



Northeast Site Solutions  
Denise Sabo  
4 Angela's Way, Burlington CT 06013  
203-435-3640  
denise@northeastsitesolutions.com

August 12, 2022

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

RE: Exempt Modification Application  
800 Booth Hill Road, Trumbull, CT 06611  
Latitude: 41.278988  
Longitude: -73.185111  
Site#: 873128\_Crown\_VZW

Dear Ms. Bachman:

Verizon Wireless is requesting to file an exempt modification for an existing tower located at 800 Booth Hill Road, Trumbull, CT 06611. Verizon Wireless currently maintains nine (9) antennas at the 232-foot level of the existing 457-foot guyed tower. The property is owned by Global Signal Acquisitions IV LLC (Crown Castle) and the tower is owned by Crown Castle. Verizon now intends to replace six (6) antennas and install three (3) new antennas. The new antennas would be installed at the 232-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable. Antenna mount modifications will be completed per the attached Maser mount analysis dated June 23, 2021.

**Verizon Planned Modifications:**

**Remove:**

(12) Coax - 7/8"

**Remove and Replace:**

(3) COMMSOCPE HBXX-6516DS-A2M Antennas (REMOVE) – (3) COMMSCOPE JAHH-65B-R3B Antennas (REPLACE)  
(3) COMMSCOPE SBNHH-1D65B Antennas (REMOVE) – (3) COMMSCOPE JAHH-65B-R3B Antennas (REPLACE)  
(3) Nokia B13 RRH (REMOVE) - (3) Samsung B2/B66A -BRO49 – RFV01U-D1A RRH (REPLACE)  
(3) Nokia B25 RRH (REMOVE) - (3) Samsung B5/B13 -BRO4C – RFV01U-D2A RRH (REPLACE)

**Install New:**

(3) SAMSUNG MT6407-77A Antennas  
(3) COMMSCOPE Diplexers

**Existing to Remain:**

(1) COMMSCOPE LNX 6514DS Antennas  
(2) COMMSCOPE LNX 8513DS Antennas  
(2) Raycap OVP  
(6) Coax - 7/8"  
(2) Hybrid Lines – 1-5/8"



The facility was approved by the Connecticut Siting Council, Docket No. 77 on August 4, 1987. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-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-SOj-73, a copy of this letter is being sent to Vicki Tesoro, First Selectman and Rob Librandi, Land Use Planner for the Town of Trumbull. A copy is also being sent to the tower owner, and property owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Verizon Wireless respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Denise Sabo  
Mobile: 203-435-3640  
Fax: 413-521-0558  
Office: 4 Angela's Way, Burlington CT 06013  
Email: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



**NSS**

**NORTHEAST**  
SITE SOLUTIONS

*Turnkey Wireless Development*

Attachments

Cc: Vicki Tesoro, First Selectman  
Trumbull Town Hall  
5866 Main Street  
Trumbull, CT 06611

Rob Librandi, Land Use Planner  
Trumbull Town Hall  
5866 Main Street  
Second Floor  
Trumbull, CT 06611

Crown Castle - Tower & Property Owner  
Global Signal Acquisitions IV LLC  
C/O Crown Castle  
2000 Corporate Drive  
Canonsburg, PA 15317

# Exhibit A

## **Original Facility Approval**



DOCKET NO. 77

AN APPLICATION OF METRO MOBILE CTS  
OF FAIRFIELD COUNTY, INC., FOR A  
CERTIFICATE OF ENVIRONMENTAL COM-  
PATIBILITY AND PUBLIC NEED FOR  
CELLULAR TELEPHONE ANTENNAS AND  
ASSOCIATED EQUIPMENT IN THE TOWN  
OF TRUMBULL, CONNECTICUT.

: CONNECTICUT SITING  
COUNCIL

: August 4, 1987

DECISION AND ORDER

Pursuant to the foregoing opinion, the Connecticut Siting Council (Council) hereby directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to Metro Mobile CTS of Fairfield County, Inc., for the construction, operation, and maintenance of cellular mobile telecommunications equipment in the Town of Trumbull, Connecticut.

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

1. The receive antennas shall be attached no higher on the existing tower than necessary to provide the proposed service, and in no event shall be greater than 250 feet above ground level (AGL).

2. The transmit antennas shall be attached to the tower no higher than necessary to provide the proposed service, and in no event shall be greater than 230 feet AGL.
3. The facility shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.
4. The certificate holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application is added to these facilities.
5. At any time that this facility permanently ceases to provide cellular service, this Decision and Order shall be void, and all equipment described in this application shall be dismantled and removed, or reapplication for any new use shall be made to the Council before any such new use is made.
6. The certificate holder shall investigate any complaints regarding interference from cellular telephone equipment emanating from this tower, and, where necessary, eliminate any interference proven to be caused by such equipment.
7. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision.

8. The certificate holder shall comply with any future radio frequency standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF Standards, the facilities granted in this Decision shall be brought into compliance with such standards.

Pursuant to CGS Section 16-50p, we hereby direct that a copy of the Decision and Order be served on each person listed below. A notice of the issuance shall be published in the Bridgeport Post and the Trumbull Times.

The parties to the proceeding are:

Metro Mobile CTS of Fairfield (applicant)  
50 Rockland Road  
South Norwalk, CT 06854  
ATTN: Peter Kelley, Vice Pres.

Howard L. Slater, Esq. (its representatives)  
Jennifer Young Gaudet, Esq.  
Byrne, Slater, Sandler,  
Shulman & Rouse, P.C.  
330 Main Street  
Hartford, CT 06103

Fleischman and Walsh, P. C.  
1725 N Street, N.W.  
Washington, D.C. 20036  
ATTN: Richard Rubin, Esq.  
Jonathan V. Cohen, Esq.

C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 4th day of August, 1987.

<u>Council Members</u>	<u>Vote Cast</u>
<u>Gloria Dibble Pond</u> Gloria Dibble Pond Chairperson	Yes
<u>Patricia J. Austin</u> Commissioner Peter Boucher Designee: Patricia J. Austin	Yes
<u>Brian J. Emerick</u> Commissioner Leslie Carothers Designee: Brian Emerick	No
<u>Owen L. Clark</u> Owen L. Clark	Yes
<u>Fred J. Doocy</u> Fred J. Doocy	Yes
<u>Mortimer A. Gelston</u> Mortimer A. Gelston	Yes
_____ James G. Horsfall	Absent
_____ William H. Smith	Absent
<u>Colin C. Tait</u> Colin C. Tait	Yes



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

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

Gloria Dibble Pond  
Chairperson

### COMMISSIONERS

Energy/Telecommunications July 11, 1989

Peter G. Boucher  
Leslie Carothers

Hazardous Waste/Low-level  
Radioactive Waste

Frederick G. Adams  
Lester J. Forst

### COUNCIL MEMBERS

Harry E. Covey  
Mortimer A. Gelston  
Daniel P. Lynch, Jr.  
Paulann H. Sheets  
William H. Smith  
Colin C. Tait

Joel M. Rinebold  
Executive Director

Stanley J. Modzelesky  
Executive Assistant

Peter J. Tyrrell  
Senior Attorney  
SNET Cellular, Inc.  
227 Church Street  
Room 1021  
New Haven, CT 06510

RE: SNET Cellular, Inc. - Notice pursuant to Regulations of State Agencies 16-50j-73 of intent to modify an exempt telecommunications tower and associated equipment located at Video Lane in the Town of Trumbull; Connecticut.

Dear Attorney Tyrrell:

At a meeting on July 6, 1989, the Connecticut Siting Council acknowledged your notice of intent to modify an exempt telecommunications tower and associated equipment located at Video Lane, in Trumbull, Connecticut, pursuant to Section 16-50j-73 of the Regulations of State Agencies (RSA).

As proposed in your notice dated June 28, 1989, the modification is in compliance with the exception criteria specified in RSA 16-50j-72 for changes to an existing facility site that do not increase the tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by 6 decibels, and add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation 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.

Peter J. Tyrrell  
July 11, 1989  
Page Two

The Council is pleased to note that the shared use of an existing tower meets the Council's long-term goal and the public interest to avoid proliferation of additional tower structures.

Please notify the Council upon completion of construction.

Very truly yours,

*Gloria Dibble Pond*<sub>12</sub>

Gloria Dibble Pond  
Chairperson

GDP/JMR/go

3249E

# Exhibit B

## Property Card

# 800 BOOTH HILL ROAD

**Location** 800 BOOTH HILL ROAD

**Mblu** H/04 / 00072/ 000/

**Acct#**

**Owner** GLOBAL SIGNAL  
ACQUISITIONS IV LLC

**Assessment** \$4,200,000

**Appraisal** \$6,000,000

**PID** 2543

**Building Count** 1

**Fire District** N

## Current Value

Appraisal	
Valuation Year	Total
2015	\$6,000,000

Assessment	
Valuation Year	Total
2015	\$4,200,000

## Owner of Record

**Owner** GLOBAL SIGNAL ACQUISITIONS IV LLC  
**Co-Owner** C/O CROWN CASTLE USA INC  
**Address** 2000 CORPORATE DRIVE  
CANONSBURG, PA 15317

**Sale Price** \$575,000  
**Book & Page** 1714/ 158  
**Sale Date** 05/17/2016  
**Instrument** 25

## Ownership History

Ownership History				
Owner	Sale Price	Book & Page	Instrument	Sale Date
GLOBAL SIGNAL ACQUISITIONS IV LLC	\$575,000	1714/ 158	25	05/17/2016
DADDARIO F FRANCIS	\$0	434/ 371		12/31/1979

## Building Information

### Building 1 : Section 1

**Year Built:** 1952  
**Living Area:** 4,470

**Building Attributes**



Field	Description
STYLE	Telephone Bldg
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Concrete
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Minimum/Plywd
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air
AC Type	Central
Bldg Use	Rad/TV Tw
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Walls	Ceil & Walls
Rooms/Prtns	Average
Wall Height	10
% Comn Wall	

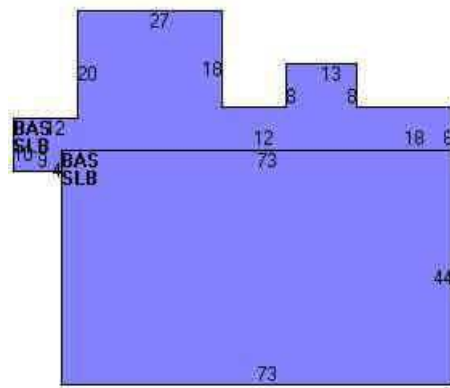
### Building Photo



H04-72 05/04/2015

(<http://images.vgsi.com/photos2/TrumbullCTPhotos/A00\02\46\15.JPG>)

### Building Layout



([http://images.vgsi.com/photos2/TrumbullCTPhotos/Sketches/2543\\_2543.j](http://images.vgsi.com/photos2/TrumbullCTPhotos/Sketches/2543_2543.j))

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	4,470	4,470
SLB	Slab	4,470	0
		8,940	4,470

### Extra Features

Extra Features	Legend
No Data for Extra Features	

### Land

#### Land Use

Use Code 433  
Description Rad/TV Tw

#### Land Line Valuation

Size (Acres) 15.9  
Frontage

**Zone** AA  
**Neighborhood** 350  
**Alt Land Appr** No  
**Category**

**Depth**

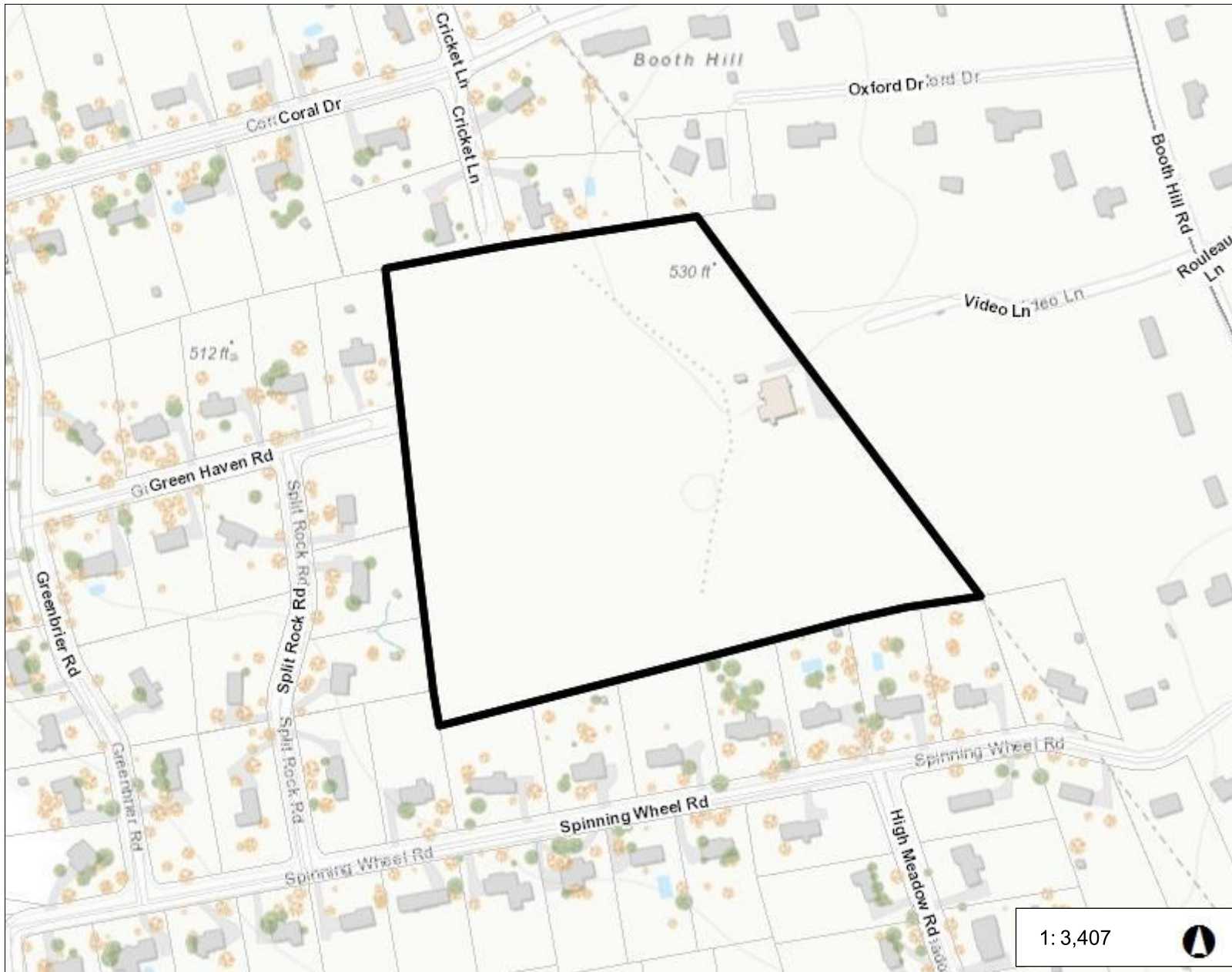
**Outbuildings**

Outbuildings					<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Bldg #
PAV1	Paving Asph.			22800 S.F.	1
FN5	Fence 10'			250 L.F.	1
ANTG	Guyed Tower			436 L.F.	1

**Valuation History**

Appraisal	
Valuation Year	Total
2018	\$6,000,000
2017	\$6,000,000
2016	\$9,710,400

Assessment	
Valuation Year	Total
2018	\$4,200,000
2017	\$4,200,000
2016	\$6,797,280



### Legend

Streetname

Roadways

- Local
- Collector
- Minor Collector
- Minor Arterial
- Major Collector
- PA Other
- PA Other Expwy
- PA Interstate

Citations

1:3,407



567.8 0 283.90 567.8 Feet

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
Created by Greater Bridgeport Regional Council

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION



# Exhibit C

## **Construction Drawings**

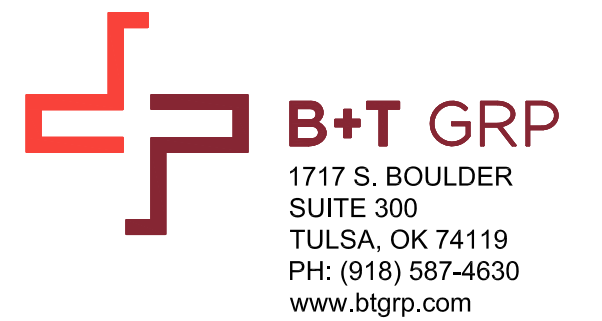




**VERIZON SITE NUMBER:** 324988  
**VERIZON SITE NAME:** TRUMBULL CT  
**SITE TYPE:** GUYED TOWER  
**TOWER HEIGHT:** 458'-0"

**BUSINESS UNIT #:** 873128  
**SITE ADDRESS:** 800 BOOTH HILL RD.  
 TRUMBULL, CT 06611  
**COUNTY:** FAIRFIELD  
**JURISDICTION:** TOWN OF TRUMBULL

**VERIZON 5G L-SUB6 - CARRIER ADD 16231871**



**VERIZON SITE NUMBER:**  
324988

**BU #:** 873128  
**TRUMBULL**

800 BOOTH HILL RD.  
TRUMBULL, CT 06611

EXISTING  
458'-0" GUYED TOWER

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/9/22	TDG	CONSTRUCTION	CV

**SITE INFORMATION**

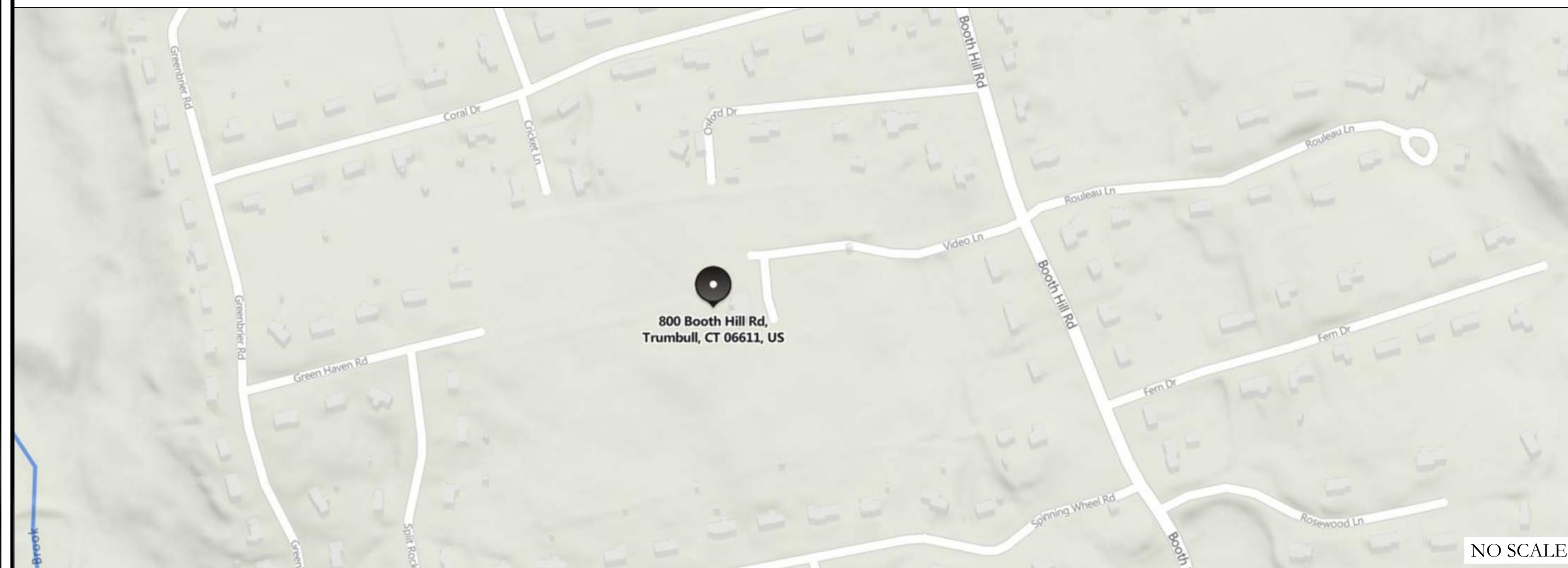
**CROWN CASTLE USA INC. SITE NAME:** TRUMBULL  
**SITE ADDRESS:** 800 BOOTH HILL RD. TRUMBULL, CT 06611  
**COUNTY:** FAIRFIELD  
**MAP/PARCEL #:** H/04/00072/000  
**AREA OF CONSTRUCTION:** EXISTING  
**LATITUDE:** 41° 16' 44.26"  
**LONGITUDE:** -73° 11' 6.40"  
**LAT/LONG TYPE:** NAD83  
**GROUND ELEVATION:** 520 FT.  
**CURRENT ZONING:** AA  
**JURISDICTION:** TOWN OF TRUMBULL  
**OCCUPANCY CLASSIFICATION:** U  
**TYPE OF CONSTRUCTION:** IIB  
**A.D.A. COMPLIANCE:** FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION  
**PROPERTY OWNER:** CROWN CASTLE USA INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317  
**TOWER OWNER:** CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317  
**CARRIER/APPLICANT:** VERIZON WIRELESS 20 ALEXANDER DRIVE, 2ND FLOOR WALLINGFORD, CT 06492  
**ELECTRIC PROVIDER:** CONNECTICUT LIGHT & POWER CO (800) 286-2000  
**TELCO PROVIDER:** CROWN CASTLE FIBER (855) 913-4237

**DRAWING INDEX**

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	EQUIPMENT SCHEDULES
C-4	EQUIPMENT DETAILS
C-5	FIBER NAMING & EQUIPMENT DETAILS
C-6	COLOR CODE MATRIX
C-7	PLUMBING DIAGRAM
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	MOUNT MODIFICATION DRAWINGS

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.

**LOCATION MAP**



DRIVING DIRECTIONS FROM VERIZON LOCAL OFFICE (180 WASHINGTON VALLEY RD, BEDMINSTER, NJ 07921) HEAD NORTHWEST. SLIGHT LEFT. TURN RIGHT ONTO US-202 N/US-206 N. TURN RIGHT ONTO SCHLEY MOUNTAIN RD. MERGE WITH I-287 N. ENTERING NEW YORK. TAKE THE I-87 S/NEW YORK STATE THRUWAY/I-287 EXIT TOWARD GOV MARIO M. CUOMO BR/NEW YORK CITY. MERGE WITH I-287 E/I-87 S. KEEP LEFT AT THE Y JUNCTION TO CONTINUE ON I-287 E, FOLLOW SIGNS FOR WHITE PLAINS/RYE. TAKE EXIT 9 S-N TOWARD HUTCHINSON PKWY/MERRITT PKWY. MERGE WITH WESTCHESTER AVE. USE THE RIGHT LANE TO TAKE THE RAMP TO WESTCHESTER AVE. MERGE WITH 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 51 FOR CT-108/NICHOLS AVE. TURN LEFT ONTO CT-108 E/HUNTINGTON TURNPIKE. TURN LEFT ONTO MACDONALD RD. TURN RIGHT ONTO BOOTH HILL RD. TURN LEFT ONTO VIDEO LN.

**APPROVALS**

VERIZON SIGNATURE BLOCK		
APPROVAL	SIGNATURE	DATE
SITE ACQUISITION	_____	_____
CONSTRUCTION	_____	_____
RADIO	_____	_____
MICROWAVE	_____	_____
TELCO	_____	_____
EQUIPMENT	_____	_____
PROJECT ADMINISTRATOR	_____	_____
WO ADMINISTRATOR	_____	_____
CROWN CASTLE USA INC. SIGNATURE BLOCK		
APPROVAL	SIGNATURE	DATE
SITE ACQUISITION	_____	_____
PLANNER	_____	_____
CONSTRUCTION	_____	_____
PROJECT MANAGER	_____	_____
UTILITY MANAGER	_____	_____
LANDLORD	_____	_____

**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:	TOWER ENGINEERING PROFESSIONALS
DATED:	4/30/21
MOUNT ANALYSIS:	MASER CONSULTING CONNECTICUT
DATED:	6/23/21
RFDS REVISION:	0
DATED:	09/04/2020
ORDER ID:	552699
REVISION:	0

**PROJECT DESCRIPTION**

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

**TOWER SCOPE OF WORK:**

- REMOVE (6) ANTENNAS
- REMOVE (9) RRHS
- REMOVE (12) COAX
- RELOCATE (3) ANTENNAS
- INSTALL (9) ANTENNAS
- INSTALL (6) RRHS
- INSTALL (3) DIPLEXERS
- INSTALL (3) DUAL ANTENNA MOUNTS
- INSTALL MOUNT MODIFICATIONS PER MOUNT MODIFICATION DESIGN BY MASER CONSULTING - CONNECTICUT DATED JUNE 24, 2021

**GROUND SCOPE OF WORK:**

- NONE

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



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-1**

**REVISION:**

**0**



**CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:**

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

**GREENFIELD GROUNDING NOTES:**

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

**GENERAL NOTES:**

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

**CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:**

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

**ELECTRICAL INSTALLATION NOTES:**

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

**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

**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



20 ALEXANDER DRIVE, 2ND FLOOR  
WALLINGFORD, CT 06492



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



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

**VERIZON SITE NUMBER:**  
**324988**


**BU #: 873128**  
**TRUMBULL**

800 BOOTH HILL RD.  
TRUMBULL, CT 06611

EXISTING  
458'-0" GUYED TOWER

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/9/22	TDG	CONSTRUCTION	CV



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



**verizon**

20 ALEXANDER DRIVE, 2ND FLOOR  
WALLINGFORD, CT 06492

**CROWN CASTLE**

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

**B+T GRP**

1717 S. BOULDER  
SUITE 300  
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VERIZON SITE NUMBER:  
**324988**

BU #: **873128**  
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Expires 3/31/23

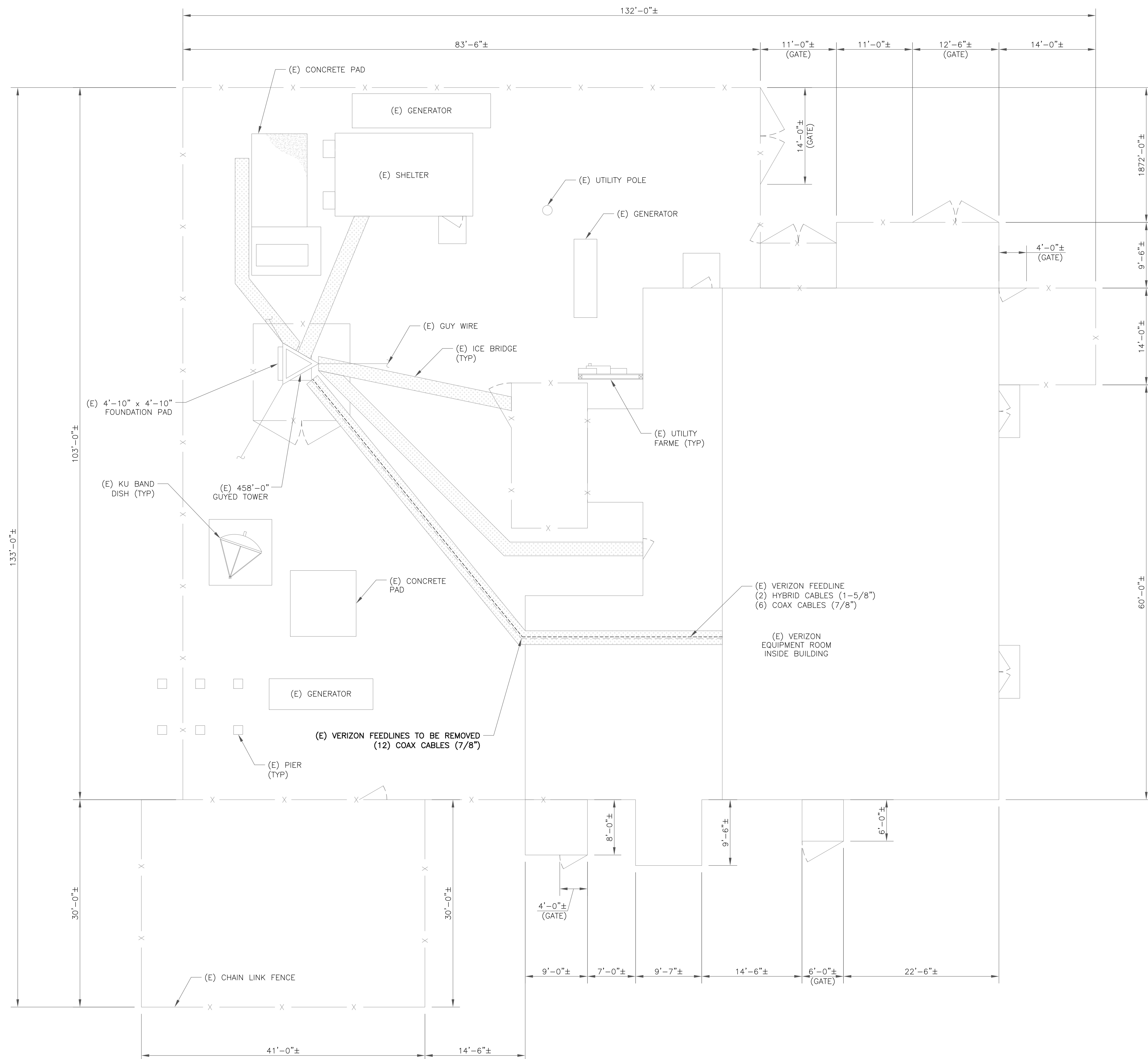
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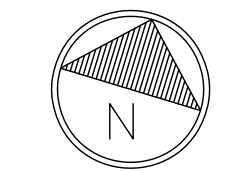
**C-1**

REVISION:

**0**

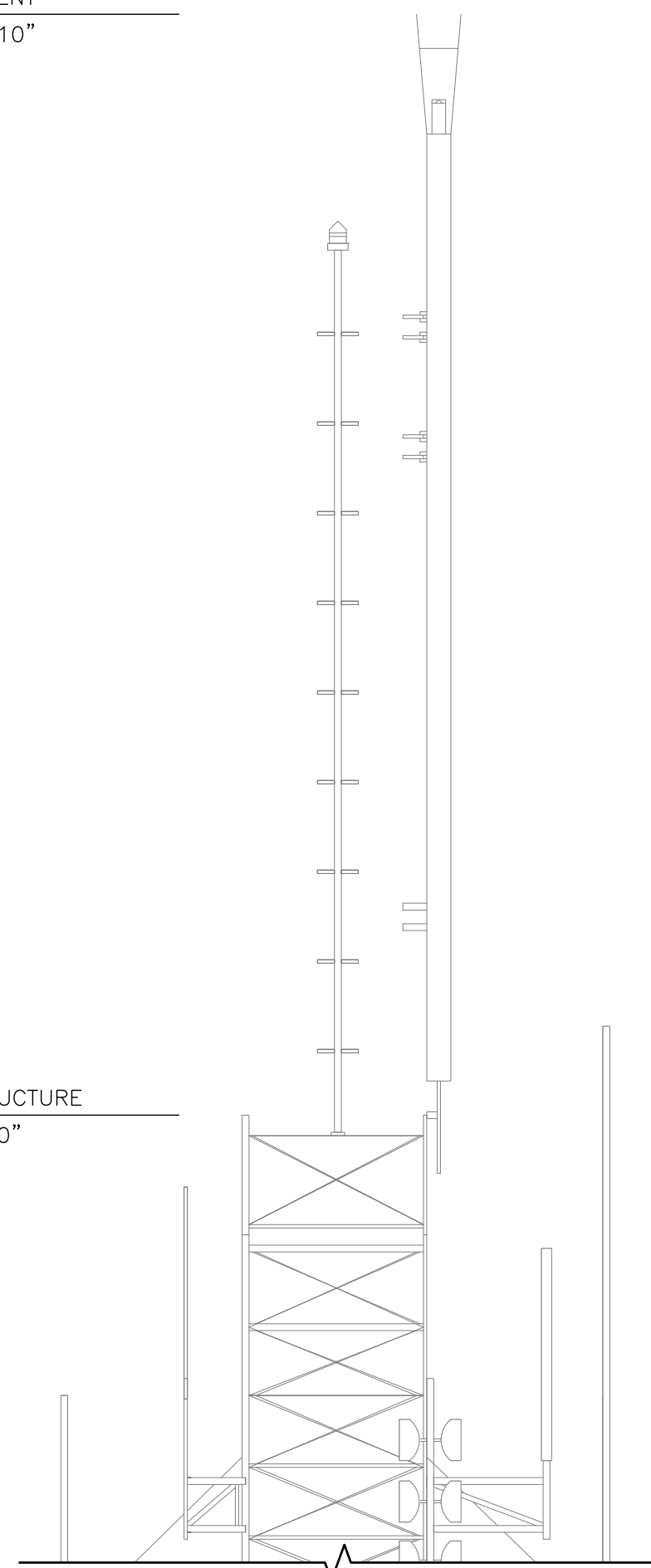


1 SITE PLAN  
SCALE: 1/8"=1'-0" (FULL SIZE)  
1/16"=1'-0" (11x17)



164150.001.01\_873128\_TRUMBULL.dwg - Sheet: C-1 - User: chad.vandergraft - Jun 09, 2022 - 1:09pm

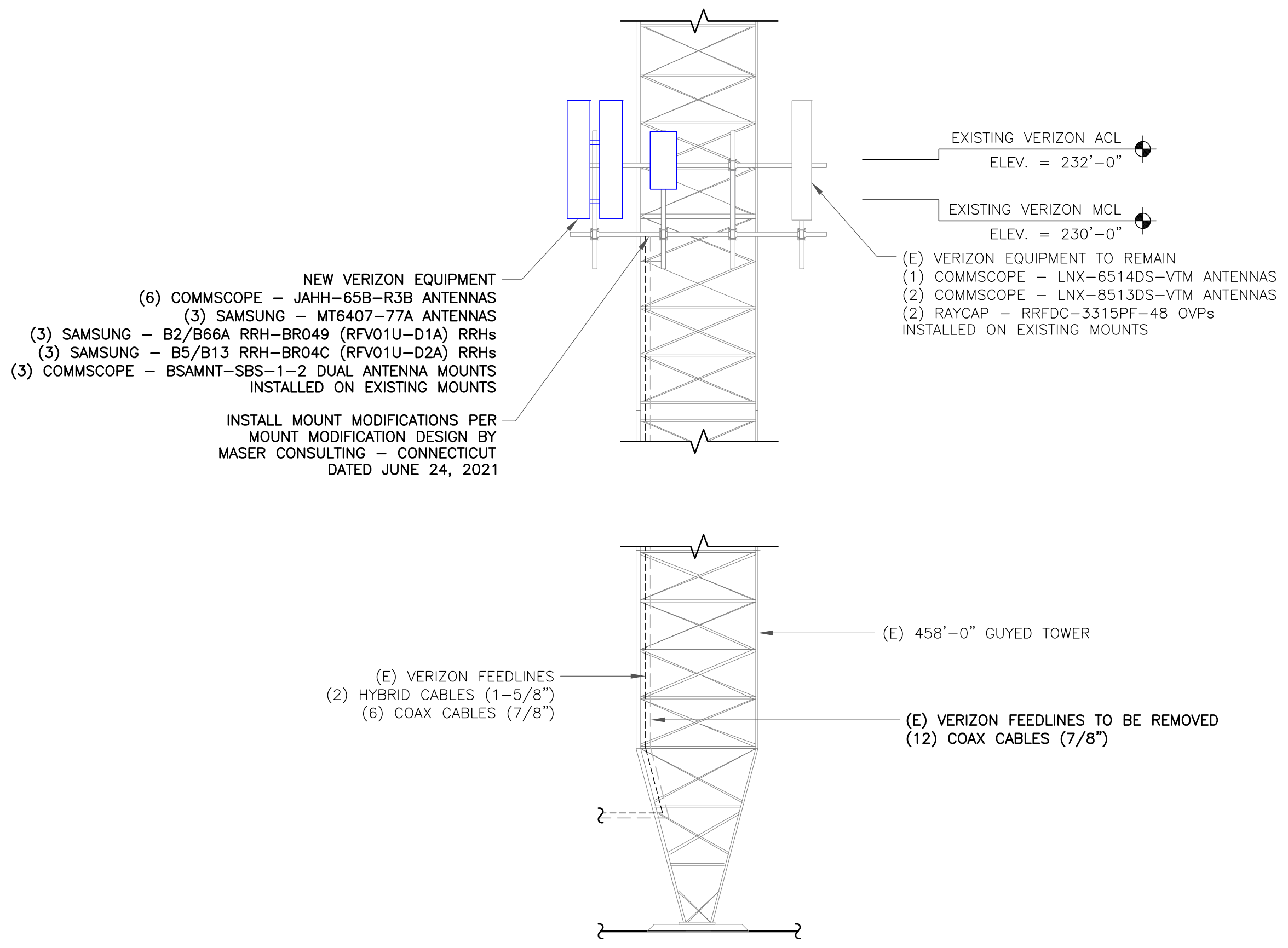
TIP OF EQUIPMENT  
ELEV. = 467'-10"



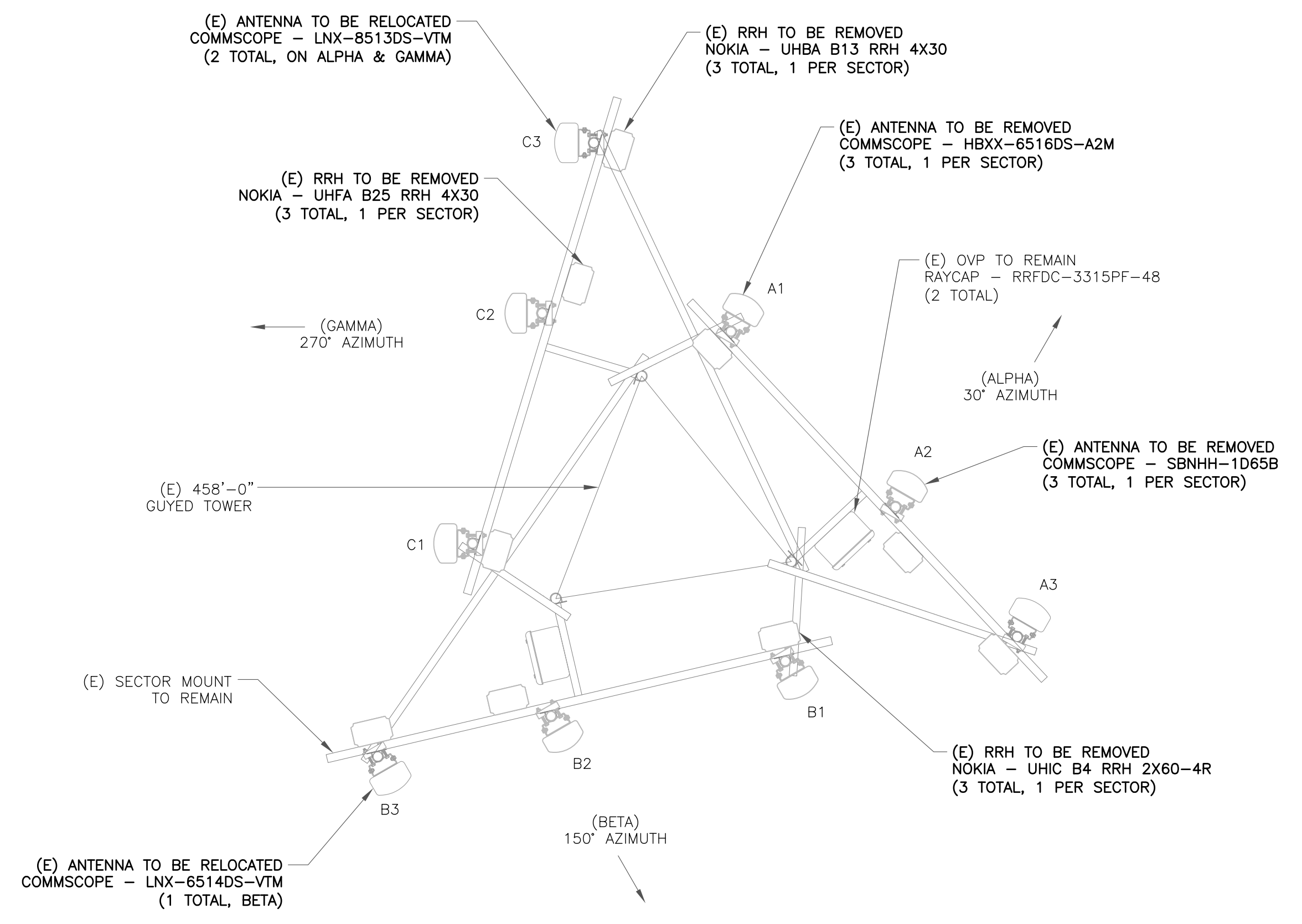
HEIGHT OF STRUCTURE  
ELEV. = 458'-0"

**VERIZON EQUIPMENT**  
ANTENNA CL: 232'-0"  
MOUNT CL: 230

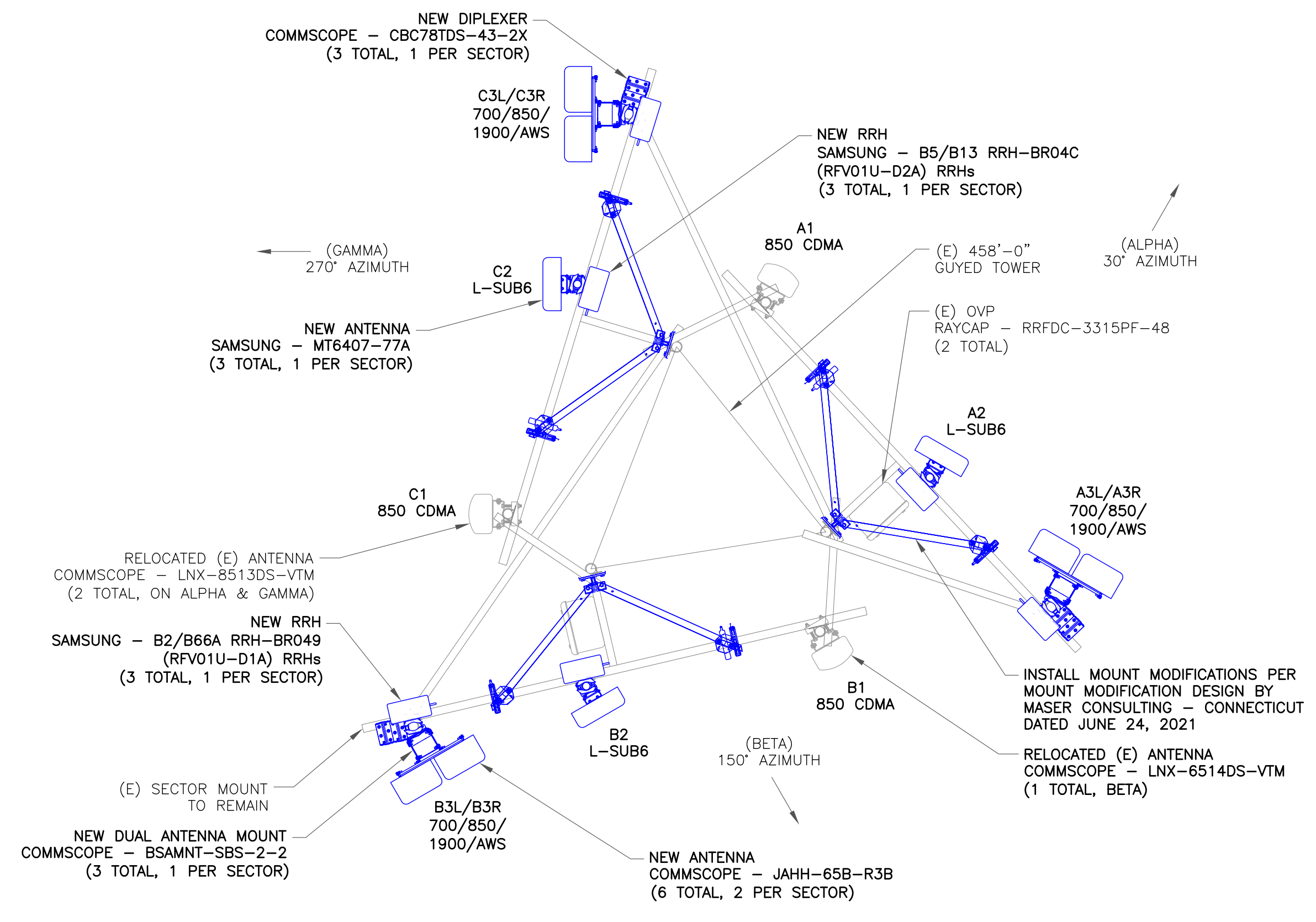
**TOWER NOTE:**  
EXISTING STRUCTURE SHALL BE ANALYZED  
BY A PROFESSIONAL ENGINEER LICENSED IN  
THE STATE OF CONNECTICUT.



1 TOWER ELEVATION  
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN  
SCALE: NOT TO SCALE



3 NEW ANTENNA PLAN  
SCALE: NOT TO SCALE

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**CROWN CASTLE**  
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CLIFTON PARK, NY 12065

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SUITE 300  
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PH: (918) 587-4630  
www.btgrp.com

VERIZON SITE NUMBER:  
**324988**

BU #: **873128**  
**TRUMBULL**

800 BOOTH HILL RD.  
TRUMBULL, CT 06611

EXISTING  
458'-0" GUYED TOWER

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/9/22	TDG	CONSTRUCTION	CV

MTS ENGINEERING P.L.L.C.  
BER:2386985  
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SHEET NUMBER: **C-2** REVISION: **0**

164150.001.01\_873128\_TRUMBULL.dwg - Sheet: C-2 - User: chad.vandergraft - Jun 09, 2022 - 1:09pm



VERIZON SITE NUMBER:  
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BU #: **873128**  
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SHEET NUMBER: REVISION:

**C-3** **0**

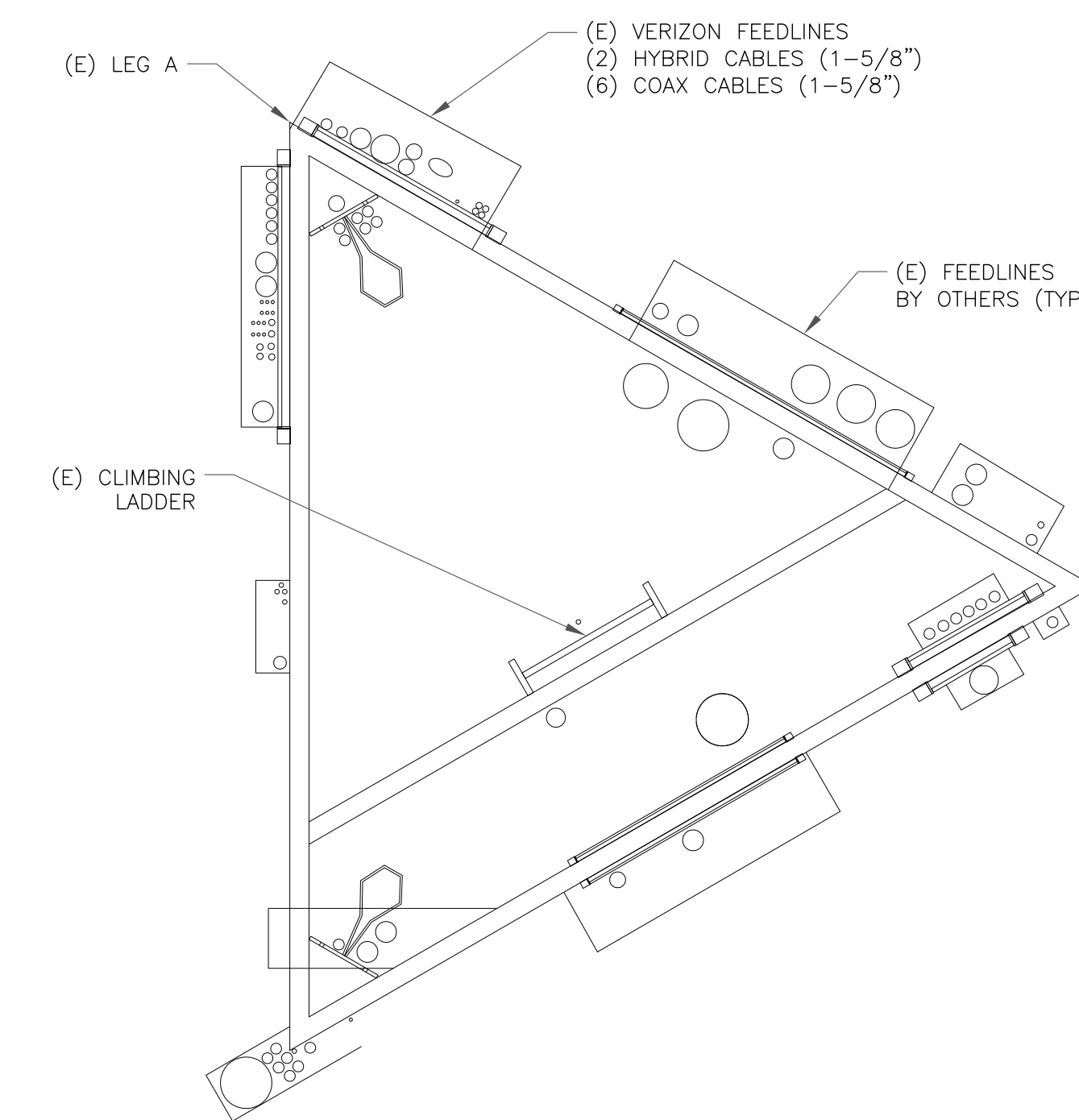
ANTENNA/RRH SCHEDULE

SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	MECHANICAL DOWNTILTS	ELECTRICAL DOWNTILTS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	EXISTING	COMMSCOPE	LNx-8513DS-VTM	232'-0"	30°	0'	5'	-	-
A2	NEW	SAMSUNG	MT6407-77A	232'-0"	30°	0'	3'	RAYCAP	(1) RRFDC-3315PF-48
A3L	NEW	COMMSCOPE	JAHH-65B-R3B	232'-0"	30°	0'	7/7'	SAMSUNG COMMSCOPE	(1) B5/B13 RRH-BR04C (RFV01U-D2A) (1) CBC78T-DS-43-2X
A3R	NEW	COMMSCOPE	JAHH-65B-R3B	232'-0"	30°	0'	2/3'	SAMSUNG	(1) B2/B66A RRH-BR049 (RFV01U-D1A)
B1	EXISTING	COMMSCOPE	LNx-6514DS-VTM	232'-0"	150°	7'	6'	-	-
B2	NEW	SAMSUNG	MT6407-77A	232'-0"	150°	0'	3'	RAYCAP	(1) RRFDC-3315PF-48
B3L	NEW	COMMSCOPE	JAHH-65B-R3B	232'-0"	150°	0'	9/9'	SAMSUNG COMMSCOPE	(1) B5/B13 RRH-BR04C (RFV01U-D2A) (1) CBC78T-DS-43-2X
B3R	NEW	COMMSCOPE	JAHH-65B-R3B	232'-0"	150°	0'	1/4'	SAMSUNG	(1) B2/B66A RRH-BR049 (RFV01U-D1A)
C1	EXISTING	COMMSCOPE	LNx-8513DS-VTM	232'-0"	270°	0'	5'	-	-
C2	NEW	SAMSUNG	MT6407-77A	232'-0"	270°	0'	3'	-	-
C3L	NEW	COMMSCOPE	JAHH-65B-R3B	232'-0"	270°	0'	11/11'	SAMSUNG COMMSCOPE	(1) B5/B13 RRH-BR04C (RFV01U-D2A) (1) CBC78T-DS-43-2X
C3R	NEW	COMMSCOPE	JAHH-65B-R3B	232'-0"	270°	0'	2/5'	SAMSUNG	(1) B2/B66A RRH-BR049 (RFV01U-D1A)

1 VERIZON TOWER EQUIPMENT SCHEDULE  
 SCALE: NOT TO SCALE

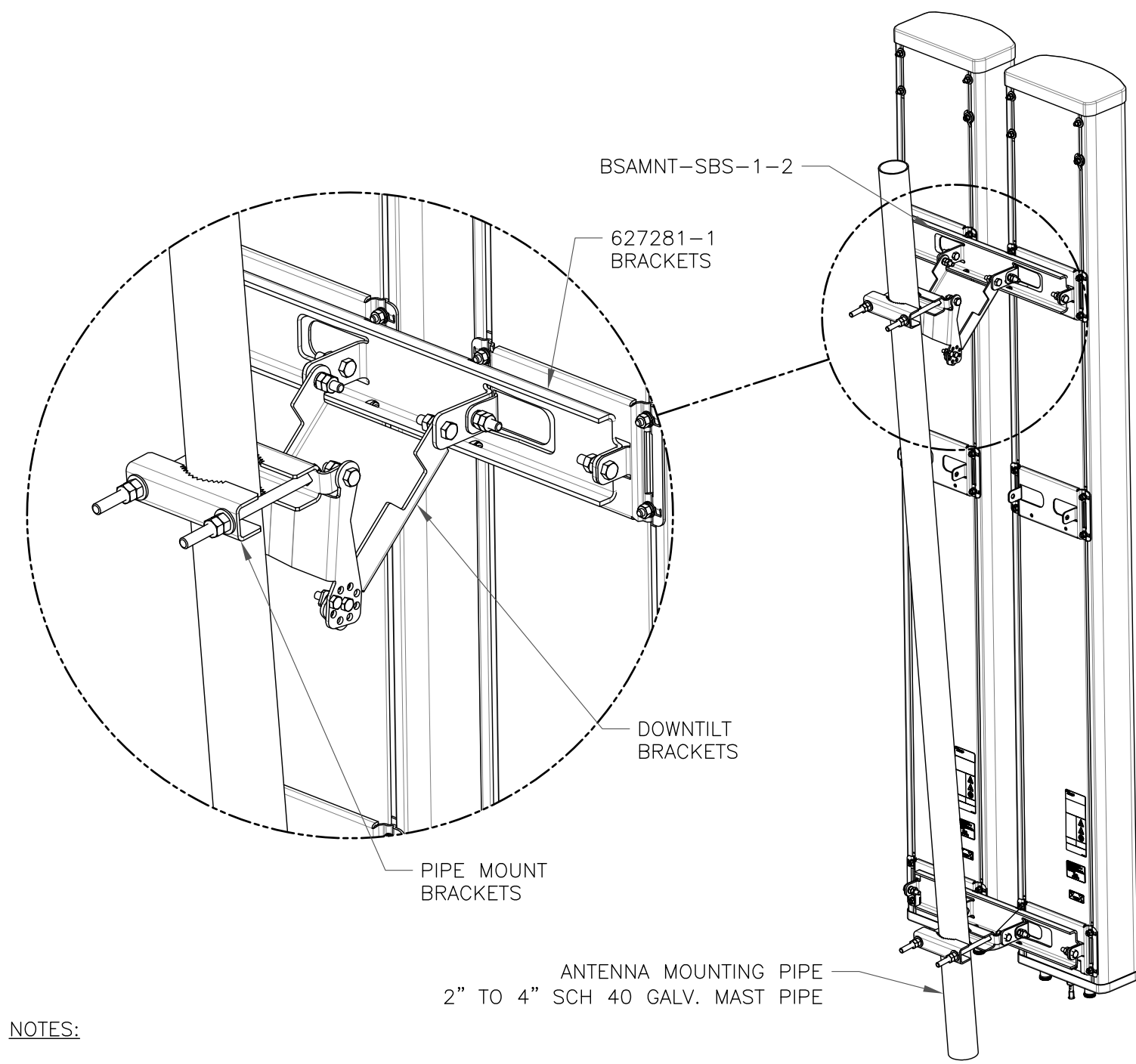
CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1-5/8"	282'-0"±	6
EXISTING	HYBRID	1-5/8"	282'-0"±	2
TOTAL CABLE QTY:				8



2 BASE LEVEL DETAIL  
 SCALE: NOT TO SCALE



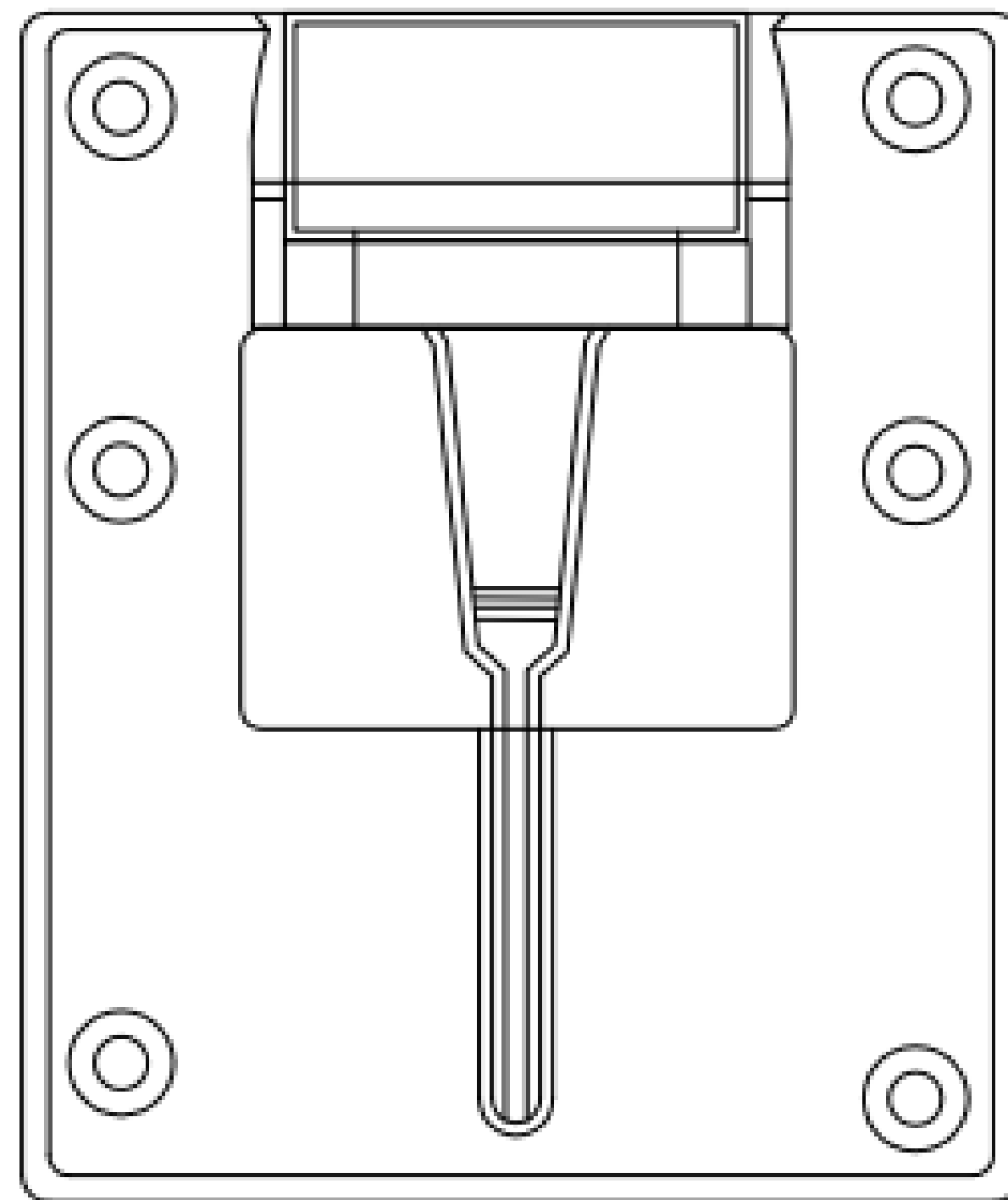


**NOTES:**

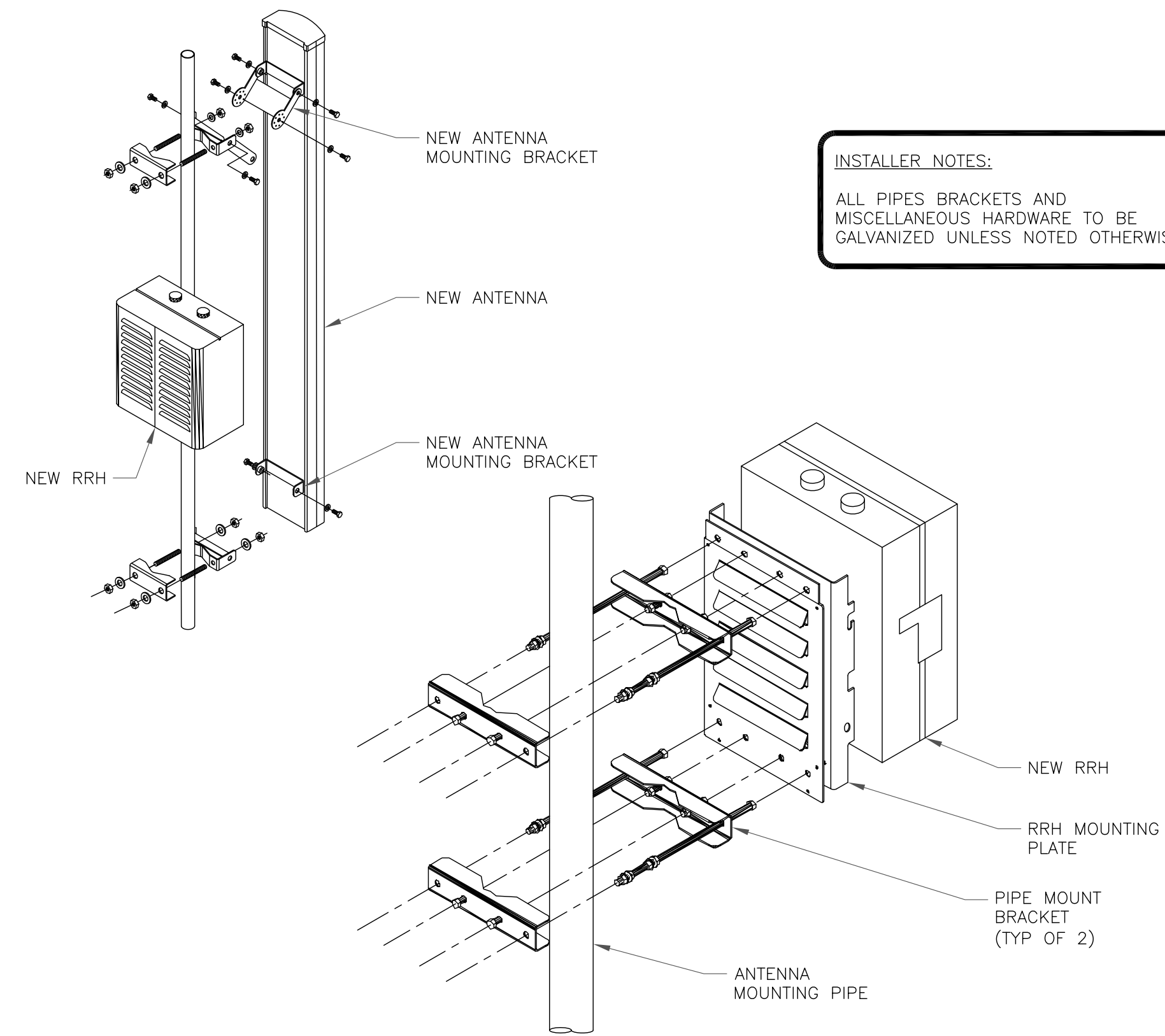
- BSAMNT-SBS-1-2 KIT CONTAINS (2) 627281 MOUNTING BRACKETS.
- TORQUE THE M10 BOLT ASSEMBLY TO 37 N.m. PER MANUFACTURE'S RECOMMENDATIONS.

1 COMMSCOPE - BSAMNT-SBS-1-2  
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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VERIZON SITE NUMBER:  
**324988**

BU #: **873128**  
**TRUMBULL**

800 BOOTH HILL RD.  
TRUMBULL, CT 06611

EXISTING  
458'-0" GUYED TOWER

**ISSUED FOR:**

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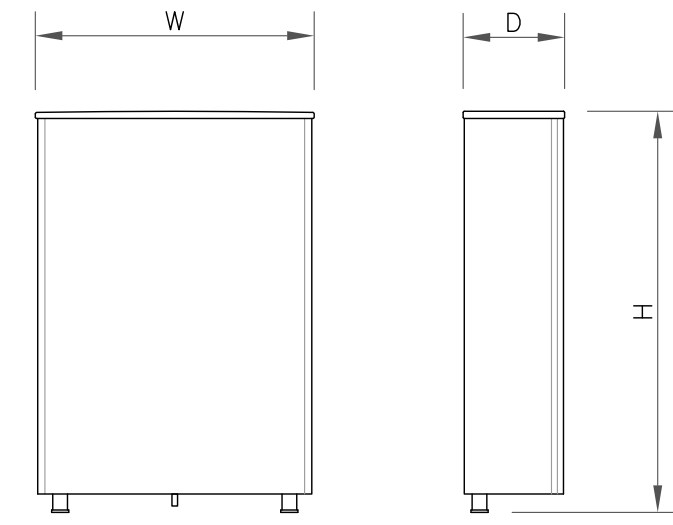
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**C-4**

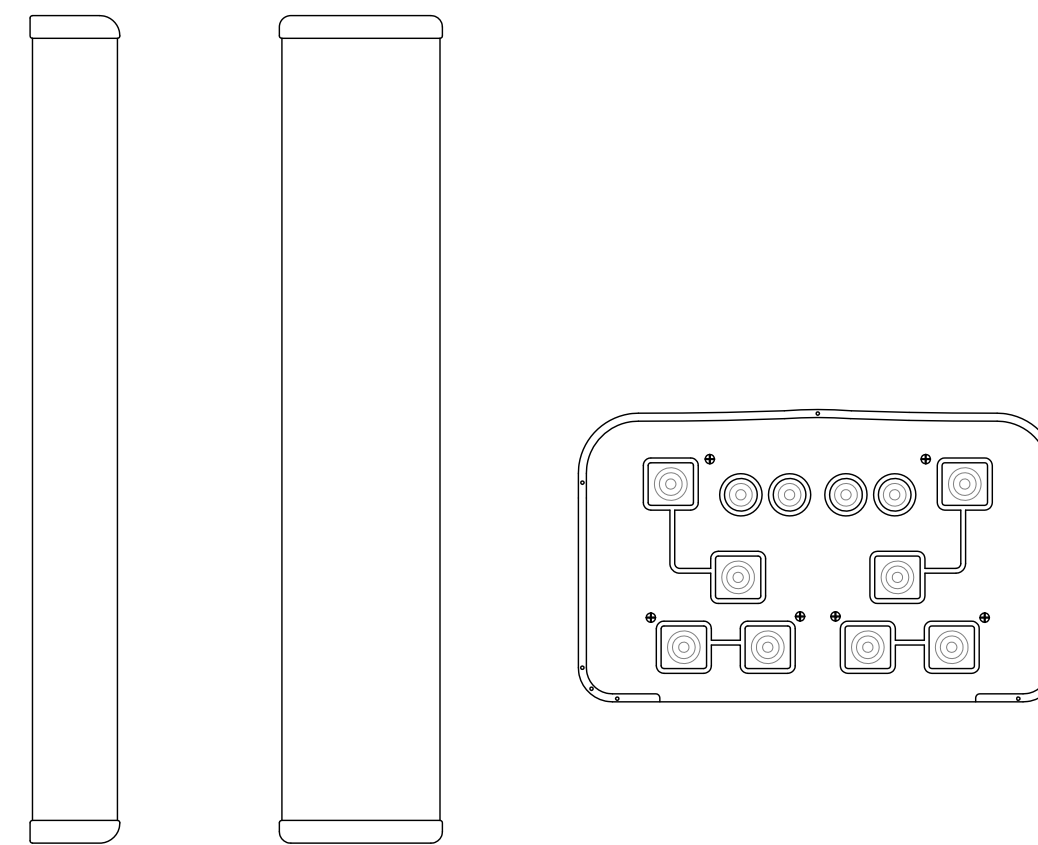
REVISION:  
**0**





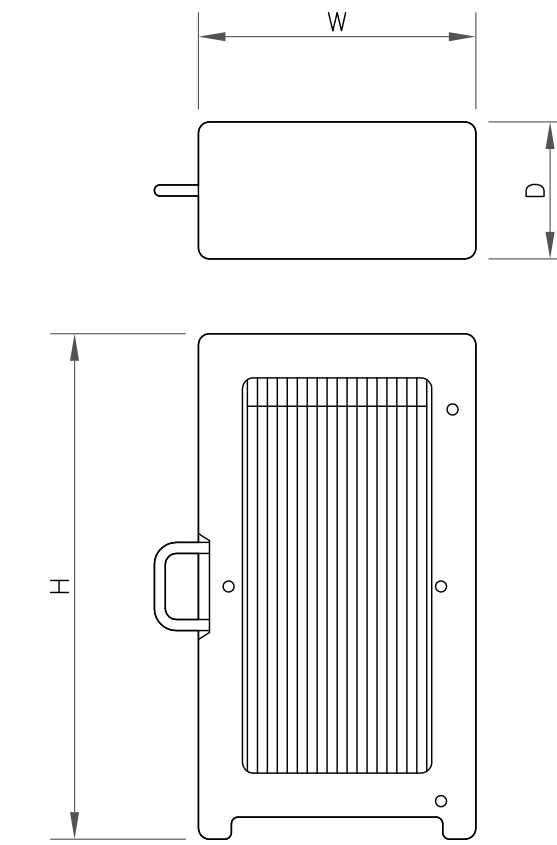
ANTENNA SPECS	
MANUFACTURER	SAMSUNG
MODEL #	MT6407-77A
WIDTH	16.06"
DEPTH	5.51"
HEIGHT	35.06"
WEIGHT	81.57 LBS

1 ANTENNA SPECS  
SCALE: NOT TO SCALE



COMMSCOPE - JAHH-65B-R3B  
 WEIGHT (WITHOUT MOUNTING HARDWARE): 63.3 LBS  
 SIZE (HxWxD): 72.0x13.8x8.2 IN.  
 MOUNTING HARDWARE P/N: BSAMNT-3  
 RATED WIND VELOCITY: 150.0 MPH

2 COMMSCOPE - JAHH-65B-R3B  
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	SAMSUNG
MODEL #	RF4440D-13A
WIDTH	14.96"
DEPTH	9.06"
HEIGHT	14.96"
WEIGHT	72.50 LBS

3 RRU SPECIFICATION  
SCALE: NOT TO SCALE

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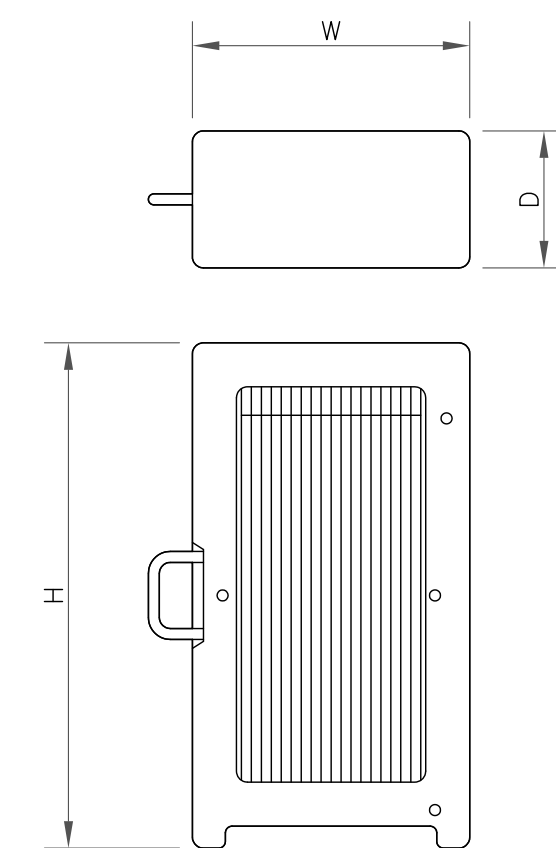
BU #: **873128**  
**TRUMBULL**

800 BOOTH HILL RD.  
 TRUMBULL, CT 06611

EXISTING  
 458'-0" GUYED TOWER

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RRU SPECIFICATIONS	
MANUFACTURER	SAMSUNG
MODEL #	RF4439D-25A
WIDTH	14.96"
DEPTH	10.04"
HEIGHT	14.96"
WEIGHT	74.70 LBS

4 RRU SPECIFICATION  
SCALE: NOT TO SCALE

**FIBER NAMING CONVENTION**

Technology	(Equipment-Sector-OPTI #)
5GmmW L0	5GmmW-A-0
CBRS L0	CBRS-A-0
CBRS L1	CBRS-A-1
LAA L0	LAA-A-0
High Band Dual Band L0	HB-A-0
High Band Dual Band L1	HB-A-1
Low Band Dual Band L0	LB-A-0
C-Band MT6407-77A L0	CBand-A-0
C-Band MT6407-77A L1	CBand-A-1
C-Band MT6407-77A L2	CBand-A-2

Rev. 12/8/2021

5 FIBER NAMING CONVENTION  
SCALE: NOT TO SCALE

6 NOT USED  
SCALE: NOT TO SCALE



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SHEET NUMBER: **C-5** REVISION: **0**

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BU #: **873128**  
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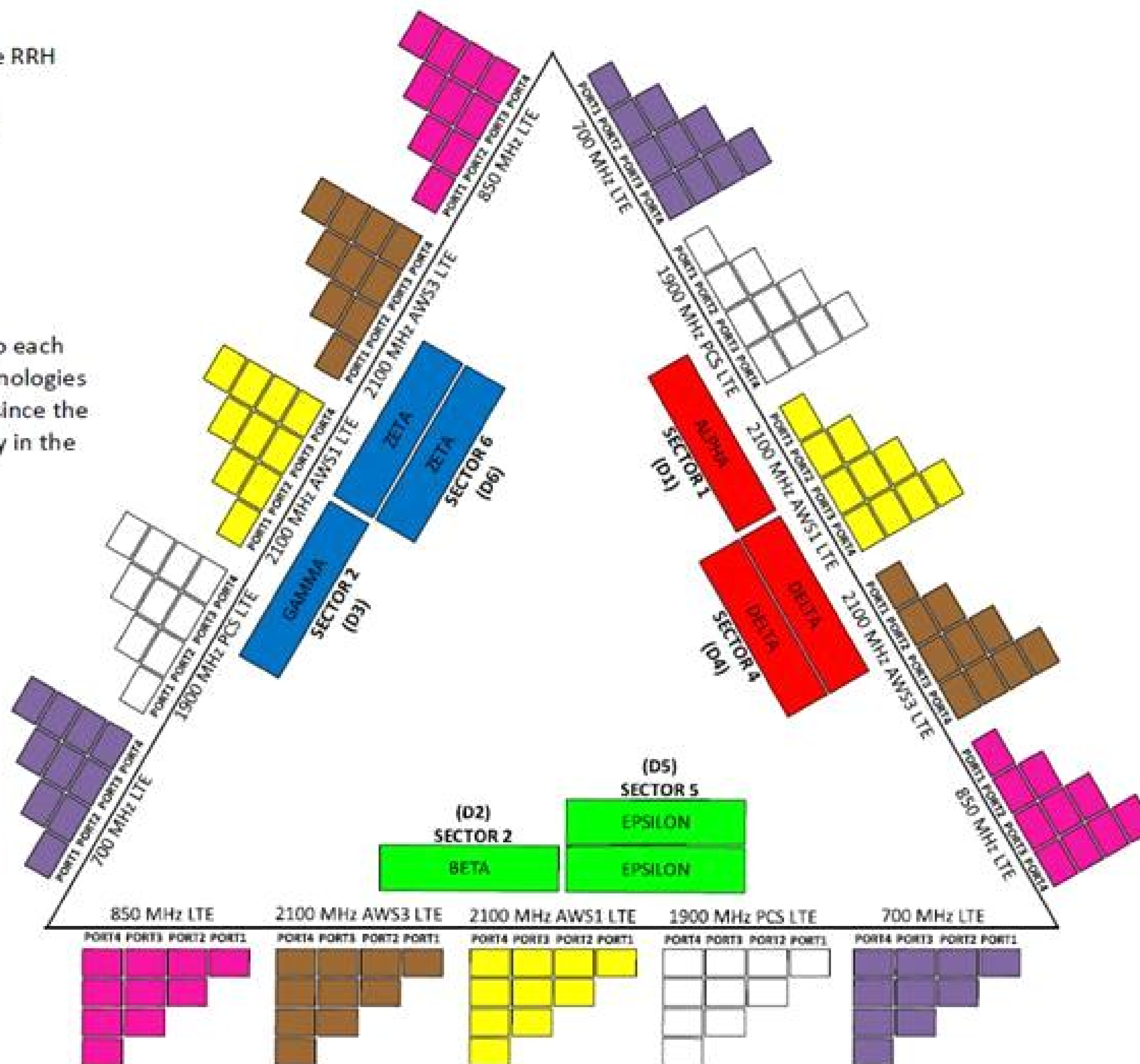
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SHEET NUMBER: **C-6** REVISION: **0**

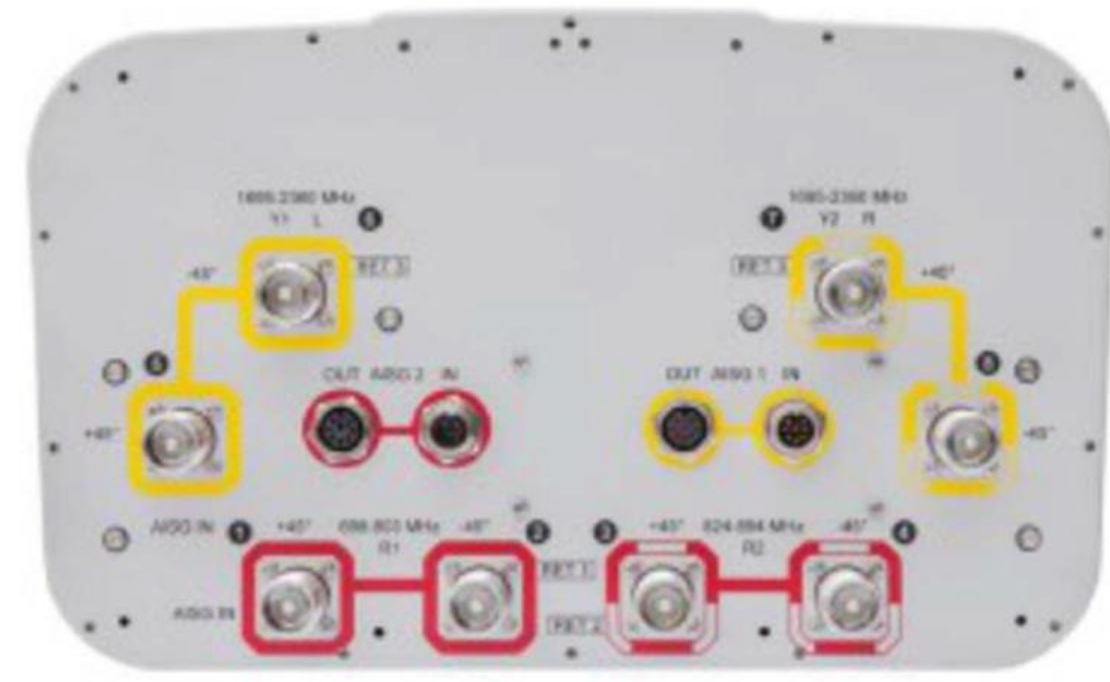
**TECHNOLOGY COLOR CODING**

- Each color box = 1 color strip
- Color coding is at the jumpers from the RRH
- TxRx1 (Port1) = 1 Strip + sector color
- TxRx2 (Port2) = 2 Strips + sector color
- TxRx3 (Port3) = 3 Strips + sector color
- TxRx4 (Port4) = 4 Strips + sector color
- LAA = Sector color
- CBRS = Grey + Sector color
- 5G = Orange + Sector Color
- CDMA = no color / blank space
- For plumbing diagrams; coax leading to each technology will be colored in that technologies color designation. For 1900 MHz PCS, since the color is white, show the coax as LT grey in the diagrams.



