEN CWI REPORT, THAT ALL WELDING OPERATIONS PRE, DURING, AND POST INSTALLATION WERE CONDUCTED IN ACCORDANCE WITH AWS D1.1 WITH PHOTOGRAPHS AND DOCUMENTATION SUPPORTING THE ACCEPTANCE OR REJECTION OF ALL WELDING. ALL CWI WELD INSPECTION DOCUMENTATION AND PHOTOS SHALL BE SUBMITTED DURING THE PMI.
4. IN CASES WHERE A WELD IS SPECIFIED BETWEEN TWO MEMBERS IN WHICH THERE IS A GAP IN BETWEEN, THE WELD IS TO BE BUILT-UP SUCH THAT THE SIZE OF WELD ON THE MEMBER IS EQUAL TO THAT SHOWN IN THE DRAWINGS.
5. OXY FUEL GAS WELDING OR BRAZING IS STRICTLY PROHIBITED. SPECIFICALLY, NO TORCH CUTTING IS PERMITTED ON SITE. ALL HOLES SHALL BE CUT WITH A GRINDER.
6. CONTRACTOR SHALL EXERCISE CAUTION WHEN WELDING A GALVANIZED SURFACE.
7. CONTRACTOR SHALL HAVE A FIRE PROTECTION PLAN IN PLACE THAT CONFORMS WITH ALL OSHA, ANSI/ASSP A10.48, ANSI Z49.1, AND LOCAL JURISDICTIONAL REQUIREMENTS.

BOLT SCHEDULE (IN.)

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN.)

LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP. BOLT ASSEMBLY

NOTES:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.

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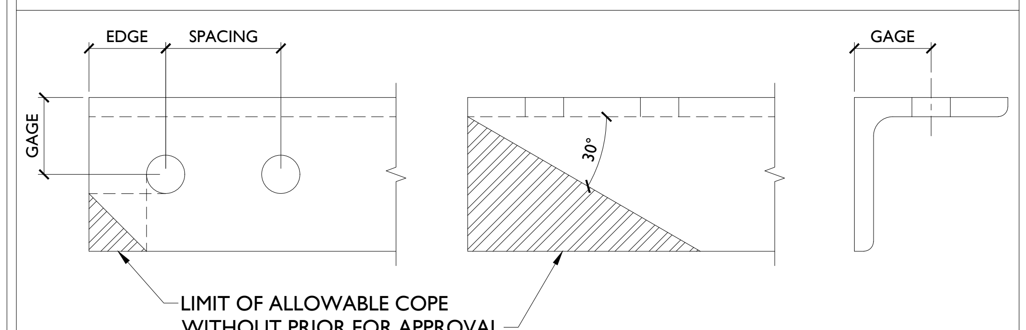

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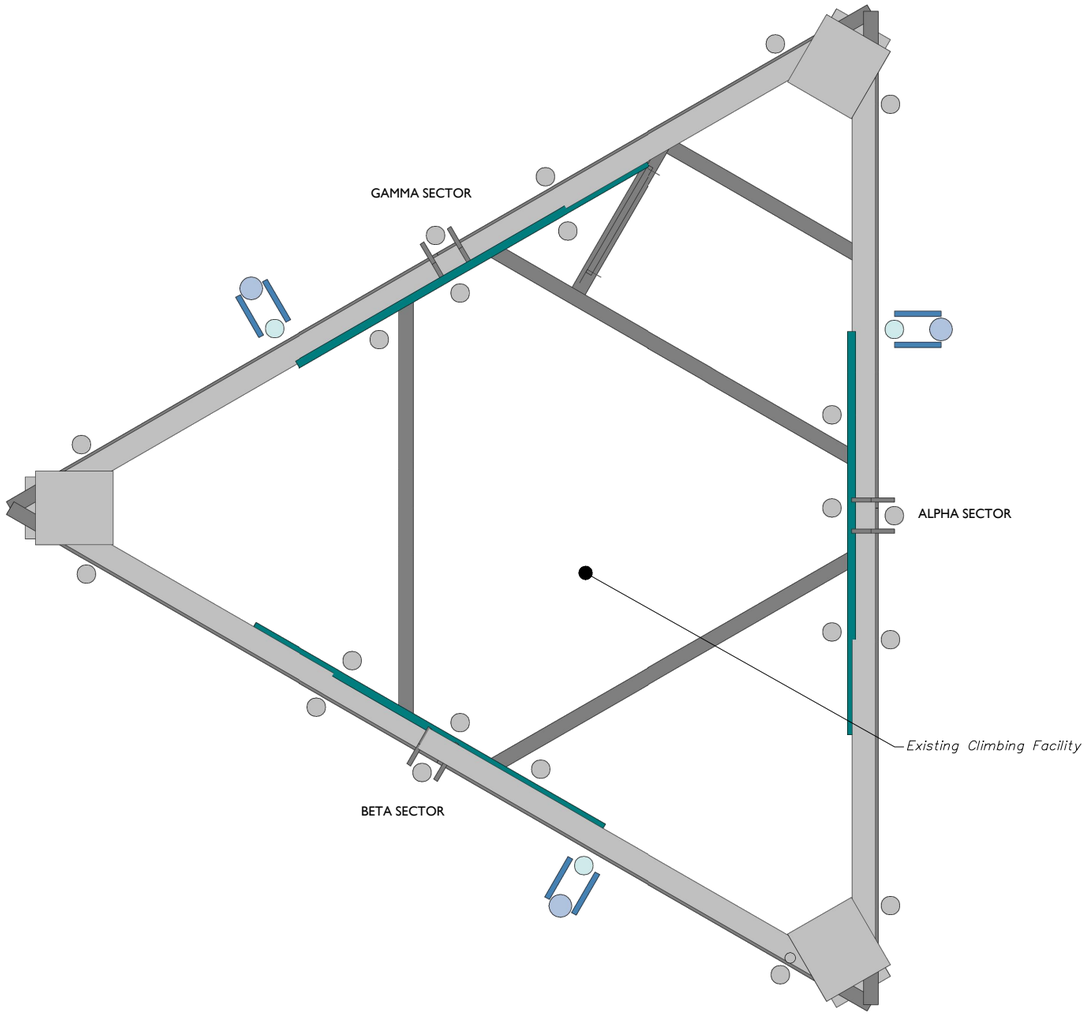
SHEET TITLE: MODIFICATION NOTES

SHEET NUMBER: SGN-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



1 CLIMBING FACILITY LOCATION

SCALE : N.T.S.

CLIMBING FACILITY PHOTO

STRUCTURAL NOTES:

1. PER THE MOUNT MAPPING COMPLETED BY ONSIGHT SERVICES ON 5/15/2022, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (159'-9") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.

2. INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.

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SHEET TITLE :

CLIMBING FACILITY DETAIL

SHEET NUMBER :

SCF-1

LEGEND:

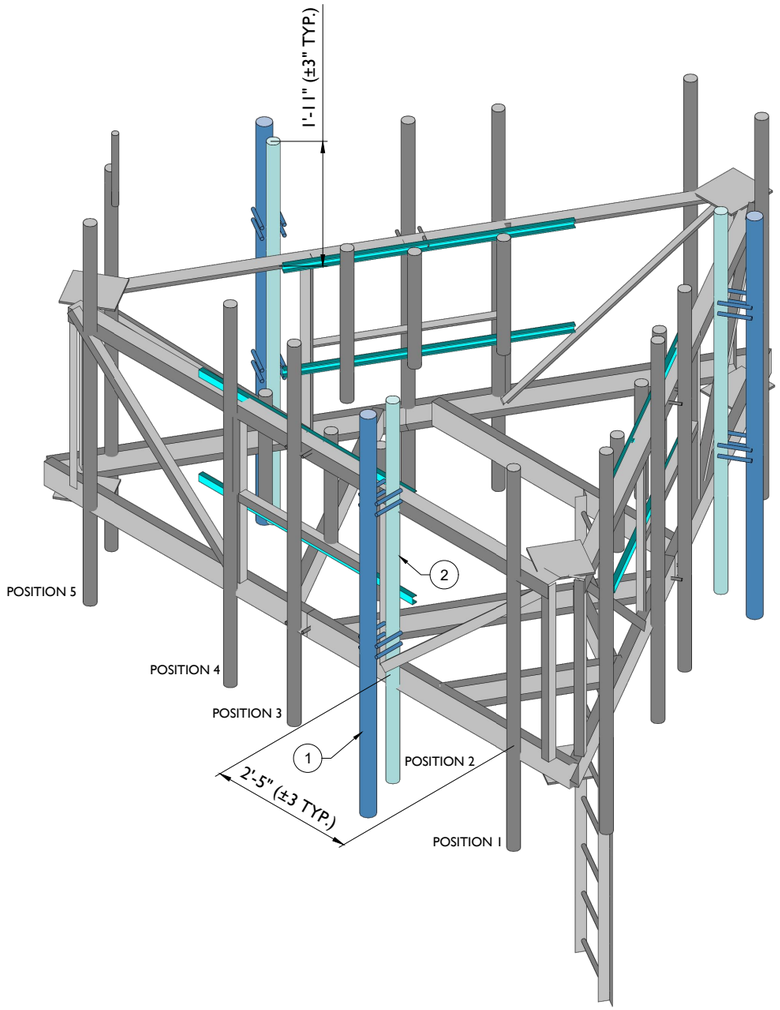
- PROPOSED
- RELOCATED
- EXISTING

MOUNT MODIFICATION SCHEDULE

NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	159'-9"	3	PROPOSED 84" LONG, P2 1/2 STD MOUNT PIPE	CONNECT NEW MOUNT PIPE TO RELOCATED MOUNT PIPE AT POSITION 2 (AS SEEN FROM BEHIND THE MOUNT) WITH PROPOSED PIPE TO PIPE CLAMP (PART #: VZWSMART-MSK3D). REPLACE THE THREADED ROD THAT COMES WITH THE PROPOSED PIPE TO PIPE CLAMP WITH 18" LONG, 5/8" DIA. THREADED ROD. MAX. UNBRACED LENGTH OF THREADED ROD SHALL NOT EXCEED 6". REFER TO DETAIL 2/SS-1.
2		3	RELOCATED MOUNT PIPE	CONNECT RELOCATED MOUNT PIPE TO FACE HORIZONTAL CHANNEL WITH (2) 1/2" DIA. U-BOLTS AND CONNECT TO THE SUPPORT RAIL ANGLE WITH (1) 1/2" DIA. U-BOLT . CONTRACTOR SHALL DRILL HOLES ON FACE HORIZONTAL AND SUPPORT RAIL AS NECESSARY.

