



Crown Castle  
3 Corporate Park Drive, Suite 101  
Clifton Park, NY 12065

February 23, 2022

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

RE: **Notice of Exempt Modification for ATT  
Crown#876321; ATT Site ID CTL02220  
150 North Main Street, Branford, CT 06405  
Latitude: 41° 17' 19.00" / Longitude: -72° 48' 49.90"**

Dear Ms. Bachman:

ATT currently maintains twelve (12) antennas at the 112-foot mount on the existing 147-foot monopole tower located at 150 North Main Street, Branford, CT. The property is owned by Premier Realty Holdings LLC. and the tower is owned by Crown Castle. ATT now intends to replace nine (9) antennas and ancillary equipment at the 112ft level. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

**Panned Modification:**

**Tower:**

Installed New:

- (3) Quintel – QD4616-7 Antenna
- (6) Ericsson - AIR6449 N77D + AIR 6419 N77G Stacked Antennas
- (2) PWRT-606-S DC Trunk
- (1) FB-L98B-034-XXX Fiber Trunk
- (3) Y Cables

Remove:

- (3) Powerwave-7770 Antennas
- (3) Andrew – SBNHH-1D65A Antennas
- (3) CCI – OPA65R-BU4DA Antennas
- (6) Powerwave – LGP2140X TMAs
- (6) Coax Cables

**Ground:**

Install New:

- (1) 23" FIF Rack
- (1.) 6648 W/XCEDE Cable
- (4-) Rectifies
- (1.) DC12-48-60-RM

The facility was approved by the Town of Branford Planning and Zoning Commission on September 18, 1997. The approval was given with conditions which this exempt modification comply with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to James Cosgrove – First Selectman Town of Branford, Harry Smith – Town Planner Town of Branford. Premier Realty Holdings LLC – Property Owner and Crown Castle is the tower owner.

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

For the foregoing reasons, ATT respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

  
Jeffrey Barbadora  
Site Acquisition Specialist  
1800 W. Park Drive  
Westborough, MA 01581  
(781) 970-0053 Jeff.Barbadora@crowncastle.com

Melanie A. Bachman

Page 3

Attachments

cc:

James Cosgrove – First Selectman  
Town of Branford  
1019 Main Street  
Branford, CT 06405  
(203) 488-8394

Harry Smith – Town Planner  
Town of Branford  
1019 Main Street  
Branford, CT 06405  
(203) 488-1255

Premier Realty Holdings LLC – Property Owner  
150 North Main Street  
Branford, CT 06405

Crown Castle, Tower Owner

PLANNING AND ZONING COMMISSION  
TOWN OF BRANFORD TOWN HALL DRIVE P.O. BOX 150  
Branford, Connecticut 06405 488-1255

NOTICE OF DECISION

September 22, 1997

*recorded  
9/29/97*

Sprint PCS  
% Attorney John Knuff  
Harris Beach & Wilcox, L.L.P  
147 North Broad Street  
Milford, Connecticut 06460

SUBJECT: Special Exception

LOCATION: 150 North Main Street

APPLICATION # 97-6.5

OWNER OF RECORD: Irene Maculaitis

Dear Sir:

At a meeting of the Branford Planning & Zoning Commission held on Thursday, September 18, 1997, the Commission voted to:

Approve your above subject application with the conditions noted below.

Very truly yours,

*Shirley Rasmussen*  
Shirley Rasmussen  
Town Planner

NOTE: This Special Exception shall become effective only after it is filed on the Land Records in the office of the Town Clerk.

1. Prior to issuance of a building permit, revise plan to show the following:
  - a. Revise width of eastern-most curb cut to 30 feet (Sect. 25.10a) by creating new landscaped island extending 15 feet back from streetline (Sect. 25.8.2) with new sidewalk (Sect. 31.5.3(b)).
  - b. Relocate proposed utility pole so that it is not in the access drive.
2. Provide for co-location of communications equipment to be operated by the Town of Branford Sewage Treatment Plant.
3. Change plantings around tower yard to 6' to 7' dark American Arborvitae and rearrange to screen parking area from street.

(OVER)



4. All users of the telecommunications facility must demonstrate compliance with current FCC regulations for electromagnetic frequency emissions and any future changes in these standards.
5. The owner of the telecommunication facility shall provide for and encourage co-location of other antennae on the facility.

NOTE: Special Exception shall become null and void in the event the applicant fails to obtain a building permit within one (1) year of date of approval.  
(Per Section 31.7 of the Branford Zoning Regulations)

CC: Scott M. Thomae  
Sprint PCS  
Irene Maculaitis

RECEIVED FOR RECORD Sept. 25 1997  
at 2:03 P.M., AND RECORDED BY

GEORGETTE A. LASKE  
BRANFORD TOWN CLERK

# SITE PLAN AND SPECIAL EXCEPTION

APPLICATION FOR CERTIFICATE OF ZONING COMPLIANCE  
TOWN OF BRANFORD

ADDRESS OF SUBJECT PROPERTY 150 N. MAIN Street Branford, CT 06405

ASSESSOR'S MAP D-6 BLOCK 13 LOT 13 ZONE: IG-1

APPLICANT'S NAME Sprint PCS

TELEPHONE (203) 237-1737 ext.17

ADDRESS 300 RESEARCH Parkway 3rd fl. Meriden, CT 06450

Briefly describe the building, structure or use for which Zoning Compliance Application is made:

The erection of a monopole telecommunications facility and  
placement of the associated equipment cabinets on property located  
at 150 N. MAIN Street within the IG-1/ Industrial District.

PLEASE SUBMIT THE FOLLOWING WITH YOUR COMPLETED APPLICATION:

1. \$125.00 (which includes \$100.00 application fee, \$15.00 Zoning Compliance fee, and \$10.00 State surcharge)
2. Application materials described in Sect. 31.4 of the Branford Zoning Regulations including:

(1) Statement of Use	(6) Building Plans
(2) Site Plan Map	(7) Traffic Report
(3) Erosion Control Plan	(8) Drainage Report
(4) Tabulation of Standards	(9) Flood Requirements
(5) Staging Plan	(10) Agency Reports
3. Sufficient information to determine compliance with special standards listed on attached sheet.
4. Copy of any variance or Wetlands Commission approval pertinent to this application.
5. Additional information which may be necessary to determine compliance, as specified by the Branford Planning & Zoning Commission.

The undersigned states that information submitted with this application is correct and acknowledges that any approval based on erroneous or incomplete information shall be null and void.

SIGNATURE OF APPLICANT *S. M. Thomas* DATE 6/10/97

SIGNATURE OF OWNER *J. P. ... as agent* DATE 6/11/97

RECEIVED  
JUN 11 1997  
BRANFORD PLANNING & ZONING COMMISSION



# Town of Branford, CT

## Property Listing Report

Map Block Lot

D06/E06/001/

Bldg #

1

Sec #

1

PID

726

Account

005520

### Property Information

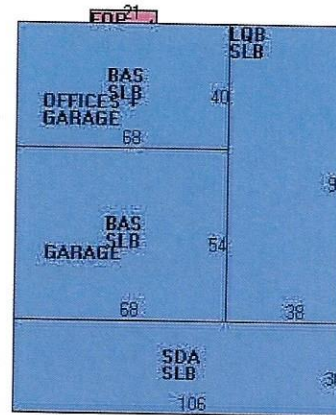
Property Location	148-160 NO MAIN ST
Owner	PREMIER REALTY HOLDINGS LLC
Co-Owner	na
Mailing Address	150 NORTH MAIN ST BRANFORD CT 06405
Land Use	3310 AUTO S S&S MDL96
Land Class	C
Zoning Code	IG-1
Census Tract	

Neighborhood	500
Acreage	2.05
Utilities	Public Water,Public Sewer
Lot Setting/Desc	Bus. District Level
Book / Page	0877/0469

### Photo



### Sketch



### Primary Construction Details

Year Built	1965
Building Desc.	AUTO S S&S MDL96
Building Style	Car Dealrshp
Building Grade	C
Stories	1
Occupancy	1.00
Exterior Walls	Pre-finish Metl
Exterior Walls 2	Drivit
Roof Style	Flat
Roof Cover	Metal/Tin
Interior Walls	Minim/Masonry
Interior Walls 2	Drywall
Interior Floors 1	Concr-Finished
Interior Floors 2	Carpet

Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	None
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(\*Industrial / Commercial Details)

Building Use	Ind/Comm
Building Condition	G
Sprinkler %	NA
Heat / AC	NONE
Frame Type	MASONRY
Baths / Plumbing	AVERAGE
Ceiling / Wall	CEIL & MIN WL
Rooms / Prtns	AVERAGE
Wall Height	15.00
First Floor Use	NA
Foundation	NA





# Town of Branford, CT

## Property Listing Report

Map Block Lot

D06/E06/001/

Bldg #

1

Sec #

1

PID

726

Account

005520

### Valuation Summary (Assessed value = 70% of Appraised Value)

### Sub Areas

Item	Appraised	Assessed	Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Buildings	61400	43000	Office	1980	1980
Extras	3300	2300	First Floor	6392	6392
Improvements			Porch, Open	84	0
Outbuildings	77800	54400	Low Qual Bas	3572	3572
Land	1007000	704900	Store Display Area	1200	1200
Total	1149500	804600	Slab	9964	0

### Outbuilding and Extra Features

Type	Description
AIR CONDITION	5984 S.F.
W/TRIPLE LIGHT	2 UNITS
SHED COM WOOD	240 S.F.
GEN 30-99KW PRMT BKP	1 UNITS
COMMUN UTILITY	312 S.F.
W/O TOP RL-4'	170 L.F.
PAVING-CONC	130 S.F.
COMMUN UTILITY	210 S.F.
PAVING-ASPHALT	43000 S.F.
LIGHTS-IN W/PL	16 UNITS

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Office	1980	1980
First Floor	6392	6392
Porch, Open	84	0
Low Qual Bas	3572	3572
Store Display Area	1200	1200
Slab	9964	0
<b>Total Area</b>	<b>23192</b>	<b>13144</b>

### Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
PREMIER REALTY HOLDINGS LLC	0877/0469	2004-07-06	0
PREMIER REALTY HOLDINGS LLC	0877/0467	2004-07-06	875000
MACULAITIS IRENE	0602/0843	1996-02-26	0
MACULAITIS ALEXANDER EST + IRENE	0238/0562		0







# Town of Branford, Connecticut - Assessment Parcel Map

Parcel: D06-E06-001-001-1

Address: 148-160 NO MAIN ST



Approximate Scale: 1 inch : 100 feet

Grand List Date June 2021

Disclaimer:

This map is for informational purposes only. All information is subject to verification by any user. The Town of Branford and its mapping contractors assume no legal responsibility for the information contained herein.



**Barbadora, Jeff**

---

**From:** TrackingUpdates@fedex.com  
**Sent:** Thursday, February 24, 2022 12:03 PM  
**To:** Barbadora, Jeff  
**Subject:** FedEx Shipment 776121029780: Your package has been delivered

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



Hi. Your package was  
delivered Thu, 02/24/2022 at  
12:00pm.



Delivered to 1019 MAIN ST, BRANFORD, CT 06405  
Received by M.MILICI

**OBTAIN PROOF OF DELIVERY**

TRACKING NUMBER [776121029780](#)

**FROM** Jeff Barbadora  
1800 W. Park Drive  
WESTBOROUGH, MA, US, 01581

**TO** Town of Branford  
James Cosgrove - First Selectman  
1019 Main Street  
BRANFORD, CT, US, 06405

**REFERENCE** 799001.7680

**SHIPPER REFERENCE** 799001.7680

**SHIP DATE** Wed 2/23/2022 06:03 PM

**DELIVERED TO** Receptionist/Front Desk

**PACKAGING TYPE** FedEx Pak

**ORIGIN** WESTBOROUGH, MA, US, 01581

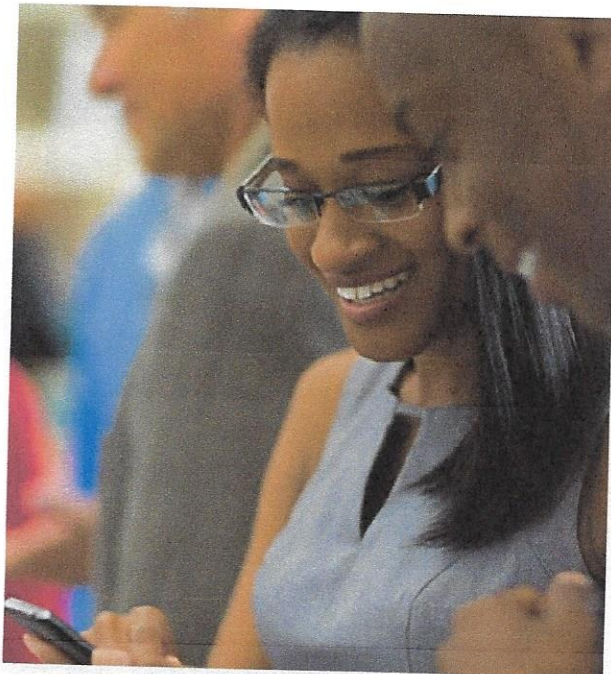
**DESTINATION** BRANFORD, CT, US, 06405

**SPECIAL HANDLING** Deliver Weekday

**NUMBER OF PIECES** 1

**TOTAL SHIPMENT WEIGHT** 1.00 LB

**SERVICE TYPE** FedEx Priority Overnight



## Get the FedEx<sup>®</sup> Mobile app

Create shipments, receive tracking alerts, redirect packages to a FedEx retail location for pickup, and more from the palm of your hand  
- **Download now.**





**Barbadora, Jeff**

---

**From:** TrackingUpdates@fedex.com  
**Sent:** Thursday, February 24, 2022 12:03 PM  
**To:** Barbadora, Jeff  
**Subject:** FedEx Shipment 776121052414: Your package has been delivered

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



Hi. Your package was  
delivered Thu, 02/24/2022 at  
12:00pm.

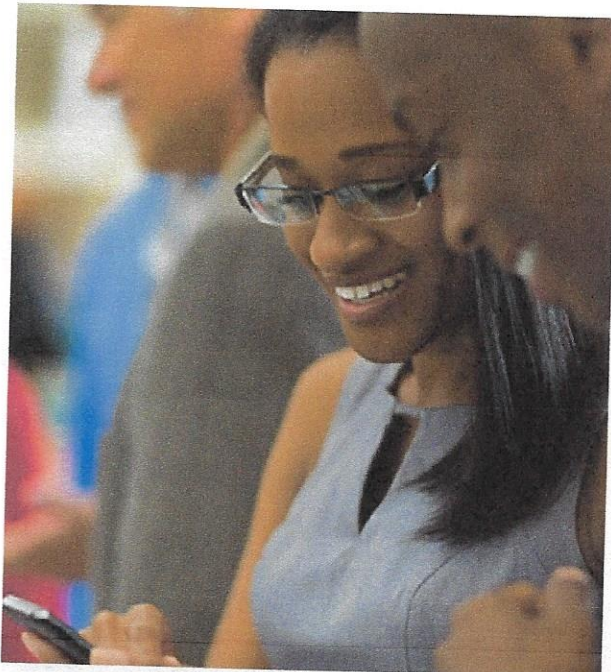


Delivered to 1019 MAIN ST, BRANFORD, CT 06405  
Received by M.MILICI

**OBTAIN PROOF OF DELIVERY**

TRACKING NUMBER [776121052414](#)

<b>FROM</b>	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
<b>TO</b>	Town of Branford Harry Smith - Town Planner 1019 Main Street BRANFORD, CT, US, 06405
<b>REFERENCE</b>	799001.7680
<b>SHIPPER REFERENCE</b>	799001.7680
<b>SHIP DATE</b>	Wed 2/23/2022 06:03 PM
<b>DELIVERED TO</b>	Receptionist/Front Desk
<b>PACKAGING TYPE</b>	FedEx Pak
<b>ORIGIN</b>	WESTBOROUGH, MA, US, 01581
<b>DESTINATION</b>	BRANFORD, CT, US, 06405
<b>SPECIAL HANDLING</b>	Deliver Weekday
<b>NUMBER OF PIECES</b>	1
<b>TOTAL SHIPMENT WEIGHT</b>	1.00 LB
<b>SERVICE TYPE</b>	FedEx Priority Overnight



## Get the FedEx® Mobile app

Create shipments, receive tracking alerts, redirect packages to a FedEx retail location for pickup, and more from the palm of your hand  
- **Download now.**



**Barbadora, Jeff**

---

**From:** TrackingUpdates@fedex.com  
**Sent:** Thursday, February 24, 2022 10:20 AM  
**To:** Barbadora, Jeff  
**Subject:** FedEx Shipment 776121097626: Your package has been delivered

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



Hi. Your package was  
delivered Thu, 02/24/2022 at  
10:11am.



Delivered to 150 N MAIN ST, BRANFORD, CT 06405  
Received by C.RIDRUGUEZ

**OBTAIN PROOF OF DELIVERY**

TRACKING NUMBER [776121097626](#)



**FROM** Jeff Barbadora  
1800 W. Park Drive  
WESTBOROUGH, MA, US, 01581

**TO** Property Owner  
Premier Realty Holdings LLC  
150 North Main Street  
BRANFORD, CT, US, 06405

**REFERENCE** 799001.7680

**SHIPPER REFERENCE** 799001.7680

**SHIP DATE** Wed 2/23/2022 06:03 PM

**DELIVERED TO** Receptionist/Front Desk

**PACKAGING TYPE** FedEx Pak

**ORIGIN** WESTBOROUGH, MA, US, 01581

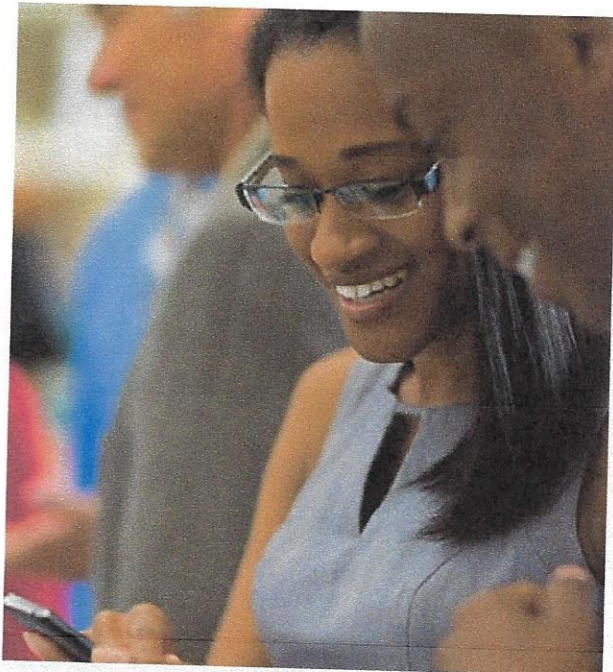
**DESTINATION** BRANFORD, CT, US, 06405

**SPECIAL HANDLING** Deliver Weekday

**NUMBER OF PIECES** 1

**TOTAL SHIPMENT WEIGHT** 1.00 LB

**SERVICE TYPE** FedEx Priority Overnight



## Get the FedEx<sup>®</sup> Mobile app

Create shipments, receive tracking alerts, redirect packages to a FedEx retail location for pickup, and more from the palm of your hand  
- **Download now.**





Date: **December 10, 2021**

**This submission contains confidential, proprietary, or trade secret information that is exempt from disclosure under applicable laws. Please make sure these pages are not disclosed. If any request is made for this information, please contact the sender in addition to any legal notice requirements under applicable law.**



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

**Subject: Structural Analysis Report**

**Carrier Designation:** *AT&T Mobility Co-Locate*  
**Site Number:** CTL02220  
**Site Name:** Branford Banm Tower  
**FA Number:** 10035122

**Crown Castle Designation:**  
**BU Number:** 876321  
**Site Name:** Branford Banm Tower  
**JDE Job Number:** 686295  
**Work Order Number:** 2047567  
**Order Number:** 586245 Rev. 0

**Engineering Firm Designation:** **TEP Project Number:** 25579.630745

**Site Data:** **150 North Main Street, Branford, New Haven County, CT 06405**  
**Latitude 41° 17' 19.00", Longitude -72° 48' 49.90"**  
**147 Foot - Monopole Tower**

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

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

LC7: Proposed Equipment Configuration

**Sufficient Capacity - 96.3%**

This analysis utilizes an ultimate 3-second gust wind speed of 121 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. / PHX

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

12/10/2021

## 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 147-ft monopole tower designed by Summit. 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>	121 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor:</b>	1.0
<b>Ice Thickness:</b>	1.0 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)
110.0	113.0	3	Ericsson	AIR 6449 N77 w/ Mount Pipe	6 4 4 3	1-1/4 13/16 7/8 3/8
	112.0	3	CCI Antennas	DMP65R-BU4D w/ Mount Pipe		
		3	Quintel Technology	QD4616-7 w/ Mount Pipe		
		4	Raycap	DC6-48-60-18-8F		
		3	Ericsson	RRUS-32 B30		
		3	Ericsson	RRUS 4478 B14_CCIV2		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 32 B66		
	111.0	3	Ericsson	AIR 6419 B77G w/ Mount Pipe		
110.0	1	Tower Mounts	Platform Mount [LP 1201-1_KCKR-HR-1]			
53.0	54.0	1	GPS	GPS_A	1	1/2
	53.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		

**Table 2 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.0	149.0	2	Dragonwave	A-ANT-23G-2-C	2 6	1-5/8 1/2
		1	Andrew	VHLP2-18		
	147.0	3	RFS Celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		3	Ericsson	AIR6449 B41_T-Mobile w/ Mount Pipe		
		3	Ericsson	Radio 4460 B2/B25 B66_TMO		
		3	Ericsson	Radio 4480_TMOV2		
		1	Tower Mounts	Platform Mount [LP 1201-1]		
1	Site Pro 1	HRK14 Handrail Kit				
145.0	146.0	3	Alcatel Lucent	TME-800MHZ RRH	-	-
		3	Alcatel Lucent	800 External Notch Filter		
	145.0	1	Tower Mounts	Pipe Mount [PM 601-3]		
	143.0	3	Alcatel Lucent	TME-1900MHz RRH (65 MHz)		
136.0	136.0	3	JMA Wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
		3	Fujitsu	TA08025-B604		
		3	Fujitsu	TA08025-B605		
		1	Raycap	RDIDC-9181-PF-48		
		1	Tower Mounts	Commscope MC-K6MHDX-9-96 (3)		
122.0	123.0	3	Ericsson	AIR 21 B2A B4P w/ Mount Pipe	13	1-5/8
		3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Ericsson	AIR 21 B4A B2P w/ Mount Pipe		
		3	Ericsson	KRY 112 144/1		
		3	Ericsson	Radio 4449 B71/B85A		
	122.0	1	Site Pro 1	RMQP-496 w/HRK12		
49.0	50.0	1	Lucent	KS24019-L112A	1	1/2
	49.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		



### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Reference	Source
Geotechnical Report	2135657	CCISites
Tower Foundation Drawings	1613620	CCISites
Tower Manufacturer Drawings	1614568	CCISites
Tower Reinforcement Drawings	2431042	CCISites
Post-Modification Inspection	2448190	CCISites
Tower Reinforcement Drawings	3316256	CCISites
Post-Modification Inspection	3890848	CCISites
Tower Reinforcement Drawings	4988798	CCISites
Post-Modification Inspection	4699667	CCISites

#### 3.1) Analysis Method

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

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. 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.