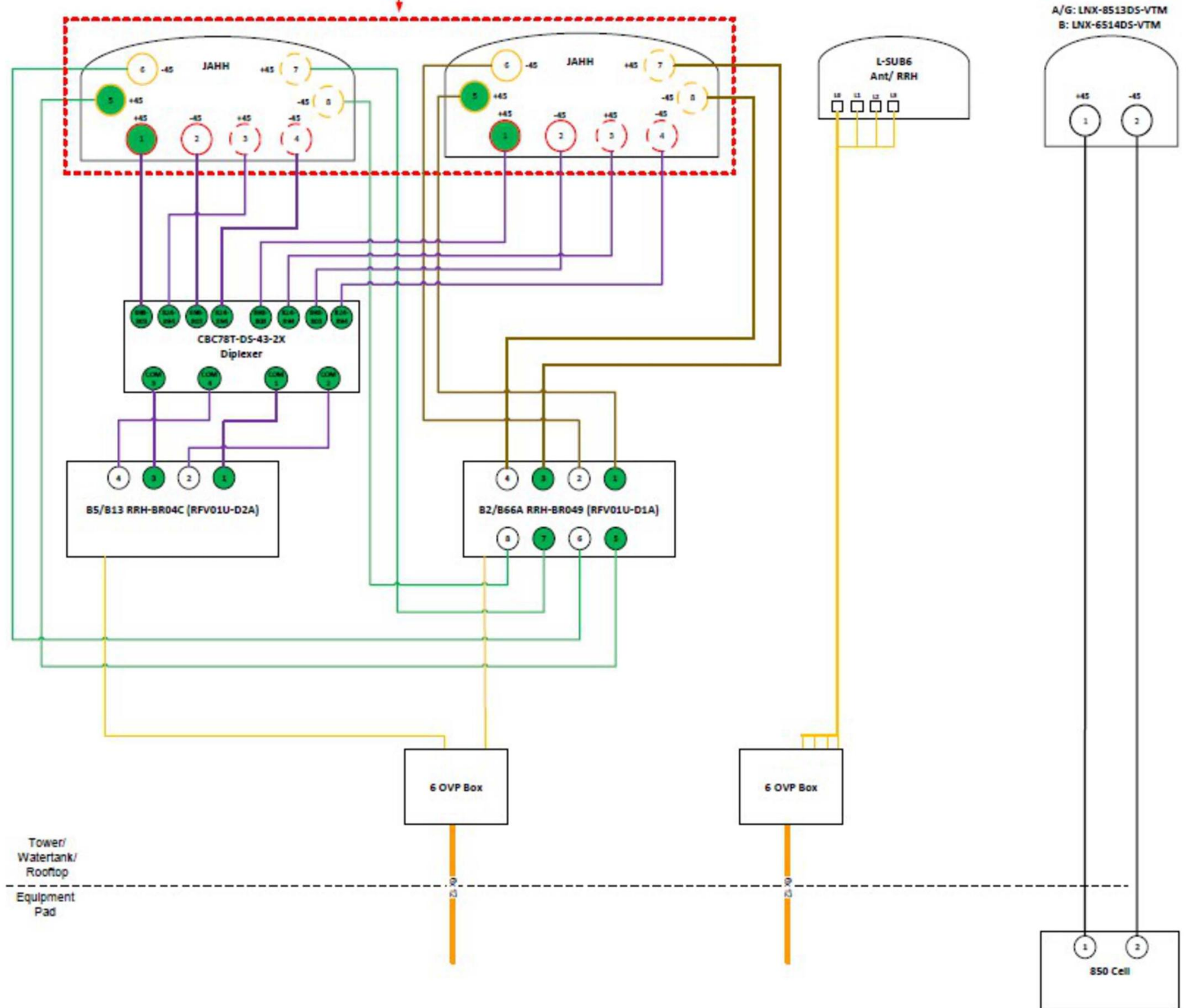
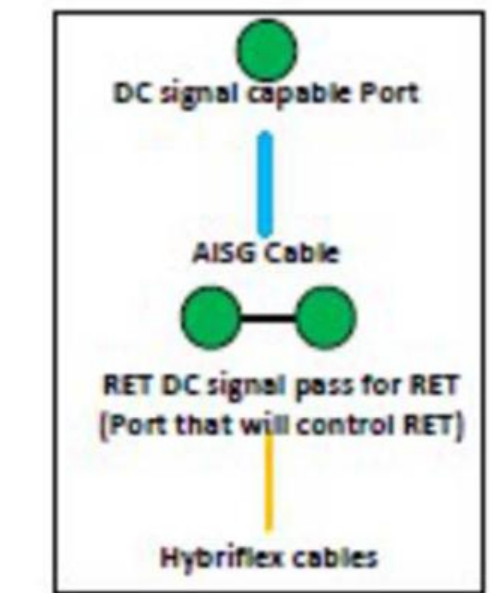
1 COLOR CODE MATRIX  
 SCALE: NOT TO SCALE





BSAMNT-SBS-2-2

- Port 1 & 2 are for low band (698-896 MHz).
- Port 3,4,5, & 6 are for high band (1695-2360 MHz).
- Smart Bias Tee (SBT) is through port 1 & 3 for low band and port 1 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.



**Comments:**

Diagram shows antenna port configuration as viewed from below antennas.

Antenna positions are indicated as viewed from IN FRONT of antennas.

Cap and weatherproof unused antenna ports.

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

1 PLUMBING DIAGRAM  
SCALE: NOT TO SCALE

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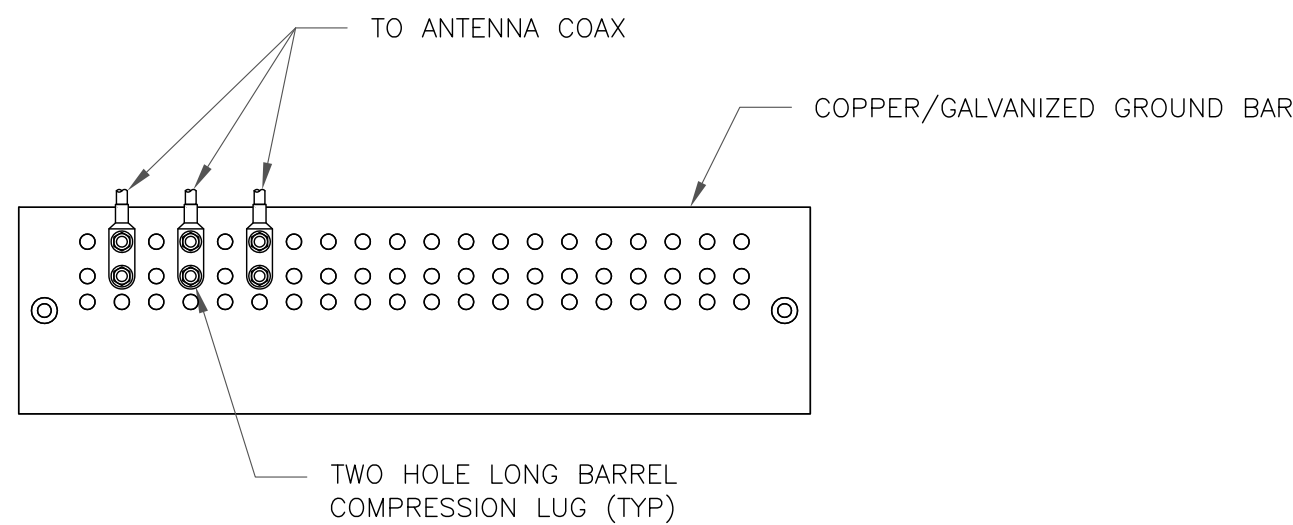
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SHEET NUMBER: **C-7** REVISION: **0**

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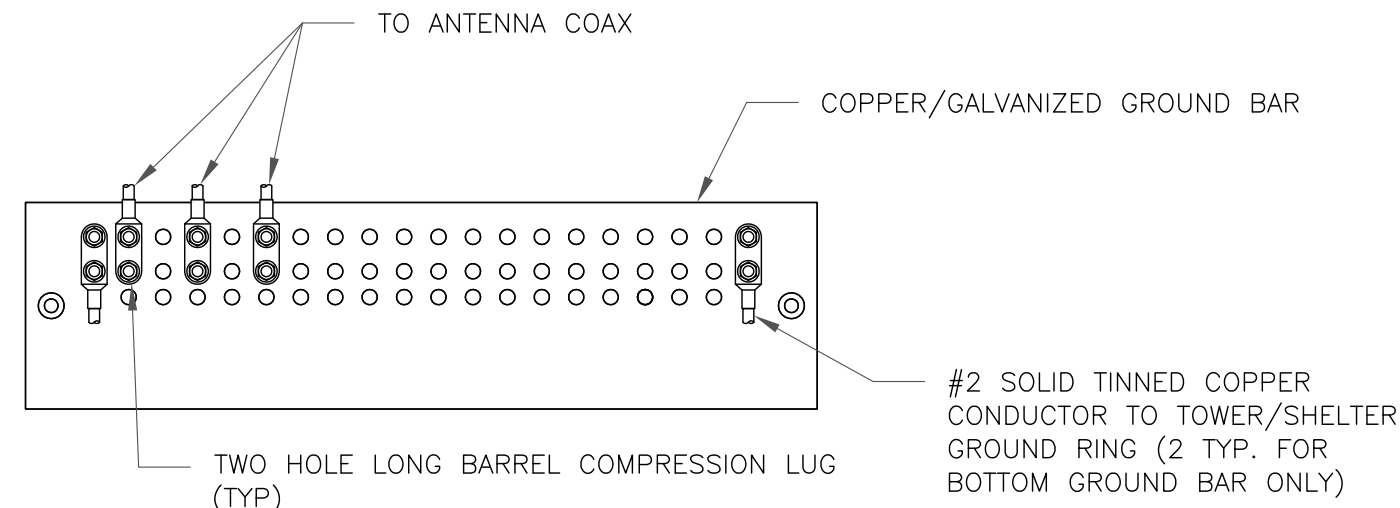




NOTES:

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

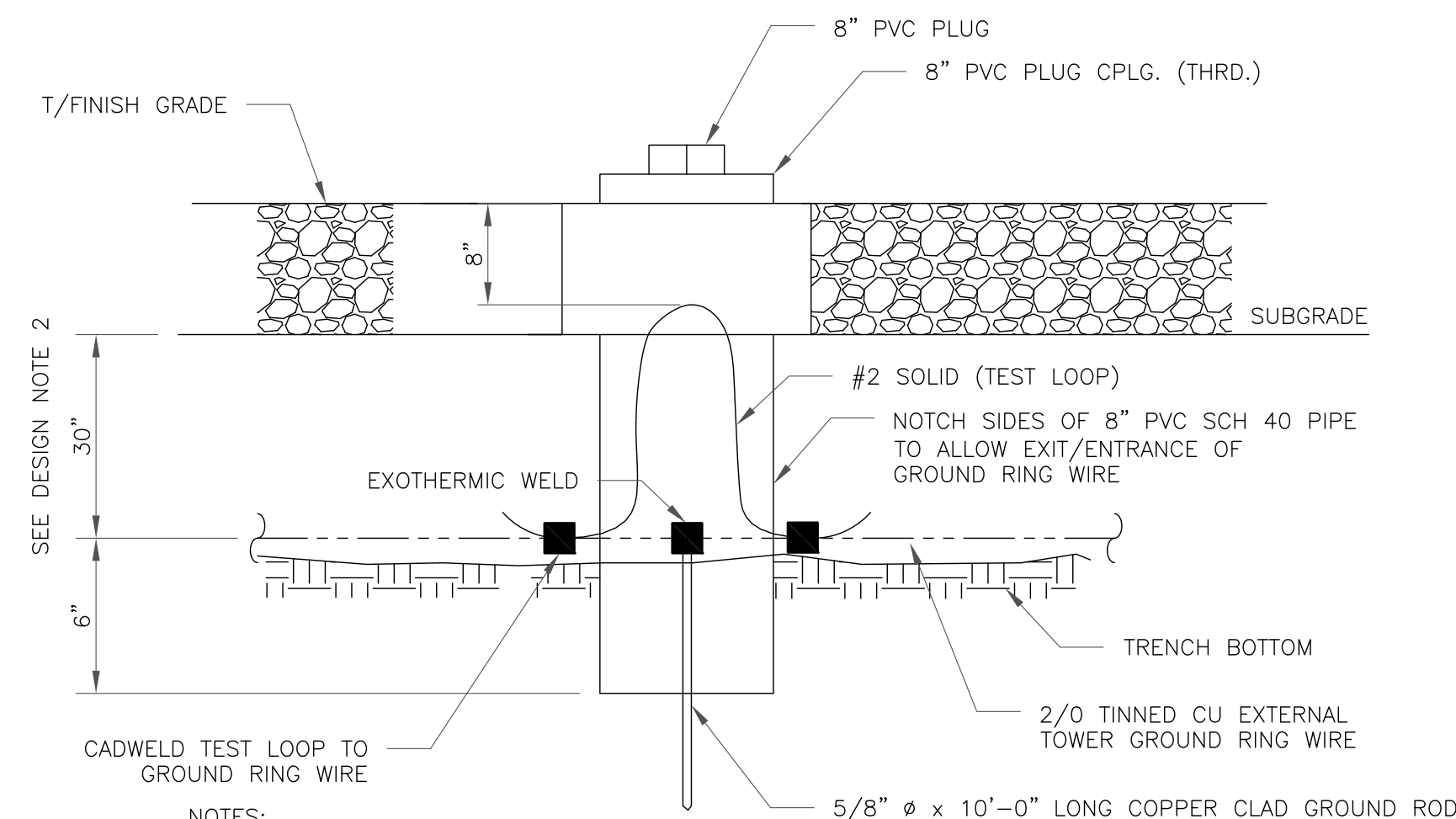
1 ANTENNA SECTOR GROUND BAR DETAIL  
SCALE: NOT TO SCALE



NOTES:

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

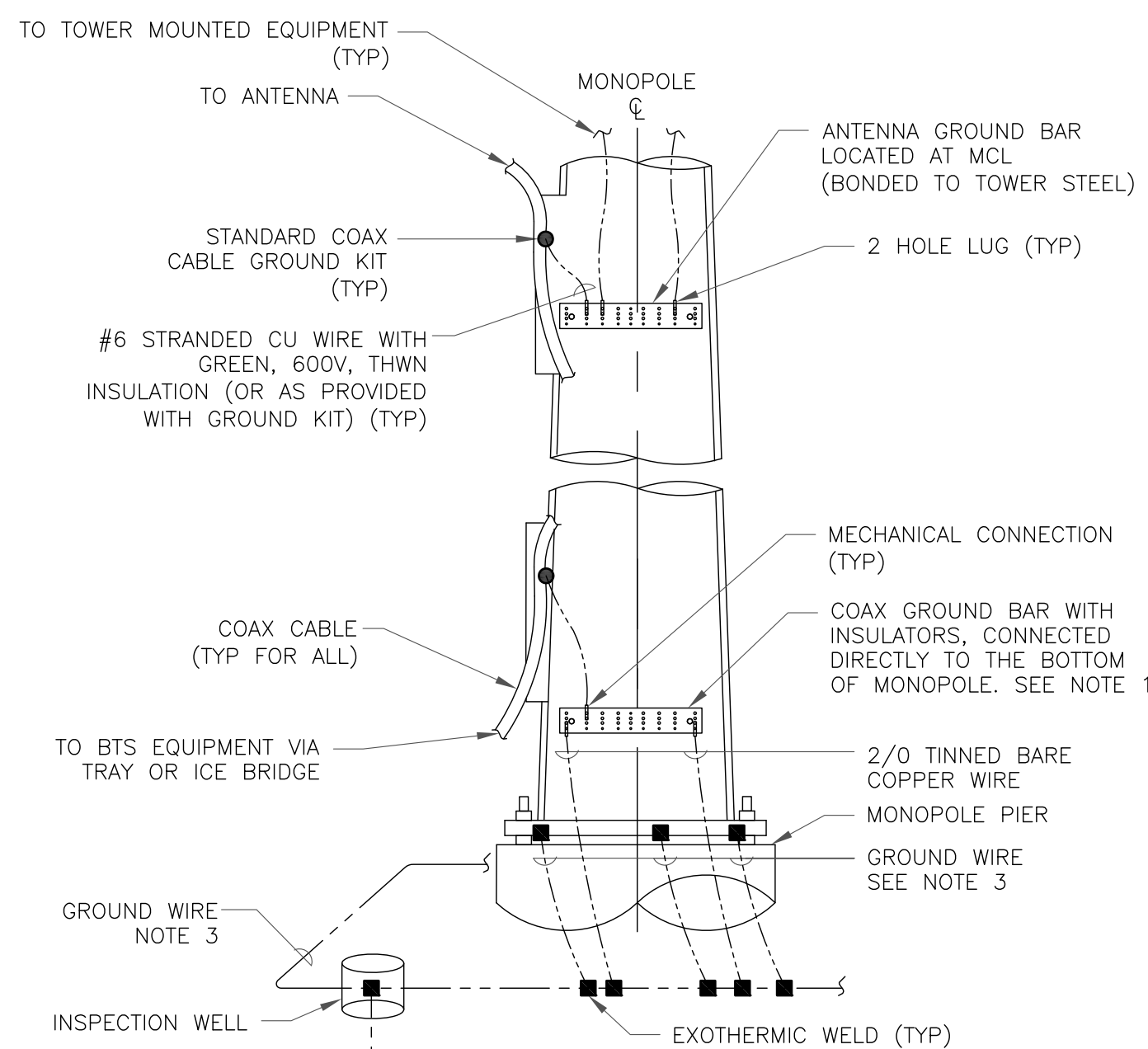
2 TOWER/SHELTER GROUND BAR DETAIL  
SCALE: NOT TO SCALE



NOTES:

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

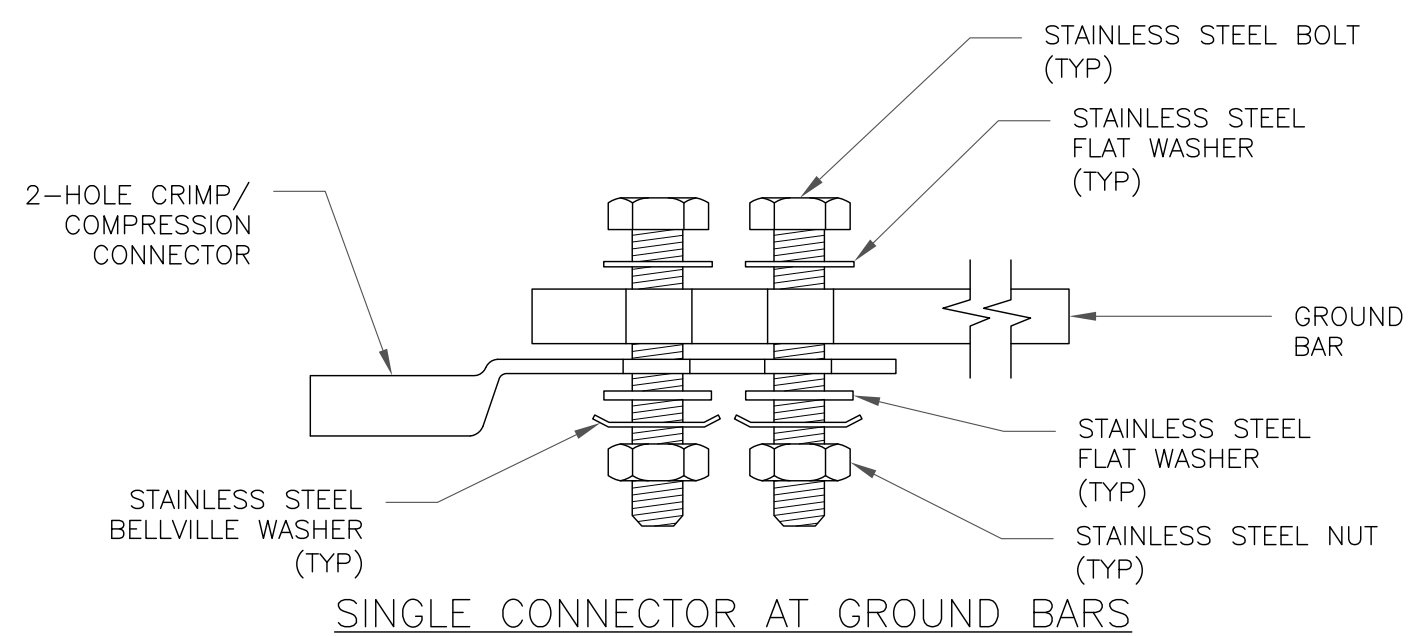
3 INSPECTION WELL DETAIL  
SCALE: NOT TO SCALE



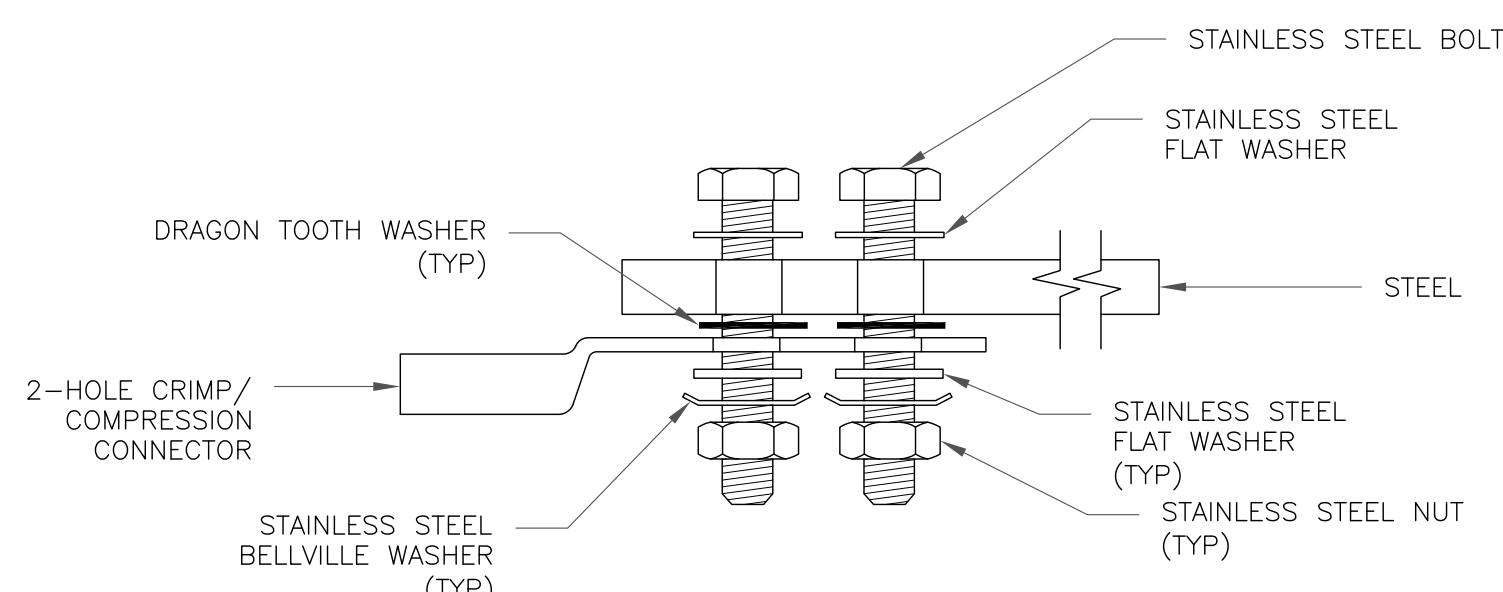
NOTES:

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

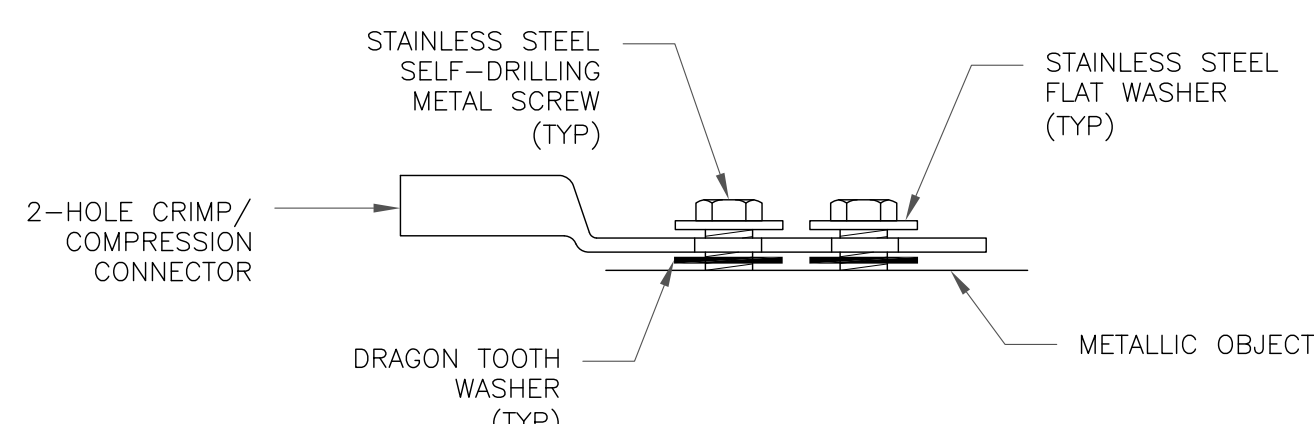
4 TYPICAL ANTENNA CABLE GROUNDING  
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

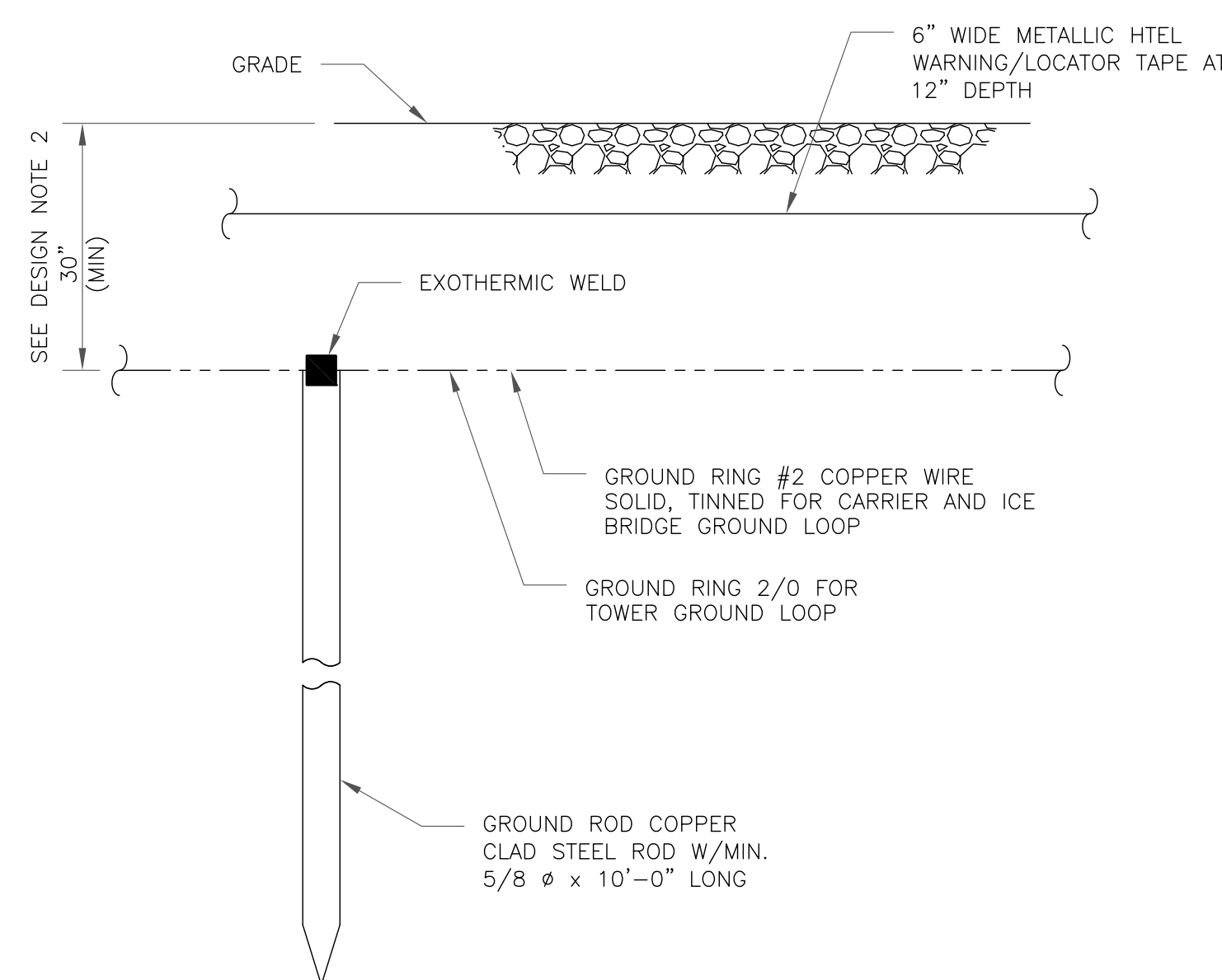


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL  
SCALE: NOT TO SCALE

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BU #: **873128**  
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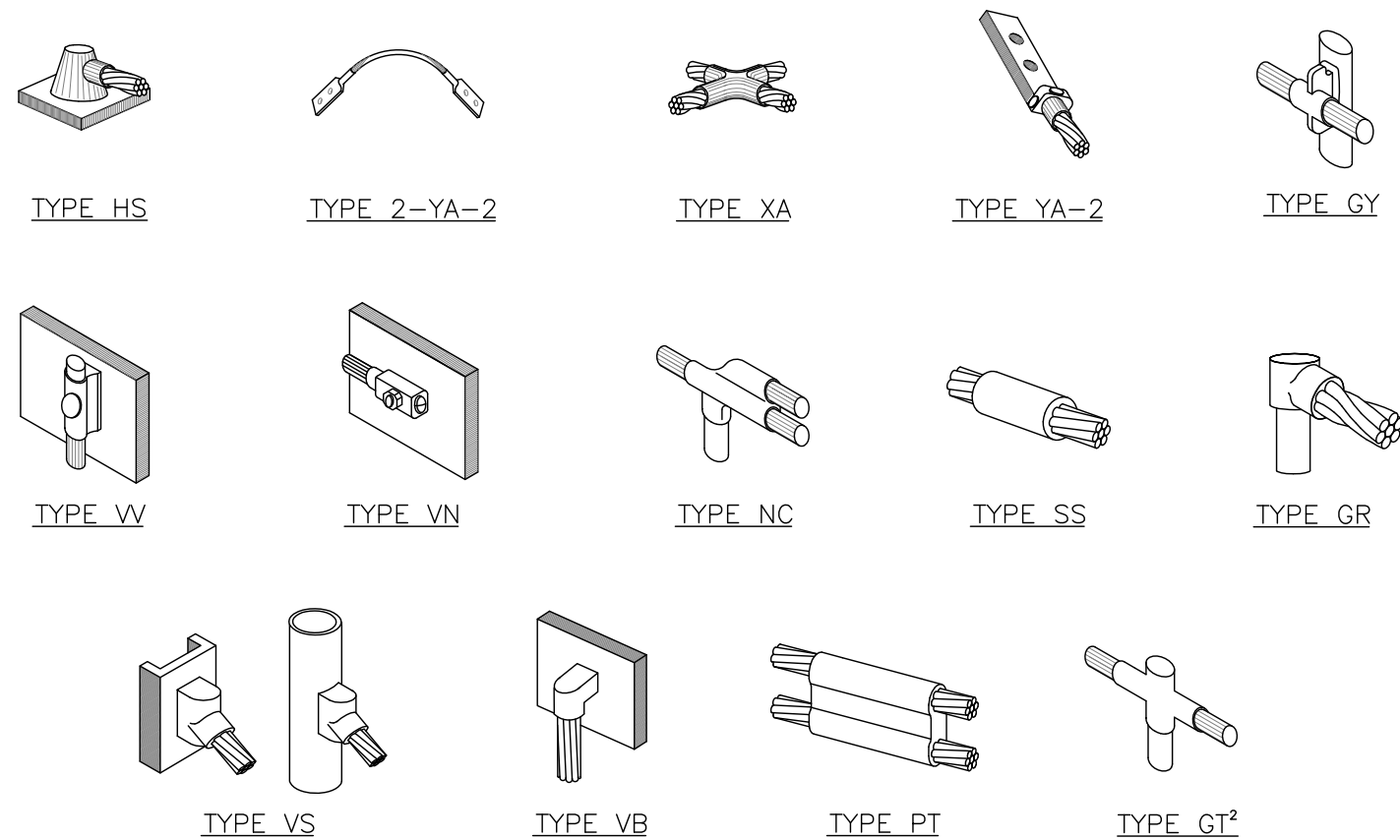


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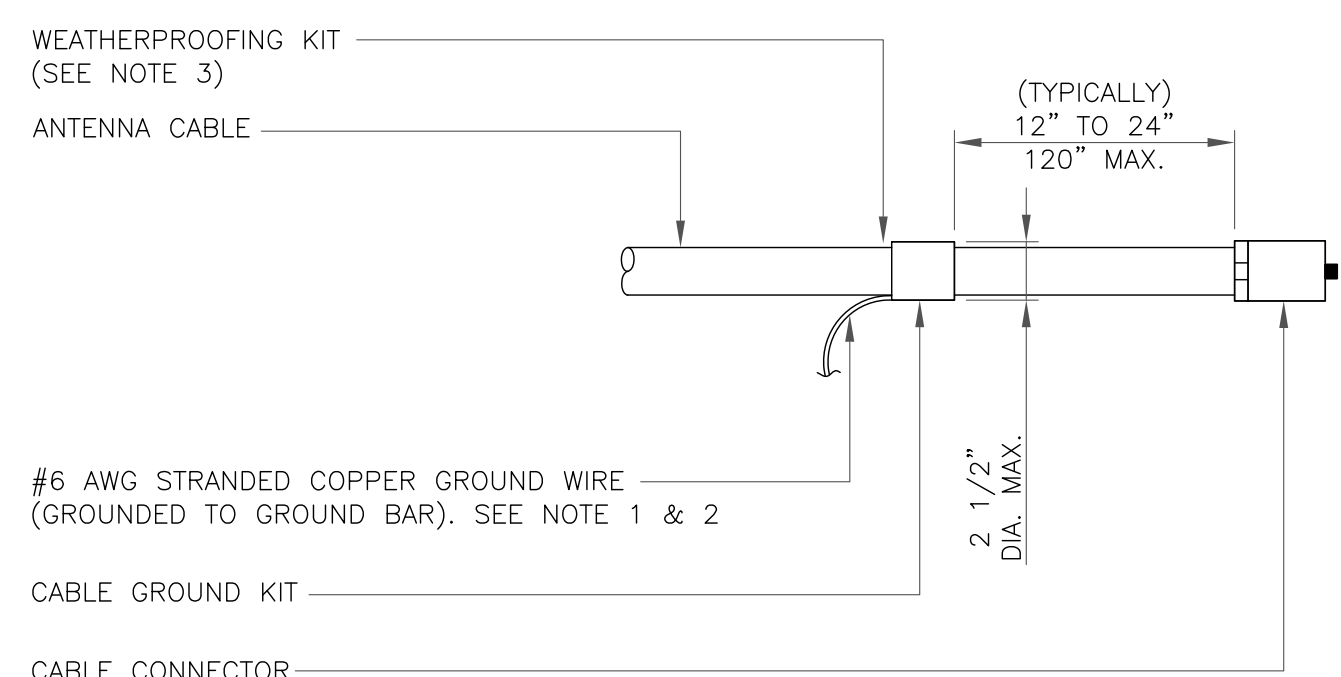
SHEET NUMBER: **G-1** REVISION: **0**





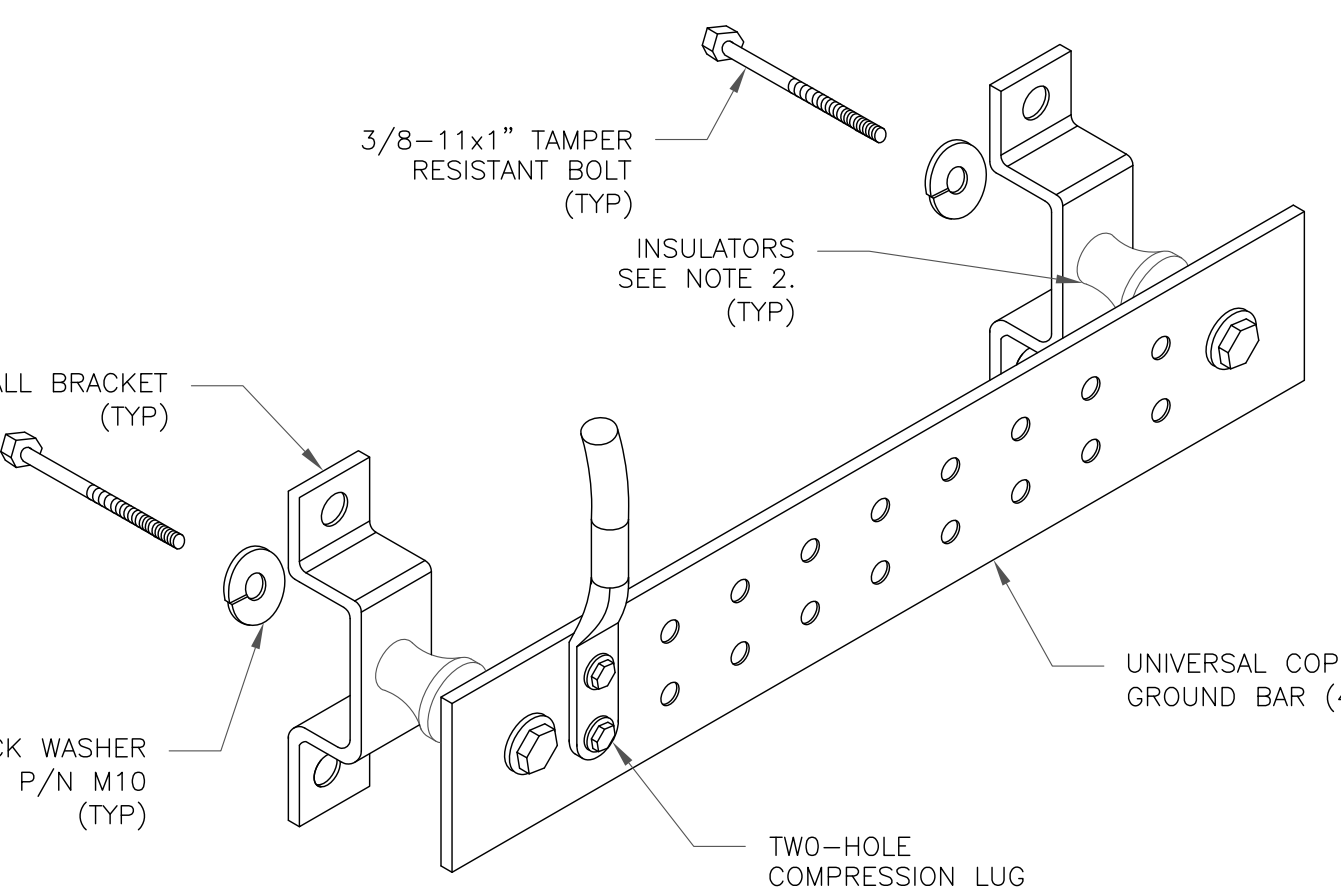
NOTE:  
 1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.  
 2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

**1** CADWELD GROUNDING CONNECTIONS  
 SCALE: NOT TO SCALE



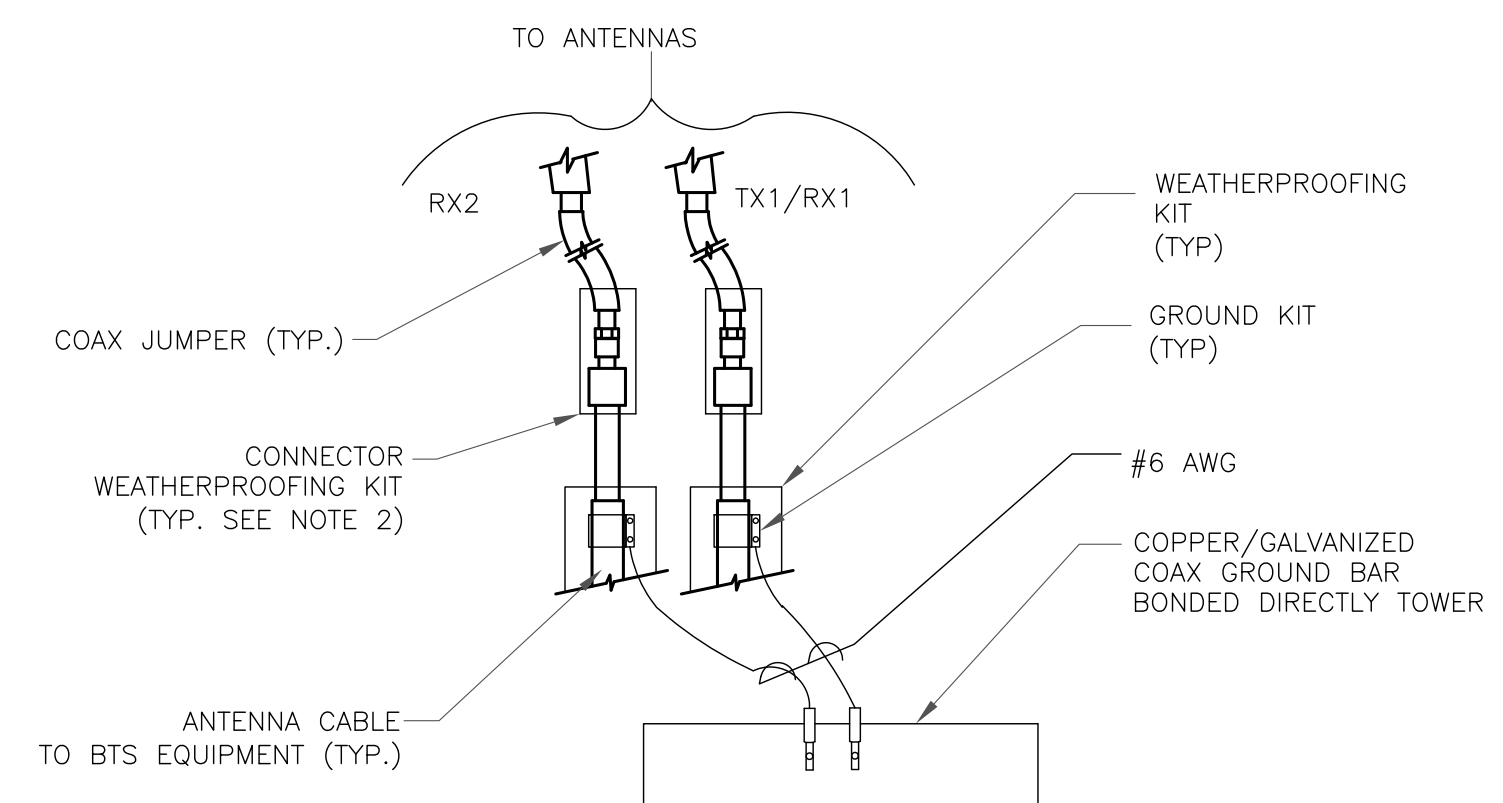
WEATHERPROOFING KIT (SEE NOTE 3)  
 ANTENNA CABLE  
 (TYPICALLY) 12" TO 24" 120" MAX.  
 #6 AWG STRANDED COPPER GROUND WIRE (GROUNDED TO GROUND BAR). SEE NOTE 1 & 2  
 2 1/2" DIA. MAX.  
 CABLE GROUND KIT  
 CABLE CONNECTOR

**3** CABLE GROUND KIT CONNECTION  
 SCALE: NOT TO SCALE



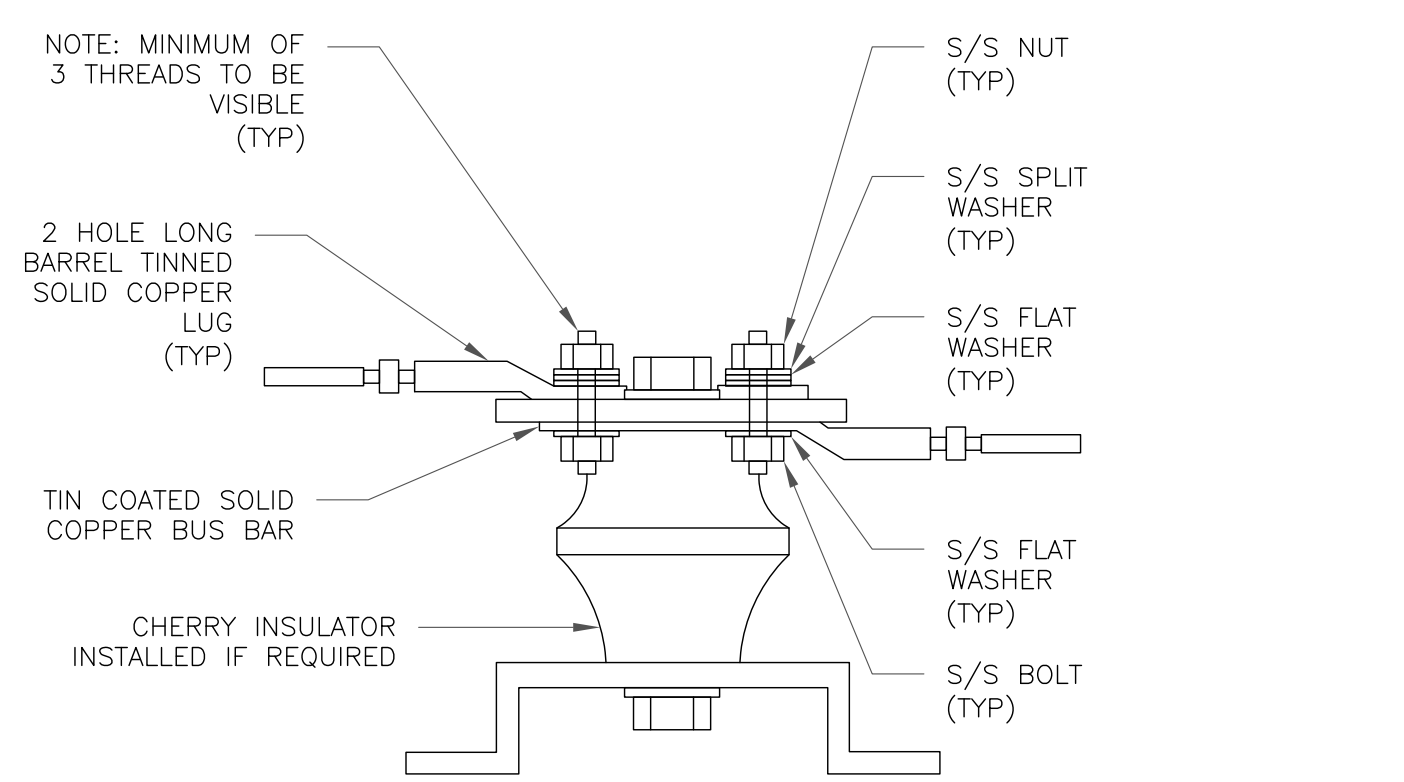
NOTES:  
 1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STG-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.  
 2. 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



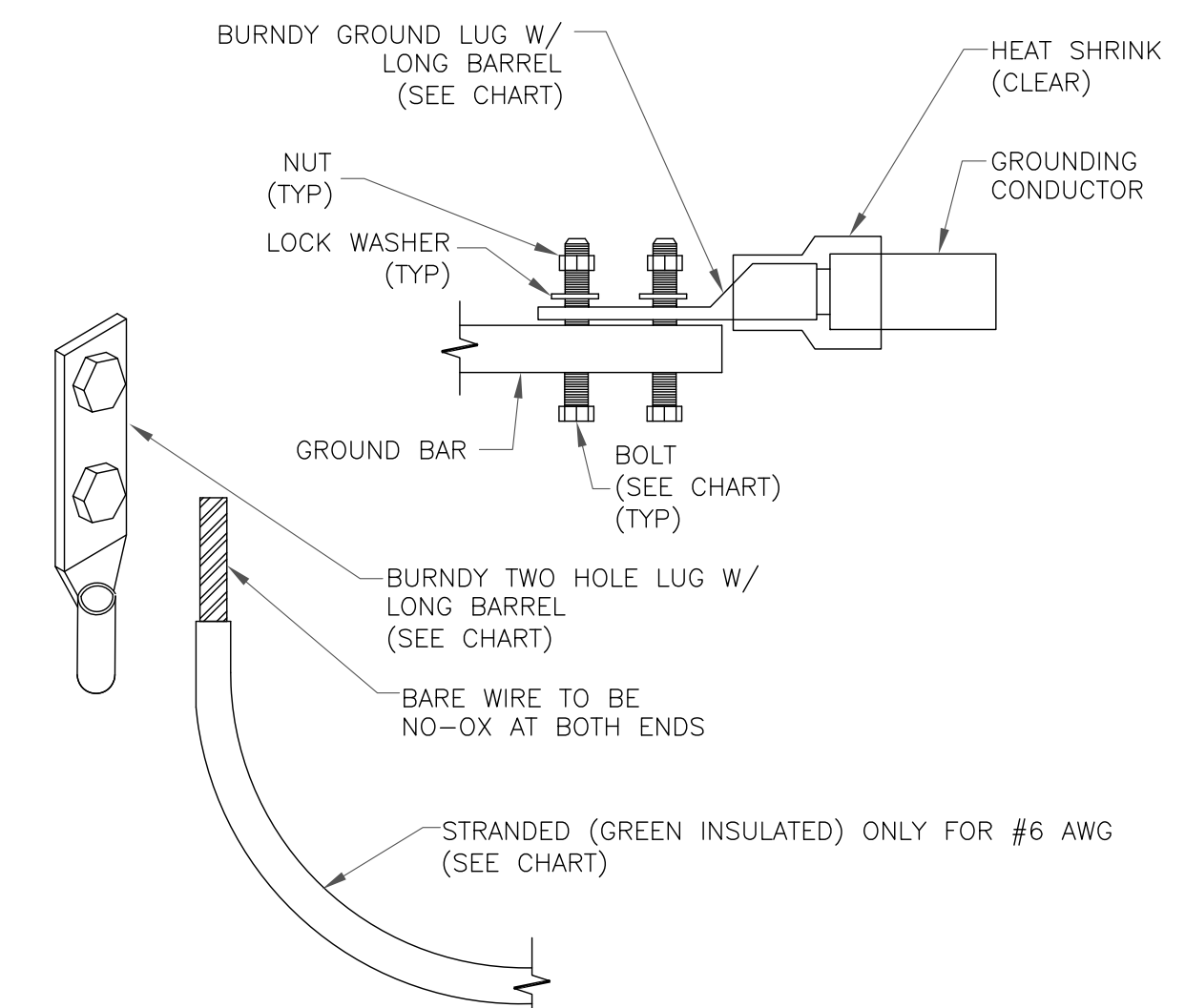
TO ANTENNAS  
 RX2 TX1/RX1  
 WEATHERPROOFING KIT (TYP)  
 GROUND KIT (TYP)  
 #6 AWG  
 COPPER/GALVANIZED COAX GROUND BAR BONDED DIRECTLY TOWER  
 COAX JUMPER (TYP.)  
 CONNECTOR WEATHERPROOFING KIT (TYP. SEE NOTE 2)  
 ANTENNA CABLE TO BTS EQUIPMENT (TYP.)

**4** GROUND CABLE CONNECTION  
 SCALE: NOT TO SCALE



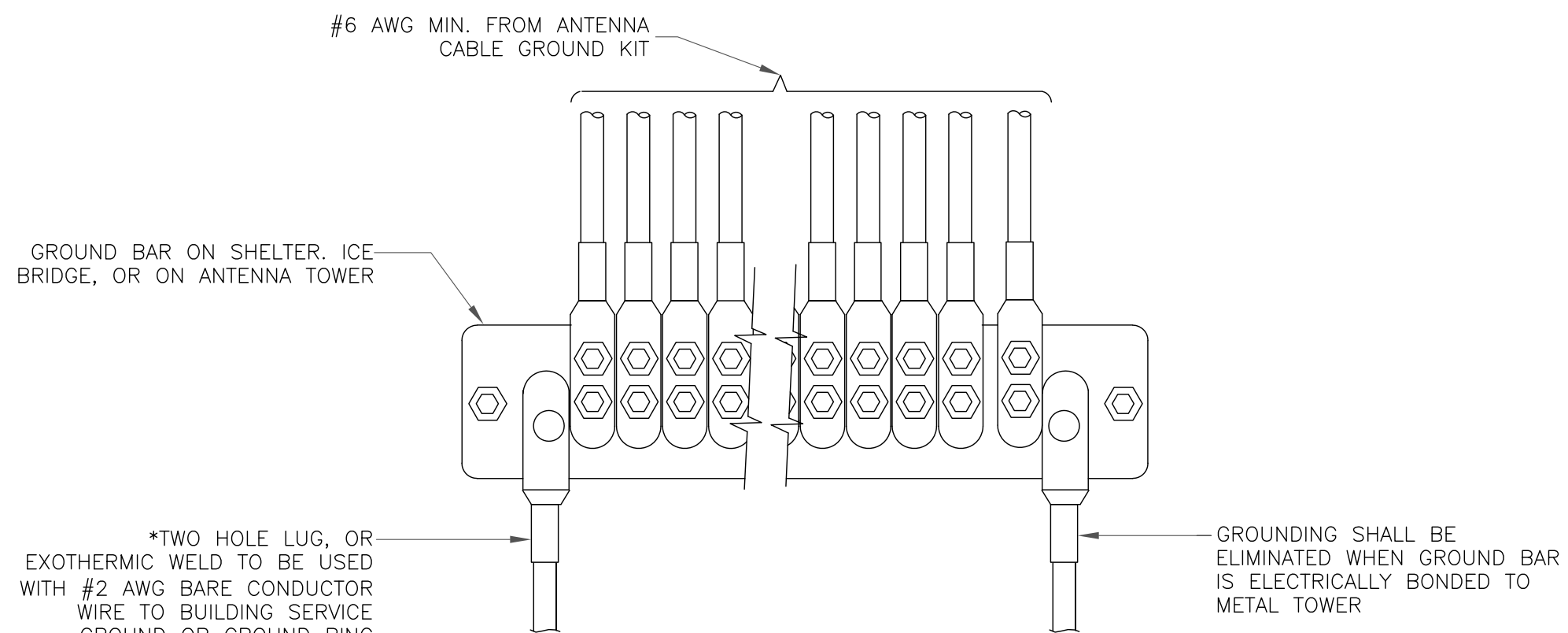
**7** LUG DETAIL  
 SCALE: NOT TO SCALE

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

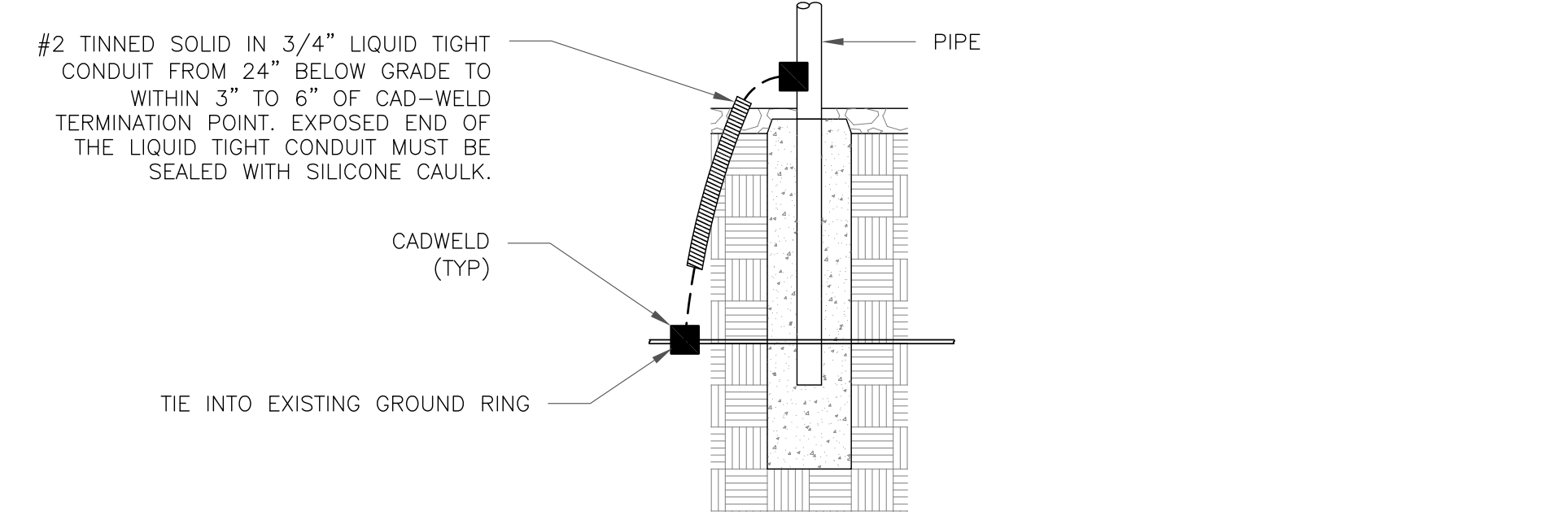


NOTES:  
 1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

**2** MECHANICAL LUG CONNECTION  
 SCALE: NOT TO SCALE



**5** GROUNDWIRE INSTALLATION  
 SCALE: NOT TO SCALE



**8** TRANSITIONING GROUND DETAIL  
 SCALE: NOT TO SCALE

**verizon**  
 20 ALEXANDER DRIVE, 2ND FLOOR  
 WALLINGFORD, CT 06492

**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:  
**324988**

BU #: **873128**  
**TRUMBULL**

800 BOOTH HILL RD.  
 TRUMBULL, CT 06611

EXISTING  
 458'-0" GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/9/22	TDG	CONSTRUCTION	CV

Professional Engineer Seal: No. 23924, Expires 6/9/22

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

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SHEET NUMBER: **G-2** REVISION: **0**

164150.001.01\_873128\_TRUMBULL.dwg - Sheet:G-2 - User: chad.vandergraft - Jun 09, 2022 - 1:11pm

# PROJECT NOTES

- SEE MODIFICATION NOTES
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
- THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).



## MOUNT MODIFICATION DRAWINGS EXISTING 11.92-FT T-FRAME

SITE NAME: TRUMBULL CT  
SITE NUMBER: 469207

800 BOOTH HILL RD  
TRUMBULL, CT 06611  
FAIRFIELD COUNTY

PROJECT INFORMATION	
<b>SITE INFORMATION</b>	
LATITUDE:	41.279111° N
LONGITUDE:	73.18525° W
JURISDICTION:	FAIRFIELD COUNTY
<b>APPLICANT/LESSEE</b>	
COMPANY:	VERIZON WIRELESS
<b>CLIENT REPRESENTATIVE</b>	
COMPANY:	VERIZON WIRELESS
ADDRESS:	118 FLANDERS ROAD, THIRD FLOOR
CITY, STATE, ZIP:	WESTBOROUGH, MA 01581
CONTACT:	ANDREW CANDIELLO
EMAIL:	ANDREW.CANDIELLO@VERIZONWIRELESS.COM
<b>PROJECT MANAGER</b>	
COMPANY:	MASER CONSULTING
CONTACT:	PETER ALBANO
PHONE:	856-797-0412
E-MAIL:	PETER.ALBANO@COLLIERSENGINEERING.COM

SHEET INDEX	
SHEET	DESCRIPTION
T-1	TITLE SHEET
S-1	BILL OF MATERIALS
S-2	MODIFICATION NOTES
S-3	MODIFICATION NOTES
S-4	MODIFICATION DETAILS
S-5	MODIFICATION DETAILS
S-6	MOUNT PHOTOS
	SPECIFICATION SHEETS

CONTRACTOR PMI REQUIREMENTS	
PMI LOCATION:	HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #:	10072487
VZW LOCATION CODE (PSLC):	469207
FUZE ID:	16231871

REFERENCED DOCUMENTS	
	FAILING MOUNT ANALYSIS REPORT
SMART TOOL PROJECT #:	10037954
MASER CONSULTING PROJECT #:	21777055A
ANALYSIS DATE:	5/20/2021

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

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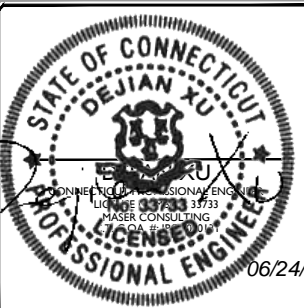
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06/24/2021

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TRUMBULL CT  
469207

800 BOOTH HILL RD  
TRUMBULL, CT 06611  
FAIRFIELD COUNTY

**MT. LAUREL OFFICE**  
2000 Madison Drive  
Suite 100  
Mount Laurel, NJ 08054  
Phone: 856.797.0412  
Fax: 856.722.1120

SHEET TITLE:  
TITLE SHEET

SHEET NUMBER:  
T-1



# BILL OF MATERIALS

VZWSMART KITS					
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	
6	VZWSMART	VZWSMART-SFK3	V-BRACING KIT	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET S-2	
OTHER REQUIRED PARTS					
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	
6	SITE PRO I	PUCK	ADJUSTABLE CLAMP PLATE	OR EOR APPROVED EQUAL, CONTACT MASER CONSULTING FOR APPROVAL OF SUBSTITUTION.	
3	-	-	84" LONG, P2.5 STD	GALVANIZED	
3	SITE PRO I	R5-REINF	R5 UNIVERSAL PIPE MOUNT REINFORCEMENT KIT	OR EOR APPROVED EQUAL, CONTACT MASER CONSULTING FOR APPROVAL OF SUBSTITUTION.	

**NOTE: 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	
<b>COMMSCOPE</b>	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM
<b>METROSITE FABRICATORS, LLC</b>	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM
<b>PERFECTVISION</b>	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSALES@PERFECT-VISION.COM
<b>SABRE INDUSTRIES, INC.</b>	
CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM
<b>SITE PRO 1</b>	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM

NOTE: WHEN SPECIFIED, VZWSMART KITS SHALL BE REQUIRED AND WILL BE VERIFIED DURING THE DESKTOP PMI



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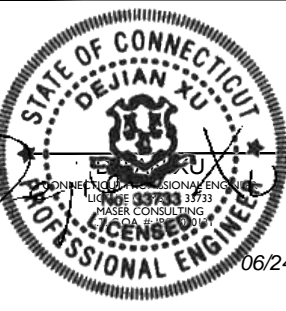
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 TRUMBULL, CT 06611  
 FAIRFIELD COUNTY

**MT. LAUREL OFFICE**  
 2000 Highlands Drive  
 Suite 100  
 Mount Laurel, NJ 08054  
  
 Phone: 856.797.0412  
 Fax: 856.722.1120

SHEET TITLE:  
**BILL OF MATERIALS**

SHEET NUMBER:  
**S-1**

**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 ANSITIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSITIA-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, ANSITIA-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.

**DESIGN LOADS**

- WIND LOADS**
- a. BASIC WIND SPEED (3 SECOND GUST), V = 118 MPH
  - b. EXPOSURE CATEGORY B
  - c. TOPOGRAPHIC CATEGORY I
  - d. MEAN BASE ELEVATION (AMSL) = 519.33'
- ICE LOADS**
- a. ICE WIND SPEED (3 SECOND GUST), V = 50 MPH
  - b. ICE THICKNESS = 1.00 IN
- SEISMIC LOADS**
- a. SEISMIC DESIGN CATEGORY B
  - b. SHORT TERM MCER GROUND MOTION, S<sub>s</sub> = .208
  - c. LONG TERM MCER GROUND MOTION, S<sub>l</sub> = .054

**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. 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.
9. 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.
10. FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
11. 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.
12. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.

13. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
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.

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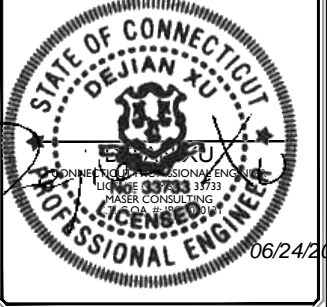
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 2000 Highlands Drive  
 Suite 100  
 Mount Laurel, NJ 08054  
 Phone: 856.797.0412  
 Fax: 856.722.1120

SHEET TITLE:  
**MODIFICATION NOTES**

SHEET NUMBER:  
**S-2**

M:\Projects\1080\Unsaved Drawings\1080-3.dwg 3 By: ANDY HANES

**MODIFICATION INSPECTION NOTES**

MI CHECKLIST	
CONSTRUCTION/ INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
<b>PRE-CONSTRUCTION</b>	
X	MI CHECKLIST DRAWING
X	EOB APPROVED SHOP DRAWINGS
NA	FABRICATION INSPECTION
NA	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
NA	FABRICATOR NDE INSPECTION
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
<b>CONSTRUCTION</b>	
X	CONSTRUCTION INSPECTIONS
NA	CONTRACTOR'S CERTIFIED WELD INSPECTION AND NDE REPORTS
X	ON SITE COLD GALVANIZING VERIFICATION
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
<b>POST-CONSTRUCTION</b>	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
X	VZW PMI DOCUMENTS
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT REQUIRED FOR THE MI REPORT  
 NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOB).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PURCHASE ORDER (PO) IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY.

**MI INSPECTOR**

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GC INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO EOR.

**GENERAL CONTRACTOR**

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

**RECOMMENDATIONS**

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- IT MAY BE BENEFICIAL TO INSTALL ALL MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW THE FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

**CORRECTION OF FAILING MI'S**

IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH THE OWNER TO COORDINATE A REMEDIATION PLAN:

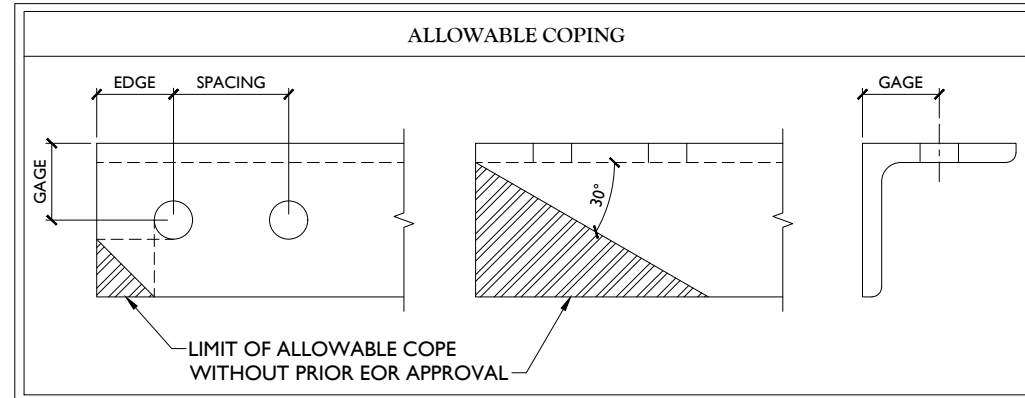
- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.

**REQUIRED PHOTOS**

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

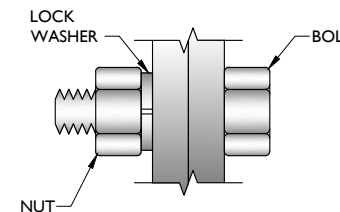
- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN ONLY FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.



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

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:**

- 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.
- THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
- SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
- MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.



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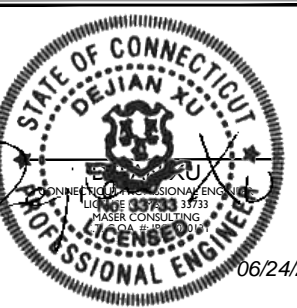
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SHEET TITLE:  
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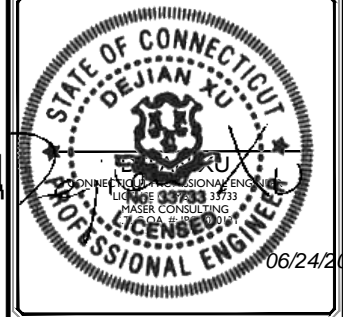
SHEET NUMBER:  
**S-3**





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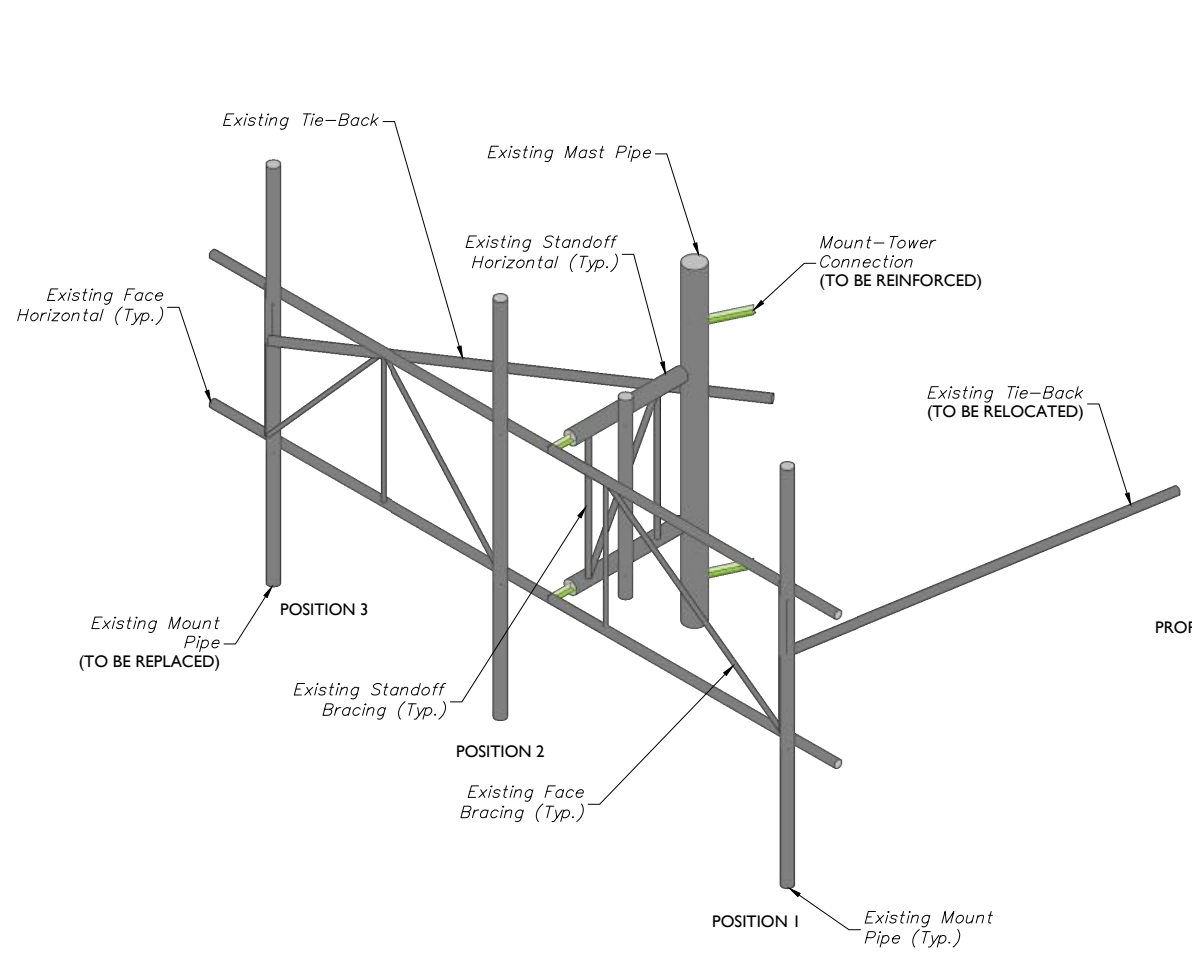
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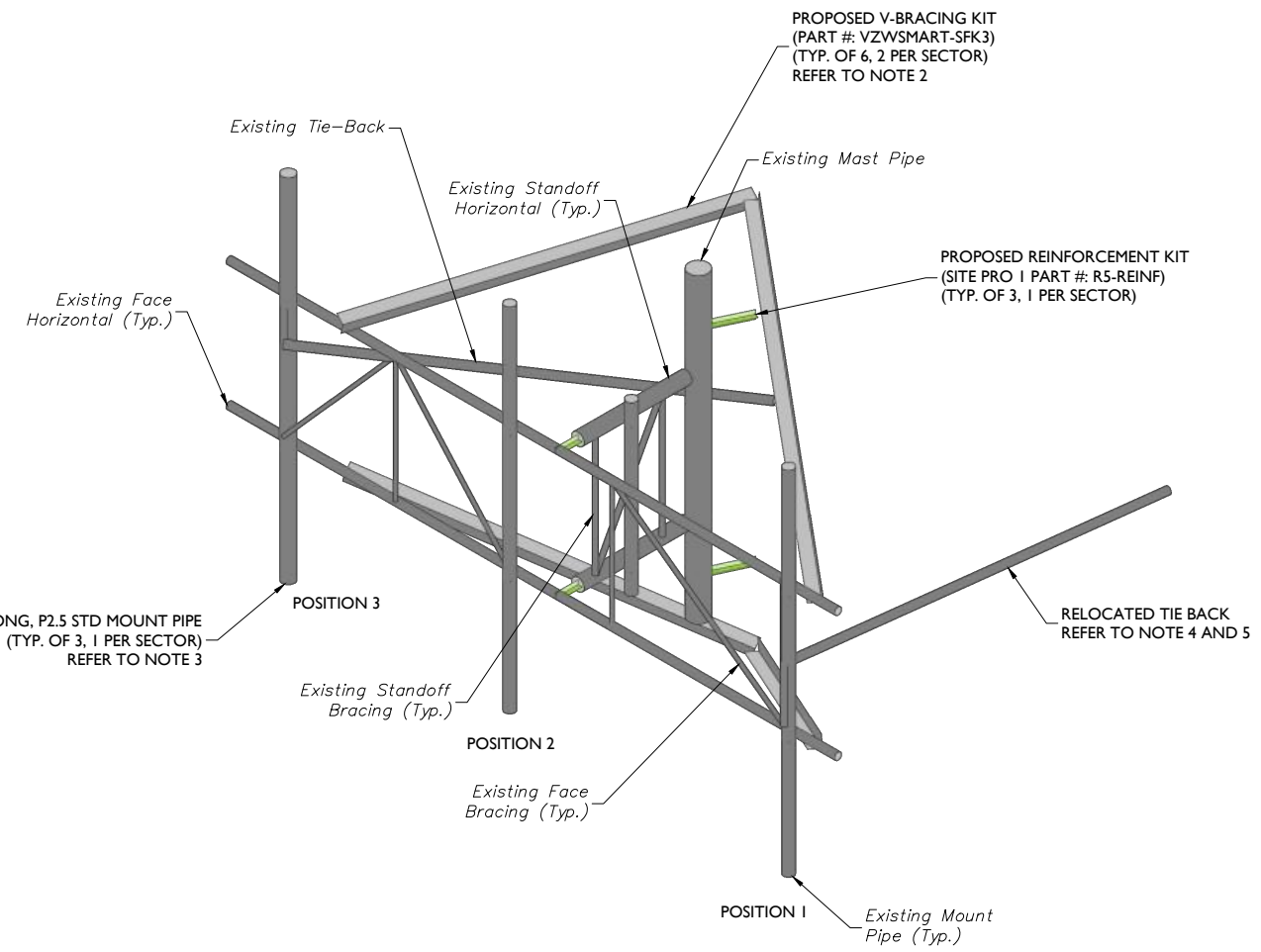
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SHEET TITLE:  
**MODIFICATION DETAILS**

SHEET NUMBER:  
**S-4**



**1** EXISTING T-FRAME ISOMETRIC VIEW (TYP. ALL SECTORS)  
 SCALE : N.T.S.



**2** PROPOSED T-FRAME ISOMETRIC VIEW (TYP. ALL SECTORS)  
 SCALE : N.T.S.

- STRUCTURAL NOTES:**
- PER THE MOUNT MAPPING COMPLETED BY PAUL J. FORD & COMPANY ON 4/17/2021, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (230'-9") ARE IN GOOD CONDITION. MASER DOES NOT WARRANT THIS INFORMATION.
  - 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.

- MODIFICATION NOTES:**
- MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.
  - CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET S-2.
  - CONNECT NEW MOUNT PIPE TO EXISTING HORIZONTAL WITH CROSSOVER PLATES (PART #: SITE PRO I - PUCK, OR EOR APPROVED EQUAL).
  - RELOCATE TIE BACK TO MOUNT PIPE WITH EXISTING CONNECTION HARDWARE.
  - TIE BACK SHALL EXTEND NO MORE THAN 12" BEYOND THE TOWER LEG. CONTRACTOR SHALL TRIM AS REQUIRED AND PROTECT CUT END WITH TWO COATS OF ZINGA OR ZINC COTE.