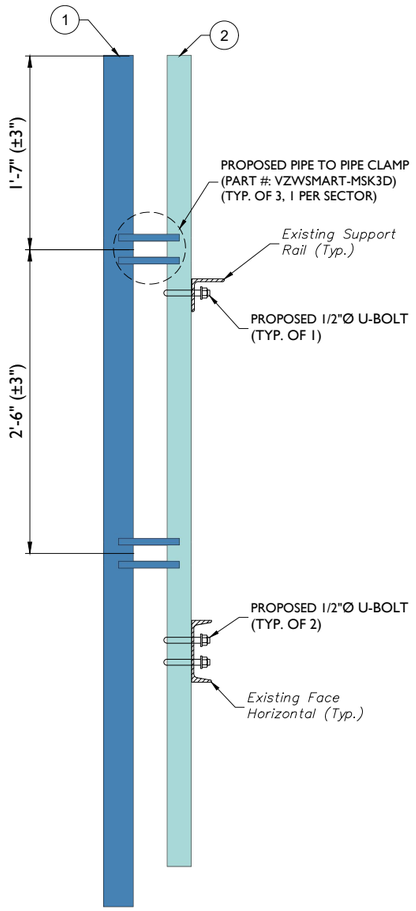
NOTES.

MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.
THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINGA OR ZINC KOTE).



1 PROPOSED ISOMETRIC VIEW

SCALE : N.T.S.



2 MOUNT PIPE CONNECTION @ POS. 2 (TYP. ALL SECTORS)

SCALE : N.T.S.

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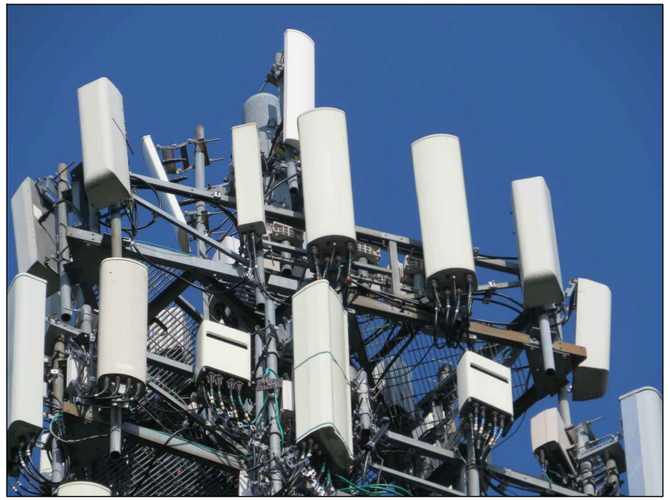
SHEET TITLE : MODIFICATION DETAILS

SHEET NUMBER : SS-1



MOUNT PHOTO 1

MOUNT PHOTO 2

MOUNT PHOTO 3

MOUNT PHOTO 4

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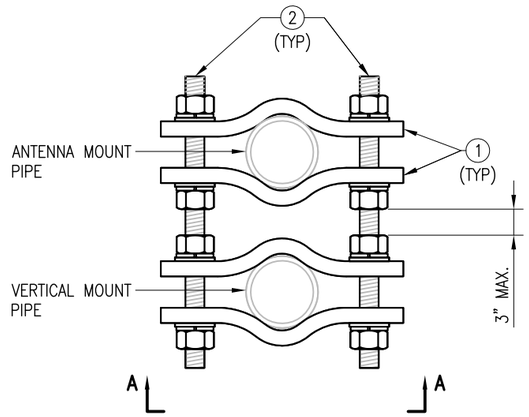
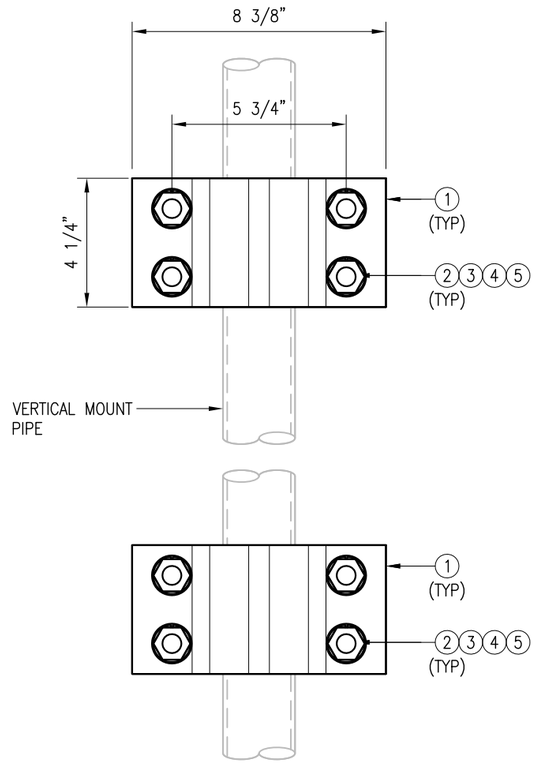
SHEET TITLE: MOUNT PHOTOS

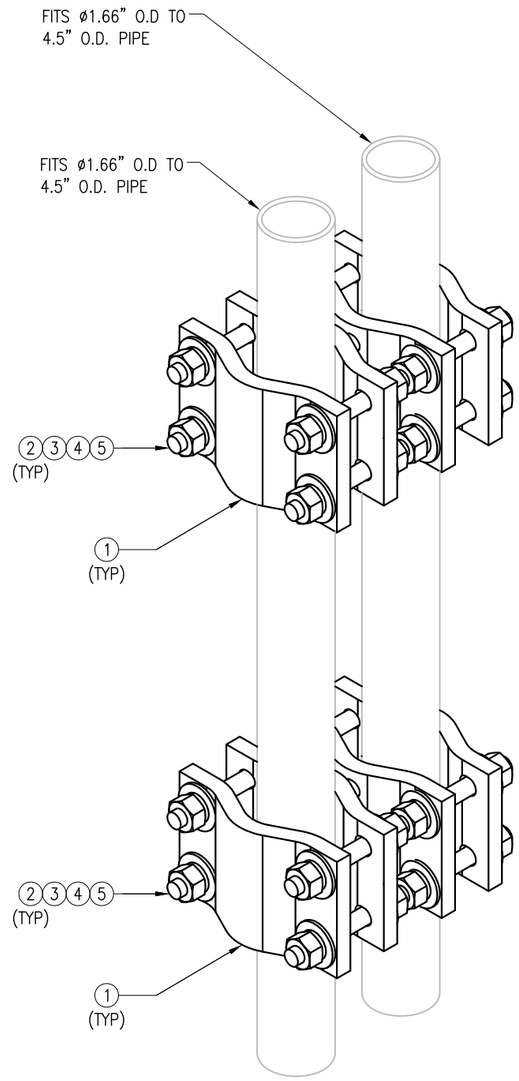
SHEET NUMBER: SS-2



PIPE TO PIPE CLAMPS
PLAN VIEW



SECTION "A-A"



PIPE TO PIPE CLAMPS
ISOMETRIC VIEW

NOTES:
1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. FIT UP TO 4.5" O.D. PIPE

VZWSMART-MSK3D (PIPE TO PIPE CLAMPS)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	8	V-CLAMP	PL 1/2" X 4 1/4" X 8 5/8" A36 BEND PLATE	MSK3D-F1	42
2	8	---	THREADED ROD 5/8" DIA. X 1'-0" F1554-36 HDG	---	--
3	32	FW-625	5/8" HDG USS FLAT WASHER	---	3
4	32	LW-625	5/8" HDG LOCK WASHER	---	1
5	32	NUT-625	5/8" HDG HEX NUT	---	4
				GALVANIZED WT	42

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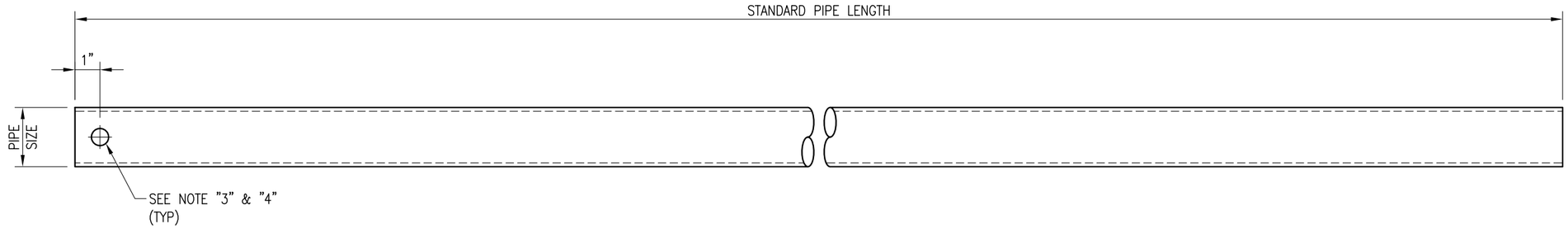
0	FIRST ISSUE	BT	05/08/20

SHEET TITLE:
VZWSMART-MSK3D
PIPE TO PIPE CLAMPS

SHEET NUMBER: VZWSMART-MSK3D

REV #: 0



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE. SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

NOTES:
1. ALL PIPE GRADE A53-B OR BETTER.
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. ALL HOLES ARE 11/16" DIA. U.N.O
4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

VzW SMART Tool© Vendor

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BT	08/04/21

SHEET TITLE:
VZWSMART STANDARD PIPE

SHEET NUMBER: VZWSMART-PIPE

REV #: 0

Exhibit D

Structural Analysis Report

Date: **June 01, 2022**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Site Number:	467205
	Site Name:	FAIRFIELD CT
Crown Castle Designation:	**BU Number:**	806355
	Site Name:	BRG 126 943086
	JDE Job Number:	717913
	Work Order Number:	2116542
	Order Number:	618040 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	2116542
Site Data:	**281 Wood House Road, Fairfield, Fairfield County, CT** **Latitude *41° 11' 45.3"*, Longitude *-73° 16' 52.9"*** **170.5 Foot - Monopole Tower**	

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:

LC7: Proposed Equipment Configuration **Sufficient Capacity - 70%**

This analysis utilizes an ultimate 3-second gust wind speed of 118 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: Randall Ashworth, EIT

Respectfully submitted by:

Maribel Dentinger

Maribel Dentinger, P.E.
Senior Project Engineer

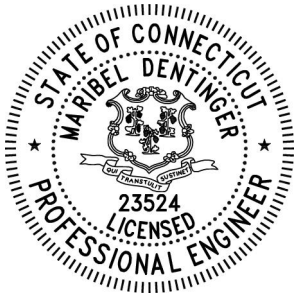


TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 170.5 ft Monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
156.0	162.0	6	decibel	DB844G65ZAXY w/ Mount Pipe	9	1-5/8
		6	jma wireless	MX06FRO660-03 w/ Mount Pipe		
		2	raycap	RRFDC-3315-PF-48		
		6	rfs celwave	FD9R6004/2C-3L		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RF4439D-25A		
		3	samsung telecommunications	RF4440D-13A		
	160.0	1	gps	GPS_A w/ Mount Pipe		
	156.0	1	tower mounts	Platform Mount [LP 713-1]		