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)<sup>1,2</sup>**

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
147 - 142	Pole	TP22.875x22x0.25	Pole	6.6%	Pass
142 - 137	Pole	TP23.75x22.875x0.25	Pole	12.3%	Pass
137 - 132	Pole	TP24.625x23.75x0.25	Pole	19.7%	Pass
132 - 127	Pole	TP25.5x24.625x0.25	Pole	26.8%	Pass
127 - 122	Pole	TP26.375x25.5x0.25	Pole	33.6%	Pass
122 - 117	Pole	TP27.25x26.375x0.25	Pole	43.3%	Pass
117 - 112	Pole	TP28.125x27.25x0.25	Pole	51.7%	Pass
112 - 107	Pole	TP29x28.125x0.25	Pole	63.5%	Pass
107 - 103.25	Pole	TP30.313x29x0.25	Pole	71.9%	Pass

147-ft Monopole Tower Structural Analysis Report  
 TEP Project Number 25579.630745, Order 586245, Revision 0

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
103.25 - 98.25	Pole	TP30.032x29.157x0.3125	Pole	58.3%	Pass
98.25 - 93.25	Pole	TP30.907x30.032x0.3125	Pole	65.1%	Pass
93.25 - 88.25	Pole	TP31.782x30.907x0.3125	Pole	71.4%	Pass
88.25 - 83.25	Pole	TP32.657x31.782x0.3125	Pole	77.4%	Pass
83.25 - 78.25	Pole	TP33.531x32.657x0.3125	Pole	83.0%	Pass
78.25 - 73.25	Pole	TP34.406x33.531x0.3125	Pole	88.3%	Pass
73.25 - 69.58	Pole	TP35.049x34.406x0.3125	Pole	92.0%	Pass
69.58 - 69.33	Pole + Reinf.	TP35.092x35.049x0.4375	Reinf. 3 Tension Rupture	87.9%	Pass
69.33 - 64.33	Pole + Reinf.	TP35.967x35.092x0.4313	Reinf. 3 Tension Rupture	92.1%	Pass
64.33 - 63.75	Pole + Reinf.	TP36.9x35.967x0.4313	Reinf. 3 Tension Rupture	92.6%	Pass
63.75 - 58	Pole	TP36.45x35.444x0.375	Pole	82.2%	Pass
58 - 57.83	Pole	TP36.48x36.45x0.375	Pole	82.3%	Pass
57.83 - 57.58	Pole	TP36.523x36.48x0.375	Pole	82.5%	Pass
57.58 - 52.58	Pole	TP37.398x36.523x0.375	Pole	85.7%	Pass
52.58 - 50.58	Pole	TP37.748x37.398x0.375	Pole	87.0%	Pass
50.58 - 50.33	Pole + Reinf.	TP37.792x37.748x0.575	Reinf. 5 Tension Rupture	80.2%	Pass
50.33 - 50.17	Pole + Reinf.	TP37.82x37.792x0.575	Reinf. 5 Tension Rupture	80.3%	Pass
50.17 - 49.92	Pole	TP37.864x37.82x0.375	Pole	87.4%	Pass
49.92 - 44.92	Pole	TP38.739x37.864x0.375	Pole	90.4%	Pass
44.92 - 39.92	Pole	TP39.614x38.739x0.375	Pole	93.3%	Pass
39.92 - 34.92	Pole	TP40.489x39.614x0.375	Pole	96.1%	Pass
34.92 - 34.5	Pole	TP41.481x40.489x0.375	Pole	96.3%	Pass
34.5 - 28.25	Pole	TP40.906x39.812x0.4375	Pole	83.3%	Pass
28.25 - 24.08	Pole	TP41.636x40.906x0.4375	Pole	84.8%	Pass
24.08 - 23.83	Pole + Reinf.	TP41.68x41.636x0.625	Reinf. 1 Tension Rupture	86.2%	Pass
23.83 - 18.83	Pole + Reinf.	TP42.555x41.68x0.6125	Reinf. 1 Tension Rupture	87.8%	Pass
18.83 - 13.83	Pole + Reinf.	TP43.43x42.555x0.6125	Reinf. 1 Tension Rupture	89.4%	Pass
13.83 - 8.83	Pole + Reinf.	TP44.305x43.43x0.6125	Reinf. 1 Tension Rupture	90.9%	Pass
8.83 - 3.83	Pole + Reinf.	TP45.18x44.305x0.6	Reinf. 1 Tension Rupture	92.3%	Pass
3.83 - 1.92	Pole + Reinf.	TP45.514x45.18x0.6	Reinf. 1 Tension Rupture	92.8%	Pass
1.92 - 1.67	Pole + Reinf.	TP45.558x45.514x0.7625	Reinf. 6 Compression	70.2%	Pass
1.67 - 0	Pole	TP45.85x45.558x0.4375	Pole	93.0%	Pass
				<b>Summary</b>	
			Pole	96.3%	Pass
			Reinforcement	92.8%	Pass
			<b>Overall</b>	<b>96.3%</b>	<b>Pass</b>

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

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	77.6	Pass
1,2	Base Plate	-	57.5	Pass
1,2	Base Foundation Structural	-	76.8	Pass
1,2	Base Foundation Soil Interaction	-	94.9	Pass
<b>Structure Rating (max from all components) =</b>				<b>96.3%</b>

Notes:

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

**4.1) Recommendations**

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

147-ft Monopole Tower Structural Analysis Report  
TEP Project Number 25579.630745, Order 586245, Revision 0

December 10, 2021  
CCI BU No 876321  
Page 8

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

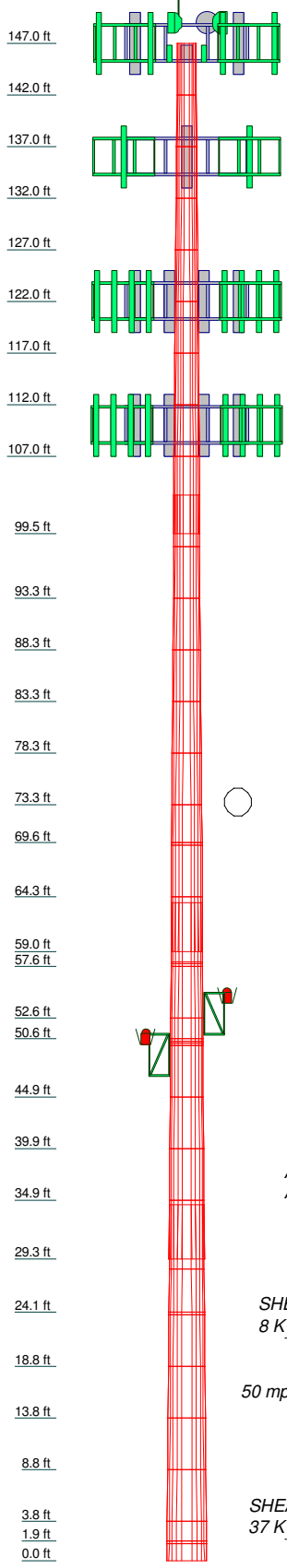
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 121 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Equivalent Thickness Model
9. TOWER RATING: 96.3%

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.250	3.75	28.125	29.000	A607-60	0.3
2	5.00	12	0.250	3.75	27.250	28.125	A607-60	0.3
3	5.00	12	0.250	3.75	26.375	27.250	A607-60	0.3
4	5.00	12	0.250	3.75	25.500	26.375	A607-60	0.3
5	5.00	12	0.250	3.75	24.625	25.500	A607-60	0.3
6	5.00	12	0.250	3.75	23.750	24.625	A607-60	0.3
7	5.00	12	0.250	3.75	22.875	23.750	A607-60	0.3
8	5.00	12	0.250	3.75	22.000	22.875	A607-60	0.3
9	5.00	12	0.250	3.75	21.125	22.000	A607-60	0.3
10	5.00	12	0.250	3.75	20.250	21.125	A607-60	0.3
11	5.00	12	0.250	3.75	19.375	20.250	A607-60	0.3
12	5.00	12	0.250	3.75	18.500	19.375	A607-60	0.3
13	5.00	12	0.250	3.75	17.625	18.500	A607-60	0.3
14	5.00	12	0.250	3.75	16.750	17.625	A607-60	0.3
15	5.00	12	0.250	3.75	15.875	16.750	A607-60	0.3
16	5.00	12	0.250	3.75	15.000	15.875	A607-60	0.3
17	5.00	12	0.250	3.75	14.125	15.000	A607-60	0.3
18	5.00	12	0.250	3.75	13.250	14.125	A607-60	0.3
19	5.00	12	0.250	3.75	12.375	13.250	A607-60	0.3
20	5.00	12	0.250	3.75	11.500	12.375	A607-60	0.3
21	5.00	12	0.250	3.75	10.625	11.500	A607-60	0.3
22	5.00	12	0.250	3.75	9.750	10.625	A607-60	0.3
23	5.00	12	0.250	3.75	8.875	9.750	A607-60	0.3
24	5.00	12	0.250	3.75	8.000	8.875	A607-60	0.3
25	5.00	12	0.250	3.75	7.125	8.000	A607-60	0.3
26	5.00	12	0.250	3.75	6.250	7.125	A607-60	0.3
27	5.00	12	0.250	3.75	5.375	6.250	A607-60	0.3
28	5.00	12	0.250	3.75	4.500	5.375	A607-60	0.3
29	5.00	12	0.250	3.75	3.625	4.500	A607-60	0.3
30	5.00	12	0.250	3.75	2.750	3.625	A607-60	0.3
31	5.00	12	0.250	3.75	1.875	2.750	A607-60	0.3
32	5.00	12	0.250	3.75	1.000	1.875	A607-60	0.3
33	5.00	12	0.250	3.75	0.125	1.000	A607-60	0.3
34	5.00	12	0.250	3.75	0.000	0.125	A607-60	0.3
35	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
36	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
37	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
38	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
39	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
40	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
41	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
42	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
43	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
44	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
45	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
46	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
47	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
48	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
49	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
50	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
51	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
52	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
53	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
54	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
55	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
56	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
57	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
58	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
59	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
60	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
61	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
62	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
63	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
64	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
65	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
66	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
67	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
68	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
69	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
70	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
71	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
72	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
73	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
74	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
75	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
76	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
77	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
78	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
79	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
80	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
81	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
82	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
83	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
84	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
85	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
86	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
87	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
88	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
89	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
90	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
91	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
92	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
93	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
94	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
95	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
96	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
97	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
98	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
99	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3
100	5.00	12	0.250	3.75	0.000	0.000	A607-60	0.3



ALL REACTIONS ARE FACTORED

AXIAL 73 K

SHEAR 8 K

MOMENT 871 kip-ft

TORQUE 1 kip-ft

50 mph WIND - 1.000 in ICE


AXIAL 51 K

SHEAR 37 K

MOMENT 3873 kip-ft

TORQUE 4 kip-ft

REACTIONS - 121 mph WIND

 <p>Tower Engineering Professionals</p>	<p><b>Tower Engineering Professionals</b></p> <p>326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</p>		<p><b>Job: Branford Banm Tower (BU 876321)</b></p>		
	<p>Project: <b>TEP No. 25579.630745</b></p>				
	<p>Client: Crown Castle</p>		<p>Drawn by: DAR</p>		<p>App'd:</p>
	<p>Code: TIA-222-H</p>		<p>Date: 12/10/21</p>		<p>Scale: NTS</p>
	<p>Path: _____</p>				

<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> Branford Banm Tower (BU 876321)	<b>Page</b> 1 of 44
	<b>Project</b> TEP No. 25579.630745	<b>Date</b> 10:25:38 12/10/21
	<b>Client</b> Crown Castle	<b>Designed by</b> DAR

## Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Tower base elevation above sea level: 58.00 ft.

Basic wind speed of 121 mph.

Risk Category II.

Exposure Category C.

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

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.000 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.

Equivalent Thickness Model.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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

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

Maximum demand-capacity ratio is: 1.05.

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

## Options

<ul style="list-style-type: none"> <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>
--	---	---

<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>	Branford Banm Tower (BU 876321)	<b>Page</b>	2 of 44
	<b>Project</b>	TEP No. 25579.630745	<b>Date</b>	10:25:38 12/10/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	DAR

## Tapered Pole Section Geometry

<i>Section</i>	<i>Elevation</i>	<i>Section Length</i>	<i>Splice Length</i>	<i>Number of Sides</i>	<i>Top Diameter</i>	<i>Bottom Diameter</i>	<i>Wall Thickness</i>	<i>Bend Radius</i>	<i>Pole Grade</i>
	<i>ft</i>	<i>ft</i>	<i>ft</i>		<i>in</i>	<i>in</i>	<i>in</i>	<i>in</i>	
L1	147.00-142.00	5.00	0.000	12	22.000	22.875	0.250	1.000	A607-60 (60 ksi)
L2	142.00-137.00	5.00	0.000	12	22.875	23.750	0.250	1.000	A607-60 (60 ksi)
L3	137.00-132.00	5.00	0.000	12	23.750	24.625	0.250	1.000	A607-60 (60 ksi)
L4	132.00-127.00	5.00	0.000	12	24.625	25.500	0.250	1.000	A607-60 (60 ksi)
L5	127.00-122.00	5.00	0.000	12	25.500	26.375	0.250	1.000	A607-60 (60 ksi)
L6	122.00-117.00	5.00	0.000	12	26.375	27.250	0.250	1.000	A607-60 (60 ksi)
L7	117.00-112.00	5.00	0.000	12	27.250	28.125	0.250	1.000	A607-60 (60 ksi)
L8	112.00-107.00	5.00	0.000	12	28.125	29.000	0.250	1.000	A607-60 (60 ksi)
L9	107.00-99.50	7.50	3.750	12	29.000	30.313	0.250	1.000	A607-60 (60 ksi)
L10	99.50-98.25	5.00	0.000	12	29.157	30.032	0.313	1.250	A607-65 (65 ksi)
L11	98.25-93.25	5.00	0.000	12	30.032	30.907	0.313	1.250	A607-65 (65 ksi)
L12	93.25-88.25	5.00	0.000	12	30.907	31.782	0.313	1.250	A607-65 (65 ksi)
L13	88.25-83.25	5.00	0.000	12	31.782	32.657	0.313	1.250	A607-65 (65 ksi)
L14	83.25-78.25	5.00	0.000	12	32.657	33.531	0.313	1.250	A607-65 (65 ksi)
L15	78.25-73.25	5.00	0.000	12	33.531	34.406	0.313	1.250	A607-65 (65 ksi)
L16	73.25-69.58	3.67	0.000	12	34.406	35.049	0.313	1.250	A607-65 (65 ksi)
L17	69.58-69.33	0.25	0.000	12	35.049	35.092	0.438	1.750	A607-65 (65 ksi)
L18	69.33-64.33	5.00	0.000	12	35.092	35.967	0.431	1.725	A607-65 (65 ksi)
L19	64.33-59.00	5.33	4.750	12	35.967	36.900	0.431	1.725	A607-65 (65 ksi)
L20	59.00-58.00	5.75	0.000	12	35.444	36.450	0.375	1.500	A607-65 (65 ksi)
L21	58.00-57.83	0.17	0.000	12	36.450	36.480	0.375	1.500	A607-65 (65 ksi)
L22	57.83-57.58	0.25	0.000	12	36.480	36.523	0.375	1.500	A607-65 (65 ksi)
L23	57.58-52.58	5.00	0.000	12	36.523	37.398	0.375	1.500	A607-65 (65 ksi)
L24	52.58-50.58	2.00	0.000	12	37.398	37.748	0.375	1.500	A607-65 (65 ksi)
L25	50.58-50.33	0.25	0.000	12	37.748	37.792	0.575	2.300	A607-65 (65 ksi)
L26	50.33-50.17	0.16	0.000	12	37.792	37.820	0.575	2.300	A607-65 (65 ksi)
L27	50.17-49.92	0.25	0.000	12	37.820	37.864	0.375	1.500	A607-65 (65 ksi)
L28	49.92-44.92	5.00	0.000	12	37.864	38.739	0.375	1.500	A607-65 (65 ksi)
L29	44.92-39.92	5.00	0.000	12	38.739	39.614	0.375	1.500	A607-65 (65 ksi)



<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>3 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L30	39.92-34.92	5.00	0.000	12	39.614	40.489	0.375	1.500	A607-65 (65 ksi)
L31	34.92-29.25	5.67	5.250	12	40.489	41.481	0.375	1.500	A607-65 (65 ksi)
L32	29.25-28.25	6.25	0.000	12	39.812	40.906	0.438	1.750	A607-65 (65 ksi)
L33	28.25-24.08	4.17	0.000	12	40.906	41.636	0.438	1.750	A607-65 (65 ksi)
L34	24.08-23.83	0.25	0.000	12	41.636	41.680	0.625	2.500	A607-65 (65 ksi)
L35	23.83-18.83	5.00	0.000	12	41.680	42.555	0.613	2.450	A607-65 (65 ksi)
L36	18.83-13.83	5.00	0.000	12	42.555	43.430	0.613	2.450	A607-65 (65 ksi)
L37	13.83-8.83	5.00	0.000	12	43.430	44.305	0.613	2.450	A607-65 (65 ksi)
L38	8.83-3.83	5.00	0.000	12	44.305	45.180	0.600	2.400	A607-65 (65 ksi)
L39	3.83-1.92	1.91	0.000	12	45.180	45.514	0.600	2.400	A607-65 (65 ksi)
L40	1.92-1.67	0.25	0.000	12	45.514	45.558	0.762	3.050	A607-65 (65 ksi)
L41	1.67-0.00	1.67		12	45.558	45.850	0.438	1.750	A607-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	22.688	17.509	1057.206	7.786	11.396	92.770	2142.186	8.617	5.226	20.904
	23.594	18.213	1190.010	8.100	11.849	100.429	2411.283	8.964	5.461	21.842
L2	23.594	18.213	1190.010	8.100	11.849	100.429	2411.283	8.964	5.461	21.842
	24.500	18.918	1333.495	8.413	12.303	108.392	2702.021	9.311	5.695	22.78
L3	24.500	18.918	1333.495	8.413	12.303	108.392	2702.021	9.311	5.695	22.78
	25.406	19.622	1488.073	8.726	12.756	116.658	3015.239	9.657	5.930	23.718
L4	25.406	19.622	1488.073	8.726	12.756	116.658	3015.239	9.657	5.930	23.718
	26.312	20.326	1654.158	9.040	13.209	125.229	3351.772	10.004	6.164	24.656
L5	26.312	20.326	1654.158	9.040	13.209	125.229	3351.772	10.004	6.164	24.656
	27.217	21.031	1832.162	9.353	13.662	134.103	3712.457	10.351	6.399	25.594
L6	27.217	21.031	1832.162	9.353	13.662	134.103	3712.457	10.351	6.399	25.594
	28.123	21.735	2022.499	9.666	14.116	143.280	4098.132	10.697	6.633	26.532
L7	28.123	21.735	2022.499	9.666	14.116	143.280	4098.132	10.697	6.633	26.532
	29.029	22.440	2225.582	9.979	14.569	152.762	4509.633	11.044	6.868	27.47
L8	29.029	22.440	2225.582	9.979	14.569	152.762	4509.633	11.044	6.868	27.47
	29.935	23.144	2441.825	10.293	15.022	162.548	4947.799	11.391	7.102	28.408
L9	29.935	23.144	2441.825	10.293	15.022	162.548	4947.799	11.391	7.102	28.408
	31.294	24.201	2791.765	10.763	15.702	177.795	5656.872	11.911	7.454	29.816
L10	30.754	29.024	3082.249	10.326	15.103	204.080	6245.473	14.285	6.976	22.325
	30.981	29.905	3371.331	10.639	15.556	216.717	6831.230	14.718	7.211	23.075
L11	30.981	29.905	3371.331	10.639	15.556	216.717	6831.230	14.718	7.211	23.075
	31.887	30.785	3677.944	10.953	16.010	229.733	7452.512	15.152	7.445	23.826
L12	31.887	30.785	3677.944	10.953	16.010	229.733	7452.512	15.152	7.445	23.826
	32.792	31.666	4002.607	11.266	16.463	243.130	8110.366	15.585	7.680	24.576
L13	32.792	31.666	4002.607	11.266	16.463	243.130	8110.366	15.585	7.680	24.576
	33.698	32.546	4345.834	11.579	16.916	256.906	8805.837	16.018	7.914	25.326
L14	33.698	32.546	4345.834	11.579	16.916	256.906	8805.837	16.018	7.914	25.326