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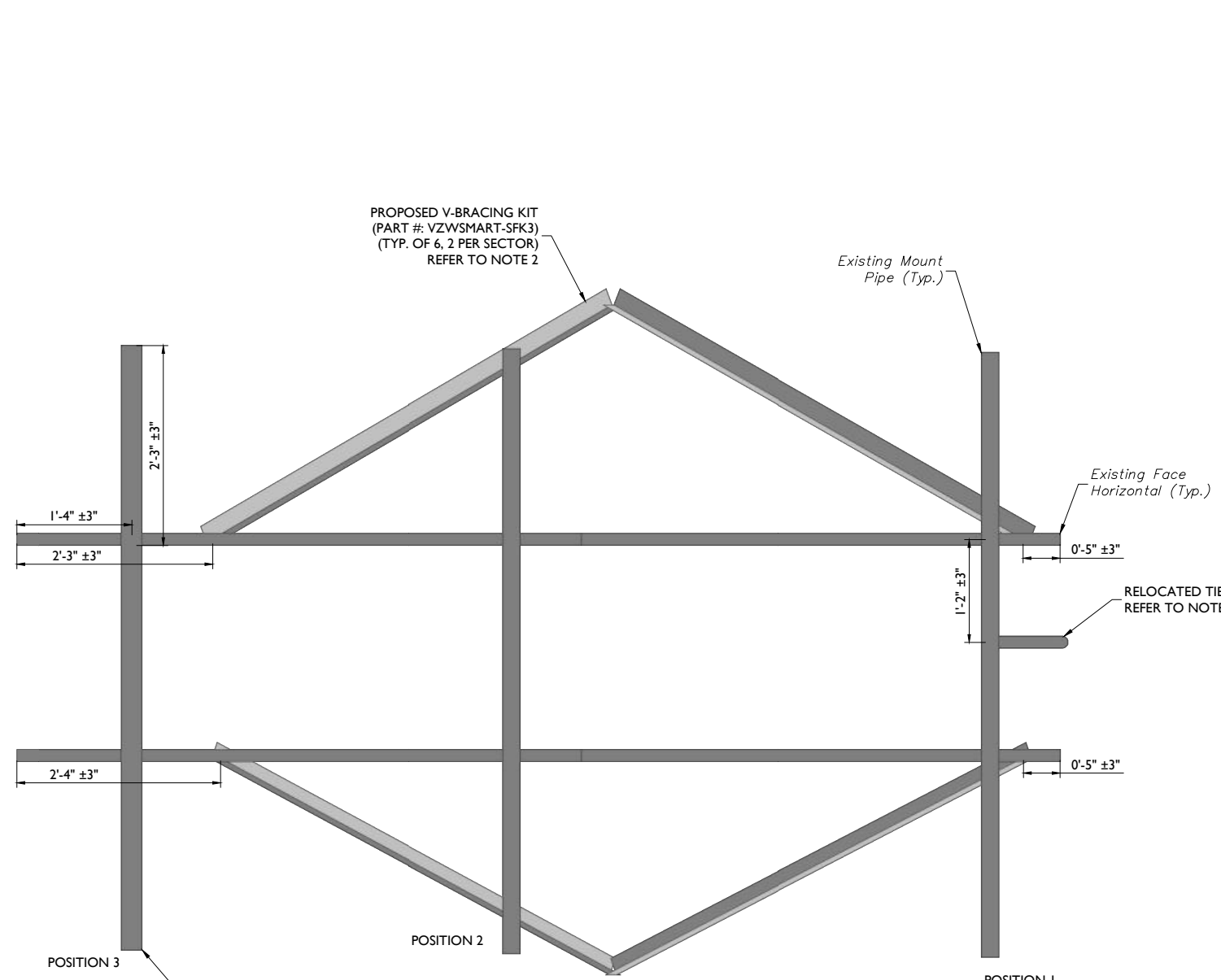
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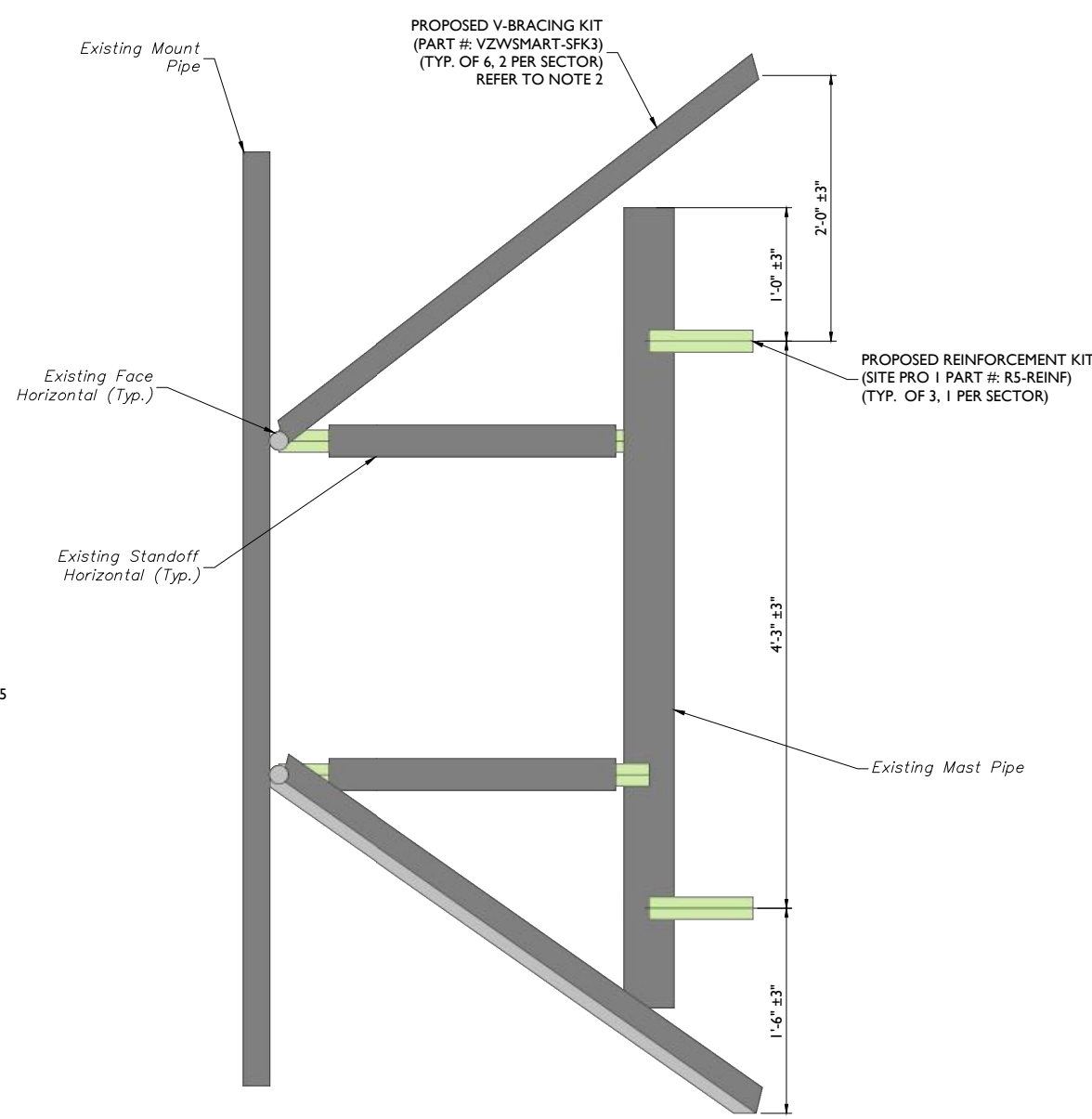
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SHEET TITLE:  
**MODIFICATION DETAILS**

SHEET NUMBER:  
**S-5**



**1** PROPOSED FRONT ELEVATION (TYP. ALL SECTORS)  
 SCALE: N.T.S.



**2** PROPOSED SIDE ELEVATION (TYP. ALL SECTORS)  
 SCALE: N.T.S.

**MODIFICATION NOTES:**

1. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.
2. CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET S-2.
3. CONNECT NEW MOUNT PIPE TO EXISTING HORIZONTAL WITH CROSSOVER PLATES (PART #: SITE PRO 1 - PUCK, OR EOR APPROVED EQUAL).
4. RELOCATE TIE BACK TO MOUNT PIPE WITH EXISTING CONNECTION HARDWARE.
5. TIE BACK SHALL EXTEND NO MORE THAN 12" BEYOND THE TOWER LEG. CONTRACTOR SHALL TRIM AS REQUIRED AND PROTECT CUT END WITH TWO COATS OF ZINGA OR ZINC COTE.





MOUNT PHOTO 1



MOUNT PHOTO 2



MOUNT PHOTO 3



MOUNT PHOTO 4



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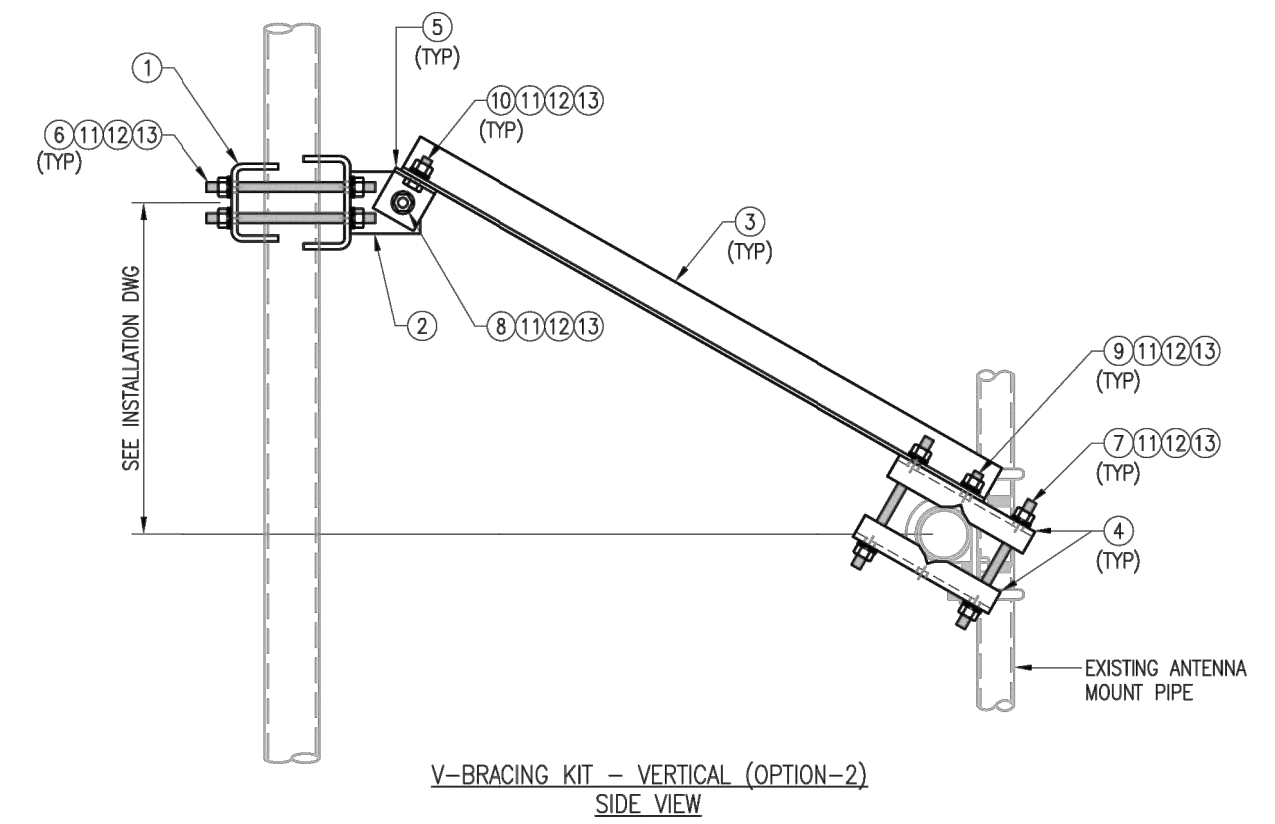
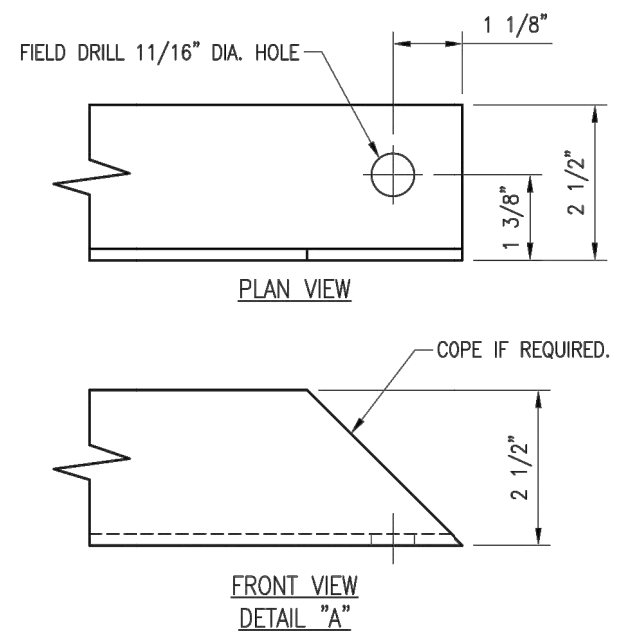
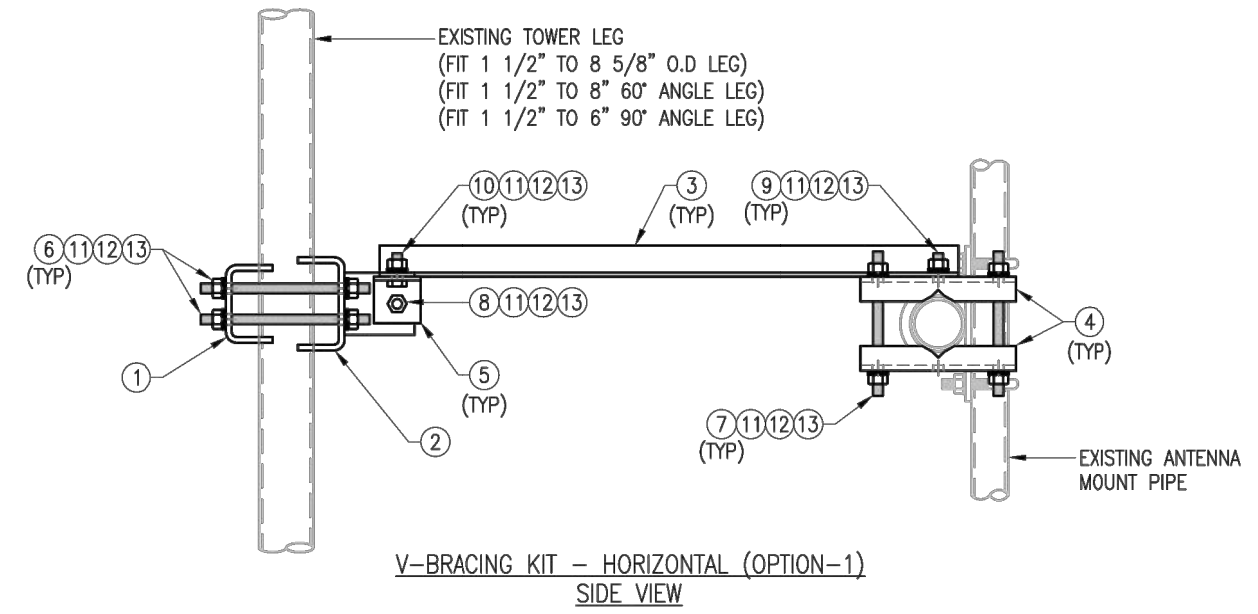
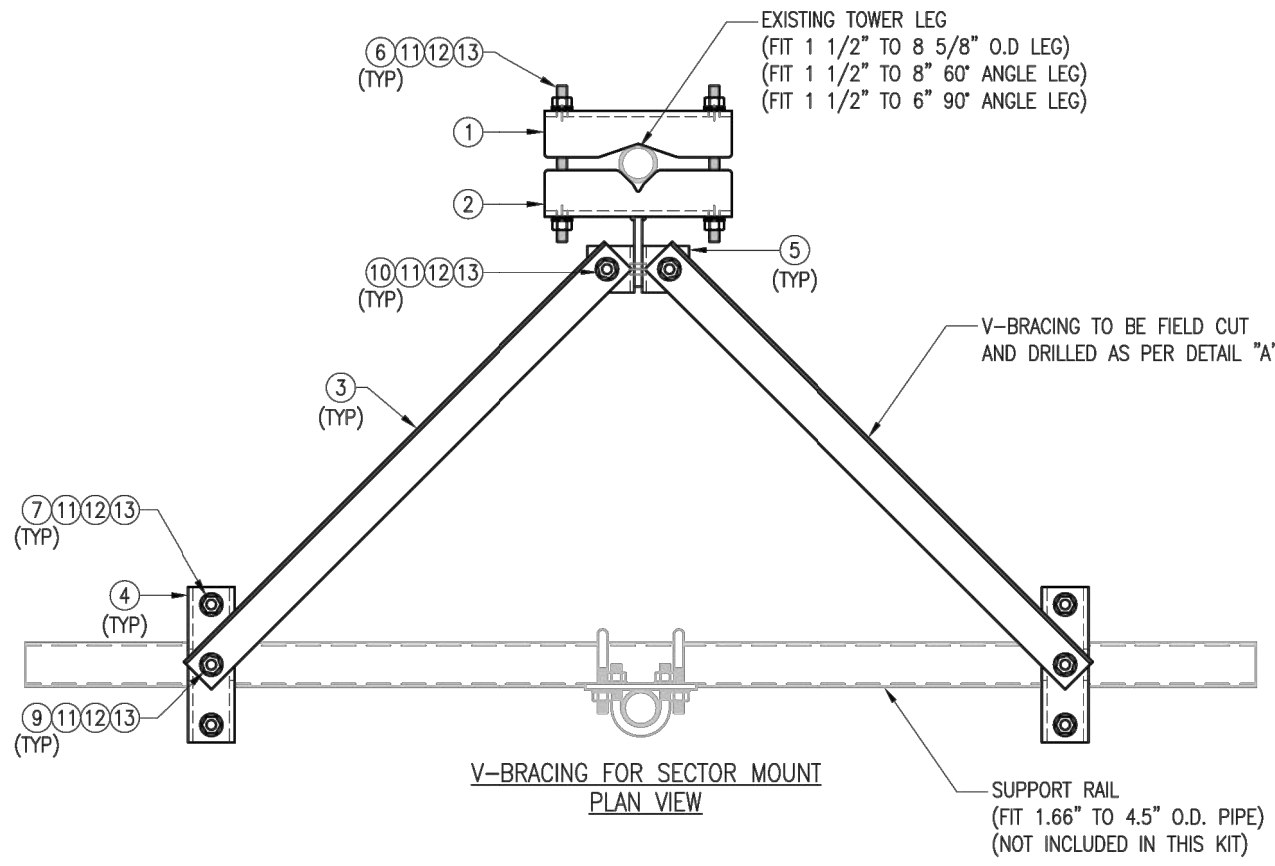
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SHEET TITLE:  
 MOUNT PHOTOS

SHEET NUMBER:  
 S-6





VZSMART-SFK3 (V-BRACING KIT)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	BP9625-12	PL 3/8" X 9 5/8" X 1'-0" A36 BENT PLATE	VBSM-F1	12
2	1	BRKW-VBSM	WELDMENT BRACKET	VBSM-F3	16
3	2	L252525-8	L 2 1/2" X 2 1/2" X 1/4" X 8'-0" A36	VBSM-F5	67
4	4	BP6875-10	PL 3/8" X 6 7/8" X 10" A36 BENT PLATE	VBSM-F2	20
5	2	AL-333	L 3" X 3" X 1/4" X 3" A36	VBSM-F2	3
6	4	---	THREADED ROD 5/8" DIA. X 1'-6" F1554-36 HDG	---	---
7	4	---	THREADED ROD 5/8" DIA. X 10" F1554-36 HDG	---	---
8	1	---	BOLT 5/8" X 2 1/4" A325	---	---
9	2	---	BOLT 5/8" X 2" A325	---	---
10	2	---	BOLT 5/8" X 1 3/4" A325	---	---
11	21	FW-625	5/8" HDG USS FLAT WASHER	---	2
12	21	LW-625	5/8" HDG LOCK WASHER	---	0
13	21	NUT-625	5/8" HDG HEX NUT	---	2
GALVANIZED WT					122

NOTES:  
 1. HOT-DIPPED GALVANIZED PER ASTM A123.

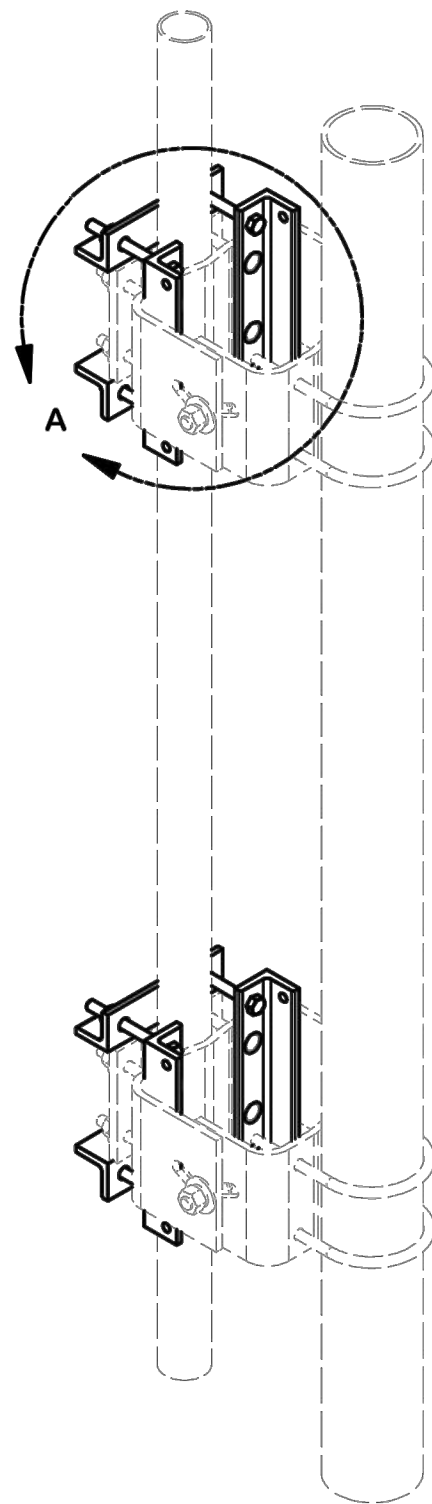
DRAWN BY: H.R. CHECKED BY: HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	H.R.	05/08/20

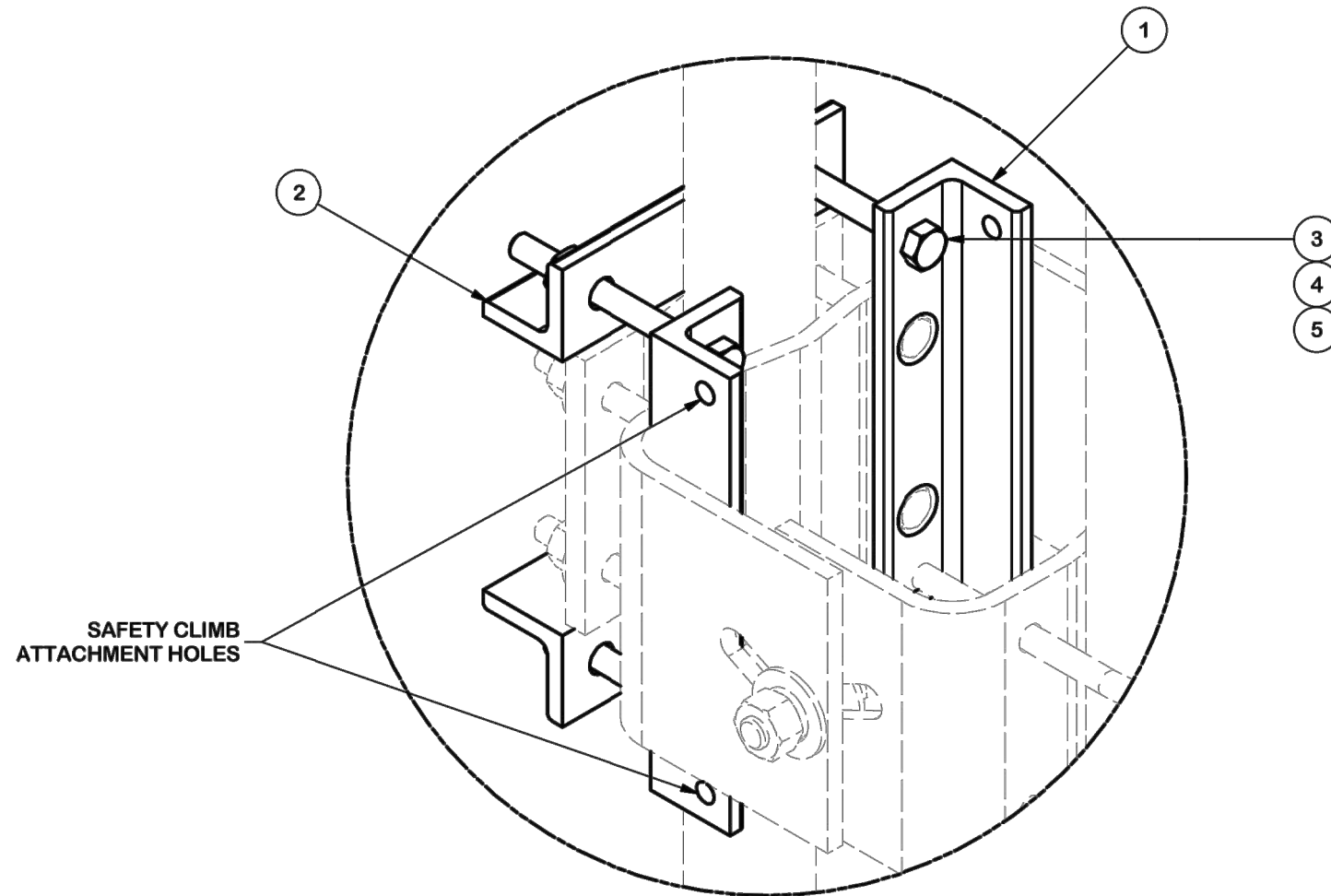
SHEET TITLE:

VZSMART-SFK3  
 V-BRACING KIT

SHEET NUMBER: VZSMART-SFK3 REV #: 0



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	4	X-R5-FRA1	REINFORCEMENT ANGLE	10 in	3.84	15.36
2	4	X-R5-RFA2	REINFORCEMENT ANGLE	7 1/8 in	2.86	11.45
3	8	G1208	1/2" x 8" HDG HEX BOLT GR5 FULL THREAD	8 in	0.49	3.94
3	8	G1205	1/2" x 5" HDG HEX BOLT GR5 FULL THREAD	5 in	0.33	2.61
4	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
5	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
					TOTAL WT. #	34.04



SAFETY CLIMB ATTACHMENT HOLES

DETAIL A

**TOLERANCE NOTES**

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

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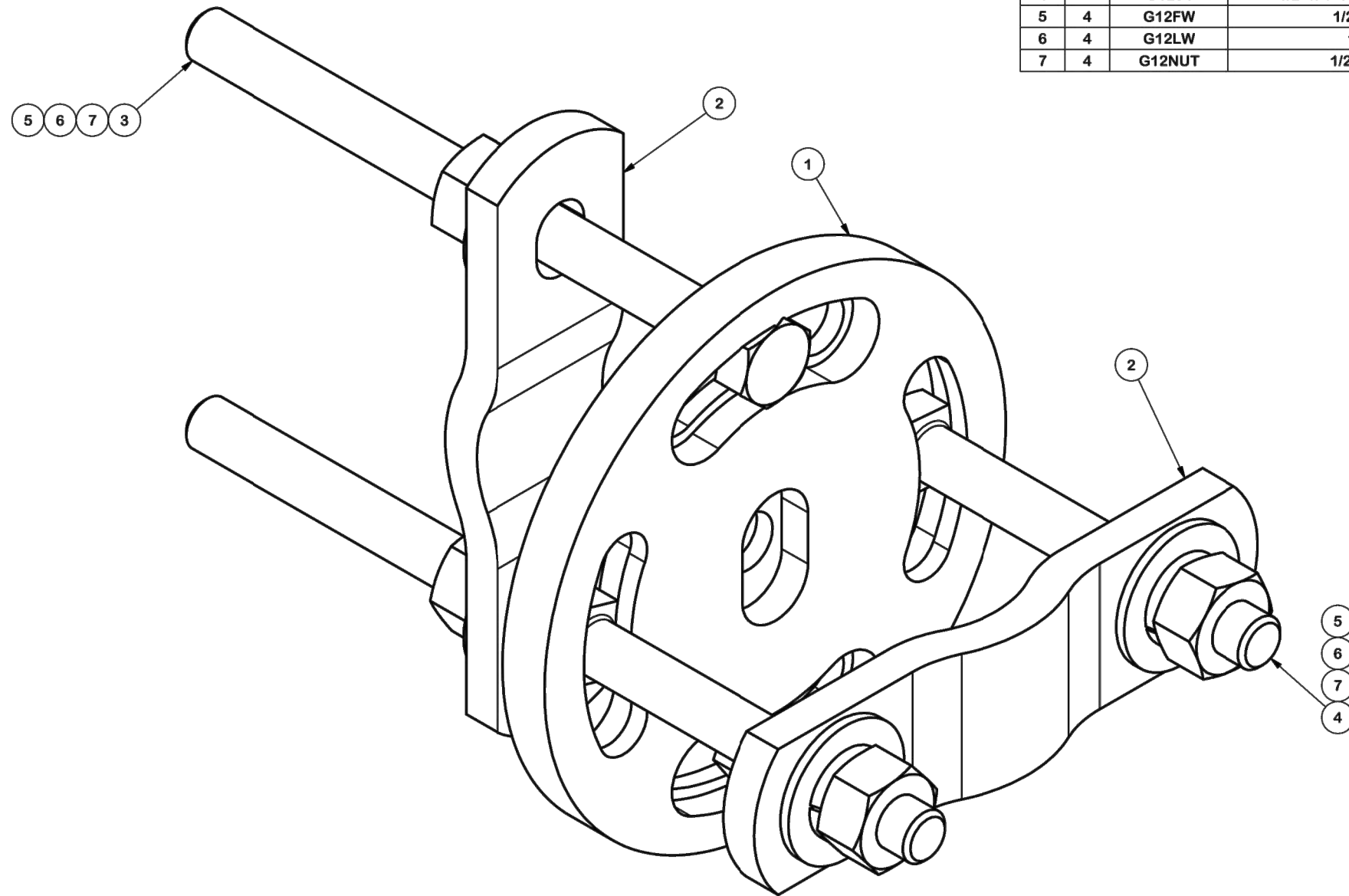
DESCRIPTION  
**R5 UNIVERSAL PIPE MOUNT REINFORCEMENT KIT**

CPD NO.	DRAWN BY	ENG. APPROVAL
	JFS 4/22/2020	5/6/2020
CLASS	SUB	DRAWING USAGE
81	02	CUSTOMER

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 Plymouth, IN  
 Salem, OR  
 Dallas, TX  
 A valmont COMPANY

PART NO.	<b>R5-REINF</b>
DWG. NO.	<b>R5-REINF</b>





PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALVANIZED)		2.48	2.48
2	2	X-100064	CLAMP (S) (4" V-CLAMP) GALVANIZED		0.91	1.83
3	2	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	0.82
4	2	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	0.54
5	4	G12FW	1/2" HDG USS FLATWASHER		0.03	0.14
6	4	G12LW	1/2" HDG LOCKWASHER		0.01	0.06
7	4	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.29
TOTAL WT. #						6.16

**TOLERANCE NOTES**

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

PROPRIETARY NOTE:  
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DESCRIPTION

ADJUSTABLE CLAMP PLATE  
 TIE-BACK ASSEMBLY

CPD NO.	DRAWN BY	ENG. APPROVAL
	CEK 8/30/2010	
CLASS	SUB	DRAWING USAGE
81	01	CUSTOMER
		CHECKED BY
		BMC 9/1/2010



Engineering  
 Support Team:  
 1-888-753-7446

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

PART NO.	PUCK
DWG. NO.	PUCK

# Exhibit D

## **Structural Analysis Report**

Date: **April 30, 2021**



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

**Subject: Structural Analysis Report**

**Carrier Designation:** **Verizon Wireless Co-Locate**  
**Site Number:** 469207  
**Site Name:** Trumbull CT

**Crown Castle Designation:** **BU Number:** 873128  
**Site Name:** Trumbull  
**JDE Job Number:** 644622  
**Work Order Number:** 1953756  
**Order Number:** 552699 Rev. 0

**Engineering Firm Designation:** **TEP Project Number:** 25575.535124

**Site Data:** **800 Booth Hill Rd., Trumbull, Fairfield County, CT 06611**  
**Latitude 41° 16' 44.26", Longitude -73° 11' 6.40"**  
**457 Foot - Guyed Tower**

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

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

LC7: Proposed Equipment Configuration

**Sufficient Capacity – 99.4%**

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

Structural analysis prepared by: Gautam Sopal, E.I. / DEN

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

04/30/2021

## TABLE OF CONTENTS

### 1) INTRODUCTION

### 2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Other Considered Equipment

### 3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

### 4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 - Tower Component Stresses vs. Capacity

4.1) Recommendations

### 5) APPENDIX A

tnxTower Output

### 6) APPENDIX B

Base Level Drawing

### 7) APPENDIX C

Additional Calculations

## 1) INTRODUCTION

This tower is a 457-ft guyed tower designed by Blaw Knox and mapped by Pinnacle Towers in July of 2003. The tower has been modified multiple times in the past to accommodate additional loading.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	125 mph
<b>Exposure Category:</b>	B
<b>Topographic Factor:</b>	1.0
<b>Ice Thickness:</b>	1.5 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Service Wind Speed:</b>	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)
230.0	238.0	1	Raycap	RRFDC-3315-PF-48	2 6	1-5/8 7/8
	232.0	6	Commscope	JAHH-65B-R3B w/ Mount Pipe		
		3	Vzw	Sub6 Antenna - VZS01 w/ Mount Pipe		
		2	Andrew	LNX-8513DS-VTM w/ Mount Pipe		
		1	Andrew	LNX-6514DS-VTM w/ Mount Pipe		
		1	Raycap	RRFDC-3315-PF-48		
		3	Commscope	CBC78T-DS-43-2X		
		3	Samsung Telecom.	RFV01U-D1A		
		3	Samsung Telecom.	RFV01U-D2A		
	230.0	1	Tower Mounts	Sector Mount [SM 407-3]		

**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)
458.0	477.0	1	RFS Celwave	SAA18-O4A-J480-ET5R-21	1	4-1/16
450.0	450.0	2	Commscope	USX6-6W-6GR	6 12	1/2 1/4
		4	SAF	MXM Repeater MK2		
		2	Tower Mounts	Pipe Mount [PM 601-1]		
441.0	451.0	1	Sinclair	SRL-235-2	1	7/8
	441.0	1	Tower Mounts	Side Arm Mount [SO 308-1]		
439.0	445.0	1	Antel	BCD-87077	1	2-1/4
	439.0	1	Tower Mounts	Side Arm Mount [SO 308-1]		
420.0	420.0	3	ERI	1183-3CP	3	3

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	
393.0	393.0	3	Shively Labs	6014-2	1	4	
					1	1-5/8	
388.0	388.0	3	Shively Labs	6014-2	1	2-1/4	
367.0	367.0	1	Shively Labs	6828-2	1	4	
364.0	368.0	1	Andrew	DB806E-XT	-	-	
	364.0	1	Tower Mounts	Side Arm Mount [SO 601-1]			
344.0	354.0	1	RFS Celwave	455-6	1	1/2	
	344.0	1	Tower Mounts	Side Arm Mount [SO 601-1]			
342.0	352.0	1	RFS Celwave	455-6	1	1-1/4 1/2	
	350.0	1	Antel	BCD-87077			
	347.0	1	RFS Celwave	A09009-3			
	342.0		1	Tower Mounts			Side Arm Mount [SO 601-1]
			1	Tower Mounts			Side Arm Mount [SO 303-1]
		1	Tower Mounts	Side Arm Mount [SO 305-1]			
340.0	350.0	1	RFS Celwave	455-6	1	7/8	
	340.0	1	Tower Mounts	Side Arm Mount [SO 308-1]			
330.0	335.0	1	Andrew	PG1N0F-0090-310	1	1-5/8	
	330.0	1	Tower Mounts	Side Arm Mount [SO 601-1]	1	1-1/4	
328.0	328.0	1	Dielectric	7P-C1-2-CP-L	1	3-1/2	
		3	Tower Mounts	Side Arm Mount [SO 701-1]			
326.0	329.0	1	Decibel	DB201-A	-	-	
	326.0	1	Tower Mounts	Side Arm Mount [SO 602-1]			
325.0	325.0	1	Decibel	DB408	1	1-1/4	
		1	Tower Mounts	Side Arm Mount [SO 303-1]			
322.0	327.0	1	Sinclair	SRL-310C-4HD	1	1-1/4 1/2	
		1	Radiowaves	SPD3-5.8			
	322.0	1	Tower Mounts	Side Arm Mount [SO 308-1]			
		1	Tower Mounts	Pipe Mount [PM 601-1]			
310.0	316.0	3	Shively Labs	6014-2	1	1-5/8	
	306.0	3	Shively Labs	6014-2			
284.0	284.0	1	Andrew	DB404-B w/ Mount Pipe	-	-	
277.0	283.0	1	RFS Celwave	BMR10-A-B1	1	1-5/8	
264.0	273.0	1	Telewave	ANT150F6	1	1-5/8	
	264.0	1	Tower Mounts	Side Arm Mount [SO 303-1]			
255.0	261.0	1	Decibel	DB809KT3E-Y	1	1-1/4	
	255.0	1	Tower Mounts	Side Arm Mount [SO 203-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
247.0	247.0	3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe	3 6	1-5/8 7/8
		3	Ericsson	AIR6449 B41_T-Mobile w/ Mount Pipe		
		3	Ericsson	AIR 32 B2A B66AA_T-Mobile w/ Mount Pipe		
		3	Ericsson	RADIO 4449 B12/B71		
		3	Ericsson	KRY 112 144/2		
		3	Ericsson	RRUS 4415 B25_CCIV2		
		1	Commscope	SDX1926Q-43		
206.0	206.0	1	Mark	P-9A72GN-U	1	7/8
200.0	200.0	1	Gabriel Electronics	DFPD1-52 w/ Mount Pipe	1	1/4
188.0	188.0	1	PCTEL	BMVD745K	-	-
186.0	186.0	1	Decibel	ASP-960	-	-
178.0	178.0	1	Radiowaves	SPD4-5.2	1	1/2
150.0	150.0	1	Andrew	HPX6-65-P3A	2	EW63
146.0	146.0	1	Andrew	PL6-65-PXA	1	EW63
		1	Tower Mounts	Pipe Mount [PM 601-1]	1	EW52
140.0	140.0	1	Channel Master	CM 4228HD	1	3/8
136.0	138.0	1	RFS Celwave	MGA2-16N	3	3/8
	136.0	1	CSI-Cellular Specialties	CSI-AY/809-960/11		
	135.0	1	Channel Master	CM 4228HD		
	134.0	1	RFS Celwave	MGAR3-23N		
133.0	143.0	1	RFS Celwave	220-5	2 1	7/8 1/2
	142.0	1	Decibel	DB264-A		
	133.0	1	Tower Mounts	Side Arm Mount [SO 601-1]		
		1	Tower Mounts	Side Arm Mount [SO 202-1]		
117.0	117.0	1	Mark	P-9A48GN-U	1	7/8
109.0	113.0	1	Celwave	PD1132-D	1	7/8
	109.0	1	Tower Mounts	Side Arm Mount [SO 202-1]		
108.0	108.0	1	Mark	SSH-9A72GN	1	7/8
99.0	99.0	1	Ligowave	PTP 900-13 w/ Mount Pipe	1	7/8
		1	Radiowaves	SPD2-5.8	1	1/4
75.0	75.0	-	-	-	1	1-5/8
62.0	68.0	1	Mark	P-9A48GN-U	3	7/8
	62.0	2	Tower Mounts	Side Arm Mount [SO 601-1]		
	61.0	1	Mark	SSH-9A72GN		
	54.0	1	CSI-Cellular Specialties	CSI-AY/809-960/11		

### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Reference	Source
Geotechnical Report	1418454	CCISites
Tower Foundation Mapping	1520339	CCISites
Tower Mapping Report	1327906	CCISites
Tower Reinforcement Drawings	2407618	CCISites
Post-Modification Inspection	1956007	CCISites
Tower Reinforcement Drawings	2633757	CCISites
Post-Modification Inspection	2438393	CCISites
Tower Reinforcement Drawings	2755396	CCISites
Post-Modification Inspection	3417531	CCISites
Tower Reinforcement Drawings	3006419	CCISites
Post-Modification Inspection	5760315	CCISites
Tower Reinforcement Drawings	5592838	CCISites
Post-Modification Inspection	3442609	CCISites
Appurtenance Mapping	1327906	CCISites

#### 3.1) Analysis Method

tnxTower (version 8.0.9.0), 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.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the reinforced leg sections. These calculations are presented in Appendix C.

#### 3.2) Assumptions

- 1) The tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.
- 3) Per photos from CCI Sites, the termination and stitch welds of the reinforcing sleeves to the tower legs at 361-ft to 401-ft were assumed to be 3/16" fillet welds by 3" long. The end gaps between the sleeves and the flange were assumed to be 12".
- 4) The following material grades were assumed:
  - a) Leg Grade: A7-33
  - b) Original Bracing Grade: A7-33
  - c) Original Connection Bolts: A307
  - d) 2L3-1/2x3-1/2x3/8 Pull-off: A36
  - e) 2L3x3x3/16 Bottom Torque Arm Members: A36
  - f) Top Torque Arm Members: A36
- 5) TEP could not analyze the base casting as its thickness was not provided. TEP recommends a base casting thickness be obtained prior to modification. TEP assumes the base casting is sufficient for the purposes of this analysis.

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



#### 4) ANALYSIS RESULTS

**Table 4 - Section Capacity (Summary)**

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	$\phi P_{allow}$ (k)	% Capacity	Pass / Fail
T1	457 - 436	Leg	3	2	-31.06	156.82	19.8	Pass
T2	436 - 421	Leg	2 3/4	44	-50.10	128.26	39.1	Pass
T3	421 - 401	Leg	2 3/4	74	-98.26	128.26	76.6	Pass
T4	401 - 396	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	Note 1	Note 1	Note 1	79.1	Pass
T5	396 - 391	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	Note 1	Note 1	Note 1	79.1	Pass
T6	391 - 386	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	Note 1	Note 1	Note 1	79.1	Pass
T7	386 - 381	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	Note 1	Note 1	Note 1	79.1 82.3 (b)	Pass
T8	381 - 376	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	Note 1	Note 1	Note 1	71.2	Pass
T9	376 - 371	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	Note 1	Note 1	Note 1	71.2	Pass
T10	371 - 366	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	Note 1	Note 1	Note 1	71.2	Pass
T11	366 - 361	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	Note 1	Note 1	Note 1	71.2	Pass
T12	361 - 341	Leg	3	191	-144.16	204.05	70.6	Pass
T13	341 - 321	Leg	3	236	-117.87	161.86	72.8	Pass
T14	321 - 301	Leg	3	269	-102.65	161.86	63.4	Pass
T15	301 - 281	Leg	3	302	-114.75	161.86	70.9	Pass
T16	281 - 276	Leg	3	335	-119.58	161.86	73.9	Pass
T17	276 - 271	Leg	3	344	-124.57	161.86	77.0	Pass
T18	271 - 266	Leg	3	353	-130.98	161.86	80.9	Pass
T19	266 - 261	Leg	3	365	-136.50	161.86	84.3	Pass
T20	261 - 256	Leg	3	377	-147.85	161.86	91.3	Pass
T21	256 - 251	Leg	3	386	-152.12	204.05	74.5	Pass
T22	251 - 246	Leg	3	398	-123.02	161.86	76.0	Pass
T23	246 - 241	Leg	3	410	-114.15	204.05	55.9	Pass
T24	241 - 221	Leg	3	427	-117.01	161.86	72.3	Pass
T25	221 - 201	Leg	3 1/4	458	-142.62	198.84	71.7	Pass
T26	201 - 181	Leg	3 1/4	491	-154.50	198.84	77.7	Pass
T27	181 - 161	Leg	3 1/4	524	-155.36	198.84	78.1	Pass
T28	161 - 141	Leg	3 1/2	557	-146.06	239.13	61.1	Pass
T29	141 - 121	Leg	3 1/2	592	-139.54	239.13	58.4	Pass
T30	121 - 101	Leg	3 1/2	623	-174.90	239.13	73.1	Pass
T31	101 - 81	Leg	3 1/2	657	-194.04	239.13	81.1	Pass
T32	81 - 61	Leg	3 1/2	690	-197.11	239.13	82.4	Pass
T33	61 - 41	Leg	3 1/2	723	-193.36	239.13	80.9	Pass
T34	41 - 20	Leg	3 1/2	757	-186.64	233.63	79.9	Pass
T35	20 - 6.70833	Leg	3 1/4	787	-187.66	209.10	89.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	$\phi P_{allow}$ (k)	% Capacity	Pass / Fail
T36	6.70833 - 0	Leg	3 1/4	811	-191.96	245.06	78.3	Pass
T1	457 - 436	Diagonal	L2 1/2x2x1/4	14	-3.41	24.60	13.8 36.4 (b)	Pass
T2	436 - 421	Diagonal	L2 1/2x2x3/16	50	-4.91	19.15	25.7 30.3 (b)	Pass
T3	421 - 401	Diagonal	L2 1/2x2x3/16	83	-7.37	19.15	38.5 51.1 (b)	Pass
T4	401 - 396	Diagonal	L2 1/2x2x3/16	110	-7.85	19.15	41.0 54.2 (b)	Pass
T5	396 - 391	Diagonal	L2 1/2x2x3/16	119	-8.54	19.15	44.6 59.9 (b)	Pass
T6	391 - 386	Diagonal	L2 1/2x2x3/16	131	-10.94	19.15	57.1 68.5 (b)	Pass
T7	386 - 381	Diagonal	L2 1/2x2x3/16	143	-10.37	19.15	54.1 81.4 (b)	Pass
T8	381 - 376	Diagonal	L2 1/2x2x3/16	157	-7.98	19.15	41.7 65.6 (b)	Pass
T9	376 - 371	Diagonal	L2 1/2x2x3/16	166	-9.30	19.15	48.6 57.7 (b)	Pass
T10	371 - 366	Diagonal	L2 1/2x2x3/16	178	-8.19	19.15	42.8 58.2 (b)	Pass
T11	366 - 361	Diagonal	L2 1/2x2x3/16	187	-7.67	19.15	40.1 53.0 (b)	Pass
T12	361 - 341	Diagonal	L2 1/2x2x3/16	229	-7.12	19.15	37.2 48.3 (b)	Pass
T13	341 - 321	Diagonal	L2 1/2x2x3/16	268	-4.53	19.15	23.6 31.8 (b)	Pass
T14	321 - 301	Diagonal	L2 1/2x2x3/16	280	-3.19	19.15	16.6 28.9 (b)	Pass
T15	301 - 281	Diagonal	L2 1/2x2x3/16	313	-5.36	19.15	28.0 48.6 (b)	Pass
T16	281 - 276	Diagonal	L2 1/2x2x3/16	340	-5.90	19.15	30.8 42.1 (b)	Pass
T17	276 - 271	Diagonal	L2 1/2x2x3/16	349	-6.75	19.15	35.3 46.4 (b)	Pass
T18	271 - 266	Diagonal	L2 1/2x2x3/16	361	-6.63	19.15	34.6 54.3 (b)	Pass
T19	266 - 261	Diagonal	L2 1/2x2x3/16	373	-8.11	19.15	42.4 51.7 (b)	Pass
T20	261 - 256	Diagonal	L3x3x1/4	383	13.05	43.98	29.7 73.9 (b)	Pass
T21	256 - 251	Diagonal	L3x3x1/4	390	16.96	43.98	38.6 95.9 (b)	Pass
T22	251 - 246	Diagonal	L3x3x1/4	404	-12.19	42.35	28.8 69.0 (b)	Pass
T23	246 - 241	Diagonal	L3x3x1/4	417	10.98	43.98	25.0 62.1 (b)	Pass
T24	241 - 221	Diagonal	L3x3x1/4	452	-9.93	42.35	23.4 56.2 (b)	Pass
T25	221 - 201	Diagonal	L2 1/2x2x3/16	485	-6.44	19.15	33.6 58.3 (b)	Pass
T26	201 - 181	Diagonal	L2 1/2x2x3/16	518	-3.79	19.15	19.8 34.3 (b)	Pass
T27	181 - 161	Diagonal	L2 1/2x2x3/16	535	-4.08	19.15	21.3 37.0 (b)	Pass
T28	161 - 141	Diagonal	L3x3x1/4	568	-7.30	42.42	17.2 32.7 (b)	Pass
T29	141 - 121	Diagonal	L3x3x1/4	614	9.44	42.91	22.0 43.6 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	$\phi P_{allow}$ (k)	% Capacity	Pass / Fail
T30	121 - 101	Diagonal	L2 1/2x2x3/16	652	-5.95	19.15	31.1 40.9 (b)	Pass
T31	101 - 81	Diagonal	L2 1/2x2x3/16	687	-3.78	19.15	19.8 34.2 (b)	Pass
T32	81 - 61	Diagonal	L2 1/2x2x3/16	698	-1.92	19.15	10.0 17.4 (b)	Pass
T33	61 - 41	Diagonal	L2 1/2x2x3/16	732	-3.99	19.15	20.8 36.1 (b)	Pass
T34	41 - 20	Diagonal	L2 1/2x2x3/16	768	-6.04	18.87	32.0 54.6 (b)	Pass
T35	20 - 6.70833	Diagonal	L2x2x3/16	791	-2.20	18.53	11.8 19.9 (b)	Pass
T36	6.70833 - 0	Diagonal	L2x2x3/16	815	-4.57	22.58	20.2 41.4 (b)	Pass
T1	457 - 436	Horizontal	L2 1/2x2x1/4	35	-1.17	16.40	7.1 10.6 (b)	Pass
T2	436 - 421	Horizontal	L2 1/2x2x1/4	67	-0.87	16.31	5.3 12.9 (b)	Pass
T12	361 - 341	Secondary Horizontal	L2x2x1/4	208	-2.50	23.78	10.5 25.8 (b)	Pass
T21	256 - 251	Secondary Horizontal	2L3 1/2x3 1/2x3/8x3/8	396	25.48	154.20	16.5 72.1 (b)	Pass
T23	246 - 241	Secondary Horizontal	2L3 1/2x3 1/2x3/8x3/8	424	1.98	154.20	1.3 5.6 (b)	Pass
T1	457 - 436	Top Girt	C8x13.75	6	-0.00	68.63	0.2	Pass
T2	436 - 421	Top Girt	L2 1/2x2x1/4	10	-0.87	16.31	5.3 10.5 (b)	Pass
T3	421 - 401	Top Girt	L2 1/2x2x1/4	49	-1.70	16.31	10.4 15.4 (b)	Pass
T4	401 - 396	Top Girt	L2 1/2x2x1/4	79	-1.97	16.65	11.8 17.8 (b)	Pass
T6	391 - 386	Top Girt	L2 1/2x2x1/4	130	-2.59	12.29	21.1	Pass
T10	371 - 366	Top Girt	L2 1/2x2x1/4	172	-2.80	12.39	22.6	Pass
T12	361 - 341	Top Girt	L2 1/2x2x1/4	184	-2.50	16.40	15.2 22.6 (b)	Pass
T13	341 - 321	Top Girt	L2 1/2x2x1/4	196	-2.04	16.40	12.5 18.5 (b)	Pass
T14	321 - 301	Top Girt	L2 1/2x2x1/4	241	-1.78	16.40	10.8 16.1 (b)	Pass
T15	301 - 281	Top Girt	L2 1/2x2x3/16	274	-1.99	12.63	15.7 18.0 (b)	Pass
T16	281 - 276	Top Girt	L2 1/2x2x1/4	307	-2.07	16.40	12.6 18.8 (b)	Pass
T18	271 - 266	Top Girt	L2 1/2x2x1/4	358	-2.27	16.40	13.8 20.5 (b)	Pass
T20	261 - 256	Top Girt	L2 1/2x2x3/16	369	-5.80	12.63	46.0 52.6 (b)	Pass
T22	251 - 246	Top Girt	L2 1/2x2x3/16	402	-6.23	12.63	49.3 56.4 (b)	Pass
T24	241 - 221	Top Girt	L2 1/2x2x3/16	414	-2.03	12.63	16.0 18.4 (b)	Pass
T25	221 - 201	Top Girt	L2 1/2x2x3/16	430	-2.47	12.70	19.5 22.4 (b)	Pass
T26	201 - 181	Top Girt	L2 1/2x2x3/16	463	-2.68	12.70	21.1 24.2 (b)	Pass
T27	181 - 161	Top Girt	2L3x2x1/4x3/8	496	-2.69	61.59	4.4 12.2 (b)	Pass
T28	161 - 141	Top Girt	L2 1/2x2x3/16	529	-2.53	12.76	19.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	$\phi P_{allow}$ (k)	% Capacity	Pass / Fail
							22.9 (b)	
T29	141 - 121	Top Girt	L2 1/2x2x3/16	561	-2.42	12.76	18.9 21.9 (b)	Pass
T30	121 - 101	Top Girt	L2 1/2x2x3/16	594	-7.15	12.76	56.0 64.8 (b)	Pass
T31	101 - 81	Top Girt	L2 1/2x2x3/16	626	-3.36	12.76	26.3 30.4 (b)	Pass
T32	81 - 61	Top Girt	L2 1/2x2x3/16	659	-3.41	12.76	26.7 30.9 (b)	Pass
T33	61 - 41	Top Girt	L2 1/2x2x3/16	692	-3.35	12.76	26.2 30.3 (b)	Pass
T34	41 - 20	Top Girt	L2 1/2x2x3/16	726	-3.23	12.76	25.3 29.3 (b)	Pass
T35	20 - 6.70833	Top Girt	2L2 1/2x2x3/16x1/4	789	17.46	49.00	35.6 61.6 (b)	Pass
T1	457 - 436	Mid Girt	L2 1/2x2x1/4	11	4.30	32.03	13.4 39.0 (b)	Pass
T3	421 - 401	Mid Girt	L2 1/2x2x1/4	81	-0.18	16.31	1.1 2.7 (b)	Pass
T12	361 - 341	Mid Girt	L2 1/2x2x1/4	199	0.38	32.03	1.2 3.4 (b)	Pass
T13	341 - 321	Mid Girt	L2 1/2x2x1/4	242	0.34	32.03	1.1 3.1 (b)	Pass
T14	321 - 301	Mid Girt	L2 1/2x2x1/4	277	0.50	32.03	1.6 4.6 (b)	Pass
T15	301 - 281	Mid Girt	L2 1/2x2x3/16	310	0.34	24.52	1.4 3.1 (b)	Pass
T24	241 - 221	Mid Girt	L2 1/2x2x3/16	433	0.66	24.52	2.7 6.0 (b)	Pass
T25	221 - 201	Mid Girt	L2 1/2x2x3/16	466	0.64	24.52	2.6 5.8 (b)	Pass
T26	201 - 181	Mid Girt	L2 1/2x2x3/16	499	0.70	24.52	2.8 6.3 (b)	Pass
T27	181 - 161	Mid Girt	L2 1/2x2x3/16	531	0.69	24.52	2.8 6.2 (b)	Pass
T28	161 - 141	Mid Girt	L2 1/2x2x3/16	565	0.78	24.52	3.2 7.1 (b)	Pass
T29	141 - 121	Mid Girt	L2 1/2x2x3/16	597	-9.51	12.76	74.5 92.2 (b)	Pass
T30	121 - 101	Mid Girt	L2 1/2x2x3/16	631	0.64	24.52	2.6 5.8 (b)	Pass
T31	101 - 81	Mid Girt	L2 1/2x2x3/16	663	0.96	24.52	3.9 8.7 (b)	Pass
T32	81 - 61	Mid Girt	L2 1/2x2x3/16	696	0.98	24.52	4.0 8.9 (b)	Pass
T33	61 - 41	Mid Girt	L2 1/2x2x3/16	730	0.92	24.52	3.7 8.3 (b)	Pass
T34	41 - 20	Mid Girt	L2 1/2x2x3/16	759	1.41	24.52	5.7 12.7 (b)	Pass
T1	457 - 436	Guy A@446.5	9/16	826	13.69	22.05	62.1	Pass
T8	381 - 376	Guy A@381	1 3/8	829	69.55	146.16	47.6	Pass
T21	256 - 251	Guy A@254.5	1 1/4	832	65.24	120.96	53.9	Pass
T29	141 - 121	Guy A@131	11/16	845	23.27	31.50	73.9	Pass
T1	457 - 436	Guy B@446.5	9/16	825	13.73	22.05	62.3	Pass
T8	381 - 376	Guy B@381	1 3/8	828	70.53	146.16	48.3	Pass
T21	256 - 251	Guy B@254.5	1 1/4	831	67.37	120.96	55.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	$\phi P_{allow}$ (k)	% Capacity	Pass / Fail
T29	141 - 121	Guy B@131	11/16	840	23.83	31.50	75.7	Pass
T1	457 - 436	Guy C@446.5	9/16	824	13.75	22.05	62.4	Pass
T8	381 - 376	Guy C@381	1 3/8	827	69.69	146.16	47.7	Pass
T21	256 - 251	Guy C@254.5	1 1/4	830	66.67	120.96	55.1	Pass
T29	141 - 121	Guy C@131	11/16	833	23.48	31.50	74.6	Pass
T8	381 - 376	Top Guy Pull-Off@381	2L3x2x1/4x3/8	141	21.96	73.27	30.0 99.4 (b)	Pass
T29	141 - 121	Torque Arm Top@131	L3x3x3/8 (TA - BU#873128)	848	21.90	61.04	35.9 64.7 (b)	Pass
T29	141 - 121	Torque Arm Bottom@131	2L3x3x3/16x3/4	850	-24.03	33.03	72.7	Pass
							Summary	
							Leg (T20)	91.3 Pass
							Diagonal (T21)	95.9 Pass
							Horizontal (T2)	12.9 Pass
							Secondary Horizontal (T21)	72.1 Pass
							Top Girt (T30)	64.8 Pass
							Mid Girt (T29)	92.2 Pass
							Guy A (T29)	73.9 Pass
							Guy B (T29)	75.7 Pass
							Guy C (T29)	74.6 Pass
							Top Guy Pull-Off (T8)	99.4 Pass
							Torque Arm Top (T29)	64.7 Pass
							Torque Arm Bottom (T29)	72.7 Pass
							Bolt Checks	94.7 Pass
							<b>RATING =</b>	<b>99.4 Pass</b>

**Table 5 - Tower Component Stresses vs. Capacity - LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Mast Foundation	-	51.4	Pass
1,2	Guy Anchor Foundation	-	85.2	Pass

<b>Structure Rating (max from all components) =</b>	<b>99.4%</b>
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Notes:

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

#### **4.1) Recommendations**

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

**APPENDIX A**  
**TNXTOWER OUTPUT**





<b><i>tnxTower</i></b>  <b><i>Tower Engineering Professionals</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 1 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

## Tower Input Data

The main tower is a 3x guyed tower with an overall height of 457' above the ground line.

The base of the tower is set at an elevation of 0' above the ground line.

The face width of the tower is 6' at the top and tapered at the base.

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: 520'.

Basic wind speed of 125 mph.

Risk Category II.

Exposure Category B.

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

Topographic Category: 1.

Crest Height: 0'.

Nominal ice thickness of 1.5000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Safety factor used in guy design is 1.

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

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

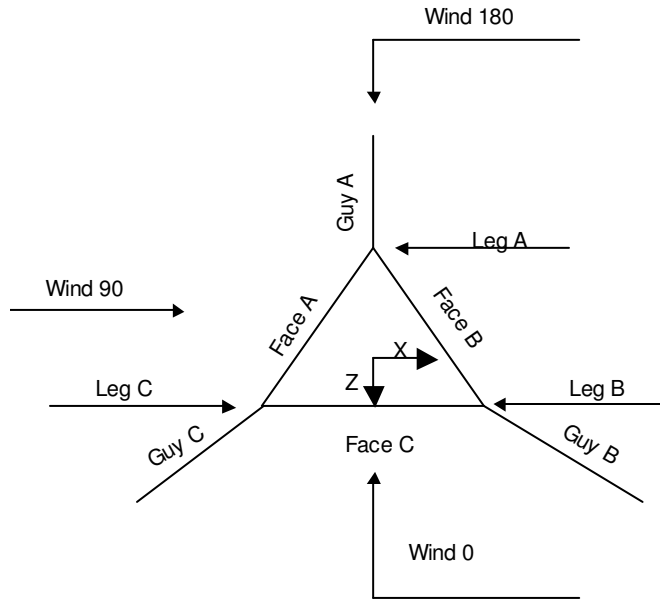
Maximum demand-capacity ratio is: 1.05.

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

## Options

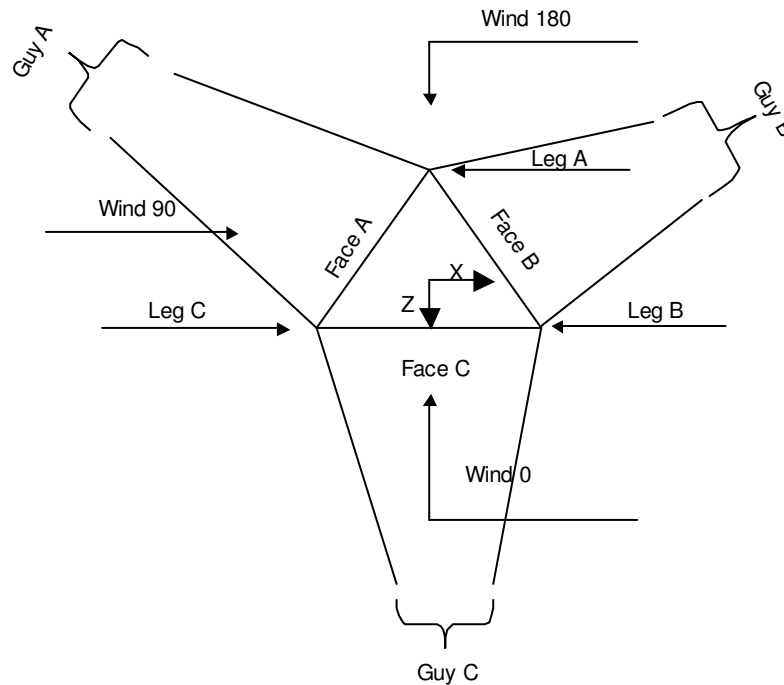
<ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>√ Include Bolts In Member Capacity</li> <li>Leg Bolts Are At Top Of Section</li> <li>√ Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>SR Members Have Cut Ends</li> <li>SR Members Are Concentric</li> </ul>	<ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>√ Retension Guys To Initial Tension</li> <li>√ Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>√ Autocalc Torque Arm Areas</li> <li>Add IBC .6D+W Combination</li> <li>√ Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> <li>Treat Feed Line Bundles As Cylinder</li> <li>Ignore KL/ry For 60 Deg. Angle Legs</li> </ul>	<ul style="list-style-type: none"> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>√ Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>√ SR Leg Bolts Resist Compression</li> <li>All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feed Line Torque</li> <li>√ Include Angle Block Shear Check</li> <li>Use TIA-222-H Bracing Resist. Exemption</li> <li>Use TIA-222-H Tension Splice Exemption</li> <li style="text-align: center;">Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> <li>Pole Without Linear Attachments</li> <li>Pole With Shroud Or No Appurtenances</li> <li>Outside and Inside Corner Radii Are Known</li> </ul>
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<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	2 of 107
<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS



**Corner & Starmount Guyed Tower**

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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS



**Face Guyed**

## Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	457'-436'			6'	1	21'
T2	436'-421'			6'	1	15'
T3	421'-401'			6'	1	20'
T4	401'-396'			6'	1	5'
T5	396'-391'			6'	1	5'
T6	391'-386'			6'	1	5'
T7	386'-381'			6'	1	5'
T8	381'-376'			6'	1	5'
T9	376'-371'			6'	1	5'
T10	371'-366'			6'	1	5'
T11	366'-361'			6'	1	5'
T12	361'-341'			6'	1	20'
T13	341'-321'			6'	1	20'
T14	321'-301'			6'	1	20'
T15	301'-281'			6'	1	20'
T16	281'-276'			6'	1	5'

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T17	276'-271'			6'	1	5'
T18	271'-266'			6'	1	5'
T19	266'-261'			6'	1	5'
T20	261'-256'			6'	1	5'
T21	256'-251'			6'	1	5'
T22	251'-246'			6'	1	5'
T23	246'-241'			6'	1	5'
T24	241'-221'			6'	1	20'
T25	221'-201'			6'	1	20'
T26	201'-181'			6'	1	20'
T27	181'-161'			6'	1	20'
T28	161'-141'			6'	1	20'
T29	141'-121'			6'	1	20'
T30	121'-101'			6'	1	20'
T31	101'-81'			6'	1	20'
T32	81'-61'			6'	1	20'
T33	61'-41'			6'	1	20'
T34	41'-20'			6'	1	21'
T35	20'-6'8-17/32"			6'	1	13'3-15/32"
T36	6'8-17/32"-0'			2'	1	6'8-17/32"

### Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	457'-436'	5'3"	X Brace	No	Yes	0.0000	0.0000
T2	436'-421'	5'	X Brace	No	Yes	0.0000	0.0000
T3	421'-401'	5'	X Brace	No	Yes	0.0000	0.0000
T4	401'-396'	5'	X Brace	No	Yes	0.0000	0.0000
T5	396'-391'	5'	X Brace	No	Yes	0.0000	0.0000
T6	391'-386'	5'	X Brace	No	Yes	0.0000	0.0000
T7	386'-381'	5'	X Brace	No	Yes	0.0000	0.0000
T8	381'-376'	5'	X Brace	No	Yes	0.0000	0.0000
T9	376'-371'	5'	X Brace	No	Yes	0.0000	0.0000
T10	371'-366'	5'	X Brace	No	Yes	0.0000	0.0000
T11	366'-361'	5'	X Brace	No	Yes	0.0000	0.0000
T12	361'-341'	5'	X Brace	No	Yes	0.0000	0.0000
T13	341'-321'	5'	X Brace	No	Yes	0.0000	0.0000
T14	321'-301'	5'	X Brace	No	Yes	0.0000	0.0000
T15	301'-281'	5'	X Brace	No	Yes	0.0000	0.0000
T16	281'-276'	5'	X Brace	No	Yes	0.0000	0.0000
T17	276'-271'	5'	X Brace	No	Yes	0.0000	0.0000
T18	271'-266'	5'	X Brace	No	Yes	0.0000	0.0000
T19	266'-261'	5'	X Brace	No	Yes	0.0000	0.0000
T20	261'-256'	5'	X Brace	No	Yes	0.0000	0.0000
T21	256'-251'	5'	X Brace	No	Yes	0.0000	0.0000
T22	251'-246'	5'	X Brace	No	Yes	0.0000	0.0000
T23	246'-241'	5'	X Brace	No	Yes	0.0000	0.0000
T24	241'-221'	5'	X Brace	No	Yes	0.0000	0.0000
T25	221'-201'	5'	X Brace	No	Yes	0.0000	0.0000
T26	201'-181'	5'	X Brace	No	Yes	0.0000	0.0000
T27	181'-161'	5'	X Brace	No	Yes	0.0000	0.0000
T28	161'-141'	5'	X Brace	No	Yes	0.0000	0.0000

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T29	141'-121'	5'	X Brace	No	Yes	0.0000	0.0000
T30	121'-101'	5'	X Brace	No	Yes	0.0000	0.0000
T31	101'-81'	5'	X Brace	No	Yes	0.0000	0.0000
T32	81'-61'	5'	X Brace	No	Yes	0.0000	0.0000
T33	61'-41'	5'	X Brace	No	Yes	0.0000	0.0000
T34	41'-20'	5'3"	X Brace	No	Yes	0.0000	0.0000
T35	20'-6'8"-17/32"	4'5"-5/32"	X Brace	No	Yes	0.0000	0.0000
T36	6'8"-17/32"-0'	2'2"-7/8"	X Brace	No	Yes	0.0000	0.0000

### Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 457'-436'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T2 436'-421'	Solid Round	2 3/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T3 421'-401'	Solid Round	2 3/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T4 401'-396'	Arbitrary Shape	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T5 396'-391'	Arbitrary Shape	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T6 391'-386'	Arbitrary Shape	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T7 386'-381'	Arbitrary Shape	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T8 381'-376'	Arbitrary Shape	3.5" S.R. w/ 3.5 SCH40 Half Pipe	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T9 376'-371'	Arbitrary Shape	3.5" S.R. w/ 3.5 SCH40 Half Pipe	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T10 371'-366'	Arbitrary Shape	3.5" S.R. w/ 3.5 SCH40 Half Pipe	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T11 366'-361'	Arbitrary Shape	3.5" S.R. w/ 3.5 SCH40 Half Pipe	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T12 361'-341'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T13 341'-321'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T14 321'-301'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T15 301'-281'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T16 281'-276'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T17 276'-271'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T18 271'-266'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T19 266'-261'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T20 261'-256'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T21 256'-251'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T22 251'-246'	Solid Round	3	A7-33	Single Angle	L3x3x1/4	A36

<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</p>	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	6 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T23 246'-241'	Solid Round	3	(33 ksi) A7-33	Single Angle	L3x3x1/4	(36 ksi) A36
T24 241'-221'	Solid Round	3	(33 ksi) A7-33	Single Angle	L3x3x1/4	(36 ksi) A36
T25 221'-201'	Solid Round	3 1/4	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(36 ksi) A7-33
T26 201'-181'	Solid Round	3 1/4	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T27 181'-161'	Solid Round	3 1/4	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T28 161'-141'	Solid Round	3 1/2	(33 ksi) A7-33	Single Angle	L3x3x1/4	(33 ksi) A36
T29 141'-121'	Solid Round	3 1/2	(33 ksi) A7-33	Single Angle	L3x3x1/4	(36 ksi) A36
T30 121'-101'	Solid Round	3 1/2	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(36 ksi) A7-33
T31 101'-81'	Solid Round	3 1/2	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T32 81'-61'	Solid Round	3 1/2	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T33 61'-41'	Solid Round	3 1/2	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T34 41'-20'	Solid Round	3 1/2	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T35 20'-6'8"-17/32"	Solid Round	3 1/4	(33 ksi) A7-33	Single Angle	L2x2x3/16	(33 ksi) A7-33
T36 6'8"-17/32"-0'	Solid Round	3 1/4	(33 ksi) A7-33	Single Angle	L2x2x3/16	(33 ksi) A7-33

### Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 457'-436'	Channel	C8x13.75	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T2 436'-421'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T3 421'-401'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T4 401'-396'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T6 391'-386'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T7 386'-381'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T8 381'-376'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T10 371'-366'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T11 366'-361'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T12 361'-341'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T13 341'-321'	Single Angle	L2 1/2x2x1/4	A7-33	Single Angle	L2 1/2x2x1/4	A7-33

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	<p><b>Project</b></p> <p style="text-align: center;">TEP No. 25575.535124</p>	<p><b>Date</b></p> <p style="text-align: center;">15:16:56 04/30/21</p>
	<p><b>Client</b></p> <p style="text-align: center;">Crown Castle</p>	<p><b>Designed by</b></p> <p style="text-align: center;">PRS</p>

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T14 321'-301'	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33
T15 301'-281'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T16 281'-276'	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33	Single Angle		(33 ksi) A7-33
T18 271'-266'	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33	Single Angle		(33 ksi) A7-33
T19 266'-261'	Single Angle		(33 ksi) A7-33	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33
T20 261'-256'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle		(33 ksi) A7-33
T22 251'-246'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle		(33 ksi) A7-33
T23 246'-241'	Single Angle		(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T24 241'-221'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T25 221'-201'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T26 201'-181'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T27 181'-161'	Double Angle	2L3x2x1/4x3/8	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T28 161'-141'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T29 141'-121'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T30 121'-101'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T31 101'-81'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T32 81'-61'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T33 61'-41'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33
T34 41'-20'	Single Angle	L2 1/2x2x3/16	(33 ksi) A7-33	Single Angle		(33 ksi) A7-33
T35 20'-6'8-17/32"	Double Angle	2L2 1/2x2x3/16x1/4	(33 ksi) A7-33	Single Angle		(33 ksi) A7-33

### Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 457'-436'	1	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33
T2 436'-421'	None	Single Angle		(33 ksi) A7-33	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33
T3 421'-401'	1	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33	Solid Round		(36 ksi) A36
T12 361'-341'	1	Single Angle	L2 1/2x2x1/4	(33 ksi) A7-33	Single Angle		(36 ksi) A36

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T13 341'-321'	1	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Solid Round		A36 (36 ksi)
T14 321'-301'	1	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Solid Round		A36 (36 ksi)
T15 301'-281'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Solid Round		A36 (36 ksi)
T24 241'-221'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T25 221'-201'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T26 201'-181'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T27 181'-161'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T28 161'-141'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T29 141'-121'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T30 121'-101'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T31 101'-81'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T32 81'-61'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T33 61'-41'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T34 41'-20'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T12 361'-341'	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T21 256'-251'	Double Equal Angle	2L3 1/2x3 1/2x3/8x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T23 246'-241'	Double Equal Angle	2L3 1/2x3 1/2x3/8x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 457'-436'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000



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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Elevation	Gusset Area (per face)	Gusset Thickness	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
ft	ft <sup>2</sup>	in							
T2 436'-421'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T3 421'-401'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T4 401'-396'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T5 396'-391'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T6 391'-386'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T7 386'-381'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T8 381'-376'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T9 376'-371'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T10 371'-366'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T11 366'-361'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T12 361'-341'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T13 341'-321'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T14 321'-301'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T15 301'-281'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T16 281'-276'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T17 276'-271'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T18 271'-266'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T19 266'-261'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T20 261'-256'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T21 256'-251'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T22 251'-246'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T23 246'-241'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T24 241'-221'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T25 221'-201'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T26 201'-181'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T27 181'-161'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T28 161'-141'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T29 141'-121'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	38.0000	38.0000	36.0000
T30 121'-101'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1.05	Third-Pt	Third-Pt	36.0000
T31 101'-81'	0.00	0.3750	A7-33	1.03	1	1.05	Third-Pt	Third-Pt	36.0000



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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors <sup>1</sup>								
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
				X Y	X Y	X Y	X Y	X Y	X Y	X Y	
T19 266'-261'	Yes	No	1	1	1	1	1	1	1	1	1
T20 261'-256'	Yes	No	1	1	1	1	1	1	1	1	1
T21 256'-251'	Yes	No	1	1	1	1	1	1	1	1	1
T22 251'-246'	Yes	No	1	1	1	1	1	1	1	0.5	1
T23 246'-241'	Yes	No	1	1	1	1	1	1	1	1	1
T24 241'-221'	Yes	No	1	1	1	1	1	1	1	0.5	1
T25 221'-201'	Yes	No	1	1	1	1	1	1	1	1	1
T26 201'-181'	Yes	No	1	1	1	1	1	1	1	1	1
T27 181'-161'	Yes	No	1	1	1	1	1	1	1	1	1
T28 161'-141'	Yes	No	1	1	1	1	1	1	1	1	1
T29 141'-121'	Yes	No	1	1	1	1	1	1	1	1	1
T30 121'-101'	Yes	No	1	1	1	1	1	1	1	1	1
T31 101'-81'	Yes	No	1	1	1	1	1	1	1	1	1
T32 81'-61'	Yes	No	1	1	1	1	1	1	1	1	1
T33 61'-41'	Yes	No	1	1	1	1	1	1	1	1	1
T34 41'-20'	Yes	No	1	1	1	1	1	1	1	1	1
T35 20'-6'8"-17/32"	Yes	No	1	1	1	1	1	1	1	1	1
T36 6'8"-17/32"-0'	Yes	No	1	1	1	1	1	1	1	1	1

<sup>1</sup>Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 457'-436'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1
T2 436'-421'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T3 421'-401'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T4 401'-396'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1
T5 396'-391'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1



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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T15 301'-281'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 281'-276'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 276'-271'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 271'-266'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 266'-261'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 261'-256'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T21 256'-251'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T22 251'-246'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T23 246'-241'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T24 241'-221'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T25 221'-201'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T26 201'-181'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T27 181'-161'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T28 161'-141'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T29 141'-121'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T30 121'-101'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T31 101'-81'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T32 81'-61'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T33 61'-41'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T34 41'-20'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T35	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
20'-6'-8'-17/32"														
T36	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
6'-8'-17/32"-0'														

### Tower Section Geometry (cont'd)

Tower Elevation ft	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
in	in	in	in	in	in	in	in	
T1 457'-436'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T2 436'-421'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 421'-401'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T4 401'-396'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T5 396'-391'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T6 391'-386'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T7 386'-381'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T8 381'-376'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T9 376'-371'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T10 371'-366'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T11 366'-361'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T12 361'-341'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T13 341'-321'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T14 321'-301'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T15 301'-281'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T16 281'-276'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T17 276'-271'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T18 271'-266'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Elevation  ft	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
	in	in	in	in	in	in	in	in
T19 266'-261'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T20 261'-256'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T21 256'-251'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T22 251'-246'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T23 246'-241'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T24 241'-221'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T25 221'-201'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T26 201'-181'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T27 181'-161'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T28 161'-141'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T29 141'-121'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T30 121'-101'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T31 101'-81'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T32 81'-61'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T33 61'-41'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T34 41'-20'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T35	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20'-6'8"-17'32"								
T36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6'8"-17'32"-0'								

### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 457'-436'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T2 436'-421'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	0	0.5000	2	0.0000	0
		A307		A325X		A307		A307		A307		A307		A325X	
T3 421'-401'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T4 401'-396'	Flange	0.8750	0	0.5000	2	0.5000	2	0.0000	0	0.5000	0	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T5 396'-391'	Flange	0.8750	0	0.5000	2	0.0000	0	0.0000	0	0.5000	0	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T6 391'-386'	Flange	0.8750	0	0.5000	2	0.0000	2	0.0000	0	0.5000	0	0.0000	0	0.5000	0
		A307		A325X		A307		A307		A307		A307		A325X	
T7 386'-381'	Flange	0.8750	8	0.5000	2	0.0000	0	0.5000	2	0.5000	0	0.0000	0	0.5000	0
		A307		A325X		A307		A307		A307		A307		A325X	
T8 381'-376'	Flange	0.8750	0	0.5000	2	0.5000	2	0.0000	0	0.5000	0	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T9 376'-371'	Flange	0.8750	0	0.5000	2	0.0000	0	0.0000	0	0.5000	0	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T10 371'-366'	Flange	0.8750	0	0.5000	2	0.0000	2	0.0000	0	0.5000	0	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T11 366'-361'	Flange	0.8750	8	0.5000	2	0.0000	0	0.5000	2	0.5000	0	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T12 361'-341'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.5000	1
		A307		A325N		A307		A307		A307		A307		A325X	