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)
166.0	166.0	3	fujitsu	TA08025-B604	1	1-3/4
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope_MC-PK8-DSH		
146.0	150.0	3	ericsson	AIR 6419 B77G_CCIV3 w/ Mount Pipe	3 4 4 12 4	3/8 13/16 7/8 1-5/8 Conduit
	148.0	3	cci antennas	OPA65R-BU6D w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS-32 B30		
		3	quintel technology	QD6616-7 w/ Mount Pipe		
		1	raycap	DC9-48-60-24-8C-EV_CCIV2		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	146.0	1	tower mounts	Sabre 12' HD V-BOOM [C10857802]		
		3	ericsson	AIR 6449 B77D_CCVI2 w/ Mount Pipe		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		2	raycap	DC6-48-60-18-8F		
138.0	140.0	3	commscope	VV-65A-R1_TMO w/ Mount Pipe	4	1-5/8
		3	ericsson	AIR 6419 B41_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
	138.0	1	tower mounts	Platform Mount [LP 713-1]		
128.0	128.0	1	andrew	VHLP800-11	1 3	1-5/8 Elliptical
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 303-1_KCKR-HR-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1099974	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1098364	CCISITES
4-TOWER MANUFACTURER DRAWINGS	653293	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) 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	170.5 - 156.5	Pole	TP10.75x10.75x0.365	1	-3.516	393.867	32.8	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-3.518	393.867	32.8	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.188	3	-16.598	868.938	68.1	Pass
L4	132.67 - 87.09	Pole	TP34.63x23.583x0.375	4	-30.436	2425.216	70.0	Pass
L5	87.09 - 43	Pole	TP43.75x32.797x0.438	5	-44.188	3579.807	68.6	Pass
L6	43 - 0	Pole	TP52.5x41.532x0.5	6	-48.171	4130.742	62.7	Pass
							Summary	
						Pole (L4)	70.0	Pass
						Rating =	70.0	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	156.0	8.0	Pass
1	Flange Plates		18.9	Pass
1	Anchor Rods	0	61.2	Pass
1	Base Plate	0	69.6	Pass
1	Base Foundation (Structure)	0	68.7	Pass
1	Base Foundation (Soil Interaction)	0	64.1	Pass

Structure Rating (max from all components) =	**70%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

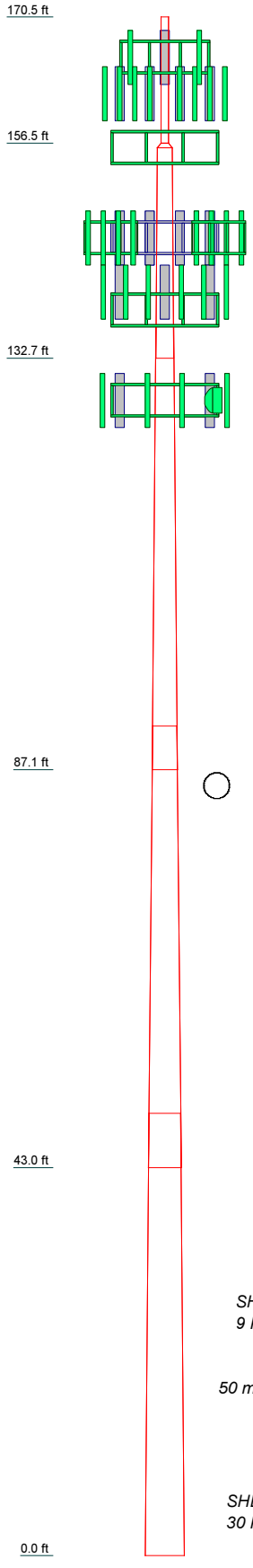
4.1) Recommendations

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	6	5	4	3	2	1
Length (ft)	49.000	48.920	49.250	23.330	0.500	14.000
Number of Sides	18	18	18	18	1	1
Thickness (in)	0.500	0.438	0.375	0.188	0.365	0.365
Socket Length (ft)		6.000	4.830	3.670		
Top Dia (in)	41.532	32.797	23.583	19.500	10.750	10.750
Bot Dia (in)	52.500	43.750	34.630	24.790	19.500	10.750
Grade	A572-65			A53-B-35		
Weight (K)	12.3	8.7	5.7	1.0	0.0	0.6



ALL REACTIONS ARE FACTORED

AXIAL 89 K

SHEAR 9 K — *MOMENT 1204 kip-ft*

TORQUE 1 kip-ft

50 mph WIND - 1.000 in ICE

AXIAL 65 K

SHEAR 30 K — *MOMENT 4068 kip-ft*

TORQUE 1 kip-ft

REACTIONS - 118 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 118 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 70%

CROWN CASTLE
The Pathway to Possible

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

Job: ***BU# 806355***			
Project:			
Client: Crown Castle	Drawn by: RAshworth		App'd:
Code: TIA-222-H	Date: 06/01/22		Scale: NTS
Path: C:\NEW Directory\806355\WO 2116542 - SA\Prod\806355_RPA.er			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:

- Tower is located in Fairfield County, Connecticut.
- Tower base elevation above sea level: 334.000 ft.
- Basic wind speed of 118 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

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	170.500-156.500	14.000	0.000	Round	10.750	10.750	0.365		A53-B-35 (35 ksi)
L2	156.500-156.000	0.500	0.000	Round	10.750	19.500	0.365		A53-B-35 (35 ksi)
L3	156.000-132.670	23.330	3.670	18	19.500	24.790	0.188	0.750	A572-65 (65 ksi)
L4	132.670-87.090	49.250	4.830	18	23.583	34.630	0.375	1.500	A572-65 (65 ksi)
L5	87.090-43.000	48.920	6.000	18	32.797	43.750	0.438	1.750	A572-65 (65 ksi)
L6	43.000-0.000	49.000		18	41.532	52.500	0.500	2.000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	10.750	11.908	160.734	3.674	5.375	29.904	321.468	5.951	0.000	0
	10.750	11.908	160.734	3.674	5.375	29.904	321.468	5.951	0.000	0
L2	10.750	11.908	160.734	3.674	5.375	29.904	321.468	5.951	0.000	0
	19.500	21.942	1004.607	6.766	9.750	103.037	2009.214	10.964	0.000	0
L3	19.772	11.493	541.578	6.856	9.906	54.672	1083.869	5.748	3.102	16.544
	25.144	14.642	1119.653	8.734	12.593	88.908	2240.779	7.322	4.033	21.51
L4	24.725	27.623	1879.662	8.239	11.980	156.899	3761.798	13.814	3.491	9.308
	35.106	40.772	6044.321	12.161	17.592	343.583	12096.596	20.390	5.435	14.493
L5	34.333	44.935	5944.447	11.487	16.661	356.795	11896.716	22.472	5.002	11.434
	44.357	60.145	14254.835	15.376	22.225	641.387	28528.426	30.078	6.930	15.84
L6	43.459	65.117	13850.609	14.566	21.098	656.488	27719.443	32.565	6.430	12.859
	53.233	82.524	28191.904	18.460	26.670	1057.064	56420.904	41.270	8.360	16.72

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 170.500-156.500				1	1	1			
L2 156.500-156.000				1	1	1			
L3 156.000-132.670				1	1	1			
L4 132.670-87.090				1	1	1			
L5 87.090-43.000				1	1	1			
L6 43.000-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
***											
***											

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_A ft^2/ft	Weight klf
CU12PSM6P4XXX (1-3/4)	C	No	No	Inside Pole	166.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
***									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	156.000 - 0.000	9	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
***									
PWRT-606-S(7/8)	A	No	No	Inside Pole	146.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
PWRT-608-S(13/16)	A	No	No	Inside Pole	146.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
FB-L98B-235-XXX(3/8)	A	No	No	Inside Pole	146.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
LDF7-50A(1-5/8)	A	No	No	Inside Pole	146.000 - 0.000	12	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	146.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
2" Rigid Conduit	A	No	No	Inside Pole	146.000 - 0.000	4	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
***									
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	138.000 - 0.000	4	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
***									
7983A(ELLIPTICAL)	B	No	No	Inside Pole	128.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
HB158-21U6S24-xxM_TMO(1-5/8)	B	No	No	Inside Pole	128.000 - 0.000	3	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
***									
Safety Line 3/8	B	No	No	CaAa (Out Of Face)	170.500 - 0.000	1	No Ice	0.037	0.000
							1/2" Ice	0.137	0.001
							1" Ice	0.238	0.001
5/8 rod/step	B	No	No	CaAa (Out Of Face)	170.500 - 0.000	1	No Ice	0.020	0.000
							1/2" Ice	0.120	0.001
							1" Ice	0.220	0.002
***									
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	170.500-156.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.805	0.007
		C	0.000	0.000	0.000	0.000	0.026
L2	156.500-156.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.029	0.000
		C	0.000	0.000	0.000	0.000	0.001
L3	156.000-132.670	A	0.000	0.000	0.000	0.000	0.536
		B	0.000	0.000	0.000	1.341	0.012
		C	0.000	0.000	0.000	0.000	0.117

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L4	132.670-87.090	A	0.000	0.000	0.000	0.000	1.579
		B	0.000	0.000	0.000	2.621	0.333
		C	0.000	0.000	0.000	0.000	0.580
L5	87.090-43.000	A	0.000	0.000	0.000	0.000	1.527
		B	0.000	0.000	0.000	2.535	0.356
		C	0.000	0.000	0.000	0.000	0.561
L6	43.000-0.000	A	0.000	0.000	0.000	0.000	1.489
		B	0.000	0.000	0.000	2.473	0.347
		C	0.000	0.000	0.000	0.000	0.547

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	170.500-156.500	A	0.998	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	6.391	0.042
		C		0.000	0.000	0.000	0.000	0.026
L2	156.500-156.000	A	0.993	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.227	0.001
		C		0.000	0.000	0.000	0.000	0.001
L3	156.000-132.670	A	0.985	0.000	0.000	0.000	0.000	0.536
		B		0.000	0.000	0.000	10.532	0.069
		C		0.000	0.000	0.000	0.000	0.117
L4	132.670-87.090	A	0.958	0.000	0.000	0.000	0.000	1.579
		B		0.000	0.000	0.000	20.576	0.446
		C		0.000	0.000	0.000	0.000	0.580
L5	87.090-43.000	A	0.909	0.000	0.000	0.000	0.000	1.527
		B		0.000	0.000	0.000	19.427	0.462
		C		0.000	0.000	0.000	0.000	0.561
L6	43.000-0.000	A	0.812	0.000	0.000	0.000	0.000	1.489
		B		0.000	0.000	0.000	18.109	0.444
		C		0.000	0.000	0.000	0.000	0.547

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	170.500-156.500	0.581	0.335	1.308	0.755
L2	156.500-156.000	0.603	0.348	1.472	0.850
L3	156.000-132.670	0.446	0.257	1.609	0.929
L4	132.670-87.090	0.451	0.261	1.713	0.989
L5	87.090-43.000	0.455	0.263	1.757	1.015
L6	43.000-0.000	0.457	0.264	1.739	1.004