<p><b>tnxTower</b></p> <p><b>Tower Engineering Professionals</b></p> <p>326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</p>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>4 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L15	34.604	33.427	4708.142	11.892	17.369	271.061	9539.972	16.452	8.149	26.077
	34.604	33.427	4708.142	11.892	17.369	271.061	9539.972	16.452	8.149	26.077
	35.510	34.307	5090.047	12.206	17.823	285.596	10313.816	16.885	8.383	26.827
L16	35.510	34.307	5090.047	12.206	17.823	285.596	10313.816	16.885	8.383	26.827
	36.175	34.953	5383.136	12.436	18.155	296.507	10907.694	17.203	8.556	27.378
L17	36.131	48.758	7455.323	12.391	18.155	410.644	15106.506	23.997	8.221	18.79
	36.176	48.820	7483.628	12.406	18.178	411.690	15163.860	24.028	8.232	18.817
L18	36.178	48.131	7380.711	12.409	18.178	406.028	14955.322	23.689	8.249	19.128
	37.084	49.346	7953.872	12.722	18.631	426.915	16116.701	24.287	8.483	19.672
L19	37.084	49.346	7953.872	12.722	18.631	426.915	16116.701	24.287	8.483	19.672
	38.050	50.641	8596.735	13.056	19.114	449.756	17419.317	24.924	8.733	20.251
L20	37.422	42.346	6647.154	12.555	18.360	362.048	13468.937	20.841	8.494	22.651
	37.604	43.561	7235.892	12.915	18.881	383.235	14661.879	21.439	8.764	23.37
L21	37.604	43.561	7235.892	12.915	18.881	383.235	14661.879	21.439	8.764	23.37
	37.634	43.596	7253.808	12.925	18.897	383.870	14698.181	21.457	8.772	23.391
L22	37.634	43.596	7253.808	12.925	18.897	383.870	14698.181	21.457	8.772	23.391
	37.680	43.649	7280.208	12.941	18.919	384.806	14751.675	21.483	8.783	23.422
L23	37.680	43.649	7280.208	12.941	18.919	384.806	14751.675	21.483	8.783	23.422
	38.585	44.706	7821.748	13.254	19.372	403.757	15848.982	22.003	9.018	24.047
L24	38.585	44.706	7821.748	13.254	19.372	403.757	15848.982	22.003	9.018	24.047
	38.948	45.128	8045.669	13.380	19.554	411.465	16302.706	22.211	9.112	24.298
L25	38.877	68.827	12139.694	13.308	19.554	620.839	24598.312	33.874	8.576	14.914
	38.923	68.908	12182.605	13.324	19.576	622.312	24685.260	33.914	8.587	14.934
L26	38.923	68.908	12182.605	13.324	19.576	622.312	24685.260	33.914	8.587	14.934
	38.951	68.959	12210.121	13.334	19.591	623.256	24741.016	33.940	8.595	14.947
L27	39.022	45.215	8092.094	13.405	19.591	413.055	16396.777	22.253	9.131	24.349
	39.067	45.268	8120.489	13.421	19.614	414.025	16454.313	22.279	9.143	24.38
L28	39.067	45.268	8120.489	13.421	19.614	414.025	16454.313	22.279	9.143	24.38
	39.973	46.324	8702.437	13.734	20.067	433.675	17633.496	22.799	9.377	25.005
L29	39.973	46.324	8702.437	13.734	20.067	433.675	17633.496	22.799	9.377	25.005
	40.879	47.381	9311.543	14.048	20.520	453.780	18867.711	23.319	9.612	25.631
L30	40.879	47.381	9311.543	14.048	20.520	453.780	18867.711	23.319	9.612	25.631
	41.785	48.437	9948.428	14.361	20.973	474.340	20158.213	23.839	9.846	26.256
L31	41.785	48.437	9948.428	14.361	20.973	474.340	20158.213	23.839	9.846	26.256
	42.812	49.635	10705.051	14.716	21.487	498.207	21691.336	24.429	10.112	26.965
L32	42.014	55.469	10976.777	14.096	20.623	532.265	22241.926	27.300	9.497	21.708
	42.195	57.010	11917.190	14.488	21.189	562.414	24147.458	28.059	9.790	22.378
L33	42.195	57.010	11917.190	14.488	21.189	562.414	24147.458	28.059	9.790	22.378
	42.950	58.038	12573.598	14.749	21.567	582.992	25477.518	28.565	9.986	22.825
L34	42.884	82.534	17718.150	14.682	21.567	821.526	35901.775	40.621	9.483	15.173
	42.929	82.622	17774.918	14.698	21.590	823.293	36016.802	40.664	9.495	15.192
L35	42.934	80.995	17435.335	14.702	21.590	807.564	35328.717	39.863	9.529	15.557
	43.840	82.720	18573.751	15.015	22.043	842.603	37635.454	40.712	9.763	15.94
L36	43.840	82.720	18573.751	15.015	22.043	842.603	37635.454	40.712	9.763	15.94
	44.746	84.446	19760.673	15.329	22.497	878.386	40040.481	41.562	9.998	16.323
L37	44.746	84.446	19760.673	15.329	22.497	878.386	40040.481	41.562	9.998	16.323
	45.652	86.172	20997.113	15.642	22.950	914.914	42545.844	42.411	10.232	16.706
L38	45.656	84.437	20586.260	15.646	22.950	897.011	41713.343	41.558	10.266	17.109
	46.562	86.128	21847.678	15.960	23.403	933.538	44269.319	42.390	10.500	17.5
L39	46.562	86.128	21847.678	15.960	23.403	933.538	44269.319	42.390	10.500	17.5
	46.908	86.774	22342.818	16.079	23.576	947.683	45272.608	42.707	10.590	17.65
L40	46.851	109.876	28086.921	16.021	23.576	1191.323	56911.718	54.078	10.154	13.317
	46.896	109.984	28169.379	16.037	23.599	1193.673	57078.799	54.131	10.166	13.332
L41	47.011	63.563	16517.111	16.153	23.599	699.910	33468.145	31.284	11.037	25.227
	47.313	63.975	16840.156	16.258	23.750	709.050	34122.722	31.486	11.115	25.406

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>5 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

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							
L1				1	1	1			
147.00-142.00									
L2				1	1	1			
142.00-137.00									
L3				1	1	1			
137.00-132.00									
L4				1	1	1			
132.00-127.00									
L5				1	1	1			
127.00-122.00									
L6				1	1	1			
122.00-117.00									
L7				1	1	1			
117.00-112.00									
L8				1	1	1			
112.00-107.00									
L9				1	1	1			
107.00-99.50									
L10				1	1	1			
99.50-98.25									
L11				1	1	1			
98.25-93.25									
L12				1	1	1			
93.25-88.25									
L13				1	1	1			
88.25-83.25									
L14				1	1	1			
83.25-78.25									
L15				1	1	1			
78.25-73.25									
L16				1	1	1			
73.25-69.58									
L17				1	1	0.971015			
69.58-69.33									
L18				1	1	0.978502			
69.33-64.33									
L19				1	1	0.977779			
64.33-59.00									
L20				1	1	1			
59.00-58.00									
L21				1	1	1			
58.00-57.83									
L22				1	1	1			
57.83-57.58									
L23				1	1	1			
57.58-52.58									
L24				1	1	1			
52.58-50.58									
L25				1	1	0.963051			
50.58-50.33									
L26				1	1	0.962818			
50.33-50.17									
L27				1	1	1			
50.17-49.92									
L28				1	1	1			
49.92-44.92									
L29				1	1	1			
44.92-39.92									
L30				1	1	1			

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>6 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

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	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in
39.92-34.92									
L31				1	1	1			
34.92-29.25									
L32				1	1	1			
29.25-28.25									
L33				1	1	1			
28.25-24.08									
L34				1	1	1.00355			
24.08-23.83									
L35				1	1	1.01726			
23.83-18.83									
L36				1	1	1.01107			
18.83-13.83									
L37 13.83-8.83				1	1	1.00512			
L38 8.83-3.83				1	1	1.01995			
L39 3.83-1.92				1	1	1.01778			
L40 1.92-1.67				1	1	0.979136			
L41 1.67-0.00				1	1	1			

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

Description	Sector	Exclude From Torque Calculation	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
				ft				in	in	plf
<b>*Misc*</b>										
Safety Line 3/8	B	No	Surface Ar (CaAa)	147.00 - 0.00	1	1	0.000 - 0.000	0.375		0.220
<b>*147*</b>										
2" Flexible Conduit	A	No	Surface Ar (CaAa)	147.00 - 0.00	2	2	-0.250 - -0.250	2.000		0.340
HB158-21U6S24-xxM_T MO(1-5/8)	A	No	Surface Ar (CaAa)	147.00 - 0.00	2	1	0.250 - 0.250	1.996		2.500
7983A(ELLIPTICAL)	A	No	Surface Ar (CaAa)	147.00 - 53.00	6	2	0.000 - 0.000	0.573		0.084
<b>**136**</b>										
CU12PSM9P6XXX(1-1/2)	A	No	Surface Ar (CaAa)	136.00 - 0.00	1	1	0.500 - 0.500	1.600		2.350
<b>**53**</b>										
LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	53.00 - 49.00	7	2	0.000 - 0.000	0.625		0.150
<b>**49**</b>										
LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	49.00 - 0.00	8	2	0.000 - 0.000	0.625		0.150
<b>*Modifications*</b>										
Aero MP3-04	A	No	Surface Af (CaAa)	25.50 - 0.00	1	1	-0.250 - -0.250	1.610	9.454	0.000
Aero MP3-04	B	No	Surface Af (CaAa)	25.50 - 0.00	1	1	-0.250 - -0.250	1.610	9.454	0.000
Aero MP3-04	C	No	Surface Af (CaAa)	25.50 - 0.00	1	1	-0.250 - -0.250	1.610	9.454	0.000
<b>*</b>										
Aero MP3-04	A	No	Surface Af (CaAa)	52.00 - 32.00	1	1	0.500 - 0.500	1.610	9.454	0.000
Aero MP3-04	B	No	Surface Af	52.00 -	1	1	0.500	1.610	9.454	0.000

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>7 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Aero MP3-04	C	No	(CaAa) Surface Af	32.00 52.00 - 32.00	1	1	0.500 0.500 0.500	1.610	9.454	0.000
*										
Aero MP3-04	A	No	(CaAa) Surface Af	71.00 - 61.00	1	1	0.500 0.500	1.610	9.454	0.000
Aero MP3-04	B	No	(CaAa) Surface Af	71.00 - 61.00	1	1	0.500 0.500	1.610	9.454	0.000
Aero MP3-04	C	No	(CaAa) Surface Af	71.00 - 61.00	1	1	0.500 0.500	1.610	9.454	0.000
*										
Aero MP3-04	A	No	(CaAa) Surface Af	35.50 - 0.00	1	1	0.000 0.000	1.610	9.454	0.000
Aero MP3-04	B	No	(CaAa) Surface Af	35.50 - 0.00	1	1	0.250 0.250	1.610	9.454	0.000
Aero MP3-04	C	No	(CaAa) Surface Af	35.50 - 0.00	1	1	0.250 0.250	1.610	9.454	0.000
*										
Aero MP3-03	A	No	(CaAa) Surface Af	59.00 - 49.00	1	1	0.250 0.250	1.570	8.990	0.000
Aero MP3-03	B	No	(CaAa) Surface Af	59.00 - 49.00	1	1	0.250 0.250	1.570	8.990	0.000
Aero MP3-03	C	No	(CaAa) Surface Af	59.00 - 49.00	1	1	0.250 0.250	1.570	8.990	0.000
*										
Aero Step Ladder	B	No	(CaAa) Surface Af	26.33 - 12.33	1	1	0.250 0.250	0.000	0.000	4.679
Aero Step Ladder	B	No	(CaAa) Surface Af	35.67 - 26.67	1	1	0.250 0.250	0.000	0.000	4.679
Aero Step Ladder	B	No	(CaAa) Surface Af	58.17 - 49.17	1	1	0.250 0.250	0.000	0.000	4.679
***										
*****										

### 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>A</sub> A <sub>A</sub> ft <sup>2</sup> /ft	Weight plf
**122**									
LDF7-50A(1-5/8)	B	No	No	Inside Pole	122.00 - 0.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.820 0.820 0.820
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	B	No	No	Inside Pole	122.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.070 1.070 1.070
**110**									
LDF6-50A(1-1/4)	C	No	No	Inside Pole	110.00 - 0.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.600 0.600 0.600
PWRT-608-S(13/16)	C	No	No	Inside Pole	110.00 - 0.00	4	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.620 0.620 0.620
PWRT-606-S(7/8)	C	No	No	Inside Pole	110.00 - 0.00	4	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.890 0.890 0.890



<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>8 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

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
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	110.00 - 0.00	3	No Ice	0.00	0.057
							1/2" Ice	0.00	0.057
							1" Ice	0.00	0.057
2" Flexible Conduit	C	No	No	Inside Pole	110.00 - 0.00	1	No Ice	0.00	0.340
							1/2" Ice	0.00	0.340
							1" Ice	0.00	0.340
***									
*****									

**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
L1	147.00-142.00	A	0.000	0.000	3.571	0.000	0.03
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	142.00-137.00	A	0.000	0.000	3.571	0.000	0.03
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	137.00-132.00	A	0.000	0.000	4.211	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L4	132.00-127.00	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L5	127.00-122.00	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L6	122.00-117.00	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.00
L7	117.00-112.00	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.00
L8	112.00-107.00	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L9	107.00-99.50	A	0.000	0.000	6.556	0.000	0.06
		B	0.000	0.000	0.281	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.08
L10	99.50-98.25	A	0.000	0.000	1.093	0.000	0.01
		B	0.000	0.000	0.047	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L11	98.25-93.25	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.05
L12	93.25-88.25	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.05
L13	88.25-83.25	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.05
L14	83.25-78.25	A	0.000	0.000	4.371	0.000	0.04

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>9 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

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	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.05
L15	78.25-73.25	A	0.000	0.000	4.371	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.05
L16	73.25-69.58	A	0.000	0.000	3.589	0.000	0.03
		B	0.000	0.000	0.519	0.000	0.04
		C	0.000	0.000	0.381	0.000	0.04
L17	69.58-69.33	A	0.000	0.000	0.286	0.000	0.00
		B	0.000	0.000	0.076	0.000	0.00
		C	0.000	0.000	0.067	0.000	0.00
L18	69.33-64.33	A	0.000	0.000	5.713	0.000	0.04
		B	0.000	0.000	1.529	0.000	0.06
		C	0.000	0.000	1.342	0.000	0.05
L19	64.33-59.00	A	0.000	0.000	5.553	0.000	0.05
		B	0.000	0.000	1.093	0.000	0.06
		C	0.000	0.000	0.894	0.000	0.05
L20	59.00-58.00	A	0.000	0.000	1.136	0.000	0.01
		B	0.000	0.000	0.299	0.000	0.01
		C	0.000	0.000	0.262	0.000	0.01
L21	58.00-57.83	A	0.000	0.000	0.193	0.000	0.00
		B	0.000	0.000	0.051	0.000	0.00
		C	0.000	0.000	0.044	0.000	0.00
L22	57.83-57.58	A	0.000	0.000	0.284	0.000	0.00
		B	0.000	0.000	0.075	0.000	0.00
		C	0.000	0.000	0.065	0.000	0.00
L23	57.58-52.58	A	0.000	0.000	5.684	0.000	0.04
		B	0.000	0.000	1.496	0.000	0.08
		C	0.000	0.000	1.308	0.000	0.05
L24	52.58-50.58	A	0.000	0.000	2.674	0.000	0.02
		B	0.000	0.000	0.979	0.000	0.03
		C	0.000	0.000	0.904	0.000	0.02
L25	50.58-50.33	A	0.000	0.000	0.354	0.000	0.00
		B	0.000	0.000	0.142	0.000	0.00
		C	0.000	0.000	0.133	0.000	0.00
L26	50.33-50.17	A	0.000	0.000	0.226	0.000	0.00
		B	0.000	0.000	0.091	0.000	0.00
		C	0.000	0.000	0.085	0.000	0.00
L27	50.17-49.92	A	0.000	0.000	0.354	0.000	0.00
		B	0.000	0.000	0.142	0.000	0.00
		C	0.000	0.000	0.133	0.000	0.00
L28	49.92-44.92	A	0.000	0.000	6.005	0.000	0.05
		B	0.000	0.000	1.770	0.000	0.06
		C	0.000	0.000	1.582	0.000	0.05
L29	44.92-39.92	A	0.000	0.000	5.765	0.000	0.05
		B	0.000	0.000	1.529	0.000	0.06
		C	0.000	0.000	1.342	0.000	0.05
L30	39.92-34.92	A	0.000	0.000	5.920	0.000	0.05
		B	0.000	0.000	1.685	0.000	0.06
		C	0.000	0.000	1.497	0.000	0.05
L31	34.92-29.25	A	0.000	0.000	7.321	0.000	0.05
		B	0.000	0.000	2.518	0.000	0.09
		C	0.000	0.000	2.305	0.000	0.06
L32	29.25-28.25	A	0.000	0.000	1.153	0.000	0.01
		B	0.000	0.000	0.306	0.000	0.02
		C	0.000	0.000	0.268	0.000	0.01
L33	28.25-24.08	A	0.000	0.000	5.189	0.000	0.04
		B	0.000	0.000	1.656	0.000	0.06
		C	0.000	0.000	1.500	0.000	0.04
L34	24.08-23.83	A	0.000	0.000	0.355	0.000	0.00
		B	0.000	0.000	0.144	0.000	0.00

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>10 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

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
L35	23.83-18.83	C	0.000	0.000	0.134	0.000	0.00
		A	0.000	0.000	7.106	0.000	0.05
		B	0.000	0.000	2.871	0.000	0.08
L36	18.83-13.83	C	0.000	0.000	2.683	0.000	0.05
		A	0.000	0.000	7.106	0.000	0.05
		B	0.000	0.000	2.871	0.000	0.08
L37	13.83-8.83	C	0.000	0.000	2.683	0.000	0.05
		A	0.000	0.000	7.106	0.000	0.05
		B	0.000	0.000	2.871	0.000	0.06
L38	8.83-3.83	C	0.000	0.000	2.683	0.000	0.05
		A	0.000	0.000	7.106	0.000	0.05
		B	0.000	0.000	2.871	0.000	0.06
L39	3.83-1.92	C	0.000	0.000	2.683	0.000	0.05
		A	0.000	0.000	2.715	0.000	0.02
		B	0.000	0.000	1.097	0.000	0.02
L40	1.92-1.67	C	0.000	0.000	1.025	0.000	0.02
		A	0.000	0.000	0.355	0.000	0.00
		B	0.000	0.000	0.144	0.000	0.00
L41	1.67-0.00	C	0.000	0.000	0.134	0.000	0.00
		A	0.000	0.000	2.374	0.000	0.02
		B	0.000	0.000	0.959	0.000	0.02
		C	0.000	0.000	0.896	0.000	0.02

**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
L1	147.00-142.00	A	0.985	0.000	0.000	7.663	0.000	0.11
		B		0.000	0.000	1.173	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L2	142.00-137.00	A	0.982	0.000	0.000	7.651	0.000	0.11
		B		0.000	0.000	1.169	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L3	137.00-132.00	A	0.978	0.000	0.000	9.061	0.000	0.13
		B		0.000	0.000	1.166	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L4	132.00-127.00	A	0.975	0.000	0.000	9.400	0.000	0.14
		B		0.000	0.000	1.162	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L5	127.00-122.00	A	0.971	0.000	0.000	9.382	0.000	0.14
		B		0.000	0.000	1.158	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L6	122.00-117.00	A	0.967	0.000	0.000	9.364	0.000	0.14
		B		0.000	0.000	1.154	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.00
L7	117.00-112.00	A	0.963	0.000	0.000	9.346	0.000	0.14
		B		0.000	0.000	1.150	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.00
L8	112.00-107.00	A	0.958	0.000	0.000	9.327	0.000	0.13
		B		0.000	0.000	1.146	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.03
L9	107.00-99.50	A	0.953	0.000	0.000	13.952	0.000	0.20
		B		0.000	0.000	1.710	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.08
L10	99.50-98.25	A	0.949	0.000	0.000	2.325	0.000	0.03
		B		0.000	0.000	0.285	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01



<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>11 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