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T13 341'-321'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T14 321'-301'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T15 301'-281'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T16 281'-276'	Flange	0.8750	0	0.5000	2	0.5000	2	0.0000	0	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T17 276'-271'	Flange	0.8750	0	0.5000	2	0.0000	0	0.0000	0	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T18 271'-266'	Flange	0.8750	0	0.5000	2	0.5000	2	0.0000	0	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T19 266'-261'	Flange	0.8750	8	0.5000	2	0.0000	0	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T20 261'-256'	Flange	0.6250	0	0.5000	2	0.5000	2	0.0000	0	0.5000	0	0.0000	0	0.5000	0
		A307		A325N		A307		A307		A307		A307		A325N	
T21 256'-251'	Flange	0.6250	0	0.5000	2	0.0000	0	0.0000	0	0.5000	0	0.0000	0	0.5000	2
		A307		A325N		A307		A307		A307		A307		A325N	
T22 251'-246'	Flange	0.6250	0	0.5000	2	0.5000	2	0.0000	0	0.5000	0	0.0000	0	0.5000	0
		A307		A325N		A307		A307		A307		A307		A325N	
T23 246'-241'	Flange	0.6250	8	0.5000	2	0.0000	0	0.5000	2	0.5000	0	0.0000	0	0.5000	2
		A307		A325N		A307		A307		A307		A307		A325N	
T24 241'-221'	Flange	0.6250	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T25 221'-201'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T26 201'-181'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T27 181'-161'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T28 161'-141'	Flange	0.6250	8	0.6250	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T29 141'-121'	Flange	0.6250	8	0.6250	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A325N		A307		A325X	
T30 121'-101'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A325N		A307		A307		A307		A307		A325X	
T31 101'-81'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T32 81'-61'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T33 61'-41'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.0000	0
		A307		A307		A307		A307		A307		A307		A325X	
T34 41'-20'	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	2	0.5000	2	0.0000	0	0.6250	0
		A307		A307		A307		A307		A307		A307		A325X	
T35	Flange	0.8750	8	0.5000	2	0.5000	2	0.5000	0	0.5000	0	0.0000	0	0.6250	0
20'-6'8-17/32"		A307		A307		A325N		A307		A307		A307		A325X	
T36	Flange	0.8750	0	0.5000	2	0.5000	0	0.5000	0	0.5000	0	0.0000	0	0.0000	0
6'8-17/32"-0'		A307		A307		A307		A307		A307		A307		A325X	

**Guy Data**





<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 17 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Guy Elevation	Cable Weight A	Cable Weight B	Cable Weight C	Cable Weight D	Tower Intercept A	Tower Intercept B	Tower Intercept C	Tower Intercept D
ft	K	K	K	K	ft	ft	ft	ft
446.5	0.41	0.40	0.42		43'3/8"	41'3-31/32"	43'7-9/16"	
381	2.25	2.20	2.27		11.3 sec/pulse 33'15/32"	11.1 sec/pulse 31'7-3/16"	11.4 sec/pulse 33'6-31/32"	
254.5	1.59	1.55	1.61		9.9 sec/pulse 24'6-19/32"	9.7 sec/pulse 23'3-1/4"	10.0 sec/pulse 25'31/32"	
131	0.42	0.42	0.44		8.6 sec/pulse 14'10-7/16"	8.3 sec/pulse 14'11-1/32"	8.6 sec/pulse 16'2-3/4"	
					6.7 sec/pulse	6.7 sec/pulse	7.0 sec/pulse	

### Guy Data (cont'd)

Guy Elevation	Calc K	Calc K	Torque Arm		Pull Off		Diagonal	
			K <sub>x</sub>	K <sub>y</sub>	K <sub>x</sub>	K <sub>y</sub>	K <sub>x</sub>	K <sub>y</sub>
ft	Single Angles	Solid Rounds						
446.5	No	No			1	1	1	1
381	No	No			1	1	1	1
254.5	No	No			1	1	1	1
131	Yes	Yes	0.98	0.98	1	1	1	1

### Guy Data (cont'd)

Guy Elevation	Torque-Arm				Pull Off				Diagonal			
	Bolt Size	Number	Net Width	U	Bolt Size	Number	Net Width	U	Bolt Size	Number	Net Width	U
ft	in		Deduct in		in		Deduct in		in		Deduct in	
446.5	0.0000	0	0.0000	1	0.0000	0	0.0000	1	0.6250	0	0.0000	0.75
	A325N				A325N				A325N			
381	0.6250	0	0.0000	0.75	0.5000	2	0.0000	0.75	0.6250	0	0.0000	0.75
	A325N				A307				A325N			
254.5	0.6250	0	0.0000	0.75	0.0000	0	0.0000	1	0.6250	0	0.0000	0.75
	A325N				A325N				A325N			
131	0.7500	2	0.0000	0.75	0.0000	0	0.0000	1	0.6250	0	0.0000	0.75
	A325N				A325N				A325N			

### Guy Pressures

Guy Elevation	Guy Location	z	q <sub>z</sub>	q <sub>z</sub>	Ice Thickness
ft		ft	psf	psf	in
446.5	A	213'3"	39	6	1.5366
	B	216'9"	39	6	1.5391
	C	213'	39	6	1.5364
381	A	180'6"	37	6	1.5111
	B	184'	37	6	1.5141
	C	180'3"	37	6	1.5109
254.5	A	117'3"	33	5	1.4473
	B	120'9"	33	5	1.4516

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Guy Elevation ft	Guy Location	z ft	qz psf	qz Ice psf	Ice Thickness in
131	C	117'	33	5	1.4470
	A	55'6"	26	4	1.3430
	B	61'	27	4	1.3558
	C	57'3"	27	4	1.3472

### Guy-Tensioning Information

Temperature At Time Of Tensioning																	
Guy Elevation ft	H ft	V ft	0 F		20 F		40 F		60 F		80 F		100 F		120 F		
			Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	
446.5	A	401.54	466.50	3.196	37.91	3.057	39.57	2.924	41.28	2.800	43.03	2.676	44.93	2.568	46.71	2.467	48.52
	B	390.54	459.50	3.201	36.37	3.059	37.98	2.926	39.63	2.800	41.33	2.682	43.06	2.564	44.94	2.462	46.70
	C	407.54	467.00	3.197	38.44	3.057	40.12	2.924	41.86	2.800	43.63	2.676	45.55	2.568	47.37	2.467	49.20
381	A	401.54	401.00	21.808	28.28	20.660	29.79	19.577	31.38	18.560	33.04	17.610	34.75	16.726	36.52	15.906	38.32
	B	390.54	394.00	21.845	26.99	20.686	28.46	19.590	29.99	18.560	31.60	17.597	33.26	16.700	34.97	15.868	36.73
	C	407.54	401.50	21.815	28.73	20.663	30.28	19.578	31.89	18.560	33.58	17.610	35.32	16.727	37.11	15.909	38.93
254.5	A	401.54	274.50	19.088	19.85	17.746	21.32	16.502	22.89	15.360	24.55	14.320	26.29	13.381	28.08	12.536	29.92
	B	390.54	267.50	19.167	18.74	17.798	20.15	16.528	21.66	15.360	23.27	14.296	24.96	13.335	26.70	12.472	28.50
	C	407.54	275.00	19.076	20.30	17.737	21.80	16.497	23.40	15.360	25.08	14.326	26.85	13.393	28.66	12.554	30.52
131	A	398.74	151.00	7.859	11.38	7.214	12.39	6.600	13.53	6.000	14.87	5.469	16.30	4.987	17.85	4.557	19.52
	B	403.24	140.00	7.890	11.37	7.233	12.39	6.609	13.55	6.000	14.92	5.463	16.37	4.977	17.95	4.544	19.64
	C	420.24	147.50	7.845	12.44	7.201	13.54	6.569	14.84	6.000	16.23	5.478	17.76	5.006	19.42	4.585	21.18

### Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
HB158-1-08U 8-S8J18(1-5/8)	C	No	No	Ar (CaAa)	230' - 10'	-5.0000	0.35	2	2	0.5000	1.9800		1.30
LCF78-50A(7/8")	A	No	No	Ar (CaAa)	230' - 10'	-4.0000	0.35	6	2	0.5000	1.0900		0.34
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	247' - 10'	0.0000	0.42	6	6	0.5000	1.0900		0.33
HB158-1-08U 8-S8J18(1-5/8)	A	No	No	Ar (CaAa)	247' - 10'	0.0000	0.29	3	3	0.5000	1.9800		1.30
LDF4-50A(1/2")	A	No	No	Ar (CaAa)	450' - 10'	0.0000	0.21	6	4	0.5000	0.6300	0.2500	0.15
CAT6(1/4)	A	No	No	Ar (CaAa)	450' - 10'	1.0000	0.223	6	2	0.2500	0.2400		0.05
760178129(1/4)	A	No	No	Ar (CaAa)	450' - 10'	0.0000	0.25	6	2	0.3300	0.3300	0.2500	0.04
EW63(ELLIP TICAL)	A	No	No	Ar (CaAa)	150' - 10'	0.0000	-0.28	2	1	0.5000	2.0100		0.51
LCF78-50A(7/8")	A	No	No	Ar (CaAa)	206' - 10'	-3.0000	-0.38	1	1	0.5000	1.0900		0.34
1" Rigid Conduit	A	No	No	Ar (CaAa)	457' - 10'	0.0000	-0.33	1	1	1.0000	1.0000		1.13
3/8" Cable (Lights)	C	No	No	Ar (CaAa)	457' - 10'	0.0000	0.49	1	1	0.3750	0.3750		0.22
1/4 Coax	B	No	No	Ar (CaAa)	99' - 10'	0.0000	-0.18	1	1	0.2500	0.2500		0.10
1/4 Coax	C	No	No	Ar (CaAa)	200' - 10'	0.0000	0.4	1	1	0.2500	0.2500		0.10
3/8" Coax	A	No	No	Ar (CaAa)	136' - 10'	0.0000	-0.15	3	2	0.3750	0.3750		0.07

<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</p>	<p><b>Job</b></p> <p style="text-align: center;">Trumbull (BU 873128)</p>	<p><b>Page</b></p> <p style="text-align: center;">19 of 107</p>
	<p><b>Project</b></p> <p style="text-align: center;">TEP No. 25575.535124</p>	<p><b>Date</b></p> <p style="text-align: center;">15:16:56 04/30/21</p>
	<p><b>Client</b></p> <p style="text-align: center;">Crown Castle</p>	<p><b>Designed by</b></p> <p style="text-align: center;">PRS</p>

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
3/8" Coax	A	No	No	Ar (CaAa)	140' - 10'	0.0000	-0.17	1	1	0.3750	0.3750		0.07
Banjo (6" dia, 36" step)	A	No	No	Af (CaAa)	230' - 10'	-2.0000	0.35	1	1	0.3330	0.3330		0.45
Banjo (6" dia, 36" step)	A	No	No	Af (CaAa)	230' - 10'	-2.0000	-0.38	1	1	0.3330	0.3330		0.45
LDF5-50A(7/8")	B	No	No	Ar (CaAa)	133' - 10'	0.0000	-0.4	2	2	0.7500	1.0900		0.33
LDF5-50A(7/8")	B	No	No	Ar (CaAa)	441' - 133'	0.0000	-0.4	1	1	1.0900	1.0900		0.33
LDF12-50A(2-1/4")	B	No	No	Ar (CaAa)	439' - 10'	0.0000	-0.31	1	1	2.3500	2.3500		1.22
HJ8-50B(3")	B	No	No	Ar (CaAa)	420' - 10'	0.0000	0.2	3	3	0.5000	3.0100		1.78
LDF6-50A(1-1/4")	B	No	No	Ar (CaAa)	330' - 10'	0.0000	-0.05	1	1	1.5500	1.5500		0.66
HJ11-50(4")	B	No	No	Ar (CaAa)	393' - 10'	-2.0000	0.12	1	1	4.0000	4.0000		2.50
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	264' - 10'	-2.0000	0.2	1	1	1.9800	1.9800		0.82
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	310' - 10'	0.0000	0	1	1	1.9800	1.9800		0.82
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	277' - 10'	0.0000	0.35	1	1	1.9800	1.9800		0.82
LDF6-50A(1-1/4")	B	No	No	Ar (CaAa)	322' - 10'	-2.0000	-0.42	1	1	0.5000	1.5500		0.66
LDF6-50A(1-1/4")	B	No	No	Ar (CaAa)	325' - 10'	0.0000	-0.28	1	1	0.5000	1.5500		0.66
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	330' - 10'	0.0000	-0.35	1	1	1.9800	1.9800		0.82
LDF4P-50A(1-1/2")	B	No	No	Ar (CaAa)	133' - 10'	0.0000	-0.14	3	2	0.3000	0.6300		0.15
LDF4P-50A(1-1/2")	B	No	No	Ar (CaAa)	178' - 133'	0.0000	-0.14	2	2	0.3000	0.6300		0.15
LDF4P-50A(1-1/2")	B	No	No	Ar (CaAa)	322' - 178'	0.0000	-0.14	1	1	0.3000 0.6300	0.6300		0.15
LDF4-50A(1-1/2")	B	No	No	Ar (CaAa)	342' - 10'	1.0000	0.4	1	1	0.5000	0.6300		0.15
EW63(ELLIP TICAL)	B	No	No	Ar (CaAa)	146' - 10'	0.0000	-0.23	1	1	2.0100	2.0100		0.51
EW52(ELLIP TICAL)	B	No	No	Ar (CaAa)	146' - 10'	2.0000	-0.23	1	1	0.5000	2.2500		0.59
***													
475-000(4-1/16)	C	No	No	Ar (CaAa)	457' - 10'	-6.0000	-0.05	1	1	4.0620	4.0620		5.50
LDF12-50(2-1/4")	C	No	No	Ar (CaAa)	388' - 10'	0.0000	-0.35	1	1	2.3500	2.3500		1.22
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	109' - 10'	0.0000	-0.4	1	1	1.0900	1.0900		0.33
HJ11-50(4)	C	No	No	Ar (CaAa)	367' - 10'	0.0000	0.5	1	1	0.5000	4.0000		2.50
LDF6-50A(1-1/4")	C	No	No	Ar (CaAa)	255' - 10'	0.0000	0.1	1	1	0.5000	1.5500		0.66
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	133' - 117'	0.0000	0.475	1	1	1.0900	1.0900		0.33
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	117' - 99'	0.0000	0.475	2	2	0.5000	1.0900		0.33
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	99' - 62'	0.0000	0.475	3	2	0.5000	1.0900		0.33
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	62' - 10'	0.0000	0.475	6	2	0.5000	1.0900		0.33
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	108' - 10'	0.0000	0.45	1	1	1.0900	1.0900		0.33
LDF7-50A(1-1/2")	C	No	No	Ar (CaAa)	393' - 10'	0.0000	0.2	1	1	1.9800	1.9800		0.82

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	20 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
5/8") **													
Thin Flat Climbing Ladder	C	No	No	Af (CaAa)	457' - 10'	-9.0000	0	1	1	2.0000	2.0000		4.00
Safety Line 3/8 ***	C	No	No	Ar (CaAa)	457' - 10'	-9.0000	0	1	1	0.3750	0.3750		0.22
**Abandoned lines**													
LDF4-50A(1/2)	B	No	No	Ar (CaAa)	344' - 10'	1.0000	-0.135	1	1	0.6250	0.6250		0.15
LDF6-50A(1-1/4)	B	No	No	Ar (CaAa)	342' - 10'	2.0000	-0.28	1	1	1.5500	1.5500		0.60
LDF5-50A(7/8")	B	No	No	Ar (CaAa)	340' - 10'	0.0000	0.4	1	1	1.0900	1.0900		0.33
HCC312-50J(3-1/2")	B	No	No	Ar (CaAa)	328' - 10'	-2.0000	0.05	1	1	3.5300	3.5300		1.99
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	75' - 10'	2.0000	0.35	1	1	1.9800	1.9800		0.82

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C <sub>AA</sub> ft <sup>2</sup> /ft	Weight plf
**								
***								

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T1	457'-436'	A	0.000	0.000	12.180	0.000	0.04
		B	0.000	0.000	1.250	0.000	0.01
		C	0.000	0.000	15.022	0.000	0.21
T2	436'-421'	A	0.000	0.000	12.300	0.000	0.04
		B	0.000	0.000	5.160	0.000	0.02
		C	0.000	0.000	10.757	0.000	0.15
T3	421'-401'	A	0.000	0.000	16.400	0.000	0.05
		B	0.000	0.000	24.037	0.000	0.13
		C	0.000	0.000	14.380	0.000	0.20
T4	401'-396'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	6.235	0.000	0.03
		C	0.000	0.000	3.602	0.000	0.05
T5	396'-391'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	6.861	0.000	0.04
		C	0.000	0.000	4.001	0.000	0.05

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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T6	391'-386'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	7.801	0.000	0.05
		C	0.000	0.000	5.068	0.000	0.06
T7	386'-381'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	7.804	0.000	0.05
		C	0.000	0.000	5.775	0.000	0.06
T8	381'-376'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	7.807	0.000	0.05
		C	0.000	0.000	5.778	0.000	0.06
T9	376'-371'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	7.810	0.000	0.05
		C	0.000	0.000	5.781	0.000	0.06
T10	371'-366'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	7.813	0.000	0.05
		C	0.000	0.000	6.100	0.000	0.06
T11	366'-361'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	7.816	0.000	0.05
		C	0.000	0.000	7.368	0.000	0.07
T12	361'-341'	A	0.000	0.000	16.400	0.000	0.05
		B	0.000	0.000	31.701	0.000	0.19
		C	0.000	0.000	29.537	0.000	0.29
T13	341'-321'	A	0.000	0.000	16.400	0.000	0.05
		B	0.000	0.000	45.294	0.000	0.24
		C	0.000	0.000	29.644	0.000	0.29
T14	321'-301'	A	0.000	0.000	16.400	0.000	0.05
		B	0.000	0.000	61.964	0.000	0.32
		C	0.000	0.000	29.758	0.000	0.29
T15	301'-281'	A	0.000	0.000	16.400	0.000	0.05
		B	0.000	0.000	64.265	0.000	0.33
		C	0.000	0.000	29.882	0.000	0.29
T16	281'-276'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	16.285	0.000	0.08
		C	0.000	0.000	7.491	0.000	0.07
T17	276'-271'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	17.085	0.000	0.09
		C	0.000	0.000	7.500	0.000	0.07
T18	271'-266'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	17.094	0.000	0.09
		C	0.000	0.000	7.508	0.000	0.07
T19	266'-261'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	17.697	0.000	0.09
		C	0.000	0.000	7.517	0.000	0.07
T20	261'-256'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	18.102	0.000	0.09
		C	0.000	0.000	7.526	0.000	0.07
T21	256'-251'	A	0.000	0.000	4.100	0.000	0.01
		B	0.000	0.000	18.111	0.000	0.09
		C	0.000	0.000	8.155	0.000	0.08
T22	251'-246'	A	0.000	0.000	5.348	0.000	0.02
		B	0.000	0.000	18.121	0.000	0.09
		C	0.000	0.000	8.320	0.000	0.08
T23	246'-241'	A	0.000	0.000	10.340	0.000	0.04
		B	0.000	0.000	18.130	0.000	0.09
		C	0.000	0.000	8.330	0.000	0.08
T24	241'-221'	A	0.000	0.000	48.245	0.000	0.20
		B	0.000	0.000	72.623	0.000	0.36
		C	0.000	0.000	36.984	0.000	0.33
T25	221'-201'	A	0.000	0.000	57.205	0.000	0.23
		B	0.000	0.000	72.799	0.000	0.36
		C	0.000	0.000	41.515	0.000	0.35
T26	201'-181'	A	0.000	0.000	58.840	0.000	0.23

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
		B	0.000	0.000	72.995	0.000	0.36
		C	0.000	0.000	42.186	0.000	0.36
T27	181'-161'	A	0.000	0.000	58.840	0.000	0.23
		B	0.000	0.000	74.286	0.000	0.36
		C	0.000	0.000	42.432	0.000	0.36
T28	161'-141'	A	0.000	0.000	62.458	0.000	0.24
		B	0.000	0.000	76.749	0.000	0.37
		C	0.000	0.000	42.685	0.000	0.36
T29	141'-121'	A	0.000	0.000	69.280	0.000	0.26
		B	0.000	0.000	85.350	0.000	0.39
		C	0.000	0.000	44.287	0.000	0.36
T30	121'-101'	A	0.000	0.000	69.880	0.000	0.26
		B	0.000	0.000	86.901	0.000	0.40
		C	0.000	0.000	48.888	0.000	0.37
T31	101'-81'	A	0.000	0.000	69.880	0.000	0.26
		B	0.000	0.000	87.567	0.000	0.40
		C	0.000	0.000	54.442	0.000	0.39
T32	81'-61'	A	0.000	0.000	69.880	0.000	0.26
		B	0.000	0.000	90.667	0.000	0.41
		C	0.000	0.000	55.544	0.000	0.39
T33	61'-41'	A	0.000	0.000	69.880	0.000	0.26
		B	0.000	0.000	91.870	0.000	0.41
		C	0.000	0.000	61.911	0.000	0.41
T34	41'-20'	A	0.000	0.000	73.374	0.000	0.27
		B	0.000	0.000	96.463	0.000	0.43
		C	0.000	0.000	65.006	0.000	0.43
T35	20'-6'8-17/32"	A	0.000	0.000	34.940	0.000	0.13
		B	0.000	0.000	45.935	0.000	0.21
		C	0.000	0.000	30.955	0.000	0.20
T36	6'8-17/32"-0'	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T1	457'-436'	A	1.654	0.000	0.000	46.292	0.000	0.48
		B		0.000	0.000	3.897	0.000	0.06
		C		0.000	0.000	44.899	0.000	0.82
T2	436'-421'	A	1.648	0.000	0.000	46.239	0.000	0.47
		B		0.000	0.000	15.046	0.000	0.23
		C		0.000	0.000	31.989	0.000	0.58
T3	421'-401'	A	1.641	0.000	0.000	61.481	0.000	0.62
		B		0.000	0.000	54.974	0.000	0.80
		C		0.000	0.000	42.543	0.000	0.77
T4	401'-396'	A	1.636	0.000	0.000	15.338	0.000	0.15
		B		0.000	0.000	14.185	0.000	0.21
		C		0.000	0.000	10.615	0.000	0.19
T5	396'-391'	A	1.634	0.000	0.000	15.326	0.000	0.15
		B		0.000	0.000	15.631	0.000	0.23
		C		0.000	0.000	11.657	0.000	0.21
T6	391'-386'	A	1.632	0.000	0.000	15.312	0.000	0.15
		B		0.000	0.000	17.801	0.000	0.27
		C		0.000	0.000	14.343	0.000	0.25
T7	386'-381'	A	1.629	0.000	0.000	15.299	0.000	0.15
		B		0.000	0.000	17.792	0.000	0.27

<p><b>tnxTower</b></p> <p><i>Tower Engineering Professionals</i>  326 Tryon Road  Raleigh, NC 27603  Phone: (919) 661-6351  FAX: (919) 661-6350</p>	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 23 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T8	381'-376'	C	1.627	0.000	0.000	16.014	0.000	0.28
		A		0.000	0.000	15.286	0.000	0.15
		B		0.000	0.000	17.782	0.000	0.27
T9	376'-371'	C	1.625	0.000	0.000	16.001	0.000	0.28
		A		0.000	0.000	15.272	0.000	0.15
		B		0.000	0.000	17.772	0.000	0.27
T10	371'-366'	C	1.623	0.000	0.000	15.988	0.000	0.28
		A		0.000	0.000	15.259	0.000	0.15
		B		0.000	0.000	17.761	0.000	0.27
T11	366'-361'	C	1.621	0.000	0.000	16.700	0.000	0.29
		A		0.000	0.000	15.245	0.000	0.15
		B		0.000	0.000	17.751	0.000	0.27
T12	361'-341'	C	1.615	0.000	0.000	19.583	0.000	0.34
		A		0.000	0.000	60.837	0.000	0.60
		B		0.000	0.000	72.919	0.000	1.11
T13	341'-321'	C	1.606	0.000	0.000	78.172	0.000	1.37
		A		0.000	0.000	60.601	0.000	0.60
		B		0.000	0.000	120.213	0.000	1.76
T14	321'-301'	C	1.596	0.000	0.000	77.908	0.000	1.36
		A		0.000	0.000	60.351	0.000	0.60
		B		0.000	0.000	168.386	0.000	2.46
T15	301'-281'	C	1.585	0.000	0.000	77.629	0.000	1.35
		A		0.000	0.000	60.086	0.000	0.59
		B		0.000	0.000	173.412	0.000	2.53
T16	281'-276'	C	1.578	0.000	0.000	77.333	0.000	1.34
		A		0.000	0.000	14.978	0.000	0.15
		B		0.000	0.000	43.758	0.000	0.64
T17	276'-271'	C	1.575	0.000	0.000	19.285	0.000	0.33
		A		0.000	0.000	14.960	0.000	0.15
		B		0.000	0.000	45.765	0.000	0.66
T18	271'-266'	C	1.572	0.000	0.000	19.265	0.000	0.33
		A		0.000	0.000	14.942	0.000	0.15
		B		0.000	0.000	45.716	0.000	0.66
T19	266'-261'	C	1.569	0.000	0.000	19.244	0.000	0.33
		A		0.000	0.000	14.924	0.000	0.15
		B		0.000	0.000	47.203	0.000	0.68
T20	261'-256'	C	1.566	0.000	0.000	19.224	0.000	0.33
		A		0.000	0.000	14.905	0.000	0.15
		B		0.000	0.000	48.174	0.000	0.70
T21	256'-251'	C	1.563	0.000	0.000	19.203	0.000	0.33
		A		0.000	0.000	14.886	0.000	0.14
		B		0.000	0.000	48.120	0.000	0.70
T22	251'-246'	C	1.560	0.000	0.000	21.052	0.000	0.36
		A		0.000	0.000	17.885	0.000	0.18
		B		0.000	0.000	48.065	0.000	0.70
T23	246'-241'	C	1.557	0.000	0.000	21.495	0.000	0.36
		A		0.000	0.000	29.929	0.000	0.33
		B		0.000	0.000	48.009	0.000	0.69
T24	241'-221'	C	1.549	0.000	0.000	21.469	0.000	0.36
		A		0.000	0.000	136.511	0.000	1.52
		B		0.000	0.000	191.456	0.000	2.76
T25	221'-201'	C	1.535	0.000	0.000	95.858	0.000	1.55
		A		0.000	0.000	158.760	0.000	1.79
		B		0.000	0.000	190.470	0.000	2.73
T26	201'-181'	C	1.520	0.000	0.000	107.834	0.000	1.68
		A		0.000	0.000	164.131	0.000	1.85
		B		0.000	0.000	189.396	0.000	2.69
T27	181'-161'	C	1.503	0.000	0.000	113.492	0.000	1.73
		A		0.000	0.000	163.176	0.000	1.83
		B		0.000	0.000	194.437	0.000	2.68
		C		0.000	0.000	113.103	0.000	1.71

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 24 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T28	161'-141'	A	1.484	0.000	0.000	172.232	0.000	1.93
		B		0.000	0.000	199.265	0.000	2.72
		C		0.000	0.000	112.305	0.000	1.68
T29	141'-121'	A	1.463	0.000	0.000	200.275	0.000	2.19
		B		0.000	0.000	219.614	0.000	2.93
		C		0.000	0.000	116.227	0.000	1.72
T30	121'-101'	A	1.439	0.000	0.000	202.382	0.000	2.17
		B		0.000	0.000	222.087	0.000	2.90
		C		0.000	0.000	131.576	0.000	1.83
T31	101'-81'	A	1.411	0.000	0.000	200.257	0.000	2.12
		B		0.000	0.000	225.221	0.000	2.89
		C		0.000	0.000	144.003	0.000	1.96
T32	81'-61'	A	1.377	0.000	0.000	197.662	0.000	2.06
		B		0.000	0.000	229.395	0.000	2.90
		C		0.000	0.000	142.404	0.000	1.91
T33	61'-41'	A	1.332	0.000	0.000	194.303	0.000	1.99
		B		0.000	0.000	228.086	0.000	2.83
		C		0.000	0.000	142.649	0.000	1.93
T34	41'-20'	A	1.265	0.000	0.000	198.767	0.000	1.97
		B		0.000	0.000	233.002	0.000	2.80
		C		0.000	0.000	145.722	0.000	1.92
T35	20'-6'8-17/32"	A	1.165	0.000	0.000	90.897	0.000	0.86
		B		0.000	0.000	106.311	0.000	1.22
		C		0.000	0.000	66.488	0.000	0.84
T36	6'8-17/32"-0'	A	1.014	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>X</sub> in	CP <sub>Z</sub> in	CP <sub>X</sub> Ice in	CP <sub>Z</sub> Ice in
T1	457'-436'	-0.9394	-0.1234	-2.7036	-0.4049
T2	436'-421'	-0.9444	-2.3881	-2.6302	-3.5216
T3	421'-401'	1.2494	-2.0339	-0.8185	-3.3473
T4	401'-396'	1.2485	-1.8526	-0.6242	-2.9249
T5	396'-391'	1.7431	-1.7388	-0.5346	-3.0113
T6	391'-386'	2.2462	-0.9427	0.1299	-1.7455
T7	386'-381'	2.9115	-0.6034	0.7275	-1.4872
T8	381'-376'	2.5728	-0.5402	0.6048	-1.2508
T9	376'-371'	2.9002	-0.5965	0.7236	-1.4737
T10	371'-366'	2.1535	-0.2556	0.3150	-1.0719
T11	366'-361'	0.4221	0.9088	-0.9880	-0.3555
T12	361'-341'	0.4107	0.8035	-0.7257	-0.3819
T13	341'-321'	1.7803	-0.1964	1.7129	-1.6947
T14	321'-301'	2.7433	-1.8742	2.8009	-3.9346
T15	301'-281'	2.9079	-1.9514	3.0197	-4.0262
T16	281'-276'	2.8985	-1.8280	2.9838	-3.7476
T17	276'-271'	3.5827	-1.7522	3.8525	-3.8056
T18	271'-266'	3.3058	-1.6318	3.5008	-3.4821
T19	266'-261'	3.7985	-1.6801	4.1283	-3.6955
T20	261'-256'	3.5145	-1.4825	3.8035	-3.2340
T21	256'-251'	3.3158	-1.2034	3.5456	-2.7876
T22	251'-246'	3.2489	-1.8389	3.4722	-3.3408
T23	246'-241'	2.7243	-4.1864	2.9480	-5.3664
T24	241'-221'	2.3257	-4.5679	2.3601	-5.8842



<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	25 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub>	CP <sub>z</sub>
	ft	in	in	Ice in	Ice in
T25	221'-201'	1.6838	-4.8388	1.3615	-6.0623
T26	201'-181'	1.4361	-4.6380	0.6653	-5.5212
T27	181'-161'	1.4609	-4.6493	0.6962	-5.5791
T28	161'-141'	0.8104	-4.5256	0.3642	-5.5278
T29	141'-121'	0.2591	-4.8557	-0.6284	-5.7465
T30	121'-101'	-0.0687	-4.7709	-1.1536	-5.4784
T31	101'-81'	-0.3702	-4.1710	-1.1288	-5.0287
T32	81'-61'	-0.1037	-3.9186	-0.7401	-4.8738
T33	61'-41'	0.2629	-4.3214	-0.5782	-4.6367
T34	41'-20'	0.2644	-4.3419	-0.5726	-4.6669
T35	20'-6'8-17/32"	0.2023	-3.3435	-0.3837	-3.4878
T36	6'8-17/32"-0'	0.0000	0.0000	0.0000	0.0000

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T1	6	LDF4-50A(1/2")	436.00 - 450.00	0.6000	0.5177
T1	7	CAT6(1/4)	436.00 - 450.00	0.6000	0.5177
T1	8	760178129(1/4)	436.00 - 450.00	0.6000	0.5177
T1	13	1" Rigid Conduit	436.00 - 457.00	0.6000	0.5177
T1	14	3/8" Cable (Lights)	436.00 - 457.00	0.6000	0.5177
T1	24	LDF5-50A(7/8")	436.00 - 441.00	0.6000	0.5177
T1	25	LDF12-50A(2-1/4")	436.00 - 439.00	0.6000	0.5177
T1	51	475-000(4-1/16)	436.00 - 457.00	1.0000	0.5177
T1	75	Thin Flat Climbing Ladder	436.00 - 457.00	0.6000	0.5177
T1	76	Safety Line 3/8	436.00 - 457.00	0.6000	0.5177
T2	6	LDF4-50A(1/2")	421.00 - 436.00	0.6000	0.5326
T2	7	CAT6(1/4)	421.00 - 436.00	0.6000	0.5326
T2	8	760178129(1/4)	421.00 - 436.00	0.6000	0.5326
T2	13	1" Rigid Conduit	421.00 - 436.00	0.6000	0.5326
T2	14	3/8" Cable (Lights)	421.00 - 436.00	0.6000	0.5326
T2	24	LDF5-50A(7/8")	421.00 - 436.00	0.6000	0.5326
T2	25	LDF12-50A(2-1/4")	421.00 - 436.00	0.6000	0.5326
T2	51	475-000(4-1/16)	421.00 - 436.00	1.0000	0.5326
T2	75	Thin Flat Climbing Ladder	421.00 - 436.00	0.6000	0.5326

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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T2	76	Safety Line 3/8	421.00 - 436.00	0.6000	0.5326
T3	6	LDF4-50A(1/2")	401.00 - 421.00	0.6000	0.5769
T3	7	CAT6(1/4)	401.00 - 421.00	0.6000	0.5769
T3	8	760178129(1/4)	401.00 - 421.00	0.6000	0.5769
T3	13	1" Rigid Conduit	401.00 - 421.00	0.6000	0.5769
T3	14	3/8" Cable (Lights)	401.00 - 421.00	0.6000	0.5769
T3	24	LDF5-50A(7/8")	401.00 - 421.00	0.6000	0.5769
T3	25	LDF12-50A(2-1/4")	401.00 - 421.00	0.6000	0.5769
T3	26	HJ8-50B(3")	401.00 - 420.00	0.6000	0.5769
T3	51	475-000(4-1/16)	401.00 - 421.00	1.0000	0.5769
T3	75	Thin Flat Climbing Ladder	401.00 - 421.00	0.6000	0.5769
T3	76	Safety Line 3/8	401.00 - 421.00	0.6000	0.5769
T4	6	LDF4-50A(1/2")	396.00 - 401.00	0.6000	0.5150
T4	7	CAT6(1/4)	396.00 - 401.00	0.6000	0.5150
T4	8	760178129(1/4)	396.00 - 401.00	0.6000	0.5150
T4	13	1" Rigid Conduit	396.00 - 401.00	0.6000	0.5150
T4	14	3/8" Cable (Lights)	396.00 - 401.00	0.6000	0.5150
T4	24	LDF5-50A(7/8")	396.00 - 401.00	0.6000	0.5150
T4	25	LDF12-50A(2-1/4")	396.00 - 401.00	0.6000	0.5150
T4	26	HJ8-50B(3")	396.00 - 401.00	0.6000	0.5150
T4	51	475-000(4-1/16)	396.00 - 401.00	1.0000	0.5150
T4	75	Thin Flat Climbing Ladder	396.00 - 401.00	0.6000	0.5150
T4	76	Safety Line 3/8	396.00 - 401.00	0.6000	0.5150
T5	6	LDF4-50A(1/2")	391.00 - 396.00	0.6000	0.5996
T5	7	CAT6(1/4)	391.00 - 396.00	0.6000	0.5996
T5	8	760178129(1/4)	391.00 - 396.00	0.6000	0.5996
T5	13	1" Rigid Conduit	391.00 - 396.00	0.6000	0.5996
T5	14	3/8" Cable (Lights)	391.00 - 396.00	0.6000	0.5996
T5	24	LDF5-50A(7/8")	391.00 - 396.00	0.6000	0.5996
T5	25	LDF12-50A(2-1/4")	391.00 - 396.00	0.6000	0.5996
T5	26	HJ8-50B(3")	391.00 - 396.00	0.6000	0.5996

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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T5	31	HJ11-50(4")	391.00 - 393.00	1.0000	0.5996
T5	51	475-000(4-1/16)	391.00 - 396.00	1.0000	0.5996
T5	73	LDF7-50A(1-5/8")	391.00 - 393.00	0.6000	0.5996
T5	75	Thin Flat Climbing Ladder	391.00 - 396.00	0.6000	0.5996
T5	76	Safety Line 3/8	391.00 - 396.00	0.6000	0.5996
T6	6	LDF4-50A(1/2")	386.00 - 391.00	0.6000	0.5156
T6	7	CAT6(1/4)	386.00 - 391.00	0.6000	0.5156
T6	8	760178129(1/4)	386.00 - 391.00	0.6000	0.5156
T6	13	1" Rigid Conduit	386.00 - 391.00	0.6000	0.5156
T6	14	3/8" Cable (Lights)	386.00 - 391.00	0.6000	0.5156
T6	24	LDF5-50A(7/8")	386.00 - 391.00	0.6000	0.5156
T6	25	LDF12-50A(2-1/4")	386.00 - 391.00	0.6000	0.5156
T6	26	HJ8-50B(3")	386.00 - 391.00	0.6000	0.5156
T6	31	HJ11-50(4")	386.00 - 391.00	1.0000	0.5156
T6	51	475-000(4-1/16)	386.00 - 391.00	1.0000	0.5156
T6	53	LDF12-50(2-1/4")	386.00 - 388.00	0.6000	0.5156
T6	73	LDF7-50A(1-5/8")	386.00 - 391.00	0.6000	0.5156
T6	75	Thin Flat Climbing Ladder	386.00 - 391.00	0.6000	0.5156
T6	76	Safety Line 3/8	386.00 - 391.00	0.6000	0.5156
T7	6	LDF4-50A(1/2")	381.00 - 386.00	0.6000	0.6000
T7	7	CAT6(1/4)	381.00 - 386.00	0.6000	0.6000
T7	8	760178129(1/4)	381.00 - 386.00	0.6000	0.6000
T7	13	1" Rigid Conduit	381.00 - 386.00	0.6000	0.6000
T7	14	3/8" Cable (Lights)	381.00 - 386.00	0.6000	0.6000
T7	24	LDF5-50A(7/8")	381.00 - 386.00	0.6000	0.6000
T7	25	LDF12-50A(2-1/4")	381.00 - 386.00	0.6000	0.6000
T7	26	HJ8-50B(3")	381.00 - 386.00	0.6000	0.6000
T7	31	HJ11-50(4")	381.00 - 386.00	1.0000	0.6000
T7	51	475-000(4-1/16)	381.00 - 386.00	1.0000	0.6000
T7	53	LDF12-50(2-1/4")	381.00 - 386.00	0.6000	0.6000
T7	73	LDF7-50A(1-5/8")	381.00 - 386.00	0.6000	0.6000

<b><i>tnxTower</i></b>  <b><i>Tower Engineering Professionals</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 28 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K<sub>a</sub> No Ice</i>	<i>K<sub>a</sub> Ice</i>
T7	75	Thin Flat Climbing Ladder	381.00 - 386.00	0.6000	0.6000
T7	76	Safety Line 3/8	381.00 - 386.00	0.6000	0.6000
T8	6	LDF4-50A(1/2")	376.00 - 381.00	0.6000	0.5034
T8	7	CAT6(1/4)	376.00 - 381.00	0.6000	0.5034
T8	8	760178129(1/4)	376.00 - 381.00	0.6000	0.5034
T8	13	1" Rigid Conduit	376.00 - 381.00	0.6000	0.5034
T8	14	3/8" Cable (Lights)	376.00 - 381.00	0.6000	0.5034
T8	24	LDF5-50A(7/8")	376.00 - 381.00	0.6000	0.5034
T8	25	LDF12-50A(2-1/4")	376.00 - 381.00	0.6000	0.5034
T8	26	HJ8-50B(3")	376.00 - 381.00	0.6000	0.5034
T8	31	HJ11-50(4")	376.00 - 381.00	1.0000	0.5034
T8	51	475-000(4-1/16)	376.00 - 381.00	1.0000	0.5034
T8	53	LDF12-50(2-1/4")	376.00 - 381.00	0.6000	0.5034
T8	73	LDF7-50A(1-5/8")	376.00 - 381.00	0.6000	0.5034
T8	75	Thin Flat Climbing Ladder	376.00 - 381.00	0.6000	0.5034
T8	76	Safety Line 3/8	376.00 - 381.00	0.6000	0.5034
T9	6	LDF4-50A(1/2")	371.00 - 376.00	0.6000	0.5948
T9	7	CAT6(1/4)	371.00 - 376.00	0.6000	0.5948
T9	8	760178129(1/4)	371.00 - 376.00	0.6000	0.5948
T9	13	1" Rigid Conduit	371.00 - 376.00	0.6000	0.5948
T9	14	3/8" Cable (Lights)	371.00 - 376.00	0.6000	0.5948
T9	24	LDF5-50A(7/8")	371.00 - 376.00	0.6000	0.5948
T9	25	LDF12-50A(2-1/4")	371.00 - 376.00	0.6000	0.5948
T9	26	HJ8-50B(3")	371.00 - 376.00	0.6000	0.5948
T9	31	HJ11-50(4")	371.00 - 376.00	1.0000	0.5948
T9	51	475-000(4-1/16)	371.00 - 376.00	1.0000	0.5948
T9	53	LDF12-50(2-1/4")	371.00 - 376.00	0.6000	0.5948
T9	73	LDF7-50A(1-5/8")	371.00 - 376.00	0.6000	0.5948
T9	75	Thin Flat Climbing Ladder	371.00 - 376.00	0.6000	0.5948
T9	76	Safety Line 3/8	371.00 - 376.00	0.6000	0.5948
T10	6	LDF4-50A(1/2")	366.00 - 371.00	0.6000	0.5114

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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T10	7	CAT6(1/4)	366.00 - 371.00	0.6000	0.5114
T10	8	760178129(1/4)	366.00 - 371.00	0.6000	0.5114
T10	13	1" Rigid Conduit	366.00 - 371.00	0.6000	0.5114
T10	14	3/8" Cable (Lights)	366.00 - 371.00	0.6000	0.5114
T10	24	LDF5-50A(7/8")	366.00 - 371.00	0.6000	0.5114
T10	25	LDF12-50A(2-1/4")	366.00 - 371.00	0.6000	0.5114
T10	26	HJ8-50B(3")	366.00 - 371.00	0.6000	0.5114
T10	31	HJ11-50(4")	366.00 - 371.00	1.0000	0.5114
T10	51	475-000(4-1/16)	366.00 - 371.00	1.0000	0.5114
T10	53	LDF12-50(2-1/4")	366.00 - 371.00	0.6000	0.5114
T10	57	HJ11-50(4)	366.00 - 367.00	1.0000	0.5114
T10	73	LDF7-50A(1-5/8")	366.00 - 371.00	0.6000	0.5114
T10	75	Thin Flat Climbing Ladder	366.00 - 371.00	0.6000	0.5114
T10	76	Safety Line 3/8	366.00 - 371.00	0.6000	0.5114
T11	6	LDF4-50A(1/2")	361.00 - 366.00	0.6000	0.5953
T11	7	CAT6(1/4)	361.00 - 366.00	0.6000	0.5953
T11	8	760178129(1/4)	361.00 - 366.00	0.6000	0.5953
T11	13	1" Rigid Conduit	361.00 - 366.00	0.6000	0.5953
T11	14	3/8" Cable (Lights)	361.00 - 366.00	0.6000	0.5953
T11	24	LDF5-50A(7/8")	361.00 - 366.00	0.6000	0.5953
T11	25	LDF12-50A(2-1/4")	361.00 - 366.00	0.6000	0.5953
T11	26	HJ8-50B(3")	361.00 - 366.00	0.6000	0.5953
T11	31	HJ11-50(4")	361.00 - 366.00	1.0000	0.5953
T11	51	475-000(4-1/16)	361.00 - 366.00	1.0000	0.5953
T11	53	LDF12-50(2-1/4")	361.00 - 366.00	0.6000	0.5953
T11	57	HJ11-50(4)	361.00 - 366.00	1.0000	0.5953
T11	73	LDF7-50A(1-5/8")	361.00 - 366.00	0.6000	0.5953
T11	75	Thin Flat Climbing Ladder	361.00 - 366.00	0.6000	0.5953
T11	76	Safety Line 3/8	361.00 - 366.00	0.6000	0.5953
T12	6	LDF4-50A(1/2")	341.00 - 361.00	0.6000	0.4977
T12	7	CAT6(1/4)	341.00 - 361.00	0.6000	0.4977

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 30 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T12	8	760178129(1/4)	341.00 - 361.00	0.6000	0.4977
T12	13	1" Rigid Conduit	341.00 - 361.00	0.6000	0.4977
T12	14	3/8" Cable (Lights)	341.00 - 361.00	0.6000	0.4977
T12	24	LDF5-50A(7/8")	341.00 - 361.00	0.6000	0.4977
T12	25	LDF12-50A(2-1/4")	341.00 - 361.00	0.6000	0.4977
T12	26	HJ8-50B(3")	341.00 - 361.00	0.6000	0.4977
T12	31	HJ11-50(4")	341.00 - 361.00	1.0000	0.4977
T12	43	LDF4-50A(1/2")	341.00 - 342.00	0.6000	0.4977
T12	51	475-000(4-1/16)	341.00 - 361.00	1.0000	0.4977
T12	53	LDF12-50(2-1/4")	341.00 - 361.00	0.6000	0.4977
T12	57	HJ11-50(4)	341.00 - 361.00	1.0000	0.4977
T12	73	LDF7-50A(1-5/8")	341.00 - 361.00	0.6000	0.4977
T12	75	Thin Flat Climbing Ladder	341.00 - 361.00	0.6000	0.4977
T12	76	Safety Line 3/8	341.00 - 361.00	0.6000	0.4977
T12	79	LDF4-50A(1/2)	341.00 - 344.00	0.6000	0.4977
T12	80	LDF6-50A(1-1/4)	341.00 - 342.00	0.6000	0.4977
T13	6	LDF4-50A(1/2")	321.00 - 341.00	0.6000	0.5767
T13	7	CAT6(1/4)	321.00 - 341.00	0.6000	0.5767
T13	8	760178129(1/4)	321.00 - 341.00	0.6000	0.5767
T13	13	1" Rigid Conduit	321.00 - 341.00	0.6000	0.5767
T13	14	3/8" Cable (Lights)	321.00 - 341.00	0.6000	0.5767
T13	24	LDF5-50A(7/8")	321.00 - 341.00	0.6000	0.5767
T13	25	LDF12-50A(2-1/4")	321.00 - 341.00	0.6000	0.5767
T13	26	HJ8-50B(3")	321.00 - 341.00	0.6000	0.5767
T13	28	LDF6-50A(1 1/4")	321.00 - 330.00	0.6000	0.5767
T13	31	HJ11-50(4")	321.00 - 341.00	1.0000	0.5767
T13	37	LDF6-50A(1-1/4")	321.00 - 322.00	0.6000	0.5767
T13	38	LDF6-50A(1-1/4")	321.00 - 325.00	0.6000	0.5767
T13	39	LDF7-50A(1-5/8")	321.00 - 330.00	0.6000	0.5767
T13	42	LDF4P-50A(1/2")	321.00 - 322.00	0.6000	0.5767
T13	43	LDF4-50A(1/2")	321.00 - 341.00	0.6000	0.5767

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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K<sub>a</sub> No Ice</i>	<i>K<sub>a</sub> Ice</i>
T13	51	475-000(4-1/16)	321.00 - 341.00	1.0000	0.5767
T13	53	LDF12-50(2-1/4")	321.00 - 341.00	0.6000	0.5767
T13	57	HJ11-50(4)	321.00 - 341.00	1.0000	0.5767
T13	73	LDF7-50A(1-5/8")	321.00 - 341.00	0.6000	0.5767
T13	75	Thin Flat Climbing Ladder	321.00 - 341.00	0.6000	0.5767
T13	76	Safety Line 3/8	321.00 - 341.00	0.6000	0.5767
T13	79	LDF4-50A(1/2)	321.00 - 341.00	0.6000	0.5767
T13	80	LDF6-50A(1-1/4)	321.00 - 341.00	0.6000	0.5767
T13	81	LDF5-50A(7/8")	321.00 - 340.00	0.6000	0.5767
T13	82	HCC312-50J(3-1/2")	321.00 - 328.00	1.0000	0.5767
T14	6	LDF4-50A(1/2")	301.00 - 321.00	0.6000	0.5780
T14	7	CAT6(1/4)	301.00 - 321.00	0.6000	0.5780
T14	8	760178129(1/4)	301.00 - 321.00	0.6000	0.5780
T14	13	1" Rigid Conduit	301.00 - 321.00	0.6000	0.5780
T14	14	3/8" Cable (Lights)	301.00 - 321.00	0.6000	0.5780
T14	24	LDF5-50A(7/8")	301.00 - 321.00	0.6000	0.5780
T14	25	LDF12-50A(2-1/4")	301.00 - 321.00	0.6000	0.5780
T14	26	HJ8-50B(3")	301.00 - 321.00	0.6000	0.5780
T14	28	LDF6-50A(1 1/4")	301.00 - 321.00	0.6000	0.5780
T14	31	HJ11-50(4")	301.00 - 321.00	1.0000	0.5780
T14	33	LDF7-50A(1-5/8")	301.00 - 310.00	0.6000	0.5780
T14	37	LDF6-50A(1-1/4")	301.00 - 321.00	0.6000	0.5780
T14	38	LDF6-50A(1-1/4")	301.00 - 321.00	0.6000	0.5780
T14	39	LDF7-50A(1-5/8")	301.00 - 321.00	0.6000	0.5780
T14	42	LDF4P-50A(1/2")	301.00 - 321.00	0.6000	0.5780
T14	43	LDF4-50A(1/2")	301.00 - 321.00	0.6000	0.5780
T14	51	475-000(4-1/16)	301.00 - 321.00	1.0000	0.5780
T14	53	LDF12-50(2-1/4")	301.00 - 321.00	0.6000	0.5780
T14	57	HJ11-50(4)	301.00 - 321.00	1.0000	0.5780
T14	73	LDF7-50A(1-5/8")	301.00 - 321.00	0.6000	0.5780
T14	75	Thin Flat Climbing Ladder	301.00 - 321.00	0.6000	0.5780

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 32 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T14	76	Safety Line 3/8	301.00 - 321.00	0.6000	0.5780
T14	79	LDF4-50A(1/2)	301.00 - 321.00	0.6000	0.5780
T14	80	LDF6-50A(1-1/4)	301.00 - 321.00	0.6000	0.5780
T14	81	LDF5-50A(7/8")	301.00 - 321.00	0.6000	0.5780
T14	82	HCC312-50J(3-1/2")	301.00 - 321.00	1.0000	0.5780
T15	6	LDF4-50A(1/2")	281.00 - 301.00	0.6000	0.5794
T15	7	CAT6(1/4)	281.00 - 301.00	0.6000	0.5794
T15	8	760178129(1/4)	281.00 - 301.00	0.6000	0.5794
T15	13	1" Rigid Conduit	281.00 - 301.00	0.6000	0.5794
T15	14	3/8" Cable (Lights)	281.00 - 301.00	0.6000	0.5794
T15	24	LDF5-50A(7/8")	281.00 - 301.00	0.6000	0.5794
T15	25	LDF12-50A(2-1/4")	281.00 - 301.00	0.6000	0.5794
T15	26	HJ8-50B(3")	281.00 - 301.00	0.6000	0.5794
T15	28	LDF6-50A(1 1/4")	281.00 - 301.00	0.6000	0.5794
T15	31	HJ11-50(4")	281.00 - 301.00	1.0000	0.5794
T15	33	LDF7-50A(1-5/8")	281.00 - 301.00	0.6000	0.5794
T15	37	LDF6-50A(1-1/4")	281.00 - 301.00	0.6000	0.5794
T15	38	LDF6-50A(1-1/4")	281.00 - 301.00	0.6000	0.5794
T15	39	LDF7-50A(1-5/8")	281.00 - 301.00	0.6000	0.5794
T15	42	LDF4P-50A(1/2")	281.00 - 301.00	0.6000	0.5794
T15	43	LDF4-50A(1/2")	281.00 - 301.00	0.6000	0.5794
T15	51	475-000(4-1/16)	281.00 - 301.00	1.0000	0.5794
T15	53	LDF12-50(2-1/4")	281.00 - 301.00	0.6000	0.5794
T15	57	HJ11-50(4)	281.00 - 301.00	1.0000	0.5794
T15	73	LDF7-50A(1-5/8")	281.00 - 301.00	0.6000	0.5794
T15	75	Thin Flat Climbing Ladder	281.00 - 301.00	0.6000	0.5794
T15	76	Safety Line 3/8	281.00 - 301.00	0.6000	0.5794
T15	79	LDF4-50A(1/2)	281.00 - 301.00	0.6000	0.5794
T15	80	LDF6-50A(1-1/4)	281.00 - 301.00	0.6000	0.5794
T15	81	LDF5-50A(7/8")	281.00 - 301.00	0.6000	0.5794
T15	82	HCC312-50J(3-1/2")	281.00 - 301.00	1.0000	0.5794



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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K<sub>a</sub> No Ice</i>	<i>K<sub>a</sub> Ice</i>
T16	6	LDF4-50A(1/2")	276.00 - 281.00	0.6000	0.5381
T16	7	CAT6(1/4)	276.00 - 281.00	0.6000	0.5381
T16	8	760178129(1/4)	276.00 - 281.00	0.6000	0.5381
T16	13	1" Rigid Conduit	276.00 - 281.00	0.6000	0.5381
T16	14	3/8" Cable (Lights)	276.00 - 281.00	0.6000	0.5381
T16	24	LDF5-50A(7/8")	276.00 - 281.00	0.6000	0.5381
T16	25	LDF12-50A(2-1/4")	276.00 - 281.00	0.6000	0.5381
T16	26	HJ8-50B(3")	276.00 - 281.00	0.6000	0.5381
T16	28	LDF6-50A(1 1/4")	276.00 - 281.00	0.6000	0.5381
T16	31	HJ11-50(4")	276.00 - 281.00	1.0000	0.5381
T16	33	LDF7-50A(1-5/8")	276.00 - 281.00	0.6000	0.5381
T16	34	LDF7-50A(1-5/8")	276.00 - 277.00	0.6000	0.5381
T16	37	LDF6-50A(1-1/4")	276.00 - 281.00	0.6000	0.5381
T16	38	LDF6-50A(1-1/4")	276.00 - 281.00	0.6000	0.5381
T16	39	LDF7-50A(1-5/8")	276.00 - 281.00	0.6000	0.5381
T16	42	LDF4P-50A(1/2")	276.00 - 281.00	0.6000	0.5381
T16	43	LDF4-50A(1/2")	276.00 - 281.00	0.6000	0.5381
T16	51	475-000(4-1/16)	276.00 - 281.00	1.0000	0.5381
T16	53	LDF12-50(2-1/4")	276.00 - 281.00	0.6000	0.5381
T16	57	HJ11-50(4)	276.00 - 281.00	1.0000	0.5381
T16	73	LDF7-50A(1-5/8")	276.00 - 281.00	0.6000	0.5381
T16	75	Thin Flat Climbing Ladder	276.00 - 281.00	0.6000	0.5381
T16	76	Safety Line 3/8	276.00 - 281.00	0.6000	0.5381
T16	79	LDF4-50A(1/2)	276.00 - 281.00	0.6000	0.5381
T16	80	LDF6-50A(1-1/4)	276.00 - 281.00	0.6000	0.5381
T16	81	LDF5-50A(7/8")	276.00 - 281.00	0.6000	0.5381
T16	82	HCC312-50J(3-1/2")	276.00 - 281.00	1.0000	0.5381
T17	6	LDF4-50A(1/2")	271.00 - 276.00	0.6000	0.6000
T17	7	CAT6(1/4)	271.00 - 276.00	0.6000	0.6000
T17	8	760178129(1/4)	271.00 - 276.00	0.6000	0.6000
T17	13	1" Rigid Conduit	271.00 - 276.00	0.6000	0.6000

<b><i>tnxTower</i></b>  <b><i>Tower Engineering Professionals</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	34 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K<sub>a</sub> No Ice</i>	<i>K<sub>a</sub> Ice</i>
T17	14	3/8" Cable (Lights)	271.00 - 276.00	0.6000	0.6000
T17	24	LDF5-50A(7/8")	271.00 - 276.00	0.6000	0.6000
T17	25	LDF12-50A(2-1/4")	271.00 - 276.00	0.6000	0.6000
T17	26	HJ8-50B(3")	271.00 - 276.00	0.6000	0.6000
T17	28	LDF6-50A(1 1/4")	271.00 - 276.00	0.6000	0.6000
T17	31	HJ11-50(4")	271.00 - 276.00	1.0000	0.6000
T17	33	LDF7-50A(1-5/8")	271.00 - 276.00	0.6000	0.6000
T17	34	LDF7-50A(1-5/8")	271.00 - 276.00	0.6000	0.6000
T17	37	LDF6-50A(1-1/4")	271.00 - 276.00	0.6000	0.6000
T17	38	LDF6-50A(1-1/4")	271.00 - 276.00	0.6000	0.6000
T17	39	LDF7-50A(1-5/8")	271.00 - 276.00	0.6000	0.6000
T17	42	LDF4P-50A(1/2")	271.00 - 276.00	0.6000	0.6000
T17	43	LDF4-50A(1/2")	271.00 - 276.00	0.6000	0.6000
T17	51	475-000(4-1/16)	271.00 - 276.00	1.0000	0.6000
T17	53	LDF12-50(2-1/4")	271.00 - 276.00	0.6000	0.6000
T17	57	HJ11-50(4)	271.00 - 276.00	1.0000	0.6000
T17	73	LDF7-50A(1-5/8")	271.00 - 276.00	0.6000	0.6000
T17	75	Thin Flat Climbing Ladder	271.00 - 276.00	0.6000	0.6000
T17	76	Safety Line 3/8	271.00 - 276.00	0.6000	0.6000
T17	79	LDF4-50A(1/2)	271.00 - 276.00	0.6000	0.6000
T17	80	LDF6-50A(1-1/4)	271.00 - 276.00	0.6000	0.6000
T17	81	LDF5-50A(7/8")	271.00 - 276.00	0.6000	0.6000
T17	82	HCC312-50J(3-1/2")	271.00 - 276.00	1.0000	0.6000
T18	6	LDF4-50A(1/2")	266.00 - 271.00	0.6000	0.5390
T18	7	CAT6(1/4)	266.00 - 271.00	0.6000	0.5390
T18	8	760178129(1/4)	266.00 - 271.00	0.6000	0.5390
T18	13	1" Rigid Conduit	266.00 - 271.00	0.6000	0.5390
T18	14	3/8" Cable (Lights)	266.00 - 271.00	0.6000	0.5390
T18	24	LDF5-50A(7/8")	266.00 - 271.00	0.6000	0.5390
T18	25	LDF12-50A(2-1/4")	266.00 - 271.00	0.6000	0.5390
T18	26	HJ8-50B(3")	266.00 - 271.00	0.6000	0.5390

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 35 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T18	28	LDF6-50A(1 1/4")	266.00 - 271.00	0.6000	0.5390
T18	31	HJ11-50(4")	266.00 - 271.00	1.0000	0.5390
T18	33	LDF7-50A(1-5/8")	266.00 - 271.00	0.6000	0.5390
T18	34	LDF7-50A(1-5/8")	266.00 - 271.00	0.6000	0.5390
T18	37	LDF6-50A(1-1/4")	266.00 - 271.00	0.6000	0.5390
T18	38	LDF6-50A(1-1/4")	266.00 - 271.00	0.6000	0.5390
T18	39	LDF7-50A(1-5/8")	266.00 - 271.00	0.6000	0.5390
T18	42	LDF4P-50A(1/2")	266.00 - 271.00	0.6000	0.5390
T18	43	LDF4-50A(1/2")	266.00 - 271.00	0.6000	0.5390
T18	51	475-000(4-1/16)	266.00 - 271.00	1.0000	0.5390
T18	53	LDF12-50(2-1/4")	266.00 - 271.00	0.6000	0.5390
T18	57	HJ11-50(4)	266.00 - 271.00	1.0000	0.5390
T18	73	LDF7-50A(1-5/8")	266.00 - 271.00	0.6000	0.5390
T18	75	Thin Flat Climbing Ladder	266.00 - 271.00	0.6000	0.5390
T18	76	Safety Line 3/8	266.00 - 271.00	0.6000	0.5390
T18	79	LDF4-50A(1/2)	266.00 - 271.00	0.6000	0.5390
T18	80	LDF6-50A(1-1/4)	266.00 - 271.00	0.6000	0.5390
T18	81	LDF5-50A(7/8")	266.00 - 271.00	0.6000	0.5390
T18	82	HCC312-50J(3-1/2")	266.00 - 271.00	1.0000	0.5390
T19	6	LDF4-50A(1/2")	261.00 - 266.00	0.6000	0.6000
T19	7	CAT6(1/4)	261.00 - 266.00	0.6000	0.6000
T19	8	760178129(1/4)	261.00 - 266.00	0.6000	0.6000
T19	13	1" Rigid Conduit	261.00 - 266.00	0.6000	0.6000
T19	14	3/8" Cable (Lights)	261.00 - 266.00	0.6000	0.6000
T19	24	LDF5-50A(7/8")	261.00 - 266.00	0.6000	0.6000
T19	25	LDF12-50A(2-1/4")	261.00 - 266.00	0.6000	0.6000
T19	26	HJ8-50B(3")	261.00 - 266.00	0.6000	0.6000
T19	28	LDF6-50A(1 1/4")	261.00 - 266.00	0.6000	0.6000
T19	31	HJ11-50(4")	261.00 - 266.00	1.0000	0.6000
T19	32	LDF7-50A(1-5/8")	261.00 - 264.00	0.6000	0.6000
T19	33	LDF7-50A(1-5/8")	261.00 - 266.00	0.6000	0.6000

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	36 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T19	34	LDF7-50A(1-5/8")	261.00 - 266.00	0.6000	0.6000
T19	37	LDF6-50A(1-1/4")	261.00 - 266.00	0.6000	0.6000
T19	38	LDF6-50A(1-1/4")	261.00 - 266.00	0.6000	0.6000
T19	39	LDF7-50A(1-5/8")	261.00 - 266.00	0.6000	0.6000
T19	42	LDF4P-50A(1/2")	261.00 - 266.00	0.6000	0.6000
T19	43	LDF4-50A(1/2")	261.00 - 266.00	0.6000	0.6000
T19	51	475-000(4-1/16)	261.00 - 266.00	1.0000	0.6000
T19	53	LDF12-50(2-1/4")	261.00 - 266.00	0.6000	0.6000
T19	57	HJ11-50(4)	261.00 - 266.00	1.0000	0.6000
T19	73	LDF7-50A(1-5/8")	261.00 - 266.00	0.6000	0.6000
T19	75	Thin Flat Climbing Ladder	261.00 - 266.00	0.6000	0.6000
T19	76	Safety Line 3/8	261.00 - 266.00	0.6000	0.6000
T19	79	LDF4-50A(1/2)	261.00 - 266.00	0.6000	0.6000
T19	80	LDF6-50A(1-1/4)	261.00 - 266.00	0.6000	0.6000
T19	81	LDF5-50A(7/8")	261.00 - 266.00	0.6000	0.6000
T19	82	HCC312-50J(3-1/2")	261.00 - 266.00	1.0000	0.6000
T20	6	LDF4-50A(1/2")	256.00 - 261.00	0.6000	0.5201
T20	7	CAT6(1/4)	256.00 - 261.00	0.6000	0.5201
T20	8	760178129(1/4)	256.00 - 261.00	0.6000	0.5201
T20	13	1" Rigid Conduit	256.00 - 261.00	0.6000	0.5201
T20	14	3/8" Cable (Lights)	256.00 - 261.00	0.6000	0.5201
T20	24	LDF5-50A(7/8")	256.00 - 261.00	0.6000	0.5201
T20	25	LDF12-50A(2-1/4")	256.00 - 261.00	0.6000	0.5201
T20	26	HJ8-50B(3")	256.00 - 261.00	0.6000	0.5201
T20	28	LDF6-50A(1 1/4")	256.00 - 261.00	0.6000	0.5201
T20	31	HJ11-50(4")	256.00 - 261.00	1.0000	0.5201
T20	32	LDF7-50A(1-5/8")	256.00 - 261.00	0.6000	0.5201
T20	33	LDF7-50A(1-5/8")	256.00 - 261.00	0.6000	0.5201
T20	34	LDF7-50A(1-5/8")	256.00 - 261.00	0.6000	0.5201
T20	37	LDF6-50A(1-1/4")	256.00 - 261.00	0.6000	0.5201
T20	38	LDF6-50A(1-1/4")	256.00 - 261.00	0.6000	0.5201

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	37 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T20	39	LDF7-50A(1-5/8")	256.00 - 261.00	0.6000	0.5201
T20	42	LDF4P-50A(1/2")	256.00 - 261.00	0.6000	0.5201
T20	43	LDF4-50A(1/2")	256.00 - 261.00	0.6000	0.5201
T20	51	475-000(4-1/16)	256.00 - 261.00	1.0000	0.5201
T20	53	LDF12-50(2-1/4")	256.00 - 261.00	0.6000	0.5201
T20	57	HJ11-50(4)	256.00 - 261.00	1.0000	0.5201
T20	73	LDF7-50A(1-5/8")	256.00 - 261.00	0.6000	0.5201
T20	75	Thin Flat Climbing Ladder	256.00 - 261.00	0.6000	0.5201
T20	76	Safety Line 3/8	256.00 - 261.00	0.6000	0.5201
T20	79	LDF4-50A(1/2)	256.00 - 261.00	0.6000	0.5201
T20	80	LDF6-50A(1-1/4)	256.00 - 261.00	0.6000	0.5201
T20	81	LDF5-50A(7/8")	256.00 - 261.00	0.6000	0.5201
T20	82	HCC312-50J(3-1/2")	256.00 - 261.00	1.0000	0.5201
T21	6	LDF4-50A(1/2")	251.00 - 256.00	0.6000	0.5054
T21	7	CAT6(1/4)	251.00 - 256.00	0.6000	0.5054
T21	8	760178129(1/4)	251.00 - 256.00	0.6000	0.5054
T21	13	1" Rigid Conduit	251.00 - 256.00	0.6000	0.5054
T21	14	3/8" Cable (Lights)	251.00 - 256.00	0.6000	0.5054
T21	24	LDF5-50A(7/8")	251.00 - 256.00	0.6000	0.5054
T21	25	LDF12-50A(2-1/4")	251.00 - 256.00	0.6000	0.5054
T21	26	HJ8-50B(3")	251.00 - 256.00	0.6000	0.5054
T21	28	LDF6-50A(1 1/4")	251.00 - 256.00	0.6000	0.5054
T21	31	HJ11-50(4")	251.00 - 256.00	1.0000	0.5054
T21	32	LDF7-50A(1-5/8")	251.00 - 256.00	0.6000	0.5054
T21	33	LDF7-50A(1-5/8")	251.00 - 256.00	0.6000	0.5054
T21	34	LDF7-50A(1-5/8")	251.00 - 256.00	0.6000	0.5054
T21	37	LDF6-50A(1-1/4")	251.00 - 256.00	0.6000	0.5054
T21	38	LDF6-50A(1-1/4")	251.00 - 256.00	0.6000	0.5054
T21	39	LDF7-50A(1-5/8")	251.00 - 256.00	0.6000	0.5054
T21	42	LDF4P-50A(1/2")	251.00 - 256.00	0.6000	0.5054
T21	43	LDF4-50A(1/2")	251.00 - 256.00	0.6000	0.5054

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 38 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T21	51	475-000(4-1/16)	251.00 - 256.00	1.0000	0.5054
T21	53	LDF12-50(2-1/4")	251.00 - 256.00	0.6000	0.5054
T21	57	HJ11-50(4)	251.00 - 256.00	1.0000	0.5054
T21	63	LDF6-50A(1-1/4")	251.00 - 255.00	0.6000	0.5054
T21	73	LDF7-50A(1-5/8")	251.00 - 256.00	0.6000	0.5054
T21	75	Thin Flat Climbing Ladder	251.00 - 256.00	0.6000	0.5054
T21	76	Safety Line 3/8	251.00 - 256.00	0.6000	0.5054
T21	79	LDF4-50A(1/2)	251.00 - 256.00	0.6000	0.5054
T21	80	LDF6-50A(1-1/4)	251.00 - 256.00	0.6000	0.5054
T21	81	LDF5-50A(7/8")	251.00 - 256.00	0.6000	0.5054
T21	82	HCC312-50J(3-1/2")	251.00 - 256.00	1.0000	0.5054
T22	3	LDF5-50A(7/8")	246.00 - 247.00	0.6000	0.5210
T22	5	HB158-1-08U8-S8J18( 1-5/8)	246.00 - 247.00	0.6000	0.5210
T22	6	LDF4-50A(1/2")	246.00 - 251.00	0.6000	0.5210
T22	7	CAT6(1/4)	246.00 - 251.00	0.6000	0.5210
T22	8	760178129(1/4)	246.00 - 251.00	0.6000	0.5210
T22	13	1" Rigid Conduit	246.00 - 251.00	0.6000	0.5210
T22	14	3/8" Cable (Lights)	246.00 - 251.00	0.6000	0.5210
T22	24	LDF5-50A(7/8")	246.00 - 251.00	0.6000	0.5210
T22	25	LDF12-50A(2-1/4")	246.00 - 251.00	0.6000	0.5210
T22	26	HJ8-50B(3")	246.00 - 251.00	0.6000	0.5210
T22	28	LDF6-50A(1 1/4")	246.00 - 251.00	0.6000	0.5210
T22	31	HJ11-50(4")	246.00 - 251.00	1.0000	0.5210
T22	32	LDF7-50A(1-5/8")	246.00 - 251.00	0.6000	0.5210
T22	33	LDF7-50A(1-5/8")	246.00 - 251.00	0.6000	0.5210
T22	34	LDF7-50A(1-5/8")	246.00 - 251.00	0.6000	0.5210
T22	37	LDF6-50A(1-1/4")	246.00 - 251.00	0.6000	0.5210
T22	38	LDF6-50A(1-1/4")	246.00 - 251.00	0.6000	0.5210
T22	39	LDF7-50A(1-5/8")	246.00 - 251.00	0.6000	0.5210
T22	42	LDF4P-50A(1/2")	246.00 - 251.00	0.6000	0.5210
T22	43	LDF4-50A(1/2")	246.00 - 251.00	0.6000	0.5210

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 39 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T22	51	475-000(4-1/16)	246.00 - 251.00	1.0000	0.5210
T22	53	LDF12-50(2-1/4")	246.00 - 251.00	0.6000	0.5210
T22	57	HJ11-50(4)	246.00 - 251.00	1.0000	0.5210
T22	63	LDF6-50A(1-1/4")	246.00 - 251.00	0.6000	0.5210
T22	73	LDF7-50A(1-5/8")	246.00 - 251.00	0.6000	0.5210
T22	75	Thin Flat Climbing Ladder	246.00 - 251.00	0.6000	0.5210
T22	76	Safety Line 3/8	246.00 - 251.00	0.6000	0.5210
T22	79	LDF4-50A(1/2)	246.00 - 251.00	0.6000	0.5210
T22	80	LDF6-50A(1-1/4)	246.00 - 251.00	0.6000	0.5210
T22	81	LDF5-50A(7/8")	246.00 - 251.00	0.6000	0.5210
T22	82	HCC312-50J(3-1/2")	246.00 - 251.00	1.0000	0.5210
T23	3	LDF5-50A(7/8")	241.00 - 246.00	0.6000	0.5063
T23	5	HB158-1-08U8-S8J18( 1-5/8)	241.00 - 246.00	0.6000	0.5063
T23	6	LDF4-50A(1/2")	241.00 - 246.00	0.6000	0.5063
T23	7	CAT6(1/4)	241.00 - 246.00	0.6000	0.5063
T23	8	760178129(1/4)	241.00 - 246.00	0.6000	0.5063
T23	13	1" Rigid Conduit	241.00 - 246.00	0.6000	0.5063
T23	14	3/8" Cable (Lights)	241.00 - 246.00	0.6000	0.5063
T23	24	LDF5-50A(7/8")	241.00 - 246.00	0.6000	0.5063
T23	25	LDF12-50A(2-1/4")	241.00 - 246.00	0.6000	0.5063
T23	26	HJ8-50B(3")	241.00 - 246.00	0.6000	0.5063
T23	28	LDF6-50A(1 1/4")	241.00 - 246.00	0.6000	0.5063
T23	31	HJ11-50(4")	241.00 - 246.00	1.0000	0.5063
T23	32	LDF7-50A(1-5/8")	241.00 - 246.00	0.6000	0.5063
T23	33	LDF7-50A(1-5/8")	241.00 - 246.00	0.6000	0.5063
T23	34	LDF7-50A(1-5/8")	241.00 - 246.00	0.6000	0.5063
T23	37	LDF6-50A(1-1/4")	241.00 - 246.00	0.6000	0.5063
T23	38	LDF6-50A(1-1/4")	241.00 - 246.00	0.6000	0.5063
T23	39	LDF7-50A(1-5/8")	241.00 - 246.00	0.6000	0.5063
T23	42	LDF4P-50A(1/2")	241.00 - 246.00	0.6000	0.5063
T23	43	LDF4-50A(1/2")	241.00 - 246.00	0.6000	0.5063

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 40 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T23	51	475-000(4-1/16)	241.00 - 246.00	1.0000	0.5063
T23	53	LDF12-50(2-1/4")	241.00 - 246.00	0.6000	0.5063
T23	57	HJ11-50(4)	241.00 - 246.00	1.0000	0.5063
T23	63	LDF6-50A(1-1/4")	241.00 - 246.00	0.6000	0.5063
T23	73	LDF7-50A(1-5/8")	241.00 - 246.00	0.6000	0.5063
T23	75	Thin Flat Climbing Ladder	241.00 - 246.00	0.6000	0.5063
T23	76	Safety Line 3/8	241.00 - 246.00	0.6000	0.5063
T23	79	LDF4-50A(1/2)	241.00 - 246.00	0.6000	0.5063
T23	80	LDF6-50A(1-1/4)	241.00 - 246.00	0.6000	0.5063
T23	81	LDF5-50A(7/8")	241.00 - 246.00	0.6000	0.5063
T23	82	HCC312-50J(3-1/2")	241.00 - 246.00	1.0000	0.5063
T24	1	HB158-1-08U8-S8J18( 1-5/8)	221.00 - 230.00	0.6000	0.5644
T24	2	LCF78-50A( 7/8")	221.00 - 230.00	0.6000	0.5644
T24	3	LDF5-50A(7/8")	221.00 - 241.00	0.6000	0.5644
T24	5	HB158-1-08U8-S8J18( 1-5/8)	221.00 - 241.00	0.6000	0.5644
T24	6	LDF4-50A(1/2")	221.00 - 241.00	0.6000	0.5644
T24	7	CAT6(1/4)	221.00 - 241.00	0.6000	0.5644
T24	8	760178129(1/4)	221.00 - 241.00	0.6000	0.5644
T24	13	1" Rigid Conduit	221.00 - 241.00	0.6000	0.5644
T24	14	3/8" Cable (Lights)	221.00 - 241.00	0.6000	0.5644
T24	19	Banjo (6" dia, 36" step)	221.00 - 230.00	0.6000	0.5644
T24	20	Banjo (6" dia, 36" step)	221.00 - 230.00	0.6000	0.5644
T24	24	LDF5-50A(7/8")	221.00 - 241.00	0.6000	0.5644
T24	25	LDF12-50A(2-1/4")	221.00 - 241.00	0.6000	0.5644
T24	26	HJ8-50B(3")	221.00 - 241.00	0.6000	0.5644
T24	28	LDF6-50A(1 1/4")	221.00 - 241.00	0.6000	0.5644
T24	31	HJ11-50(4")	221.00 - 241.00	1.0000	0.5644
T24	32	LDF7-50A(1-5/8")	221.00 - 241.00	0.6000	0.5644
T24	33	LDF7-50A(1-5/8")	221.00 - 241.00	0.6000	0.5644
T24	34	LDF7-50A(1-5/8")	221.00 - 241.00	0.6000	0.5644
T24	37	LDF6-50A(1-1/4")	221.00 - 241.00	0.6000	0.5644



<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 41 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T24	38	LDF6-50A(1-1/4")	221.00 - 241.00	0.6000	0.5644
T24	39	LDF7-50A(1-5/8")	221.00 - 241.00	0.6000	0.5644
T24	42	LDF4P-50A(1/2")	221.00 - 241.00	0.6000	0.5644
T24	43	LDF4-50A(1/2")	221.00 - 241.00	0.6000	0.5644
T24	51	475-000(4-1/16)	221.00 - 241.00	1.0000	0.5644
T24	53	LDF12-50(2-1/4")	221.00 - 241.00	0.6000	0.5644
T24	57	HJ11-50(4)	221.00 - 241.00	1.0000	0.5644
T24	63	LDF6-50A(1-1/4")	221.00 - 241.00	0.6000	0.5644
T24	73	LDF7-50A(1-5/8")	221.00 - 241.00	0.6000	0.5644
T24	75	Thin Flat Climbing Ladder	221.00 - 241.00	0.6000	0.5644
T24	76	Safety Line 3/8	221.00 - 241.00	0.6000	0.5644
T24	79	LDF4-50A(1/2)	221.00 - 241.00	0.6000	0.5644
T24	80	LDF6-50A(1-1/4)	221.00 - 241.00	0.6000	0.5644
T24	81	LDF5-50A(7/8")	221.00 - 241.00	0.6000	0.5644
T24	82	HCC312-50J(3-1/2")	221.00 - 241.00	1.0000	0.5644
T25	1	HB158-1-08U8-S8J18( 1-5/8)	201.00 - 221.00	0.6000	0.5811
T25	2	LCF78-50A( 7/8")	201.00 - 221.00	0.6000	0.5811
T25	3	LDF5-50A(7/8")	201.00 - 221.00	0.6000	0.5811
T25	5	HB158-1-08U8-S8J18( 1-5/8)	201.00 - 221.00	0.6000	0.5811
T25	6	LDF4-50A(1/2")	201.00 - 221.00	0.6000	0.5811
T25	7	CAT6(1/4)	201.00 - 221.00	0.6000	0.5811
T25	8	760178129(1/4)	201.00 - 221.00	0.6000	0.5811
T25	12	LCF78-50A( 7/8")	201.00 - 206.00	0.6000	0.5811
T25	13	1" Rigid Conduit	201.00 - 221.00	0.6000	0.5811
T25	14	3/8" Cable (Lights)	201.00 - 221.00	0.6000	0.5811
T25	19	Banjo (6" dia, 36" step)	201.00 - 221.00	0.6000	0.5811
T25	20	Banjo (6" dia, 36" step)	201.00 - 221.00	0.6000	0.5811
T25	24	LDF5-50A(7/8")	201.00 - 221.00	0.6000	0.5811
T25	25	LDF12-50A(2-1/4")	201.00 - 221.00	0.6000	0.5811
T25	26	HJ8-50B(3")	201.00 - 221.00	0.6000	0.5811
T25	28	LDF6-50A(1 1/4")	201.00 - 221.00	0.6000	0.5811