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	166.000
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	166.000
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	166.000
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	166.000
Commscope_MC-PK8-DSH	C	None		0.000	166.000
(3) 8' x 2'' Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	166.000
(3) 8' x 2'' Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	166.000
(3) 8' x 2'' Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	166.000
*					
(2) DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.000 0.000 6.000	0.000	156.000
(2) DB844G65ZAXY w/ Mount Pipe	B	From Leg	4.000 0.000 6.000	0.000	156.000
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.000 0.000 6.000	0.000	156.000
GPS_A w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	156.000
(2) FD9R6004/2C-3L	A	From Leg	4.000 0.000 6.000	0.000	156.000
(2) FD9R6004/2C-3L	B	From Leg	4.000 0.000 6.000	0.000	156.000
(2) FD9R6004/2C-3L	C	From Leg	4.000 0.000 6.000	0.000	156.000
RRFDC-3315-PF-48	C	From Leg	4.000 0.000 6.000	0.000	156.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
MT6407-77A w/ Mount Pipe	A	From Leg	4.000 0.000 6.000	0.000	156.000
MT6407-77A w/ Mount Pipe	B	From Leg	4.000 0.000 6.000	0.000	156.000
MT6407-77A w/ Mount Pipe	C	From Leg	4.000 0.000 6.000	0.000	156.000
(2) MX06FRO660-03 w/ Mount Pipe	A	From Leg	4.000 0.000 6.000	0.000	156.000
(2) MX06FRO660-03 w/ Mount Pipe	B	From Leg	4.000 0.000 6.000	0.000	156.000
(2) MX06FRO660-03 w/ Mount Pipe	C	From Leg	4.000 0.000 6.000	0.000	156.000
RF4440D-13A	A	From Leg	4.000 0.000 6.000	0.000	156.000
RF4440D-13A	B	From Leg	4.000 0.000 6.000	0.000	156.000
RF4440D-13A	C	From Leg	4.000 0.000 6.000	0.000	156.000
RF4439D-25A	A	From Leg	4.000 0.000 6.000	0.000	156.000
RF4439D-25A	B	From Leg	4.000 0.000 6.000	0.000	156.000
RF4439D-25A	C	From Leg	4.000 0.000 6.000	0.000	156.000
RRFDC-3315-PF-48	C	From Leg	4.000 0.000 6.000	0.000	156.000
Platform Mount [LP 713-1]	C	None		0.000	156.000
Mount Reinforcement Specifications	C	None		0.000	156.000
*					
RRUS 32 B2	A	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B2	B	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B2	C	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B66	A	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B66	B	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B66	C	From Leg	4.000 0.000 0.000	0.000	146.000
DC6-48-60-18-8F	B	From Leg	4.000 0.000 0.000	0.000	146.000
DC6-48-60-18-8F	C	From Leg	4.000 0.000	0.000	146.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
QD6616-7 w/ Mount Pipe	A	From Leg	0.000 4.000 0.000	0.000	146.000
QD6616-7 w/ Mount Pipe	B	From Leg	2.000 4.000 0.000	0.000	146.000
QD6616-7 w/ Mount Pipe	C	From Leg	2.000 4.000 0.000	0.000	146.000
OPA65R-BU6D w/ Mount Pipe	A	From Leg	2.000 4.000 0.000	0.000	146.000
OPA65R-BU6D w/ Mount Pipe	B	From Leg	2.000 4.000 0.000	0.000	146.000
OPA65R-BU6D w/ Mount Pipe	C	From Leg	2.000 4.000 0.000	0.000	146.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From Leg	2.000 4.000 0.000	0.000	146.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	B	From Leg	4.000 4.000 0.000	0.000	146.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From Leg	4.000 4.000 0.000	0.000	146.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	A	From Leg	4.000 4.000 0.000	0.000	146.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	B	From Leg	0.000 4.000 0.000	0.000	146.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	C	From Leg	0.000 4.000 0.000	0.000	146.000
RRUS-32 B30	A	From Leg	0.000 4.000 0.000	0.000	146.000
RRUS-32 B30	B	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS-32 B30	C	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4449 B5/B12	A	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4449 B5/B12	B	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4449 B5/B12	C	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4478 B14_CCIV2	A	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4478 B14_CCIV2	B	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4478 B14_CCIV2	C	From Leg	2.000 4.000 0.000	0.000	146.000
DC9-48-60-24-8C-EV_CCIV2	C	From Leg	2.000 4.000	0.000	146.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.000 2.000		
Sabre 12' HD V-BOOM [C10857802]	C	None		0.000	146.000
Pipe Mount [PM 601-3]	C	None		0.000	146.000
(2) 6' x 2'' Mount Pipe	A	From Leg	2.000 0.000 0.000	0.000	146.000
(2) 6' x 2'' Mount Pipe	B	From Leg	2.000 0.000 0.000	0.000	146.000
(2) 6' x 2'' Mount Pipe	C	From Leg	2.000 0.000 0.000	0.000	146.000
*					
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	138.000
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	138.000
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	138.000
VV-65A-R1_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	138.000
VV-65A-R1_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	138.000
VV-65A-R1_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	138.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	138.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	138.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	138.000
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 2.000	0.000	138.000
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 2.000	0.000	138.000
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 2.000	0.000	138.000
Radio 4480_TMOV2	A	From Leg	4.000 0.000 2.000	0.000	138.000
Radio 4480_TMOV2	B	From Leg	4.000 0.000 2.000	0.000	138.000
Radio 4480_TMOV2	C	From Leg	4.000 0.000 2.000	0.000	138.000
9' x 2'' Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	138.000
9' x 2'' Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	138.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
9' x 2'' Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	138.000
10' horizontal x 2'' Pipe Mount	A	From Leg	4.000 0.000 5.000	0.000	138.000
10' horizontal x 2'' Pipe Mount	A	From Leg	4.000 0.000 5.000	0.000	138.000
10' horizontal x 2'' Pipe Mount	A	From Leg	4.000 0.000 5.000	0.000	138.000
3' x 2'' Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	138.000
3' x 2'' Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	138.000
3' x 2'' Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	138.000
TELESCOPOIC ARM KIT	A	From Leg	4.000 0.000 5.000	0.000	138.000
TELESCOPOIC ARM KIT	B	From Leg	4.000 0.000 5.000	0.000	138.000
TELESCOPOIC ARM KIT	C	From Leg	4.000 0.000 5.000	0.000	138.000
Platform Mount [LP 713-1]	C	None		0.000	138.000
*					
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	128.000
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	128.000
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	128.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	128.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	128.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	128.000
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 0.000	0.000	128.000
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 0.000	0.000	128.000
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 0.000	0.000	128.000
Radio 4480_TMOV2	A	From Leg	4.000 0.000 0.000	0.000	128.000
Radio 4480_TMOV2	B	From Leg	4.000 0.000 0.000	0.000	128.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Radio 4480_TMOV2	C	From Leg	4.000 0.000 0.000	0.000	128.000
Platform Mount [LP 303-1_KCKR-HR-1]	C	None		0.000	128.000
(2) 8' x 2'' Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	128.000
(2) 8' x 2'' Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	128.000
(2) 8' x 2'' Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	128.000
6' x 2'' Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	128.000
6' x 2'' Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	128.000
6' x 2'' Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	128.000
* * *					

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
VHLP800-11	B	Paraboloid w/Shroud (HP)	From Leg	4.000 0.000 0.000	-20.000		128.000	2.917
*								

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

Comb. No.	Description
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum 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	170.5 - 156.5	Pole	Max Tension	39	0.000	-0.000	-0.000
			Max. Compression	26	-6.108	-0.006	0.291
			Max. Mx	20	-3.522	34.095	0.077
			Max. My	2	-3.516	0.000	34.527
			Max. Vy	20	-3.676	34.095	0.077
			Max. Vx	14	3.709	0.008	-34.300
			Max. Torque	9			0.172
L2	156.5 - 156	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-6.155	-0.007	0.290
			Max. Mx	20	-3.558	35.936	0.068
			Max. My	2	-3.552	0.005	36.384
			Max. Vy	20	-3.693	35.936	0.068
			Max. Vx	14	3.726	0.013	-36.158
			Max. Torque	9			0.168
L3	156 - 132.67	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.880	1.028	0.215
			Max. Mx	20	-16.625	324.216	-0.591
			Max. My	2	-16.597	-0.591	325.299
			Max. Vy	20	-20.531	324.216	-0.591
			Max. Vx	2	-20.704	-0.591	325.299
			Max. Torque	24			1.104
L4	132.67 - 87.09	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.805	0.737	0.047

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-30.441	1432.074	-1.070
			Max. My	2	-30.437	-0.588	1435.209
			Max. Vy	20	-26.754	1432.074	-1.070
			Max. Vx	14	26.777	0.406	-1435.200
			Max. Torque	22			1.404
L5	87.09 - 43	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.682	0.562	-0.055
			Max. Mx	20	-44.190	2622.348	-1.228
			Max. My	14	-44.188	-0.760	-2626.467
			Max. Vy	20	-28.585	2622.348	-1.228
			Max. Vx	14	28.606	-0.760	-2626.467
			Max. Torque	20			1.403
L6	43 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-88.922	0.327	-0.190
			Max. Mx	20	-64.719	4062.722	-1.356
			Max. My	14	-64.719	-2.092	-4067.891
			Max. Vy	20	-30.068	4062.722	-1.356
			Max. Vx	14	30.086	-2.092	-4067.891
			Max. Torque	20			1.470

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	88.922	-0.006	-8.700
	Max. H_x	20	64.744	30.015	-0.002
	Max. H_z	2	64.744	0.009	30.025
	Max. M_x	2	4067.065	0.009	30.025
	Max. M_z	8	4053.501	-29.950	0.013
	Max. Torsion	20	1.470	30.015	-0.002
	Min. Vert	17	48.558	15.064	-25.973
	Min. H_x	8	64.744	-29.950	0.013
	Min. H_z	14	64.744	-0.026	-30.033
	Min. M_x	14	-4067.891	-0.026	-30.033
	Min. M_z	20	-4062.722	30.015	-0.002
	Min. Torsion	8	-1.340	-29.950	0.013

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	53.953	0.000	0.000	-0.088	0.119	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	64.744	-0.009	-30.025	-4067.065	0.201	0.095
0.9 Dead+1.0 Wind 0 deg - No Ice	48.558	-0.009	-30.025	-3981.566	0.176	0.102
1.2 Dead+1.0 Wind 30 deg - No Ice	64.744	15.034	-25.992	-3521.399	-2035.771	0.912
0.9 Dead+1.0 Wind 30 deg - No Ice	48.558	15.034	-25.992	-3447.333	-1993.046	0.909
1.2 Dead+1.0 Wind 60 deg - No Ice	64.744	25.977	-14.980	-2030.234	-3516.463	1.175
0.9 Dead+1.0 Wind 60 deg - No Ice	48.558	25.977	-14.980	-1987.489	-3442.628	1.165
1.2 Dead+1.0 Wind 90 deg - No Ice	64.744	29.950	-0.013	-3.250	-4053.501	1.340
0.9 Dead+1.0 Wind 90 deg - No Ice	48.558	29.950	-0.013	-3.116	-3968.395	1.325
1.2 Dead+1.0 Wind 120 deg	64.744	25.938	14.986	2028.606	-3509.912	1.134