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
L11	98.25-93.25	A	0.946	0.000	0.000	9.269	0.000	0.13
		B		0.000	0.000	1.133	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.05
L12	93.25-88.25	A	0.940	0.000	0.000	9.246	0.000	0.13
		B		0.000	0.000	1.128	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.05
L13	88.25-83.25	A	0.935	0.000	0.000	9.222	0.000	0.13
		B		0.000	0.000	1.123	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.05
L14	83.25-78.25	A	0.930	0.000	0.000	9.197	0.000	0.13
		B		0.000	0.000	1.117	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.05
L15	78.25-73.25	A	0.924	0.000	0.000	9.171	0.000	0.13
		B		0.000	0.000	1.111	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.05
L16	73.25-69.58	A	0.918	0.000	0.000	7.344	0.000	0.10
		B		0.000	0.000	1.443	0.000	0.05
		C		0.000	0.000	0.631	0.000	0.04
L17	69.58-69.33	A	0.916	0.000	0.000	0.568	0.000	0.01
		B		0.000	0.000	0.166	0.000	0.00
		C		0.000	0.000	0.111	0.000	0.00
L18	69.33-64.33	A	0.912	0.000	0.000	11.336	0.000	0.15
		B		0.000	0.000	3.317	0.000	0.09
		C		0.000	0.000	2.217	0.000	0.07
L19	64.33-59.00	A	0.905	0.000	0.000	11.158	0.000	0.15
		B		0.000	0.000	2.637	0.000	0.08
		C		0.000	0.000	1.473	0.000	0.07
L20	59.00-58.00	A	0.900	0.000	0.000	2.256	0.000	0.03
		B		0.000	0.000	0.688	0.000	0.02
		C		0.000	0.000	0.439	0.000	0.01
L21	58.00-57.83	A	0.899	0.000	0.000	0.382	0.000	0.01
		B		0.000	0.000	0.142	0.000	0.00
		C		0.000	0.000	0.074	0.000	0.00
L22	57.83-57.58	A	0.899	0.000	0.000	0.562	0.000	0.01
		B		0.000	0.000	0.209	0.000	0.01
		C		0.000	0.000	0.109	0.000	0.00
L23	57.58-52.58	A	0.895	0.000	0.000	11.229	0.000	0.15
		B		0.000	0.000	4.161	0.000	0.11
		C		0.000	0.000	2.184	0.000	0.07
L24	52.58-50.58	A	0.889	0.000	0.000	5.137	0.000	0.07
		B		0.000	0.000	2.291	0.000	0.05
		C		0.000	0.000	1.505	0.000	0.04
L25	50.58-50.33	A	0.887	0.000	0.000	0.674	0.000	0.01
		B		0.000	0.000	0.318	0.000	0.01
		C		0.000	0.000	0.220	0.000	0.00
L26	50.33-50.17	A	0.887	0.000	0.000	0.431	0.000	0.01
		B		0.000	0.000	0.204	0.000	0.00
		C		0.000	0.000	0.141	0.000	0.00
L27	50.17-49.92	A	0.886	0.000	0.000	0.674	0.000	0.01
		B		0.000	0.000	0.318	0.000	0.01
		C		0.000	0.000	0.220	0.000	0.00
L28	49.92-44.92	A	0.881	0.000	0.000	11.668	0.000	0.16
		B		0.000	0.000	3.824	0.000	0.09
		C		0.000	0.000	2.623	0.000	0.08
L29	44.92-39.92	A	0.872	0.000	0.000	11.215	0.000	0.15
		B		0.000	0.000	3.272	0.000	0.08
		C		0.000	0.000	2.213	0.000	0.07
L30	39.92-34.92	A	0.861	0.000	0.000	11.410	0.000	0.15
		B		0.000	0.000	3.635	0.000	0.09
		C		0.000	0.000	2.458	0.000	0.07
L31	34.92-29.25	A	0.848	0.000	0.000	13.846	0.000	0.18

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>12 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

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
		B		0.000	0.000	5.896	0.000	0.14
		C		0.000	0.000	3.761	0.000	0.09
L32	29.25-28.25	A	0.838	0.000	0.000	2.217	0.000	0.03
		B		0.000	0.000	0.814	0.000	0.02
		C		0.000	0.000	0.438	0.000	0.01
L33	28.25-24.08	A	0.830	0.000	0.000	9.781	0.000	0.13
		B		0.000	0.000	3.914	0.000	0.10
		C		0.000	0.000	2.428	0.000	0.07
L34	24.08-23.83	A	0.823	0.000	0.000	0.656	0.000	0.01
		B		0.000	0.000	0.308	0.000	0.01
		C		0.000	0.000	0.216	0.000	0.00
L35	23.83-18.83	A	0.814	0.000	0.000	13.051	0.000	0.16
		B		0.000	0.000	6.126	0.000	0.13
		C		0.000	0.000	4.311	0.000	0.09
L36	18.83-13.83	A	0.792	0.000	0.000	12.912	0.000	0.16
		B		0.000	0.000	6.040	0.000	0.13
		C		0.000	0.000	4.268	0.000	0.09
L37	13.83-8.83	A	0.764	0.000	0.000	12.727	0.000	0.16
		B		0.000	0.000	5.391	0.000	0.11
		C		0.000	0.000	4.211	0.000	0.09
L38	8.83-3.83	A	0.721	0.000	0.000	12.446	0.000	0.15
		B		0.000	0.000	5.032	0.000	0.09
		C		0.000	0.000	4.124	0.000	0.08
L39	3.83-1.92	A	0.666	0.000	0.000	4.619	0.000	0.05
		B		0.000	0.000	1.860	0.000	0.03
		C		0.000	0.000	1.534	0.000	0.03
L40	1.92-1.67	A	0.635	0.000	0.000	0.595	0.000	0.01
		B		0.000	0.000	0.239	0.000	0.00
		C		0.000	0.000	0.198	0.000	0.00
L41	1.67-0.00	A	0.588	0.000	0.000	3.870	0.000	0.04
		B		0.000	0.000	1.548	0.000	0.03
		C		0.000	0.000	1.289	0.000	0.03

### 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
L1	147.00-142.00	-2.723	-1.235	-2.651	-1.616
L2	142.00-137.00	-2.743	-1.242	-2.695	-1.641
L3	137.00-132.00	-2.638	-1.774	-2.597	-2.244
L4	132.00-127.00	-2.629	-1.910	-2.605	-2.414
L5	127.00-122.00	-2.648	-1.923	-2.645	-2.449
L6	122.00-117.00	-2.667	-1.937	-2.683	-2.483
L7	117.00-112.00	-2.685	-1.949	-2.720	-2.516
L8	112.00-107.00	-2.702	-1.961	-2.756	-2.548
L9	107.00-99.50	-2.722	-1.976	-2.799	-2.585
L10	99.50-98.25	-2.728	-1.980	-2.811	-2.596
L11	98.25-93.25	-2.738	-1.987	-2.830	-2.610
L12	93.25-88.25	-2.753	-1.997	-2.862	-2.637
L13	88.25-83.25	-2.767	-2.007	-2.893	-2.662
L14	83.25-78.25	-2.781	-2.017	-2.922	-2.687
L15	78.25-73.25	-2.794	-2.026	-2.951	-2.710
L16	73.25-69.58	-2.590	-1.878	-2.759	-2.531
L17	69.58-69.33	-2.318	-1.681	-2.487	-2.280
L18	69.33-64.33	-2.327	-1.687	-2.501	-2.292
L19	64.33-59.00	-2.506	-1.817	-2.696	-2.466

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>13 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub>	CP <sub>z</sub>
				Ice	Ice
	ft	in	in	in	in
L20	59.00-58.00	-2.220	-1.610	-2.451	-2.271
L21	58.00-57.83	-2.223	-1.612	-2.079	-2.063
L22	57.83-57.58	-2.225	-1.613	-2.080	-2.064
L23	57.58-52.58	-2.242	-1.625	-2.095	-2.076
L24	52.58-50.58	-2.053	-1.483	-1.926	-1.891
L25	50.58-50.33	-1.976	-1.427	-1.856	-1.820
L26	50.33-50.17	-1.977	-1.427	-1.857	-1.821
L27	50.17-49.92	-1.976	-1.427	-1.856	-1.821
L28	49.92-44.92	-2.350	-1.697	-2.472	-2.259
L29	44.92-39.92	-2.436	-1.759	-2.637	-2.379
L30	39.92-34.92	-2.509	-1.658	-2.643	-2.236
L31	34.92-29.25	-2.985	-0.962	-2.863	-1.380
L32	29.25-28.25	-3.223	-1.039	-3.084	-1.487
L33	28.25-24.08	-2.948	-0.950	-2.982	-1.430
L34	24.08-23.83	-2.541	-0.818	-2.706	-1.293
L35	23.83-18.83	-2.550	-0.821	-2.721	-1.296
L36	18.83-13.83	-2.573	-0.828	-2.750	-1.300
L37	13.83-8.83	-2.604	-0.838	-3.047	-1.433
L38	8.83-3.83	-2.634	-0.847	-3.177	-1.475
L39	3.83-1.92	-2.655	-0.854	-3.176	-1.445
L40	1.92-1.67	-2.663	-0.856	-3.172	-1.426
L41	1.67-0.00	-2.666	-0.857	-3.154	-1.392

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

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L1	3	Safety Line 3/8	142.00 - 147.00	1.0000	1.0000
L1	8	2" Flexible Conduit	142.00 - 147.00	1.0000	1.0000
L1	9	HB158-21U6S24-xxM_TMO (1-5/8)	142.00 - 147.00	1.0000	1.0000
L1	10	7983A(ELLIPTICAL)	142.00 - 147.00	1.0000	1.0000
L2	3	Safety Line 3/8	137.00 - 142.00	1.0000	1.0000
L2	8	2" Flexible Conduit	137.00 - 142.00	1.0000	1.0000
L2	9	HB158-21U6S24-xxM_TMO (1-5/8)	137.00 - 142.00	1.0000	1.0000
L2	10	7983A(ELLIPTICAL)	137.00 - 142.00	1.0000	1.0000
L3	3	Safety Line 3/8	132.00 - 137.00	1.0000	1.0000
L3	8	2" Flexible Conduit	132.00 - 137.00	1.0000	1.0000
L3	9	HB158-21U6S24-xxM_TMO (1-5/8)	132.00 - 137.00	1.0000	1.0000
L3	10	7983A(ELLIPTICAL)	132.00 - 137.00	1.0000	1.0000
L3	12	CU12PSM9P6XXX(1-1/2)	132.00 -	1.0000	1.0000



<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>14 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
			136.00		
L4	3	Safety Line 3/8	127.00 - 132.00	1.0000	1.0000
L4	8	2" Flexible Conduit	127.00 - 132.00	1.0000	1.0000
L4	9	HB158-21U6S24-xxM_TMO (1-5/8)	127.00 - 132.00	1.0000	1.0000
L4	10	7983A(ELLIPTICAL)	127.00 - 132.00	1.0000	1.0000
L4	12	CU12PSM9P6XXX(1-1/2)	127.00 - 132.00	1.0000	1.0000
L5	3	Safety Line 3/8	122.00 - 127.00	1.0000	1.0000
L5	8	2" Flexible Conduit	122.00 - 127.00	1.0000	1.0000
L5	9	HB158-21U6S24-xxM_TMO (1-5/8)	122.00 - 127.00	1.0000	1.0000
L5	10	7983A(ELLIPTICAL)	122.00 - 127.00	1.0000	1.0000
L5	12	CU12PSM9P6XXX(1-1/2)	122.00 - 127.00	1.0000	1.0000
L6	3	Safety Line 3/8	117.00 - 122.00	1.0000	1.0000
L6	8	2" Flexible Conduit	117.00 - 122.00	1.0000	1.0000
L6	9	HB158-21U6S24-xxM_TMO (1-5/8)	117.00 - 122.00	1.0000	1.0000
L6	10	7983A(ELLIPTICAL)	117.00 - 122.00	1.0000	1.0000
L6	12	CU12PSM9P6XXX(1-1/2)	117.00 - 122.00	1.0000	1.0000
L7	3	Safety Line 3/8	112.00 - 117.00	1.0000	1.0000
L7	8	2" Flexible Conduit	112.00 - 117.00	1.0000	1.0000
L7	9	HB158-21U6S24-xxM_TMO (1-5/8)	112.00 - 117.00	1.0000	1.0000
L7	10	7983A(ELLIPTICAL)	112.00 - 117.00	1.0000	1.0000
L7	12	CU12PSM9P6XXX(1-1/2)	112.00 - 117.00	1.0000	1.0000
L8	3	Safety Line 3/8	107.00 - 112.00	1.0000	1.0000
L8	8	2" Flexible Conduit	107.00 - 112.00	1.0000	1.0000
L8	9	HB158-21U6S24-xxM_TMO (1-5/8)	107.00 - 112.00	1.0000	1.0000
L8	10	7983A(ELLIPTICAL)	107.00 - 112.00	1.0000	1.0000
L8	12	CU12PSM9P6XXX(1-1/2)	107.00 - 112.00	1.0000	1.0000
L9	3	Safety Line 3/8	99.50 - 107.00	1.0000	1.0000
L9	8	2" Flexible Conduit	99.50 - 107.00	1.0000	1.0000
L9	9	HB158-21U6S24-xxM_TMO (1-5/8)	99.50 - 107.00	1.0000	1.0000
L9	10	7983A(ELLIPTICAL)	99.50 - 107.00	1.0000	1.0000
L9	12	CU12PSM9P6XXX(1-1/2)	99.50 - 107.00	1.0000	1.0000
L10	3	Safety Line 3/8	98.25 - 99.50	1.0000	1.0000
L10	8	2" Flexible Conduit	98.25 - 99.50	1.0000	1.0000
L10	9	HB158-21U6S24-xxM_TMO (1-5/8)	98.25 - 99.50	1.0000	1.0000
L10	10	7983A(ELLIPTICAL)	98.25 - 99.50	1.0000	1.0000

<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>15 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L10	12	CU12PSM9P6XXX(1-1/2)	98.25 - 99.50	1.0000	1.0000
L11	3	Safety Line 3/8	93.25 - 98.25	1.0000	1.0000
L11	8	2" Flexible Conduit	93.25 - 98.25	1.0000	1.0000
L11	9	HB158-21U6S24-xxM_TMO (1-5/8)	93.25 - 98.25	1.0000	1.0000
L11	10	7983A(ELLIPTICAL)	93.25 - 98.25	1.0000	1.0000
L11	12	CU12PSM9P6XXX(1-1/2)	93.25 - 98.25	1.0000	1.0000
L12	3	Safety Line 3/8	88.25 - 93.25	1.0000	1.0000
L12	8	2" Flexible Conduit	88.25 - 93.25	1.0000	1.0000
L12	9	HB158-21U6S24-xxM_TMO (1-5/8)	88.25 - 93.25	1.0000	1.0000
L12	10	7983A(ELLIPTICAL)	88.25 - 93.25	1.0000	1.0000
L12	12	CU12PSM9P6XXX(1-1/2)	88.25 - 93.25	1.0000	1.0000
L13	3	Safety Line 3/8	83.25 - 88.25	1.0000	1.0000
L13	8	2" Flexible Conduit	83.25 - 88.25	1.0000	1.0000
L13	9	HB158-21U6S24-xxM_TMO (1-5/8)	83.25 - 88.25	1.0000	1.0000
L13	10	7983A(ELLIPTICAL)	83.25 - 88.25	1.0000	1.0000
L13	12	CU12PSM9P6XXX(1-1/2)	83.25 - 88.25	1.0000	1.0000
L14	3	Safety Line 3/8	78.25 - 83.25	1.0000	1.0000
L14	8	2" Flexible Conduit	78.25 - 83.25	1.0000	1.0000
L14	9	HB158-21U6S24-xxM_TMO (1-5/8)	78.25 - 83.25	1.0000	1.0000
L14	10	7983A(ELLIPTICAL)	78.25 - 83.25	1.0000	1.0000
L14	12	CU12PSM9P6XXX(1-1/2)	78.25 - 83.25	1.0000	1.0000
L15	3	Safety Line 3/8	73.25 - 78.25	1.0000	1.0000
L15	8	2" Flexible Conduit	73.25 - 78.25	1.0000	1.0000
L15	9	HB158-21U6S24-xxM_TMO (1-5/8)	73.25 - 78.25	1.0000	1.0000
L15	10	7983A(ELLIPTICAL)	73.25 - 78.25	1.0000	1.0000
L15	12	CU12PSM9P6XXX(1-1/2)	73.25 - 78.25	1.0000	1.0000
L16	3	Safety Line 3/8	69.58 - 73.25	1.0000	1.0000
L16	8	2" Flexible Conduit	69.58 - 73.25	1.0000	1.0000
L16	9	HB158-21U6S24-xxM_TMO (1-5/8)	69.58 - 73.25	1.0000	1.0000
L16	10	7983A(ELLIPTICAL)	69.58 - 73.25	1.0000	1.0000
L16	12	CU12PSM9P6XXX(1-1/2)	69.58 - 73.25	1.0000	1.0000
L16	36	Aero MP3-04	69.58 - 71.00	1.0000	1.0000
L16	37	Aero MP3-04	69.58 - 71.00	1.0000	1.0000
L16	38	Aero MP3-04	69.58 - 71.00	1.0000	1.0000
L17	3	Safety Line 3/8	69.33 - 69.58	1.0000	1.0000
L17	8	2" Flexible Conduit	69.33 - 69.58	1.0000	1.0000
L17	9	HB158-21U6S24-xxM_TMO (1-5/8)	69.33 - 69.58	1.0000	1.0000
L17	10	7983A(ELLIPTICAL)	69.33 - 69.58	1.0000	1.0000
L17	12	CU12PSM9P6XXX(1-1/2)	69.33 - 69.58	1.0000	1.0000
L17	36	Aero MP3-04	69.33 - 69.58	1.0000	1.0000
L17	37	Aero MP3-04	69.33 - 69.58	1.0000	1.0000
L17	38	Aero MP3-04	69.33 - 69.58	1.0000	1.0000
L18	3	Safety Line 3/8	64.33 - 69.33	1.0000	1.0000
L18	8	2" Flexible Conduit	64.33 - 69.33	1.0000	1.0000
L18	9	HB158-21U6S24-xxM_TMO (1-5/8)	64.33 - 69.33	1.0000	1.0000
L18	10	7983A(ELLIPTICAL)	64.33 - 69.33	1.0000	1.0000
L18	12	CU12PSM9P6XXX(1-1/2)	64.33 - 69.33	1.0000	1.0000
L18	36	Aero MP3-04	64.33 - 69.33	1.0000	1.0000
L18	37	Aero MP3-04	64.33 - 69.33	1.0000	1.0000
L18	38	Aero MP3-04	64.33 - 69.33	1.0000	1.0000
L19	3	Safety Line 3/8	59.00 - 64.33	1.0000	1.0000
L19	8	2" Flexible Conduit	59.00 - 64.33	1.0000	1.0000
L19	9	HB158-21U6S24-xxM_TMO (1-5/8)	59.00 - 64.33	1.0000	1.0000

<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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>16 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L19	10	7983A(ELLIPTICAL)	59.00 - 64.33	1.0000	1.0000
L19	12	CU12PSM9P6XXX(1-1/2)	59.00 - 64.33	1.0000	1.0000
L19	36	Aero MP3-04	61.00 - 64.33	1.0000	1.0000
L19	37	Aero MP3-04	61.00 - 64.33	1.0000	1.0000
L19	38	Aero MP3-04	61.00 - 64.33	1.0000	1.0000
L20	3	Safety Line 3/8	58.00 - 59.00	1.0000	1.0000
L20	8	2" Flexible Conduit	58.00 - 59.00	1.0000	1.0000
L20	9	HB158-21U6S24-xxM_TMO (1-5/8)	58.00 - 59.00	1.0000	1.0000
L20	10	7983A(ELLIPTICAL)	58.00 - 59.00	1.0000	1.0000
L20	12	CU12PSM9P6XXX(1-1/2)	58.00 - 59.00	1.0000	1.0000
L20	44	Aero MP3-03	58.00 - 59.00	1.0000	1.0000
L20	45	Aero MP3-03	58.00 - 59.00	1.0000	1.0000
L20	46	Aero MP3-03	58.00 - 59.00	1.0000	1.0000
L20	50	Aero Step Ladder	58.00 - 58.17	1.0000	1.0000
L21	3	Safety Line 3/8	57.83 - 58.00	1.0000	1.0000
L21	8	2" Flexible Conduit	57.83 - 58.00	1.0000	1.0000
L21	9	HB158-21U6S24-xxM_TMO (1-5/8)	57.83 - 58.00	1.0000	1.0000
L21	10	7983A(ELLIPTICAL)	57.83 - 58.00	1.0000	1.0000
L21	12	CU12PSM9P6XXX(1-1/2)	57.83 - 58.00	1.0000	1.0000
L21	44	Aero MP3-03	57.83 - 58.00	1.0000	1.0000
L21	45	Aero MP3-03	57.83 - 58.00	1.0000	1.0000
L21	46	Aero MP3-03	57.83 - 58.00	1.0000	1.0000
L21	50	Aero Step Ladder	57.83 - 58.00	1.0000	1.0000
L22	3	Safety Line 3/8	57.58 - 57.83	1.0000	1.0000
L22	8	2" Flexible Conduit	57.58 - 57.83	1.0000	1.0000
L22	9	HB158-21U6S24-xxM_TMO (1-5/8)	57.58 - 57.83	1.0000	1.0000
L22	10	7983A(ELLIPTICAL)	57.58 - 57.83	1.0000	1.0000
L22	12	CU12PSM9P6XXX(1-1/2)	57.58 - 57.83	1.0000	1.0000
L22	44	Aero MP3-03	57.58 - 57.83	1.0000	1.0000
L22	45	Aero MP3-03	57.58 - 57.83	1.0000	1.0000
L22	46	Aero MP3-03	57.58 - 57.83	1.0000	1.0000
L22	50	Aero Step Ladder	57.58 - 57.83	1.0000	1.0000
L23	3	Safety Line 3/8	52.58 - 57.58	1.0000	1.0000
L23	8	2" Flexible Conduit	52.58 - 57.58	1.0000	1.0000
L23	9	HB158-21U6S24-xxM_TMO (1-5/8)	52.58 - 57.58	1.0000	1.0000
L23	10	7983A(ELLIPTICAL)	53.00 - 57.58	1.0000	1.0000
L23	12	CU12PSM9P6XXX(1-1/2)	52.58 - 57.58	1.0000	1.0000
L23	24	LDF4-50A(1/2)	52.58 - 53.00	1.0000	1.0000
L23	44	Aero MP3-03	52.58 - 57.58	1.0000	1.0000
L23	45	Aero MP3-03	52.58 - 57.58	1.0000	1.0000
L23	46	Aero MP3-03	52.58 - 57.58	1.0000	1.0000
L23	50	Aero Step Ladder	52.58 - 57.58	1.0000	1.0000
L24	3	Safety Line 3/8	50.58 - 52.58	1.0000	1.0000
L24	8	2" Flexible Conduit	50.58 - 52.58	1.0000	1.0000
L24	9	HB158-21U6S24-xxM_TMO (1-5/8)	50.58 - 52.58	1.0000	1.0000
L24	12	CU12PSM9P6XXX(1-1/2)	50.58 - 52.58	1.0000	1.0000
L24	24	LDF4-50A(1/2)	50.58 - 52.58	1.0000	1.0000
L24	32	Aero MP3-04	50.58 - 52.00	1.0000	1.0000
L24	33	Aero MP3-04	50.58 - 52.00	1.0000	1.0000
L24	34	Aero MP3-04	50.58 - 52.00	1.0000	1.0000
L24	44	Aero MP3-03	50.58 - 52.58	1.0000	1.0000
L24	45	Aero MP3-03	50.58 - 52.58	1.0000	1.0000
L24	46	Aero MP3-03	50.58 - 52.58	1.0000	1.0000
L24	50	Aero Step Ladder	50.58 - 52.58	1.0000	1.0000
L25	3	Safety Line 3/8	50.33 - 50.58	1.0000	1.0000
L25	8	2" Flexible Conduit	50.33 - 50.58	1.0000	1.0000
L25	9	HB158-21U6S24-xxM_TMO	50.33 - 50.58	1.0000	1.0000