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 42 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T25	31	HJ11-50(4")	201.00 - 221.00	1.0000	0.5811
T25	32	LDF7-50A(1-5/8")	201.00 - 221.00	0.6000	0.5811
T25	33	LDF7-50A(1-5/8")	201.00 - 221.00	0.6000	0.5811
T25	34	LDF7-50A(1-5/8")	201.00 - 221.00	0.6000	0.5811
T25	37	LDF6-50A(1-1/4")	201.00 - 221.00	0.6000	0.5811
T25	38	LDF6-50A(1-1/4")	201.00 - 221.00	0.6000	0.5811
T25	39	LDF7-50A(1-5/8")	201.00 - 221.00	0.6000	0.5811
T25	42	LDF4P-50A(1/2")	201.00 - 221.00	0.6000	0.5811
T25	43	LDF4-50A(1/2")	201.00 - 221.00	0.6000	0.5811
T25	51	475-000(4-1/16)	201.00 - 221.00	1.0000	0.5811
T25	53	LDF12-50(2-1/4")	201.00 - 221.00	0.6000	0.5811
T25	57	HJ11-50(4)	201.00 - 221.00	1.0000	0.5811
T25	63	LDF6-50A(1-1/4")	201.00 - 221.00	0.6000	0.5811
T25	73	LDF7-50A(1-5/8")	201.00 - 221.00	0.6000	0.5811
T25	75	Thin Flat Climbing Ladder	201.00 - 221.00	0.6000	0.5811
T25	76	Safety Line 3/8	201.00 - 221.00	0.6000	0.5811
T25	79	LDF4-50A(1/2)	201.00 - 221.00	0.6000	0.5811
T25	80	LDF6-50A(1-1/4)	201.00 - 221.00	0.6000	0.5811
T25	81	LDF5-50A(7/8")	201.00 - 221.00	0.6000	0.5811
T25	82	HCC312-50J(3-1/2")	201.00 - 221.00	1.0000	0.5811
T26	1	HB158-1-08U8-S8J18( 1-5/8)	181.00 - 201.00	0.6000	0.5831
T26	2	LCF78-50A( 7/8")	181.00 - 201.00	0.6000	0.5831
T26	3	LDF5-50A(7/8")	181.00 - 201.00	0.6000	0.5831
T26	5	HB158-1-08U8-S8J18( 1-5/8)	181.00 - 201.00	0.6000	0.5831
T26	6	LDF4-50A(1/2")	181.00 - 201.00	0.6000	0.5831
T26	7	CAT6(1/4)	181.00 - 201.00	0.6000	0.5831
T26	8	760178129(1/4)	181.00 - 201.00	0.6000	0.5831
T26	12	LCF78-50A( 7/8")	181.00 - 201.00	0.6000	0.5831
T26	13	1" Rigid Conduit	181.00 - 201.00	0.6000	0.5831
T26	14	3/8" Cable (Lights)	181.00 - 201.00	0.6000	0.5831
T26	16	1/4 Coax	181.00 - 200.00	0.6000	0.5831

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 43 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T26	19	Banjo (6" dia, 36" step)	181.00 - 201.00	0.6000	0.5831
T26	20	Banjo (6" dia, 36" step)	181.00 - 201.00	0.6000	0.5831
T26	24	LDF5-50A(7/8")	181.00 - 201.00	0.6000	0.5831
T26	25	LDF12-50A(2-1/4")	181.00 - 201.00	0.6000	0.5831
T26	26	HJ8-50B(3")	181.00 - 201.00	0.6000	0.5831
T26	28	LDF6-50A(1 1/4")	181.00 - 201.00	0.6000	0.5831
T26	31	HJ11-50(4")	181.00 - 201.00	1.0000	0.5831
T26	32	LDF7-50A(1-5/8")	181.00 - 201.00	0.6000	0.5831
T26	33	LDF7-50A(1-5/8")	181.00 - 201.00	0.6000	0.5831
T26	34	LDF7-50A(1-5/8")	181.00 - 201.00	0.6000	0.5831
T26	37	LDF6-50A(1-1/4")	181.00 - 201.00	0.6000	0.5831
T26	38	LDF6-50A(1-1/4")	181.00 - 201.00	0.6000	0.5831
T26	39	LDF7-50A(1-5/8")	181.00 - 201.00	0.6000	0.5831
T26	42	LDF4P-50A(1/2")	181.00 - 201.00	0.6000	0.5831
T26	43	LDF4-50A(1/2")	181.00 - 201.00	0.6000	0.5831
T26	51	475-000(4-1/16)	181.00 - 201.00	1.0000	0.5831
T26	53	LDF12-50(2-1/4")	181.00 - 201.00	0.6000	0.5831
T26	57	HJ11-50(4)	181.00 - 201.00	1.0000	0.5831
T26	63	LDF6-50A(1-1/4")	181.00 - 201.00	0.6000	0.5831
T26	73	LDF7-50A(1-5/8")	181.00 - 201.00	0.6000	0.5831
T26	75	Thin Flat Climbing Ladder	181.00 - 201.00	0.6000	0.5831
T26	76	Safety Line 3/8	181.00 - 201.00	0.6000	0.5831
T26	79	LDF4-50A(1/2)	181.00 - 201.00	0.6000	0.5831
T26	80	LDF6-50A(1-1/4)	181.00 - 201.00	0.6000	0.5831
T26	81	LDF5-50A(7/8")	181.00 - 201.00	0.6000	0.5831
T26	82	HCC312-50J(3-1/2")	181.00 - 201.00	1.0000	0.5831
T27	1	HB158-1-08U8-S8J18( 1-5/8)	161.00 - 181.00	0.6000	0.5834
T27	2	LCF78-50A( 7/8")	161.00 - 181.00	0.6000	0.5834
T27	3	LDF5-50A(7/8")	161.00 - 181.00	0.6000	0.5834
T27	5	HB158-1-08U8-S8J18( 1-5/8)	161.00 - 181.00	0.6000	0.5834
T27	6	LDF4-50A(1/2")	161.00 - 181.00	0.6000	0.5834

<b><i>tnxTower</i></b>  <b><i>Tower Engineering Professionals</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 44 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T27	7	CAT6(1/4)	161.00 - 181.00	0.6000	0.5834
T27	8	760178129(1/4)	161.00 - 181.00	0.6000	0.5834
T27	12	LCF78-50A( 7/8")	161.00 - 181.00	0.6000	0.5834
T27	13	1" Rigid Conduit	161.00 - 181.00	0.6000	0.5834
T27	14	3/8" Cable (Lights)	161.00 - 181.00	0.6000	0.5834
T27	16	1/4 Coax	161.00 - 181.00	0.6000	0.5834
T27	19	Banjo (6" dia, 36" step)	161.00 - 181.00	0.6000	0.5834
T27	20	Banjo (6" dia, 36" step)	161.00 - 181.00	0.6000	0.5834
T27	24	LDF5-50A(7/8")	161.00 - 181.00	0.6000	0.5834
T27	25	LDF12-50A(2-1/4")	161.00 - 181.00	0.6000	0.5834
T27	26	HJ8-50B(3")	161.00 - 181.00	0.6000	0.5834
T27	28	LDF6-50A(1 1/4")	161.00 - 181.00	0.6000	0.5834
T27	31	HJ11-50(4")	161.00 - 181.00	1.0000	0.5834
T27	32	LDF7-50A(1-5/8")	161.00 - 181.00	0.6000	0.5834
T27	33	LDF7-50A(1-5/8")	161.00 - 181.00	0.6000	0.5834
T27	34	LDF7-50A(1-5/8")	161.00 - 181.00	0.6000	0.5834
T27	37	LDF6-50A(1-1/4")	161.00 - 181.00	0.6000	0.5834
T27	38	LDF6-50A(1-1/4")	161.00 - 181.00	0.6000	0.5834
T27	39	LDF7-50A(1-5/8")	161.00 - 181.00	0.6000	0.5834
T27	41	LDF4P-50A(1/2")	161.00 - 178.00	0.6000	0.5834
T27	42	LDF4P-50A(1/2")	178.00 - 181.00	0.6000	0.5834
T27	43	LDF4-50A(1/2")	161.00 - 181.00	0.6000	0.5834
T27	51	475-000(4-1/16)	161.00 - 181.00	1.0000	0.5834
T27	53	LDF12-50(2-1/4")	161.00 - 181.00	0.6000	0.5834
T27	57	HJ11-50(4)	161.00 - 181.00	1.0000	0.5834
T27	63	LDF6-50A(1-1/4")	161.00 - 181.00	0.6000	0.5834
T27	73	LDF7-50A(1-5/8")	161.00 - 181.00	0.6000	0.5834
T27	75	Thin Flat Climbing Ladder	161.00 - 181.00	0.6000	0.5834
T27	76	Safety Line 3/8	161.00 - 181.00	0.6000	0.5834
T27	79	LDF4-50A(1/2)	161.00 - 181.00	0.6000	0.5834
T27	80	LDF6-50A(1-1/4)	161.00 - 181.00	0.6000	0.5834

<b><i>tnxTower</i></b>  <b><i>Tower Engineering Professionals</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 45 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K<sub>a</sub> No Ice</i>	<i>K<sub>a</sub> Ice</i>
T27	81	LDF5-50A(7/8")	161.00 - 181.00	0.6000	0.5834
T27	82	HCC312-50J(3-1/2")	161.00 - 181.00	1.0000	0.5834
T28	1	HB158-1-08U8-S8J18( 1-5/8)	141.00 - 161.00	0.6000	0.5632
T28	2	LCF78-50A( 7/8")	141.00 - 161.00	0.6000	0.5632
T28	3	LDF5-50A(7/8")	141.00 - 161.00	0.6000	0.5632
T28	5	HB158-1-08U8-S8J18( 1-5/8)	141.00 - 161.00	0.6000	0.5632
T28	6	LDF4-50A(1/2")	141.00 - 161.00	0.6000	0.5632
T28	7	CAT6(1/4)	141.00 - 161.00	0.6000	0.5632
T28	8	760178129(1/4)	141.00 - 161.00	0.6000	0.5632
T28	9	EW63(ELLIPTICAL)	141.00 - 150.00	0.6000	0.5632
T28	12	LCF78-50A( 7/8")	141.00 - 161.00	0.6000	0.5632
T28	13	1" Rigid Conduit	141.00 - 161.00	0.6000	0.5632
T28	14	3/8" Cable (Lights)	141.00 - 161.00	0.6000	0.5632
T28	16	1/4 Coax	141.00 - 161.00	0.6000	0.5632
T28	19	Banjo (6" dia, 36" step)	141.00 - 161.00	0.6000	0.5632
T28	20	Banjo (6" dia, 36" step)	141.00 - 161.00	0.6000	0.5632
T28	24	LDF5-50A(7/8")	141.00 - 161.00	0.6000	0.5632
T28	25	LDF12-50A(2-1/4")	141.00 - 161.00	0.6000	0.5632
T28	26	HJ8-50B(3")	141.00 - 161.00	0.6000	0.5632
T28	28	LDF6-50A(1 1/4")	141.00 - 161.00	0.6000	0.5632
T28	31	HJ11-50(4")	141.00 - 161.00	1.0000	0.5632
T28	32	LDF7-50A(1-5/8")	141.00 - 161.00	0.6000	0.5632
T28	33	LDF7-50A(1-5/8")	141.00 - 161.00	0.6000	0.5632
T28	34	LDF7-50A(1-5/8")	141.00 - 161.00	0.6000	0.5632
T28	37	LDF6-50A(1-1/4")	141.00 - 161.00	0.6000	0.5632
T28	38	LDF6-50A(1-1/4")	141.00 - 161.00	0.6000	0.5632
T28	39	LDF7-50A(1-5/8")	141.00 - 161.00	0.6000	0.5632
T28	41	LDF4P-50A(1/2")	141.00 - 161.00	0.6000	0.5632
T28	43	LDF4-50A(1/2")	141.00 - 161.00	0.6000	0.5632
T28	44	EW63(ELLIPTICAL)	141.00 - 146.00	0.6000	0.5632
T28	45	EW52(ELLIPTICAL)	141.00 - 146.00	0.6000	0.5632

<b><i>tnxTower</i></b>  <b><i>Tower Engineering Professionals</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	46 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K<sub>a</sub> No Ice</i>	<i>K<sub>a</sub> Ice</i>
T28	51	475-000(4-1/16)	141.00 - 161.00	1.0000	0.5632
T28	53	LDF12-50(2-1/4")	141.00 - 161.00	0.6000	0.5632
T28	57	HJ11-50(4)	141.00 - 161.00	1.0000	0.5632
T28	63	LDF6-50A(1-1/4")	141.00 - 161.00	0.6000	0.5632
T28	73	LDF7-50A(1-5/8")	141.00 - 161.00	0.6000	0.5632
T28	75	Thin Flat Climbing Ladder	141.00 - 161.00	0.6000	0.5632
T28	76	Safety Line 3/8	141.00 - 161.00	0.6000	0.5632
T28	79	LDF4-50A(1/2)	141.00 - 161.00	0.6000	0.5632
T28	80	LDF6-50A(1-1/4)	141.00 - 161.00	0.6000	0.5632
T28	81	LDF5-50A(7/8")	141.00 - 161.00	0.6000	0.5632
T28	82	HCC312-50J(3-1/2")	141.00 - 161.00	0.6000	0.5632
T29	1	HB158-1-08U8-S8J18( 1-5/8)	121.00 - 141.00	0.6000	0.5659
T29	2	LCF78-50A( 7/8")	121.00 - 141.00	0.6000	0.5659
T29	3	LDF5-50A(7/8")	121.00 - 141.00	0.6000	0.5659
T29	5	HB158-1-08U8-S8J18( 1-5/8)	121.00 - 141.00	0.6000	0.5659
T29	6	LDF4-50A(1/2")	121.00 - 141.00	0.6000	0.5659
T29	7	CAT6(1/4)	121.00 - 141.00	0.6000	0.5659
T29	8	760178129(1/4)	121.00 - 141.00	0.6000	0.5659
T29	9	EW63(ELLIPTICAL)	121.00 - 141.00	0.6000	0.5659
T29	12	LCF78-50A( 7/8")	121.00 - 141.00	0.6000	0.5659
T29	13	1" Rigid Conduit	121.00 - 141.00	0.6000	0.5659
T29	14	3/8" Cable (Lights)	121.00 - 141.00	0.6000	0.5659
T29	16	1/4 Coax	121.00 - 141.00	0.6000	0.5659
T29	17	3/8" Coax	121.00 - 136.00	0.6000	0.5659
T29	18	3/8" Coax	121.00 - 140.00	0.6000	0.5659
T29	19	Banjo (6" dia, 36" step)	121.00 - 141.00	0.6000	0.5659
T29	20	Banjo (6" dia, 36" step)	121.00 - 141.00	0.6000	0.5659
T29	23	LDF5-50A(7/8")	121.00 - 133.00	0.6000	0.5659
T29	24	LDF5-50A(7/8")	133.00 - 141.00	0.6000	0.5659
T29	25	LDF12-50A(2-1/4")	121.00 - 141.00	0.6000	0.5659
T29	26	HJ8-50B(3")	121.00 - 141.00	0.6000	0.5659

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 47 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T29	28	LDF6-50A(1 1/4")	121.00 - 141.00	0.6000	0.5659
T29	31	HJ11-50(4")	121.00 - 141.00	1.0000	0.5659
T29	32	LDF7-50A(1-5/8")	121.00 - 141.00	0.6000	0.5659
T29	33	LDF7-50A(1-5/8")	121.00 - 141.00	0.6000	0.5659
T29	34	LDF7-50A(1-5/8")	121.00 - 141.00	0.6000	0.5659
T29	37	LDF6-50A(1-1/4")	121.00 - 141.00	0.6000	0.5659
T29	38	LDF6-50A(1-1/4")	121.00 - 141.00	0.6000	0.5659
T29	39	LDF7-50A(1-5/8")	121.00 - 141.00	0.6000	0.5659
T29	40	LDF4P-50A(1/2")	121.00 - 133.00	0.6000	0.5659
T29	41	LDF4P-50A(1/2")	133.00 - 141.00	0.6000	0.5659
T29	43	LDF4-50A(1/2")	121.00 - 141.00	0.6000	0.5659
T29	44	EW63(ELLIPTICAL)	121.00 - 141.00	0.6000	0.5659
T29	45	EW52(ELLIPTICAL)	121.00 - 141.00	0.6000	0.5659
T29	51	475-000(4-1/16)	121.00 - 141.00	1.0000	0.5659
T29	53	LDF12-50(2-1/4")	121.00 - 141.00	0.6000	0.5659
T29	57	HJ11-50(4)	121.00 - 141.00	1.0000	0.5659
T29	63	LDF6-50A(1-1/4")	121.00 - 141.00	0.6000	0.5659
T29	68	LDF5-50A(7/8")	121.00 - 133.00	0.6000	0.5659
T29	73	LDF7-50A(1-5/8")	121.00 - 141.00	0.6000	0.5659
T29	75	Thin Flat Climbing Ladder	121.00 - 141.00	0.6000	0.5659
T29	76	Safety Line 3/8	121.00 - 141.00	0.6000	0.5659
T29	79	LDF4-50A(1/2)	121.00 - 141.00	0.6000	0.5659
T29	80	LDF6-50A(1-1/4)	121.00 - 141.00	0.6000	0.5659
T29	81	LDF5-50A(7/8")	121.00 - 141.00	0.6000	0.5659
T29	82	HCC312-50J(3-1/2")	121.00 - 141.00	0.6000	0.5659
T30	1	HB158-1-08U8-S8J18( 1-5/8)	101.00 - 121.00	0.6000	0.5888
T30	2	LCF78-50A( 7/8")	101.00 - 121.00	0.6000	0.5888
T30	3	LDF5-50A(7/8")	101.00 - 121.00	0.6000	0.5888
T30	5	HB158-1-08U8-S8J18( 1-5/8)	101.00 - 121.00	0.6000	0.5888
T30	6	LDF4-50A(1/2")	101.00 - 121.00	0.6000	0.5888
T30	7	CAT6(1/4)	101.00 - 121.00	0.6000	0.5888

<b><i>tnxTower</i></b>  <b><i>Tower Engineering Professionals</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 48 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K<sub>a</sub> No Ice</i>	<i>K<sub>a</sub> Ice</i>
T30	8	760178129(1/4)	101.00 - 121.00	0.6000	0.5888
T30	9	EW63(ELLIPTICAL)	101.00 - 121.00	0.6000	0.5888
T30	12	LCF78-50A( 7/8")	101.00 - 121.00	0.6000	0.5888
T30	13	1" Rigid Conduit	101.00 - 121.00	0.6000	0.5888
T30	14	3/8" Cable (Lights)	101.00 - 121.00	0.6000	0.5888
T30	16	1/4 Coax	101.00 - 121.00	0.6000	0.5888
T30	17	3/8" Coax	101.00 - 121.00	0.6000	0.5888
T30	18	3/8" Coax	101.00 - 121.00	0.6000	0.5888
T30	19	Banjo (6" dia, 36" step)	101.00 - 121.00	0.6000	0.5888
T30	20	Banjo (6" dia, 36" step)	101.00 - 121.00	0.6000	0.5888
T30	23	LDF5-50A(7/8")	101.00 - 121.00	0.6000	0.5888
T30	25	LDF12-50A(2-1/4")	101.00 - 121.00	0.6000	0.5888
T30	26	HJ8-50B(3")	101.00 - 121.00	0.6000	0.5888
T30	28	LDF6-50A(1 1/4")	101.00 - 121.00	0.6000	0.5888
T30	31	HJ11-50(4")	101.00 - 121.00	1.0000	0.5888
T30	32	LDF7-50A(1-5/8")	101.00 - 121.00	0.6000	0.5888
T30	33	LDF7-50A(1-5/8")	101.00 - 121.00	0.6000	0.5888
T30	34	LDF7-50A(1-5/8")	101.00 - 121.00	0.6000	0.5888
T30	37	LDF6-50A(1-1/4")	101.00 - 121.00	0.6000	0.5888
T30	38	LDF6-50A(1-1/4")	101.00 - 121.00	0.6000	0.5888
T30	39	LDF7-50A(1-5/8")	101.00 - 121.00	0.6000	0.5888
T30	40	LDF4P-50A(1/2")	101.00 - 121.00	0.6000	0.5888
T30	43	LDF4-50A(1/2")	101.00 - 121.00	0.6000	0.5888
T30	44	EW63(ELLIPTICAL)	101.00 - 121.00	0.6000	0.5888
T30	45	EW52(ELLIPTICAL)	101.00 - 121.00	0.6000	0.5888
T30	51	475-000(4-1/16)	101.00 - 121.00	1.0000	0.5888
T30	53	LDF12-50(2-1/4")	101.00 - 121.00	0.6000	0.5888
T30	55	LDF5-50A(7/8")	101.00 - 109.00	0.6000	0.5888
T30	57	HJ11-50(4)	101.00 - 121.00	1.0000	0.5888
T30	63	LDF6-50A(1-1/4")	101.00 - 121.00	0.6000	0.5888
T30	68	LDF5-50A(7/8")	117.00 - 121.00	0.6000	0.5888



<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	49 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T30	69	LDF5-50A(7/8")	101.00 - 117.00	0.6000	0.5888
T30	72	LDF5-50A(7/8")	101.00 - 108.00	0.6000	0.5888
T30	73	LDF7-50A(1-5/8")	101.00 - 121.00	0.6000	0.5888
T30	75	Thin Flat Climbing Ladder	101.00 - 121.00	0.6000	0.5888
T30	76	Safety Line 3/8	101.00 - 121.00	0.6000	0.5888
T30	79	LDF4-50A(1/2)	101.00 - 121.00	0.6000	0.5888
T30	80	LDF6-50A(1-1/4)	101.00 - 121.00	0.6000	0.5888
T30	81	LDF5-50A(7/8")	101.00 - 121.00	0.6000	0.5888
T30	82	HCC312-50J(3-1/2")	101.00 - 121.00	0.6000	0.5888
T31	1	HB158-1-08U8-S8J18( 1-5/8)	81.00 - 101.00	0.6000	0.5925
T31	2	LCF78-50A( 7/8")	81.00 - 101.00	0.6000	0.5925
T31	3	LDF5-50A(7/8")	81.00 - 101.00	0.6000	0.5925
T31	5	HB158-1-08U8-S8J18( 1-5/8)	81.00 - 101.00	0.6000	0.5925
T31	6	LDF4-50A(1/2")	81.00 - 101.00	0.6000	0.5925
T31	7	CAT6(1/4)	81.00 - 101.00	0.6000	0.5925
T31	8	760178129(1/4)	81.00 - 101.00	0.6000	0.5925
T31	9	EW63(ELLIPTICAL)	81.00 - 101.00	0.6000	0.5925
T31	12	LCF78-50A( 7/8")	81.00 - 101.00	0.6000	0.5925
T31	13	1" Rigid Conduit	81.00 - 101.00	0.6000	0.5925
T31	14	3/8" Cable (Lights)	81.00 - 101.00	0.6000	0.5925
T31	15	1/4 Coax	81.00 - 99.00	0.6000	0.5925
T31	16	1/4 Coax	81.00 - 101.00	0.6000	0.5925
T31	17	3/8" Coax	81.00 - 101.00	0.6000	0.5925
T31	18	3/8" Coax	81.00 - 101.00	0.6000	0.5925
T31	19	Banjo (6" dia, 36" step)	81.00 - 101.00	0.6000	0.5925
T31	20	Banjo (6" dia, 36" step)	81.00 - 101.00	0.6000	0.5925
T31	23	LDF5-50A(7/8")	81.00 - 101.00	0.6000	0.5925
T31	25	LDF12-50A(2-1/4")	81.00 - 101.00	0.6000	0.5925
T31	26	HJ8-50B(3")	81.00 - 101.00	0.6000	0.5925
T31	28	LDF6-50A(1 1/4")	81.00 - 101.00	0.6000	0.5925
T31	31	HJ11-50(4")	81.00 - 101.00	1.0000	0.5925
T31	32	LDF7-50A(1-5/8")	81.00 - 101.00	0.6000	0.5925
T31	33	LDF7-50A(1-5/8")	81.00 - 101.00	0.6000	0.5925
T31	34	LDF7-50A(1-5/8")	81.00 - 101.00	0.6000	0.5925
T31	37	LDF6-50A(1-1/4")	81.00 - 101.00	0.6000	0.5925
T31	38	LDF6-50A(1-1/4")	81.00 - 101.00	0.6000	0.5925
T31	39	LDF7-50A(1-5/8")	81.00 - 101.00	0.6000	0.5925
T31	40	LDF4P-50A(1/2")	81.00 - 101.00	0.6000	0.5925
T31	43	LDF4-50A(1/2")	81.00 - 101.00	0.6000	0.5925
T31	44	EW63(ELLIPTICAL)	81.00 - 101.00	0.6000	0.5925
T31	45	EW52(ELLIPTICAL)	81.00 - 101.00	0.6000	0.5925
T31	51	475-000(4-1/16)	81.00 - 101.00	1.0000	0.5925
T31	53	LDF12-50(2-1/4")	81.00 - 101.00	0.6000	0.5925
T31	55	LDF5-50A(7/8")	81.00 - 101.00	0.6000	0.5925
T31	57	HJ11-50(4)	81.00 - 101.00	1.0000	0.5925
T31	63	LDF6-50A(1-1/4")	81.00 - 101.00	0.6000	0.5925
T31	69	LDF5-50A(7/8")	99.00 - 101.00	0.6000	0.5925
T31	70	LDF5-50A(7/8")	81.00 - 99.00	0.6000	0.5925
T31	72	LDF5-50A(7/8")	81.00 - 101.00	0.6000	0.5925
T31	73	LDF7-50A(1-5/8")	81.00 - 101.00	0.6000	0.5925
T31	75	Thin Flat Climbing Ladder	81.00 - 101.00	0.6000	0.5925
T31	76	Safety Line 3/8	81.00 - 101.00	0.6000	0.5925
T31	79	LDF4-50A(1/2)	81.00 - 101.00	0.6000	0.5925

<p><b>tnxTower</b></p> <p><i>Tower Engineering Professionals</i></p> <p>326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</p>	<p><b>Job</b></p> <p>Trumbull (BU 873128)</p>	<p><b>Page</b></p> <p>50 of 107</p>
	<p><b>Project</b></p> <p>TEP No. 25575.535124</p>	<p><b>Date</b></p> <p>15:16:56 04/30/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>PRS</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T31	80	LDF6-50A(1-1/4)	81.00 - 101.00	0.6000	0.5925
T31	81	LDF5-50A(7/8")	81.00 - 101.00	0.6000	0.5925
T31	82	HCC312-50J(3-1/2")	81.00 - 101.00	0.6000	0.5925
T32	1	HB158-1-08U8-S8J18( 1-5/8)	61.00 - 81.00	0.6000	0.5971
T32	2	LCF78-50A( 7/8")	61.00 - 81.00	0.6000	0.5971
T32	3	LDF5-50A(7/8")	61.00 - 81.00	0.6000	0.5971
T32	5	HB158-1-08U8-S8J18( 1-5/8)	61.00 - 81.00	0.6000	0.5971
T32	6	LDF4-50A(1/2")	61.00 - 81.00	0.6000	0.5971
T32	7	CAT6(1/4)	61.00 - 81.00	0.6000	0.5971
T32	8	760178129(1/4)	61.00 - 81.00	0.6000	0.5971
T32	9	EW63(ELLIPTICAL)	61.00 - 81.00	0.6000	0.5971
T32	12	LCF78-50A( 7/8")	61.00 - 81.00	0.6000	0.5971
T32	13	1" Rigid Conduit	61.00 - 81.00	0.6000	0.5971
T32	14	3/8" Cable (Lights)	61.00 - 81.00	0.6000	0.5971
T32	15	1/4 Coax	61.00 - 81.00	0.6000	0.5971
T32	16	1/4 Coax	61.00 - 81.00	0.6000	0.5971
T32	17	3/8" Coax	61.00 - 81.00	0.6000	0.5971
T32	18	3/8" Coax	61.00 - 81.00	0.6000	0.5971
T32	19	Banjo (6" dia, 36" step)	61.00 - 81.00	0.6000	0.5971
T32	20	Banjo (6" dia, 36" step)	61.00 - 81.00	0.6000	0.5971
T32	23	LDF5-50A(7/8")	61.00 - 81.00	0.6000	0.5971
T32	25	LDF12-50A(2-1/4")	61.00 - 81.00	0.6000	0.5971
T32	26	HJ8-50B(3")	61.00 - 81.00	0.6000	0.5971
T32	28	LDF6-50A(1 1/4")	61.00 - 81.00	0.6000	0.5971
T32	31	HJ11-50(4")	61.00 - 81.00	1.0000	0.5971
T32	32	LDF7-50A(1-5/8")	61.00 - 81.00	0.6000	0.5971
T32	33	LDF7-50A(1-5/8")	61.00 - 81.00	0.6000	0.5971
T32	34	LDF7-50A(1-5/8")	61.00 - 81.00	0.6000	0.5971
T32	37	LDF6-50A(1-1/4")	61.00 - 81.00	0.6000	0.5971
T32	38	LDF6-50A(1-1/4")	61.00 - 81.00	0.6000	0.5971
T32	39	LDF7-50A(1-5/8")	61.00 - 81.00	0.6000	0.5971
T32	40	LDF4P-50A(1/2")	61.00 - 81.00	0.6000	0.5971
T32	43	LDF4-50A(1/2")	61.00 - 81.00	0.6000	0.5971
T32	44	EW63(ELLIPTICAL)	61.00 - 81.00	0.6000	0.5971
T32	45	EW52(ELLIPTICAL)	61.00 - 81.00	0.6000	0.5971
T32	51	475-000(4-1/16)	61.00 - 81.00	1.0000	0.5971
T32	53	LDF12-50(2-1/4")	61.00 - 81.00	0.6000	0.5971
T32	55	LDF5-50A(7/8")	61.00 - 81.00	0.6000	0.5971
T32	57	HJ11-50(4)	61.00 - 81.00	1.0000	0.5971
T32	63	LDF6-50A(1-1/4")	61.00 - 81.00	0.6000	0.5971
T32	70	LDF5-50A(7/8")	62.00 - 81.00	0.6000	0.5971
T32	71	LDF5-50A(7/8")	61.00 - 62.00	0.6000	0.5971
T32	72	LDF5-50A(7/8")	61.00 - 81.00	0.6000	0.5971
T32	73	LDF7-50A(1-5/8")	61.00 - 81.00	0.6000	0.5971
T32	75	Thin Flat Climbing Ladder	61.00 - 81.00	0.6000	0.5971
T32	76	Safety Line 3/8	61.00 - 81.00	0.6000	0.5971
T32	79	LDF4-50A(1/2)	61.00 - 81.00	0.6000	0.5971
T32	80	LDF6-50A(1-1/4)	61.00 - 81.00	0.6000	0.5971
T32	81	LDF5-50A(7/8")	61.00 - 81.00	0.6000	0.5971
T32	82	HCC312-50J(3-1/2")	61.00 - 81.00	0.6000	0.5971
T32	83	LDF7-50A(1-5/8")	61.00 - 75.00	0.6000	0.5971
T33	1	HB158-1-08U8-S8J18( 1-5/8)	41.00 - 61.00	0.6000	0.6000
T33	2	LCF78-50A( 7/8")	41.00 - 61.00	0.6000	0.6000
T33	3	LDF5-50A(7/8")	41.00 - 61.00	0.6000	0.6000
T33	5	HB158-1-08U8-S8J18( 1-5/8)	41.00 - 61.00	0.6000	0.6000
T33	6	LDF4-50A(1/2")	41.00 - 61.00	0.6000	0.6000
T33	7	CAT6(1/4)	41.00 - 61.00	0.6000	0.6000
T33	8	760178129(1/4)	41.00 - 61.00	0.6000	0.6000
T33	9	EW63(ELLIPTICAL)	41.00 - 61.00	0.6000	0.6000
T33	12	LCF78-50A( 7/8")	41.00 - 61.00	0.6000	0.6000
T33	13	1" Rigid Conduit	41.00 - 61.00	0.6000	0.6000
T33	14	3/8" Cable (Lights)	41.00 - 61.00	0.6000	0.6000

<p><b>tnxTower</b></p> <p><i>Tower Engineering Professionals</i></p> <p>326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</p>	<p><b>Job</b></p> <p>Trumbull (BU 873128)</p>	<p><b>Page</b></p> <p>51 of 107</p>
	<p><b>Project</b></p> <p>TEP No. 25575.535124</p>	<p><b>Date</b></p> <p>15:16:56 04/30/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>PRS</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T33	15	1/4 Coax	41.00 - 61.00	0.6000	0.6000
T33	16	1/4 Coax	41.00 - 61.00	0.6000	0.6000
T33	17	3/8" Coax	41.00 - 61.00	0.6000	0.6000
T33	18	3/8" Coax	41.00 - 61.00	0.6000	0.6000
T33	19	Banjo (6" dia, 36" step)	41.00 - 61.00	0.6000	0.6000
T33	20	Banjo (6" dia, 36" step)	41.00 - 61.00	0.6000	0.6000
T33	23	LDF5-50A(7/8")	41.00 - 61.00	0.6000	0.6000
T33	25	LDF12-50A(2-1/4")	41.00 - 61.00	0.6000	0.6000
T33	26	HJ8-50B(3")	41.00 - 61.00	0.6000	0.6000
T33	28	LDF6-50A(1 1/4")	41.00 - 61.00	0.6000	0.6000
T33	31	HJ11-50(4")	41.00 - 61.00	0.6000	0.6000
T33	32	LDF7-50A(1-5/8")	41.00 - 61.00	0.6000	0.6000
T33	33	LDF7-50A(1-5/8")	41.00 - 61.00	0.6000	0.6000
T33	34	LDF7-50A(1-5/8")	41.00 - 61.00	0.6000	0.6000
T33	37	LDF6-50A(1-1/4")	41.00 - 61.00	0.6000	0.6000
T33	38	LDF6-50A(1-1/4")	41.00 - 61.00	0.6000	0.6000
T33	39	LDF7-50A(1-5/8")	41.00 - 61.00	0.6000	0.6000
T33	40	LDF4P-50A(1/2")	41.00 - 61.00	0.6000	0.6000
T33	43	LDF4-50A(1/2")	41.00 - 61.00	0.6000	0.6000
T33	44	EW63(ELLIPTICAL)	41.00 - 61.00	0.6000	0.6000
T33	45	EW52(ELLIPTICAL)	41.00 - 61.00	0.6000	0.6000
T33	51	475-000(4-1/16)	41.00 - 61.00	0.6000	0.6000
T33	53	LDF12-50(2-1/4")	41.00 - 61.00	0.6000	0.6000
T33	55	LDF5-50A(7/8")	41.00 - 61.00	0.6000	0.6000
T33	57	HJ11-50(4)	41.00 - 61.00	0.6000	0.6000
T33	63	LDF6-50A(1-1/4")	41.00 - 61.00	0.6000	0.6000
T33	71	LDF5-50A(7/8")	41.00 - 61.00	0.6000	0.6000
T33	72	LDF5-50A(7/8")	41.00 - 61.00	0.6000	0.6000
T33	73	LDF7-50A(1-5/8")	41.00 - 61.00	0.6000	0.6000
T33	75	Thin Flat Climbing Ladder	41.00 - 61.00	0.6000	0.6000
T33	76	Safety Line 3/8	41.00 - 61.00	0.6000	0.6000
T33	79	LDF4-50A(1/2)	41.00 - 61.00	0.6000	0.6000
T33	80	LDF6-50A(1-1/4)	41.00 - 61.00	0.6000	0.6000
T33	81	LDF5-50A(7/8")	41.00 - 61.00	0.6000	0.6000
T33	82	HCC312-50J(3-1/2")	41.00 - 61.00	0.6000	0.6000
T33	83	LDF7-50A(1-5/8")	41.00 - 61.00	0.6000	0.6000
T34	1	HB158-1-08U8-S8J18( 1-5/8)	20.00 - 41.00	0.6000	0.6000
T34	2	LCF78-50A( 7/8")	20.00 - 41.00	0.6000	0.6000
T34	3	LDF5-50A(7/8")	20.00 - 41.00	0.6000	0.6000
T34	5	HB158-1-08U8-S8J18( 1-5/8)	20.00 - 41.00	0.6000	0.6000
T34	6	LDF4-50A(1/2")	20.00 - 41.00	0.6000	0.6000
T34	7	CAT6(1/4)	20.00 - 41.00	0.6000	0.6000
T34	8	760178129(1/4)	20.00 - 41.00	0.6000	0.6000
T34	9	EW63(ELLIPTICAL)	20.00 - 41.00	0.6000	0.6000
T34	12	LCF78-50A( 7/8")	20.00 - 41.00	0.6000	0.6000
T34	13	1" Rigid Conduit	20.00 - 41.00	0.6000	0.6000
T34	14	3/8" Cable (Lights)	20.00 - 41.00	0.6000	0.6000
T34	15	1/4 Coax	20.00 - 41.00	0.6000	0.6000
T34	16	1/4 Coax	20.00 - 41.00	0.6000	0.6000
T34	17	3/8" Coax	20.00 - 41.00	0.6000	0.6000
T34	18	3/8" Coax	20.00 - 41.00	0.6000	0.6000
T34	19	Banjo (6" dia, 36" step)	20.00 - 41.00	0.6000	0.6000
T34	20	Banjo (6" dia, 36" step)	20.00 - 41.00	0.6000	0.6000
T34	23	LDF5-50A(7/8")	20.00 - 41.00	0.6000	0.6000
T34	25	LDF12-50A(2-1/4")	20.00 - 41.00	0.6000	0.6000
T34	26	HJ8-50B(3")	20.00 - 41.00	0.6000	0.6000
T34	28	LDF6-50A(1 1/4")	20.00 - 41.00	0.6000	0.6000
T34	31	HJ11-50(4")	20.00 - 41.00	0.6000	0.6000
T34	32	LDF7-50A(1-5/8")	20.00 - 41.00	0.6000	0.6000
T34	33	LDF7-50A(1-5/8")	20.00 - 41.00	0.6000	0.6000
T34	34	LDF7-50A(1-5/8")	20.00 - 41.00	0.6000	0.6000
T34	37	LDF6-50A(1-1/4")	20.00 - 41.00	0.6000	0.6000

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 52 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T34	38	LDF6-50A(1-1/4")	20.00 - 41.00	0.6000	0.6000
T34	39	LDF7-50A(1-5/8")	20.00 - 41.00	0.6000	0.6000
T34	40	LDF4P-50A(1/2")	20.00 - 41.00	0.6000	0.6000
T34	43	LDF4-50A(1/2")	20.00 - 41.00	0.6000	0.6000
T34	44	EW63(ELLIPTICAL)	20.00 - 41.00	0.6000	0.6000
T34	45	EW52(ELLIPTICAL)	20.00 - 41.00	0.6000	0.6000
T34	51	475-000(4-1/16)	20.00 - 41.00	0.6000	0.6000
T34	53	LDF12-50(2-1/4")	20.00 - 41.00	0.6000	0.6000
T34	55	LDF5-50A(7/8")	20.00 - 41.00	0.6000	0.6000
T34	57	HJ11-50(4)	20.00 - 41.00	0.6000	0.6000
T34	63	LDF6-50A(1-1/4")	20.00 - 41.00	0.6000	0.6000
T34	71	LDF5-50A(7/8")	20.00 - 41.00	0.6000	0.6000
T34	72	LDF5-50A(7/8")	20.00 - 41.00	0.6000	0.6000
T34	73	LDF7-50A(1-5/8")	20.00 - 41.00	0.6000	0.6000
T34	75	Thin Flat Climbing Ladder	20.00 - 41.00	0.6000	0.6000
T34	76	Safety Line 3/8	20.00 - 41.00	0.6000	0.6000
T34	79	LDF4-50A(1/2)	20.00 - 41.00	0.6000	0.6000
T34	80	LDF6-50A(1-1/4)	20.00 - 41.00	0.6000	0.6000
T34	81	LDF5-50A(7/8")	20.00 - 41.00	0.6000	0.6000
T34	82	HCC312-50J(3-1/2")	20.00 - 41.00	0.6000	0.6000
T34	83	LDF7-50A(1-5/8")	20.00 - 41.00	0.6000	0.6000
T35	1	HB158-1-08U8-S8J18( 1-5/8)	10.00 - 20.00	0.6000	0.5399
T35	2	LCF78-50A( 7/8")	10.00 - 20.00	0.6000	0.5399
T35	3	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.5399
T35	5	HB158-1-08U8-S8J18( 1-5/8)	10.00 - 20.00	0.6000	0.5399
T35	6	LDF4-50A(1/2")	10.00 - 20.00	0.6000	0.5399
T35	7	CAT6(1/4)	10.00 - 20.00	0.6000	0.5399
T35	8	760178129(1/4)	10.00 - 20.00	0.6000	0.5399
T35	9	EW63(ELLIPTICAL)	10.00 - 20.00	0.6000	0.5399
T35	12	LCF78-50A( 7/8")	10.00 - 20.00	0.6000	0.5399
T35	13	1" Rigid Conduit	10.00 - 20.00	0.6000	0.5399
T35	14	3/8" Cable (Lights)	10.00 - 20.00	0.6000	0.5399
T35	15	1/4 Coax	10.00 - 20.00	0.6000	0.5399
T35	16	1/4 Coax	10.00 - 20.00	0.6000	0.5399
T35	17	3/8" Coax	10.00 - 20.00	0.6000	0.5399
T35	18	3/8" Coax	10.00 - 20.00	0.6000	0.5399
T35	19	Banjo (6" dia, 36" step)	10.00 - 20.00	0.6000	0.5399
T35	20	Banjo (6" dia, 36" step)	10.00 - 20.00	0.6000	0.5399
T35	23	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.5399
T35	25	LDF12-50A(2-1/4")	10.00 - 20.00	0.6000	0.5399
T35	26	HJ8-50B(3")	10.00 - 20.00	0.6000	0.5399
T35	28	LDF6-50A(1 1/4")	10.00 - 20.00	0.6000	0.5399
T35	31	HJ11-50(4")	10.00 - 20.00	0.6000	0.5399
T35	32	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.5399
T35	33	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.5399
T35	34	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.5399
T35	37	LDF6-50A(1-1/4")	10.00 - 20.00	0.6000	0.5399
T35	38	LDF6-50A(1-1/4")	10.00 - 20.00	0.6000	0.5399
T35	39	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.5399
T35	40	LDF4P-50A(1/2")	10.00 - 20.00	0.6000	0.5399
T35	43	LDF4-50A(1/2")	10.00 - 20.00	0.6000	0.5399
T35	44	EW63(ELLIPTICAL)	10.00 - 20.00	0.6000	0.5399
T35	45	EW52(ELLIPTICAL)	10.00 - 20.00	0.6000	0.5399
T35	51	475-000(4-1/16)	10.00 - 20.00	0.6000	0.5399
T35	53	LDF12-50(2-1/4")	10.00 - 20.00	0.6000	0.5399
T35	55	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.5399
T35	57	HJ11-50(4)	10.00 - 20.00	0.6000	0.5399
T35	63	LDF6-50A(1-1/4")	10.00 - 20.00	0.6000	0.5399
T35	71	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.5399
T35	72	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.5399
T35	73	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.5399
T35	75	Thin Flat Climbing Ladder	10.00 - 20.00	0.6000	0.5399

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 53 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T35	76	Safety Line 3/8	10.00 - 20.00	0.6000	0.5399
T35	79	LDF4-50A(1/2)	10.00 - 20.00	0.6000	0.5399
T35	80	LDF6-50A(1-1/4)	10.00 - 20.00	0.6000	0.5399
T35	81	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.5399
T35	82	HCC312-50J(3-1/2")	10.00 - 20.00	0.6000	0.5399
T35	83	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.5399

### Antenna Pole Forces *RFS/Celwave SAA18-04A-J480-ET5R-21*

Length of Pole	$I_x$	$I_y$	Modulus $E$	Antenna Pole $C_{AA}$	Antenna Pole Weight	Length of Beacon	Beacon $C_{AA}$	Beacon Weight
ft	$in^4$	$in^4$	ksi	$ft^2/ft$	plf	ft	$ft^2$	K
39'6-27/32"	9547.0000	9547.0000	29000	No Ice	1.05	116.25	0'	0.00
				With Ice	1.15	142.56	0.00	0.00

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement	$C_{AA}$ Front	$C_{AA}$ Side	Weight	
			Vert ft ft ft	°	ft	$ft^2$	$ft^2$	K	
12" x 3' Beacon	A	From Centroid-LEG	0.00	0.0000	457'	No Ice	1.53	1.53	0.02
			0'			1/2" Ice	2.36	2.36	0.05
			41'6"			1" Ice	2.60	2.60	0.08
						2" Ice	3.11	3.11	0.15
3" x 6" SideLight	A	From Leg	1.00	0.0000	333'	No Ice	0.09	0.09	0.00
			0'			1/2" Ice	0.14	0.14	0.00
			0'			1" Ice	0.19	0.19	0.00
						2" Ice	0.34	0.34	0.01
3" x 6" SideLight	B	From Leg	1.00	0.0000	333'	No Ice	0.09	0.09	0.00
			0'			1/2" Ice	0.14	0.14	0.00
			0'			1" Ice	0.19	0.19	0.00
						2" Ice	0.34	0.34	0.01
3" x 6" SideLight	C	From Leg	1.00	0.0000	333'	No Ice	0.09	0.09	0.00
			0'			1/2" Ice	0.14	0.14	0.00
			0'			1" Ice	0.19	0.19	0.00
						2" Ice	0.34	0.34	0.01
3" x 6" SideLight	A	From Leg	1.00	0.0000	215'	No Ice	0.09	0.09	0.00
			0'			1/2" Ice	0.14	0.14	0.00
			0'			1" Ice	0.19	0.19	0.00
						2" Ice	0.34	0.34	0.01
3" x 6" SideLight	B	From Leg	1.00	0.0000	215'	No Ice	0.09	0.09	0.00
			0'			1/2" Ice	0.14	0.14	0.00
			0'			1" Ice	0.19	0.19	0.00
						2" Ice	0.34	0.34	0.01
3" x 6" SideLight	C	From Leg	1.00	0.0000	215'	No Ice	0.09	0.09	0.00
			0'			1/2" Ice	0.14	0.14	0.00



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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral						Vert
Side Arm Mount [SO 308-1]	B	From Leg	3.00		-65.0000	439'	No Ice	0.41	3.06	0.05
			0'				1/2" Ice	0.81	5.10	0.08
			0'				1" Ice	1.23	7.20	0.12
							2" Ice	2.09	11.96	0.25
***										
ERI 1183-3CP	C	None			0.0000	435' - 405'	No Ice	119.38	119.38	4.35
							1/2" Ice	167.05	167.05	6.27
							1" Ice	169.13	169.13	8.22
							2" Ice	173.32	173.32	12.19
***										
6014-2	A	None			0.0000	393'	No Ice	65.00	65.00	1.09
							1/2" Ice	135.00	135.00	2.39
							1" Ice	205.00	205.00	3.69
							2" Ice	345.00	345.00	6.29
6014-2	C	None			0.0000	388'	No Ice	65.00	65.00	1.09
							1/2" Ice	135.00	135.00	2.39
							1" Ice	205.00	205.00	3.69
							2" Ice	345.00	345.00	6.29
***367**										
6828-2	C	From Leg	1.00		-20.0000	367'	No Ice	12.50	11.70	0.24
			0'				1/2" Ice	14.98	14.02	0.37
			0'				1" Ice	17.46	16.34	0.50
							2" Ice	22.42	20.98	0.76
**364**										
DB806E-XT	A	From Leg	4.00		-75.0000	364'	No Ice	2.40	2.40	0.02
			0'				1/2" Ice	3.19	3.19	0.03
			4'				1" Ice	3.67	3.67	0.06
							2" Ice	4.68	4.68	0.12
Side Arm Mount [SO 601-1]	A	From Leg	2.00		-75.0000	364'	No Ice	1.04	5.32	0.16
			0'				1/2" Ice	1.41	6.43	0.20
			0'				1" Ice	1.78	7.67	0.24
							2" Ice	2.52	10.67	0.36
***										
455-6	B	From Leg	4.00		-35.0000	344'	No Ice	5.50	5.50	0.03
			0'				1/2" Ice	7.53	7.53	0.07
			10'				1" Ice	9.58	9.58	0.12
							2" Ice	13.73	13.73	0.26
Side Arm Mount [SO 601-1]	B	From Leg	2.00		-35.0000	344'	No Ice	1.04	5.32	0.16
			0'				1/2" Ice	1.41	6.43	0.20
			0'				1" Ice	1.78	7.67	0.24
							2" Ice	2.52	10.67	0.36
***										
BCD-87077	C	From Leg	6.00		90.0000	342'	No Ice	3.06	3.06	0.03
			0'				1/2" Ice	4.27	4.27	0.05
			8'				1" Ice	5.49	5.49	0.08
							2" Ice	7.55	7.55	0.16
Side Arm Mount [SO 303-1]	C	From Leg	3.00		90.0000	342'	No Ice	1.08	5.31	0.12
			0'				1/2" Ice	1.63	7.57	0.16
			0'				1" Ice	2.21	9.93	0.22
							2" Ice	3.44	15.19	0.38
AO9009-3	B	From Leg	4.00		90.0000	342'	No Ice	2.55	2.55	0.01
			0'				1/2" Ice	3.60	3.60	0.03
			5'				1" Ice	4.67	4.67	0.06
							2" Ice	6.14	6.14	0.13

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	56 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Lateral						Vert
Side Arm Mount [SO 305-1]	B	From Leg	2.00		90.0000	342'	No Ice	0.53	1.52	0.03
			0'				1/2" Ice	0.78	2.07	0.04
			0'				1" Ice	1.06	2.66	0.06
							2" Ice	1.73	3.91	0.13
455-6	A	From Leg	4.00		-60.0000	342'	No Ice	5.50	5.50	0.03
			0'				1/2" Ice	7.53	7.53	0.07
			10'				1" Ice	9.58	9.58	0.12
							2" Ice	13.73	13.73	0.26
Side Arm Mount [SO 601-1]	A	From Leg	2.00		-60.0000	342'	No Ice	1.04	5.32	0.16
			0'				1/2" Ice	1.41	6.43	0.20
			0'				1" Ice	1.78	7.67	0.24
							2" Ice	2.52	10.67	0.36
***										
455-6	A	From Leg	6.00		-50.0000	340'	No Ice	5.50	5.50	0.03
			0'				1/2" Ice	7.53	7.53	0.07
			10'				1" Ice	9.58	9.58	0.12
							2" Ice	13.73	13.73	0.26
Side Arm Mount [SO 308-1]	A	From Leg	3.00		-50.0000	340'	No Ice	0.41	3.06	0.05
			0'				1/2" Ice	0.81	5.10	0.08
			0'				1" Ice	1.23	7.20	0.12
							2" Ice	2.09	11.96	0.25
**330**										
PG1N0F-0090-310	B	From Leg	6.00		-60.0000	330'	No Ice	3.00	3.00	0.03
			0'				1/2" Ice	4.03	4.03	0.05
			5'				1" Ice	5.03	5.03	0.08
							2" Ice	6.26	6.26	0.16
Side Arm Mount [SO 601-1]	B	From Leg	3.00		-60.0000	330'	No Ice	1.04	5.32	0.16
			0'				1/2" Ice	1.41	6.43	0.20
			0'				1" Ice	1.78	7.67	0.24
							2" Ice	2.52	10.67	0.36
**328**										
7P-C1-2-CP-L	C	From Leg	4.00		-75.0000	328'	No Ice	7.00	7.00	0.25
			0'				1/2" Ice	8.00	8.00	0.35
			0'				1" Ice	9.00	9.00	0.45
							2" Ice	11.00	11.00	0.65
(3) Side Arm Mount [SO 701-1]	C	From Leg	2.00		-75.0000	328'	No Ice	0.85	1.67	0.07
			0'				1/2" Ice	1.14	2.34	0.08
			0'				1" Ice	1.43	3.01	0.09
							2" Ice	2.01	4.35	0.12
**326**										
DB201-A	A	From Leg	6.00		0.0000	326'	No Ice	1.10	1.10	0.03
			0'				1/2" Ice	1.98	1.98	0.03
			3'				1" Ice	2.86	2.86	0.04
							2" Ice	4.62	4.62	0.06
Side Arm Mount [SO 602-1]	A	From Leg	3.00		0.0000	326'	No Ice	2.58	10.83	0.15
			0'				1/2" Ice	3.39	13.16	0.22
			0'				1" Ice	4.18	15.84	0.31
							2" Ice	5.70	22.98	0.55
**325										
DB408	A	From Leg	6.00		0.0000	325'	No Ice	1.90	1.90	0.02
			0'				1/2" Ice	3.42	3.42	0.02
			0'				1" Ice	4.94	4.94	0.03
							2" Ice	7.98	7.98	0.04
Side Arm Mount [SO 303-1]	A	From Leg	3.00		0.0000	325'	No Ice	1.08	5.31	0.12
			0'				1/2" Ice	1.63	7.57	0.16
			0'				1" Ice	2.21	9.93	0.22
							2" Ice	3.44	15.19	0.38



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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
**322**									
SRL310C-4HD	B	From Leg	6.00	0.0000	322'	No Ice	1.14	1.14	0.01
			0'			1/2" Ice	2.09	2.09	0.03
			5'			1" Ice	3.04	3.04	0.04
						2" Ice	4.94	4.94	0.06
Side Arm Mount [SO 308-1]	B	From Leg	3.00	0.0000	322'	No Ice	0.41	3.06	0.05
			0'			1/2" Ice	0.81	5.10	0.08
			0'			1" Ice	1.23	7.20	0.12
						2" Ice	2.09	11.96	0.25
Pipe Mount [PM 601-1]	A	From Leg	0.50	0.0000	322'	No Ice	1.32	1.32	0.07
			0'			1/2" Ice	1.58	1.58	0.08
			0'			1" Ice	1.84	1.84	0.09
						2" Ice	2.40	2.40	0.13
***									
6014-2	A	None		0.0000	316'	No Ice	65.00	65.00	1.09
						1/2" Ice	135.00	135.00	2.39
						1" Ice	205.00	205.00	3.69
						2" Ice	345.00	345.00	6.29
6014-2	A	None		0.0000	306'	No Ice	65.00	65.00	1.09
						1/2" Ice	135.00	135.00	2.39
						1" Ice	205.00	205.00	3.69
						2" Ice	345.00	345.00	6.29
***									
**284**									
DB404-B w/ Mount Pipe	A	From Leg	0.50	-15.0000	284'	No Ice	4.13	4.13	0.05
			0'			1/2" Ice	5.67	5.67	0.10
			0'			1" Ice	6.38	6.38	0.16
						2" Ice	7.87	7.87	0.30
**277**									
BMR10-A-B1	B	From Leg	1.00	-45.0000	277'	No Ice	8.60	8.60	0.06
			0'			1/2" Ice	9.90	9.90	0.11
			6'			1" Ice	11.20	11.20	0.18
						2" Ice	13.80	13.80	0.34
**264**									
ANT150F6	A	From Leg	6.00	-15.0000	264'	No Ice	4.80	4.80	0.03
			0'			1/2" Ice	6.83	6.83	0.07
			9'			1" Ice	8.87	8.87	0.11
						2" Ice	13.01	13.01	0.25
Side Arm Mount [SO 303-1]	A	From Leg	3.00	-15.0000	264'	No Ice	1.08	5.31	0.12
			0'			1/2" Ice	1.63	7.57	0.16
			0'			1" Ice	2.21	9.93	0.22
						2" Ice	3.44	15.19	0.38
**255**									
DB809KT3E-Y	B	From Leg	3.00	-75.0000	255'	No Ice	3.39	3.39	0.03
			0'			1/2" Ice	4.55	4.55	0.05
			6'			1" Ice	5.73	5.73	0.09
						2" Ice	7.38	7.38	0.17
Side Arm Mount [SO 203-1]	B	From Leg	1.50	-75.0000	255'	No Ice	1.78	3.79	0.13
			0'			1/2" Ice	2.24	4.47	0.15
			0'			1" Ice	2.75	5.21	0.19
						2" Ice	3.89	6.78	0.29
**247**									
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00	75.0000	247'	No Ice	14.69	6.87	0.19
			-5'			1/2" Ice	15.46	7.55	0.31
			0'			1" Ice	16.23	8.25	0.46
						2" Ice	17.82	9.67	0.79
APXVAARR24_43-U-NA20	B	From Leg	4.00	55.0000	247'	No Ice	14.69	6.87	0.19

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	<b>Project</b>		TEP No. 25575.535124				<b>Date</b>		15:16:56 04/30/21	
	<b>Client</b>		Crown Castle				<b>Designed by</b>		PRS	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
w/ Mount Pipe				-5'					0.31
				0'					0.46
						1/2" Ice	15.46	7.55	0.79
						1" Ice	16.23	8.25	0.19
						2" Ice	17.82	9.67	0.31
APXVAARR24_43-U-NA20	C	From Leg	4.00		90.0000	247'	No Ice	14.69	6.87
w/ Mount Pipe				-5'			1/2" Ice	15.46	7.55
				0'			1" Ice	16.23	8.25
							2" Ice	17.82	9.67
AIR6449 B41_T-MOBILE	A	From Leg	4.00		75.0000	247'	No Ice	5.19	2.71
w/ Mount Pipe				0'			1/2" Ice	5.59	3.04
				0'			1" Ice	6.02	3.38
							2" Ice	6.90	4.12
AIR6449 B41_T-MOBILE	B	From Leg	4.00		55.0000	247'	No Ice	5.19	2.71
w/ Mount Pipe				0'			1/2" Ice	5.59	3.04
				0'			1" Ice	6.02	3.38
							2" Ice	6.90	4.12
AIR6449 B41_T-MOBILE	C	From Leg	4.00		90.0000	247'	No Ice	5.19	2.71
w/ Mount Pipe				0'			1/2" Ice	5.59	3.04
				0'			1" Ice	6.02	3.38
							2" Ice	6.90	4.12
AIR 32 B2A	A	From Leg	4.00		75.0000	247'	No Ice	3.76	3.15
B66AA_T-MOBILE w/				5'			1/2" Ice	4.12	3.49
Mount Pipe				0'			1" Ice	4.48	3.84
							2" Ice	5.24	4.58
AIR 32 B2A	B	From Leg	4.00		55.0000	247'	No Ice	3.76	3.15
B66AA_T-MOBILE w/				5'			1/2" Ice	4.12	3.49
Mount Pipe				0'			1" Ice	4.48	3.84
							2" Ice	5.24	4.58
AIR 32 B2A	C	From Leg	4.00		90.0000	247'	No Ice	3.76	3.15
B66AA_T-MOBILE w/				5'			1/2" Ice	4.12	3.49
Mount Pipe				0'			1" Ice	4.48	3.84
							2" Ice	5.24	4.58
RADIO 4449 B12/B71	A	From Leg	4.00		75.0000	247'	No Ice	1.64	1.15
				-5'			1/2" Ice	1.80	1.29
				0'			1" Ice	1.97	1.44
							2" Ice	2.33	1.75
RADIO 4449 B12/B71	B	From Leg	4.00		55.0000	247'	No Ice	1.64	1.15
				-5'			1/2" Ice	1.80	1.29
				0'			1" Ice	1.97	1.44
							2" Ice	2.33	1.75
RADIO 4449 B12/B71	C	From Leg	4.00		90.0000	247'	No Ice	1.64	1.15
				-5'			1/2" Ice	1.80	1.29
				0'			1" Ice	1.97	1.44
							2" Ice	2.33	1.75
KRY 112 144/2	A	From Leg	4.00		75.0000	247'	No Ice	0.48	0.23
				-5'			1/2" Ice	0.57	0.30
				0'			1" Ice	0.66	0.38
							2" Ice	0.88	0.55
KRY 112 144/2	B	From Leg	4.00		55.0000	247'	No Ice	0.48	0.23
				-5'			1/2" Ice	0.57	0.30
				0'			1" Ice	0.66	0.38
							2" Ice	0.88	0.55
KRY 112 144/2	C	From Leg	4.00		90.0000	247'	No Ice	0.48	0.23
				-5'			1/2" Ice	0.57	0.30
				0'			1" Ice	0.66	0.38
							2" Ice	0.88	0.55
RRUS 4415 B25_CCIV2	A	From Leg	4.00		75.0000	247'	No Ice	1.84	0.82
				0'			1/2" Ice	2.01	0.94

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
RRUS 4415 B25_CCIV2	B	From Leg	4.00	0'	55.0000	247'	1" Ice	2.19	1.07	0.08
							2" Ice	2.57	1.37	0.12
							No Ice	1.84	0.82	0.05
							1/2" Ice	2.01	0.94	0.06
RRUS 4415 B25_CCIV2	C	From Leg	4.00	0'	90.0000	247'	1" Ice	2.19	1.07	0.08
							2" Ice	2.57	1.37	0.12
							No Ice	1.84	0.82	0.05
							1/2" Ice	2.01	0.94	0.06
SDX1926Q-43	A	From Leg	4.00	0'	75.0000	247'	1" Ice	2.19	1.07	0.08
							2" Ice	2.57	1.37	0.12
							No Ice	0.24	0.10	0.01
							1/2" Ice	0.31	0.14	0.01
SDX1926Q-43	B	From Leg	4.00	5'	55.0000	247'	1" Ice	0.38	0.19	0.01
							2" Ice	0.55	0.32	0.02
							No Ice	0.24	0.10	0.01
							1/2" Ice	0.31	0.14	0.01
SDX1926Q-43	C	From Leg	4.00	0'	90.0000	247'	1" Ice	0.38	0.19	0.01
							2" Ice	0.55	0.32	0.02
							No Ice	0.24	0.10	0.01
							1/2" Ice	0.31	0.14	0.01
Sector Mount [SM 301-3]	C	None			0.0000	247'	1" Ice	0.38	0.19	0.01
							2" Ice	0.55	0.32	0.02
							No Ice	29.46	29.46	1.30
							1/2" Ice	37.01	37.01	1.82
**230**										
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00	0'	-65.0000	230'	No Ice	5.50	4.38	0.10
							1/2" Ice	5.97	4.84	0.17
							1" Ice	6.45	5.30	0.25
							2" Ice	7.44	6.26	0.46
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00	0'	-65.0000	230'	No Ice	5.50	4.38	0.10
							1/2" Ice	5.97	4.84	0.17
							1" Ice	6.45	5.30	0.25
							2" Ice	7.44	6.26	0.46
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0'	-65.0000	230'	No Ice	5.50	4.38	0.10
							1/2" Ice	5.97	4.84	0.17
							1" Ice	6.45	5.30	0.25
							2" Ice	7.44	6.26	0.46
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Leg	4.00	-2'	-65.0000	230'	No Ice	4.92	2.69	0.10
							1/2" Ice	5.26	3.15	0.14
							1" Ice	5.62	3.63	0.19
							2" Ice	6.37	4.64	0.29
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Leg	4.00	-2'	-65.0000	230'	No Ice	4.92	2.69	0.10
							1/2" Ice	5.26	3.15	0.14
							1" Ice	5.62	3.63	0.19
							2" Ice	6.37	4.64	0.29
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Leg	4.00	-2'	-65.0000	230'	No Ice	4.92	2.69	0.10
							1/2" Ice	5.26	3.15	0.14
							1" Ice	5.62	3.63	0.19
							2" Ice	6.37	4.64	0.29
LNX-8513DS-VTM w/ Mount Pipe	A	From Leg	4.00	2'	-65.0000	230'	No Ice	4.09	3.30	0.07
							1/2" Ice	4.49	3.68	0.13
							1" Ice	4.89	4.06	0.20
							2" Ice	5.71	4.87	0.38
LNX-8513DS-VTM w/ Mount Pipe	B	From Leg	4.00	2'	-65.0000	230'	No Ice	4.09	3.30	0.07
							1/2" Ice	4.49	3.68	0.13

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
				2'			1" Ice 4.89	4.06	0.20
							2" Ice 5.71	4.87	0.38
LNx-6514DS-VTM w/ Mount Pipe	C	From Leg	4.00		-65.0000	230'	No Ice 4.09	3.30	0.06
			2'				1/2" Ice 4.49	3.68	0.13
			2'				1" Ice 4.89	4.06	0.20
							2" Ice 5.71	4.87	0.38
RRFDC-3315-PF-48	B	From Leg	4.00		-65.0000	230'	No Ice 3.36	2.19	0.02
			2'				1/2" Ice 3.60	2.39	0.05
			2'				1" Ice 3.84	2.61	0.08
							2" Ice 4.34	3.05	0.16
RRFDC-3315-PF-48	B	From Leg	4.00		-65.0000	230'	No Ice 3.36	2.19	0.02
			-6'				1/2" Ice 3.60	2.39	0.05
			8'				1" Ice 3.84	2.61	0.08
							2" Ice 4.34	3.05	0.16
CBC78T-DS-43-2X	A	From Leg	4.00		-65.0000	230'	No Ice 0.37	0.51	0.02
			-6'				1/2" Ice 0.45	0.60	0.03
			2'				1" Ice 0.53	0.70	0.04
							2" Ice 0.72	0.93	0.06
CBC78T-DS-43-2X	B	From Leg	4.00		-65.0000	230'	No Ice 0.37	0.51	0.02
			-6'				1/2" Ice 0.45	0.60	0.03
			2'				1" Ice 0.53	0.70	0.04
							2" Ice 0.72	0.93	0.06
CBC78T-DS-43-2X	C	From Leg	4.00		-65.0000	230'	No Ice 0.37	0.51	0.02
			-6'				1/2" Ice 0.45	0.60	0.03
			2'				1" Ice 0.53	0.70	0.04
							2" Ice 0.72	0.93	0.06
RFV01U-D1A	A	From Leg	4.00		-65.0000	230'	No Ice 1.88	1.25	0.08
			-2'				1/2" Ice 2.05	1.39	0.10
			2'				1" Ice 2.22	1.54	0.12
							2" Ice 2.60	1.86	0.18
RFV01U-D1A	B	From Leg	4.00		-65.0000	230'	No Ice 1.88	1.25	0.08
			-2'				1/2" Ice 2.05	1.39	0.10
			2'				1" Ice 2.22	1.54	0.12
							2" Ice 2.60	1.86	0.18
RFV01U-D1A	C	From Leg	4.00		-65.0000	230'	No Ice 1.88	1.25	0.08
			-2'				1/2" Ice 2.05	1.39	0.10
			2'				1" Ice 2.22	1.54	0.12
							2" Ice 2.60	1.86	0.18
RFV01U-D2A	A	From Leg	4.00		-65.0000	230'	No Ice 1.88	1.01	0.07
			6'				1/2" Ice 2.05	1.14	0.09
			2'				1" Ice 2.22	1.28	0.11
							2" Ice 2.60	1.59	0.15
RFV01U-D2A	B	From Leg	4.00		-65.0000	230'	No Ice 1.88	1.01	0.07
			6'				1/2" Ice 2.05	1.14	0.09
			2'				1" Ice 2.22	1.28	0.11
							2" Ice 2.60	1.59	0.15
RFV01U-D2A	C	From Leg	4.00		-65.0000	230'	No Ice 1.88	1.01	0.07
			6'				1/2" Ice 2.05	1.14	0.09
			2'				1" Ice 2.22	1.28	0.11
							2" Ice 2.60	1.59	0.15
Sector Mount [SM 407-3]	C	None			0.0000	230'	No Ice 20.42	20.42	0.96
							1/2" Ice 30.23	30.23	1.36
							1" Ice 40.13	40.13	1.91
							2" Ice 60.99	60.99	3.46

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\*\*200\*\*

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Vert						ft
DFPD1-52 w/ Mount Pipe	C	From Leg	1.00	0'	45.0000	200'	No Ice	1.63	0.93	0.02
			0'				1/2" Ice	1.84	1.17	0.04
			0'				1" Ice	2.07	1.43	0.06
							2" Ice	2.56	1.99	0.11
**188**										
BMYD745K	A	From Leg	1.00	0'	-90.0000	188'	No Ice	1.70	1.70	0.03
			0'				1/2" Ice	2.00	2.00	0.04
			0'				1" Ice	2.30	2.30	0.04
							2" Ice	2.90	2.90	0.07
**186**										
ASP-960	A	From Leg	0.50	0'	-90.0000	186'	No Ice	1.92	1.92	0.00
			0'				1/2" Ice	3.46	3.46	0.01
			0'				1" Ice	4.99	4.99	0.01
							2" Ice	8.06	8.06	0.01
**178**										
12"x12"x3" TMA	C	From Leg	0.50	0'	0.0000	178'	No Ice	1.20	0.32	0.02
			0'				1/2" Ice	1.34	0.40	0.02
			0'				1" Ice	1.48	0.49	0.03
							2" Ice	1.79	0.69	0.06
1.9" x 5.5' Pipe (Horizontal)	B	From Leg	0.00	-2'	0.0000	150'	No Ice	1.04	0.03	0.01
			0'				1/2" Ice	1.43	0.05	0.02
							1" Ice	1.81	0.09	0.04
							2" Ice	2.61	0.17	0.08
**146**										
Pipe Mount [PM 601-1]	B	From Leg	0.50	0'	0.0000	146'	No Ice	1.32	1.32	0.07
			0'				1/2" Ice	1.58	1.58	0.08
			0'				1" Ice	1.84	1.84	0.09
							2" Ice	2.40	2.40	0.13
**136**										
CSI-AY/809-960/11	B	From Leg	1.50	0'	5.0000	136'	No Ice	0.16	0.21	0.01
			0'				1/2" Ice	0.50	0.69	0.01
			0'				1" Ice	0.84	1.17	0.02
							2" Ice	1.52	2.13	0.03
2.4" Dia x 8-ft Mount Pipe	B	From Leg	0.67	0'	0.0000	136'	No Ice	1.90	1.90	0.03
			0'				1/2" Ice	2.73	2.73	0.04
			0'				1" Ice	3.40	3.40	0.06
							2" Ice	4.40	4.40	0.12
**133**										
220-5	A	From Leg	6.00	0'	-75.0000	133'	No Ice	3.40	3.40	0.02
			0'				1/2" Ice	5.42	5.42	0.05
			10'				1" Ice	7.46	7.46	0.09
							2" Ice	11.59	11.59	0.21
Side Arm Mount [SO 601-1]	A	From Leg	3.00	0'	-75.0000	133'	No Ice	1.04	5.32	0.16
			0'				1/2" Ice	1.41	6.43	0.20
			0'				1" Ice	1.78	7.67	0.24
							2" Ice	2.52	10.67	0.36
DB264-A	C	From Leg	2.00	0'	-35.0000	133'	No Ice	3.16	3.16	0.04
			0'				1/2" Ice	5.69	5.69	0.05
			9'				1" Ice	8.22	8.22	0.06
							2" Ice	13.27	13.27	0.08
Side Arm Mount [SO 202-1]	C	From Leg	1.00	0'	-35.0000	133'	No Ice	1.78	2.97	0.11
			0'				1/2" Ice	2.24	3.57	0.13
			0'				1" Ice	2.75	4.19	0.16
							2" Ice	3.89	5.55	0.25
***										
***109**										
PD1132-D	B	From Leg	2.00		65.0000	109'	No Ice	24.89	24.89	0.11

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz Lateral	Vert					
Side Arm Mount [SO 202-1]	B	From Leg	1.00	65.0000	109'	No Ice	1.78	2.97	0.11
			0'			1/2" Ice	2.24	3.57	0.13
			0'			1" Ice	2.75	4.19	0.16
						2" Ice	3.89	5.55	0.25
**108**									
2.4" Dia x 4-ft Mount Pipe	C	From Leg	0.50	0.0000	108'	No Ice	0.87	0.87	0.01
			0'			1/2" Ice	1.12	1.12	0.02
			0'			1" Ice	1.37	1.37	0.03
						2" Ice	1.91	1.91	0.06
***									
***									
PTP 900-13 w/ Mount Pipe	C	From Leg	2.00	35.0000	99'	No Ice	2.09	0.77	0.02
			0'			1/2" Ice	2.36	0.95	0.03
			0'			1" Ice	2.64	1.14	0.05
						2" Ice	3.26	1.59	0.10
***									
CSI-AY/809-960/11	C	From Leg	2.00	-35.0000	62'	No Ice	0.16	0.21	0.01
			0'			1/2" Ice	0.50	0.69	0.01
			-8'			1" Ice	0.84	1.17	0.02
						2" Ice	1.52	2.13	0.03
(2) Side Arm Mount [SO 601-1]	C	From Leg	1.00	0.0000	62'	No Ice	1.04	5.32	0.16
			0'			1/2" Ice	1.41	6.43	0.20
			0'			1" Ice	1.78	7.67	0.24
						2" Ice	2.52	10.67	0.36
***									
(2) PL6" x 0.5"	A	From Face	0.00	0.0000	258'6"	No Ice	9.40	0.01	0.12
			0'			1/2" Ice	10.75	0.02	0.15
			0'			1" Ice	12.10	0.03	0.18
						2" Ice	14.80	0.05	0.25
(2) PL6" x 0.5"	B	From Face	0.00	0.0000	258'6"	No Ice	9.40	0.01	0.12
			0'			1/2" Ice	10.75	0.02	0.15
			0'			1" Ice	12.10	0.03	0.18
						2" Ice	14.80	0.05	0.25
(2) PL6" x 0.5"	C	From Face	0.00	0.0000	258'6"	No Ice	9.40	0.01	0.12
			0'			1/2" Ice	10.75	0.02	0.15
			0'			1" Ice	12.10	0.03	0.18
						2" Ice	14.80	0.05	0.25
**									

## Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz Lateral	Vert							ft
USX6-6W-6GR	B	Paraboloid w/Shroud (HP)	From Leg	1.00	-44.0000			450'	6.00	No Ice	28.27	0.20
				0'						1/2" Ice	29.07	0.35

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	63 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				ft	°	°	ft	ft	ft <sup>2</sup>	K
				0'					1" Ice	0.50
									2" Ice	0.80
USX6-6W-6GR	C	Paraboloid w/Shroud (HP)	From Leg	1.00	15.0000		450'	6.00	No Ice	0.20
				0'					1/2" Ice	0.35
				0'					1" Ice	0.50
									2" Ice	0.80
SPD3-5.8	A	Paraboloid w/Radome	From Leg	1.00	-15.0000		322'	3.00	No Ice	0.04
				0'					1/2" Ice	0.07
				0'					1" Ice	0.11
									2" Ice	0.19
P-9A72GN-U	C	Grid	From Leg	0.50	45.0000		206'	6.00	No Ice	0.11
				0'					1/2" Ice	0.26
				0'					1" Ice	0.41
									2" Ice	0.71
SPD4-5.2	C	Paraboloid w/Radome	From Leg	1.00	35.0000		178'	4.00	No Ice	0.00
				0'					1/2" Ice	0.00
				0'					1" Ice	0.00
									2" Ice	0.00
HPX6-65-P3A	B	Paraboloid w/Shroud (HP)	From Leg	1.00	-15.0000		150'	6.46	No Ice	0.36
				0'					1/2" Ice	0.53
				0'					1" Ice	0.70
									2" Ice	1.05
PL6-65-PXA	B	Paraboloid w/Radome	From Leg	1.00	-65.0000		146'	6.36	No Ice	0.16
				0'					1/2" Ice	0.17
				0'					1" Ice	0.17
									2" Ice	0.19
CM 4228HD	B	Grid	From Leg	1.00	-35.0000		140'	3.55	No Ice	0.04
				0'					1/2" Ice	0.09
				0'					1" Ice	0.06
									2" Ice	0.06
CM 4228HD	B	Grid	From Leg	1.00	-5.0000		136'	3.55	No Ice	0.04
				0'					1/2" Ice	0.09
				-1'					1" Ice	0.06
									2" Ice	0.06
MGA2-16N	B	Grid	From Leg	0.67	-15.0000		136'	2.00	No Ice	0.02
				0'					1/2" Ice	0.04
				2'					1" Ice	0.06
									2" Ice	0.09
MGAR3-23N	B	Grid	From Leg	0.67	5.0000		136'	3.38	No Ice	0.03
				0'					1/2" Ice	0.08
				-2'					1" Ice	0.13
									2" Ice	0.22
P-9A48GN-U	C	Grid	From Leg	1.00	-75.0000		117'	4.00	No Ice	0.11
				0'					1/2" Ice	0.18
				0'					1" Ice	0.25
									2" Ice	0.38
SSH-9A72GN	C	Grid	From Leg	1.00	0.0000		108'	2.84	No Ice	0.04
				0'					1/2" Ice	0.13
				0'					1" Ice	0.22
									2" Ice	0.40
SPD2-5.8	B	Paraboloid w/Shroud (HP)	From Leg	1.00	-15.0000		99'	2.00	No Ice	0.02
				0'					1/2" Ice	0.04
				0'					1" Ice	0.06
									2" Ice	0.09
P-9A48GN-U	C	Grid	From Leg	2.00	-35.0000		62'	4.00	No Ice	0.11
				0'					1/2" Ice	0.18
				6'					1" Ice	0.25
									2" Ice	0.38
SSH-9A72GN	C	Grid	From	2.00	-75.0000		62'	6.00	No Ice	0.11



<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	64 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				ft	°	°	ft	ft	ft <sup>2</sup>	K
			Leg	0'				1/2" Ice	29.07	0.26
				-1'				1" Ice	29.86	0.41
								2" Ice	31.44	0.71

## Load Combinations

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

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Comb. No.	Description
49	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
51	Dead+Wind 0 deg - Service+Guy
52	Dead+Wind 30 deg - Service+Guy
53	Dead+Wind 60 deg - Service+Guy
54	Dead+Wind 90 deg - Service+Guy
55	Dead+Wind 120 deg - Service+Guy
56	Dead+Wind 150 deg - Service+Guy
57	Dead+Wind 180 deg - Service+Guy
58	Dead+Wind 210 deg - Service+Guy
59	Dead+Wind 240 deg - Service+Guy
60	Dead+Wind 270 deg - Service+Guy
61	Dead+Wind 300 deg - Service+Guy
62	Dead+Wind 330 deg - Service+Guy

### 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	
T1	457 - 436	Leg	Max Tension	9	15.65	0.67	-0.23	
			Max. Compression	27	-31.06	-0.62	0.21	
			Max. Mx	30	-17.33	1.33	0.02	
			Max. My	3	-19.25	-0.00	1.03	
			Max. Vy	30	1.25	1.33	0.02	
			Max. Vx	6	0.77	-0.78	0.62	
			Diagonal	Max Tension	29	4.02	0.00	0.00
				Max. Compression	30	-3.41	0.00	0.00
				Max. Mx	43	0.39	0.04	-0.00
				Max. My	32	-2.10	0.01	0.01
				Max. Vy	43	-0.03	0.04	-0.00
				Max. Vx	32	-0.00	0.00	0.00
		Horizontal	Max Tension	9	0.75	0.00	0.00	
			Max. Compression	39	-1.17	0.00	0.00	
			Max. Mx	38	0.60	-0.06	0.00	
			Max. My	5	-0.22	0.00	0.00	
			Max. Vy	38	-0.04	0.00	0.00	
			Max. Vx	5	-0.00	0.00	0.00	
		Top Girt	Max Tension	29	0.00	0.00	0.00	
			Max. Compression	29	-0.00	0.00	0.00	
			Max. Mx	38	-0.00	0.17	0.00	
			Max. My	5	0.00	0.00	-0.00	
			Max. Vy	38	-0.11	0.00	0.00	
			Max. Vx	5	0.00	0.00	0.00	
		Mid Girt	Max Tension	39	4.30	0.00	0.00	
			Max. Compression	1	0.00	0.00	0.00	
			Max. Mx	38	3.37	-0.06	0.00	
			Max. My	5	2.19	0.00	0.00	
			Max. Vy	38	-0.04	0.00	0.00	
			Max. Vx	5	-0.00	0.00	0.00	
		Guy A	Bottom Tension	45	12.96			
			Top Tension	20	13.69			
			Top Cable Vert	45	11.17			
Top Cable Norm	45		7.92					
Top Cable Tan	45		0.00					
Bot Cable Vert	20		-9.49					
Bot Cable Norm	20		8.83					
Bot Cable Tan	20		0.00					
Guy B	Bottom Tension		49	13.39				