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice						
0.9 Dead+1.0 Wind 120 deg - No Ice	48.558	25.938	14.986	1986.018	-3436.216	1.118
1.2 Dead+1.0 Wind 150 deg - No Ice	64.744	15.020	25.967	3516.413	-2031.715	0.790
0.9 Dead+1.0 Wind 150 deg - No Ice	48.558	15.020	25.967	3442.536	-1989.101	0.776
1.2 Dead+1.0 Wind 180 deg - No Ice	64.744	0.026	30.033	4067.891	-2.092	-0.060
0.9 Dead+1.0 Wind 180 deg - No Ice	48.558	0.026	30.033	3982.440	-2.128	-0.069
1.2 Dead+1.0 Wind 210 deg - No Ice	64.744	-15.064	25.973	3518.520	2040.297	-0.743
0.9 Dead+1.0 Wind 210 deg - No Ice	48.558	-15.064	25.973	3444.578	1997.376	-0.744
1.2 Dead+1.0 Wind 240 deg - No Ice	64.744	-26.034	14.983	2030.305	3524.592	-1.195
0.9 Dead+1.0 Wind 240 deg - No Ice	48.558	-26.034	14.983	1987.640	3450.495	-1.186
1.2 Dead+1.0 Wind 270 deg - No Ice	64.744	-30.015	0.002	1.355	4062.722	-1.470
0.9 Dead+1.0 Wind 270 deg - No Ice	48.558	-30.015	0.002	1.346	3977.343	-1.453
1.2 Dead+1.0 Wind 300 deg - No Ice	64.744	-26.005	-15.005	-2031.447	3519.330	-1.383
0.9 Dead+1.0 Wind 300 deg - No Ice	48.558	-26.005	-15.005	-1988.723	3445.368	-1.365
1.2 Dead+1.0 Wind 330 deg - No Ice	64.744	-15.075	-25.975	-3517.738	2039.654	-1.022
0.9 Dead+1.0 Wind 330 deg - No Ice	48.558	-15.075	-25.975	-3443.766	1996.804	-1.007
1.2 Dead+1.0 Ice+1.0 Temp	88.922	-0.000	0.000	0.190	0.327	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	88.922	-0.002	-8.698	-1203.469	0.543	0.419
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	88.922	4.339	-7.531	-1042.031	-599.435	0.680
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	88.922	7.503	-4.342	-600.882	-1036.588	0.699
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	88.922	8.654	-0.002	-0.413	-1195.576	0.576
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	88.922	7.495	4.344	601.071	-1035.262	0.294
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	88.922	4.336	7.526	1041.447	-598.649	-0.038
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	88.922	0.006	8.700	1204.086	-0.038	-0.421
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	88.922	-4.345	7.527	1041.847	601.278	-0.657
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	88.922	-7.514	4.343	601.350	1039.217	-0.707
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	88.922	-8.667	-0.000	0.459	1198.421	-0.595
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	88.922	-7.508	-4.348	-601.217	1038.136	-0.333
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	88.922	-4.347	-7.527	-1041.299	601.236	-0.007
Dead+Wind 0 deg - Service	53.953	-0.002	-7.342	-984.586	0.156	0.018
Dead+Wind 30 deg - Service	53.953	3.676	-6.356	-852.523	-492.711	0.220
Dead+Wind 60 deg - Service	53.953	6.352	-3.663	-491.538	-851.154	0.293
Dead+Wind 90 deg - Service	53.953	7.323	-0.003	-0.847	-981.121	0.343
Dead+Wind 120 deg - Service	53.953	6.342	3.664	491.007	-849.560	0.296
Dead+Wind 150 deg - Service	53.953	3.673	6.349	851.169	-491.724	0.203
Dead+Wind 180 deg - Service	53.953	0.006	7.344	984.637	-0.403	-0.021
Dead+Wind 210 deg - Service	53.953	-3.683	6.351	851.684	494.003	-0.197
Dead+Wind 240 deg -	53.953	-6.366	3.664	491.421	853.322	-0.306

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Service						
Dead+Wind 270 deg - Service	53.953	-7.339	0.000	0.257	983.562	-0.365
Dead+Wind 300 deg - Service	53.953	-6.359	-3.669	-491.833	852.055	-0.339
Dead+Wind 330 deg - Service	53.953	-3.686	-6.351	-851.637	493.858	-0.253

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-53.953	0.000	0.000	53.953	0.000	0.000%
2	-0.009	-64.744	-30.025	0.009	64.744	30.025	0.000%
3	-0.009	-48.558	-30.025	0.009	48.558	30.025	0.000%
4	15.034	-64.744	-25.992	-15.034	64.744	25.992	0.000%
5	15.034	-48.558	-25.992	-15.034	48.558	25.992	0.000%
6	25.977	-64.744	-14.980	-25.977	64.744	14.980	0.000%
7	25.977	-48.558	-14.980	-25.977	48.558	14.980	0.000%
8	29.950	-64.744	-0.013	-29.950	64.744	0.013	0.000%
9	29.950	-48.558	-0.013	-29.950	48.558	0.013	0.000%
10	25.938	-64.744	14.986	-25.938	64.744	-14.986	0.000%
11	25.938	-48.558	14.986	-25.938	48.558	-14.986	0.000%
12	15.020	-64.744	25.967	-15.020	64.744	-25.967	0.000%
13	15.020	-48.558	25.967	-15.020	48.558	-25.967	0.000%
14	0.026	-64.744	30.033	-0.026	64.744	-30.033	0.000%
15	0.026	-48.558	30.033	-0.026	48.558	-30.033	0.000%
16	-15.064	-64.744	25.973	15.064	64.744	-25.973	0.000%
17	-15.064	-48.558	25.973	15.064	48.558	-25.973	0.000%
18	-26.034	-64.744	14.983	26.034	64.744	-14.983	0.000%
19	-26.034	-48.558	14.983	26.034	48.558	-14.983	0.000%
20	-30.015	-64.744	0.002	30.015	64.744	-0.002	0.000%
21	-30.015	-48.558	0.002	30.015	48.558	-0.002	0.000%
22	-26.005	-64.744	-15.005	26.005	64.744	15.005	0.000%
23	-26.005	-48.558	-15.005	26.005	48.558	15.005	0.000%
24	-15.075	-64.744	-25.975	15.075	64.744	25.975	0.000%
25	-15.075	-48.558	-25.975	15.075	48.558	25.975	0.000%
26	0.000	-88.922	0.000	0.000	88.922	-0.000	0.000%
27	-0.002	-88.922	-8.698	0.002	88.922	8.698	0.000%
28	4.339	-88.922	-7.531	-4.339	88.922	7.531	0.000%
29	7.503	-88.922	-4.342	-7.503	88.922	4.342	0.000%
30	8.654	-88.922	-0.002	-8.654	88.922	0.002	0.000%
31	7.495	-88.922	4.344	-7.495	88.922	-4.344	0.000%
32	4.336	-88.922	7.526	-4.336	88.922	-7.526	0.000%
33	0.006	-88.922	8.700	-0.006	88.922	-8.700	0.000%
34	-4.345	-88.922	7.527	4.345	88.922	-7.527	0.000%
35	-7.514	-88.922	4.343	7.514	88.922	-4.343	0.000%
36	-8.667	-88.922	-0.000	8.667	88.922	0.000	0.000%
37	-7.508	-88.922	-4.348	7.508	88.922	4.348	0.000%
38	-4.347	-88.922	-7.527	4.347	88.922	7.527	0.000%
39	-0.002	-53.953	-7.342	0.002	53.953	7.342	0.000%
40	3.676	-53.953	-6.356	-3.676	53.953	6.356	0.000%
41	6.352	-53.953	-3.663	-6.352	53.953	3.663	0.000%
42	7.323	-53.953	-0.003	-7.323	53.953	0.003	0.000%
43	6.342	-53.953	3.664	-6.342	53.953	-3.664	0.000%
44	3.673	-53.953	6.349	-3.673	53.953	-6.349	0.000%
45	0.006	-53.953	7.344	-0.006	53.953	-7.344	0.000%
46	-3.683	-53.953	6.351	3.683	53.953	-6.351	0.000%
47	-6.366	-53.953	3.664	6.366	53.953	-3.664	0.000%
48	-7.339	-53.953	0.000	7.339	53.953	-0.000	0.000%
49	-6.359	-53.953	-3.669	6.359	53.953	3.669	0.000%
50	-3.686	-53.953	-6.351	3.686	53.953	6.351	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	5	0.00000001	0.00049058
3	Yes	5	0.00000001	0.00023227
4	Yes	7	0.00000001	0.00029507
5	Yes	7	0.00000001	0.00006766
6	Yes	7	0.00000001	0.00029110
7	Yes	7	0.00000001	0.00006663
8	Yes	5	0.00000001	0.00069133
9	Yes	5	0.00000001	0.00033480
10	Yes	7	0.00000001	0.00029837
11	Yes	7	0.00000001	0.00006878
12	Yes	7	0.00000001	0.00028843
13	Yes	7	0.00000001	0.00006596
14	Yes	5	0.00000001	0.00056929
15	Yes	5	0.00000001	0.00026920
16	Yes	7	0.00000001	0.00029535
17	Yes	7	0.00000001	0.00006765
18	Yes	7	0.00000001	0.00029718
19	Yes	7	0.00000001	0.00006824
20	Yes	5	0.00000001	0.00094709
21	Yes	5	0.00000001	0.00045451
22	Yes	7	0.00000001	0.00028750
23	Yes	6	0.00000001	0.00099747
24	Yes	7	0.00000001	0.00030046
25	Yes	7	0.00000001	0.00006916
26	Yes	4	0.00000001	0.00000672
27	Yes	6	0.00000001	0.00032847
28	Yes	7	0.00000001	0.00017387
29	Yes	6	0.00000001	0.00097427
30	Yes	6	0.00000001	0.00032985
31	Yes	7	0.00000001	0.00017441
32	Yes	6	0.00000001	0.00097808
33	Yes	6	0.00000001	0.00032866
34	Yes	6	0.00000001	0.00099782
35	Yes	7	0.00000001	0.00017681
36	Yes	6	0.00000001	0.00033210
37	Yes	6	0.00000001	0.00097957
38	Yes	7	0.00000001	0.00017624
39	Yes	4	0.00005249	0.00057314
40	Yes	5	0.00000001	0.00059120
41	Yes	5	0.00000001	0.00057332
42	Yes	4	0.00005250	0.00071306
43	Yes	5	0.00000001	0.00061382
44	Yes	5	0.00000001	0.00055840
45	Yes	4	0.00005250	0.00057797
46	Yes	5	0.00000001	0.00059275
47	Yes	5	0.00000001	0.00060548
48	Yes	4	0.00005250	0.00076409
49	Yes	5	0.00000001	0.00055802
50	Yes	5	0.00000001	0.00062377