<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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>17 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
		(1-5/8)			
L25	12	CU12PSM9P6XXX(1-1/2)	50.33 - 50.58	1.0000	1.0000
L25	24	LDF4-50A(1/2)	50.33 - 50.58	1.0000	1.0000
L25	32	Aero MP3-04	50.33 - 50.58	1.0000	1.0000
L25	33	Aero MP3-04	50.33 - 50.58	1.0000	1.0000
L25	34	Aero MP3-04	50.33 - 50.58	1.0000	1.0000
L25	44	Aero MP3-03	50.33 - 50.58	1.0000	1.0000
L25	45	Aero MP3-03	50.33 - 50.58	1.0000	1.0000
L25	46	Aero MP3-03	50.33 - 50.58	1.0000	1.0000
L25	50	Aero Step Ladder	50.33 - 50.58	1.0000	1.0000
L26	3	Safety Line 3/8	50.17 - 50.33	1.0000	1.0000
L26	8	2" Flexible Conduit	50.17 - 50.33	1.0000	1.0000
L26	9	HB158-21U6S24-xxM_TMO	50.17 - 50.33	1.0000	1.0000
		(1-5/8)			
L26	12	CU12PSM9P6XXX(1-1/2)	50.17 - 50.33	1.0000	1.0000
L26	24	LDF4-50A(1/2)	50.17 - 50.33	1.0000	1.0000
L26	32	Aero MP3-04	50.17 - 50.33	1.0000	1.0000
L26	33	Aero MP3-04	50.17 - 50.33	1.0000	1.0000
L26	34	Aero MP3-04	50.17 - 50.33	1.0000	1.0000
L26	44	Aero MP3-03	50.17 - 50.33	1.0000	1.0000
L26	45	Aero MP3-03	50.17 - 50.33	1.0000	1.0000
L26	46	Aero MP3-03	50.17 - 50.33	1.0000	1.0000
L26	50	Aero Step Ladder	50.17 - 50.33	1.0000	1.0000
L27	3	Safety Line 3/8	49.92 - 50.17	1.0000	1.0000
L27	8	2" Flexible Conduit	49.92 - 50.17	1.0000	1.0000
L27	9	HB158-21U6S24-xxM_TMO	49.92 - 50.17	1.0000	1.0000
		(1-5/8)			
L27	12	CU12PSM9P6XXX(1-1/2)	49.92 - 50.17	1.0000	1.0000
L27	24	LDF4-50A(1/2)	49.92 - 50.17	1.0000	1.0000
L27	32	Aero MP3-04	49.92 - 50.17	1.0000	1.0000
L27	33	Aero MP3-04	49.92 - 50.17	1.0000	1.0000
L27	34	Aero MP3-04	49.92 - 50.17	1.0000	1.0000
L27	44	Aero MP3-03	49.92 - 50.17	1.0000	1.0000
L27	45	Aero MP3-03	49.92 - 50.17	1.0000	1.0000
L27	46	Aero MP3-03	49.92 - 50.17	1.0000	1.0000
L27	50	Aero Step Ladder	49.92 - 50.17	1.0000	1.0000
L28	3	Safety Line 3/8	44.92 - 49.92	1.0000	1.0000
L28	8	2" Flexible Conduit	44.92 - 49.92	1.0000	1.0000
L28	9	HB158-21U6S24-xxM_TMO	44.92 - 49.92	1.0000	1.0000
		(1-5/8)			
L28	12	CU12PSM9P6XXX(1-1/2)	44.92 - 49.92	1.0000	1.0000
L28	24	LDF4-50A(1/2)	49.00 - 49.92	1.0000	1.0000
L28	26	LDF4-50A(1/2)	44.92 - 49.00	1.0000	1.0000
L28	32	Aero MP3-04	44.92 - 49.92	1.0000	1.0000
L28	33	Aero MP3-04	44.92 - 49.92	1.0000	1.0000
L28	34	Aero MP3-04	44.92 - 49.92	1.0000	1.0000
L28	44	Aero MP3-03	49.00 - 49.92	1.0000	1.0000
L28	45	Aero MP3-03	49.00 - 49.92	1.0000	1.0000
L28	46	Aero MP3-03	49.00 - 49.92	1.0000	1.0000
L28	50	Aero Step Ladder	49.17 - 49.92	1.0000	1.0000
L29	3	Safety Line 3/8	39.92 - 44.92	1.0000	1.0000
L29	8	2" Flexible Conduit	39.92 - 44.92	1.0000	1.0000
L29	9	HB158-21U6S24-xxM_TMO	39.92 - 44.92	1.0000	1.0000
		(1-5/8)			
L29	12	CU12PSM9P6XXX(1-1/2)	39.92 - 44.92	1.0000	1.0000
L29	26	LDF4-50A(1/2)	39.92 - 44.92	1.0000	1.0000
L29	32	Aero MP3-04	39.92 - 44.92	1.0000	1.0000
L29	33	Aero MP3-04	39.92 - 44.92	1.0000	1.0000
L29	34	Aero MP3-04	39.92 - 44.92	1.0000	1.0000
L30	3	Safety Line 3/8	34.92 - 39.92	1.0000	1.0000
L30	8	2" Flexible Conduit	34.92 - 39.92	1.0000	1.0000
L30	9	HB158-21U6S24-xxM_TMO	34.92 - 39.92	1.0000	1.0000



<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>18 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
		(1-5/8)			
L30	12	CU12PSM9P6XXX(1-1/2)	34.92 - 39.92	1.0000	1.0000
L30	26	LDF4-50A(1/2)	34.92 - 39.92	1.0000	1.0000
L30	32	Aero MP3-04	34.92 - 39.92	1.0000	1.0000
L30	33	Aero MP3-04	34.92 - 39.92	1.0000	1.0000
L30	34	Aero MP3-04	34.92 - 39.92	1.0000	1.0000
L30	40	Aero MP3-04	34.92 - 35.50	1.0000	1.0000
L30	41	Aero MP3-04	34.92 - 35.50	1.0000	1.0000
L30	42	Aero MP3-04	34.92 - 35.50	1.0000	1.0000
L30	49	Aero Step Ladder	34.92 - 35.67	1.0000	1.0000
L31	3	Safety Line 3/8	29.25 - 34.92	1.0000	1.0000
L31	8	2" Flexible Conduit	29.25 - 34.92	1.0000	1.0000
L31	9	HB158-21U6S24-xxM_TMO	29.25 - 34.92	1.0000	1.0000
		(1-5/8)			
L31	12	CU12PSM9P6XXX(1-1/2)	29.25 - 34.92	1.0000	1.0000
L31	26	LDF4-50A(1/2)	29.25 - 34.92	1.0000	1.0000
L31	32	Aero MP3-04	32.00 - 34.92	1.0000	1.0000
L31	33	Aero MP3-04	32.00 - 34.92	1.0000	1.0000
L31	34	Aero MP3-04	32.00 - 34.92	1.0000	1.0000
L31	40	Aero MP3-04	29.25 - 34.92	1.0000	1.0000
L31	41	Aero MP3-04	29.25 - 34.92	1.0000	1.0000
L31	42	Aero MP3-04	29.25 - 34.92	1.0000	1.0000
L31	49	Aero Step Ladder	29.25 - 34.92	1.0000	1.0000
L32	3	Safety Line 3/8	28.25 - 29.25	1.0000	1.0000
L32	8	2" Flexible Conduit	28.25 - 29.25	1.0000	1.0000
L32	9	HB158-21U6S24-xxM_TMO	28.25 - 29.25	1.0000	1.0000
		(1-5/8)			
L32	12	CU12PSM9P6XXX(1-1/2)	28.25 - 29.25	1.0000	1.0000
L32	26	LDF4-50A(1/2)	28.25 - 29.25	1.0000	1.0000
L32	40	Aero MP3-04	28.25 - 29.25	1.0000	1.0000
L32	41	Aero MP3-04	28.25 - 29.25	1.0000	1.0000
L32	42	Aero MP3-04	28.25 - 29.25	1.0000	1.0000
L32	49	Aero Step Ladder	28.25 - 29.25	1.0000	1.0000
L33	3	Safety Line 3/8	24.08 - 28.25	1.0000	1.0000
L33	8	2" Flexible Conduit	24.08 - 28.25	1.0000	1.0000
L33	9	HB158-21U6S24-xxM_TMO	24.08 - 28.25	1.0000	1.0000
		(1-5/8)			
L33	12	CU12PSM9P6XXX(1-1/2)	24.08 - 28.25	1.0000	1.0000
L33	26	LDF4-50A(1/2)	24.08 - 28.25	1.0000	1.0000
L33	28	Aero MP3-04	24.08 - 25.50	1.0000	1.0000
L33	29	Aero MP3-04	24.08 - 25.50	1.0000	1.0000
L33	30	Aero MP3-04	24.08 - 25.50	1.0000	1.0000
L33	40	Aero MP3-04	24.08 - 28.25	1.0000	1.0000
L33	41	Aero MP3-04	24.08 - 28.25	1.0000	1.0000
L33	42	Aero MP3-04	24.08 - 28.25	1.0000	1.0000
L33	48	Aero Step Ladder	24.08 - 26.33	1.0000	1.0000
L33	49	Aero Step Ladder	26.67 - 28.25	1.0000	1.0000
L34	3	Safety Line 3/8	23.83 - 24.08	1.0000	1.0000
L34	8	2" Flexible Conduit	23.83 - 24.08	1.0000	1.0000
L34	9	HB158-21U6S24-xxM_TMO	23.83 - 24.08	1.0000	1.0000
		(1-5/8)			
L34	12	CU12PSM9P6XXX(1-1/2)	23.83 - 24.08	1.0000	1.0000
L34	26	LDF4-50A(1/2)	23.83 - 24.08	1.0000	1.0000
L34	28	Aero MP3-04	23.83 - 24.08	1.0000	1.0000
L34	29	Aero MP3-04	23.83 - 24.08	1.0000	1.0000
L34	30	Aero MP3-04	23.83 - 24.08	1.0000	1.0000
L34	40	Aero MP3-04	23.83 - 24.08	1.0000	1.0000
L34	41	Aero MP3-04	23.83 - 24.08	1.0000	1.0000
L34	42	Aero MP3-04	23.83 - 24.08	1.0000	1.0000
L34	48	Aero Step Ladder	23.83 - 24.08	1.0000	1.0000
L35	3	Safety Line 3/8	18.83 - 23.83	1.0000	1.0000
L35	8	2" Flexible Conduit	18.83 - 23.83	1.0000	1.0000

<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>19 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L35	9	HB158-21U6S24-xxM_TMO (1-5/8)	18.83 - 23.83	1.0000	1.0000
L35	12	CU12PSM9P6XXX(1-1/2)	18.83 - 23.83	1.0000	1.0000
L35	26	LDF4-50A(1/2)	18.83 - 23.83	1.0000	1.0000
L35	28	Aero MP3-04	18.83 - 23.83	1.0000	1.0000
L35	29	Aero MP3-04	18.83 - 23.83	1.0000	1.0000
L35	30	Aero MP3-04	18.83 - 23.83	1.0000	1.0000
L35	40	Aero MP3-04	18.83 - 23.83	1.0000	1.0000
L35	41	Aero MP3-04	18.83 - 23.83	1.0000	1.0000
L35	42	Aero MP3-04	18.83 - 23.83	1.0000	1.0000
L35	48	Aero Step Ladder	18.83 - 23.83	1.0000	1.0000
L36	3	Safety Line 3/8	13.83 - 18.83	1.0000	1.0000
L36	8	2" Flexible Conduit	13.83 - 18.83	1.0000	1.0000
L36	9	HB158-21U6S24-xxM_TMO (1-5/8)	13.83 - 18.83	1.0000	1.0000
L36	12	CU12PSM9P6XXX(1-1/2)	13.83 - 18.83	1.0000	1.0000
L36	26	LDF4-50A(1/2)	13.83 - 18.83	1.0000	1.0000
L36	28	Aero MP3-04	13.83 - 18.83	1.0000	1.0000
L36	29	Aero MP3-04	13.83 - 18.83	1.0000	1.0000
L36	30	Aero MP3-04	13.83 - 18.83	1.0000	1.0000
L36	40	Aero MP3-04	13.83 - 18.83	1.0000	1.0000
L36	41	Aero MP3-04	13.83 - 18.83	1.0000	1.0000
L36	42	Aero MP3-04	13.83 - 18.83	1.0000	1.0000
L36	48	Aero Step Ladder	13.83 - 18.83	1.0000	1.0000
L37	3	Safety Line 3/8	8.83 - 13.83	1.0000	1.0000
L37	8	2" Flexible Conduit	8.83 - 13.83	1.0000	1.0000
L37	9	HB158-21U6S24-xxM_TMO (1-5/8)	8.83 - 13.83	1.0000	1.0000
L37	12	CU12PSM9P6XXX(1-1/2)	8.83 - 13.83	1.0000	1.0000
L37	26	LDF4-50A(1/2)	8.83 - 13.83	1.0000	1.0000
L37	28	Aero MP3-04	8.83 - 13.83	1.0000	1.0000
L37	29	Aero MP3-04	8.83 - 13.83	1.0000	1.0000
L37	30	Aero MP3-04	8.83 - 13.83	1.0000	1.0000
L37	40	Aero MP3-04	8.83 - 13.83	1.0000	1.0000
L37	41	Aero MP3-04	8.83 - 13.83	1.0000	1.0000
L37	42	Aero MP3-04	8.83 - 13.83	1.0000	1.0000
L37	48	Aero Step Ladder	12.33 - 13.83	1.0000	1.0000
L38	3	Safety Line 3/8	3.83 - 8.83	1.0000	1.0000
L38	8	2" Flexible Conduit	3.83 - 8.83	1.0000	1.0000
L38	9	HB158-21U6S24-xxM_TMO (1-5/8)	3.83 - 8.83	1.0000	1.0000
L38	12	CU12PSM9P6XXX(1-1/2)	3.83 - 8.83	1.0000	1.0000
L38	26	LDF4-50A(1/2)	3.83 - 8.83	1.0000	1.0000
L38	28	Aero MP3-04	3.83 - 8.83	1.0000	1.0000
L38	29	Aero MP3-04	3.83 - 8.83	1.0000	1.0000
L38	30	Aero MP3-04	3.83 - 8.83	1.0000	1.0000
L38	40	Aero MP3-04	3.83 - 8.83	1.0000	1.0000
L38	41	Aero MP3-04	3.83 - 8.83	1.0000	1.0000
L38	42	Aero MP3-04	3.83 - 8.83	1.0000	1.0000
L39	3	Safety Line 3/8	1.92 - 3.83	1.0000	1.0000
L39	8	2" Flexible Conduit	1.92 - 3.83	1.0000	1.0000
L39	9	HB158-21U6S24-xxM_TMO (1-5/8)	1.92 - 3.83	1.0000	1.0000
L39	12	CU12PSM9P6XXX(1-1/2)	1.92 - 3.83	1.0000	1.0000
L39	26	LDF4-50A(1/2)	1.92 - 3.83	1.0000	1.0000
L39	28	Aero MP3-04	1.92 - 3.83	1.0000	1.0000
L39	29	Aero MP3-04	1.92 - 3.83	1.0000	1.0000
L39	30	Aero MP3-04	1.92 - 3.83	1.0000	1.0000
L39	40	Aero MP3-04	1.92 - 3.83	1.0000	1.0000
L39	41	Aero MP3-04	1.92 - 3.83	1.0000	1.0000
L39	42	Aero MP3-04	1.92 - 3.83	1.0000	1.0000
L40	3	Safety Line 3/8	1.67 - 1.92	1.0000	1.0000

<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>20 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L40	8	2" Flexible Conduit	1.67 - 1.92	1.0000	1.0000
L40	9	HB158-21U6S24-xxM_TMO (1-5/8)	1.67 - 1.92	1.0000	1.0000
L40	12	CU12PSM9P6XXX(1-1/2)	1.67 - 1.92	1.0000	1.0000
L40	26	LDF4-50A(1/2)	1.67 - 1.92	1.0000	1.0000
L40	28	Aero MP3-04	1.67 - 1.92	1.0000	1.0000
L40	29	Aero MP3-04	1.67 - 1.92	1.0000	1.0000
L40	30	Aero MP3-04	1.67 - 1.92	1.0000	1.0000
L40	40	Aero MP3-04	1.67 - 1.92	1.0000	1.0000
L40	41	Aero MP3-04	1.67 - 1.92	1.0000	1.0000
L40	42	Aero MP3-04	1.67 - 1.92	1.0000	1.0000
L41	3	Safety Line 3/8	0.00 - 1.67	1.0000	1.0000
L41	8	2" Flexible Conduit	0.00 - 1.67	1.0000	1.0000
L41	9	HB158-21U6S24-xxM_TMO (1-5/8)	0.00 - 1.67	1.0000	1.0000
L41	12	CU12PSM9P6XXX(1-1/2)	0.00 - 1.67	1.0000	1.0000
L41	26	LDF4-50A(1/2)	0.00 - 1.67	1.0000	1.0000
L41	28	Aero MP3-04	0.00 - 1.67	1.0000	1.0000
L41	29	Aero MP3-04	0.00 - 1.67	1.0000	1.0000
L41	30	Aero MP3-04	0.00 - 1.67	1.0000	1.0000
L41	40	Aero MP3-04	0.00 - 1.67	1.0000	1.0000
L41	41	Aero MP3-04	0.00 - 1.67	1.0000	1.0000
L41	42	Aero MP3-04	0.00 - 1.67	1.0000	1.0000

**Effective Width of Flat Linear Attachments / Feed Lines**

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L16	36	Aero MP3-04	69.58 - 71.00	Auto	0.0000
L16	37	Aero MP3-04	69.58 - 71.00	Auto	0.0000
L16	38	Aero MP3-04	69.58 - 71.00	Auto	0.0000
L17	36	Aero MP3-04	69.33 - 69.58	Auto	0.0000
L17	37	Aero MP3-04	69.33 - 69.58	Auto	0.0000
L17	38	Aero MP3-04	69.33 - 69.58	Auto	0.0000
L18	36	Aero MP3-04	64.33 - 69.33	Auto	0.0000
L18	37	Aero MP3-04	64.33 - 69.33	Auto	0.0000
L18	38	Aero MP3-04	64.33 - 69.33	Auto	0.0000
L19	36	Aero MP3-04	61.00 - 64.33	Auto	0.0000
L19	37	Aero MP3-04	61.00 - 64.33	Auto	0.0000
L19	38	Aero MP3-04	61.00 - 64.33	Auto	0.0000
L20	44	Aero MP3-03	58.00 - 59.00	Auto	0.0000
L20	45	Aero MP3-03	58.00 - 59.00	Auto	0.0000
L20	46	Aero MP3-03	58.00 - 59.00	Auto	0.0000
L20	50	Aero Step Ladder	58.00 - 58.17	Manual	1.0000
L21	44	Aero MP3-03	57.83 - 58.00	Auto	0.0000
L21	45	Aero MP3-03	57.83 - 58.00	Auto	0.0000
L21	46	Aero MP3-03	57.83 - 58.00	Auto	0.0000
L21	50	Aero Step Ladder	57.83 - 58.00	Manual	1.0000
L22	44	Aero MP3-03	57.58 - 57.83	Auto	0.0000
L22	45	Aero MP3-03	57.58 - 57.83	Auto	0.0000
L22	46	Aero MP3-03	57.58 - 57.83	Auto	0.0000
L22	50	Aero Step Ladder	57.58 - 57.83	Manual	1.0000
L23	44	Aero MP3-03	52.58 - 57.58	Auto	0.0000