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	66 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Tension	32	13.73		
			Top Cable Vert	49	11.23		
			Top Cable Norm	49	7.90		
			Top Cable Tan	49	0.00		
			Bot Cable Vert	32	-9.87		
			Bot Cable Norm	32	9.04		
			Bot Cable Tan	32	0.01		
		Guy C	Bottom Tension	41	13.39		
			Top Tension	8	13.75		
			Top Cable Vert	41	11.17		
			Top Cable Norm	41	8.02		
			Top Cable Tan	41	0.00		
			Bot Cable Vert	8	-9.75		
			Bot Cable Norm	8	9.18		
			Bot Cable Tan	8	0.00		
		Pole Antenna	Max Tension	17	0.00	0.00	-0.01
			Max. Compression	43	-6.56	-8.20	-4.65
			Max. Mx	29	-5.47	56.16	0.15
			Max. My	20	-5.48	-0.41	-55.99
			Max. Vy	29	-2.84	56.16	0.15
			Max. Vx	20	2.83	-0.41	-55.99
			Max. Torque	5			0.00
T2	436 - 421	Leg	Max Tension	9	33.35	-1.06	0.47
			Max. Compression	27	-50.10	-0.96	0.41
			Max. Mx	26	-49.56	1.21	-0.55
			Max. My	2	-45.01	0.05	1.22
			Max. Vy	26	0.60	1.21	-0.55
			Max. Vx	2	0.62	0.05	1.22
		Diagonal	Max Tension	29	4.29	0.00	0.00
			Max. Compression	29	-4.91	0.00	0.00
			Max. Mx	42	-0.33	0.03	-0.00
			Max. My	33	-3.69	-0.01	0.00
			Max. Vy	42	-0.03	0.03	-0.00
			Max. Vx	33	0.00	0.00	0.00
		Horizontal	Max Tension	9	1.43	0.00	0.00
			Max. Compression	27	-0.37	0.00	0.00
			Max. Mx	38	1.15	-0.06	0.00
			Max. My	5	0.25	0.00	0.00
			Max. Vy	38	-0.04	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Top Girt	Max Tension	39	1.16	0.00	0.00
			Max. Compression	27	-0.03	0.00	0.00
			Max. Mx	38	1.05	-0.06	0.00
			Max. My	5	0.33	0.00	0.00
			Max. Vy	38	-0.04	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T3	421 - 401	Leg	Max Tension	8	71.37	-1.74	0.84
			Max. Compression	26	-98.26	-1.21	0.58
			Max. Mx	26	-84.04	1.99	-1.00
			Max. My	2	-77.08	0.07	2.09
			Max. Vy	26	0.90	1.99	-1.00
			Max. Vx	2	0.96	0.07	2.09
		Diagonal	Max Tension	29	7.23	0.00	0.00
			Max. Compression	29	-7.37	0.00	0.00
			Max. Mx	14	5.11	0.05	-0.00
			Max. My	29	-6.82	-0.03	0.01
			Max. Vy	49	-0.03	0.04	0.00
			Max. Vx	29	0.00	0.00	0.00
		Top Girt	Max Tension	9	0.78	0.00	0.00
			Max. Compression	27	-0.23	0.00	0.00
			Max. Mx	38	0.60	-0.06	0.00

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	67 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T4	401 - 396	Mid Girt	Max. My	5	0.15	0.00	0.00	
			Max. Vy	38	-0.04	0.00	0.00	
			Max. Vx	5	-0.00	0.00	0.00	
			Max Tension	9	0.29	0.00	0.00	
			Max. Compression	27	-0.18	0.00	0.00	
			Max. Mx	38	0.16	-0.06	0.00	
			Max. My	5	0.03	0.00	0.00	
			Max. Vy	38	-0.04	0.00	0.00	
			Max. Vx	5	-0.00	0.00	0.00	
			Max Tension	8	85.44	-2.77	-0.17	
		Leg	Max. Compression	26	-113.53	-2.18	-0.13	
			Max. Mx	26	-113.33	2.98	0.16	
			Max. My	5	-24.03	0.27	-0.89	
			Max. Vy	26	1.07	2.98	0.16	
			Max. Vx	5	-0.27	0.27	-0.89	
			Diagonal	Max Tension	29	7.67	0.00	0.00
				Max. Compression	29	-7.85	0.00	0.00
				Max. Mx	29	3.14	0.03	0.00
				Max. My	29	-7.85	-0.02	0.01
				Max. Vy	49	-0.03	0.02	0.00
Top Girt	Max. Vx	29	0.00	0.00	0.00			
	Max Tension	8	0.58	0.00	0.00			
	Max. Compression	26	-0.46	0.00	0.00			
	Max. Mx	38	0.17	-0.06	0.00			
	Max. My	5	0.04	0.00	0.00			
T5	396 - 391	Leg	Max. Vy	38	0.04	0.00	0.00	
			Max. Vx	5	-0.00	0.00	0.00	
			Max Tension	8	100.34	-2.43	-0.16	
			Max. Compression	26	-130.29	-1.40	-0.13	
			Max. Mx	26	-129.66	2.47	0.14	
		Diagonal	Max. My	5	-25.54	0.12	-1.55	
			Max. Vy	8	-1.17	-2.43	-0.16	
			Max. Vx	5	-0.79	0.12	-1.55	
			Max Tension	29	8.48	0.00	0.00	
			Max. Compression	29	-8.54	0.00	0.00	
		Leg	Max. Mx	14	6.18	0.04	-0.00	
			Max. My	5	-6.87	-0.01	-0.01	
			Max. Vy	49	-0.03	0.04	-0.00	
			Max. Vx	5	0.00	-0.01	-0.01	
			Max Tension	8	118.68	-3.99	-0.15	
T6	391 - 386	Leg	Max. Compression	26	-149.53	-3.26	-0.12	
			Max. Mx	8	118.68	-3.99	-0.15	
			Max. My	5	-26.85	0.14	-1.46	
			Max. Vy	26	1.83	3.95	0.13	
			Max. Vx	5	-0.76	0.14	-1.46	
		Diagonal	Max Tension	29	9.70	0.00	0.00	
			Max. Compression	29	-10.94	0.00	0.00	
			Max. Mx	29	3.85	0.05	0.00	
			Max. My	29	-10.93	-0.02	0.01	
			Max. Vy	49	-0.03	0.03	0.00	
		Top Girt	Max. Vx	29	0.00	0.00	0.00	
			Max Tension	39	0.79	0.00	0.00	
			Max. Compression	1	0.00	0.00	0.00	
			Max. Mx	38	0.50	-0.06	0.00	
			Max. My	5	0.40	0.00	0.00	
T7	386 - 381	Leg	Max. Vy	38	-0.04	0.00	0.00	
			Max. Vx	5	-0.00	0.00	0.00	
			Max Tension	8	136.74	-2.35	-0.17	
			Max. Compression	26	-172.29	-0.98	-0.11	
			Max. Mx	26	-172.09	3.24	0.15	
Max. My	5	-30.19	0.54	-2.03				

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	68 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T8	381 - 376	Diagonal	Max. Vy	26	0.89	3.24	0.15	
			Max. Vx	5	-0.56	0.54	-2.03	
			Max Tension	29	11.53	0.00	0.00	
			Max. Compression	29	-10.37	0.00	0.00	
			Max. Mx	29	-3.09	-0.05	0.01	
			Max. My	5	-8.68	-0.03	-0.02	
		Leg	Max. Vy	49	-0.03	0.03	0.00	
			Max. Vx	5	0.00	-0.03	-0.02	
			Max Tension	8	94.82	-1.43	-0.15	
			Max. Compression	26	-181.00	1.13	-0.07	
			Max. Mx	27	-140.41	2.27	-0.09	
			Max. My	30	-45.35	0.24	-1.45	
			Diagonal	Max. Vy	27	-0.59	2.27	-0.09
				Max. Vx	30	0.39	0.24	-1.45
				Max Tension	6	9.29	0.00	0.00
				Max. Compression	6	-7.98	0.00	0.00
				Max. Mx	5	-4.40	0.05	0.01
				Max. My	30	-6.77	0.02	0.01
		Guy A	Max. Vy	48	-0.03	0.04	-0.00	
			Max. Vx	30	0.00	0.00	0.00	
			Bottom Tension	25	67.97			
			Top Tension	25	69.55			
			Top Cable Vert	25	50.02			
			Top Cable Norm	25	48.33			
			Top Cable Tan	25	0.29			
			Bot Cable Vert	25	-46.93			
			Bot Cable Norm	25	49.17			
			Bot Cable Tan	25	0.68			
			Guy B	Bottom Tension	31	68.97		
				Top Tension	31	70.53		
		Top Cable Vert		31	50.94			
		Top Cable Norm		31	48.78			
		Top Cable Tan		31	0.28			
		Bot Cable Vert		31	-47.90			
		Guy C	Bot Cable Norm	31	49.62			
			Bot Cable Tan	31	0.68			
			Bottom Tension	13	68.11			
			Top Tension	13	69.69			
			Top Cable Vert	13	49.80			
			Top Cable Norm	13	48.76			
		Top Guy Pull-Off	Top Cable Tan	13	0.30			
			Bot Cable Vert	13	-46.68			
Bot Cable Norm	13		49.59					
Bot Cable Tan	13		0.67					
Max Tension	28		21.96	0.00	0.00			
Max. Compression	1		0.00	0.00	0.00			
Max. Mx	38		11.39	0.12	0.00			
Max. My	5		12.39	0.00	-0.00			
Max. Vy	38		-0.08	0.00	0.00			
Max. Vx	5		0.00	0.00	0.00			
T9	376 - 371		Leg	Max Tension	8	86.75	1.77	-0.12
				Max. Compression	26	-170.34	2.03	-0.10
		Max. Mx		27	-121.72	-3.14	0.13	
		Max. My		30	-44.64	-0.03	-0.78	
		Max. Vy		27	-1.28	3.03	-0.11	
		Max. Vx		30	0.32	-0.03	-0.78	
		Diagonal	Max Tension	6	8.17	0.00	0.00	
			Max. Compression	6	-9.30	0.00	0.00	
			Max. Mx	23	-2.39	0.05	-0.00	
			Max. My	33	-7.97	0.01	0.01	
			Max. Vy	49	-0.03	0.04	0.00	

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T10	371 - 366	Leg	Max. Vx	33	0.00	0.00	0.00
			Max Tension	8	75.86	1.13	-0.10
			Max. Compression	26	-161.58	1.22	-0.09
			Max. Mx	9	33.65	-2.29	0.12
			Max. My	30	-46.14	-0.23	-1.21
			Max. Vy	9	1.04	-2.29	0.12
		Diagonal	Max. Vx	18	0.62	-0.23	-0.94
			Max Tension	6	8.24	0.00	0.00
			Max. Compression	6	-8.19	0.00	0.00
			Max. Mx	14	4.18	-0.04	-0.00
			Max. My	29	-3.89	0.01	0.01
			Max. Vy	49	-0.03	0.02	0.00
		Top Girt	Max. Vx	29	0.00	0.00	0.00
			Max Tension	11	0.84	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	38	0.58	-0.06	0.00
			Max. My	5	0.47	0.00	0.00
Max. Vy	38		0.04	0.00	0.00		
T11	366 - 361	Leg	Max. Vx	5	-0.00	0.00	0.00
			Max Tension	8	66.42	1.05	-0.11
			Max. Compression	26	-152.64	1.74	-0.13
			Max. Mx	27	-90.05	2.95	-0.16
			Max. My	30	-47.12	-0.05	-1.06
		Diagonal	Max. Vy	27	-1.16	2.95	-0.16
			Max. Vx	30	0.42	-0.05	-1.06
			Max Tension	36	7.51	0.00	0.00
			Max. Compression	36	-7.67	0.00	0.00
			Max. Mx	14	-4.29	0.05	-0.01
			Max. My	33	-6.64	0.01	0.01
T12	361 - 341	Leg	Max. Vy	49	-0.03	0.05	0.00
			Max. Vx	33	0.00	0.00	0.00
			Max Tension	8	57.78	0.66	-0.43
			Max. Compression	26	-144.16	0.27	-0.24
			Max. Mx	27	-62.01	-2.08	1.33
		Diagonal	Max. My	3	-52.58	-0.03	-2.35
			Max. Vy	27	-0.99	0.36	-0.21
			Max. Vx	3	-1.10	0.00	0.37
			Max Tension	36	6.84	-0.03	0.00
			Max. Compression	36	-7.12	0.00	0.00
			Max. Mx	42	0.74	0.07	0.00
		Secondary Horizontal	Max. My	14	-4.10	0.07	-0.01
			Max. Vy	42	-0.04	0.07	0.00
			Max. Vx	14	0.00	0.00	0.00
			Max Tension	7	0.70	0.02	-0.00
Max. Compression	4		-0.29	0.00	0.00		
Max. Mx	42		0.40	0.03	-0.00		
Max. My	26		0.34	-0.01	-0.01		
Max. Vy	42		0.03	0.03	-0.00		
Max. Vx	26		-0.00	0.00	0.00		
Top Girt	Max Tension	8	0.60	0.00	0.00		
	Max. Compression	26	-0.27	0.00	0.00		
	Max. Mx	38	0.28	-0.06	0.00		
	Max. My	5	0.15	0.00	0.00		
	Max. Vy	38	-0.04	0.00	0.00		
	Max. Vx	5	-0.00	0.00	0.00		
Mid Girt	Max Tension	32	0.38	0.00	0.00		
	Max. Compression	26	-0.14	0.00	0.00		
	Max. Mx	38	0.22	-0.06	0.00		
	Max. My	23	0.18	0.00	0.00		
	Max. Vy	38	-0.04	0.00	0.00		

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T13	341 - 321	Leg	Max. Vx	23	-0.00	0.00	0.00
			Max Tension	8	29.06	-0.79	0.56
			Max. Compression	26	-117.87	0.55	-0.42
			Max. Mx	15	-20.70	-1.15	-0.67
			Max. My	3	-15.09	-0.05	1.23
			Max. Vy	13	-0.61	0.21	-0.14
		Diagonal	Max. Vx	21	0.53	0.00	-1.21
			Max Tension	6	4.51	0.00	0.00
			Max. Compression	6	-4.53	0.00	0.00
			Max. Mx	42	0.17	0.08	0.00
			Max. My	5	-2.97	0.05	-0.01
			Max. Vy	42	-0.04	0.08	0.00
		Top Girt	Max. Vx	5	0.00	0.05	-0.01
			Max Tension	28	0.43	0.00	0.00
			Max. Compression	14	-0.05	0.00	0.00
			Max. Mx	38	0.27	-0.06	0.00
			Max. My	23	0.21	0.00	0.00
			Max. Vy	38	-0.04	0.00	0.00
		Mid Girt	Max. Vx	23	-0.00	0.00	0.00
			Max Tension	4	0.34	0.00	0.00
			Max. Compression	26	-0.07	0.00	0.00
Max. Mx	38		0.21	-0.06	0.00		
Max. My	23		0.19	0.00	0.00		
Max. Vy	38		-0.04	0.00	0.00		
T14	321 - 301	Leg	Max. Vx	23	-0.00	0.00	0.00
			Max Tension	32	11.02	-0.38	-0.21
			Max. Compression	26	-102.65	0.01	-0.07
			Max. Mx	10	-64.54	0.99	-0.58
			Max. My	22	-64.67	0.03	1.14
			Max. Vy	31	1.15	0.73	0.51
		Diagonal	Max. Vx	22	-1.24	-0.05	-0.97
			Max Tension	34	3.05	0.00	0.00
			Max. Compression	16	-3.19	0.00	0.00
			Max. Mx	43	0.00	0.08	0.00
			Max. My	16	-3.16	0.04	0.01
			Max. Vy	43	-0.04	0.08	0.00
		Top Girt	Max. Vx	16	-0.00	0.04	0.01
			Max Tension	32	0.44	0.00	0.00
			Max. Compression	26	-0.13	0.00	0.00
			Max. Mx	38	0.23	-0.06	0.00
			Max. My	23	0.20	0.00	0.00
			Max. Vy	38	0.04	0.00	0.00
		Mid Girt	Max. Vx	23	-0.00	0.00	0.00
			Max Tension	32	0.50	0.00	0.00
			Max. Compression	26	-0.18	0.00	0.00
Max. Mx	38		0.27	-0.06	0.00		
Max. My	23		0.19	0.00	0.00		
Max. Vy	38		0.04	0.00	0.00		
T15	301 - 281	Leg	Max. Vx	23	-0.00	0.00	0.00
			Max Tension	32	16.53	0.60	0.34
			Max. Compression	26	-114.75	-0.26	0.09
			Max. Mx	10	-30.98	-1.47	0.89
			Max. My	22	-31.62	-0.07	-1.69
			Max. Vy	10	-0.61	-1.47	0.89
		Diagonal	Max. Vx	22	-0.72	-0.07	-1.69
			Max Tension	19	5.24	0.00	0.00
			Max. Compression	19	-5.36	0.00	0.00
			Max. Mx	43	-0.18	0.08	0.00
			Max. My	5	-1.13	0.02	-0.01
			Max. Vy	43	-0.04	0.08	0.00
		Max. Vx	5	0.00	0.02	-0.01	



<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	71 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T16	281 - 276	Top Girt	Max Tension	32	0.41	0.00	0.00	
			Max. Compression	26	-0.09	0.00	0.00	
			Max. Mx	38	0.29	-0.06	0.00	
			Max. My	34	0.13	0.00	0.00	
			Max. Vy	38	-0.04	0.00	0.00	
			Max. Vx	34	-0.00	0.00	0.00	
		Mid Girt	Max Tension	32	0.34	0.00	0.00	
			Max. Compression	26	-0.04	0.00	0.00	
			Max. Mx	49	0.25	-0.06	0.00	
			Max. My	48	0.25	0.00	0.00	
			Max. Vy	38	0.04	0.00	0.00	
			Max. Vx	48	-0.00	0.00	0.00	
		Leg	Max Tension	32	20.05	0.47	0.32	
			Max. Compression	26	-119.59	-0.70	0.37	
			Max. Mx	28	-59.13	1.75	-1.04	
			Max. My	4	-54.96	0.15	1.97	
			Max. Vy	28	0.73	1.75	-1.04	
			Max. Vx	4	0.82	0.15	1.97	
			Diagonal	Max Tension	19	5.96	0.00	0.00
				Max. Compression	19	-5.90	0.00	0.00
				Max. Mx	26	-1.68	-0.06	-0.00
				Max. My	2	-2.59	-0.01	-0.01
				Max. Vy	50	-0.03	0.00	0.00
				Max. Vx	2	0.00	-0.01	-0.01
Top Girt	Max Tension	32	0.35	0.00	0.00			
	Max. Compression	26	-0.13	0.00	0.00			
	Max. Mx	38	0.24	-0.06	0.00			
	Max. My	34	0.10	0.00	0.00			
	Max. Vy	38	0.04	0.00	0.00			
	Max. Vx	34	-0.00	0.00	0.00			
T17	276 - 271	Leg	Max Tension	32	24.45	0.73	0.43	
			Max. Compression	26	-124.57	-0.51	0.22	
			Max. Mx	10	-7.19	-1.80	0.99	
			Max. My	22	-8.35	-0.16	-2.01	
			Max. Vy	10	-0.70	-1.80	0.99	
			Max. Vx	22	-0.79	-0.16	-2.01	
		Diagonal	Max Tension	19	6.58	0.00	0.00	
			Max. Compression	19	-6.75	0.00	0.00	
			Max. Mx	49	0.17	0.08	-0.00	
			Max. My	5	-1.60	0.02	-0.01	
			Max. Vy	49	-0.04	0.08	-0.00	
			Max. Vx	5	0.00	0.02	-0.01	
T18	271 - 266	Leg	Max Tension	8	28.60	-0.69	0.29	
			Max. Compression	26	-130.98	-0.75	0.31	
			Max. Mx	28	-87.95	2.14	-1.21	
			Max. My	4	-82.99	0.17	2.39	
			Max. Vy	28	0.82	2.14	-1.21	
			Max. Vx	4	0.91	0.17	2.39	
		Diagonal	Max Tension	19	7.69	0.00	0.00	
			Max. Compression	19	-6.63	0.00	0.00	
			Max. Mx	26	-1.73	-0.07	-0.00	
			Max. My	2	-2.90	-0.01	-0.01	
			Max. Vy	49	-0.03	0.00	0.00	
			Max. Vx	2	0.00	-0.01	-0.01	
Top Girt	Max Tension	8	0.28	0.00	0.00			
	Max. Compression	26	-0.79	0.00	0.00			
	Max. Mx	38	-0.09	-0.06	0.00			
	Max. My	48	-0.13	0.00	0.00			
	Max. Vy	38	0.04	0.00	0.00			
	Max. Vx	48	-0.00	0.00	0.00			
T19	266 - 261	Leg	Max Tension	8	35.01	-0.54	0.42	

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	72 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T20	261 - 256	Diagonal	Max. Compression	26	-136.50	-0.93	0.43	
			Max. Mx	28	-102.75	-2.21	1.22	
			Max. My	4	-97.73	-0.16	-2.45	
			Max. Vy	28	0.81	1.73	-1.11	
			Max. Vx	4	0.96	0.16	1.97	
			Max Tension	19	7.32	0.00	0.00	
			Max. Compression	19	-8.11	0.00	0.00	
			Max. Mx	48	1.75	0.09	-0.00	
			Max. My	16	-7.75	0.05	0.01	
			Max. Vy	48	-0.04	0.09	-0.00	
			Max. Vx	16	-0.00	0.05	0.01	
			Max Tension	8	36.61	-1.04	0.58	
			Leg	Max. Compression	26	-147.85	-0.71	0.39
				Max. Mx	31	13.47	-5.70	-3.27
		Max. My		25	9.04	-0.13	6.41	
		Max. Vy		31	1.74	2.23	0.87	
		Max. Vx		22	-1.97	-0.16	-2.72	
		Diagonal		Max Tension	19	13.05	-0.12	-0.00
				Max. Compression	16	-5.11	-0.08	-0.00
				Max. Mx	26	-0.36	-0.24	0.01
				Max. My	16	-3.04	-0.07	0.03
				Max. Vy	48	-0.08	0.00	0.00
				Max. Vx	16	-0.01	-0.07	0.03
		Top Girt		Max Tension	1	0.00	0.00	0.00
				Max. Compression	28	-5.80	0.00	0.00
				Max. Mx	38	-2.25	-0.06	0.00
			Max. My	48	-2.47	0.00	0.00	
			Max. Vy	38	0.04	0.00	0.00	
Max. Vx	48		-0.00	0.00	0.00			
T21	256 - 251	Leg	Max Tension	10	44.06	2.49	-1.44	
			Max. Compression	26	-152.11	0.42	-0.22	
			Max. Mx	31	-13.86	20.46	-6.73	
			Max. My	25	-16.76	0.10	-23.08	
			Max. Vy	31	31.81	-11.35	-6.73	
			Max. Vx	25	-35.88	0.10	12.80	
			Diagonal	Max Tension	13	16.96	-0.03	-0.04
				Max. Compression	11	-12.13	0.00	0.00
				Max. Mx	47	3.73	0.27	0.03
				Max. My	13	7.33	-0.01	0.11
				Max. Vy	47	-0.10	0.27	0.03
				Max. Vx	13	0.03	-0.01	0.11
			Secondary Horizontal	Max Tension	31	25.48	-0.85	-0.08
				Max. Compression	16	-0.78	0.00	0.00
		Max. Mx		28	21.71	-0.96	-0.08	
		Max. My		34	3.26	-0.50	0.14	
		Max. Vy		28	-0.35	-0.96	-0.08	
		Max. Vx		34	0.05	-0.50	0.14	
		Guy A		Bottom Tension	25	64.34		
				Top Tension	25	65.24		
				Top Cable Vert	25	37.50		
				Top Cable Norm	25	53.38		
				Top Cable Tan	25	0.10		
				Bot Cable Vert	25	-35.43		
				Bot Cable Norm	25	53.71		
				Bot Cable Tan	25	0.49		
			Guy B	Bottom Tension	31	66.50		
				Top Tension	31	67.37		
Top Cable Vert	31	38.73						
Top Cable Norm	31	55.13						
Top Cable Tan	31	0.08						

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	73 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T22	251 - 246	Guy C	Bot Cable Vert	31	-36.71				
			Bot Cable Norm	31	55.45				
			Bot Cable Tan	31	0.51				
			Bottom Tension	13	65.78				
			Top Tension	13	66.67				
			Top Cable Vert	13	37.98				
			Top Cable Norm	13	54.80				
			Top Cable Tan	13	0.09				
			Bot Cable Vert	13	-35.89				
			Bot Cable Norm	13	55.12				
		Leg	Bot Cable Tan	13	0.50				
			Max Tension	1	0.00	0.00	0.00		
			Max. Compression	26	-123.02	2.80	-1.71		
			Max. Mx	14	-115.67	3.18	1.71		
			Max. My	2	-113.68	0.13	-3.48		
			Max. Vy	14	1.81	-2.89	-1.64		
			Max. Vx	2	-2.14	-0.12	3.22		
			Diagonal	Max Tension	11	10.96	0.00	0.00	
				Max. Compression	11	-12.19	0.02	0.01	
				Max. Mx	47	1.57	-0.18	0.00	
				Max. My	6	-11.25	-0.00	-0.02	
			Top Girt	Max. Vy	47	-0.07	0.00	0.00	
				Max. Vx	6	0.01	-0.00	-0.02	
				Max Tension	10	0.14	0.00	0.00	
				Max. Compression	28	-6.23	0.00	0.00	
				Max. Mx	38	-2.15	-0.06	0.00	
Max. My	32	-3.20		0.00	0.00				
Max. Vy	38	0.04		0.00	0.00				
Max. Vx	32	-0.00		0.00	0.00				
T23	246 - 241	Leg	Max Tension	1	0.00	0.00	0.00		
			Max. Compression	47	-114.15	0.40	-0.23		
			Max. Mx	14	-96.25	-2.90	-1.57		
			Max. My	2	-95.09	-0.13	3.17		
			Max. Vy	13	1.09	0.03	-0.01		
			Max. Vx	2	-1.17	-0.13	3.17		
			Diagonal	Max Tension	11	10.98	0.00	0.00	
				Max. Compression	11	-9.90	0.00	0.00	
				Max. Mx	49	0.77	0.22	0.03	
				Max. My	13	3.86	0.16	0.04	
		Secondary Horizontal	Max. Vy	49	-0.08	0.22	0.03		
			Max. Vx	13	-0.01	0.16	0.04		
			Max Tension	22	0.26	-0.35	0.05		
			Max. Compression	28	-0.40	0.00	0.00		
			Max. Mx	47	0.12	-0.58	0.05		
			Max. My	49	0.18	-0.57	0.05		
		T24	241 - 221	Leg	Max. Vy	47	0.25	-0.58	0.05
					Max. Vx	49	-0.02	0.00	0.00
					Max Tension	1	0.00	0.00	0.00
					Max. Compression	47	-117.01	0.11	0.26
Max. Mx	14				-56.82	-2.80	-1.47		
Max. My	2				-57.38	-0.12	3.05		
Diagonal	Max. Vy			14	1.10	-2.80	-1.47		
	Max. Vx			2	-1.21	-0.12	3.05		
	Max Tension			11	9.60	0.00	0.00		
	Max. Compression			11	-9.93	0.02	0.01		
	Max. Mx			47	0.04	0.22	-0.00		
	Max. My			15	-7.00	-0.02	0.02		
	Max. Vy			47	-0.08	0.22	-0.00		
	Max. Vx			15	-0.01	-0.02	0.02		
Top Girt	Max Tension	22	0.38	0.00	0.00				

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	74 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
T25	221 - 201	Mid Girt	Max. Compression	28	-0.69	0.00	0.00			
			Max. Mx	38	0.09	-0.06	0.00			
			Max. My	11	-0.13	0.00	-0.00			
			Max. Vy	38	-0.04	0.00	0.00			
			Max. Vx	11	0.00	0.00	0.00			
			Max Tension	15	0.66	0.00	0.00			
			Max. Compression	9	-0.16	0.00	0.00			
			Max. Mx	38	0.35	-0.06	0.00			
			Max. My	32	0.36	0.00	0.00			
			Max. Vy	38	-0.04	0.00	0.00			
			Max. Vx	32	-0.00	0.00	0.00			
			Max Tension	15	23.74	1.17	0.35			
		Leg	Max. Compression	12	-142.62	-0.41	-0.33			
			Max. Mx	11	-114.56	1.88	-0.61			
			Max. My	20	-106.38	-0.20	1.90			
			Max. Vy	11	0.72	-1.63	0.59			
			Max. Vx	20	0.74	0.21	-1.67			
			Diagonal	Max Tension	11	6.26	0.00	0.00		
				Max. Compression	11	-6.44	0.00	0.00		
				Max. Mx	48	-0.24	0.09	-0.00		
				Max. My	16	-4.81	-0.01	0.01		
				Max. Vy	48	-0.04	0.09	-0.00		
				Max. Vx	16	-0.00	-0.01	0.01		
			Top Girt	Max Tension	15	0.66	0.00	0.00		
				Max. Compression	1	0.00	0.00	0.00		
				Max. Mx	38	0.45	-0.06	0.00		
				Max. My	32	0.38	0.00	0.00		
				Max. Vy	38	0.04	0.00	0.00		
				Max. Vx	32	-0.00	0.00	0.00		
			Mid Girt	Max Tension	15	0.64	0.00	0.00		
Max. Compression	1	0.00		0.00	0.00					
Max. Mx	38	0.42		-0.06	0.00					
Max. My	16	0.14		0.00	-0.00					
Max. Vy	38	0.04		0.00	0.00					
Max. Vx	16	0.00		0.00	0.00					
T26	201 - 181	Leg	Max Tension	15	33.78	0.49	-0.10			
			Max. Compression	11	-154.50	0.07	-0.58			
			Max. Mx	11	-144.83	1.13	-0.37			
			Max. My	20	-135.99	-0.19	1.10			
			Max. Vy	11	0.42	-0.88	0.38			
			Max. Vx	20	0.43	0.20	-0.90			
		Diagonal	Max Tension	11	3.54	0.00	0.00			
			Max. Compression	14	-3.79	0.00	0.00			
			Max. Mx	48	-0.77	0.09	-0.00			
			Max. My	13	-2.22	-0.01	0.01			
			Max. Vy	48	-0.04	0.09	-0.00			
			Max. Vx	15	-0.00	0.06	0.01			
		Top Girt	Max Tension	15	0.69	0.00	0.00			
			Max. Compression	8	-0.05	0.00	0.00			
			Max. Mx	38	0.43	-0.06	0.00			
			Max. My	16	0.12	0.00	-0.00			
			Max. Vy	38	0.04	0.00	0.00			
			Max. Vx	16	0.00	0.00	0.00			
		Mid Girt	Max Tension	15	0.70	0.00	0.00			
			Max. Compression	8	-0.09	0.00	0.00			
			Max. Mx	47	0.50	-0.06	0.00			
			Max. My	16	0.09	0.00	-0.00			
			Max. Vy	38	0.04	0.00	0.00			
			Max. Vx	16	0.00	0.00	0.00			
		Leg	Max Tension	14	34.23	0.11	-0.20			
			Max. Compression	11	-155.36	-0.30	0.14			
			T27	181 - 161	Leg	Max Tension	14	34.23	0.11	-0.20
						Max. Compression	11	-155.36	-0.30	0.14

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	75 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T28	161 - 141	Diagonal	Max. Mx	6	-137.51	0.99	-0.42	
			Max. My	21	-128.45	0.13	1.13	
			Max. Vy	6	-0.40	-0.93	0.25	
			Max. Vx	21	-0.46	-0.16	-1.02	
			Max Tension	34	3.80	0.00	0.00	
			Max. Compression	15	-4.08	0.00	0.00	
			Max. Mx	48	-0.89	0.09	-0.00	
			Max. My	16	-4.05	0.06	0.01	
			Max. Vy	48	-0.04	0.09	-0.00	
			Max. Vx	16	-0.00	0.06	0.01	
			Max Tension	15	0.88	0.00	0.00	
			Max. Compression	8	-0.14	0.00	0.00	
		Top Girt	Max. Mx	47	0.63	0.11	0.00	
			Max. My	16	0.10	0.00	0.00	
			Max. Vy	38	-0.07	0.00	0.00	
			Max. Vx	16	-0.00	0.00	0.00	
			Max Tension	26	0.69	0.00	0.00	
			Max. Compression	32	-0.07	0.00	0.00	
			Max. Mx	47	0.52	-0.05	0.00	
			Max. My	16	0.11	0.00	-0.00	
			Max. Vy	38	-0.04	0.00	0.00	
			Max. Vx	16	0.00	0.00	0.00	
			Max Tension	14	23.78	-0.61	-0.76	
			Max. Compression	11	-146.06	0.41	-0.10	
		Diagonal	Max. Mx	9	-101.56	-1.76	0.97	
			Max. My	21	-97.59	-0.36	-1.97	
			Max. Vy	27	1.06	1.55	-0.83	
			Max. Vx	21	-1.02	-0.36	-1.97	
			Max Tension	18	7.08	0.00	0.00	
			Max. Compression	18	-7.30	0.00	0.00	
			Max. Mx	48	-1.61	0.18	-0.01	
			Max. My	15	-7.04	0.03	0.04	
			Max. Vy	48	-0.07	0.18	-0.01	
			Max. Vx	15	0.01	0.03	0.04	
			Max Tension	14	0.81	0.00	0.00	
			Max. Compression	32	-0.06	0.00	0.00	
		Top Girt	Max. Mx	38	0.53	-0.05	0.00	
			Max. My	16	0.14	0.00	-0.00	
			Max. Vy	38	0.04	0.00	0.00	
			Max. Vx	16	0.00	0.00	0.00	
			Max Tension	14	0.78	0.00	0.00	
			Max. Compression	1	0.00	0.00	0.00	
			Max. Mx	38	0.62	-0.05	0.00	
			Max. My	16	0.24	0.00	-0.00	
			Max. Vy	38	0.04	0.00	0.00	
			Max. Vx	16	0.00	0.00	0.00	
			Mid Girt	Max Tension	1	0.00	0.00	0.00
				Max. Compression	39	-139.54	-0.03	-0.11
Max. Mx	27	-32.83		-2.48	1.34			
Max. My	21	-71.66		-0.31	-2.75			
Max. Vy	30	0.97		2.30	0.14			
Max. Vx	3	0.98		0.39	1.97			
Max Tension	15	9.44		0.00	0.00			
Max. Compression	15	-9.24		0.00	0.00			
Max. Mx	14	-0.26		0.21	0.00			
Max. My	18	-8.37		0.09	0.09			
Max. Vy	47	-0.08		0.21	0.00			
Max. Vx	18	-0.02		0.09	0.09			
Top Girt	Max Tension	34	1.77	0.00	0.00			
	Max. Compression	28	-0.54	0.00	0.00			
	Max. Mx	38	0.76	-0.05	0.00			

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	76 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	16	1.08	0.00	0.00
			Max. Vy	38	0.04	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	33	13.06	0.00	0.00
			Max. Compression	28	-9.51	0.00	0.00
			Max. Mx	38	1.55	-0.05	0.00
			Max. My	16	6.79	0.00	0.00
			Max. Vy	38	0.04	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Guy A	Bottom Tension	18	23.12		
			Top Tension	18	23.27		
			Top Cable Vert	18	8.45		
			Top Cable Norm	18	21.68		
			Top Cable Tan	18	0.03		
			Bot Cable Vert	18	-7.92		
			Bot Cable Norm	18	21.72		
			Bot Cable Tan	18	0.15		
		Guy B	Bottom Tension	31	23.70		
			Top Tension	31	23.83		
			Top Cable Vert	31	8.04		
			Top Cable Norm	31	22.44		
			Top Cable Tan	31	0.04		
			Bot Cable Vert	31	-7.51		
			Bot Cable Norm	31	22.47		
			Bot Cable Tan	31	0.17		
		Guy C	Bottom Tension	13	23.34		
			Top Tension	13	23.48		
			Top Cable Vert	13	8.01		
			Top Cable Norm	13	22.08		
			Top Cable Tan	13	0.04		
			Bot Cable Vert	13	-7.46		
			Bot Cable Norm	13	22.11		
			Bot Cable Tan	13	0.17		
		Torque Arm Top	Max Tension	34	21.90	0.00	0.00
			Max. Compression	37	-2.44	0.00	0.00
			Max. Mx	47	12.90	0.17	0.00
			Max. My	16	16.06	0.00	0.00
			Max. Vy	47	-0.09	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Torque Arm Bottom	Max Tension	16	13.27	0.00	0.00
			Max. Compression	18	-24.03	0.00	0.00
			Max. Mx	47	-11.48	0.29	0.00
			Max. My	16	12.94	0.00	0.00
			Max. Vy	47	0.09	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T30	121 - 101	Leg	Max Tension	14	28.22	1.21	0.74
			Max. Compression	11	-174.90	-0.33	-0.03
			Max. Mx	28	-18.53	-2.07	1.16
			Max. My	22	-120.58	0.09	-2.34
			Max. Vy	37	-0.84	2.05	0.76
			Max. Vx	22	0.94	0.09	-2.34
		Diagonal	Max Tension	37	5.79	0.00	0.00
			Max. Compression	34	-5.95	0.00	0.00
			Max. Mx	46	0.19	0.10	0.00
			Max. My	15	-4.67	-0.03	-0.02
			Max. Vy	46	-0.04	0.10	0.00
			Max. Vx	15	-0.00	0.00	0.00
		Top Girt	Max Tension	33	5.83	0.00	0.00
			Max. Compression	28	-7.15	0.00	0.00
			Max. Mx	38	0.37	-0.05	0.00
			Max. My	16	3.67	0.00	0.00

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	77 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T31	101 - 81	Mid Girt	Max. Vy	38	-0.03	0.00	0.00	
			Max. Vx	16	-0.00	0.00	0.00	
			Max Tension	48	0.64	0.00	0.00	
			Max. Compression	1	0.00	0.00	0.00	
			Max. Mx	38	0.60	-0.05	0.00	
			Max. My	16	0.40	0.00	0.00	
		Leg	Max. Vy	38	-0.03	0.00	0.00	
			Max. Vx	16	-0.00	0.00	0.00	
			Max Tension	14	43.90	0.63	0.36	
			Max. Compression	29	-194.04	-0.29	-0.28	
			Max. Mx	34	-162.57	-1.43	-0.86	
			Max. My	22	-161.44	-0.09	1.67	
			Diagonal	Max. Vy	34	-0.57	1.21	0.75
				Max. Vx	22	0.65	0.10	-1.41
				Max Tension	25	3.51	0.00	0.00
				Max. Compression	25	-3.78	0.00	0.00
				Max. Mx	46	-0.13	0.10	0.00
				Max. My	26	-2.97	-0.05	0.01
		Top Girt	Max. Vy	46	-0.04	0.10	0.00	
			Max. Vx	26	0.00	-0.05	0.01	
			Max Tension	26	0.88	0.00	0.00	
			Max. Compression	8	-0.04	0.00	0.00	
			Max. Mx	38	0.63	-0.05	0.00	
			Max. My	16	0.20	0.00	-0.00	
Mid Girt	Max. Vy	38	-0.03	0.00	0.00			
	Max. Vx	16	0.00	0.00	0.00			
	Max Tension	26	0.96	0.00	0.00			
	Max. Compression	8	-0.13	0.00	0.00			
	Max. Mx	38	0.64	-0.05	0.00			
	Max. My	16	0.16	0.00	-0.00			
	Leg	Max. Vy	38	-0.03	0.00	0.00		
		Max. Vx	16	0.00	0.00	0.00		
		Max Tension	14	44.52	-0.01	-0.01		
		Max. Compression	29	-197.11	-0.58	-0.41		
		Max. Mx	5	-189.51	0.94	-0.41		
		Max. My	22	-181.91	-0.10	1.04		
Diagonal	Max. Vy	2	-0.39	0.86	-0.32			
	Max. Vx	45	0.39	0.02	-0.89			
	Max Tension	26	1.58	0.00	0.00			
	Max. Compression	26	-1.92	0.00	0.00			
	Max. Mx	46	-0.41	0.10	0.00			
	Max. My	2	-0.64	0.03	-0.01			
	Top Girt	Max. Vy	46	-0.04	0.10	0.00		
		Max. Vx	2	0.00	0.00	0.00		
		Max Tension	26	0.98	0.00	0.00		
		Max. Compression	8	-0.16	0.00	0.00		
		Max. Mx	38	0.64	-0.05	0.00		
		Max. My	16	0.14	0.00	-0.00		
Mid Girt	Max. Vy	38	-0.03	0.00	0.00			
	Max. Vx	16	0.00	0.00	0.00			
	Max Tension	26	0.98	0.00	0.00			
	Max. Compression	8	-0.17	0.00	0.00			
	Max. Mx	38	0.65	-0.05	0.00			
	Max. My	13	0.37	0.00	0.00			
Leg	Max. Vy	38	-0.03	0.00	0.00			
	Max. Vx	13	-0.00	0.00	0.00			
	Max Tension	14	33.99	-0.74	-0.40			
	Max. Compression	29	-193.36	-0.33	0.42			
	Max. Mx	11	-179.60	1.50	-0.68			
	Max. My	20	-176.55	0.01	1.66			
T33	61 - 41	Leg	Max. Vy	14	-0.54	-0.74	-0.40	



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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T34	41 - 20	Diagonal	Max. Vx	20	-0.62	-0.01	-1.33		
			Max Tension	11	3.68	0.00	0.00		
			Max. Compression	11	-3.99	0.00	0.00		
			Max. Mx	46	-0.56	0.10	0.00		
			Max. My	11	-3.01	0.03	-0.01		
			Max. Vy	46	-0.04	0.10	0.00		
		Top Girt	Max. Vx	11	-0.00	0.00	0.00	0.00	
			Max Tension	14	1.01	0.00	0.00	0.00	
			Max. Compression	20	-0.21	0.00	0.00		
			Max. Mx	47	0.78	-0.05	0.00		
			Max. My	13	0.35	0.00	0.00		
			Max. Vy	47	-0.03	0.00	0.00		
		Mid Girt	Max. Vx	13	-0.00	0.00	0.00	0.00	
			Max Tension	14	0.92	0.00	0.00	0.00	
			Max. Compression	8	-0.10	0.00	0.00		
			Max. Mx	47	0.78	-0.05	0.00		
			Max. My	13	0.38	0.00	0.00		
			Max. Vy	47	-0.03	0.00	0.00		
		Leg		Diagonal	Max. Vx	13	-0.00	0.00	0.00
					Max Tension	14	2.62	-1.30	-0.74
					Max. Compression	45	-186.64	0.00	-0.58
					Max. Mx	14	-20.13	2.09	1.13
					Max. My	2	-20.88	0.02	-2.33
					Max. Vy	14	-0.71	-1.59	-0.91
				Top Girt	Max. Vx	2	0.81	0.00	1.80
					Max Tension	11	5.86	0.00	0.00
					Max. Compression	11	-6.04	0.00	0.00
					Max. Mx	46	-0.74	0.10	0.00
					Max. My	26	-4.13	0.02	0.01
					Max. Vy	46	-0.04	0.10	0.00
				Mid Girt	Max. Vx	26	-0.00	0.00	0.00
					Max Tension	26	0.88	0.00	0.00
					Max. Compression	8	-0.02	0.00	0.00
					Max. Mx	47	0.82	-0.05	0.00
					Max. My	13	0.42	0.00	0.00
					Max. Vy	47	0.03	0.00	0.00
		Leg		Diagonal	Max. Vx	13	-0.00	0.00	0.00
					Max Tension	47	1.41	0.00	0.00
					Max. Compression	1	0.00	0.00	0.00
					Max. Mx	47	1.41	-0.05	0.00
					Max. My	13	0.78	0.00	0.00
					Max. Vy	47	0.03	0.00	0.00
Top Girt	Max. Vx			13	-0.00	0.00	0.00		
	Max Tension			1	0.00	0.00	0.00		
	Max. Compression			45	-187.66	-0.09	0.00		
	Max. Mx			15	-41.46	2.34	0.07		
	Max. My			15	-135.41	-1.07	1.61		
	Max. Vy			15	-0.52	0.14	-0.02		
Diagonal		Top Girt	Max. Vx	15	-0.32	0.41	0.28		
			Max Tension	13	1.68	-0.02	0.00		
			Max. Compression	42	-2.20	0.00	0.00		
			Max. Mx	46	-2.06	-0.14	-0.01		
			Max. My	13	-1.49	-0.13	-0.01		
			Max. Vy	46	-0.08	0.00	0.00		
		Leg	Max. Vx	13	-0.01	0.00	0.00		
			Max Tension	47	17.46	0.00	0.00		
			Max. Compression	1	0.00	0.00	0.00		
			Max. Mx	47	17.46	0.07	0.00		
			Max. My	43	16.28	0.00	0.01		
			Max. Vy	47	-0.05	0.00	0.00		
Top Girt	Max. Vx	43	-0.00	0.00	0.00				

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T36	6.70833 - 0	Leg	Max Tension	1	0.00	0.00	0.00	
			Max. Compression	45	-191.96	-0.77	0.00	
			Max. Mx	26	-34.77	2.28	-0.01	
			Max. My	34	-69.52	-0.96	1.54	
			Max. Vy	47	1.66	-1.93	0.35	
			Max. Vx	13	1.17	-1.08	-1.43	
		Diagonal	Max Tension	13	2.75	-0.06	0.02	0.00
			Max. Compression	34	-4.57	0.09	-0.04	-0.01
			Max. Mx	49	-3.27	-0.42	-0.01	-0.04
			Max. My	34	-4.57	0.09	0.00	-0.04
			Max. Vy	49	-0.51	0.00	0.00	0.00
			Max. Vx	34	-0.05	0.00	0.00	0.00

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K	
Mast	Max. Vert	47	511.04	0.82	-0.64	
	Max. H <sub>x</sub>	29	295.11	9.61	0.01	
	Max. H <sub>z</sub>	2	303.06	0.00	9.58	
	Max. M <sub>x</sub>	1	0.00	-0.01	-0.01	
	Max. M <sub>z</sub>	1	0.00	-0.01	-0.01	
	Max. Torsion	13	0.84	-8.31	0.31	
	Min. Vert	1	196.18	-0.01	-0.01	
	Min. H <sub>x</sub>	11	291.78	-9.71	-0.07	
	Min. H <sub>z</sub>	20	270.34	-0.10	-9.47	
	Min. M <sub>x</sub>	1	0.00	-0.01	-0.01	
	Min. M <sub>z</sub>	1	0.00	-0.01	-0.01	
	Min. Torsion	34	-0.94	7.45	4.32	
	Guy C @ 411 ft Elev -20.5 ft Azimuth 240 deg	Max. Vert	28	-2.36	-2.85	1.65
		Max. H <sub>x</sub>	28	-2.36	-2.85	1.65
Max. H <sub>z</sub>		7	-89.44	-95.07	56.53	
Min. Vert		13	-90.95	-98.28	55.07	
Min. H <sub>x</sub>		13	-90.95	-98.28	55.07	
Min. H <sub>z</sub>		28	-2.36	-2.85	1.65	
Guy B @ 394 ft Elev -13 ft Azimuth 120 deg	Max. Vert	16	-2.25	2.58	1.49	
	Max. H <sub>x</sub>	31	-93.19	98.57	55.24	
	Max. H <sub>z</sub>	37	-89.85	93.67	55.71	
	Min. Vert	31	-93.19	98.57	55.24	
	Min. H <sub>x</sub>	16	-2.25	2.58	1.49	
	Min. H <sub>z</sub>	16	-2.25	2.58	1.49	
Guy A @ 405 ft Elev -20 ft Azimuth 0 deg	Max. Vert	4	-2.39	0.00	-3.23	
	Max. H <sub>x</sub>	31	-49.36	2.96	-59.96	
	Max. H <sub>z</sub>	4	-2.39	0.00	-3.23	
	Min. Vert	25	-90.73	1.44	-110.70	
	Min. H <sub>x</sub>	13	-48.63	-2.96	-59.19	
	Min. H <sub>z</sub>	25	-90.73	1.44	-110.70	
Guy C @ 424.5 ft Elev -16.5 ft Azimuth 240 deg	Max. Vert	28	-0.39	-1.82	1.05	

<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</p>	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	80 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy B @ 407.5 ft Elev -9 ft Azimuth 120 deg	Max. H <sub>x</sub>	28	-0.39	-1.82	1.05
	Max. H <sub>z</sub>	12	-14.60	-37.69	21.40
	Min. Vert	12	-14.60	-37.69	21.40
	Min. H <sub>x</sub>	12	-14.60	-37.69	21.40
	Min. H <sub>z</sub>	28	-0.39	-1.82	1.05
	Max. Vert	16	-0.35	1.70	0.98
Guy A @ 403 ft Elev -20 ft Azimuth 0 deg	Max. H <sub>x</sub>	30	-14.73	38.37	21.80
	Max. H <sub>z</sub>	30	-14.73	38.37	21.80
	Min. Vert	30	-14.73	38.37	21.80
	Min. H <sub>x</sub>	16	-0.35	1.70	0.98
	Min. H <sub>z</sub>	16	-0.35	1.70	0.98
	Max. Vert	3	-0.40	0.00	-1.91
	Max. H <sub>x</sub>	31	-8.25	0.77	-22.94
	Max. H <sub>z</sub>	3	-0.40	0.00	-1.91
	Min. Vert	18	-15.53	-0.33	-42.58
	Min. H <sub>x</sub>	13	-8.26	-0.78	-22.96
	Min. H <sub>z</sub>	18	-15.53	-0.33	-42.58

## Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	196.18	0.01	0.01	0.00	0.00	-0.00
1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy	303.06	-0.00	-9.58	0.00	0.00	0.33
1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy	311.62	-0.01	-8.27	0.00	0.00	0.33
1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy	321.05	-0.02	-7.88	0.00	0.00	0.31
1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy	287.43	4.68	-8.05	0.00	0.00	0.55
1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy	294.71	4.35	-6.99	0.00	0.00	0.49
1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy	302.06	4.29	-6.68	0.00	0.00	0.44
1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy	269.59	8.35	-4.71	0.00	0.00	-0.04
1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy	273.09	7.65	-4.31	0.00	0.00	-0.15
1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy	276.10	7.54	-4.24	0.00	0.00	-0.20
1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy	291.78	9.71	0.07	0.00	0.00	-0.73
1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy	299.26	8.60	-0.20	0.00	0.00	-0.82
1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy	305.93	8.31	-0.31	0.00	0.00	-0.84
1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy	306.25	8.35	4.84	0.00	0.00	-0.71
1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy	314.96	7.19	4.17	0.00	0.00	-0.77
1.2D+1.0W (pattern 3) 120 deg	323.69	6.84	3.99	0.00	0.00	-0.80

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	<p><b>Project</b></p> <p style="text-align: center;">TEP No. 25575.535124</p>	<p><b>Date</b></p> <p style="text-align: center;">15:16:56 04/30/21</p>
	<p><b>Client</b></p> <p style="text-align: center;">Crown Castle</p>	<p><b>Designed by</b></p> <p style="text-align: center;">PRS</p>

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 150 deg	289.15	4.78	8.20	0.00	0.00	-0.40
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 150 deg	295.96	4.04	7.42	0.00	0.00	-0.44
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 150 deg	302.76	3.80	7.24	0.00	0.00	-0.47
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 180 deg	270.34	0.10	9.47	0.00	0.00	-0.48
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 180 deg	273.69	0.11	8.68	0.00	0.00	-0.48
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 180 deg	277.04	0.11	8.56	0.00	0.00	-0.49
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 210 deg	292.66	-4.55	8.01	0.00	0.00	-0.48
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 210 deg	300.21	-3.77	7.18	0.00	0.00	-0.41
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 210 deg	306.56	-3.53	7.01	0.00	0.00	-0.38
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 240 deg	310.61	-8.30	4.80	0.00	0.00	0.10
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 240 deg	319.97	-7.10	4.10	0.00	0.00	0.18
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 240 deg	328.40	-6.76	3.91	0.00	0.00	0.20
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 270 deg	295.11	-9.61	-0.01	0.00	0.00	0.66
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 270 deg	302.73	-8.50	-0.29	0.00	0.00	0.75
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 270 deg	309.11	-8.22	-0.41	0.00	0.00	0.79
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 300 deg	271.88	-8.23	-4.76	0.00	0.00	0.74
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 300 deg	275.16	-7.55	-4.38	0.00	0.00	0.85
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 300 deg	278.24	-7.45	-4.32	0.00	0.00	0.94
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 330 deg	287.25	-4.77	-8.19	0.00	0.00	0.32
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 330 deg	293.95	-4.46	-7.18	0.00	0.00	0.34
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 330 deg	301.33	-4.41	-6.88	0.00	0.00	0.40
- No Ice+1.0 Guy						
1.2 Dead+1.0 Ice+1.0 Temp+Guy	498.96	0.05	0.15	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	509.11	0.02	-1.00	0.00	0.00	-0.02
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	506.29	0.76	-0.92	0.00	0.00	-0.06
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	504.03	1.24	-0.63	0.00	0.00	-0.26
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	505.96	1.28	-0.02	0.00	0.00	-0.41
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	508.45	0.97	0.69	0.00	0.00	-0.34
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	506.32	0.55	1.34	0.00	0.00	-0.11
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	505.01	0.07	1.59	0.00	0.00	-0.03
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	507.93	-0.40	1.29	0.00	0.00	-0.01

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	511.04	-0.82	0.64	0.00	0.00	0.22
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	508.38	-1.19	-0.11	0.00	0.00	0.36
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	505.78	-1.19	-0.67	0.00	0.00	0.26
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	507.12	-0.74	-0.96	0.00	0.00	0.04
Dead+Wind 0 deg - Service+Guy	203.28	0.00	-2.19	0.00	0.00	0.11
Dead+Wind 30 deg - Service+Guy	201.33	1.12	-1.82	0.00	0.00	0.14
Dead+Wind 60 deg - Service+Guy	200.00	1.93	-1.08	0.00	0.00	-0.03
Dead+Wind 90 deg - Service+Guy	201.35	2.27	-0.01	0.00	0.00	-0.22
Dead+Wind 120 deg - Service+Guy	203.04	1.95	1.13	0.00	0.00	-0.22
Dead+Wind 150 deg - Service+Guy	201.36	1.09	1.92	0.00	0.00	-0.12
Dead+Wind 180 deg - Service+Guy	200.59	0.02	2.19	0.00	0.00	-0.10
Dead+Wind 210 deg - Service+Guy	202.53	-1.03	1.88	0.00	0.00	-0.13
Dead+Wind 240 deg - Service+Guy	204.91	-1.93	1.12	0.00	0.00	0.04
Dead+Wind 270 deg - Service+Guy	202.98	-2.24	-0.03	0.00	0.00	0.20
Dead+Wind 300 deg - Service+Guy	201.08	-1.91	-1.09	0.00	0.00	0.18
Dead+Wind 330 deg - Service+Guy	201.77	-1.13	-1.86	0.00	0.00	0.09

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-117.28	0.00	0.00	117.28	0.00	0.001%
2	0.13	-138.55	-127.82	-0.13	138.55	127.82	0.003%
3	0.25	-138.55	-135.55	-0.25	138.55	135.54	0.003%
4	-0.10	-138.55	-140.65	0.10	138.55	140.64	0.003%
5	63.58	-137.68	-107.30	-63.58	137.68	107.30	0.003%
6	67.54	-137.68	-113.93	-67.55	137.68	113.92	0.003%
7	69.37	-137.68	-118.30	-69.37	137.68	118.30	0.003%
8	109.56	-136.81	-62.04	-109.56	136.81	62.04	0.003%
9	116.24	-136.81	-65.88	-116.24	136.81	65.89	0.004%
10	119.95	-136.81	-68.26	-119.95	136.81	68.27	0.004%
11	128.93	-137.72	0.03	-128.92	137.72	-0.03	0.004%
12	136.73	-137.72	-0.07	-136.72	137.72	0.08	0.003%
13	141.22	-137.72	0.14	-141.21	137.72	-0.13	0.003%
14	113.33	-138.62	64.22	-113.32	138.62	-64.22	0.004%
15	120.10	-138.62	68.00	-120.10	138.62	-67.99	0.004%
16	123.94	-138.62	70.91	-123.94	138.62	-70.91	0.004%
17	63.42	-137.72	107.47	-63.41	137.72	-107.46	0.003%
18	67.01	-137.72	113.69	-67.01	137.72	-113.68	0.003%
19	69.15	-137.72	118.08	-69.15	137.72	-118.08	0.003%
20	-0.13	-136.81	122.97	0.13	136.81	-122.97	0.001%

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	83 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
21	-0.26	-136.81	130.26	0.25	136.81	-130.26	0.001%
22	0.09	-136.81	135.15	-0.09	136.81	-135.15	0.002%
23	-63.65	-137.68	107.48	63.64	137.68	-107.48	0.003%
24	-67.63	-137.68	114.14	67.62	137.68	-114.14	0.003%
25	-69.45	-137.68	118.53	69.45	137.68	-118.52	0.003%
26	-114.34	-138.55	64.78	114.34	138.55	-64.78	0.003%
27	-121.42	-138.55	68.88	121.41	138.55	-68.88	0.003%
28	-125.32	-138.55	71.37	125.31	138.55	-71.36	0.003%
29	-129.39	-137.64	0.02	129.38	137.64	-0.01	0.003%
30	-137.17	-137.64	0.15	137.17	137.64	-0.15	0.003%
31	-141.66	-137.64	-0.06	141.65	137.64	0.06	0.003%
32	-109.26	-136.74	-61.55	109.26	136.74	61.55	0.002%
33	-115.61	-136.74	-65.07	115.61	136.74	65.07	0.002%
34	-119.26	-136.74	-67.87	119.26	136.74	67.88	0.003%
35	-63.75	-137.64	-107.20	63.75	137.64	107.19	0.003%
36	-67.33	-137.64	-113.40	67.33	137.64	113.39	0.003%
37	-69.46	-137.64	-117.80	69.46	137.64	117.79	0.003%
38	0.00	-368.24	-0.00	-0.00	368.24	0.00	0.001%
39	-0.15	-368.80	-48.55	0.15	368.80	48.54	0.000%
40	24.43	-368.24	-41.85	-24.43	368.24	41.85	0.001%
41	42.26	-367.66	-24.22	-42.26	367.66	24.22	0.000%
42	48.79	-368.26	0.03	-48.79	368.26	-0.02	0.001%
43	42.48	-368.84	24.18	-42.48	368.84	-24.18	0.001%
44	24.43	-368.26	41.54	-24.43	368.26	-41.54	0.001%
45	0.11	-367.67	48.03	-0.11	367.67	-48.03	0.000%
46	-24.52	-368.24	41.68	24.51	368.24	-41.68	0.001%
47	-42.69	-368.81	24.29	42.69	368.81	-24.29	0.001%
48	-48.86	-368.21	-0.21	48.86	368.21	0.22	0.001%
49	-42.11	-367.63	-24.21	42.11	367.63	24.22	0.001%
50	-24.41	-368.21	-41.69	24.41	368.21	41.68	0.001%
51	0.05	-117.49	-35.03	-0.05	117.49	35.03	0.001%
52	17.42	-117.28	-29.45	-17.42	117.28	29.45	0.001%
53	29.99	-117.07	-17.01	-29.99	117.07	17.02	0.002%
54	35.27	-117.29	-0.01	-35.27	117.29	0.01	0.001%
55	30.99	-117.51	17.58	-30.99	117.51	-17.58	0.001%
56	17.29	-117.29	29.37	-17.29	117.29	-29.37	0.001%
57	-0.05	-117.07	33.65	0.05	117.07	-33.65	0.001%
58	-17.44	-117.28	29.50	17.44	117.28	-29.50	0.001%
59	-31.33	-117.49	17.79	31.33	117.49	-17.79	0.001%
60	-35.38	-117.27	0.03	35.38	117.27	-0.03	0.002%
61	-29.82	-117.06	-16.82	29.82	117.06	16.82	0.001%
62	-17.37	-117.27	-29.30	17.37	117.27	29.30	0.001%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	11	0.00000001	0.00002389
2	Yes	20	0.00006269	0.00007651
3	Yes	20	0.00005696	0.00007322
4	Yes	20	0.00005548	0.00007928
5	Yes	20	0.00007469	0.00007507
6	Yes	20	0.00006551	0.00006986
7	Yes	20	0.00006143	0.00007400
8	Yes	17	0.00008537	0.00002226
9	Yes	17	0.00009850	0.00002771



<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	84 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

10	Yes	17	0.00008385	0.00004982
11	Yes	20	0.00007840	0.00007812
12	Yes	20	0.00006948	0.00007395
13	Yes	20	0.00006680	0.00007921
14	Yes	20	0.00006674	0.00008049
15	Yes	20	0.00006103	0.00007775
16	Yes	20	0.00005915	0.00008311
17	Yes	20	0.00007637	0.00007188
18	Yes	20	0.00006710	0.00006665
19	Yes	20	0.00006818	0.00007678
20	Yes	18	0.00008012	0.00006554
21	Yes	18	0.00006945	0.00006332
22	Yes	17	0.00009204	0.00008429
23	Yes	20	0.00006197	0.00006589
24	Yes	20	0.00005457	0.00006160
25	Yes	20	0.00005626	0.00007046
26	Yes	20	0.00006042	0.00007714
27	Yes	20	0.00005504	0.00007479
28	Yes	20	0.00005395	0.00007994
29	Yes	20	0.00006866	0.00007122
30	Yes	20	0.00006019	0.00006677
31	Yes	20	0.00006011	0.00007375
32	Yes	19	0.00008242	0.00005313
33	Yes	19	0.00007377	0.00003853
34	Yes	18	0.00009653	0.00003573
35	Yes	20	0.00008044	0.00007465
36	Yes	20	0.00006958	0.00006816
37	Yes	20	0.00006714	0.00007532
38	Yes	11	0.00010000	0.00005679
39	Yes	18	0.00006031	0.00001986
40	Yes	17	0.00009107	0.00002595
41	Yes	15	0.00000001	0.00002283
42	Yes	17	0.00007936	0.00001915
43	Yes	18	0.00000001	0.00001601
44	Yes	17	0.00007531	0.00001778
45	Yes	15	0.00006341	0.00002460
46	Yes	17	0.00009472	0.00002724
47	Yes	18	0.00006226	0.00002128
48	Yes	17	0.00009439	0.00002599
49	Yes	14	0.00008262	0.00003728
50	Yes	17	0.00008667	0.00002336
51	Yes	17	0.00000001	0.00002465
52	Yes	16	0.00000001	0.00002865
53	Yes	12	0.00000001	0.00002211
54	Yes	16	0.00000001	0.00003010
55	Yes	17	0.00000001	0.00002502
56	Yes	16	0.00000001	0.00002587
57	Yes	13	0.00000001	0.00003214
58	Yes	16	0.00000001	0.00003726
59	Yes	17	0.00000001	0.00003193
60	Yes	16	0.00000001	0.00003687
61	Yes	13	0.00000001	0.00003873
62	Yes	16	0.00000001	0.00002507

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
Pole	496.57 - 457	7.652	53	0.1435	0.2362

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	85 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
<b>Antenna</b>					
T1	457 - 436	6.880	59	0.1384	0.2360
T2	436 - 421	6.548	59	0.1322	0.2312
T3	421 - 401	6.326	59	0.1232	0.2241
T4	401 - 396	6.065	59	0.0984	0.2146
T5	396 - 391	6.011	59	0.0926	0.2121
T6	391 - 386	5.962	59	0.0858	0.2096
T7	386 - 381	5.915	59	0.0779	0.2070
T8	381 - 376	5.877	59	0.0688	0.2043
T9	376 - 371	5.863	59	0.0624	0.2020
T10	371 - 366	5.856	59	0.0568	0.1997
T11	366 - 361	5.851	59	0.0522	0.1975
T12	361 - 341	5.849	59	0.0485	0.1995
T13	341 - 321	5.848	59	0.0362	0.2069
T14	321 - 301	5.818	59	0.0365	0.2092
T15	301 - 281	5.720	59	0.0413	0.2050
T16	281 - 276	5.564	59	0.0418	0.1987
T17	276 - 271	5.522	59	0.0403	0.1966
T18	271 - 266	5.480	59	0.0377	0.1944
T19	266 - 261	5.441	59	0.0338	0.1921
T20	261 - 256	5.405	59	0.0286	0.1891
T21	256 - 251	5.377	59	0.0220	0.1870
T22	251 - 246	5.363	59	0.0160	0.1853
T23	246 - 241	5.358	59	0.0126	0.1836
T24	241 - 221	5.353	59	0.0117	0.1815
T25	221 - 201	5.318	59	0.0218	0.1719
T26	201 - 181	5.222	59	0.0419	0.1516
T27	181 - 161	5.023	59	0.0661	0.1303
T28	161 - 141	4.719	59	0.0893	0.1072
T29	141 - 121	4.343	59	0.1012	0.0925
T30	121 - 101	3.955	59	0.1013	0.0841
T31	101 - 81	3.573	59	0.1169	0.0863
T32	81 - 61	3.099	59	0.1418	0.0871
T33	61 - 41	2.513	59	0.1702	0.0873
T34	41 - 20	1.812	59	0.1958	0.0899
T35	20 - 6.70833	0.973	59	0.2152	0.0900
T36	6.70833 - 0	0.396	59	0.2646	0.0989

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
457'	12" x 3' Beacon	59	6.880	0.1384	0.2360	67435
450'	USX6-6W-6GR	59	6.765	0.1367	0.2350	90683
446'6"	Guy	59	6.709	0.1357	0.2343	114639
441'	SRL-235-2	59	6.624	0.1340	0.2329	180718
439'	BCD-87077	59	6.594	0.1333	0.2323	219743
435'	ERI 1183-3CP	59	6.533	0.1318	0.2308	263912
430'	ERI 1183-3CP	59	6.458	0.1296	0.2286	171416
425'	ERI 1183-3CP	59	6.384	0.1265	0.2261	110674
420'	ERI 1183-3CP	59	6.312	0.1223	0.2236	83554
415'	ERI 1183-3CP	59	6.242	0.1166	0.2212	69927
410'	ERI 1183-3CP	59	6.176	0.1100	0.2189	60416
405'	ERI 1183-3CP	59	6.113	0.1034	0.2166	53164
393'	6014-2	59	5.981	0.0887	0.2106	76075
388'	6014-2	59	5.933	0.0813	0.2081	52876

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	86 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
381'	Guy	59	5.877	0.0688	0.2043	12290
367'	6828-2	59	5.852	0.0531	0.1977	75322
364'	DB806E-XT	59	5.850	0.0507	0.1983	71530
344'	455-6	59	5.849	0.0374	0.2060	144908
342'	BCD-87077	59	5.848	0.0366	0.2066	123730
340'	455-6	59	5.848	0.0359	0.2071	109109
333'	3" x 6" SideLight	59	5.842	0.0350	0.2086	80165
330'	PG1N0F-0090-310	59	5.838	0.0350	0.2090	72130
328'	7P-C1-2-CP-L	59	5.835	0.0352	0.2092	67612
326'	DB201-A	59	5.831	0.0355	0.2093	63627
325'	DB408	59	5.829	0.0357	0.2093	61821
322'	SPD3-5.8	59	5.821	0.0363	0.2092	57748
316'	6014-2	59	5.800	0.0378	0.2086	57516
306'	6014-2	59	5.751	0.0404	0.2063	62134
284'	DB404-B w/ Mount Pipe	59	5.589	0.0422	0.1998	209863
277'	BMR10-A-B1	59	5.530	0.0407	0.1970	107908
264'	ANTI150F6	59	5.426	0.0319	0.1909	44438
258'6"	(2) PL6" x 0.5"	59	5.389	0.0254	0.1879	23752
255'	DB809KT3E-Y	59	5.373	0.0207	0.1867	21213
254'6"	Guy	59	5.372	0.0200	0.1865	21633
247'	APXVAARR24_43-U-NA20 w/ Mount Pipe	59	5.359	0.0130	0.1840	100063
230'	(2) JAHH-65B-R3B w/ Mount Pipe	59	5.338	0.0151	0.1771	114127
215'	3" x 6" SideLight	59	5.298	0.0272	0.1666	57867
206'	P-9A72GN-U	59	5.254	0.0363	0.1571	47172
200'	DFPD1-52 w/ Mount Pipe	59	5.214	0.0430	0.1505	42981
188'	BMYD745K	59	5.105	0.0575	0.1380	41549
186'	ASP-960	59	5.083	0.0600	0.1359	41365
178'	SPD4-5.2	59	4.984	0.0699	0.1268	43194
150'	HPX6-65-P3A	59	4.518	0.0979	0.0981	118996
146'	PL6-65-PXA	59	4.441	0.0998	0.0955	172536
140'	CM 4228HD	59	4.324	0.1013	0.0919	502962
138'	MGA2-16N	59	4.284	0.1014	0.0908	772840
136'	CSI-AY/809-960/11	59	4.245	0.1013	0.0897	432018
135'	CM 4228HD	59	4.226	0.1013	0.0891	352777
134'	MGAR3-23N	59	4.206	0.1012	0.0886	298099
133'	220-5	59	4.186	0.1011	0.0881	258095
131'	Guy	59	4.147	0.1009	0.0872	203483
117'	P-9A48GN-U	59	3.880	0.1029	0.0839	268790
112'	3" x 6" SideLight	59	3.787	0.1062	0.0843	158391
109'	PD1132-D	59	3.731	0.1087	0.0848	87466
108'	SSH-9A72GN	59	3.712	0.1097	0.0850	76106
99'	SPD2-5.8	59	3.531	0.1192	0.0866	40642
68'	P-9A48GN-U	59	2.730	0.1596	0.0857	44447
62'	CSI-AY/809-960/11	59	2.545	0.1686	0.0869	44916
61'	SSH-9A72GN	59	2.513	0.1702	0.0873	44636

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
Pole	496.57 - 457	50.531	26	1.0052	0.9000
Antenna					
T1	457 - 436	42.250	26	0.9830	0.8958
T2	436 - 421	38.360	26	0.9542	0.8774

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	87 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T3	421 - 401	35.676	26	0.9076	0.8502
T4	401 - 396	33.265	28	0.7802	0.8139
T5	396 - 391	33.110	28	0.7509	0.8042
T6	391 - 386	32.972	28	0.7170	0.7945
T7	386 - 381	32.840	28	0.6775	0.7844
T8	381 - 376	32.740	28	0.6320	0.7741
T9	376 - 371	32.732	28	0.5965	0.7673
T10	371 - 366	32.748	28	0.5636	0.7603
T11	366 - 361	32.770	28	0.5332	0.7531
T12	361 - 341	32.798	28	0.5052	0.7466
T13	341 - 321	32.905	28	0.3701	0.7686
T14	321 - 301	32.822	28	0.2742	0.7841
T15	301 - 281	32.403	28	0.1950	0.7736
T16	281 - 276	31.712	28	0.1963	0.7549
T17	276 - 271	31.523	28	0.1916	0.7482
T18	271 - 266	31.336	28	0.1819	0.7409
T19	266 - 261	31.157	28	0.1669	0.7334
T20	261 - 256	30.991	28	0.1464	0.7228
T21	256 - 251	30.882	16	0.1207	0.7153
T22	251 - 246	30.836	16	0.1453	0.7100
T23	246 - 241	30.827	16	0.1645	0.7048
T24	241 - 221	30.815	16	0.1758	0.6981
T25	221 - 201	30.675	16	0.1566	0.6660
T26	201 - 181	30.198	16	0.2157	0.5962
T27	181 - 161	29.180	16	0.3507	0.5229
T28	161 - 141	27.575	16	0.4846	0.4407
T29	141 - 121	25.519	16	0.5726	0.3904
T30	121 - 101	23.285	15	0.6128	0.3642
T31	101 - 81	20.934	15	0.7163	0.3733
T32	81 - 61	18.037	15	0.8546	0.3767
T33	61 - 41	14.527	15	1.0049	0.3727
T34	41 - 20	10.420	15	1.1405	0.3810
T35	20 - 6.70833	5.569	15	1.2405	0.3802
T36	6.70833 - 0	2.259	15	1.5156	0.4176

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
457'	12" x 3' Beacon	26	42.250	0.9830	0.8958	10736
450'	USX6-6W-6GR	26	40.920	0.9757	0.8920	15010
446'6"	Guy	26	40.272	0.9713	0.8894	19752
441'	SRL-235-2	26	39.266	0.9631	0.8839	34624
439'	BCD-87077	26	38.903	0.9598	0.8815	37970
435'	ERI 1183-3CP	26	38.179	0.9523	0.8758	37003
430'	ERI 1183-3CP	26	37.277	0.9407	0.8673	24358
425'	ERI 1183-3CP	26	36.382	0.9249	0.8578	17108
420'	ERI 1183-3CP	26	35.502	0.9026	0.8483	13464
415'	ERI 1183-3CP	26	34.640	0.8732	0.8392	12317
410'	ERI 1183-3CP	26	33.801	0.8397	0.8303	11509
405'	ERI 1183-3CP	28	33.401	0.8056	0.8214	10614
393'	6014-2	28	33.026	0.7312	0.7984	14587
388'	6014-2	28	32.892	0.6944	0.7886	10013
381'	Guy	28	32.740	0.6320	0.7741	3102
367'	6828-2	28	32.765	0.5389	0.7544	10127
364'	DB806E-XT	28	32.780	0.5221	0.7504	8918

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
344'	455-6	28	32.895	0.3893	0.7641	10482
342'	BCD-87077	28	32.902	0.3763	0.7671	10658
340'	455-6	28	32.907	0.3640	0.7700	10931
333'	3" x 6" SideLight	28	32.906	0.3263	0.7781	12573
330'	PG1N0F-0090-310	28	32.895	0.3122	0.7806	13478
328'	7P-C1-2-CP-L	28	32.885	0.3033	0.7819	14158
326'	DB201-A	28	32.871	0.2947	0.7829	14195
325'	DB408	28	32.863	0.2905	0.7833	13852
322'	SPD3-5.8	28	32.833	0.2782	0.7840	13082
316'	6014-2	28	32.750	0.2543	0.7832	13184
306'	6014-2	28	32.539	0.2150	0.7775	14479
284'	DB404-B w/ Mount Pipe	28	31.824	0.1970	0.7585	15013
277'	BMR10-A-B1	28	31.561	0.1930	0.7496	9387
264'	ANT150F6	28	31.088	0.1594	0.7292	8579
258'6"	(2) PL6" x 0.5"	16	30.925	0.1338	0.7186	5382
255'	DB809KT3E-Y	16	30.868	0.1224	0.7142	4856
254'6"	Guy	16	30.863	0.1255	0.7136	4956
247'	APXVAARR24_43-U-NA20 w/ Mount Pipe	16	30.828	0.1614	0.7060	20780
230'	(2) JAHH-65B-R3B w/ Mount Pipe	16	30.764	0.1758	0.6835	17230
215'	3" x 6" SideLight	16	30.579	0.1381	0.6481	10186
206'	P-9A72GN-U	16	30.362	0.1858	0.6152	8511
200'	DFPD1-52 w/ Mount Pipe	16	30.161	0.2219	0.5925	7806
188'	BMYD745K	16	29.604	0.3017	0.5495	7378
186'	ASP-960	16	29.491	0.3156	0.5422	7317
178'	SPD4-5.2	16	28.975	0.3718	0.5105	7455
150'	HPX6-65-P3A	16	26.486	0.5416	0.4093	11368
146'	PL6-65-PXA	16	26.063	0.5574	0.4004	12785
140'	CM 4228HD	16	25.409	0.5751	0.3885	15662
138'	MGA2-16N	16	25.186	0.5794	0.3848	16872
136'	CSI-AY/809-960/11	16	24.962	0.5832	0.3812	18265
135'	CM 4228HD	16	24.849	0.5849	0.3795	19050
134'	MGAR3-23N	16	24.736	0.5866	0.3779	19906
133'	220-5	15	24.624	0.5882	0.3763	20841
131'	Guy	15	24.403	0.5914	0.3733	23004
117'	P-9A48GN-U	15	22.836	0.6271	0.3638	21235
112'	3" x 6" SideLight	15	22.266	0.6502	0.3656	12550
109'	PD1132-D	15	21.917	0.6664	0.3675	10073
108'	SSH-9A72GN	15	21.798	0.6722	0.3682	9451
99'	SPD2-5.8	15	20.673	0.7300	0.3746	6696
68'	P-9A48GN-U	15	15.821	0.9394	0.3695	7779
62'	CSI-AY/809-960/11	15	14.716	0.9940	0.3716	8021
61'	SSH-9A72GN	15	14.527	1.0049	0.3727	7992

### Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	457	Leg	A307	0.8750	8	1.96	20.78	0.094	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	2.01	5.52	0.364	1.05	Bolt Shear
		Horizontal	A307	0.5000	2	0.58	5.52	0.106	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	0.00	5.52	0.000	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	2.15	5.52	0.390	1.05	Bolt Shear
T2	436	Leg	A307	0.8750	8	4.17	20.78	0.201	1.05	Bolt Tension