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.5 - 156.5	39.552	39	2.221	0.003
L2	156.5 - 156	33.091	39	2.151	0.004
L3	156 - 132.67	32.866	39	2.150	0.004
L4	136.34 - 87.09	24.511	39	1.863	0.002
L5	91.92 - 43	10.267	39	1.143	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L6	49 - 0	2.717	47	0.522	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
166.000	MX08FRO665-21 w/ Mount Pipe	46	37.453	2.193	0.004	14026
156.000	(2) DB844G65ZAXY w/ Mount Pipe	39	32.866	2.150	0.004	5646
146.000	RRUS 32 B2	39	28.486	2.044	0.003	4379
138.000	AIR 6419 B41_TMO w/ Mount Pipe	39	25.173	1.895	0.003	3649
128.000	VHLP800-11	39	21.327	1.709	0.002	3523

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.5 - 156.5	163.233	14	9.175	0.012
L2	156.5 - 156	136.650	14	8.888	0.015
L3	156 - 132.67	135.724	14	8.883	0.015
L4	136.34 - 87.09	101.293	14	7.705	0.009
L5	91.92 - 43	42.462	14	4.733	0.003
L6	49 - 0	11.237	14	2.160	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
166.000	MX08FRO665-21 w/ Mount Pipe	14	154.599	9.061	0.016	3642
156.000	(2) DB844G65ZAXY w/ Mount Pipe	14	135.724	8.883	0.017	1448
146.000	RRUS 32 B2	14	117.676	8.451	0.014	1117
138.000	AIR 6419 B41_TMO w/ Mount Pipe	14	104.023	7.838	0.011	921
128.000	VHLP800-11	14	88.158	7.072	0.007	882

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	170.5 - 156.5 (1)	TP10.75x10.75x0.365	14.000	0.000	0.0	11.908	-3.516	375.111	0.009
L2	156.5 - 156	TP19.5x10.75x0.365	0.500	0.000	0.0	11.908	-3.518	375.111	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L3	156 - 132.67 (2)	TP24.79x19.5x0.188	23.330	0.000	0.0	14.146	-16.598	827.560	0.020
L4	132.67 - 87.09 (3)	TP34.63x23.583x0.375	49.250	0.000	0.0	39.482	-30.436	2309.730	0.013
L5	87.09 - 43 (4)	TP43.75x32.797x0.438	48.920	0.000	0.0	58.279	-44.188	3409.340	0.013
L6	43 - 0 (5)	TP52.5x41.532x0.5	49.000	0.000	0.0	67.249	-48.171	3934.040	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	34.526	103.375	0.334	0.000	103.375	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	34.526	103.375	0.334	0.000	103.375	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.188	325.524	472.858	0.688	0.000	472.858	0.000
L4	132.67 - 87.09 (4)	TP34.63x23.583x0.375	1435.467	1994.075	0.720	0.000	1994.075	0.000
L5	87.09 - 43 (5)	TP43.75x32.797x0.438	2626.433	3719.175	0.706	0.000	3719.175	0.000
L6	43 - 0 (6)	TP52.5x41.532x0.5	2798.592	4336.575	0.645	0.000	4336.575	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	170.5 - 156.5 (1)	TP10.75x10.75x0.365	3.709	112.533	0.033	0.012	102.747	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	3.726	112.533	0.033	0.013	102.747	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.188	20.690	248.268	0.083	0.387	516.816	0.001
L4	132.67 - 87.09 (4)	TP34.63x23.583x0.375	26.770	692.918	0.039	0.658	2012.925	0.000
L5	87.09 - 43 (5)	TP43.75x32.797x0.438	28.599	1022.800	0.028	0.774	3759.250	0.000
L6	43 - 0 (6)	TP52.5x41.532x0.5	29.059	1180.210	0.025	0.010	4379.717	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	170.5 - 156.5 (1)	0.009	0.334	0.000	0.033	0.000	0.344	1.050	4.8.2
L2	156.5 - 156 (2)	0.009	0.334	0.000	0.033	0.000	0.344	1.050	4.8.2
L3	156 - 132.67 (3)	0.020	0.688	0.000	0.083	0.001	0.716	1.050	4.8.2
L4	132.67 - 87.09 (4)	0.013	0.720	0.000	0.039	0.000	0.735	1.050	4.8.2
L5	87.09 - 43 (5)	0.013	0.706	0.000	0.028	0.000	0.720	1.050	4.8.2
L6	43 - 0 (6)	0.012	0.645	0.000	0.025	0.000	0.658	1.050	4.8.2

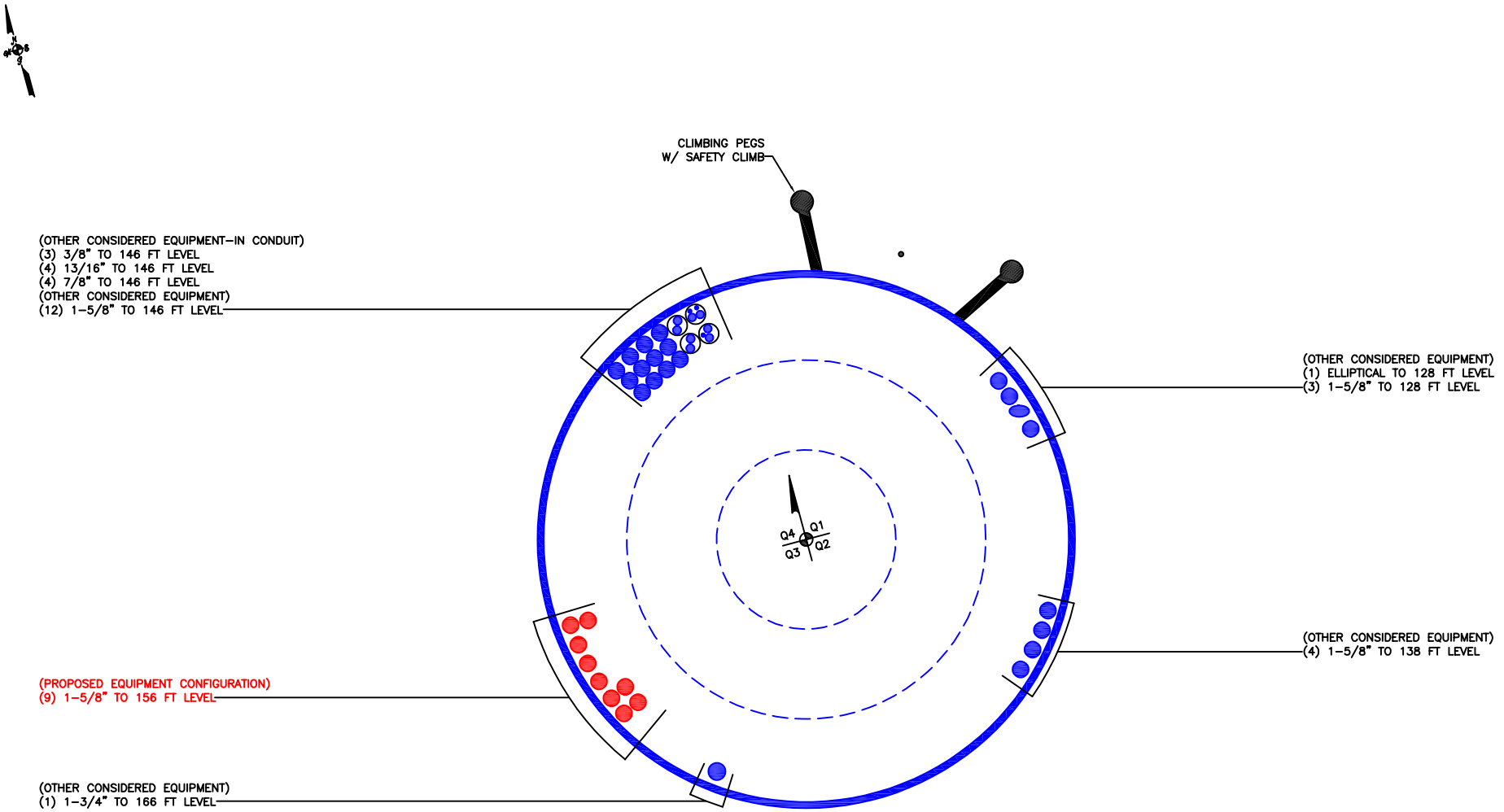
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	170.5 - 156.5	Pole	TP10.75x10.75x0.365	1	-3.516	393.867	32.8	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-3.518	393.867	32.8	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.188	3	-16.598	868.938	68.1	Pass
L4	132.67 - 87.09	Pole	TP34.63x23.583x0.375	4	-30.436	2425.216	70.0	Pass
L5	87.09 - 43	Pole	TP43.75x32.797x0.438	5	-44.188	3579.807	68.6	Pass
L6	43 - 0	Pole	TP52.5x41.532x0.5	6	-48.171	4130.742	62.7	Pass
							Summary	
						Pole (L4)	70.0	Pass
						RATING =	**70.0**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT–IN CONDUIT)
(3) 3/8" TO 146 FT LEVEL
(4) 13/16" TO 146 FT LEVEL
(4) 7/8" TO 146 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1–5/8" TO 146 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) ELLIPTICAL TO 128 FT LEVEL
(3) 1–5/8" TO 128 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1–5/8" TO 138 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(9) 1–5/8" TO 156 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1–3/4" TO 166 FT LEVEL
Q4
Q1
Q3
Q2

APPENDIX C

ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

Elevation = 156 ft.