<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>21 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L23	45	Aero MP3-03	52.58 - 57.58	Auto	0.0000
L23	46	Aero MP3-03	52.58 - 57.58	Auto	0.0000
L23	50	Aero Step Ladder	52.58 - 57.58	Manual	1.0000
L24	32	Aero MP3-04	50.58 - 52.00	Auto	0.0000
L24	33	Aero MP3-04	50.58 - 52.00	Auto	0.0000
L24	34	Aero MP3-04	50.58 - 52.00	Auto	0.0000
L24	44	Aero MP3-03	50.58 - 52.58	Auto	0.0000
L24	45	Aero MP3-03	50.58 - 52.58	Auto	0.0000
L24	46	Aero MP3-03	50.58 - 52.58	Auto	0.0000
L24	50	Aero Step Ladder	50.58 - 52.58	Manual	1.0000
L25	32	Aero MP3-04	50.33 - 50.58	Auto	0.0000
L25	33	Aero MP3-04	50.33 - 50.58	Auto	0.0000
L25	34	Aero MP3-04	50.33 - 50.58	Auto	0.0000
L25	44	Aero MP3-03	50.33 - 50.58	Auto	0.0000
L25	45	Aero MP3-03	50.33 - 50.58	Auto	0.0000
L25	46	Aero MP3-03	50.33 - 50.58	Auto	0.0000
L25	50	Aero Step Ladder	50.33 - 50.58	Manual	1.0000
L26	32	Aero MP3-04	50.17 - 50.33	Auto	0.0000
L26	33	Aero MP3-04	50.17 - 50.33	Auto	0.0000
L26	34	Aero MP3-04	50.17 - 50.33	Auto	0.0000
L26	44	Aero MP3-03	50.17 - 50.33	Auto	0.0000
L26	45	Aero MP3-03	50.17 - 50.33	Auto	0.0000
L26	46	Aero MP3-03	50.17 - 50.33	Auto	0.0000
L26	50	Aero Step Ladder	50.17 - 50.33	Manual	1.0000
L27	32	Aero MP3-04	49.92 - 50.17	Auto	0.0000
L27	33	Aero MP3-04	49.92 - 50.17	Auto	0.0000
L27	34	Aero MP3-04	49.92 - 50.17	Auto	0.0000
L27	44	Aero MP3-03	49.92 - 50.17	Auto	0.0000
L27	45	Aero MP3-03	49.92 - 50.17	Auto	0.0000
L27	46	Aero MP3-03	49.92 - 50.17	Auto	0.0000
L27	50	Aero Step Ladder	49.92 - 50.17	Manual	1.0000
L28	32	Aero MP3-04	44.92 - 49.92	Auto	0.0000
L28	33	Aero MP3-04	44.92 - 49.92	Auto	0.0000
L28	34	Aero MP3-04	44.92 - 49.92	Auto	0.0000
L28	44	Aero MP3-03	49.00 - 49.92	Auto	0.0000
L28	45	Aero MP3-03	49.00 - 49.92	Auto	0.0000
L28	46	Aero MP3-03	49.00 - 49.92	Auto	0.0000
L28	50	Aero Step Ladder	49.17 - 49.92	Manual	1.0000
L29	32	Aero MP3-04	39.92 - 44.92	Auto	0.0000
L29	33	Aero MP3-04	39.92 - 44.92	Auto	0.0000
L29	34	Aero MP3-04	39.92 - 44.92	Auto	0.0000
L30	32	Aero MP3-04	34.92 - 39.92	Auto	0.0000
L30	33	Aero MP3-04	34.92 - 39.92	Auto	0.0000
L30	34	Aero MP3-04	34.92 - 39.92	Auto	0.0000
L30	40	Aero MP3-04	34.92 - 35.50	Auto	0.0000
L30	41	Aero MP3-04	34.92 - 35.50	Auto	0.0000
L30	42	Aero MP3-04	34.92 - 35.50	Auto	0.0000
L30	49	Aero Step Ladder	34.92 - 35.67	Manual	1.0000
L31	32	Aero MP3-04	32.00 - 34.92	Auto	0.0000
L31	33	Aero MP3-04	32.00 - 34.92	Auto	0.0000
L31	34	Aero MP3-04	32.00 - 34.92	Auto	0.0000
L31	40	Aero MP3-04	29.25 - 34.92	Auto	0.0000
L31	41	Aero MP3-04	29.25 - 34.92	Auto	0.0000
L31	42	Aero MP3-04	29.25 - 34.92	Auto	0.0000
L31	49	Aero Step Ladder	29.25 - 34.92	Manual	1.0000
L32	40	Aero MP3-04	28.25 - 29.25	Auto	0.0000
L32	41	Aero MP3-04	28.25 - 29.25	Auto	0.0000
L32	42	Aero MP3-04	28.25 - 29.25	Auto	0.0000
L32	49	Aero Step Ladder	28.25 - 29.25	Manual	1.0000
L33	28	Aero MP3-04	24.08 - 25.50	Auto	0.0000
L33	29	Aero MP3-04	24.08 - 25.50	Auto	0.0000

<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>22 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L33	30	Aero MP3-04	24.08 - 25.50	Auto	0.0000
L33	40	Aero MP3-04	24.08 - 28.25	Auto	0.0000
L33	41	Aero MP3-04	24.08 - 28.25	Auto	0.0000
L33	42	Aero MP3-04	24.08 - 28.25	Auto	0.0000
L33	48	Aero Step Ladder	24.08 - 26.33	Manual	1.0000
L33	49	Aero Step Ladder	26.67 - 28.25	Manual	1.0000
L34	28	Aero MP3-04	23.83 - 24.08	Auto	0.0000
L34	29	Aero MP3-04	23.83 - 24.08	Auto	0.0000
L34	30	Aero MP3-04	23.83 - 24.08	Auto	0.0000
L34	40	Aero MP3-04	23.83 - 24.08	Auto	0.0000
L34	41	Aero MP3-04	23.83 - 24.08	Auto	0.0000
L34	42	Aero MP3-04	23.83 - 24.08	Auto	0.0000
L34	48	Aero Step Ladder	23.83 - 24.08	Manual	1.0000
L35	28	Aero MP3-04	18.83 - 23.83	Auto	0.0000
L35	29	Aero MP3-04	18.83 - 23.83	Auto	0.0000
L35	30	Aero MP3-04	18.83 - 23.83	Auto	0.0000
L35	40	Aero MP3-04	18.83 - 23.83	Auto	0.0000
L35	41	Aero MP3-04	18.83 - 23.83	Auto	0.0000
L35	42	Aero MP3-04	18.83 - 23.83	Auto	0.0000
L35	48	Aero Step Ladder	18.83 - 23.83	Manual	1.0000
L36	28	Aero MP3-04	13.83 - 18.83	Auto	0.0000
L36	29	Aero MP3-04	13.83 - 18.83	Auto	0.0000
L36	30	Aero MP3-04	13.83 - 18.83	Auto	0.0000
L36	40	Aero MP3-04	13.83 - 18.83	Auto	0.0000
L36	41	Aero MP3-04	13.83 - 18.83	Auto	0.0000
L36	42	Aero MP3-04	13.83 - 18.83	Auto	0.0000
L36	48	Aero Step Ladder	13.83 - 18.83	Manual	1.0000
L37	28	Aero MP3-04	8.83 - 13.83	Auto	0.0000
L37	29	Aero MP3-04	8.83 - 13.83	Auto	0.0000
L37	30	Aero MP3-04	8.83 - 13.83	Auto	0.0000
L37	40	Aero MP3-04	8.83 - 13.83	Auto	0.0000
L37	41	Aero MP3-04	8.83 - 13.83	Auto	0.0000
L37	42	Aero MP3-04	8.83 - 13.83	Auto	0.0000
L37	48	Aero Step Ladder	12.33 - 13.83	Manual	1.0000
L38	28	Aero MP3-04	3.83 - 8.83	Auto	0.0000
L38	29	Aero MP3-04	3.83 - 8.83	Auto	0.0000
L38	30	Aero MP3-04	3.83 - 8.83	Auto	0.0000
L38	40	Aero MP3-04	3.83 - 8.83	Auto	0.0000
L38	41	Aero MP3-04	3.83 - 8.83	Auto	0.0000
L38	42	Aero MP3-04	3.83 - 8.83	Auto	0.0000
L39	28	Aero MP3-04	1.92 - 3.83	Auto	0.0000
L39	29	Aero MP3-04	1.92 - 3.83	Auto	0.0000
L39	30	Aero MP3-04	1.92 - 3.83	Auto	0.0000
L39	40	Aero MP3-04	1.92 - 3.83	Auto	0.0000
L39	41	Aero MP3-04	1.92 - 3.83	Auto	0.0000
L39	42	Aero MP3-04	1.92 - 3.83	Auto	0.0000
L40	28	Aero MP3-04	1.67 - 1.92	Auto	0.0000
L40	29	Aero MP3-04	1.67 - 1.92	Auto	0.0000
L40	30	Aero MP3-04	1.67 - 1.92	Auto	0.0000
L40	40	Aero MP3-04	1.67 - 1.92	Auto	0.0000
L40	41	Aero MP3-04	1.67 - 1.92	Auto	0.0000
L40	42	Aero MP3-04	1.67 - 1.92	Auto	0.0000
L41	28	Aero MP3-04	0.00 - 1.67	Auto	0.0000
L41	29	Aero MP3-04	0.00 - 1.67	Auto	0.0000
L41	30	Aero MP3-04	0.00 - 1.67	Auto	0.0000
L41	40	Aero MP3-04	0.00 - 1.67	Auto	0.0000
L41	41	Aero MP3-04	0.00 - 1.67	Auto	0.0000
L41	42	Aero MP3-04	0.00 - 1.67	Auto	0.0000



<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>23 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

**Discrete Tower Loads**

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
2.4" Dia x 8-ft Mount Pipe	C	From Leg	0.00	0.00	0.000	147.00	No Ice	1.90	1.90	0.03
			0.000				1/2" Ice	2.73	2.73	0.04
			4.000				1" Ice	3.40	3.40	0.06
*147*										
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Centroid-Le	4.00	-6.000	35.000	147.00	No Ice	14.69	6.87	0.18
			0.000	g			1/2" Ice	15.46	7.55	0.31
			0.000				1" Ice	16.23	8.25	0.45
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Centroid-Le	4.00	-6.000	20.000	147.00	No Ice	14.69	6.87	0.18
			0.000	g			1/2" Ice	15.46	7.55	0.31
			0.000				1" Ice	16.23	8.25	0.45
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Centroid-Le	4.00	-6.000	0.000	147.00	No Ice	14.69	6.87	0.18
			0.000	g			1/2" Ice	15.46	7.55	0.31
			0.000				1" Ice	16.23	8.25	0.45
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Centroid-Le	4.00	6.000	35.000	147.00	No Ice	5.19	2.71	0.13
			0.000	g			1/2" Ice	5.59	3.04	0.17
			0.000				1" Ice	6.02	3.38	0.23
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Centroid-Le	4.00	6.000	20.000	147.00	No Ice	5.19	2.71	0.13
			0.000	g			1/2" Ice	5.59	3.04	0.17
			0.000				1" Ice	6.02	3.38	0.23
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Centroid-Le	4.00	6.000	0.000	147.00	No Ice	5.19	2.71	0.13
			0.000	g			1/2" Ice	5.59	3.04	0.17
			0.000				1" Ice	6.02	3.38	0.23
(2) RADIO 4460 B2/B25 B66_TMO	A	From Centroid-Le	4.00	0.000	35.000	147.00	No Ice	2.14	1.69	0.11
			0.000	g			1/2" Ice	2.32	1.85	0.13
			0.000				1" Ice	2.51	2.02	0.16
RADIO 4460 B2/B25 B66_TMO	B	From Centroid-Le	4.00	2.000	0.000	147.00	No Ice	2.14	1.69	0.11
			0.000	g			1/2" Ice	2.32	1.85	0.13
			0.000				1" Ice	2.51	2.02	0.16
(2) Radio 4480_TMOV2	A	From Centroid-Le	4.00	0.000	35.000	147.00	No Ice	2.88	1.40	0.08
			0.000	g			1/2" Ice	3.09	1.56	0.10
			0.000				1" Ice	3.31	1.73	0.13
Radio 4480_TMOV2	B	From Centroid-Le	4.00	2.000	0.000	147.00	No Ice	2.88	1.40	0.08
			0.000	g			1/2" Ice	3.09	1.56	0.10
			0.000				1" Ice	3.31	1.73	0.13
(3) 2.4" Dia. x 6' Mount Pipe	A	From Centroid-Le	4.00	0.000	0.000	147.00	No Ice	1.43	1.43	0.02
			0.000	g			1/2" Ice	1.93	1.93	0.04
			0.000				1" Ice	2.31	2.31	0.06
(3) 2.4" Dia. x 6' Mount Pipe	B	From Centroid-Le	4.00	0.000	0.000	147.00	No Ice	1.43	1.43	0.02
			0.000	g			1/2" Ice	1.93	1.93	0.04
			0.000				1" Ice	2.31	2.31	0.06
(3) 2.4" Dia. x 6' Mount Pipe	C	From Centroid-Le	4.00	0.000	0.000	147.00	No Ice	1.43	1.43	0.02
			0.000	g			1/2" Ice	1.93	1.93	0.04
			0.000				1" Ice	2.31	2.31	0.06
Platform Mount [LP 1201-1_HR-1]	C	None			0.000	147.00	No Ice	26.39	26.39	2.36
							1/2" Ice	31.40	31.40	3.06
							1" Ice	36.20	36.20	3.86
*145*										
TME-800MHZ RRH	A	From Leg	1.00		0.000	145.00	No Ice	2.13	1.77	0.05
			0.000				1/2" Ice	2.32	1.95	0.07
			1.000				1" Ice	2.51	2.13	0.10

<p><b>tnxTower</b></p> <p><b>Tower Engineering Professionals</b>                  326 Tryon Road                  Raleigh, NC 27603                  Phone: (919) 661-6351                  FAX: (919) 661-6350</p>	<b>Job</b>	Branford Banm Tower (BU 876321)	<b>Page</b>	24 of 44
	<b>Project</b>	TEP No. 25579.630745	<b>Date</b>	10:25:38 12/10/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	DAR

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
TME-800MHZ RRH	B	From Leg	1.00	0.000	0.000	145.00	No Ice 2.13	1.77	0.05
			0.000				1/2" Ice 2.32	1.95	0.07
			1.000				1" Ice 2.51	2.13	0.10
TME-800MHZ RRH	C	From Leg	1.00	0.000	0.000	145.00	No Ice 2.13	1.77	0.05
			0.000				1/2" Ice 2.32	1.95	0.07
			1.000				1" Ice 2.51	2.13	0.10
800 EXTERNAL NOTCH FILTER	A	From Leg	1.00	0.000	0.000	145.00	No Ice 0.66	0.29	0.01
			0.000				1/2" Ice 0.76	0.36	0.02
			1.000				1" Ice 0.87	0.45	0.02
800 EXTERNAL NOTCH FILTER	B	From Leg	1.00	0.000	0.000	145.00	No Ice 0.66	0.29	0.01
			0.000				1/2" Ice 0.76	0.36	0.02
			1.000				1" Ice 0.87	0.45	0.02
800 EXTERNAL NOTCH FILTER	C	From Leg	1.00	0.000	0.000	145.00	No Ice 0.66	0.29	0.01
			0.000				1/2" Ice 0.76	0.36	0.02
			1.000				1" Ice 0.87	0.45	0.02
TME-1900MHZ RRH (65 MHz)	A	From Leg	1.00	0.000	0.000	145.00	No Ice 2.70	2.77	0.06
			0.000				1/2" Ice 2.94	3.01	0.08
			-2.000				1" Ice 3.18	3.26	0.11
TME-1900MHZ RRH (65 MHz)	B	From Leg	1.00	0.000	0.000	145.00	No Ice 2.70	2.77	0.06
			0.000				1/2" Ice 2.94	3.01	0.08
			-2.000				1" Ice 3.18	3.26	0.11
TME-1900MHZ RRH (65 MHz)	C	From Leg	1.00	0.000	0.000	145.00	No Ice 2.70	2.77	0.06
			0.000				1/2" Ice 2.94	3.01	0.08
			-2.000				1" Ice 3.18	3.26	0.11
Pipe Mount [PM 601-3]	C	None		0.000	0.000	145.00	No Ice 3.17	3.17	0.20
							1/2" Ice 3.79	3.79	0.23
							1" Ice 4.42	4.42	0.28
**136**									
MX08FRO665-21 w/ Mount Pipe	A	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 8.01	4.23	0.11
			-3.000				1/2" Ice 8.52	4.69	0.19
			0.000				1" Ice 9.04	5.16	0.29
MX08FRO665-21 w/ Mount Pipe	B	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 8.01	4.23	0.11
			-3.000				1/2" Ice 8.52	4.69	0.19
			0.000				1" Ice 9.04	5.16	0.29
MX08FRO665-21 w/ Mount Pipe	C	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 8.01	4.23	0.11
			-3.000				1/2" Ice 8.52	4.69	0.19
			0.000				1" Ice 9.04	5.16	0.29
TA08025-B604	A	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 1.96	0.98	0.06
			-3.000				1/2" Ice 2.14	1.11	0.08
			0.000				1" Ice 2.32	1.25	0.10
TA08025-B604	B	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 1.96	0.98	0.06
			-3.000				1/2" Ice 2.14	1.11	0.08
			0.000				1" Ice 2.32	1.25	0.10
TA08025-B604	C	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 1.96	0.98	0.06
			-3.000				1/2" Ice 2.14	1.11	0.08
			0.000				1" Ice 2.32	1.25	0.10
TA08025-B605	A	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 1.96	1.13	0.08
			-3.000				1/2" Ice 2.14	1.27	0.09
			0.000				1" Ice 2.32	1.41	0.11
TA08025-B605	B	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 1.96	1.13	0.08
			-3.000				1/2" Ice 2.14	1.27	0.09
			0.000				1" Ice 2.32	1.41	0.11
TA08025-B605	C	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 1.96	1.13	0.08
			-3.000				1/2" Ice 2.14	1.27	0.09
			0.000				1" Ice 2.32	1.41	0.11
RDIDC-9181-PF-48	A	From Centroid-Le g	4.00	0.000	0.000	136.00	No Ice 2.01	1.17	0.02
			-3.000				1/2" Ice 2.19	1.31	0.04

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>25 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
(2) 2.4" Dia x 8-ft Mount Pipe	A	g	0.000		0.000	136.00	1" Ice	2.37	1.46	0.06
		From	4.00				No Ice	1.90	1.90	0.03
		Centroid-Le	1.500				1/2" Ice	2.73	2.73	0.04
		g	0.000				1" Ice	3.40	3.40	0.06
(2) 2.4" Dia x 8-ft Mount Pipe	B	g	0.000		0.000	136.00	1" Ice	3.40	3.40	0.06
		From	4.00				No Ice	1.90	1.90	0.03
		Centroid-Le	1.500				1/2" Ice	2.73	2.73	0.04
		g	0.000				1" Ice	3.40	3.40	0.06
(2) 2.4" Dia x 8-ft Mount Pipe	C	g	0.000		0.000	136.00	1" Ice	3.40	3.40	0.06
		From	4.00				No Ice	1.90	1.90	0.03
		Centroid-Le	1.500				1/2" Ice	2.73	2.73	0.04
		g	0.000				1" Ice	3.40	3.40	0.06
Commscope MC-K6MHDX-9-96 (3)	C	None			0.000	136.00	No Ice	15.30	15.30	1.19
							1/2" Ice	20.48	20.48	1.71
							1" Ice	25.66	25.66	2.22
*122*										
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From	3.00		-10.000	122.00	No Ice	3.14	2.59	0.11
		Centroid-Fa	-6.000				1/2" Ice	3.45	2.88	0.16
		ce	1.000				1" Ice	3.77	3.19	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From	3.00		0.000	122.00	No Ice	3.14	2.59	0.11
		Centroid-Fa	-6.000				1/2" Ice	3.45	2.88	0.16
		ce	1.000				1" Ice	3.77	3.19	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From	3.00		20.000	122.00	No Ice	3.14	2.59	0.11
		Centroid-Fa	-6.000				1/2" Ice	3.45	2.88	0.16
		ce	1.000				1" Ice	3.77	3.19	0.23
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From	4.00		-10.000	122.00	No Ice	14.69	6.87	0.19
		Centroid-Fa	0.000				1/2" Ice	15.46	7.55	0.31
		ce	1.000				1" Ice	16.23	8.25	0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From	4.00		0.000	122.00	No Ice	14.69	6.87	0.19
		Centroid-Fa	0.000				1/2" Ice	15.46	7.55	0.31
		ce	1.000				1" Ice	16.23	8.25	0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From	4.00		20.000	122.00	No Ice	14.69	6.87	0.19
		Centroid-Fa	0.000				1/2" Ice	15.46	7.55	0.31
		ce	1.000				1" Ice	16.23	8.25	0.46
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From	3.00		-10.000	122.00	No Ice	3.14	2.59	0.11
		Centroid-Fa	6.000				1/2" Ice	3.45	2.88	0.16
		ce	1.000				1" Ice	3.77	3.19	0.22
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From	3.00		0.000	122.00	No Ice	3.14	2.59	0.11
		Centroid-Fa	6.000				1/2" Ice	3.45	2.88	0.16
		ce	1.000				1" Ice	3.77	3.19	0.22
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From	3.00		20.000	122.00	No Ice	3.14	2.59	0.11
		Centroid-Fa	6.000				1/2" Ice	3.45	2.88	0.16
		ce	1.000				1" Ice	3.77	3.19	0.22
KRY 112 144/1	A	From	3.00		-10.000	122.00	No Ice	0.35	0.17	0.01
		Centroid-Fa	-6.000				1/2" Ice	0.43	0.23	0.01
		ce	1.000				1" Ice	0.51	0.30	0.02
KRY 112 144/1	B	From	3.00		0.000	122.00	No Ice	0.35	0.17	0.01
		Centroid-Fa	-6.000				1/2" Ice	0.43	0.23	0.01
		ce	1.000				1" Ice	0.51	0.30	0.02
KRY 112 144/1	C	From	3.00		20.000	122.00	No Ice	0.35	0.17	0.01
		Centroid-Fa	-6.000				1/2" Ice	0.43	0.23	0.01
		ce	1.000				1" Ice	0.51	0.30	0.02
RADIO 4449 B71/B85A	A	From	4.00		-10.000	122.00	No Ice	1.64	1.31	0.07
		Centroid-Fa	0.000				1/2" Ice	1.80	1.46	0.09
		ce	1.000				1" Ice	1.97	1.61	0.11
RADIO 4449 B71/B85A	B	From	4.00		0.000	122.00	No Ice	1.64	1.31	0.07
		Centroid-Fa	0.000				1/2" Ice	1.80	1.46	0.09
		ce	1.000				1" Ice	1.97	1.61	0.11
RADIO 4449 B71/B85A	C	From	4.00		20.000	122.00	No Ice	1.64	1.31	0.07