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T3	421	Diagonal	A325X	0.5000	2	2.14	7.08	0.303	1.05	Member Block Shear
		Horizontal	A307	0.5000	2	0.72	5.52	0.129	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	0.58	5.52	0.105	1.05	Bolt Shear
		Leg	A307	0.8750	8	8.92	20.78	0.429	1.05	Bolt Tension
		Diagonal	A325N	0.5000	2	3.62	7.08	0.511	1.05	Member Block Shear
T4	401	Top Girt	A307	0.5000	2	0.85	5.52	0.154	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.15	5.52	0.027	1.05	Bolt Shear
		Diagonal	A325N	0.5000	2	3.84	7.08	0.542	1.05	Member Block Shear
T5	396	Top Girt	A307	0.5000	2	0.98	5.52	0.178	1.05	Bolt Shear
		Diagonal	A325N	0.5000	2	4.24	7.08	0.599	1.05	Member Block Shear
T6	391	Diagonal	A325X	0.5000	2	4.85	7.08	0.685	1.05	Member Block Shear
T7	386	Leg	A307	0.8750	8	17.09	20.78	0.823	1.05	Bolt Tension
		Diagonal	A325X	0.5000	2	5.76	7.08	0.814	1.05	Member Block Shear
T8	381	Diagonal	A325N	0.5000	2	4.65	7.08	0.656	1.05	Member Block Shear
T9	376	Top Guy Pull-Off@381	A307	0.5000	2	10.98	11.04	0.994	1.05	Bolt Shear
		Diagonal	A325N	0.5000	2	4.09	7.08	0.577	1.05	Member Block Shear
T10	371	Diagonal	A325N	0.5000	2	4.12	7.08	0.582	1.05	Member Block Shear
T11	366	Leg	A307	0.8750	8	8.30	20.78	0.400	1.05	Bolt Tension
		Diagonal	A325N	0.5000	2	3.76	7.08	0.530	1.05	Member Block Shear
T12	361	Leg	A307	0.8750	8	5.13	20.78	0.247	1.05	Bolt Tension
		Diagonal	A325N	0.5000	2	3.42	7.08	0.483	1.05	Member Block Shear
T13	341	Secondary Horizontal	A325X	0.5000	1	2.50	9.66	0.258	1.05	Member Block Shear
		Top Girt	A307	0.5000	2	1.25	5.52	0.226	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.19	5.52	0.034	1.05	Bolt Shear
		Leg	A307	0.8750	8	4.39	20.78	0.211	1.05	Bolt Tension
		Diagonal	A325N	0.5000	2	2.25	7.08	0.318	1.05	Member Block Shear
T14	321	Top Girt	A307	0.5000	2	1.02	5.52	0.185	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.17	5.52	0.031	1.05	Bolt Shear
		Leg	A307	0.8750	8	4.28	20.78	0.206	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	1.59	5.52	0.289	1.05	Bolt Shear
T15	301	Top Girt	A307	0.5000	2	0.89	5.52	0.161	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.25	5.52	0.046	1.05	Bolt Shear
		Leg	A307	0.8750	8	4.78	20.78	0.230	1.05	Bolt Tension
T16	281	Diagonal	A307	0.5000	2	2.68	5.52	0.486	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	0.99	5.52	0.180	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.17	5.52	0.031	1.05	Bolt Shear
		Diagonal	A325N	0.5000	2	2.98	7.08	0.421	1.05	Member Block Shear
T17	276	Top Girt	A307	0.5000	2	1.04	5.52	0.188	1.05	Bolt Shear
		Diagonal	A325N	0.5000	2	3.29	7.08	0.464	1.05	Member Block Shear
T18	271	Diagonal	A325N	0.5000	2	3.85	7.08	0.543	1.05	Member Block Shear
T19	266	Top Girt	A307	0.5000	2	1.13	5.52	0.205	1.05	Bolt Shear
		Leg	A307	0.8750	8	5.69	20.78	0.274	1.05	Bolt Tension
		Diagonal	A325N	0.5000	2	3.66	7.08	0.517	1.05	Member Block



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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T20	261	Diagonal	A325N	0.5000	2	6.53	8.84	0.739	1.05	Shear
		Top Girt	A307	0.5000	2	2.90	5.52	0.526	1.05	Bolt Shear
T21	256	Diagonal	A325N	0.5000	2	8.48	8.84	0.959	1.05	Bolt Shear
		Secondary Horizontal	A325N	0.5000	2	12.74	17.67	0.721	1.05	Bolt Shear
T22	251	Diagonal	A325N	0.5000	2	6.10	8.84	0.690	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	3.12	5.52	0.564	1.05	Bolt Shear
T23	246	Leg	A307	0.6250	8	4.75	10.17	0.467	1.05	Bolt Tension
		Diagonal	A325N	0.5000	2	5.49	8.84	0.621	1.05	Bolt Shear
		Secondary Horizontal	A325N	0.5000	2	0.99	17.67	0.056	1.05	Bolt Shear
T24	241	Leg	A307	0.6250	8	4.88	10.17	0.479	1.05	Bolt Tension
		Diagonal	A325N	0.5000	2	4.96	8.84	0.562	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	1.01	5.52	0.184	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.33	5.52	0.060	1.05	Bolt Shear
T25	221	Leg	A307	0.8750	8	5.94	20.78	0.286	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	3.22	5.52	0.583	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	1.24	5.52	0.224	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.32	5.52	0.058	1.05	Bolt Shear
T26	201	Leg	A307	0.8750	8	6.44	20.78	0.310	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	1.89	5.52	0.343	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	1.34	5.52	0.242	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.35	5.52	0.063	1.05	Bolt Shear
T27	181	Leg	A307	0.8750	8	6.26	20.78	0.301	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	2.04	5.52	0.370	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	1.35	11.04	0.122	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.34	5.52	0.062	1.05	Bolt Shear
T28	161	Leg	A307	0.6250	8	5.67	10.17	0.558	1.05	Bolt Tension
		Diagonal	A325N	0.6250	2	3.54	10.83	0.327	1.05	Member Block Shear
		Top Girt	A307	0.5000	2	1.26	5.52	0.229	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.39	5.52	0.071	1.05	Bolt Shear
T29	141	Leg	A307	0.6250	8	5.73	10.17	0.563	1.05	Bolt Tension
		Diagonal	A325N	0.6250	2	4.72	10.83	0.436	1.05	Member Block Shear
		Top Girt	A307	0.5000	2	1.21	5.52	0.219	1.05	Bolt Shear
		Mid Girt	A325N	0.5000	2	6.53	7.08	0.922	1.05	Member Block Shear
		Torque Arm Top@131	A325N	0.7500	2	10.95	16.92	0.647	1.05	Member Block Shear
		Torque Arm Bottom@131	A325N	0.7500	2	6.63	16.92	0.392	1.05	Member Block Shear
T30	121	Leg	A307	0.8750	8	7.29	20.78	0.351	1.05	Bolt Tension
		Diagonal	A325N	0.5000	2	2.90	7.08	0.409	1.05	Member Block Shear
		Top Girt	A307	0.5000	2	3.58	5.52	0.648	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.32	5.52	0.058	1.05	Bolt Shear
T31	101	Leg	A307	0.8750	8	8.08	20.78	0.389	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	1.89	5.52	0.342	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	1.68	5.52	0.304	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.48	5.52	0.087	1.05	Bolt Shear
T32	81	Leg	A307	0.8750	8	8.16	20.78	0.393	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	0.96	5.52	0.174	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	1.71	5.52	0.309	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.49	5.52	0.089	1.05	Bolt Shear
T33	61	Leg	A307	0.8750	8	7.82	20.78	0.376	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	1.99	5.52	0.361	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	1.67	5.52	0.303	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.46	5.52	0.083	1.05	Bolt Shear

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T34	41	Leg	A307	0.8750	8	7.64	20.78	0.368	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	3.02	5.52	0.546	1.05	Bolt Shear
		Top Girt	A307	0.5000	2	1.62	5.52	0.293	1.05	Bolt Shear
		Mid Girt	A307	0.5000	2	0.70	5.52	0.127	1.05	Bolt Shear
T35	20	Leg	A307	0.8750	8	7.68	20.78	0.370	1.05	Bolt Tension
		Diagonal	A307	0.5000	2	1.10	5.52	0.199	1.05	Bolt Shear
		Top Girt	A325N	0.5000	2	8.73	14.16	0.616	1.05	Member Block Shear Bolt Shear
T36	6.70833	Diagonal	A307	0.5000	2	2.28	5.52	0.414	1.05	Bolt Shear

### Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual $T_u$ K	Allowable $\phi T_n$ K	Required S.F.	Actual S.F.
T1	446'6" (A) (826)	9/16 EHS	2.80	35.00	13.69	22.05	0.952	1.534
	446'6" (B) (825)	9/16 EHS	2.80	35.00	13.73	22.05	0.952	1.529
	446'6" (C) (824)	9/16 EHS	2.80	35.00	13.75	22.05	0.952	1.527
T8	381' (A) (829)	1 3/8 BS	18.56	232.00	69.55	146.16	0.952	2.001
	381' (B) (828)	1 3/8 BS	18.56	232.00	70.53	146.16	0.952	1.974
	381' (C) (827)	1 3/8 BS	18.56	232.00	69.69	146.16	0.952	1.997
T21	254'6" (A) (832)	1 1/4 BS	15.36	192.00	65.24	120.96	0.952	1.766
	254'6" (B) (831)	1 1/4 BS	15.36	192.00	67.37	120.96	0.952	1.710
	254'6" (C) (830)	1 1/4 BS	15.36	192.00	66.67	120.96	0.952	1.728
T29	131' (A) (845)	11/16 EHS	6.00	50.00	23.27	31.50	0.952	1.289
	131' (A) (846)	11/16 EHS	6.00	50.00	22.36	31.50	0.952	1.342
	131' (B) (839)	11/16 EHS	6.00	50.00	23.00	31.50	0.952	1.304
	131' (B) (840)	11/16 EHS	6.00	50.00	23.83	31.50	0.952	1.259
	131' (C) (833)	11/16 EHS	6.00	50.00	23.48	31.50	0.952	1.277
	131' (C) (834)	11/16 EHS	6.00	50.00	22.55	31.50	0.952	1.330

### Compression Checks

### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$KI/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	3	21'	5'3"	84.0	7.0686	-31.06	149.35	0.208 <sup>1</sup>

K=1.00

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	<p><b>Project</b></p> <p>TEP No. 25575.535124</p>	<p><b>Date</b></p> <p>15:16:56 04/30/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>PRS</p>

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T2	436 - 421	2 3/4	15'	5'	87.3 K=1.00	5.9396	-50.10	122.15	0.410 <sup>1</sup>
T3	421 - 401	2 3/4	20'	5'	87.3 K=1.00	5.9396	-98.26	122.15	0.804 <sup>1</sup>
T4	401 - 396	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	68.2 K=1.00	9.7900	-113.53	232.33	0.489 <sup>1</sup>
T5	396 - 391	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	68.2 K=1.00	9.7900	-130.29	232.33	0.561 <sup>1</sup>
T6	391 - 386	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	68.2 K=1.00	9.7900	-149.53	232.33	0.644 <sup>1</sup>
T7	386 - 381	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	68.2 K=1.00	9.7900	-172.29	232.33	0.742 <sup>1</sup>
T8	381 - 376	3.5" S.R. w/ 3.5 SCH40 Half Pipe	5'	5'	64.5 K=1.00	11.0000	-181.00	267.25	0.677 <sup>1</sup>
T9	376 - 371	3.5" S.R. w/ 3.5 SCH40 Half Pipe	5'	5'	64.5 K=1.00	11.0000	-170.34	267.25	0.637 <sup>1</sup>
T10	371 - 366	3.5" S.R. w/ 3.5 SCH40 Half Pipe	5'	5'	64.5 K=1.00	11.0000	-161.58	267.25	0.605 <sup>1</sup>
T11	366 - 361	3.5" S.R. w/ 3.5 SCH40 Half Pipe	5'	5'	64.5 K=1.00	11.0000	-152.63	267.25	0.571 <sup>1</sup>
T12	361 - 341	3	20'	2'6"	40.0 K=1.00	7.0686	-144.16	194.34	0.742 <sup>1</sup>
T13	341 - 321	3	20'	5'	80.0 K=1.00	7.0686	-117.87	154.16	0.765 <sup>1</sup>
T14	321 - 301	3	20'	5'	80.0 K=1.00	7.0686	-102.65	154.16	0.666 <sup>1</sup>
T15	301 - 281	3	20'	5'	80.0 K=1.00	7.0686	-114.75	154.16	0.744 <sup>1</sup>
T16	281 - 276	3	5'	5'	80.0 K=1.00	7.0686	-119.58	154.16	0.776 <sup>1</sup>
T17	276 - 271	3	5'	5'	80.0 K=1.00	7.0686	-124.57	154.16	0.808 <sup>1</sup>
T18	271 - 266	3	5'	5'	80.0 K=1.00	7.0686	-130.98	154.16	0.850 <sup>1</sup>
T19	266 - 261	3	5'	5'	80.0 K=1.00	7.0686	-136.50	154.16	0.885 <sup>1</sup>
T20	261 - 256	3	5'	5'	80.0 K=1.00	7.0686	-147.85	154.16	0.959 <sup>1</sup>
T21	256 - 251	3	5'	2'6"	40.0 K=1.00	7.0686	-152.12	194.34	0.783 <sup>1</sup>
T22	251 - 246	3	5'	5'	80.0 K=1.00	7.0686	-123.02	154.16	0.798 <sup>1</sup>
T23	246 - 241	3	5'	2'6"	40.0 K=1.00	7.0686	-114.15	194.34	0.587 <sup>1</sup>
T24	241 - 221	3	20'	5'	80.0 K=1.00	7.0686	-117.01	154.16	0.759 <sup>1</sup>
T25	221 - 201	3 1/4	20'	5'	73.8 K=1.00	8.2958	-142.62	189.38	0.753 <sup>1</sup>
T26	201 - 181	3 1/4	20'	5'	73.8 K=1.00	8.2958	-154.50	189.38	0.816 <sup>1</sup>
T27	181 - 161	3 1/4	20'	5'	73.8 K=1.00	8.2958	-155.36	189.38	0.820 <sup>1</sup>
T28	161 - 141	3 1/2	20'	5'	68.6 K=1.00	9.6211	-146.06	227.74	0.641 <sup>1</sup>
T29	141 - 121	3 1/2	20'	5'	68.6 K=1.00	9.6211	-139.54	227.74	0.613 <sup>1</sup>

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 93 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T30	121 - 101	3 1/2	20'	5'	68.6 K=1.00	9.6211	-174.90	227.74	0.768 <sup>1</sup>
T31	101 - 81	3 1/2	20'	5'	68.6 K=1.00	9.6211	-194.04	227.74	0.852 <sup>1</sup>
T32	81 - 61	3 1/2	20'	5'	68.6 K=1.00	9.6211	-197.11	227.74	0.866 <sup>1</sup>
T33	61 - 41	3 1/2	20'	5'	68.6 K=1.00	9.6211	-193.36	227.74	0.849 <sup>1</sup>
T34	41 - 20	3 1/2	21'	5'3"	72.0 K=1.00	9.6211	-186.64	222.50	0.839 <sup>1</sup>
T35	20 - 6.70833	3 1/4	13'5-7/8'	4'6"	66.4 K=1.00	8.2958	-187.66	199.14	0.942 <sup>1</sup>
T36	6.70833 - 0	3 1/4	6'9-23/32"	2'3-1/4"	33.5 K=1.00	8.2958	-191.96	233.39	0.822 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	L2 1/2x2x1/4	7'7-13/16"	3'7-9/16"	107.0 K=1.04	1.0600	-3.41	23.43	0.145 <sup>1</sup>
T2	436 - 421	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-4.91	18.23	0.269 <sup>1</sup>
T3	421 - 401	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-7.37	18.23	0.404 <sup>1</sup>
T4	401 - 396	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-7.85	18.23	0.431 <sup>1</sup>
T5	396 - 391	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-8.54	18.23	0.468 <sup>1</sup>
T6	391 - 386	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-10.94	18.23	0.600 <sup>1</sup>
T7	386 - 381	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-10.37	18.23	0.569 <sup>1</sup>
T8	381 - 376	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-7.98	18.23	0.438 <sup>1</sup>
T9	376 - 371	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-9.30	18.23	0.510 <sup>1</sup>
T10	371 - 366	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-8.19	18.23	0.449 <sup>1</sup>
T11	366 - 361	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-7.67	18.23	0.421 <sup>1</sup>
T12	361 - 341	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-7.12	18.23	0.391 <sup>1</sup>
T13	341 - 321	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-4.53	18.23	0.248 <sup>1</sup>
T14	321 - 301	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-3.19	18.23	0.175 <sup>1</sup>
T15	301 - 281	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-5.36	18.23	0.294 <sup>1</sup>
T16	281 - 276	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-5.90	18.23	0.324 <sup>1</sup>
T17	276 - 271	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	0.8090	-6.75	18.23	0.370 <sup>1</sup>

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	94 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T18	271 - 266	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-6.63	18.23	0.364 <sup>1</sup>
T19	266 - 261	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-8.11	18.23	0.445 <sup>1</sup>
T20	261 - 256	L3x3x1/4	7'6"	3'6-19/3 2"	84.0 K=1.17	1.4400	-5.11	40.34	0.127 <sup>1</sup>
T21	256 - 251	L3x3x1/4	7'6"	3'6-19/3 2"	84.0 K=1.17	1.4400	-12.13	40.34	0.301 <sup>1</sup>
T22	251 - 246	L3x3x1/4	7'6"	3'6-19/3 2"	84.0 K=1.17	1.4400	-12.19	40.34	0.302 <sup>1</sup>
T23	246 - 241	L3x3x1/4	7'6"	3'6-19/3 2"	84.0 K=1.17	1.4400	-9.90	40.34	0.246 <sup>1</sup>
T24	241 - 221	L3x3x1/4	7'6"	3'6-19/3 2"	84.0 K=1.17	1.4400	-9.93	40.34	0.246 <sup>1</sup>
T25	221 - 201	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-6.44	18.23	0.353 <sup>1</sup>
T26	201 - 181	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-3.79	18.23	0.208 <sup>1</sup>
T27	181 - 161	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-4.08	18.23	0.224 <sup>1</sup>
T28	161 - 141	L3x3x1/4	7'6"	3'6-15/3 2"	83.8 K=1.17	1.4400	-7.30	40.40	0.181 <sup>1</sup>
T29	141 - 121	L3x3x1/4	7'6"	3'6-15/3 2"	83.8 K=1.17	1.4400	-9.24	40.40	0.229 <sup>1</sup>
T30	121 - 101	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-5.95	18.23	0.326 <sup>1</sup>
T31	101 - 81	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-3.78	18.23	0.207 <sup>1</sup>
T32	81 - 61	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-1.92	18.23	0.105 <sup>1</sup>
T33	61 - 41	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	104.9 K=1.05	0.8090	-3.99	18.23	0.219 <sup>1</sup>
T34	41 - 20	L2 1/2x2x3/16	7'7-13/16"	3'7-9/16'	106.5 K=1.04	0.8090	-6.04	17.97	0.336 <sup>1</sup>
T35	20 - 6.70833	L2x2x3/16	4'9-1/8"	2'9-3/8"	93.5 K=1.10	0.7150	-2.20	17.65	0.124 <sup>1</sup>
T36	6.70833 - 0	L2x2x3/16	2'5-17/32"	1'1-5/16'	55.4 K=1.63	0.7150	-4.57	21.51	0.212 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-1.17	15.61	0.075 <sup>1</sup>
T2	436 - 421	L2 1/2x2x1/4	6'	5'4-9/16'	139.8 K=0.92	1.0600	-0.87	15.53	0.056 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 95 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

### Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T12	361 - 341	L2x2x1/4	6'	2'9-1/8"	102.4 K=1.21	0.9380	-2.50	22.64	0.110 <sup>1</sup>
T21	256 - 251	2L3 1/2x3 1/2x3/8x3/8	6'	2'8-17/32"	30.4 K=1.00	4.9700	-2.63	164.58	0.016 <sup>1</sup>
T23	246 - 241	2L3 1/2x3 1/2x3/8x3/8	6'	2'8-17/32"	30.4 K=1.00	4.9700	-1.98	164.58	0.012 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	C8x13.75	6'	5'9"	112.2 K=1.00	4.0400	-0.00	65.36	0.000 <sup>1</sup>
T2	436 - 421	L2 1/2x2x1/4	6'	5'4-9/16'	139.8 K=0.92	1.0600	-0.87	15.53	0.056 <sup>1</sup>
T3	421 - 401	L2 1/2x2x1/4	6'	5'4-9/16'	139.8 K=0.92	1.0600	-1.70	15.53	0.110 <sup>1</sup>
T4	401 - 396	L2 1/2x2x1/4	6'	5'3-15/32"	138.3 K=0.92	1.0600	-1.97	15.86	0.124 <sup>1</sup>
T6	391 - 386	L2 1/2x2x1/4	6'	5'8-9/32'	161.0 K=1.00	1.0600	-2.59	11.71	0.221 <sup>1</sup>
T10	371 - 366	L2 1/2x2x1/4	6'	5'8-1/32'	160.4 K=1.00	1.0600	-2.80	11.80	0.237 <sup>1</sup>
T12	361 - 341	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-2.50	15.61	0.160 <sup>1</sup>
T13	341 - 321	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-2.04	15.61	0.131 <sup>1</sup>
T14	321 - 301	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-1.78	15.61	0.114 <sup>1</sup>
T15	301 - 281	L2 1/2x2x3/16	6'	5'4-3/16'	138.7 K=0.92	0.8090	-1.99	12.03	0.165 <sup>1</sup>
T16	281 - 276	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-2.07	15.61	0.133 <sup>1</sup>
T18	271 - 266	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-2.27	15.61	0.145 <sup>1</sup>
T20	261 - 256	L2 1/2x2x3/16	6'	5'4-3/16'	138.7 K=0.92	0.8090	-5.80	12.03	0.483 <sup>1</sup>
T22	251 - 246	L2 1/2x2x3/16	6'	5'4-3/16'	138.7 K=0.92	0.8090	-6.23	12.03	0.518 <sup>1</sup>
T24	241 - 221	L2 1/2x2x3/16	6'	5'4-3/16'	138.7 K=0.92	0.8090	-2.03	12.03	0.168 <sup>1</sup>
T25	221 - 201	L2 1/2x2x3/16	6'	5'3-31/32"	138.4 K=0.92	0.8090	-2.47	12.09	0.204 <sup>1</sup>
T26	201 - 181	L2 1/2x2x3/16	6'	5'3-31/32"	138.4 K=0.92	0.8090	-2.68	12.09	0.221 <sup>1</sup>
T27	181 - 161	2L3x2x1/4x3/8	6'	5'3-31/32"	87.0 K=1.00	2.3800	-2.69	58.65	0.046 <sup>1</sup>
T28	161 - 141	L2 1/2x2x3/16	6'	5'3-23/32"	138.0 K=0.92	0.8090	-2.53	12.16	0.208 <sup>1</sup>
T29	141 - 121	L2 1/2x2x3/16	6'	5'3-23/32"	138.0	0.8090	-2.42	12.16	0.199 <sup>1</sup>



<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 96 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T30	121 - 101	L2 1/2x2x3/16	6'	5'3-23/3 2"	K=0.92 138.0	0.8090	-7.15	12.16	0.588 <sup>1</sup>
T31	101 - 81	L2 1/2x2x3/16	6'	5'3-23/3 2"	K=0.92 138.0	0.8090	-3.36	12.16	0.276 <sup>1</sup>
T32	81 - 61	L2 1/2x2x3/16	6'	5'3-23/3 2"	K=0.92 138.0	0.8090	-3.41	12.16	0.281 <sup>1</sup>
T33	61 - 41	L2 1/2x2x3/16	6'	5'3-23/3 2"	K=0.92 138.0	0.8090	-3.35	12.16	0.276 <sup>1</sup>
T34	41 - 20	L2 1/2x2x3/16	6'	5'3-23/3 2"	K=0.92 138.0	0.8090	-3.23	12.16	0.266 <sup>1</sup>
T35	20 - 6.70833	2L2 1/2x2x3/16x1/4	6'	5'3-31/3 2"	K=0.92 88.4 K=1.00	1.6172	-3.29	39.09	0.084 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T3	421 - 401	L2 1/2x2x1/4	6'	5'4-9/16'	139.8 K=0.92	1.0600	-0.18	15.53	0.011 <sup>1</sup>
T12	361 - 341	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-0.14	15.61	0.009 <sup>1</sup>
T13	341 - 321	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-0.07	15.61	0.004 <sup>1</sup>
T14	321 - 301	L2 1/2x2x1/4	6'	5'4-3/16'	139.4 K=0.92	1.0600	-0.18	15.61	0.011 <sup>1</sup>
T15	301 - 281	L2 1/2x2x3/16	6'	5'4-3/16'	138.7 K=0.92	0.8090	-0.04	12.03	0.003 <sup>1</sup>
T24	241 - 221	L2 1/2x2x3/16	6'	5'4-3/16'	138.7 K=0.92	0.8090	-0.16	12.03	0.013 <sup>1</sup>
T26	201 - 181	L2 1/2x2x3/16	6'	5'3-31/3 2"	138.4 K=0.92	0.8090	-0.09	12.09	0.008 <sup>1</sup>
T27	181 - 161	L2 1/2x2x3/16	6'	5'3-31/3 2"	138.4 K=0.92	0.8090	-0.07	12.09	0.006 <sup>1</sup>
T29	141 - 121	L2 1/2x2x3/16	6'	5'3-23/3 2"	138.0 K=0.92	0.8090	-9.51	12.16	0.782 <sup>1</sup>
T31	101 - 81	L2 1/2x2x3/16	6'	5'3-23/3 2"	138.0 K=0.92	0.8090	-0.13	12.16	0.011 <sup>1</sup>
T32	81 - 61	L2 1/2x2x3/16	6'	5'3-23/3 2"	138.0 K=0.92	0.8090	-0.17	12.16	0.014 <sup>1</sup>
T33	61 - 41	L2 1/2x2x3/16	6'	5'3-23/3 2"	138.0 K=0.92	0.8090	-0.10	12.16	0.009 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Torque-Arm Top Design Data

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	97 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T29	141 - 121 (835)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	138.4 K=0.90	2.1100	-1.35	31.54	0.043 <sup>1</sup>
T29	141 - 121 (836)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	138.4 K=0.90	2.1100	-1.13	31.54	0.036 <sup>1</sup>
T29	141 - 121 (841)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	138.4 K=0.90	2.1100	-1.44	31.54	0.046 <sup>1</sup>
T29	141 - 121 (842)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	138.4 K=0.90	2.1100	-1.75	31.54	0.056 <sup>1</sup>
T29	141 - 121 (847)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	138.4 K=0.90	2.1100	-2.44	31.54	0.077 <sup>1</sup>
T29	141 - 121 (848)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	138.4 K=0.90	2.1100	-2.00	31.54	0.063 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T29	141 - 121 (837)	2L3x3x3/16x3/4	12'6-3/8' '	12'3-15/ 32"	140.8 K=0.90	2.1800	-23.00	31.45	0.731 <sup>1</sup>
T29	141 - 121 (838)	2L3x3x3/16x3/4	12'6-3/8' '	12'3-15/ 32"	140.8 K=0.90	2.1800	-23.48	31.45	0.746 <sup>1</sup>
T29	141 - 121 (843)	2L3x3x3/16x3/4	12'6-3/8' '	12'3-15/ 32"	140.8 K=0.90	2.1800	-23.98	31.45	0.762 <sup>1</sup>
T29	141 - 121 (844)	2L3x3x3/16x3/4	12'6-3/8' '	12'3-15/ 32"	140.8 K=0.90	2.1800	-23.91	31.45	0.760 <sup>1</sup>
T29	141 - 121 (849)	2L3x3x3/16x3/4	12'6-3/8' '	12'3-15/ 32"	140.8 K=0.90	2.1800	-23.33	31.45	0.742 <sup>1</sup>
T29	141 - 121 (850)	2L3x3x3/16x3/4	12'6-3/8' '	12'3-15/ 32"	140.8 K=0.90	2.1800	-24.03	31.45	0.764 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Tension Checks

### Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	3	21'	5'3"	84.0	7.0686	15.65	209.94	0.075 <sup>1</sup>
T2	436 - 421	2 3/4	15'	5'	87.3	5.9396	33.35	176.41	0.189 <sup>1</sup>
T3	421 - 401	2 3/4	20'	5'	87.3	5.9396	71.37	176.41	0.405 <sup>1</sup>
T4	401 - 396	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	68.2	9.7900	85.44	290.76	0.294 <sup>1</sup>
T5	396 - 391	3" S.R. w/ 3 SCH 40 Half	5'	5'	68.2	9.7900	100.34	290.76	0.345 <sup>1</sup>

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 98 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T6	391 - 386	Pipe and 3.75 x 5/16 Half Pipe 3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	68.2	9.7900	118.68	290.76	0.408 <sup>1</sup>
T7	386 - 381	Pipe and 3.75 x 5/16 Half Pipe 3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	68.2	9.7900	136.74	290.76	0.470 <sup>1</sup>
T8	381 - 376	Pipe and 3.75 x 5/16 Half Pipe 3.5" S.R. w/ 3.5 SCH40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	64.5	11.0000	94.82	326.70	0.290 <sup>1</sup>
T9	376 - 371	Pipe and 3.75 x 5/16 Half Pipe 3.5" S.R. w/ 3.5 SCH40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	64.5	11.0000	86.75	326.70	0.266 <sup>1</sup>
T10	371 - 366	Pipe and 3.75 x 5/16 Half Pipe 3.5" S.R. w/ 3.5 SCH40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	64.5	11.0000	75.86	326.70	0.232 <sup>1</sup>
T11	366 - 361	Pipe and 3.75 x 5/16 Half Pipe 3.5" S.R. w/ 3.5 SCH40 Half Pipe and 3.75 x 5/16 Half Pipe	5'	5'	64.5	11.0000	66.42	326.70	0.203 <sup>1</sup>
T12	361 - 341	3	20'	2'6"	40.0	7.0686	57.78	209.94	0.275 <sup>1</sup>
T13	341 - 321	3	20'	5'	80.0	7.0686	29.06	209.94	0.138 <sup>1</sup>
T14	321 - 301	3	20'	5'	80.0	7.0686	11.02	209.94	0.053 <sup>1</sup>
T15	301 - 281	3	20'	5'	80.0	7.0686	16.53	209.94	0.079 <sup>1</sup>
T16	281 - 276	3	5'	5'	80.0	7.0686	20.05	209.94	0.096 <sup>1</sup>
T17	276 - 271	3	5'	5'	80.0	7.0686	24.45	209.94	0.116 <sup>1</sup>
T18	271 - 266	3	5'	5'	80.0	7.0686	28.60	209.94	0.136 <sup>1</sup>
T19	266 - 261	3	5'	5'	80.0	7.0686	35.01	209.94	0.167 <sup>1</sup>
T20	261 - 256	3	5'	5'	80.0	7.0686	36.61	209.94	0.174 <sup>1</sup>
T21	256 - 251	3	5'	2'6"	40.0	7.0686	44.06	209.94	0.210 <sup>1</sup>
T25	221 - 201	3 1/4	20'	5'	73.8	8.2958	23.74	246.38	0.096 <sup>1</sup>
T26	201 - 181	3 1/4	20'	5'	73.8	8.2958	33.78	246.38	0.137 <sup>1</sup>
T27	181 - 161	3 1/4	20'	5'	73.8	8.2958	34.23	246.38	0.139 <sup>1</sup>
T28	161 - 141	3 1/2	20'	5'	68.6	9.6211	23.78	285.75	0.083 <sup>1</sup>
T30	121 - 101	3 1/2	20'	5'	68.6	9.6211	28.23	285.75	0.099 <sup>1</sup>
T31	101 - 81	3 1/2	20'	5'	68.6	9.6211	43.90	285.75	0.154 <sup>1</sup>
T32	81 - 61	3 1/2	20'	5'	68.6	9.6211	44.52	285.75	0.156 <sup>1</sup>
T33	61 - 41	3 1/2	20'	5'	68.6	9.6211	33.99	285.75	0.119 <sup>1</sup>
T34	41 - 20	3 1/2	21'	5'3"	72.0	9.6211	2.62	285.75	0.009 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	L2 1/2x2x1/4	7'7-13/16"	3'7-9/16'	77.5	0.6778	4.02	30.50	0.132 <sup>1</sup>
T2	436 - 421	L2 1/2x2x3/16	7'6"	3'6-19/32"	75.0	0.5189	4.29	23.35	0.184 <sup>1</sup>
T3	421 - 401	L2 1/2x2x3/16	7'6"	3'6-19/32"	75.0	0.5189	7.23	23.35	0.310 <sup>1</sup>
T4	401 - 396	L2 1/2x2x3/16	7'6"	3'6-19/32"	75.0	0.5189	7.67	23.35	0.329 <sup>1</sup>
T5	396 - 391	L2 1/2x2x3/16	7'6"	3'6-19/32"	75.0	0.5189	8.48	23.35	0.363 <sup>1</sup>
T6	391 - 386	L2 1/2x2x3/16	7'6"	3'6-19/32"	75.0	0.5189	9.70	23.35	0.415 <sup>1</sup>
T7	386 - 381	L2 1/2x2x3/16	7'6"	3'6-19/32"	75.0	0.5189	11.53	23.35	0.494 <sup>1</sup>

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	Trumbull (BU 873128)	<b>Page</b>	99 of 107
	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T8	381 - 376	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	9.29	23.35	0.398 <sup>1</sup>
T9	376 - 371	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	8.17	23.35	0.350 <sup>1</sup>
T10	371 - 366	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	8.24	23.35	0.353 <sup>1</sup>
T11	366 - 361	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	7.51	23.35	0.322 <sup>1</sup>
T12	361 - 341	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	6.84	23.35	0.293 <sup>1</sup>
T13	341 - 321	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	4.51	23.35	0.193 <sup>1</sup>
T14	321 - 301	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	3.05	23.35	0.130 <sup>1</sup>
T15	301 - 281	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	5.24	23.35	0.225 <sup>1</sup>
T16	281 - 276	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	5.96	23.35	0.255 <sup>1</sup>
T17	276 - 271	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	6.58	23.35	0.282 <sup>1</sup>
T18	271 - 266	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	7.69	23.35	0.329 <sup>1</sup>
T19	266 - 261	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	7.32	23.35	0.313 <sup>1</sup>
T20	261 - 256	L3x3x1/4	7'6"	3'6-19/3 2"	48.4	0.9628	13.05	41.88	0.312 <sup>1</sup>
T21	256 - 251	L3x3x1/4	7'6"	3'6-19/3 2"	48.4	0.9628	16.96	41.88	0.405 <sup>1</sup>
T22	251 - 246	L3x3x1/4	7'6"	3'6-19/3 2"	48.4	0.9628	10.96	41.88	0.262 <sup>1</sup>
T23	246 - 241	L3x3x1/4	7'6"	3'6-19/3 2"	48.4	0.9628	10.98	41.88	0.262 <sup>1</sup>
T24	241 - 221	L3x3x1/4	7'6"	3'6-19/3 2"	48.4	0.9628	9.60	41.88	0.229 <sup>1</sup>
T25	221 - 201	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	6.26	23.35	0.268 <sup>1</sup>
T26	201 - 181	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	3.54	23.35	0.152 <sup>1</sup>
T27	181 - 161	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	3.80	23.35	0.163 <sup>1</sup>
T28	161 - 141	L3x3x1/4	7'6"	3'6-15/3 2"	48.4	0.9394	7.08	40.86	0.173 <sup>1</sup>
T29	141 - 121	L3x3x1/4	7'6"	3'6-15/3 2"	48.4	0.9394	9.44	40.86	0.231 <sup>1</sup>
T30	121 - 101	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	5.79	23.35	0.248 <sup>1</sup>
T31	101 - 81	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	3.51	23.35	0.150 <sup>1</sup>
T32	81 - 61	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	1.58	23.35	0.068 <sup>1</sup>
T33	61 - 41	L2 1/2x2x3/16	7'6"	3'6-19/3 2"	75.0	0.5189	3.68	23.35	0.157 <sup>1</sup>
T34	41 - 20	L2 1/2x2x3/16	7'7-13/1 6"	3'7-9/16' ,	76.6	0.5189	5.86	23.35	0.251 <sup>1</sup>
T35	20 - 6.70833	L2x2x3/16	5'7-7/16' ,	3'31/32"	63.8	0.4484	1.68	20.18	0.083 <sup>1</sup>
T36	6.70833 - 0	L2x2x3/16	2'9-19/3 2"	1'1-13/1 6"	26.3	0.4484	2.75	20.18	0.136 <sup>1</sup>

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 100 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

<sup>1</sup>  $P_u / \phi P_n$  controls

### Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	Kl/r	A in <sup>2</sup>	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	0.75	30.50	0.024 <sup>1</sup>
T2	436 - 421	L2 1/2x2x1/4	6'	5'4-9/16'	116.9	0.6778	1.43	30.50	0.047 <sup>1</sup>

<sup>1</sup>  $P_u / \phi P_n$  controls

### Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	Kl/r	A in <sup>2</sup>	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T12	361 - 341	L2x2x1/4	6'	2'9-1/8"	113.3	0.5863	2.50	25.50	0.098 <sup>1</sup>
T21	256 - 251	2L3 1/2x3 1/2x3/8x3/8	6'	2'8-17/32"	42.9	3.3759	25.48	146.85	0.173 <sup>1</sup>
T23	246 - 241	2L3 1/2x3 1/2x3/8x3/8	6'	2'8-17/32"	42.9	3.3759	1.98	146.85	0.013 <sup>1</sup>

<sup>1</sup>  $P_u / \phi P_n$  controls

### Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	Kl/r	A in <sup>2</sup>	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	C8x13.75	6'	5'9"	112.2	4.0400	0.00	119.99	0.000 <sup>1</sup>
T2	436 - 421	L2 1/2x2x1/4	6'	5'4-9/16'	116.9	0.6778	1.16	30.50	0.038 <sup>1</sup>
T3	421 - 401	L2 1/2x2x1/4	6'	5'4-9/16'	116.9	0.6778	1.70	30.50	0.056 <sup>1</sup>
T4	401 - 396	L2 1/2x2x1/4	6'	5'3-15/32"	115.2	0.6778	1.97	30.50	0.064 <sup>1</sup>
T6	391 - 386	L2 1/2x2x1/4	6'	5'8-9/32"	115.2	1.0600	2.59	31.48	0.082 <sup>1</sup>
T10	371 - 366	L2 1/2x2x1/4	6'	5'8-1/32"	114.8	1.0600	2.80	31.48	0.089 <sup>1</sup>
T12	361 - 341	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	2.50	30.50	0.082 <sup>1</sup>
T13	341 - 321	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	2.04	30.50	0.067 <sup>1</sup>
T14	321 - 301	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	1.78	30.50	0.058 <sup>1</sup>
T15	301 - 281	L2 1/2x2x3/16	6'	5'4-3/16'	115.0	0.5189	1.99	23.35	0.085 <sup>1</sup>

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 101 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T16	281 - 276	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	2.07	30.50	0.068 <sup>1</sup>
T18	271 - 266	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	2.27	30.50	0.074 <sup>1</sup>
T20	261 - 256	L2 1/2x2x3/16	6'	5'4-3/16'	115.0	0.5189	2.56	23.35	0.110 <sup>1</sup>
T22	251 - 246	L2 1/2x2x3/16	6'	5'4-3/16'	115.0	0.5189	2.13	23.35	0.091 <sup>1</sup>
T24	241 - 221	L2 1/2x2x3/16	6'	5'4-3/16'	115.0	0.5189	2.03	23.35	0.087 <sup>1</sup>
T25	221 - 201	L2 1/2x2x3/16	6'	5'3-31/32"	114.6	0.5189	2.47	23.35	0.106 <sup>1</sup>
T26	201 - 181	L2 1/2x2x3/16	6'	5'3-31/32"	114.6	0.5189	2.68	23.35	0.115 <sup>1</sup>
T27	181 - 161	2L3x2x1/4x3/8	6'	5'3-31/32"	77.2	1.5506	2.69	69.78	0.039 <sup>1</sup>
T28	161 - 141	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	0.5189	2.53	23.35	0.108 <sup>1</sup>
T29	141 - 121	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	0.5189	2.42	23.35	0.104 <sup>1</sup>
T30	121 - 101	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	0.5189	5.83	23.35	0.250 <sup>1</sup>
T31	101 - 81	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	0.5189	3.36	23.35	0.144 <sup>1</sup>
T32	81 - 61	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	0.5189	3.41	23.35	0.146 <sup>1</sup>
T33	61 - 41	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	0.5189	3.35	23.35	0.143 <sup>1</sup>
T34	41 - 20	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	0.5189	3.23	23.35	0.138 <sup>1</sup>
T35	20 - 6.70833	2L2 1/2x2x3/16x1/4	6'	5'3-31/32"	86.7	1.0371	17.46	46.67	0.374 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 436	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	4.30	30.50	0.141 <sup>1</sup>
T3	421 - 401	L2 1/2x2x1/4	6'	5'4-9/16'	116.9	0.6778	0.29	30.50	0.010 <sup>1</sup>
T12	361 - 341	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	0.38	30.50	0.012 <sup>1</sup>
T13	341 - 321	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	0.34	30.50	0.011 <sup>1</sup>
T14	321 - 301	L2 1/2x2x1/4	6'	5'4-3/16'	116.5	0.6778	0.50	30.50	0.017 <sup>1</sup>
T15	301 - 281	L2 1/2x2x3/16	6'	5'4-3/16'	115.0	0.5189	0.34	23.35	0.014 <sup>1</sup>
T24	241 - 221	L2 1/2x2x3/16	6'	5'4-3/16'	115.0	0.5189	0.66	23.35	0.028 <sup>1</sup>
T25	221 - 201	L2 1/2x2x3/16	6'	5'3-31/32"	114.6	0.5189	0.64	23.35	0.028 <sup>1</sup>



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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T26	201 - 181	L2 1/2x2x3/16	6'	5'3-31/3 2"	114.6	0.5189	0.70	23.35	0.030 <sup>1</sup>
T27	181 - 161	L2 1/2x2x3/16	6'	5'3-31/3 2"	114.6	0.5189	0.69	23.35	0.029 <sup>1</sup>
T28	161 - 141	L2 1/2x2x3/16	6'	5'3-23/3 2"	114.2	0.5189	0.78	23.35	0.034 <sup>1</sup>
T29	141 - 121	L2 1/2x2x3/16	6'	5'3-23/3 2"	114.2	0.5189	13.06	23.35	0.559 <sup>1</sup>
T30	121 - 101	L2 1/2x2x3/16	6'	5'3-23/3 2"	114.2	0.5189	0.64	23.35	0.028 <sup>1</sup>
T31	101 - 81	L2 1/2x2x3/16	6'	5'3-23/3 2"	114.2	0.5189	0.96	23.35	0.041 <sup>1</sup>
T32	81 - 61	L2 1/2x2x3/16	6'	5'3-23/3 2"	114.2	0.5189	0.98	23.35	0.042 <sup>1</sup>
T33	61 - 41	L2 1/2x2x3/16	6'	5'3-23/3 2"	114.2	0.5189	0.92	23.35	0.039 <sup>1</sup>
T34	41 - 20	L2 1/2x2x3/16	6'	5'3-23/3 2"	114.2	0.5189	1.41	23.35	0.060 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T8	381 - 376	2L3x2x1/4x3/8	6'	5'8-1/32'	76.3	1.5506	21.96	69.78	0.315 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T29	141 - 121 (835)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	152.9	1.3364	19.66	58.13	0.338 <sup>1</sup>
T29	141 - 121 (836)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	152.9	1.3364	20.97	58.13	0.361 <sup>1</sup>
T29	141 - 121 (841)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	152.9	1.3364	20.45	58.13	0.352 <sup>1</sup>
T29	141 - 121 (842)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	152.9	1.3364	20.32	58.13	0.350 <sup>1</sup>
T29	141 - 121 (847)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	152.9	1.3364	21.39	58.13	0.368 <sup>1</sup>
T29	141 - 121 (848)	L3x3x3/8 (TA - BU#873128)	7'6-19/3 2"	7'4-13/1 6"	152.9	1.3364	21.90	58.13	0.377 <sup>1</sup>

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	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

<sup>1</sup>  $P_u / \phi P_n$  controls

### Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	$L_u$ ft	Kl/r	A in <sup>2</sup>	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T29	141 - 121 (837)	2L3x3x3/16x3/4	12'6"-3/8'	12'3"-15/32"	157.0	1.3889	12.95	60.42	0.214 <sup>1</sup>
T29	141 - 121 (838)	2L3x3x3/16x3/4	12'6"-3/8'	12'3"-15/32"	157.0	1.3889	12.92	60.42	0.214 <sup>1</sup>
T29	141 - 121 (843)	2L3x3x3/16x3/4	12'6"-3/8'	12'3"-15/32"	157.0	1.3889	13.14	60.42	0.217 <sup>1</sup>
T29	141 - 121 (844)	2L3x3x3/16x3/4	12'6"-3/8'	12'3"-15/32"	157.0	1.3889	13.27	60.42	0.220 <sup>1</sup>
T29	141 - 121 (849)	2L3x3x3/16x3/4	12'6"-3/8'	12'3"-15/32"	157.0	1.3889	12.96	60.42	0.215 <sup>1</sup>
T29	141 - 121 (850)	2L3x3x3/16x3/4	12'6"-3/8'	12'3"-15/32"	157.0	1.3889	12.61	60.42	0.209 <sup>1</sup>

<sup>1</sup>  $P_u / \phi P_n$  controls

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
T1	457 - 436	Leg	3	2	-31.06	156.82	19.8	Pass
T2	436 - 421	Leg	2 3/4	44	-50.10	128.26	39.1	Pass
T3	421 - 401	Leg	2 3/4	74	-98.26	128.26	76.6	Pass
T4	401 - 396	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	Note 1	Note 1	Note 1	79.1	Pass
T5	396 - 391	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	Note 1	Note 1	Note 1	79.1	Pass
T6	391 - 386	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	Note 1	Note 1	Note 1	79.1	Pass
T7	386 - 381	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	Note 1	Note 1	Note 1	79.1 82.3 (b)	Pass
T8	381 - 376	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	Note 1	Note 1	Note 1	71.2	Pass
T9	376 - 371	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	Note 1	Note 1	Note 1	71.2	Pass
T10	371 - 366	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	Note 1	Note 1	Note 1	71.2	Pass
T11	366 - 361	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	Note 1	Note 1	Note 1	71.2	Pass
T12	361 - 341	Leg	3	191	-144.16	204.05	70.6	Pass
T13	341 - 321	Leg	3	236	-117.87	161.86	72.8	Pass
T14	321 - 301	Leg	3	269	-102.65	161.86	63.4	Pass
T15	301 - 281	Leg	3	302	-114.75	161.86	70.9	Pass
T16	281 - 276	Leg	3	335	-119.58	161.86	73.9	Pass
T17	276 - 271	Leg	3	344	-124.57	161.86	77.0	Pass
T18	271 - 266	Leg	3	353	-130.98	161.86	80.9	Pass
T19	266 - 261	Leg	3	365	-136.50	161.86	84.3	Pass
T20	261 - 256	Leg	3	377	-147.85	161.86	91.3	Pass
T21	256 - 251	Leg	3	386	-152.12	204.05	74.5	Pass
T22	251 - 246	Leg	3	398	-123.02	161.86	76.0	Pass

<p style="text-align: center;"><b><i>tnxTower</i></b></p> <p style="text-align: center;"><b><i>Tower Engineering Professionals</i></b>  326 Tryon Road  Raleigh, NC 27603  Phone: (919) 661-6351  FAX: (919) 661-6350</p>	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 104 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
T23	246 - 241	Leg	3	410	-114.15	204.05	55.9	Pass
T24	241 - 221	Leg	3	427	-117.01	161.86	72.3	Pass
T25	221 - 201	Leg	3 1/4	458	-142.62	198.84	71.7	Pass
T26	201 - 181	Leg	3 1/4	491	-154.50	198.84	77.7	Pass
T27	181 - 161	Leg	3 1/4	524	-155.36	198.84	78.1	Pass
T28	161 - 141	Leg	3 1/2	557	-146.06	239.13	61.1	Pass
T29	141 - 121	Leg	3 1/2	592	-139.54	239.13	58.4	Pass
T30	121 - 101	Leg	3 1/2	623	-174.90	239.13	73.1	Pass
T31	101 - 81	Leg	3 1/2	657	-194.04	239.13	81.1	Pass
T32	81 - 61	Leg	3 1/2	690	-197.11	239.13	82.4	Pass
T33	61 - 41	Leg	3 1/2	723	-193.36	239.13	80.9	Pass
T34	41 - 20	Leg	3 1/2	757	-186.64	233.63	79.9	Pass
T35	20 - 6.70833	Leg	3 1/4	787	-187.66	209.10	89.7	Pass
T36	6.70833 - 0	Leg	3 1/4	811	-191.96	245.06	78.3	Pass
T1	457 - 436	Diagonal	L2 1/2x2x1/4	14	-3.41	24.60	13.8	Pass
T2	436 - 421	Diagonal	L2 1/2x2x3/16	50	-4.91	19.15	36.4 (b) 25.7	Pass
T3	421 - 401	Diagonal	L2 1/2x2x3/16	83	-7.37	19.15	30.3 (b) 38.5	Pass
T4	401 - 396	Diagonal	L2 1/2x2x3/16	110	-7.85	19.15	51.1 (b) 41.0	Pass
T5	396 - 391	Diagonal	L2 1/2x2x3/16	119	-8.54	19.15	54.2 (b) 44.6	Pass
T6	391 - 386	Diagonal	L2 1/2x2x3/16	131	-10.94	19.15	59.9 (b) 57.1	Pass
T7	386 - 381	Diagonal	L2 1/2x2x3/16	143	-10.37	19.15	68.5 (b) 54.1	Pass
T8	381 - 376	Diagonal	L2 1/2x2x3/16	157	-7.98	19.15	81.4 (b) 41.7	Pass
T9	376 - 371	Diagonal	L2 1/2x2x3/16	166	-9.30	19.15	65.6 (b) 48.6	Pass
T10	371 - 366	Diagonal	L2 1/2x2x3/16	178	-8.19	19.15	57.7 (b) 42.8	Pass
T11	366 - 361	Diagonal	L2 1/2x2x3/16	187	-7.67	19.15	58.2 (b) 40.1	Pass
T12	361 - 341	Diagonal	L2 1/2x2x3/16	229	-7.12	19.15	53.0 (b) 37.2	Pass
T13	341 - 321	Diagonal	L2 1/2x2x3/16	268	-4.53	19.15	48.3 (b) 23.6	Pass
T14	321 - 301	Diagonal	L2 1/2x2x3/16	280	-3.19	19.15	31.8 (b) 16.6	Pass
T15	301 - 281	Diagonal	L2 1/2x2x3/16	313	-5.36	19.15	28.9 (b) 28.0	Pass
T16	281 - 276	Diagonal	L2 1/2x2x3/16	340	-5.90	19.15	48.6 (b) 30.8	Pass
T17	276 - 271	Diagonal	L2 1/2x2x3/16	349	-6.75	19.15	42.1 (b) 35.3	Pass
T18	271 - 266	Diagonal	L2 1/2x2x3/16	361	-6.63	19.15	46.4 (b) 34.6	Pass
T19	266 - 261	Diagonal	L2 1/2x2x3/16	373	-8.11	19.15	54.3 (b) 42.4	Pass
T20	261 - 256	Diagonal	L3x3x1/4	383	13.05	43.98	51.7 (b) 29.7	Pass
T21	256 - 251	Diagonal	L3x3x1/4	390	16.96	43.98	73.9 (b) 38.6	Pass
T22	251 - 246	Diagonal	L3x3x1/4	404	-12.19	42.35	95.9 (b) 28.8	Pass
T23	246 - 241	Diagonal	L3x3x1/4	417	10.98	43.98	69.0 (b) 25.0	Pass
T24	241 - 221	Diagonal	L3x3x1/4	452	-9.93	42.35	62.1 (b) 23.4	Pass

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
T25	221 - 201	Diagonal	L2 1/2x2x3/16	485	-6.44	19.15	56.2 (b) 33.6	Pass
T26	201 - 181	Diagonal	L2 1/2x2x3/16	518	-3.79	19.15	58.3 (b) 19.8	Pass
T27	181 - 161	Diagonal	L2 1/2x2x3/16	535	-4.08	19.15	34.3 (b) 21.3	Pass
T28	161 - 141	Diagonal	L3x3x1/4	568	-7.30	42.42	37.0 (b) 17.2	Pass
T29	141 - 121	Diagonal	L3x3x1/4	614	9.44	42.91	32.7 (b) 22.0	Pass
T30	121 - 101	Diagonal	L2 1/2x2x3/16	652	-5.95	19.15	43.6 (b) 31.1	Pass
T31	101 - 81	Diagonal	L2 1/2x2x3/16	687	-3.78	19.15	40.9 (b) 19.8	Pass
T32	81 - 61	Diagonal	L2 1/2x2x3/16	698	-1.92	19.15	34.2 (b) 10.0	Pass
T33	61 - 41	Diagonal	L2 1/2x2x3/16	732	-3.99	19.15	17.4 (b) 20.8	Pass
T34	41 - 20	Diagonal	L2 1/2x2x3/16	768	-6.04	18.87	36.1 (b) 32.0	Pass
T35	20 - 6.70833	Diagonal	L2x2x3/16	791	-2.20	18.53	54.6 (b) 11.8	Pass
T36	6.70833 - 0	Diagonal	L2x2x3/16	815	-4.57	22.58	19.9 (b) 20.2	Pass
T1	457 - 436	Horizontal	L2 1/2x2x1/4	35	-1.17	16.40	41.4 (b) 7.1	Pass
T2	436 - 421	Horizontal	L2 1/2x2x1/4	67	-0.87	16.31	10.6 (b) 5.3	Pass
T12	361 - 341	Secondary Horizontal	L2x2x1/4	208	-2.50	23.78	12.9 (b) 10.5	Pass
T21	256 - 251	Secondary Horizontal	2L3 1/2x3 1/2x3/8x3/8	396	25.48	154.20	25.8 (b) 16.5	Pass
T23	246 - 241	Secondary Horizontal	2L3 1/2x3 1/2x3/8x3/8	424	1.98	154.20	72.1 (b) 1.3	Pass
T1	457 - 436	Top Girt	C8x13.75	6	-0.00	68.63	5.6 (b) 0.2	Pass
T2	436 - 421	Top Girt	L2 1/2x2x1/4	10	-0.87	16.31	5.3	Pass
T3	421 - 401	Top Girt	L2 1/2x2x1/4	49	-1.70	16.31	10.5 (b) 10.4	Pass
T4	401 - 396	Top Girt	L2 1/2x2x1/4	79	-1.97	16.65	15.4 (b) 11.8	Pass
T6	391 - 386	Top Girt	L2 1/2x2x1/4	130	-2.59	12.29	17.8 (b) 21.1	Pass
T10	371 - 366	Top Girt	L2 1/2x2x1/4	172	-2.80	12.39	22.6	Pass
T12	361 - 341	Top Girt	L2 1/2x2x1/4	184	-2.50	16.40	15.2	Pass
T13	341 - 321	Top Girt	L2 1/2x2x1/4	196	-2.04	16.40	22.6 (b) 12.5	Pass
T14	321 - 301	Top Girt	L2 1/2x2x1/4	241	-1.78	16.40	18.5 (b) 10.8	Pass
T15	301 - 281	Top Girt	L2 1/2x2x3/16	274	-1.99	12.63	16.1 (b) 15.7	Pass
T16	281 - 276	Top Girt	L2 1/2x2x1/4	307	-2.07	16.40	18.0 (b) 12.6	Pass
T18	271 - 266	Top Girt	L2 1/2x2x1/4	358	-2.27	16.40	18.8 (b) 13.8	Pass
T20	261 - 256	Top Girt	L2 1/2x2x3/16	369	-5.80	12.63	20.5 (b) 46.0	Pass
T22	251 - 246	Top Girt	L2 1/2x2x3/16	402	-6.23	12.63	52.6 (b) 49.3	Pass
T24	241 - 221	Top Girt	L2 1/2x2x3/16	414	-2.03	12.63	56.4 (b) 16.0	Pass

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	<b>Project</b>	TEP No. 25575.535124	<b>Date</b>	15:16:56 04/30/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	PRS

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
T25	221 - 201	Top Girt	L2 1/2x2x3/16	430	-2.47	12.70	18.4 (b) 19.5	Pass
T26	201 - 181	Top Girt	L2 1/2x2x3/16	463	-2.68	12.70	22.4 (b) 21.1	Pass
T27	181 - 161	Top Girt	2L3x2x1/4x3/8	496	-2.69	61.59	24.2 (b) 4.4	Pass
T28	161 - 141	Top Girt	L2 1/2x2x3/16	529	-2.53	12.76	12.2 (b) 19.8	Pass
T29	141 - 121	Top Girt	L2 1/2x2x3/16	561	-2.42	12.76	22.9 (b) 18.9	Pass
T30	121 - 101	Top Girt	L2 1/2x2x3/16	594	-7.15	12.76	21.9 (b) 56.0	Pass
T31	101 - 81	Top Girt	L2 1/2x2x3/16	626	-3.36	12.76	64.8 (b) 26.3	Pass
T32	81 - 61	Top Girt	L2 1/2x2x3/16	659	-3.41	12.76	30.4 (b) 26.7	Pass
T33	61 - 41	Top Girt	L2 1/2x2x3/16	692	-3.35	12.76	30.9 (b) 26.2	Pass
T34	41 - 20	Top Girt	L2 1/2x2x3/16	726	-3.23	12.76	30.3 (b) 25.3	Pass
T35	20 - 6.70833	Top Girt	2L2 1/2x2x3/16x1/4	789	17.46	49.00	29.3 (b) 35.6	Pass
T1	457 - 436	Mid Girt	L2 1/2x2x1/4	11	4.30	32.03	61.6 (b) 13.4	Pass
T3	421 - 401	Mid Girt	L2 1/2x2x1/4	81	-0.18	16.31	39.0 (b) 1.1	Pass
T12	361 - 341	Mid Girt	L2 1/2x2x1/4	199	0.38	32.03	2.7 (b) 1.2	Pass
T13	341 - 321	Mid Girt	L2 1/2x2x1/4	242	0.34	32.03	3.4 (b) 1.1	Pass
T14	321 - 301	Mid Girt	L2 1/2x2x1/4	277	0.50	32.03	3.1 (b) 1.6	Pass
T15	301 - 281	Mid Girt	L2 1/2x2x3/16	310	0.34	24.52	4.6 (b) 1.4	Pass
T24	241 - 221	Mid Girt	L2 1/2x2x3/16	433	0.66	24.52	3.1 (b) 2.7	Pass
T25	221 - 201	Mid Girt	L2 1/2x2x3/16	466	0.64	24.52	6.0 (b) 2.6	Pass
T26	201 - 181	Mid Girt	L2 1/2x2x3/16	499	0.70	24.52	5.8 (b) 2.8	Pass
T27	181 - 161	Mid Girt	L2 1/2x2x3/16	531	0.69	24.52	6.3 (b) 2.8	Pass
T28	161 - 141	Mid Girt	L2 1/2x2x3/16	565	0.78	24.52	6.2 (b) 3.2	Pass
T29	141 - 121	Mid Girt	L2 1/2x2x3/16	597	-9.51	12.76	7.1 (b) 74.5	Pass
T30	121 - 101	Mid Girt	L2 1/2x2x3/16	631	0.64	24.52	92.2 (b) 2.6	Pass
T31	101 - 81	Mid Girt	L2 1/2x2x3/16	663	0.96	24.52	5.8 (b) 3.9	Pass
T32	81 - 61	Mid Girt	L2 1/2x2x3/16	696	0.98	24.52	8.7 (b) 4.0	Pass
T33	61 - 41	Mid Girt	L2 1/2x2x3/16	730	0.92	24.52	8.9 (b) 3.7	Pass
T34	41 - 20	Mid Girt	L2 1/2x2x3/16	759	1.41	24.52	8.3 (b) 5.7	Pass
T1	457 - 436	Guy A@446.5	9/16	826	13.69	22.05	12.7 (b) 62.1	Pass
T8	381 - 376	Guy A@381	1 3/8	829	69.55	146.16	47.6	Pass
T21	256 - 251	Guy A@254.5	1 1/4	832	65.24	120.96	53.9	Pass
T29	141 - 121	Guy A@131	11/16	845	23.27	31.50	73.9	Pass

<b>tnxTower</b>  <b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> Trumbull (BU 873128)	<b>Page</b> 107 of 107
	<b>Project</b> TEP No. 25575.535124	<b>Date</b> 15:16:56 04/30/21
	<b>Client</b> Crown Castle	<b>Designed by</b> PRS

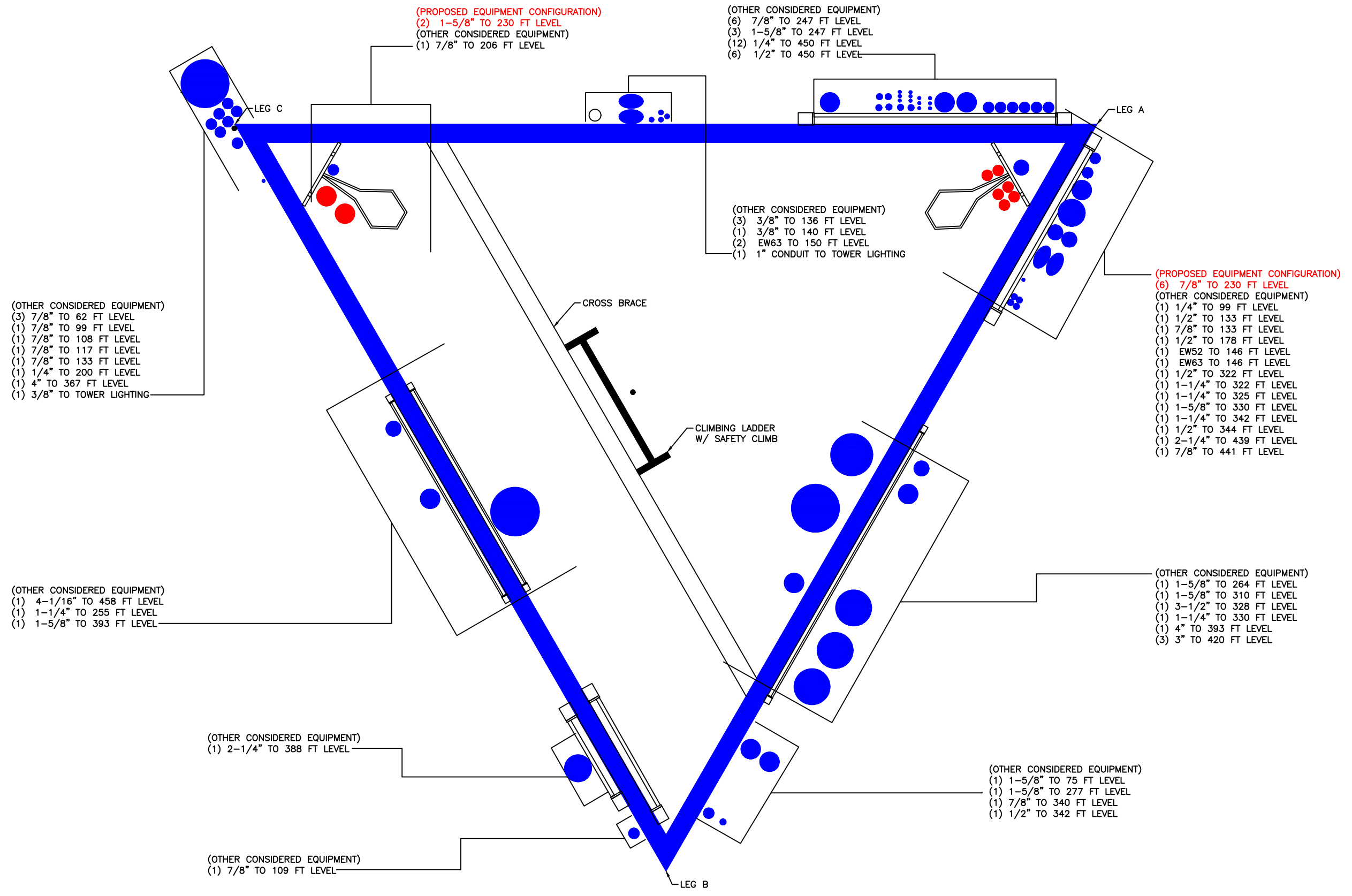
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
T1	457 - 436	Guy B@446.5	9/16	825	13.73	22.05	62.3	Pass	
T8	381 - 376	Guy B@381	1 3/8	828	70.53	146.16	48.3	Pass	
T21	256 - 251	Guy B@254.5	1 1/4	831	67.37	120.96	55.7	Pass	
T29	141 - 121	Guy B@131	11/16	840	23.83	31.50	75.7	Pass	
T1	457 - 436	Guy C@446.5	9/16	824	13.75	22.05	62.4	Pass	
T8	381 - 376	Guy C@381	1 3/8	827	69.69	146.16	47.7	Pass	
T21	256 - 251	Guy C@254.5	1 1/4	830	66.67	120.96	55.1	Pass	
T29	141 - 121	Guy C@131	11/16	833	23.48	31.50	74.6	Pass	
T8	381 - 376	Top Guy	2L3x2x1/4x3/8	141	21.96	73.27	30.0	Pass	
		Pull-Off@381					99.4 (b)		
T29	141 - 121	Torque Arm Top@131	L3x3x3/8 (TA - BU#873128)	848	21.90	61.04	35.9	Pass	
T29	141 - 121	Torque Arm Bottom@131	2L3x3x3/16x3/4	850	-24.03	33.03	64.7 (b)	Pass	
							<b>Summary</b>		
							Leg (T20)	91.3	Pass
							Diagonal (T21)	95.9	Pass
							Horizontal (T2)	12.9	Pass
							Secondary Horizontal (T21)	72.1	Pass
							Top Girt (T30)	64.8	Pass
							Mid Girt (T29)	92.2	Pass
							Guy A (T29)	73.9	Pass
							Guy B (T29)	75.7	Pass
							Guy C (T29)	74.6	Pass
							Top Guy	99.4	Pass
							Pull-Off (T8)		
							Torque Arm Top (T29)	64.7	Pass
							Torque Arm Bottom (T29)	72.7	Pass
							Bolt Checks	94.7	Pass
							<b>RATING =</b>	<b>99.4</b>	<b>Pass</b>

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.



**APPENDIX B**  
**BASE LEVEL DRAWING**



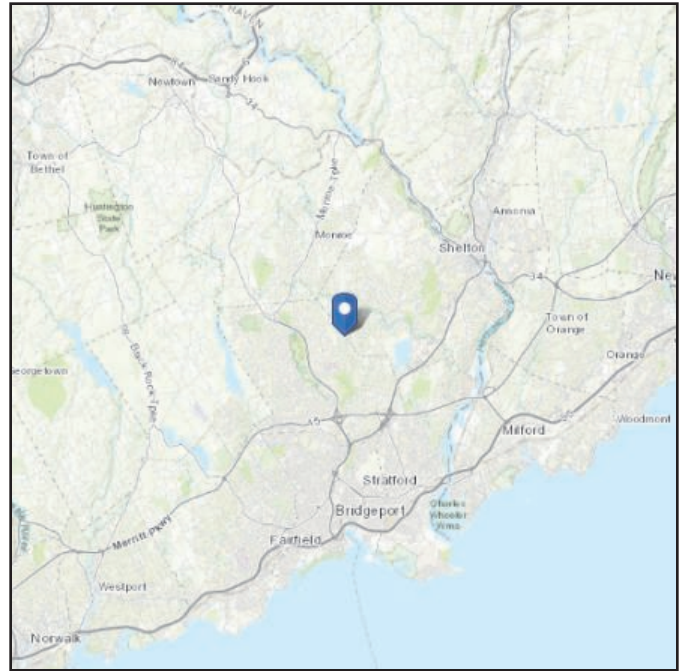
**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 519.67 ft (NAVD 88)  
**Latitude:** 41.278961  
**Longitude:** -73.185111



## Wind

### Results:

Wind Speed:	122 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Connecticut State Building Code  
Wind Speed: 125 mph

**Data Source:** ASCE/SEI 7-10 Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

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

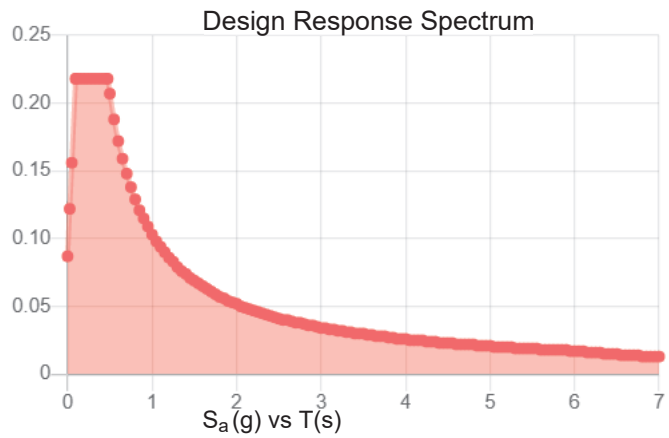
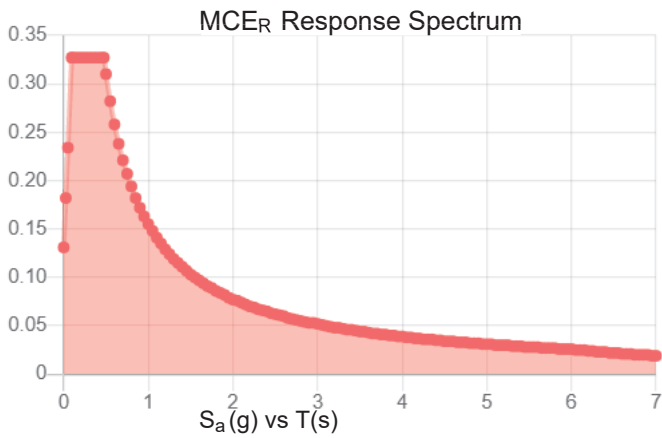
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.204	$S_{DS}$ :	0.218
$S_1$ :	0.065	$S_{D1}$ :	0.103
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.11
$S_{MS}$ :	0.327	$PGA_M$ :	0.174
$S_{M1}$ :	0.155	$F_{PGA}$ :	1.58
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Mon Apr 26 2021

**Date Source:**

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

## Ice

---

### Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

**Date Accessed:** Mon Apr 26 2021

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

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

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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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Project Name: Trumbull  
 Project Number: 25575.535124  
 Client Site Number: BU 873128

Engineer: SPT  
 Check: DEN  
 Date: 04/30/21

**Solid rod Leg + Half Sleeve R/F - - Elevations: 381-ft to 401-ft**

$\phi_c$  = 0.90 - LRFD strength reduction factor (compression)  
 $\phi_T$  = 0.90 - LRFD strength reduction factor (tension)  
 $\phi_w$  = 0.75 - LRFD strength reduction factor (weld shear)  
 $\phi_v$  = 0.75 - LRFD strength reduction factor (shear)

**Input - Loads**

$P_{initial}$ : 11.94 kips - force from initial load (no wind)  
 $P_{wind}$ : 172.29 kips - force due to final loading including reinforcement  
 $T_u$ : 136.74 kips - maximum load on leg

**Quick Check**

Weld Size: OK  
 Weld Connection: 72.8%  
 Crushing Check: 79.1%  
 Leg Comp. Check: 61.0%  
 Sleeve Check: 52.6%  
 Built-up Check: 73.4%  
 Slenderness Check: OK  
 Leg Tension Check: 62.0%

**Input - Tower Leg**

3" Dia. SR

$K$ : 1.00 - effective length factor for leg  
 $L_u$ : 5.00 ft - unbraced length of tower leg  
 $F_{y\_leg}$ : 33.00 ksi - minimum specified yield strength of tower leg  
 $F_{u\_leg}$ : 60.00 ksi - minimum specified ultimate strength of tower leg  
 $r$ : 0.75 in - minimum radius of gyration of tower leg  
 $A_{leg}$ : 7.07 in<sup>2</sup> - area of tower leg  
 $D_i$ : 0.00 in - inside diameter of tower leg  
 $t_{leg}$ : 1.50 in - thickness of tower leg  
 $f'_c$ : 0.00 ksi - minimum specified compressive strength of grout (if ungrouted enter 0)

\*Ratings per TIA-222-H Section 15.5

**Input - Sleeve R/F**

Sleeve: 3.75" OD Inner Sleeve & 3STD Outer Sleeve

$F_{y\_sleeve}$ : 35.00 ksi - minimum specified yield strength of sleeve r/f  
 $F_{u\_sleeve}$ : 60.00 ksi - minimum specified ultimate strength of sleeve r/f  
 $r_{x\_sleeve}$ : 0.51 in - minimum radius of gyration of sleeve r/f about the x-axis  
 $r_{y\_sleeve}$ : 1.16 in - minimum radius of gyration of sleeve r/f about the y-axis  
 $A_{sleeve}$ : 1.11 in<sup>2</sup> - area of sleeve r/f  
 $t_{sleeve}$ : 0.22 in - thickness of tower leg

Termination: Connected to Leg ONLY

**Input - Sleeve Connection to Leg**

$a$ : 6.00 in - spacing of connectors connecting the sleeve to the leg  
 $D$ : 3.00 - weld size for the weld connecting the sleeve to the leg (unit = # of 16ths)  
 Length //: 3.00 in - length of weld on each side of the leg at the termination  
 Length ⊥: 0.00 in - length of weld at the bottom/top of the leg sleeve at termination (  $\pi D/2$  )  
 $N_o$ : 2.00 - number of longitudinal welds per end of the leg (typically near side & far side, so 2)  
 $F_{EXX}$ : 70.00 ksi - weld electrode classification  
 Width: 3.50 in - maximum width of the built-up leg  
 Gap: 12.00 in - length of leg considered for crushing

**Input - Built-up Leg Section**

$r_{x\_bu}$ : 0.90 in - minimum radius of gyration of the built-up section about the x-axis  
 $r_{y\_bu}$ : 0.91 in - minimum radius of gyration of the built-up section about the y-axis

**Input - Leg w/ Single Sleeve**

$A$ : 8.18 in<sup>2</sup> - area of (1) sleeve r/f + leg  
 $r_{x\_bu}$ : 0.80 in - minimum radius of gyration of the built-up section about the x-axis  
 $r_{y\_bu}$ : 0.82 in - minimum radius of gyration of the built-up section about the y-axis  
 Inner Sleeve Gap: 18.00 in - length of leg considered for crushing

**Input - Grouted Leg**

$E_c$ : 0 ksi - Modulus of Elasticity of Grout  
 $E_{leg}$ : 29,000 ksi - Modulus of Elasticity of Leg  
 $E_{sleeve}$ : 29,000 ksi - Modulus of Elasticity of Sleeve

Project Name: Trumbull  
 Project Number: 25575.535124  
 Client Site Number: BU 873128  
 Elevation: 361-ft to 381-ft

Engineer: SPT  
 Check: DEN  
 Date: 4/30/2021

**Solid Rod Leg + Half Sleeve R/F**

$\phi_c = 0.90$  - LRFD strength reduction factor (compression)  
 $\phi_T = 0.90$  - LRFD strength reduction factor (tension)  
 $\phi_w = 0.75$  - LRFD strength reduction factor (weld shear)  
 $\phi_v = 0.75$  - LRFD strength reduction factor (shear)

Mast St.: 1.00 - from tnxTower

**Input - Loads**

$P_{initial}$ : 27.64 kips - force from initial load (no wind)  
 $P_{wind}$ : 181.00 kips - force due to final loading including reinforcement  
 $T_u$ : 94.82 kips - maximum load on leg

**Quick Check**

Weld Size: OK  
 Weld Connection: 71.2%  
 Crushing Check: 60.9%  
 Leg Comp. Check: 54.2%  
 Sleeve Check: 42.5%  
 Built-up Check: 64.7%  
 Slenderness Check: OK  
 Leg Tension Check: 31.6%

**Input - Tower Leg** 3.5" SR

$K$ : 1.00 - effective length factor for leg  
 $L_u$ : 5.00 ft - unbraced length of tower leg  
 $F_{y_{leg}}$ : 33.00 ksi - minimum specified yield strength of tower leg  
 $F_{u_{leg}}$ : 60.00 ksi - minimum specified ultimate strength of tower leg  
 $r$ : 0.88 in - minimum radius of gyration of tower leg  
 $A_{leg}$ : 9.62 in<sup>2</sup> - area of tower leg  
 $D$ : 0.00 in - inside diameter of tower leg  
 $t_{leg}$ : 1.75 in - thickness of tower leg  
 $f'_c$ : 0.00 ksi - minimum specified compressive strength of grout (if ungrouted enter 0)

\*Ratings per TIA-222-H Section 15.5

**Input - Sleeve R/F** 3.5 STD Gap Check: OK

$F_{y_{sleeve}}$ : 35.00 ksi - minimum specified yield strength of sleeve r/f  
 $F_{u_{sleeve}}$ : 60.00 ksi - minimum specified ultimate strength of sleeve r/f  
 $r_{x_{sleeve}}$ : 0.58 in - minimum radius of gyration of sleeve r/f about the x-axis  
 $r_{y_{sleeve}}$ : 1.34 in - minimum radius of gyration of sleeve r/f about the y-axis  
 $A_{sleeve}$ : 1.34 in<sup>2</sup> - area of sleeve r/f  
 $t_{sleeve}$ : 0.23 in - thickness of sleeve r/f

Termination: Connected to Leg ONLY

**Input - Sleeve Connection to Leg**

$a$ : 6.00 in - spacing of connectors connecting the sleeve to the leg  
 $D$ : 3.00 in - weld size for the weld connecting the sleeve to the leg (unit = # of 16ths)  
 Length //: 3.00 in - length of weld on each side of the leg at the termination  
 Length ⊥: 0.00 in - length of weld at the bottom/top of the leg sleeve at termination ( $\pi D/2$ )  
 $N_o$ : 2.00 - number of longitudinal welds per end of the leg (typically near side & far side, so 2)  
 $F_{EXX}$ : 70.00 ksi - weld electrode classification  
 Width: 4.00 in - maximum width of the built-up leg  
 Gap: 12.00 in - length of leg considered for crushing

**Input - Built-up Leg Section** 3.5" SR w/3.5 STD Half Sleeve

$r_{x_{bu}}$ : 0.93 in - minimum radius of gyration of the built-up section about the x-axis  
 $r_{y_{bu}}$ : 0.94 in - minimum radius of gyration of the built-up section about the y-axis

Bearing\*: 51.4%

<b>Pad</b>		
Width at the top of the pad (ft)	Width at the bottom of the pad (ft)	Thickness of the pad (ft)
10.50	10.50	2.00

<b>Pier</b>			
Width at the top of the pier (ft)	Width at the bottom of the pier (ft)	Length of the pier (ft)	Pier Extension above grade (ft)
4.50	10.00	3.00	0.50

Soil Density (kcf)	Depth to base of foundation (ft)	Factored Vertical Load (kip)	Factored Horizontal Load (kip)
0.115	5.00	511.0	10.00

Weight of Concrete 57.86 kip  
 $W_c$  (Replaced) 13.65 kip  
 Weight of Soil 18.54 kip  
 Total Vertical Load 602.68 kip  
 Moment 50.00 kip-ft  
 Section Modulus - S 136.43 ft<sup>3</sup>  
 Area - A 110.25 ft<sup>2</sup>  
 Min. Pressure -  $q_{min}$  5.10 ksf  
 Max Pressure -  $q_{max}$  5.83 ksf

All. Pressure -  $q_{all}$  6.00 ksf  
 Factor of Safety 3  
 $\phi$  0.6  
 $\phi q_n$  10.8

Net Bearing Pressure? No

Lateral\*: 5.4%

Coefficient of Friction ( $\mu$ )	Friction Angle ( $\phi$ ) (Degrees)	Cohesion (ksf)
0.4	34	0

$K_p$  3.54  
 Pressure<sub>Top</sub> 1.22 ksf  
 Pressure<sub>Bottom</sub> 2.03 ksf  
 Force from pressure 34.17 kip  
 Force from friction 200.89 kip  
 $\phi$  0.75  
 $\phi R_n$  176.30 kip