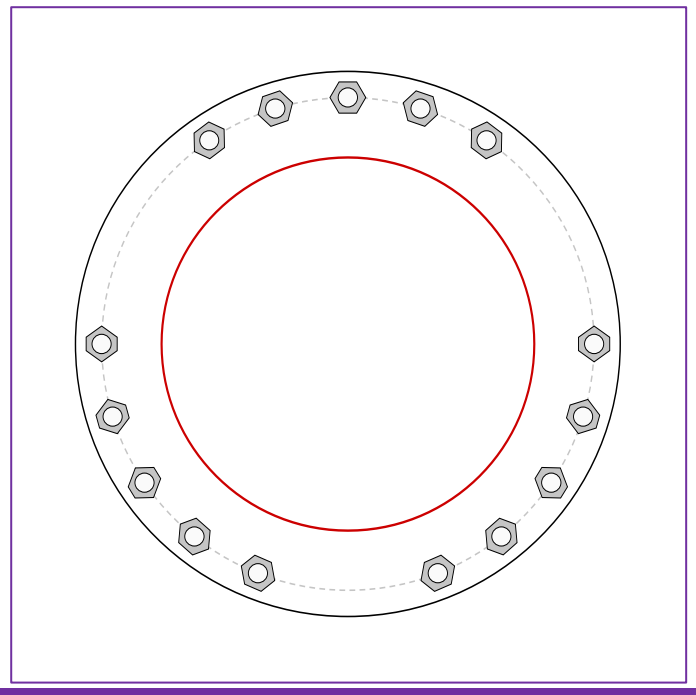
BU #	806355
Site Name	BRG 126 943086
Order #	618040 Rev 0

TIA-222 Revision	H

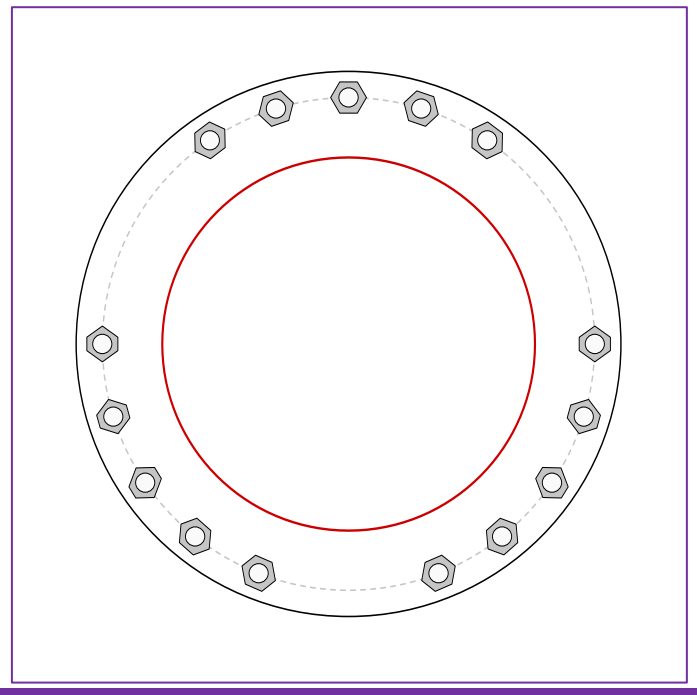
Applied Loads	
Moment (kip-ft)	36.38
Axial Force (kips)	3.55
Shear Force (kips)	3.73

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(15) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 25.75" BC

pos. (deg): 0, 55.7, 72.9, 90, 107.1, 124.3, 180, 197.1, 214.3, 231.4, 248.6, 291.4, 308.6, 325.7, 342.9

Top Plate Data

28.5" OD x 1" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Bottom Plate Data

28.5" OD x 1" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

19.5" x 0.365" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

19.5" x 0.1875" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	4.57	
Allowable (kips)	54.54	
Stress Rating:	**8.0%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	10.72	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	**18.9%**	**Pass**
Tension Side Stress Rating:	**14.2%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	10.72	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	**18.9%**	**Pass**
Tension Side Stress Rating:	**14.2%**	**Pass**

CCIplate

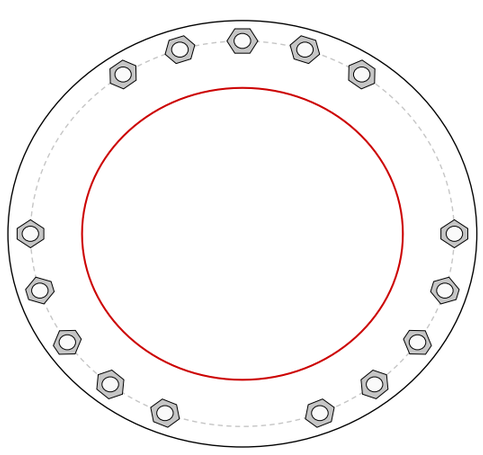
Elevation (ft)	156	*(Flange)*

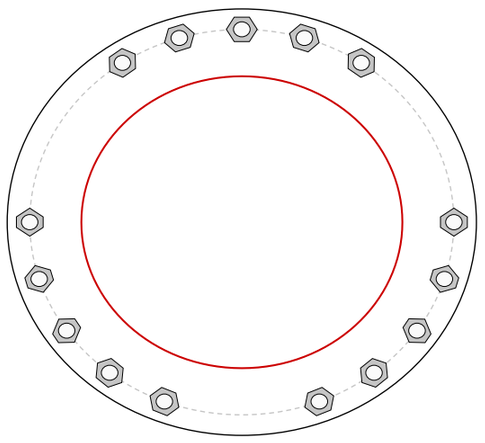
Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending
1	Yes	Yes	Yes

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	1	A325	25.75	0.5	0	N-Included		No
2	1	55.714286	1	A325	25.75	0.5	0	N-Included		No
3	1	72.857143	1	A325	25.75	0.5	0	N-Included		No
4	1	90	1	A325	25.75	0.5	0	N-Included		No
5	1	107.14286	1	A325	25.75	0.5	0	N-Included		No
6	1	124.28571	1	A325	25.75	0.5	0	N-Included		No
7	1	180	1	A325	25.75	0.5	0	N-Included		No
8	1	197.14286	1	A325	25.75	0.5	0	N-Included		No
9	1	214.28571	1	A325	25.75	0.5	0	N-Included		No
10	1	231.42857	1	A325	25.75	0.5	0	N-Included		No
11	1	248.57143	1	A325	25.75	0.5	0	N-Included		No
12	1	291.42857	1	A325	25.75	0.5	0	N-Included		No
13	1	308.57143	1	A325	25.75	0.5	0	N-Included		No
14	1	325.71429	1	A325	25.75	0.5	0	N-Included		No
15	1	342.85714	1	A325	25.75	0.5	0	N-Included		No

Plot Graphic





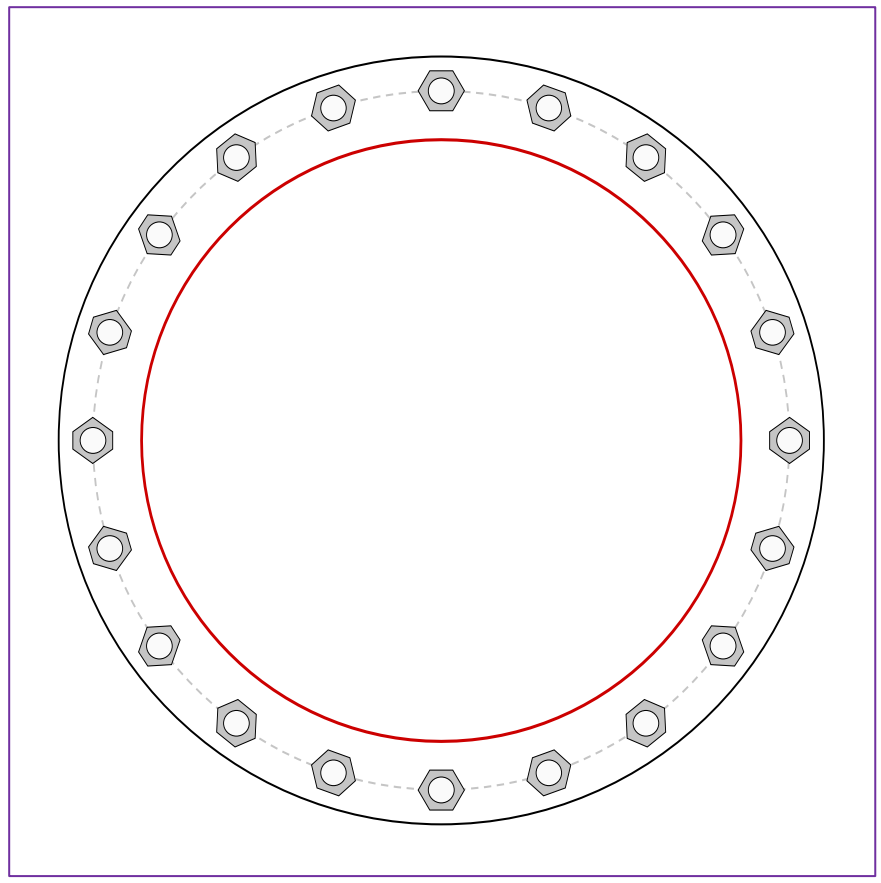
Monopole Base Plate Connection

Site Info	
BU #	806355
Site Name	BRG 126 943086
Order #	618040 Rev 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2

Applied Loads	
Moment (kip-ft)	4067.89
Axial Force (kips)	64.72
Shear Force (kips)	30.09

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(20) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 61" BC

Base Plate Data

67" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

52.5" x 0.5" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 156.72	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.5	ϕVn = 149.1	**61.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	39.44	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**69.6%**	**Pass**

Pier and Pad Foundation

BU # :	806355
Site Name:	BRG 126 943086
Order Number:	618040 Rev 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	64.72	kips
Base Shear, Vu_comp:	30.09	kips
Moment, M_u:	4067.89	ft-kips
Tower Height, **H**:	170.5	ft
BP Dist. Above Fdn, bp_{dist}:	4	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	46	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	9	ft
Pad Width, W_1:	22	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	20	
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	36	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	135	pcf
Ultimate Gross Bearing, Qult:	24.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	36	degrees
SPT Blow Count, N_{blows}:	50	
Base Friction, μ:	0.6	
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	6	ft

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	444.52	30.09	**6.4%**	**Pass**
Bearing Pressure (ksf)	18.00	3.49	**19.4%**	**Pass**
*Overturning (kip*ft)*	6832.45	4378.82	**64.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	5929.11	4278.52	**68.7%**	**Pass**
Pier Compression (kip)	31187.52	126.46	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	3909.72	1939.32	**47.2%**	**Pass**
Pad Shear - 1-way (kips)	788.93	341.10	**41.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4403.40	2567.11	**55.5%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**68.7%**
Soil Rating*:	**64.1%**

<--Toggle between Gross and Net

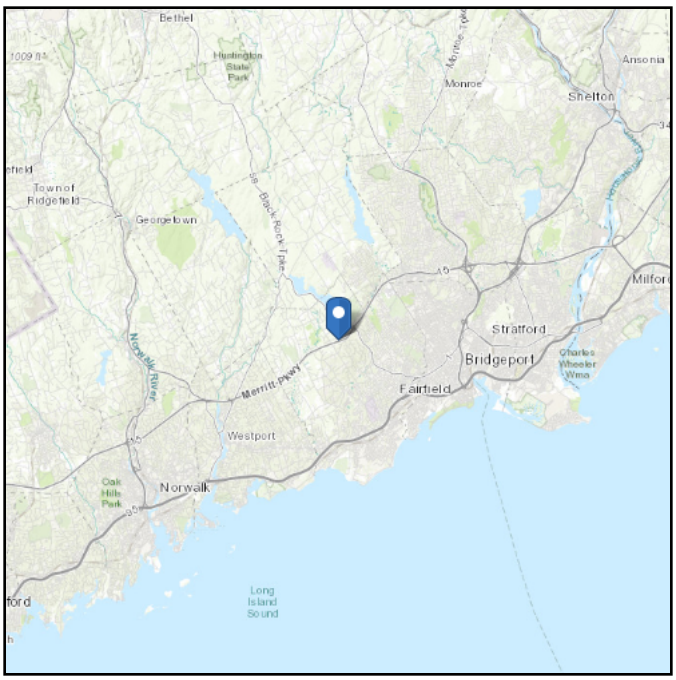
Version 4.1.1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 333.8 ft (NAVD 88)
Latitude: 41.195917
Longitude: -73.281361



Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon May 23 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

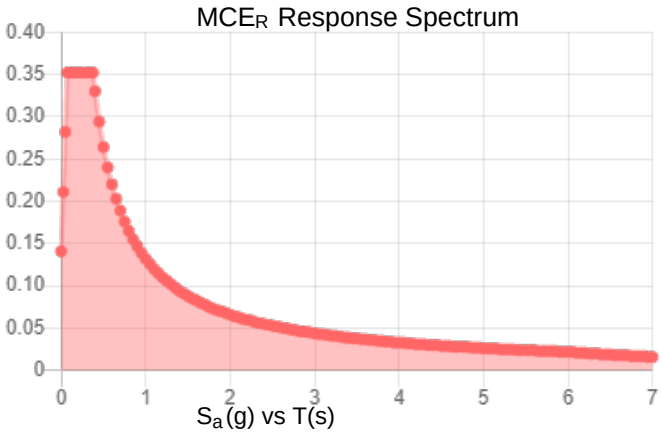
Seismic

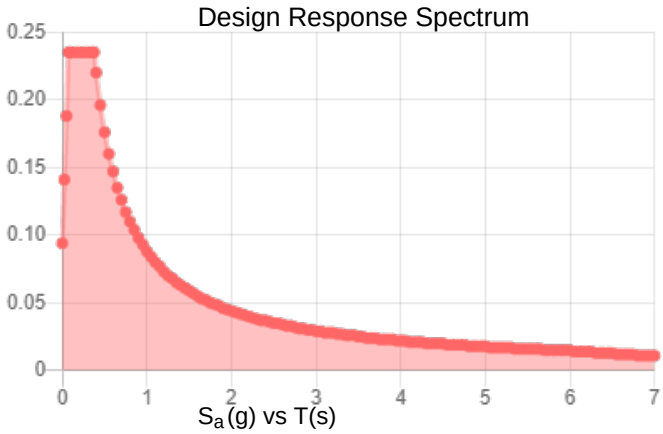
Site Soil Class: D - Default (see Section 11.4.3)

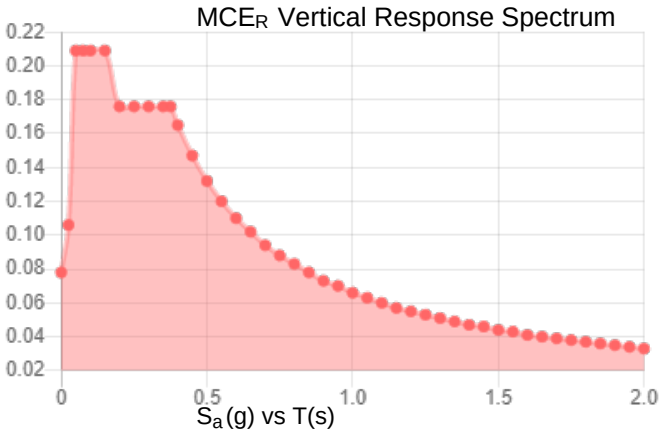
Results:

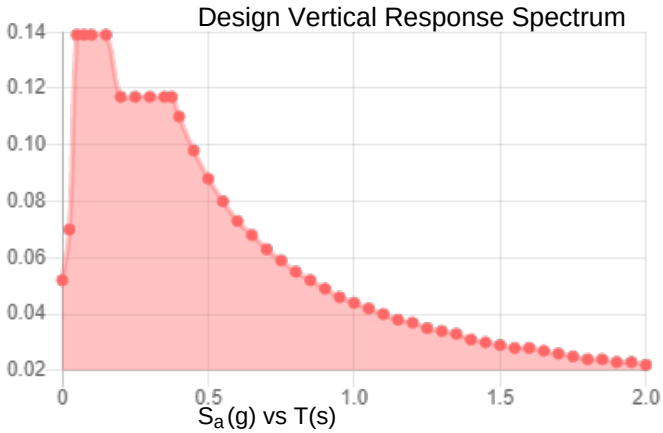
S_S :	0.22	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.127
F_v :	2.4	PGA_M :	0.196
S_{MS} :	0.352	F_{PGA} :	1.546
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.235	C_v :	0.74

Seismic Design Category B









Data Accessed: **Mon May 23 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Mon May 23 2022

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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

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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.

Exhibit E

Mount Analysis

Maser Consulting Connecticut
1055 Washington Boulevard
Stamford, CT 06901
203.324.0800
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Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10151011
Maser Consulting Connecticut Project #: 22777103A

June 16, 2022

Site Information	*Site ID:*	*467205-VZW / FAIRFIELD CT*
	Site Name:	*FAIRFIELD CT*
	Carrier Name:	*Verizon Wireless*
	Address:	*281 Woodhouse Ave.* *Fairfield, Connecticut 06824* *Fairfield County*
	Latitude:	*41.195927°*
	Longitude:	*-73.281361°*
Structure Information	*Tower Type:*	*175-Ft Monopole*
	Mount Type:	*10.67-Ft Platform*

FUZE ID # 16092555

Analysis Results

Platform: **70.0% Pass w/ Modifications***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

******Contractor PMI Requirements*:**
Included at the end of this MA report
Available & Submitted via portal at https://pmi.vzwsmart.com
For additional questions and support, please reach out to:
pmisupport@colliersengineering.com

Report Prepared By: Prasanna Dhakal

Digitally signed by Derek Hartzell
Date: 2022.06.16 15:02:22-07'00'

Executive Summary:

The objective of this report is to summarize the analysis results of the antenna support mount including the proposed modifications at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

Sources of Information:

Document Type	Remarks
Radio Frequency Data Sheet (RFDS)	*Verizon RFDS, Site ID: 323865, dated April 29, 2022*
Mount Mapping Report	*Onsight Services, Site ID: 467205, dated May 15, 2022*
Previous Mount Analysis	*Maser Consulting Connecticut, Project #: 22777103A, dated May 31, 2022*
Mount Modification Drawings	*Maser Consulting Connecticut, Project #: 22777103A, dated June 16, 2022*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H	
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	118 mph
	Ice Wind Speed (3-sec. Gust):	50 mph
	Design Ice Thickness:	1.00 in
	Risk Category:	II
	Exposure Category:	B
	Topographic Category:	1
	Topographic Feature Considered:	N/A
	Topographic Method:	N/A
	Ground Elevation Factor, K_e:	0.988
Seismic Parameters:	S_S:	0.220 g
	S_1:	0.055 g
Maintenance Parameters:	Wind Speed (3-sec. Gust):	30 mph
	Maintenance Live Load, Lv:	250 lbs.
	Maintenance Live Load, Lm:	500 lbs.
Analysis Software:	RISA-3D (V17)	

Final Loading Configuration:

The following equipment has been considered for the analysis of the mount:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
159.73	162.10	6	JMA Wireless	MX06FRO660-03	Added
		3	Samsung	MT6407-77A	
		3	Samsung	RF4439d-25A	
		3	Samsung	RF4440d-13A	
		6	Decibel Products	DB844G65ZAXY	Retained
		2	Raycap	RRFDC-3315-PF-48*	
		1	-	GPS	

* Equipment is flush mounted directly to the Monopole. They are not mounted on platform mount and are not included in this mount analysis.

The recent mount mapping reported existing OVP units. It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Model Number	Ports	AKA
DB-B1-6C-12AB-0Z	6	OVP-6
RVZDC-6627-PF-48	12	OVP-12

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Maser Consulting Connecticut and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Maser Consulting Connecticut to verify deviation will not adversely impact the analysis.

2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

   Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

   The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Maser Consulting Connecticut is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
   - Channel, Solid Round, Angle, Plate — ASTM A36 (Gr. 36)
   - HSS (Rectangular) — ASTM 500 (Gr. B-46)
   - Pipe — ASTM A53 (Gr. B-35)
   - Threaded Rod — F1554 (Gr. 36)
   - Bolts — ASTM A325

8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Maser Consulting Connecticut.

Analysis Results:

Component	Utilization %	Pass/Fail
Face Horizontal	*34.9%*	*Pass*
Cross Member	*41.5%*	*Pass*
Corner Plate	*3.5%*	*Pass*
Face Bracing	*52.2%*	*Pass*
Support Rail	*36.1%*	*Pass*
Support Rail Corner Plate	*7.7%*	*Pass*
Ladder	*31.1%*	*Pass*
Ladder Rung	*5.8%*	*Pass*
Mount Pipe	*18.0%*	*Pass*
Unistrut Horizontal	*39.6%*	*Pass*
Threaded Rod	*32.5%*	*Pass*
Mod Threaded Rod	*41.3%*	*Pass*
Mod Mount Pipe	*7.4%*	*Pass*
Mount Connection	*70.0%*	*Pass*

Structure Rating – *(Controlling Utilization of all Components)*	**70.0%**

Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

Ice Thickness (In)	Mount Pipes Excluded		Mount Pipes Included	
	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	55.5	55.2	77.8	77.5
0.5	71.9	71.3	103.7	102.4
1	86.2	85.3	127.1	125.3

Notes:
- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 3 sectors.
- Ka factors included in (EPA)a calculations

Requirements:

The existing mounts will be **SUFFICIENT** for the final loading configuration (attachment 2) after the modifications detailed in attachment 3 are successfully completed.

ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other, if required. Separate review fees will apply.

Attachments:

1. **Contractor Required PMI Report Deliverables**
2. Antenna Placement Diagrams
3. Mount Modification Drawings
4. Mount Photos
5. Mount Mapping Report (for reference only)
6. Analysis Calculations

Exhibit F

Power Density/RF Emissions Report

Site Name: ***FAIRFIELD CT***
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW 700	751	4	638	2552	162.1	0.0035	0.5007	0.70%
VZW CDMA	876.03	2	499	998	162.1	0.0014	0.5840	0.23%
VZW Cellular	874	4	638	2552	162.1	0.0035	0.5827	0.60%
VZW PCS	1980	4	1462	5846	162.1	0.0080	1.0000	0.80%
VZW AWS	2120	4	1566	6264	162.1	0.0086	1.0000	0.86%
VZW CBRS	3625	4	0	0	162.1	0.0000	1.0000	0.00%
VZW CBAND	3730.08	2	13335	26670	162.1	0.0365	1.0000	3.65%
Total Percentage of Maximum Permissible Exposure								6.84%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992
**Calculation includes a -10 dB Off Beam Antenna Pattern Adjustment pursuant to Attachments B and C of the Siting Council's November 10, 2015 Memorandum for Exempt Modification filings

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case maximum values used.