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>26 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
Site Pro 1 RMQP-496 w/HRK12	C	Centroid-Fa	0.000		0.000	122.00	1/2" Ice	1.80	1.46	0.09
		ce	1.000				1" Ice	1.97	1.61	0.11
		None					No Ice	23.14	21.40	1.95
							1/2" Ice	28.17	26.44	2.34
							33.23	31.60	2.85	
*110*										
DMP65R-BU4D w/ Mount Pipe	A	From	4.00	-16.000	110.00	No Ice	7.53	3.79	0.09	
		Centroid-Fa	-6.000			1/2" Ice	8.04	4.23	0.16	
		ce	2.000			1" Ice	8.57	4.68	0.22	
DMP65R-BU4D w/ Mount Pipe	B	From	4.00	30.000	110.00	No Ice	7.53	3.79	0.09	
		Centroid-Fa	-6.000			1/2" Ice	8.04	4.23	0.16	
		ce	2.000			1" Ice	8.57	4.68	0.22	
DMP65R-BU4D w/ Mount Pipe	C	From	4.00	20.000	110.00	No Ice	7.53	3.79	0.09	
		Centroid-Fa	-6.000			1/2" Ice	8.04	4.23	0.16	
		ce	2.000			1" Ice	8.57	4.68	0.22	
QD4616-7 w/ Mount Pipe	A	From	4.00	-16.000	110.00	No Ice	8.88	4.92	0.13	
		Centroid-Fa	-2.000			1/2" Ice	9.45	5.42	0.20	
		ce	2.000			1" Ice	10.04	5.93	0.28	
QD4616-7 w/ Mount Pipe	B	From	4.00	0.000	110.00	No Ice	8.88	4.92	0.13	
		Centroid-Fa	-2.000			1/2" Ice	9.45	5.42	0.20	
		ce	2.000			1" Ice	10.04	5.93	0.28	
QD4616-7 w/ Mount Pipe	C	From	4.00	0.000	110.00	No Ice	8.88	4.92	0.13	
		Centroid-Fa	-2.000			1/2" Ice	9.45	5.42	0.20	
		ce	2.000			1" Ice	10.04	5.93	0.28	
AIR 6449 N77 w/ Mount Pipe	A	From	4.00	-16.000	110.00	No Ice	3.65	2.72	0.11	
		Centroid-Fa	6.000			1/2" Ice	3.99	3.03	0.15	
		ce	3.000			1" Ice	4.35	3.36	0.20	
AIR 6449 N77 w/ Mount Pipe	B	From	4.00	0.000	110.00	No Ice	3.65	2.72	0.11	
		Centroid-Fa	6.000			1/2" Ice	3.99	3.03	0.15	
		ce	3.000			1" Ice	4.35	3.36	0.20	
AIR 6449 N77 w/ Mount Pipe	C	From	4.00	0.000	110.00	No Ice	3.65	2.72	0.11	
		Centroid-Fa	6.000			1/2" Ice	3.99	3.03	0.15	
		ce	3.000			1" Ice	4.35	3.36	0.20	
AIR 6419 B77G w/ Mount Pipe	A	From	4.00	-16.000	110.00	No Ice	4.32	2.49	0.08	
		Centroid-Fa	6.000			1/2" Ice	4.74	2.84	0.11	
		ce	1.000			1" Ice	5.17	3.21	0.15	
AIR 6419 B77G w/ Mount Pipe	B	From	4.00	0.000	110.00	No Ice	4.32	2.49	0.08	
		Centroid-Fa	6.000			1/2" Ice	4.74	2.84	0.11	
		ce	1.000			1" Ice	5.17	3.21	0.15	
AIR 6419 B77G w/ Mount Pipe	C	From	4.00	0.000	110.00	No Ice	4.32	2.49	0.08	
		Centroid-Fa	6.000			1/2" Ice	4.74	2.84	0.11	
		ce	1.000			1" Ice	5.17	3.21	0.15	
DC6-48-60-18-8F	A	From	4.00	0.000	110.00	No Ice	1.21	1.21	0.03	
		Centroid-Fa	-2.000			1/2" Ice	1.89	1.89	0.05	
		ce	2.000			1" Ice	2.11	2.11	0.08	
DC6-48-60-18-8F	B	From	4.00	0.000	110.00	No Ice	1.21	1.21	0.03	
		Centroid-Fa	-6.000			1/2" Ice	1.89	1.89	0.05	
		ce	2.000			1" Ice	2.11	2.11	0.08	
(2) DC6-48-60-18-8F	C	From	4.00	0.000	110.00	No Ice	1.21	1.21	0.03	
		Centroid-Fa	-4.000			1/2" Ice	1.89	1.89	0.05	
		ce	2.000			1" Ice	2.11	2.11	0.08	
RRUS-32 B30	A	From	4.00	-16.000	110.00	No Ice	3.31	2.42	0.08	
		Centroid-Fa	-2.000			1/2" Ice	3.56	2.64	0.10	
		ce	2.000			1" Ice	3.81	2.86	0.14	
RRUS-32 B30	B	From	4.00	0.000	110.00	No Ice	3.31	2.42	0.08	
		Centroid-Fa	-2.000			1/2" Ice	3.56	2.64	0.10	
		ce	2.000			1" Ice	3.81	2.86	0.14	

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>27 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
RRUS-32 B30	C	From	4.00		0.000	110.00	No Ice	3.31	2.42	0.08
		Centroid-Fa	-2.000				1/2" Ice	3.56	2.64	0.10
		ce	2.000				1" Ice	3.81	2.86	0.14
RRUS 4478 B14_CCIV2	A	From	4.00		-16.000	110.00	No Ice	2.02	1.25	0.06
		Centroid-Fa	2.000				1/2" Ice	2.20	1.40	0.08
		ce	2.000				1" Ice	2.39	1.55	0.10
RRUS 4478 B14_CCIV2	B	From	4.00		0.000	110.00	No Ice	2.02	1.25	0.06
		Centroid-Fa	2.000				1/2" Ice	2.20	1.40	0.08
		ce	2.000				1" Ice	2.39	1.55	0.10
RRUS 4478 B14_CCIV2	C	From	4.00		0.000	110.00	No Ice	2.02	1.25	0.06
		Centroid-Fa	2.000				1/2" Ice	2.20	1.40	0.08
		ce	2.000				1" Ice	2.39	1.55	0.10
RRUS 4449 B5/B12	A	From	4.00		-16.000	110.00	No Ice	1.97	1.41	0.07
		Centroid-Fa	6.000				1/2" Ice	2.14	1.56	0.09
		ce	2.000				1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	B	From	4.00		0.000	110.00	No Ice	1.97	1.41	0.07
		Centroid-Fa	6.000				1/2" Ice	2.14	1.56	0.09
		ce	2.000				1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	C	From	4.00		0.000	110.00	No Ice	1.97	1.41	0.07
		Centroid-Fa	6.000				1/2" Ice	2.14	1.56	0.09
		ce	2.000				1" Ice	2.33	1.73	0.11
RRUS 32 B2	A	From	4.00		-16.000	110.00	No Ice	2.73	1.67	0.05
		Centroid-Fa	6.000				1/2" Ice	2.95	1.86	0.07
		ce	2.000				1" Ice	3.18	2.05	0.10
RRUS 32 B2	B	From	4.00		0.000	110.00	No Ice	2.73	1.67	0.05
		Centroid-Fa	6.000				1/2" Ice	2.95	1.86	0.07
		ce	2.000				1" Ice	3.18	2.05	0.10
RRUS 32 B2	C	From	4.00		0.000	110.00	No Ice	2.73	1.67	0.05
		Centroid-Fa	6.000				1/2" Ice	2.95	1.86	0.07
		ce	2.000				1" Ice	3.18	2.05	0.10
RRUS 32 B66	A	From	4.00		-16.000	110.00	No Ice	2.74	1.67	0.05
		Centroid-Fa	2.000				1/2" Ice	2.96	1.86	0.07
		ce	2.000				1" Ice	3.19	2.05	0.10
RRUS 32 B66	B	From	4.00		0.000	110.00	No Ice	2.74	1.67	0.05
		Centroid-Fa	2.000				1/2" Ice	2.96	1.86	0.07
		ce	2.000				1" Ice	3.19	2.05	0.10
RRUS 32 B66	C	From	4.00		0.000	110.00	No Ice	2.74	1.67	0.05
		Centroid-Fa	2.000				1/2" Ice	2.96	1.86	0.07
		ce	2.000				1" Ice	3.19	2.05	0.10
2.4" Dia. x 8' Mount Pipe	A	From	4.00		0.000	110.00	No Ice	1.90	1.90	0.03
		Centroid-Le	0.000				1/2" Ice	2.73	2.73	0.04
		g	0.000				1" Ice	3.40	3.40	0.06
2.4" Dia. x 8' Mount Pipe	B	From	4.00		0.000	110.00	No Ice	1.90	1.90	0.03
		Centroid-Le	0.000				1/2" Ice	2.73	2.73	0.04
		g	0.000				1" Ice	3.40	3.40	0.06
2.4" Dia. x 8' Mount Pipe	B	From	4.00		0.000	110.00	No Ice	1.90	1.90	0.03
		Centroid-Le	0.000				1/2" Ice	2.73	2.73	0.04
		g	0.000				1" Ice	3.40	3.40	0.06
(2) 2.4" Dia. x 6' Mount Pipe	A	From	4.00		0.000	110.00	No Ice	0.00	1.43	0.02
		Centroid-Le	0.000				1/2" Ice	0.00	1.93	0.04
		g	0.000				1" Ice	0.00	2.31	0.06
2.4" Dia. x 6' Mount Pipe	B	From	4.00		0.000	110.00	No Ice	0.00	1.43	0.02
		Centroid-Le	0.000				1/2" Ice	0.00	1.93	0.04
		g	0.000				1" Ice	0.00	2.31	0.06
2.4" Dia. x 6' Mount Pipe	B	From	4.00		0.000	110.00	No Ice	0.00	1.43	0.02
		Centroid-Le	0.000				1/2" Ice	0.00	1.93	0.04
		g	0.000				1" Ice	0.00	2.31	0.06



<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>28 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			ft ft ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
Platform Mount [LP 1201-1_KCKR-HR-1]	B	None		0.000	110.00	No Ice 37.61 1/2" Ice 45.62 1" Ice 53.59	37.61 45.62 53.59	2.63 3.48 4.46
*53* GPS_A	B	From Leg	3.00 0.000 1.000	0.000	53.00	No Ice 0.12 1/2" Ice 0.21 1" Ice 0.28	0.12 0.21 0.28	0.00 0.00 0.01
Side Arm Mount [SO 701-1]	B	From Leg	1.50 0.000 0.000	0.000	53.00	No Ice 0.85 1/2" Ice 1.14 1" Ice 1.43	1.67 2.34 3.01	0.07 0.08 0.09
*49* KS24019-L112A	C	From Leg	3.00 0.000 1.000	0.000	49.00	No Ice 0.08 1/2" Ice 0.13 1" Ice 0.19	0.08 0.13 0.19	0.01 0.01 0.01
Side Arm Mount [SO 701-1]	C	From Leg	1.50 0.000 0.000	0.000	49.00	No Ice 0.85 1/2" Ice 1.14 1" Ice 1.43	1.67 2.34 3.01	0.07 0.08 0.09
*** *****								

### Dishes

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
A-ANT-23G-2-C	A	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 2.000 2.000	0.000		147.00	2.17	No Ice 3.72 1/2" Ice 4.01 1" Ice 4.30	0.01 0.02 0.03
VHLP2-18	C	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 -6.000 2.000	-60.000		147.00	2.00	No Ice 3.14 1/2" Ice 3.41 1" Ice 3.68	0.03 0.05 0.07
A-ANT-23G-2-C	B	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 2.000 2.000	0.000		147.00	2.17	No Ice 3.72 1/2" Ice 4.01 1" Ice 4.30	0.01 0.02 0.03
***										

### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice

<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>	Branford Banm Tower (BU 876321)	<b>Page</b>	29 of 44
	<b>Project</b>	TEP No. 25579.630745	<b>Date</b>	10:25:38 12/10/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	DAR

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

### Maximum Member Forces

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Axial K</i>	<i>Major Axis Moment kip-ft</i>	<i>Minor Axis Moment kip-ft</i>
L1	147 - 142	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-9.94	-0.74	0.91
			Max. Mx	8	-5.15	-33.27	1.42
			Max. My	2	-5.13	-0.90	34.60
			Max. Vy	20	-7.04	32.50	-0.13
			Max. Vx	2	-7.16	-0.90	34.60
			Max. Torque	22			-1.67
L2	142 - 137	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.59	-0.64	1.00

<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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>30 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	137 - 132	Pole	Max. Mx	8	-5.50	-69.48	2.44
			Max. My	2	-5.48	-1.53	71.72
			Max. Vy	20	-7.56	69.02	-0.96
			Max. Vx	2	-7.69	-1.53	71.72
			Max. Torque	22			-1.67
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.85	-0.32	1.36
			Max. Mx	20	-8.12	119.02	-1.74
			Max. My	2	-8.11	-2.14	122.47
			Max. Vy	20	-10.78	119.02	-1.74
L4	132 - 127	Pole	Max. Vx	2	-10.94	-2.14	122.47
			Max. Torque	22			-1.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.57	-0.18	1.48
			Max. Mx	20	-8.53	174.35	-2.59
			Max. My	2	-8.52	-2.79	178.53
			Max. Vy	20	-11.34	174.35	-2.59
			Max. Vx	2	-11.48	-2.79	178.53
			Max. Torque	22			-1.72
			Max Tension	1	0.00	0.00	0.00
L5	127 - 122	Pole	Max. Compression	26	-17.31	-0.04	1.60
			Max. Mx	20	-8.97	232.46	-3.45
			Max. My	2	-8.96	-3.44	237.32
			Max. Vy	20	-11.89	232.46	-3.45
			Max. Vx	2	-12.03	-3.44	237.32
			Max. Torque	22			-1.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.69	0.11	1.73
			Max. Mx	20	-13.16	314.87	-5.31
			Max. My	2	-13.18	-5.04	319.28
L6	122 - 117	Pole	Max. Vy	20	-16.31	314.87	-5.31
			Max. Vx	2	-16.26	-5.04	319.28
			Max. Torque	22			-2.01
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.53	0.27	1.86
			Max. Mx	20	-13.72	397.81	-7.02
			Max. My	2	-13.75	-6.54	401.94
			Max. Vy	20	-16.86	397.81	-7.02
			Max. Vx	2	-16.81	-6.54	401.94
			Max. Torque	22			-2.01
L7	117 - 112	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.62	-0.78	2.18
			Max. Mx	20	-19.76	510.30	-9.38
			Max. My	2	-19.83	-9.05	513.00
			Max. Vy	20	-24.01	510.30	-9.38
			Max. Vx	2	-23.57	-9.05	513.00
			Max. Torque	12			3.76
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.33	-0.66	2.29
			Max. Mx	20	-20.29	601.08	-11.24
L8	112 - 107	Pole	Max. My	2	-20.36	-10.75	602.13
			Max. Vy	20	-24.41	601.08	-11.24
			Max. Vx	2	-23.97	-10.75	602.13
			Max. Torque	12			3.76
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.89	-0.49	2.43
			Max. Mx	20	-21.46	724.73	-13.72
			Max. My	2	-21.53	-13.03	723.56
			Max. Vy	20	-25.03	724.73	-13.72
			Max. Vx	2	-24.60	-13.03	723.56
L9	107 - 99.5	Pole	Max. Torque	12			3.76
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.89	-0.49	2.43
			Max. Mx	20	-21.46	724.73	-13.72
			Max. My	2	-21.53	-13.03	723.56
			Max. Vy	20	-25.03	724.73	-13.72
L10	99.5 - 98.25	Pole	Max. Vx	2	-24.60	-13.03	723.56
			Max. Torque	12			3.76

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>31 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L11	98.25 - 93.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.98	-0.32	2.57
			Max. Mx	20	-22.33	851.22	-16.20
			Max. My	2	-22.40	-15.30	847.84
			Max. Vy	20	-25.57	851.22	-16.20
			Max. Vx	2	-25.13	-15.30	847.84
			Max. Torque	12			3.76
L12	93.25 - 88.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.08	-0.15	2.71
			Max. Mx	20	-23.24	980.38	-18.67
			Max. My	2	-23.31	-17.56	974.78
			Max. Vy	20	-26.10	980.38	-18.67
			Max. Vx	2	-25.66	-17.56	974.78
			Max. Torque	12			3.75
L13	88.25 - 83.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.21	0.03	2.86
			Max. Mx	20	-24.18	1112.18	-21.14
			Max. My	2	-24.25	-19.81	1104.35
			Max. Vy	20	-26.62	1112.18	-21.14
			Max. Vx	2	-26.18	-19.81	1104.35
			Max. Torque	12			3.75
L14	83.25 - 78.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.35	0.21	3.00
			Max. Mx	20	-25.15	1246.57	-23.61
			Max. My	2	-25.21	-22.05	1236.52
			Max. Vy	20	-27.14	1246.57	-23.61
			Max. Vx	2	-26.70	-22.05	1236.52
			Max. Torque	12			3.75
L15	78.25 - 73.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.52	0.39	3.14
			Max. Mx	20	-26.16	1383.53	-26.06
			Max. My	2	-26.21	-24.27	1371.26
			Max. Vy	20	-27.65	1383.53	-26.06
			Max. Vx	2	-27.21	-24.27	1371.26
			Max. Torque	12			3.74
L16	73.25 - 69.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.41	0.53	3.24
			Max. Mx	20	-26.91	1485.70	-27.85
			Max. My	2	-26.96	-25.90	1471.77
			Max. Vy	20	-28.04	1485.70	-27.85
			Max. Vx	2	-27.58	-25.90	1471.77
			Max. Torque	12			3.74
L17	69.58 - 69.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.49	0.54	3.26
			Max. Mx	20	-26.99	1492.71	-27.98
			Max. My	2	-27.04	-26.01	1478.66
			Max. Vy	20	-28.05	1492.71	-27.98
			Max. Vx	2	-27.59	-26.01	1478.66
			Max. Torque	12			3.74
L18	69.33 - 64.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.01	0.72	3.39
			Max. Mx	20	-28.22	1634.71	-30.41
			Max. My	2	-28.28	-28.21	1618.06
			Max. Vy	20	-28.74	1634.71	-30.41
			Max. Vx	2	-28.17	-28.21	1618.06
			Max. Torque	12			3.74
L19	64.33 - 59	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.18	0.75	3.41
			Max. Mx	20	-28.38	1651.40	-30.70
			Max. My	2	-28.43	-28.47	1634.41
			Max. Vy	20	-28.80	1651.40	-30.70