\*Ratings per TIA-222-H Section 15.5

**Deadman Anchor Analysis: A - Anchor Path**

Project Name: Trumbull  
 Job #: TEP No. 25575.535124  
 Client: BU 873128  
 Analysis by: SPT  
 Checked by: DEN

**Anchor Block is Adequate for Uplift 21.6%**  
**Anchor Block is Adequate for Lateral 61.6%**

Ratings per TIA-222-H Section 15.5 \*

Loads

$U_{max}$ : 107.00 kips - maximum uplift reaction  
 $H_{max}$ : 154.00 kips - maximum horizontal reaction

Capacity

$U_{all}$ : 471.19 kips - allowable uplift  
 $H_{all}$ : 237.99 kips - allowable horizontal

Foundation Input

Guy Path: A  
 Anchor Ring: Anchor Path

$W_b$ : 18.50 ft - width of anchor block  
 $L_b$ : 23.00 ft - length of anchor block  
 $T_b$ : 3.30 ft - thickness of anchor block  
 $d$ : 2.00 ft - depth from t/ grade to t/ anchor block  
 $b$ : 5.30 ft - depth from t/ grade to b/ anchor block

Ultimate Soil Properties

$D_w$ : 8.50 ft - depth from t/ grade to water table

Geotechnical Firm: FDH Engineering  
 Report: 04-1229E  
 Date: 2/3/2005  
 Notes: Boring B-4  
42" Frost Depth (per CT building code)

**USE? Yes**  
 Soil Berm:  
 depth: 4.00 ft  
 width: 18.50 ft  
 length: 23.50 ft  
 density: 110.00 pcf

Weight: 191.29 kips

Layer	Begin (ft)	End (ft)	$\phi$ Friction Angle (deg)	c Ult. Cohesion (psf)	$\gamma$ Eff. Unit Weight (pcf)	$f_s$ Ult. Skin Friction (ksf)	$\mu$ Friction Factor
1	0.00	2.00	33.00	0.00	115.00	0.00	0.00
2	2.00	3.50	0.00	0.00	115.00	0.00	0.40
3	3.50	4.00	33.00	0.00	115.00	0.36	0.40
4	4.00	5.30	41.00	0.00	125.00	0.65	0.40
5							
6							

Analysis Criteria

Uplift:  $F_{s\_sides}$  = 21.71 **Yes**  
 $F_{s\_front}$  = 23.65 **Yes**  
 $F_{s\_back}$  = 0.00 **No**

Horizontal:  $F_{s\_sides}$  = 31.24 **Yes**  
 $F_{s\_top}$  = 0.00 **No**  
 $F_{s\_bottom}$  = 0.00 **No**  
 $F_L \cdot \mu$  = 180.42 **Yes**



**Deadman Anchor Analysis: C - Anchor Path**

Project Name: Trumbull  
 Job #: TEP No. 25575.535124  
 Client: BU 873128  
 Analysis by: SPT  
 Checked by: DEN

Anchor Block is Adequate for Uplift	<b>75.2%</b>
Anchor Block is Adequate for Lateral	<b>54.9%</b>
Concrete Block is Adequate for Lateral	<b>83.3%</b>
Concrete Block is Adequate for Overturning	<b>42.7%</b>

**Loads**

Ratings per TIA-222-H Section 15.5 \*

$U_1$ : 91.00 kips - uplift reaction (block front)  
 $H_1$ : 113.00 kips - maximum horizontal reaction (block front)  
 $U_2$ : 15.00 kips - uplift reaction (block back)  
 $H_2$ : 43.00 kips - maximum horizontal reaction (block back)

**Capacity**

$U_{all}$ : 115.18 kips - allowable uplift  
 $H_{all}$ : 196.01 kips - allowable horizontal

**Foundation Input**

Guy Path: C  
 Anchor Ring: Anchor Path

$W_b$ : 7.00 ft - width of anchor block  
 $L_b$ : 6.00 ft - length of anchor block  
 $T_b$ : 5.50 ft - thickness of anchor block  
 $d$ : 4.30 ft - depth from t/ grade to t/ anchor block  
 $b$ : 9.80 ft - depth from t/ grade to b/ anchor block

**Ultimate Soil Properties**

$D_w$ : 8.50 ft - depth from t/ grade to water table

Geotechnical Firm: FDH Engineering  
 Report: 04-1229E  
 Date: 2/3/2005  
 Notes: Boring B-3  
42" Frost Depth (per CT building code)

**USE? Yes**

Concrete Berm:  
 depth (above gr): 3.00 ft  
 depth (below gr): 2.30 ft  
 width: 15.00 ft  
 length: 15.00 ft  
 density: 150.00 pcf

Layer	Begin (ft)	End (ft)	$\phi$ Friction Angle (deg)	c Ult. Cohesion (psf)	$\gamma$ Eff. Unit Weight (pcf)	$f_s$ Ult. Skin Friction (ksf)	$\mu$ Friction Factor
1	0.00	2.30	0.00	0.00	115.00	0.00	0.00
2	2.30	4.00	34.00	0.00	115.00	0.00	0.40
3	4.00	8.50	39.00	0.00	120.00	0.84	0.40
4	8.50	9.00	39.00	0.00	57.60	1.09	0.40
5	9.00	15.50	43.00	0.00	62.60	1.24	0.40
6							

**Analysis Criteria**

Uplift:  $F_{s\_sides}$  = 44.33 **Yes**      Horizontal:  $F_{s\_sides}$  = 55.04 **Yes**  
 $F_{s\_front}$  = 30.29 **Yes**                       $F_{s\_top}$  = 0.00 **No**  
 $F_{s\_back}$  = 0.00 **No**                               $F_{s\_bottom}$  = 0.00 **No**  
 $F_{\perp} \cdot \mu$  = 83.33 **Yes**



# Exhibit E

## **Mount Analysis**



Maser Consulting Connecticut  
2000 Midlantic Drive, Suite 100  
Mt. Laurel, NJ 08054  
856.797.0412  
Peter.Albano@ColliersEngineering.com

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## Post-Mod Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10072487  
Maser Consulting Connecticut Project #: 21777055A

June 23, 2021

### Site Information

Site ID: 469207-VZW / TRUMBULL CT  
Site Name: TRUMBULL CT  
Carrier Name: Verizon Wireless  
Address: 800 Booth Hill Rd  
Trumbull, Connecticut 06611  
Fairfield County  
Latitude: 41.279111°  
Longitude: -73.18525°

### Structure Information

Tower Type: 460-Ft Guyed  
Mount Type: 11.92-Ft T-Frame

FUZE ID # 16231871

### Analysis Results

T-Frame: 69.2% Pass

### \*\*\*Contractor PMI Requirements:

*Included at the end of this MA report*

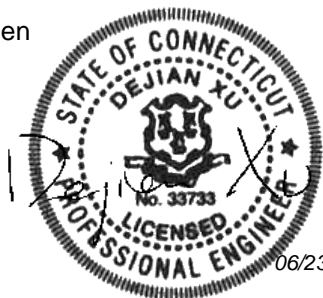
*Available & Submitted via portal at <https://pmi.vzwsmart.com>*

*Contractor - Please Review Specific Site PMI Requirements Upon Award*

*Requirements also Noted on Mount Modification Drawings*

*Requirements may also be Noted on A & E drawings*

Report Prepared By: Selene Chen



06/23/2021

**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
<i>Radio Data Frequency Sheets (RFDS)</i>	<i>Verizon RFDS, Site ID: 324988, dated September 4, 2020</i>
<i>Mount Mapping Report</i>	<i>RKS Design &amp; Engineering, LLC., Site #: CC: 873128, dated April 17, 2021</i>
<i>Mount Analysis Report</i>	<i>Maser Consulting Connecticut, Project #: 21777055A, dated May 20, 2021</i>
<i>Mount Modification Drawings</i>	<i>Maser Consulting Connecticut, Project #: 21777055A, dated June 23, 2021</i>

**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, $K_e$ : 0.981
Seismic Parameters:	$S_s$ : 0.208 $S_1$ : 0.054
Maintenance Parameters:	Wind Speed (3-sec. Gust): 30 mph Maintenance Live Load, $L_v$ : 250 lbs. Maintenance Live Load, $L_m$ : 500 lbs.
Analysis Software:	RISA-3D (V17)

**Final Loading Configuration:**

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

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
230.75	232.00	6	Commscope	JAHH-65B-R3B	Added
		3	Samsung	MT6407-77A	
		3	Commscope	CBC78T-DS-43-2X	
		3	Samsung	B2/B66A RRH-BR049	
		3	Samsung	B5/B13 RRH-BR04C	
		1	Andrew	LNx-6514DS-VTM	Retained
		2	Andrew	LNx-8513DS-VTM	
		2	Raycap	RRFDC-3315-PF-48*	

\* Equipment flush mounted directly to the Self Support Tower. They are not mounted on the T-Frame mounts 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 by Maser Consulting Connecticut, 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:
  - o Channel, Solid Round, Angle, Plate      ASTM A36 (Gr. 36)
  - o HSS (Rectangular)                              ASTM 500 (Gr. B-46)
  - o Pipe    ASTM A53 (Gr. B-35)
  - o Threaded Rod                                      F1554 (Gr. 36)
  - o 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
Standoff Horizontal	29.3 %	Pass
Face Horizontal	69.2 %	Pass
Mast Pipe	14.3 %	Pass
Standoff Bracing	7.2 %	Pass
Mount Pipe	43.0 %	Pass
Vertical Face Bracing	54.4 %	Pass
Face Bracing	26.4 %	Pass
Tieback	24.6 %	Pass
OVP Pipe	25.4 %	Pass
V-Bracing	19.0%	Pass
Connection Check	23.6%	Pass

<b>Structure Rating – (Controlling Utilization of all Components)</b>	<b>69.2%</b>
---	--------------

**Recommendation:**

The existing mounts will be **SUFFICIENT** for the final loading after the proposed modifications 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. Mount Photos
2. Mount Mapping Report (for reference only)
3. Analysis Calculations
- 4. Contractor Required PMI Report Deliverables**
5. Antenna Placement Diagrams
6. TIA Adoption and Wind Speed Usage Letter



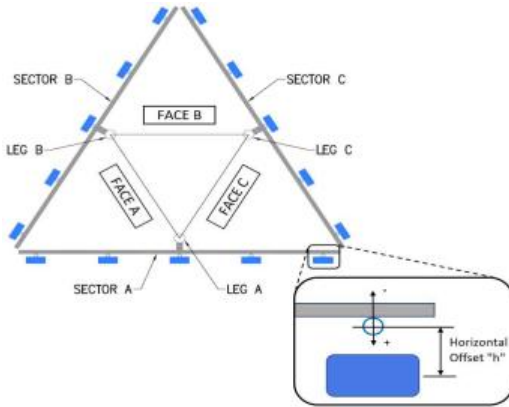


	<b>Antenna Mount Mapping Form (PATENT PENDING)</b>			FCC # 1205267
	<b>Tower Owner:</b>	CROWN CASTLE	<b>Mapping Date:</b>	04-17-2021
<b>Site Name:</b>	CC: TRUMBULL; VZW: TRUMBULL CT	<b>Tower Type:</b>	Guyed Tower	
<b>Site Number or ID:</b>	CC: 873128, VZW:469207	<b>Tower Height (Ft.):</b>	UNKNOWN	
<b>Mapping Contractor:</b>	RKS Design & Engineering, LLC	<b>Mount Elevation (Ft.):</b>	230.5	

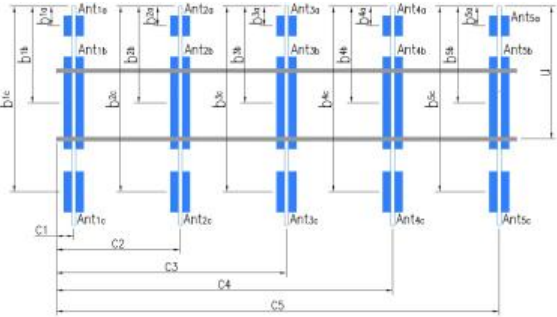
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Please insert the sketches of the antenna mount from the "Sketches" tab with dimensions and members here.

Mount Pipe Configuration and Geometries [Unit = Inches]							
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "y"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "y"	Horizontal Offset "C1, C2, C3, etc."
A1	PIPE 2.375"Ø X 0.15" X 84" LONG	58.25	9.75	C1	PIPE 2.375"Ø X 0.15" X 84" LONG	58.25	9.75
A2	PIPE 2.375"Ø X 0.15" X 84" LONG	57.75	76.25	C2	PIPE 2.375"Ø X 0.15" X 84" LONG	57.75	57.50
A3	PIPE 2.375"Ø X 0.15" X 84" LONG	57.25	129.00	C3	PIPE 2.375"Ø X 0.15" X 84" LONG	57.25	129.00
A4				C4			
A5				C5			
A6				C6			
B1	PIPE 2.375"Ø X 0.15" X 84" LONG	58.25	9.75	D1			
B2	PIPE 2.375"Ø X 0.15" X 84" LONG	57.75	76.25	D2			
B3	PIPE 2.375"Ø X 0.15" X 84" LONG	57.25	129.00	D3			
B4				D4			
B5				D5			
B6				D6			
Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :							15.25
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :							
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :							
Please enter additional information or comments below.							
Tower Face Width at Mount Elev. (ft.):		6		Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):		3	
For T-Arms/Platforms on monopoles, report the weld size from the main standoff to the plate bolting into the collar mount.							



		Enter antenna model. If not labeled, enter "Unknown".					Mounting Locations [Units are inches and degrees]			Photos of antennas
Ants. Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Vertical Distances "b <sub>1a</sub> , b <sub>2a</sub> , b <sub>3a</sub> , b <sub>1b</sub> ,..." (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)	Antenna Azimuth (Degrees)	Photo Numbers
Ant <sub>1a</sub>	B25 RRH4X30	12.00	7.20	21.20		233.75	4.00	-7.50		19, 104
Ant <sub>1b</sub>	LNX-8513DS-VTM	11.90	7.10	72.70		231.125	35.50	7.50	60.00	19, 104
Ant <sub>1c</sub>										
Ant <sub>2a</sub>	B13 RRH4X30	12.00	9.00	21.60		233.688	4.25	-8.50		19, 108
Ant <sub>2b</sub>	SBNHH-1D65B	11.90	7.10	72.00		231.292	33.00	9.00	60.00	19, 108
Ant <sub>2c</sub>										
Ant <sub>3a</sub>										
Ant <sub>3b</sub>	HBXX-6516DS-A2M	12.00	6.50	50.90		231.646	28.25	9.50	60.00	19, 109
Ant <sub>3c</sub>										
Ant <sub>4a</sub>										
Ant <sub>4b</sub>										
Ant <sub>4c</sub>										
Ant <sub>5a</sub>										
Ant <sub>5b</sub>										
Ant <sub>5c</sub>										
Ant on Standoff	B4 RRH2X60-4R	10.63	5.75	36.60						19, 107
Ant on Standoff										
Ant on Tower	RRFDC-3315-PF-48	15.73	10.25	25.66						19, 112
Ant on Tower										



**Antenna Layout (Looking Out From Tower)**



**Observed Safety and Structural Issues During the Mount Mapping**

Issue #	Description of Issue	Photo #
1	COAX:TOTAL(14): (12)FH 7/8 CUT, (2)1.5"Ø HYBRID	492
2		
3		
4		
5		
6		
7		
8		

**Observed Obstructions to Tower Lighting System**

If the tower lighting system is being obstructed by the carrier's equipment (for example: a light nested by the antennas), please provide photos and fill in the information below.		Photo #
Description of Obstruction:		
Type of Light:	Photo #	Additional Comments:
Lighting Technology:	Photo #	
Elevation (AGL) at base of light (Ft.):	Photo #	
Is a service loop available?	Photo #	
Is beacon installed on an extension?	Photo #	

**Mapping Notes**

1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)
2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness.
3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.
4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.
5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.
6. Please measure and report the size and length of all existing antenna mounting pipes.
7. Please measure and report the antenna information for all sectors.
8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

**Standard Conditions**

1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.



**Antenna Mount Mapping Form (PATENT PENDING)**

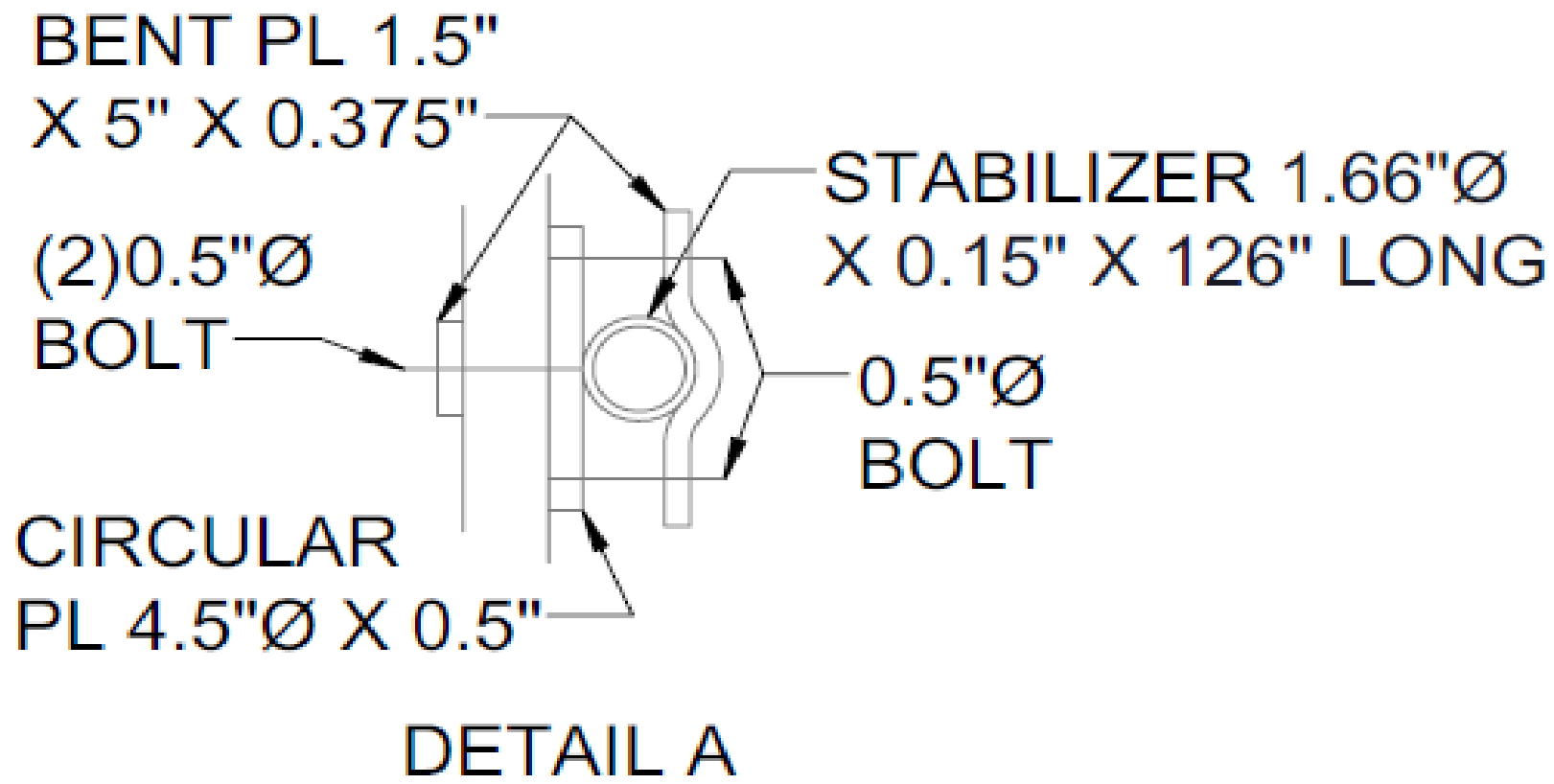
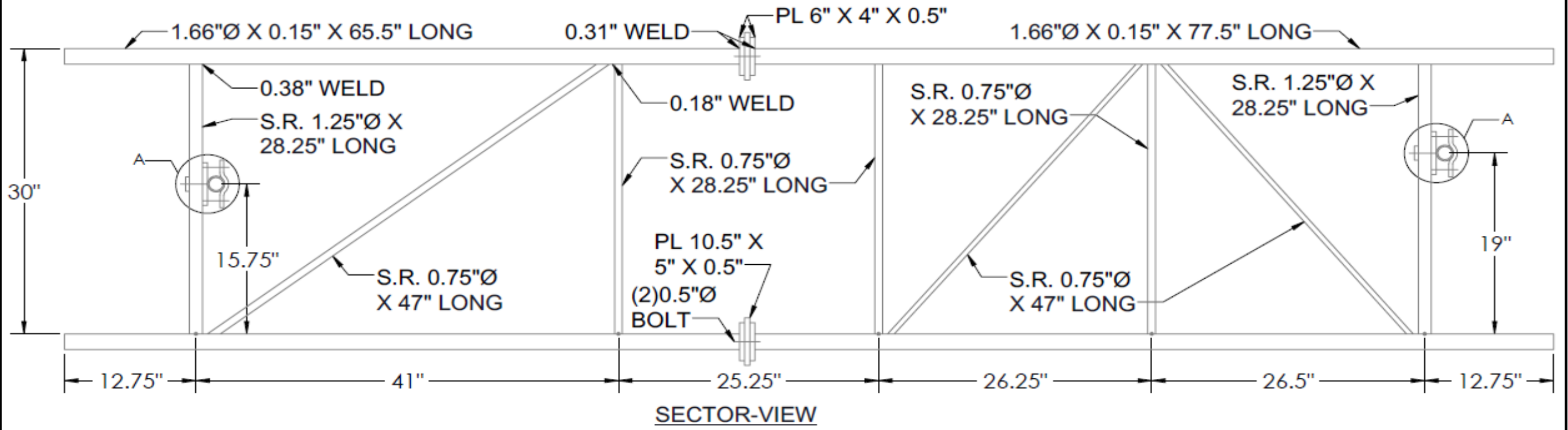
FCC #

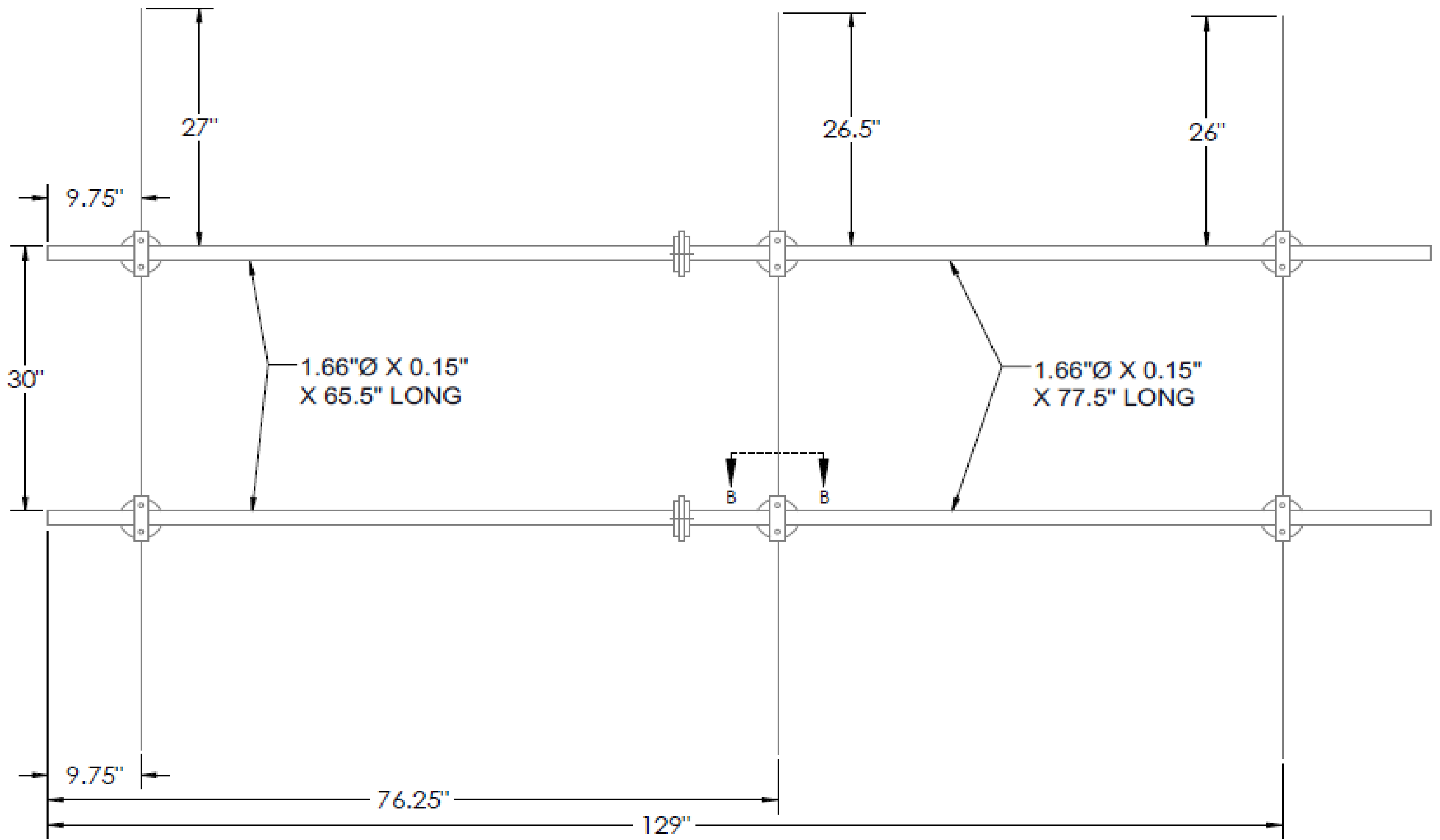
1205267

Tower Owner:	CROWN CASTLE	Mapping Date:	04-17-2021
Site Name:	CC: TRUMBULL; VZW: TRUMBULL CT	Tower Type:	Guyed Tower
Site Number or ID:	CC: 873128	Tower Height (Ft.):	UNKNOWN
Mapping Contractor:	RKS Design & Engineering, LLC	Mount Elevation (Ft.):	230.5

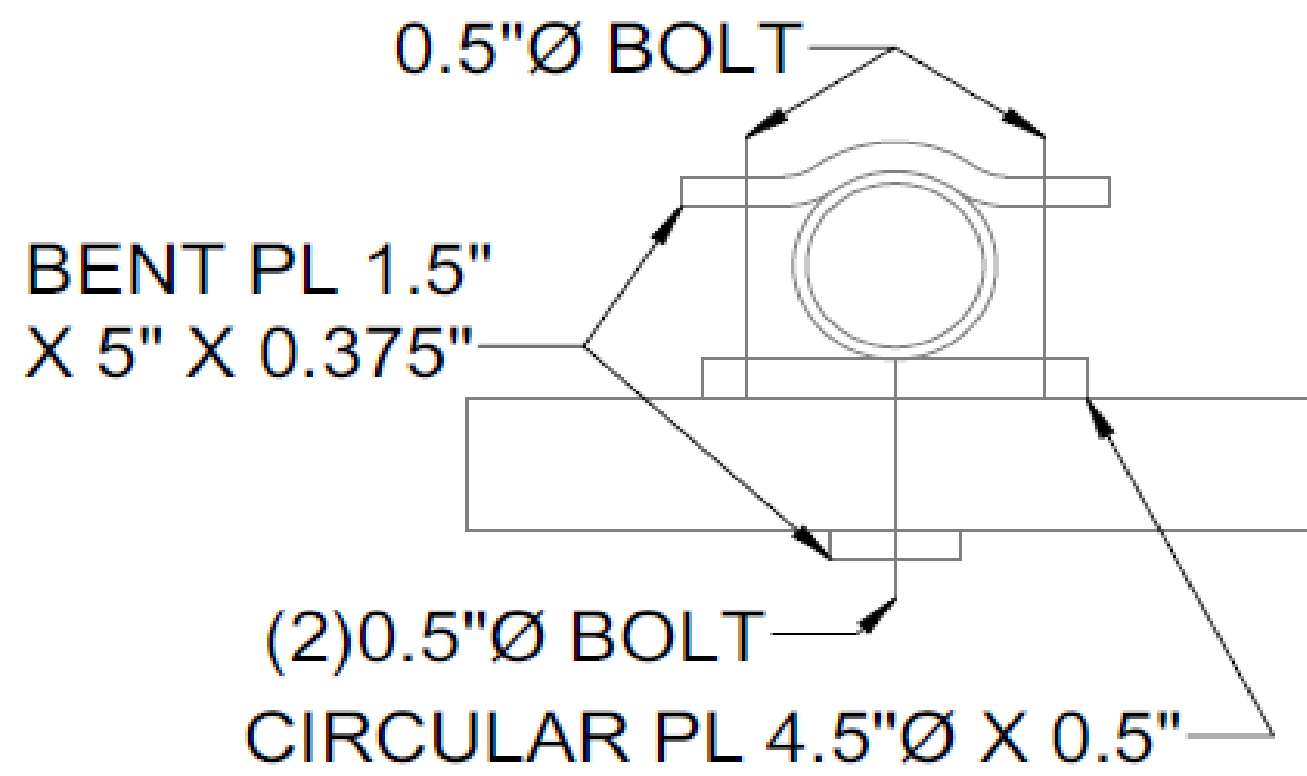
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Please Insert Sketches of the Antenna Mount

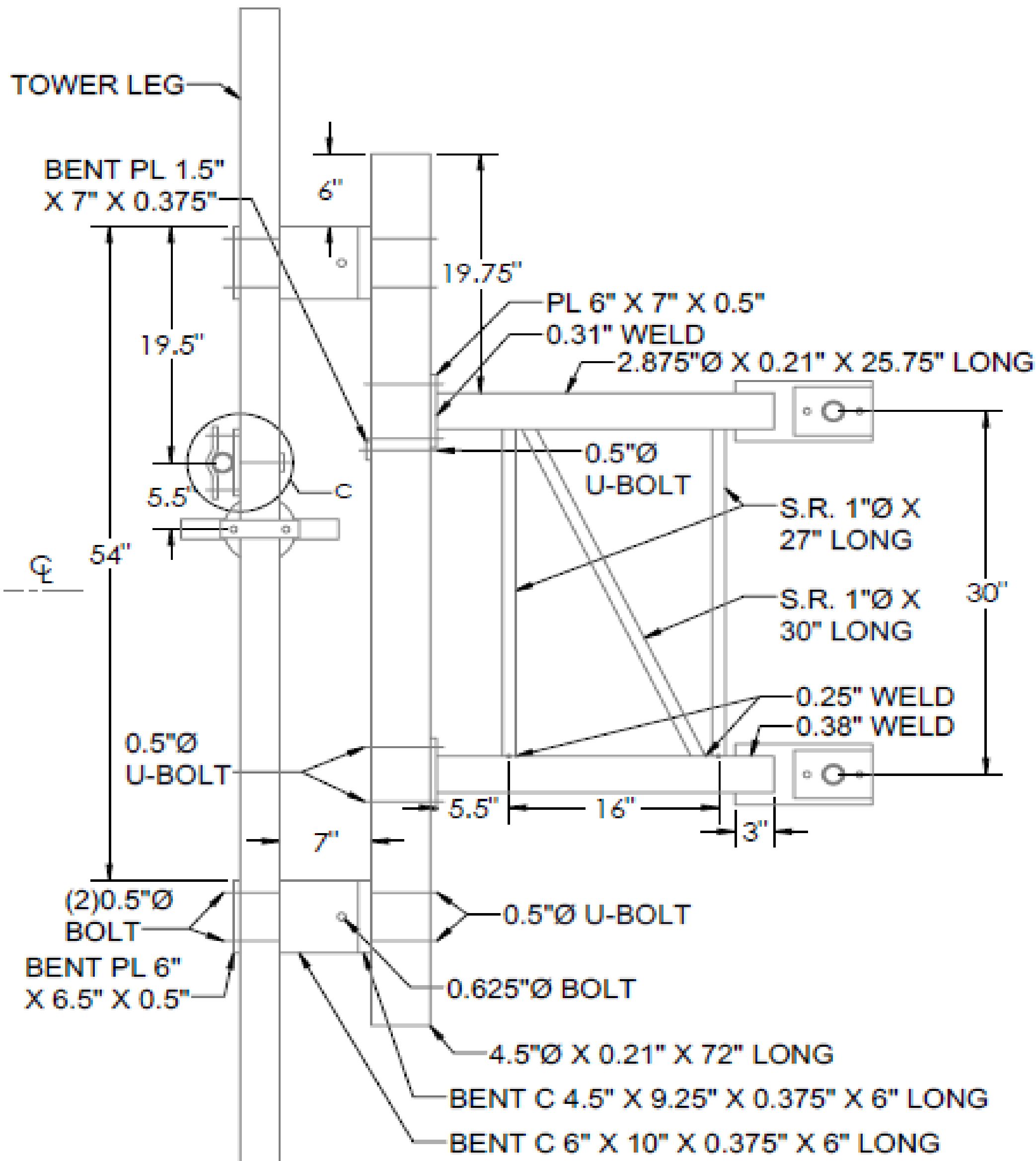




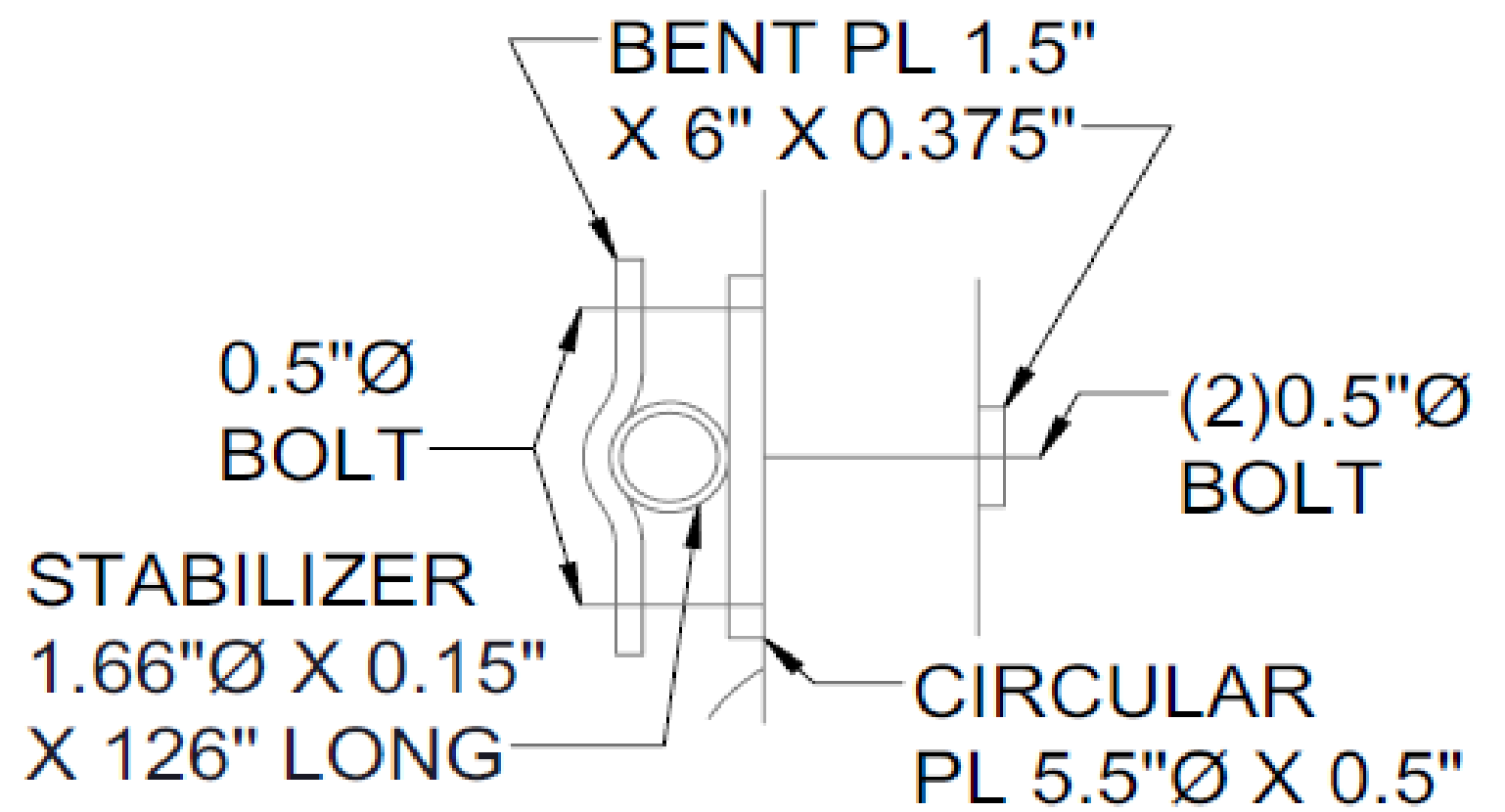
SECTOR A, B





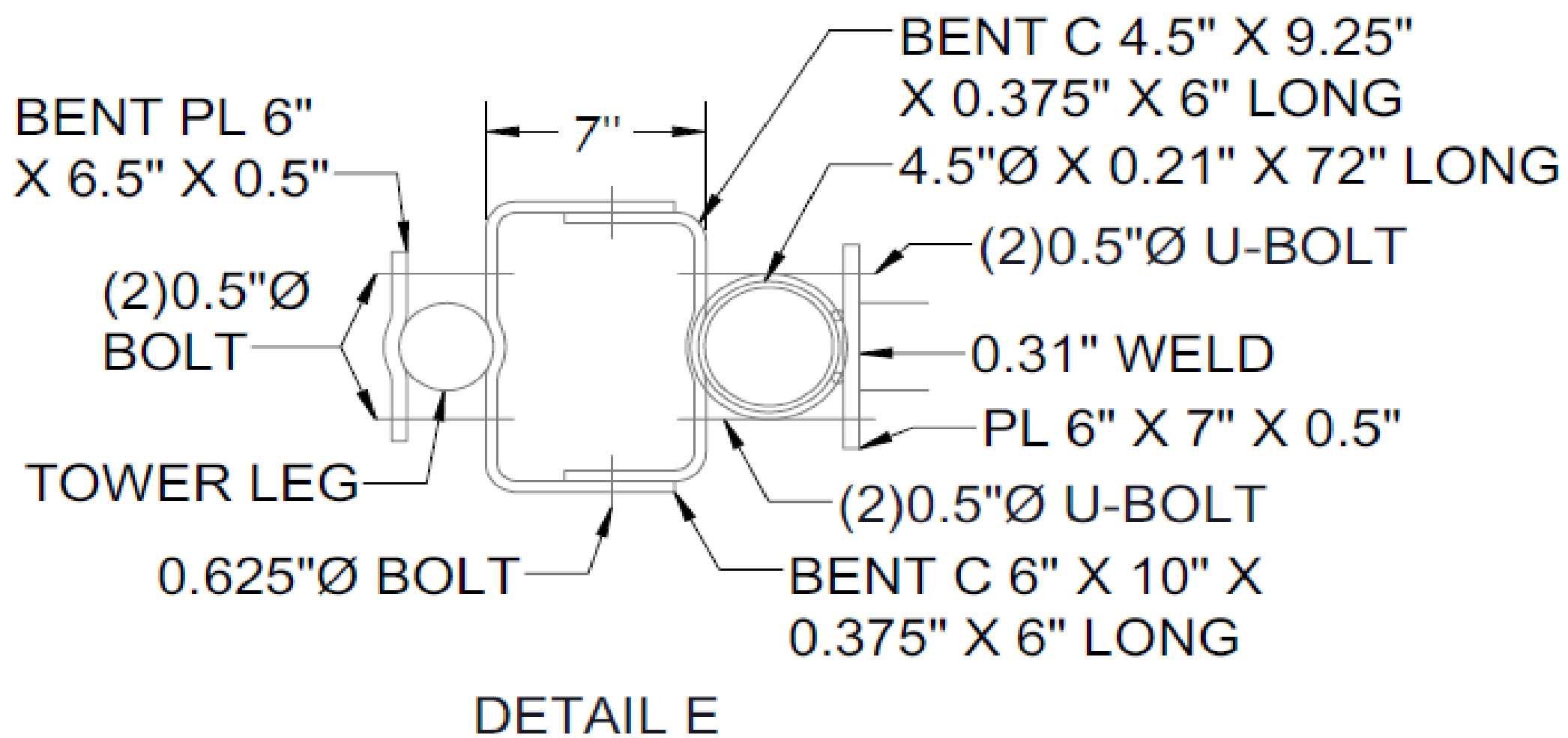
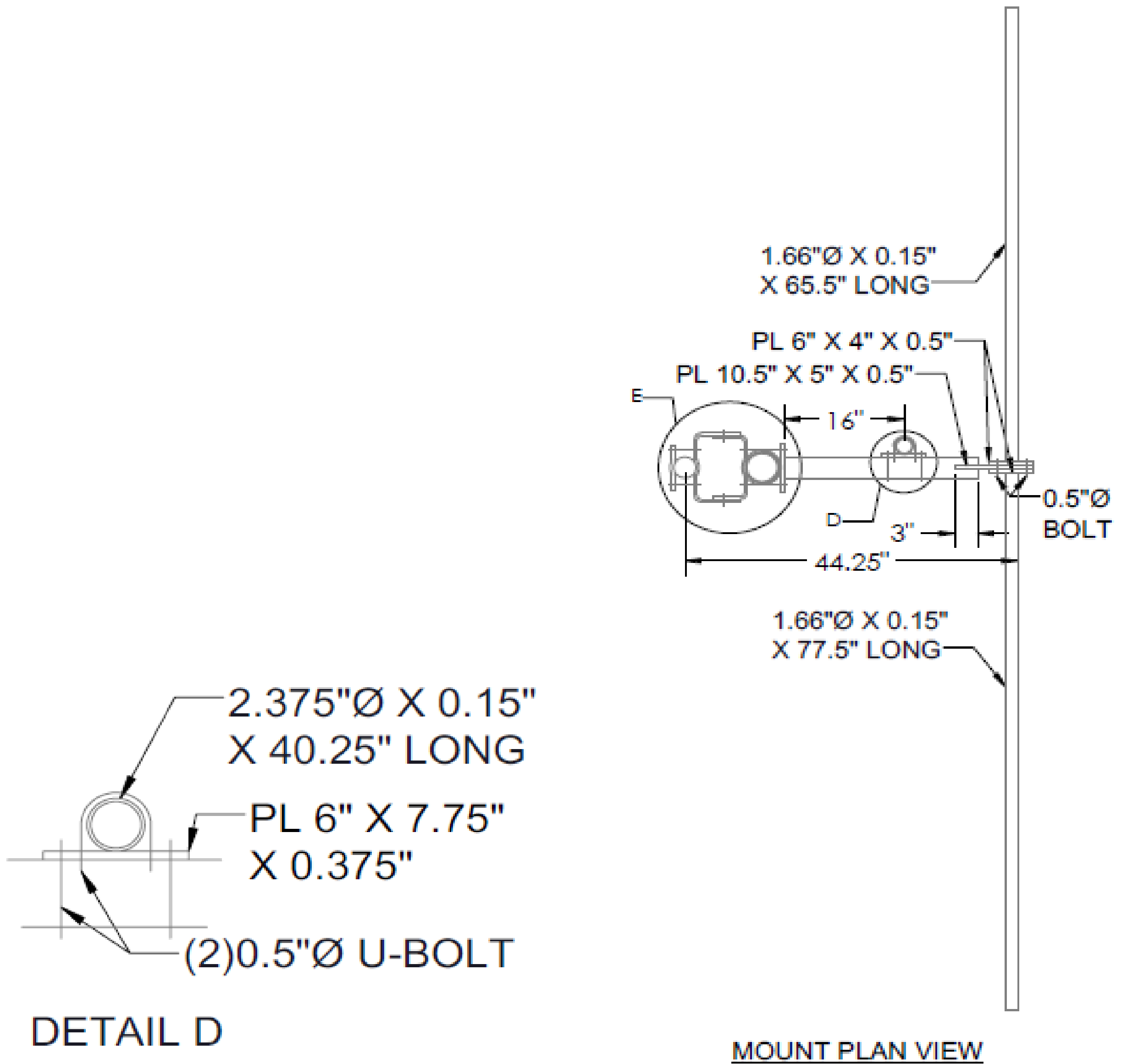


STAND OFF VIEW



**DETAIL C**







**Antenna Mount Mapping Form (PATENT PENDING)**

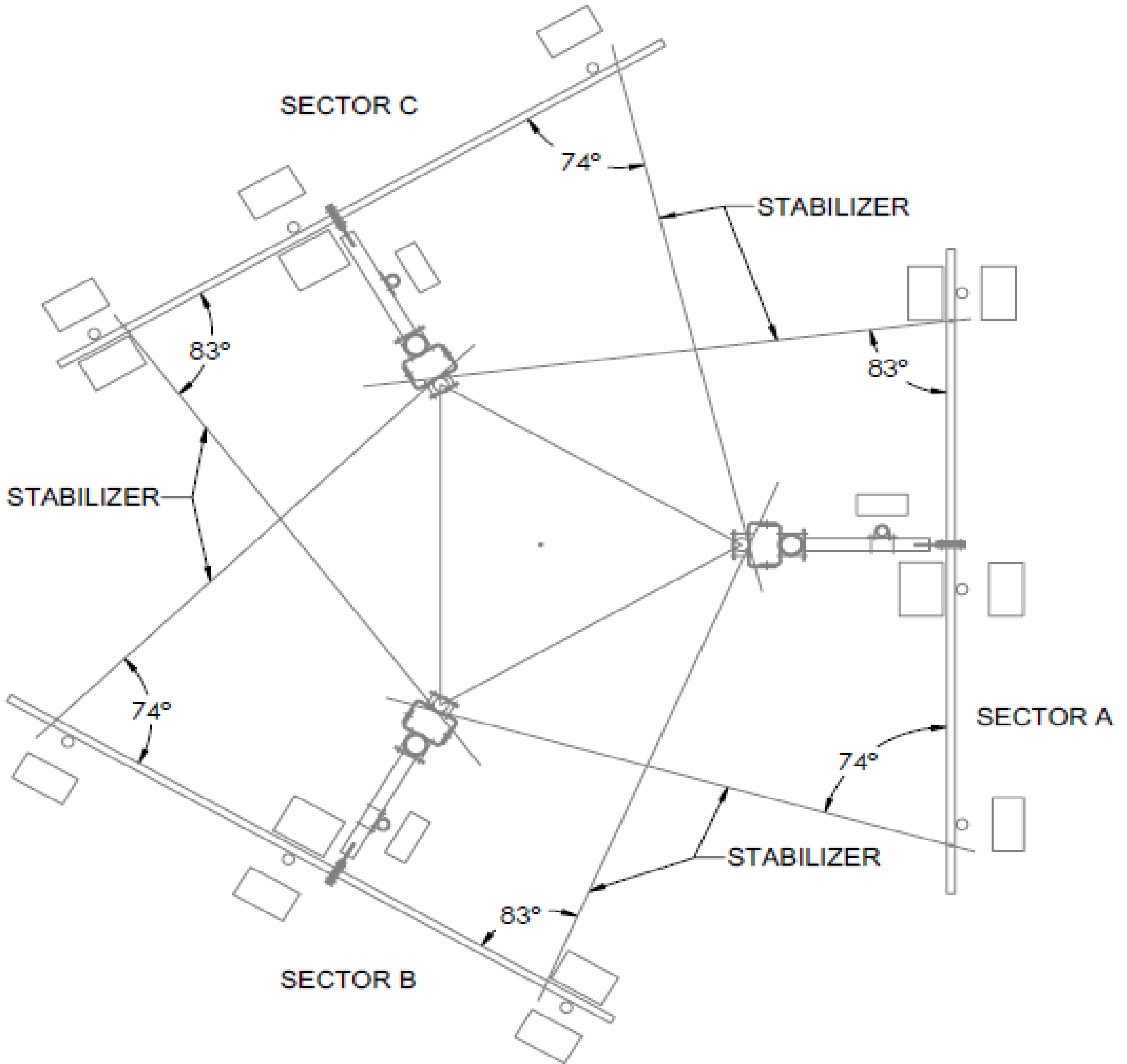
FCC #

1205267

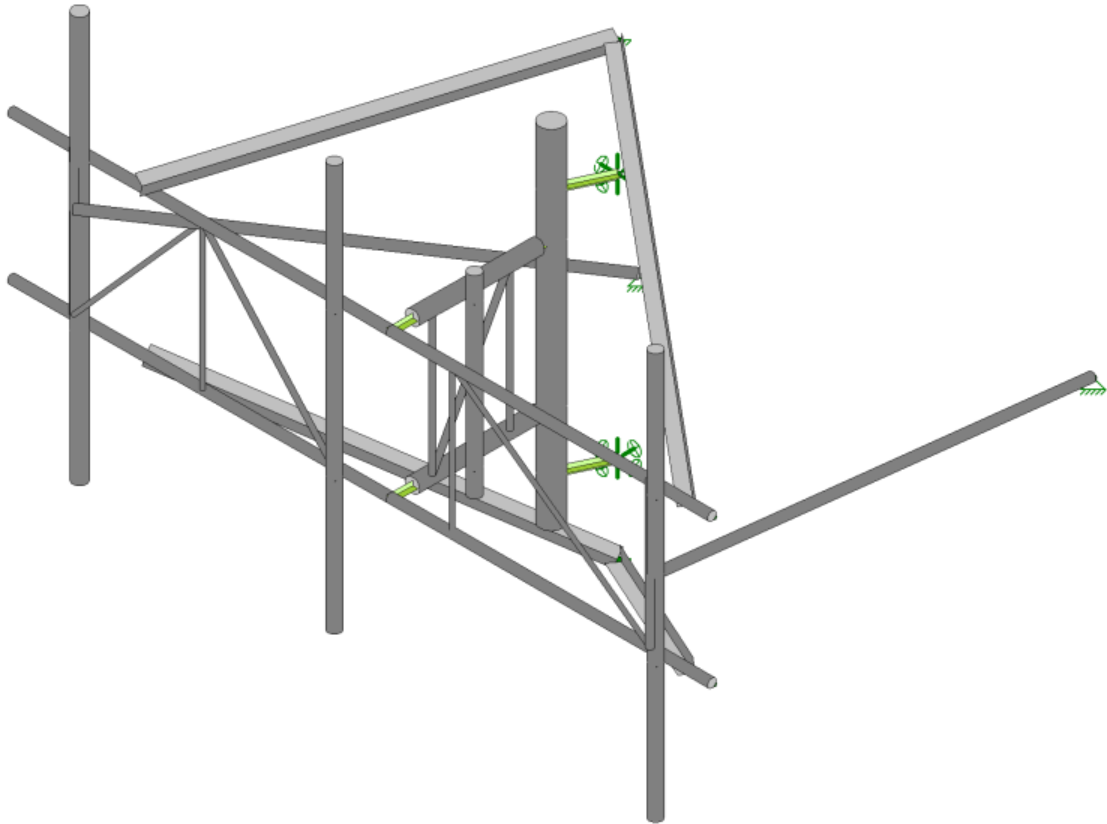
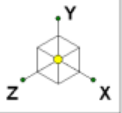
Tower Owner:	CROWN CASTLE	Mapping Date:	04-17-2021
Site Name:	CC: TRUMBULL; VZW: TRUMBULL CT	Tower Type:	Guyed Tower
Site Number or ID:	CC: 873128	Tower Height (Ft.):	UNKNOWN
Mapping Contractor:	RKS Design & Engineering, LLC	Mount Elevation (Ft.):	230.5

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Please Insert Sketches of the Antenna Mount



ANTENNA PLAN VIEW



Envelope Only Solution

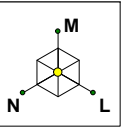
Maser Consulting

469207-VZW\_MT\_LOT\_SectorA\_H

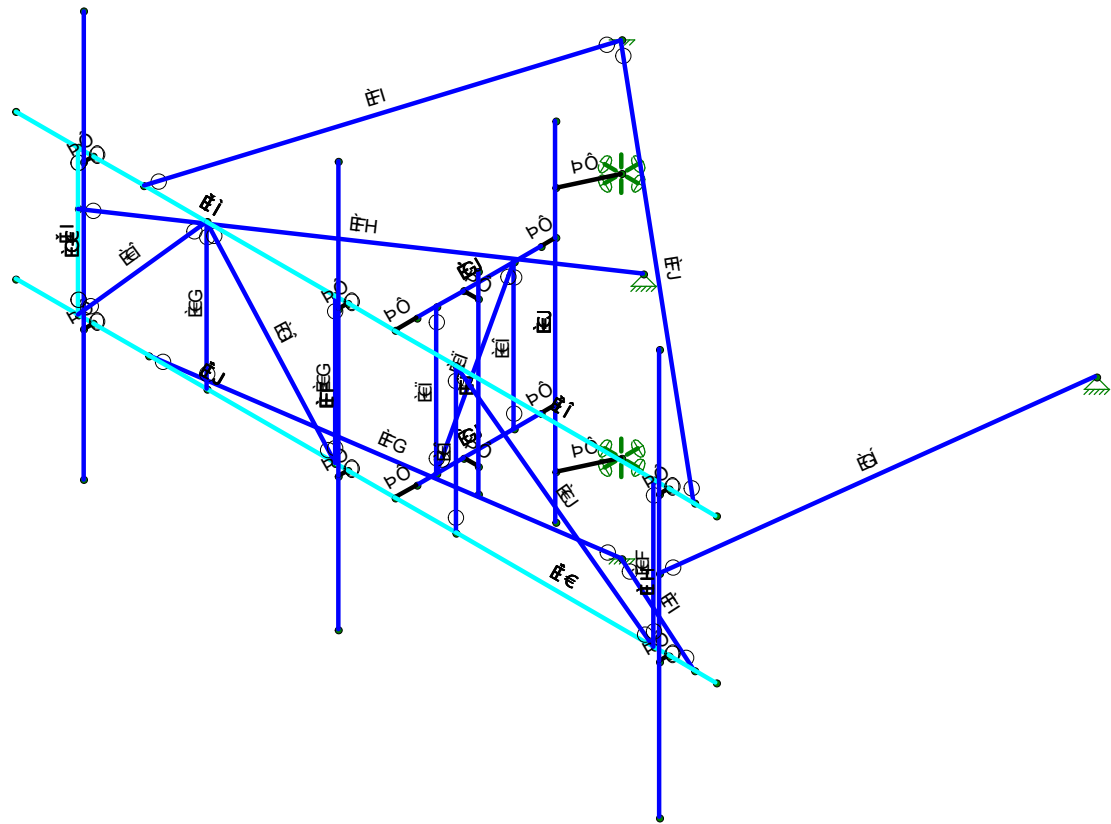
SK - 1

June 18, 2021 at 9:52 AM

MOD\_469207-VZW\_MT\_LOT\_A\_H....



- 0[ a^A@&
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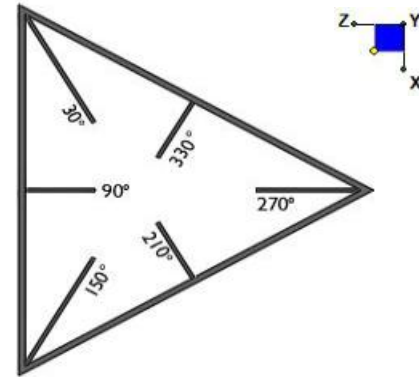




## I. Mount-to-Tower Connection Check

### RISA Model Data

Nodes (labeled per RISA)	Orientation (per graphic of typical platform)
N21	60
N22	60



TYPICAL PLATFORM

### Tower Connection Bolt Checks

Any moment resistance?:

Bolt Quantity per Reaction:

$d_x$  (in) (Delta X of typ. bolt config. sketch):

$d_y$  (in) (Delta Y of typ. bolt config. sketch):

Bolt Type:

Bolt Diameter (in):

Required Tensile Strength (kips):

Required Shear Strength (kips):

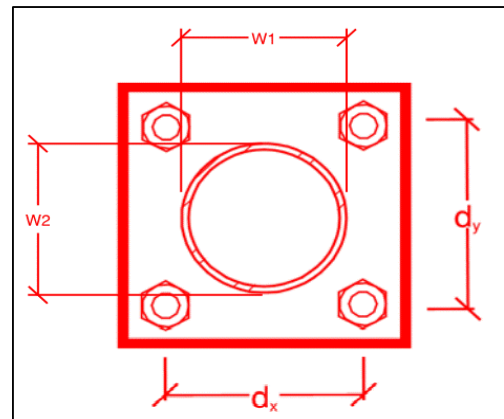
Tensile Strength / bolt (kips):

Shear Strength / bolt (kips):

Tensile Capacity Overall:

Shear Capacity Overall:

yes
4
5.5
3.5
A307
0.5
6.0
1.4
6.4
3.8
<b>23.6%*</b>
<b>9.3%</b>



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

# Mount Desktop – Post Modification Inspection (PMI) Report Requirements

## Documents & Photos Required from Contractor – Mount Modification

---

**Purpose** – to provide Maser Consulting Connecticut the proper documentation in order to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

### **Base Requirements:**

- Any special photos outside of the standard requirements will be indicated on the drawings
- Provide “as built drawings” showing contractor’s name, preparer’s signature, and date. Any deviations from the drawings (proposed modification) must be shown.
- Notation that all hardware was properly installed, and the existing hardware was inspected for any issues.
- Verification that loading is as communicated in the modification drawings. NOTE If loading is different than what is conveyed in the modification drawing contact Maser Consulting Connecticut immediately.
- Each photo should be time and date stamped
- Photos should be high resolution and submitted in a Zip File and should be organized in the file structure as depicted in Schedule A attached.
- Contractor shall ensure that the safety climb wire rope is supported and not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope.
- The photos in the file structure should be uploaded to <https://pmi.vzwsmart.com> as depicted on the drawings

### **Photo Requirements:**

- Base and “During Installation Photos”
  - Base pictures include
    - Photo of Gate Signs showing the tower owner, site name, and number
    - Photo of carrier shelter showing the carrier site name and number if available
    - Photos of the galvanizing compound and/or paint used (if applicable), clearly showing the label and name
  - “During Installation Photos if provided - must be placed only in this folder
- Photos taken at ground level
  - Overall tower structure before and after installation of the modifications
  - Photos of the appropriate mount before and after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed



- Photos taken at Mount Elevation

- Photos showing each individual sector before and also after installation of modifications. Each entire sector must be in one photo to show in the inter-connection of members.
  - These photos should also certify that the placement and geometry of the equipment on the mount is as depicted on the sketch and table in the mount analysis
- Close-up photos of each installed modification per the modification drawings; pictures should also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
- Photos showing the measurements of the installed modification member sizes (i.e. lengths, widths, depths, diameters, thicknesses)
- Photos showing the elevation or distances of the installed modifications from the appropriate reference locations shown in the modification drawings
- Photos showing the installed modifications onto the tower with tape drop measurements (if applicable) (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevation needs to be changed according to the modification drawings, a tape drop measurement shall be provided before the elevation change
- Photos showing the safety climb wire rope above and below the mount prior to modification.
- Photos showing the climbing facility and safety climb if present.

**Material Certification:**

- Materials utilized must be as per specification on the drawings or the equivalent as validated by Maser Consulting Connecticut.
  - If the drawings are as specified on the drawings
    - The contractor should provide the packing list or the materials utilized to perform the mount modification
  - If an equivalent is utilized
    - It is required that the Maser Consulting Connecticut certification of such is included in the contractor submission package. There may be an additional charge for this certification if the equivalent submission doesn't meet specifications as prescribed in the drawings.
- The contractor must certify that the materials meet these specifications by one of these methods.

The Material utilized was as specified on the Maser Consulting Connecticut Mount Modification Drawings and included in the Material certification folder is a packing list or invoice for these materials

The material utilized was an "equivalent" and included as part of the contractor submission is the Maser Consulting Connecticut certification, invoices, or specifications validating accepted status


















Certifying Individual: Company \_\_\_\_\_

Name \_\_\_\_\_

Signature \_\_\_\_\_



## **Schedule A – Photo & Document File Structure**

-  VzW Site Number / Name
  -  Base & “During Installation” Photos
  -  Pre-Installation Photos
    -  Alpha
    -  Beta
    -  Gamma
    -  Ground Level
    -  Tape Drop
  -  Post-Installation Photos
    -  Alpha
    -  Beta
    -  Gamma
    -  Ground Level
    -  Tape Drop
    -  Photos of climbing facility and safety climb – If Present
-  Certifications – Submission of this document including certifications
-  Specific Required Additional Photos

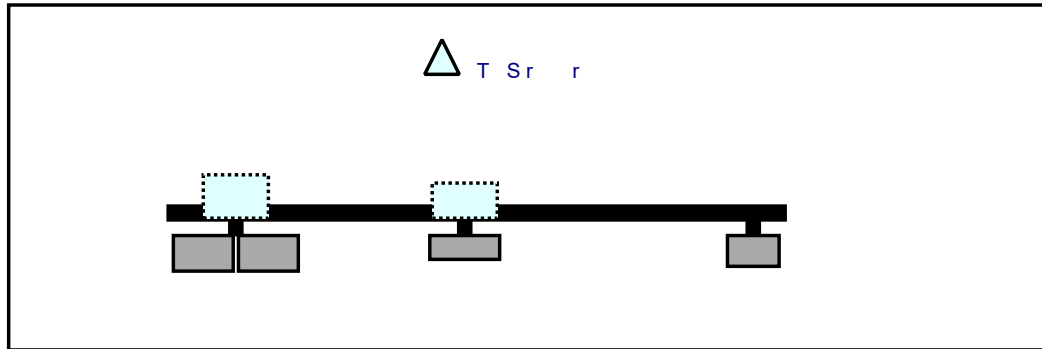
S r A

Sr r T d

M E .

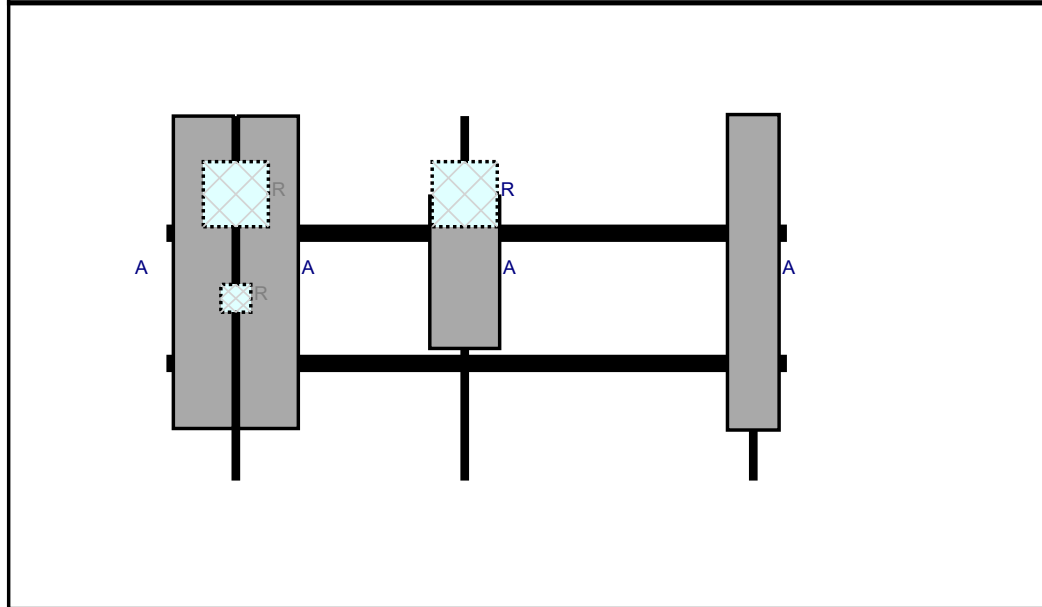
P

Plan View



Front View

L Sr r



d D P P A .A A

r L. P P r T. O S d

R	M d										
A	L	DS	TM					r			R d
A	MT	A						r			Add d
R	B B	RR	BR	R	D A			B d			Add d
A	A	BR	B					r			Add d
A	A	BR	B					r			Add d
R	B	TDS						B d			Add d
R	B B	ARR	BR	R	D A			B d			Add d



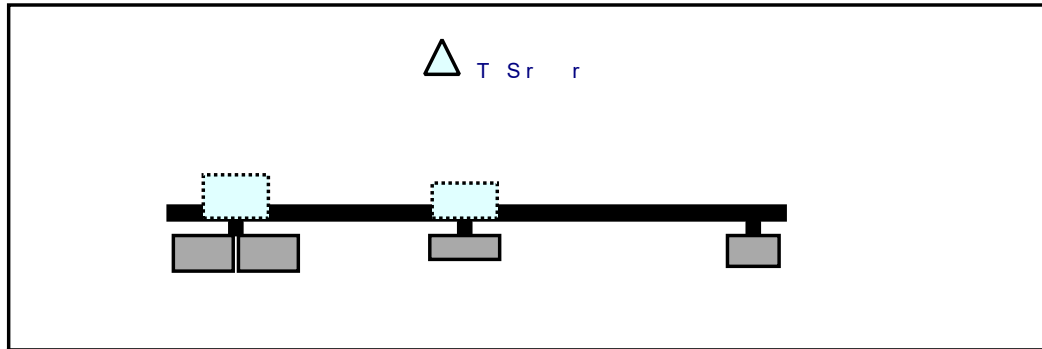
S r C

Sr r T d

M E .

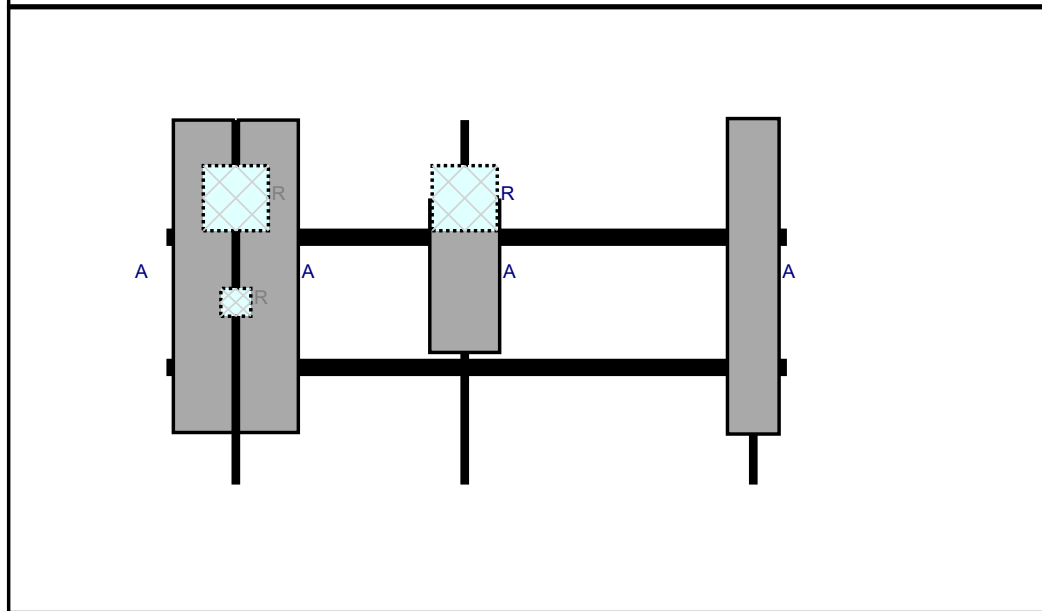
P

Plan View



Front View

L Sr r



d D P P A .A A

r L. P P r T. O S d

R	M d										
A	L	DS	TM					r			R d
A	MT	A						r			Add d
R	B B	RR	BR	R	D A			B d			Add d
A	A	BR	B					r			Add d
A	A	BR	B					r			Add d
R	B	TDS						B d			Add d
R	B B	ARR	BR	R	D A			B d			Add d

# Maser Consulting Connecticut

<b><u>Subject</u></b>	TIA-222H Usage	
<b><u>Site Information</u></b>	Site ID:	469207-VZW / TRUMBULL CT
	Site Name:	TRUMBULL CT
	Carrier Name:	Verizon Wireless
	Address:	800 Booth Hill Rd Trumbull, Connecticut 06611 Fairfield County
	Latitude:	41.279111°
	Longitude:	-73.18525°
<b><u>Structure Information</u></b>	Tower Type:	460-Ft Guyed
	Mount Type:	11.92-Ft T-Frame

To Whom It May Concern,


We respectfully submit the above referenced Antenna Mount Structural Analysis report in conformance with ANSI/TIA-222-H, Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures.

The 2015 International Building Code states that, in Section 3108, telecommunication towers shall be designed and constructed in accordance with the provisions of TIA-222. TIA-222-H is the latest revision of the TIA-222 Standard, effective as of January 01, 2018.

As with all ANSI standards and engineering best practice is to apply the most current revision of the standard. This ensures the engineer is applying all updates. As an example, the TIA-222-H Standard includes updates to bring it in line with the latest AISC and ACI standards and it also incorporates the latest wind speed maps by ASCE 7 based on updated studies of the wind data.

The TIA-222-H standard clarifies these specific requirements for the antenna mount analysis such as modeling methods, seismic analysis, 30-degree increment wind directions and maintenance loading. Therefore, it is our opinion that TIA-222-H is the most appropriate standard for antenna mount structural analysis and is acceptable for use at this site to ensure the engineer is taking into account the most current engineering standard available.

Sincerely,



Dejian Xu, PE  
Technical Manager



# Exhibit F

## **Power Density/RF Emissions Report**

Site Name: **TRUMBULL 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 <sup>2</sup> )	(mW/cm <sup>2</sup> )	(%)
VZW 700	751	4	635	2538	232	0.0017	0.5007	0.34%
VZW CDMA	877.26	2	378	757	232	0.0005	0.5848	0.09%
VZW Cellular	874	4	722	2887	232	0.0019	0.5827	0.33%
VZW PCS	1980	4	1561	6243	232	0.0042	1.0000	0.42%
VZW AWS	2120	4	1643	6571	232	0.0044	1.0000	0.44%
VZW CBAND	3730.08	4	6531	26125	232	0.0175	1.0000	1.75%

**Total Percentage of Maximum Permissible Exposure** 3.36%

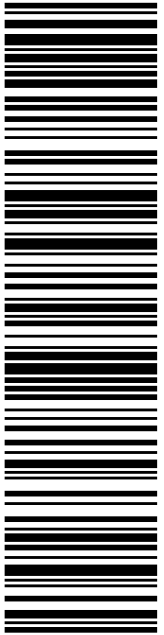
\*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992  
 \*\*Calculation includes a -10 dB Off Beam Antenna Pattern Adjustment pursuant to Attachments B and C of the Siting Council's November 10, 2015 Memorandum for Exempt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

MHz = Megahertz  
 mW/cm<sup>2</sup> = milliwatts per square centimeter  
 ERP = Effective Radiated Power

Absolute worst case maximum values used.

# Exhibit G

## Recipient Mailings



**USPS TRACKING #**

**9405 5036 9930 0320 6474 27**

**P**

**US POSTAGE**  
Flat Rate Env  
\$8.95

**U.S. POSTAGE PAID**  
Click-N-Ship®


08/12/2022 Mailed from 01566

**Click-N-Ship®**

**PRIORITY MAIL®**


Expected Delivery Date: 08/15/22  
Re#: 873128  
**0000**

**C002**



VICKI TESORO, FIRST SELECTMAN  
TRUMBULL TOWN HALL  
5866 MAIN ST  
TRUMBULL CT 06611-3113

Electronic Rate Approved #038555749





Cut on dotted line.

### Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0320 6474 27**

Trans. #: 569616571	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 08/12/2022	Total: <b>\$8.95</b>
Ship Date: 08/12/2022	
Expected Delivery Date: 08/15/2022	

**From:** VICTORIA MASSE      Reff#: 873128  
NORTHEAST SITE SOLUTIONS  
STE 1  
420 MAIN ST  
STURBRIDGE MA 01566-1359


**To:** VICKI TESORO, FIRST SELECTMAN  
TRUMBULL TOWN HALL  
5866 MAIN ST  
TRUMBULL CT 06611-3113

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



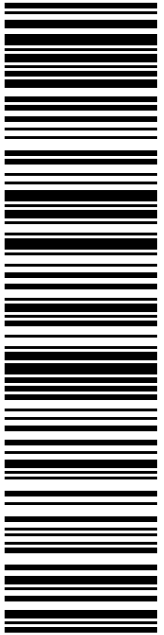
Thank you for shipping with the United States Postal Service!

Check the status of your shipment on the USPS Tracking® page at [usps.com](https://usps.com)



ROB LIBRANDI, LAND USE PLANNER  
TRUMBULL TOWN HALL  
# 2  
5866 MAIN ST  
TRUMBULL CT 06611-3113

**USPS TRACKING #**



**9405 5036 9930 0320 6474 65**

**P**

usps.com 9405 5036 9930 0320 6474 65 0089 5000 0020 6611  
**\$8.95**  
**US POSTAGE**  
 Flat Rate Envoy

U.S. POSTAGE PAID  
click-n-ship®


08/12/2022 Mailed from 01566

**PRIORITY MAIL®**

Expected Delivery Date: 08/15/22  
 Re#: 873128  
**0000**

**C002**

Electronic Rate Approved #038555749





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### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0320 6474 65**

Trans. #: 569616571	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 08/12/2022	Total: <b>\$8.95</b>
Ship Date: 08/12/2022	
Expected Delivery Date: 08/15/2022	

**From:** VICTORIA MASSE      Re#: 873128  
 NORTHEAST SITE SOLUTIONS  
 STE 1  
 420 MAIN ST  
 STURBRIDGE MA 01566-1359

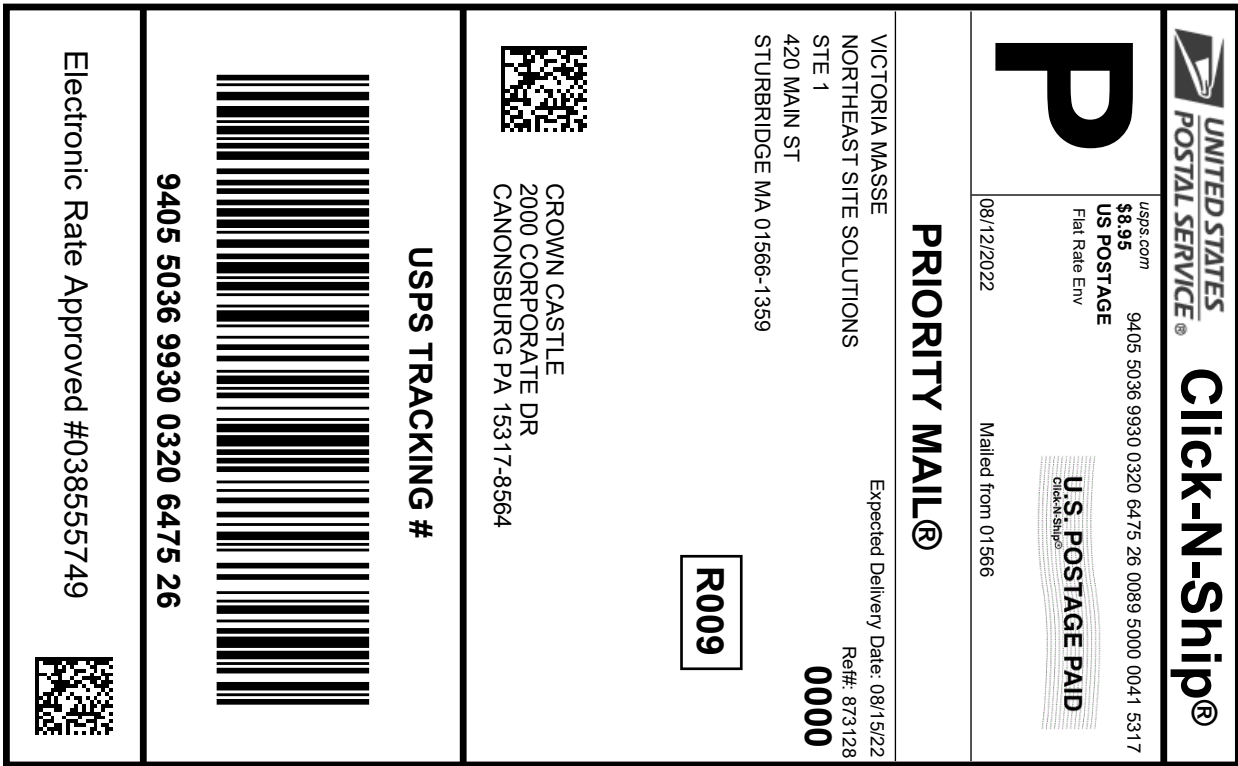
**To:** ROB LIBRANDI, LAND USE PLANNER  
 TRUMBULL TOWN HALL  
 # 2  
 5866 MAIN ST  
 TRUMBULL CT 06611-3113

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



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- Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

<b>USPS TRACKING # :</b>	
<b>9405 5036 9930 0320 6475 26</b>	
Trans. #:	569616571
Print Date:	08/12/2022
Ship Date:	08/12/2022
Expected Delivery Date:	08/15/2022
Priority Mail® Postage:	<b>\$8.95</b>
Total:	<b>\$8.95</b>
<b>From:</b>	VICTORIA MASSE NORTHEAST SITE SOLUTIONS STE 1 420 MAIN ST STURBRIDGE MA 01566-1359
<b>To:</b>	CROWN CASTLE 2000 CORPORATE DR CANONSBURG PA 15317-8564
Ref#:	873128

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Thank you for shipping with the United States Postal Service!

Check the status of your shipment on the USPS Tracking® page at [usps.com](https://usps.com)

873128 CLOWN VZW



FARMINGTON  
210 MAIN ST  
FARMINGTON, CT 06032-9998  
(800)275-8777

08/15/2022 02:41 PM

Product	Qty	Unit Price	Price
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Prepaid Mail	1		\$0.00
Canonsburg, PA 15317			
Weight: 0 lb 2.00 oz			
Acceptance Date:			
Mon 08/15/2022			
Tracking #:			
9405 5036 9930 0320 6475 26			

Prepaid Mail	1		\$0.00
Trumbull, CT 06611			
Weight: 1 lb 8.40 oz			
Acceptance Date:			
Mon 08/15/2022			
Tracking #:			
9405 5036 9930 0320 6474 65			

Prepaid Mail	1		\$0.00
Trumbull, CT 06611			
Weight: 1 lb 8.30 oz			
Acceptance Date:			
Mon 08/15/2022			
Tracking #:			
9405 5036 9930 0320 6474 27			

Grand Total:			\$0.00
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\*\*\*\*\*  
 Every household in the U.S. is now  
 eligible to receive a third set  
 of 8 free test kits.  
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 \*\*\*\*\*

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 Track your Packages  
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All sales final on stamps and postage.  
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 Thank you for your business.

Tell us about your experience.  
 Go to: <https://postalexperience.com/Pos>  
 or scan this code with your mobile device,



or call 1-800-410-7420.