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>32 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L20	59 - 58	Pole	Max. Vx	2	-28.22	-28.47	1634.41
			Max. Torque	12			3.74
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.95	0.96	3.56
			Max. Mx	20	-30.59	1819.40	-33.49
			Max. My	2	-30.65	-31.00	1798.91
			Max. Vy	20	-29.60	1819.40	-33.49
			Max. Vx	2	-28.98	-31.00	1798.91
L21	58 - 57.83	Pole	Max. Torque	12			3.73
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.00	0.97	3.58
			Max. Mx	20	-30.65	1824.43	-33.58
			Max. My	2	-30.71	-31.08	1803.84
			Max. Vy	20	-29.60	1824.43	-33.58
			Max. Vx	2	-28.99	-31.08	1803.84
			Max. Torque	12			3.73
L22	57.83 - 57.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.07	0.98	3.58
			Max. Mx	20	-30.71	1831.83	-33.70
			Max. My	2	-30.77	-31.19	1811.09
			Max. Vy	20	-29.62	1831.83	-33.70
			Max. Vx	2	-29.02	-31.19	1811.09
			Max. Torque	12			3.73
			Max Tension	1	0.00	0.00	0.00
L23	57.58 - 52.58	Pole	Max. Compression	26	-51.67	0.80	3.52
			Max. Mx	20	-32.03	1980.99	-36.24
			Max. My	2	-32.08	-33.63	1957.47
			Max. Vy	20	-30.18	1980.99	-36.24
			Max. Vx	2	-29.65	-33.63	1957.47
			Max. Torque	12			3.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.29	0.85	3.57
L24	52.58 - 50.58	Pole	Max. Mx	20	-32.55	2041.54	-37.24
			Max. My	2	-32.59	-34.55	2016.95
			Max. Vy	20	-30.40	2041.54	-37.24
			Max. Vx	2	-29.86	-34.55	2016.95
			Max. Torque	12			3.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.39	0.86	3.59
			Max. Mx	20	-32.65	2049.14	-37.36
L25	50.58 - 50.33	Pole	Max. My	2	-32.69	-34.67	2024.42
			Max. Vy	20	-30.41	2049.14	-37.36
			Max. Vx	2	-29.88	-34.67	2024.42
			Max. Torque	12			3.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.45	0.87	3.60
			Max. Mx	20	-32.70	2054.00	-37.44
			Max. My	2	-32.75	-34.74	2029.20
L26	50.33 - 50.17	Pole	Max. Vy	20	-30.43	2054.00	-37.44
			Max. Vx	2	-29.90	-34.74	2029.20
			Max. Torque	12			3.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.53	0.87	3.60
			Max. Mx	20	-32.76	2061.62	-37.56
			Max. My	2	-32.81	-34.85	2036.68
			Max. Vy	20	-30.46	2061.62	-37.56
L27	50.17 - 49.92	Pole	Max. Vx	2	-29.92	-34.85	2036.68
			Max. Torque	12			3.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.53	0.87	3.60
			Max. Mx	20	-32.76	2061.62	-37.56
			Max. My	2	-32.81	-34.85	2036.68
			Max. Vy	20	-30.46	2061.62	-37.56
			Max. Vx	2	-29.92	-34.85	2036.68
L28	49.92 - 44.92	Pole	Max. Torque	12			3.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.15	1.37	3.54
			Max. Mx	20	-34.11	2215.82	-40.11



<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>33 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L29	44.92 - 39.92	Pole	Max. My	2	-34.15	-36.81	2187.63
			Max. Vy	20	-31.09	2215.82	-40.11
			Max. Vx	2	-30.47	-36.81	2187.63
			Max. Torque	12			3.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.67	1.57	3.67
			Max. Mx	20	-35.42	2372.58	-42.50
			Max. My	2	-35.46	-38.96	2341.08
			Max. Vy	20	-31.63	2372.58	-42.50
			Max. Vx	2	-30.93	-38.96	2341.08
L30	39.92 - 34.92	Pole	Max. Torque	12			3.61
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.22	1.77	3.80
			Max. Mx	20	-36.76	2531.96	-44.87
			Max. My	2	-36.80	-41.09	2496.76
			Max. Vy	20	-32.14	2531.96	-44.87
			Max. Vx	2	-31.37	-41.09	2496.76
			Max. Torque	12			3.61
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.35	1.78	3.81
L31	34.92 - 29.25	Pole	Max. Mx	20	-36.89	2545.46	-45.07
			Max. My	2	-36.93	-41.27	2509.94
			Max. Vy	20	-32.16	2545.46	-45.07
			Max. Vx	2	-31.39	-41.27	2509.94
			Max. Torque	12			3.61
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.84	1.97	3.96
			Max. Mx	20	-39.75	2748.70	-48.01
			Max. My	2	-39.78	-43.98	2708.53
			Max. Vy	20	-32.86	2748.70	-48.01
L32	29.25 - 28.25	Pole	Max. Vx	2	-32.14	-43.98	2708.53
			Max. Torque	12			3.61
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.32	2.10	4.06
			Max. Mx	20	-41.05	2886.36	-49.96
			Max. My	2	-41.07	-45.78	2843.34
			Max. Vy	20	-33.20	2886.36	-49.96
			Max. Vx	2	-32.54	-45.78	2843.34
			Max. Torque	12			3.61
			Max Tension	1	0.00	0.00	0.00
L33	28.25 - 24.08	Pole	Max. Compression	26	-62.44	2.11	4.07
			Max. Mx	20	-41.17	2894.66	-50.08
			Max. My	2	-41.19	-45.88	2851.48
			Max. Vy	20	-33.20	2894.66	-50.08
			Max. Vx	2	-32.55	-45.88	2851.48
			Max. Torque	12			3.61
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.77	2.26	4.18
			Max. Mx	20	-43.19	3061.77	-52.41
			Max. My	2	-43.21	-48.02	3015.77
L34	24.08 - 23.83	Pole	Max. Vy	20	-33.66	3061.77	-52.41
			Max. Vx	2	-33.16	-48.02	3015.77
			Max. Torque	12			3.61
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.13	2.40	4.30
			Max. Mx	20	-45.26	3231.01	-54.72
			Max. My	2	-45.27	-50.15	3182.95
			Max. Vy	20	-34.06	3231.01	-54.72
			Max. Vx	2	-33.72	-50.15	3182.95
			Max. Torque	12			3.61
L35	23.83 - 18.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.13	2.40	4.30
L36	18.83 - 13.83	Pole	Max. Mx	20	-45.26	3231.01	-54.72
			Max. My	2	-45.27	-50.15	3182.95
			Max. Vy	20	-34.06	3231.01	-54.72
			Max. Vx	2	-33.72	-50.15	3182.95
			Max. Torque	12			3.61
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.13	2.40	4.30
			Max. Mx	20	-45.26	3231.01	-54.72
			Max. My	2	-45.27	-50.15	3182.95
			Max. Vy	20	-34.06	3231.01	-54.72
L37	13.83 - 8.83	Pole	Max. Vx	2	-33.72	-50.15	3182.95
			Max. Torque	12			3.61

<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>	Branford Banm Tower (BU 876321)	<b>Page</b>	34 of 44
	<b>Project</b>	TEP No. 25579.630745	<b>Date</b>	10:25:38 12/10/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	DAR

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
L38	8.83 - 3.83	Pole	Max. Compression	26	-69.47	2.60	4.42			
			Max. Mx	20	-47.34	3402.31	-57.02			
			Max. My	2	-47.34	-52.22	3352.87			
			Max. Vy	20	-34.46	3402.31	-57.02			
			Max. Vx	2	-34.26	-52.22	3352.87			
			Max. Torque	12			3.60			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-71.81	2.81	4.54			
			Max. Mx	20	-49.43	3575.59	-59.31			
			Max. My	2	-49.43	-54.26	3525.44			
			Max. Vy	20	-34.85	3575.59	-59.31			
			Max. Vx	2	-34.79	-54.26	3525.44			
L39	3.83 - 1.92	Pole	Max. Torque	12			3.60			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-72.70	2.88	4.58			
			Max. Mx	20	-50.23	3642.29	-60.18			
			Max. My	2	-50.23	-55.04	3592.07			
			Max. Vy	20	-35.02	3642.29	-60.18			
			Max. Vx	2	-35.01	-55.04	3592.07			
			Max. Torque	12			3.60			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-72.84	2.89	4.58			
			Max. Mx	20	-50.38	3651.05	-60.30			
			Max. My	2	-50.38	-55.14	3600.81			
L40	1.92 - 1.67	Pole	Max. Vy	20	-35.01	3651.05	-60.30			
			Max. Vx	2	-35.00	-55.14	3600.81			
			Max. Torque	12			3.60			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-73.44	2.96	4.62			
			Max. Mx	20	-50.91	3709.62	-61.05			
			Max. My	2	-50.91	-55.82	3659.40			
			Max. Vy	20	-35.15	3709.62	-61.05			
			Max. Vx	2	-35.19	-55.82	3659.40			
			Max. Torque	12			3.60			
			L41	1.67 - 0	Pole	Max. Compression	26	-73.44	2.96	4.62
						Max. Mx	20	-50.91	3709.62	-61.05
Max. My	2	-50.91				-55.82	3659.40			
Max. Vy	20	-35.15				3709.62	-61.05			
Max. Vx	2	-35.19				-55.82	3659.40			
Max. Torque	12						3.60			

## Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	35	73.44	6.77	-3.94
	Max. H <sub>x</sub>	21	38.20	35.11	-0.46
	Max. H <sub>z</sub>	2	50.94	-0.42	35.15
	Max. M <sub>x</sub>	2	3659.40	-0.42	35.15
	Max. M <sub>z</sub>	8	3700.86	-35.06	0.49
	Max. Torsion	12	3.60	-16.83	-29.41
	Min. Vert	7	38.20	-31.76	18.53
	Min. H <sub>x</sub>	8	50.94	-35.06	0.49
	Min. H <sub>z</sub>	15	38.20	0.47	-35.14
	Min. M <sub>x</sub>	14	-3654.83	0.47	-35.14
	Min. M <sub>z</sub>	20	-3709.62	35.11	-0.46
	Min. Torsion	24	-3.34	16.86	29.44

<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>35 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

**Tower Mast Reaction Summary**

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
Dead Only	42.45	0.00	0.00	-1.58	0.51	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	50.94	0.42	-35.15	-3659.40	-55.82	2.60
0.9 Dead+1.0 Wind 0 deg - No Ice	38.20	0.42	-35.15	-3601.04	-55.02	2.57
1.2 Dead+1.0 Wind 30 deg - No Ice	50.94	18.45	-31.21	-3247.89	-1926.84	1.62
0.9 Dead+1.0 Wind 30 deg - No Ice	38.20	18.45	-31.21	-3196.19	-1896.62	1.61
1.2 Dead+1.0 Wind 60 deg - No Ice	50.94	31.76	-18.53	-1962.95	-3338.11	-0.33
0.9 Dead+1.0 Wind 60 deg - No Ice	38.20	31.76	-18.53	-1931.33	-3285.61	-0.32
1.2 Dead+1.0 Wind 90 deg - No Ice	50.94	35.06	-0.49	-68.39	-3700.86	-1.99
0.9 Dead+1.0 Wind 90 deg - No Ice	38.20	35.06	-0.49	-66.70	-3642.61	-1.96
1.2 Dead+1.0 Wind 120 deg - No Ice	50.94	29.90	16.93	1773.18	-3141.48	-3.28
0.9 Dead+1.0 Wind 120 deg - No Ice	38.20	29.90	16.93	1745.61	-3091.99	-3.24
1.2 Dead+1.0 Wind 150 deg - No Ice	50.94	16.83	29.41	3117.38	-1773.45	-3.60
0.9 Dead+1.0 Wind 150 deg - No Ice	38.20	16.83	29.41	3068.44	-1745.61	-3.57
1.2 Dead+1.0 Wind 180 deg - No Ice	50.94	-0.47	35.14	3654.83	64.40	-2.91
0.9 Dead+1.0 Wind 180 deg - No Ice	38.20	-0.47	35.14	3597.55	63.13	-2.88
1.2 Dead+1.0 Wind 210 deg - No Ice	50.94	-18.42	31.24	3248.35	1922.63	-1.59
0.9 Dead+1.0 Wind 210 deg - No Ice	38.20	-18.42	31.24	3197.65	1892.20	-1.58
1.2 Dead+1.0 Wind 240 deg - No Ice	50.94	-31.79	18.51	1954.59	3344.11	0.04
0.9 Dead+1.0 Wind 240 deg - No Ice	38.20	-31.79	18.51	1924.14	3291.21	0.03
1.2 Dead+1.0 Wind 270 deg - No Ice	50.94	-35.11	0.46	61.05	3709.62	2.00
0.9 Dead+1.0 Wind 270 deg - No Ice	38.20	-35.11	0.46	60.50	3650.93	1.97
1.2 Dead+1.0 Wind 300 deg - No Ice	50.94	-29.94	-16.94	-1779.73	3149.54	3.29
0.9 Dead+1.0 Wind 300 deg - No Ice	38.20	-29.94	-16.94	-1751.05	3099.61	3.25
1.2 Dead+1.0 Wind 330 deg - No Ice	50.94	-16.86	-29.44	-3125.52	1780.29	3.34
0.9 Dead+1.0 Wind 330 deg - No Ice	38.20	-16.86	-29.44	-3075.45	1752.02	3.30
1.2 Dead+1.0 Ice+1.0 Temp	73.44	-0.00	-0.00	-4.62	2.96	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	73.44	0.08	-7.71	-859.07	-7.61	0.61
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	73.44	3.96	-6.72	-751.82	-438.25	0.41
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	73.44	6.76	-3.95	-445.25	-748.08	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	73.44	7.76	-0.09	-17.44	-857.37	-0.37

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>36 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</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
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	73.44	6.66	3.79	413.64	-733.65	-0.67
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	73.44	3.80	6.63	728.81	-415.03	-0.78
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	73.44	-0.09	7.71	849.44	15.18	-0.67
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	73.44	-3.95	6.73	743.24	443.16	-0.41
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	73.44	-6.77	3.94	434.83	755.13	-0.06
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	73.44	-7.77	0.09	7.26	865.00	0.37
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	73.44	-6.67	-3.79	-423.70	741.12	0.68
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	73.44	-3.80	-6.64	-739.20	422.24	0.73
Dead+Wind 0 deg - Service	42.45	0.10	-8.14	-842.24	-12.45	0.62
Dead+Wind 30 deg - Service	42.45	4.28	-7.23	-747.77	-442.53	0.38
Dead+Wind 60 deg - Service	42.45	7.36	-4.29	-452.45	-767.02	-0.07
Dead+Wind 90 deg - Service	42.45	8.12	-0.11	-16.91	-850.23	-0.46
Dead+Wind 120 deg - Service	42.45	6.93	3.92	406.29	-721.59	-0.77
Dead+Wind 150 deg - Service	42.45	3.90	6.82	715.18	-407.20	-0.85
Dead+Wind 180 deg - Service	42.45	-0.11	8.14	838.78	15.14	-0.69
Dead+Wind 210 deg - Service	42.45	-4.27	7.24	745.47	442.30	-0.38
Dead+Wind 240 deg - Service	42.45	-7.37	4.29	448.12	769.14	0.00
Dead+Wind 270 deg - Service	42.45	-8.14	0.11	12.80	852.99	0.47
Dead+Wind 300 deg - Service	42.45	-6.94	-3.93	-410.23	724.18	0.77
Dead+Wind 330 deg - Service	42.45	-3.91	-6.82	-719.48	409.50	0.79

## 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	-42.45	0.00	0.00	42.45	0.00	0.000%
2	0.42	-50.94	-35.15	-0.42	50.94	35.15	0.000%
3	0.42	-38.20	-35.15	-0.42	38.20	35.15	0.000%
4	18.45	-50.94	-31.21	-18.45	50.94	31.21	0.000%
5	18.45	-38.20	-31.21	-18.45	38.20	31.21	0.000%
6	31.76	-50.94	-18.53	-31.76	50.94	18.53	0.000%
7	31.76	-38.20	-18.53	-31.76	38.20	18.53	0.000%
8	35.06	-50.94	-0.49	-35.06	50.94	0.49	0.000%
9	35.06	-38.20	-0.49	-35.06	38.20	0.49	0.000%
10	29.90	-50.94	16.93	-29.90	50.94	-16.93	0.000%
11	29.90	-38.20	16.93	-29.90	38.20	-16.93	0.000%
12	16.83	-50.94	29.41	-16.83	50.94	-29.41	0.000%
13	16.83	-38.20	29.41	-16.83	38.20	-29.41	0.000%
14	-0.47	-50.94	35.14	0.47	50.94	-35.14	0.000%
15	-0.47	-38.20	35.14	0.47	38.20	-35.14	0.000%
16	-18.42	-50.94	31.24	18.42	50.94	-31.24	0.000%
17	-18.42	-38.20	31.24	18.42	38.20	-31.24	0.000%
18	-31.79	-50.94	18.51	31.79	50.94	-18.51	0.000%
19	-31.79	-38.20	18.51	31.79	38.20	-18.51	0.000%
20	-35.11	-50.94	0.46	35.11	50.94	-0.46	0.000%
21	-35.11	-38.20	0.46	35.11	38.20	-0.46	0.000%
22	-29.94	-50.94	-16.94	29.94	50.94	16.94	0.000%
23	-29.94	-38.20	-16.94	29.94	38.20	16.94	0.000%
24	-16.86	-50.94	-29.44	16.86	50.94	29.44	0.000%

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>37 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
25	-16.86	-38.20	-29.44	16.86	38.20	29.44	0.000%
26	0.00	-73.44	0.00	0.00	73.44	0.00	0.000%
27	0.08	-73.44	-7.71	-0.08	73.44	7.71	0.000%
28	3.96	-73.44	-6.72	-3.96	73.44	6.72	0.000%
29	6.76	-73.44	-3.95	-6.76	73.44	3.95	0.000%
30	7.76	-73.44	-0.09	-7.76	73.44	0.09	0.000%
31	6.66	-73.44	3.79	-6.66	73.44	-3.79	0.000%
32	3.80	-73.44	6.63	-3.80	73.44	-6.63	0.000%
33	-0.09	-73.44	7.71	0.09	73.44	-7.71	0.000%
34	-3.95	-73.44	6.73	3.95	73.44	-6.73	0.000%
35	-6.77	-73.44	3.94	6.77	73.44	-3.94	0.000%
36	-7.77	-73.44	0.09	7.77	73.44	-0.09	0.000%
37	-6.67	-73.44	-3.79	6.67	73.44	3.79	0.000%
38	-3.80	-73.44	-6.64	3.80	73.44	6.64	0.000%
39	0.10	-42.45	-8.14	-0.10	42.45	8.14	0.000%
40	4.28	-42.45	-7.23	-4.28	42.45	7.23	0.000%
41	7.36	-42.45	-4.29	-7.36	42.45	4.29	0.000%
42	8.12	-42.45	-0.11	-8.12	42.45	0.11	0.000%
43	6.93	-42.45	3.92	-6.93	42.45	-3.92	0.000%
44	3.90	-42.45	6.82	-3.90	42.45	-6.82	0.000%
45	-0.11	-42.45	8.14	0.11	42.45	-8.14	0.000%
46	-4.27	-42.45	7.24	4.27	42.45	-7.24	0.000%
47	-7.37	-42.45	4.29	7.37	42.45	-4.29	0.000%
48	-8.14	-42.45	0.11	8.14	42.45	-0.11	0.000%
49	-6.94	-42.45	-3.93	6.94	42.45	3.93	0.000%
50	-3.91	-42.45	-6.82	3.91	42.45	6.82	0.000%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.00000587
2	Yes	6	0.0000001	0.00056247
3	Yes	6	0.0000001	0.00018695
4	Yes	7	0.0000001	0.00043463
5	Yes	7	0.0000001	0.00009697
6	Yes	7	0.0000001	0.00044302
7	Yes	7	0.0000001	0.00009711
8	Yes	6	0.0000001	0.00054642
9	Yes	6	0.0000001	0.00017928
10	Yes	7	0.0000001	0.00037710
11	Yes	7	0.0000001	0.00008556
12	Yes	7	0.0000001	0.00041628
13	Yes	7	0.0000001	0.00009613
14	Yes	6	0.0000001	0.00015596
15	Yes	5	0.0000001	0.00090259
16	Yes	7	0.0000001	0.00041606
17	Yes	7	0.0000001	0.00009225
18	Yes	7	0.0000001	0.00043927
19	Yes	7	0.0000001	0.00009628
20	Yes	6	0.0000001	0.00010361
21	Yes	5	0.0000001	0.00049860
22	Yes	7	0.0000001	0.00041761
23	Yes	7	0.0000001	0.00009598
24	Yes	7	0.0000001	0.00037754
25	Yes	7	0.0000001	0.00008564



<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>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>38 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

26	Yes	4	0.00000001	0.00086340
27	Yes	7	0.00000001	0.00037743
28	Yes	7	0.00000001	0.00044959
29	Yes	7	0.00000001	0.00044959
30	Yes	7	0.00000001	0.00037545
31	Yes	7	0.00000001	0.00042360
32	Yes	7	0.00000001	0.00042531
33	Yes	7	0.00000001	0.00037094
34	Yes	7	0.00000001	0.00044230
35	Yes	7	0.00000001	0.00044493
36	Yes	7	0.00000001	0.00037707
37	Yes	7	0.00000001	0.00043558
38	Yes	7	0.00000001	0.00043135
39	Yes	5	0.00000001	0.00038906
40	Yes	6	0.00000001	0.00010076
41	Yes	6	0.00000001	0.00010372
42	Yes	5	0.00000001	0.00036022
43	Yes	6	0.00000001	0.00007627
44	Yes	6	0.00000001	0.00009519
45	Yes	5	0.00000001	0.00034976
46	Yes	6	0.00000001	0.00009077
47	Yes	6	0.00000001	0.00010123
48	Yes	5	0.00000001	0.00030532
49	Yes	6	0.00000001	0.00009610
50	Yes	6	0.00000001	0.00007697

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 142	30.906	41	1.826	0.008
L2	142 - 137	28.996	41	1.820	0.007
L3	137 - 132	27.097	41	1.806	0.007
L4	132 - 127	25.218	41	1.783	0.006
L5	127 - 122	23.367	41	1.751	0.006
L6	122 - 117	21.555	41	1.710	0.006
L7	117 - 112	19.790	41	1.661	0.005
L8	112 - 107	18.080	41	1.604	0.005
L9	107 - 99.5	16.435	41	1.537	0.004
L10	103.25 - 98.25	15.250	41	1.480	0.004
L11	98.25 - 93.25	13.721	41	1.434	0.004
L12	93.25 - 88.25	12.259	41	1.357	0.003
L13	88.25 - 83.25	10.881	41	1.275	0.003
L14	83.25 - 78.25	9.590	41	1.190	0.003
L15	78.25 - 73.25	8.390	41	1.101	0.002
L16	73.25 - 69.58	7.286	41	1.009	0.002
L17	69.58 - 69.33	6.537	41	0.940	0.002
L18	69.33 - 64.33	6.488	41	0.937	0.002
L19	64.33 - 59	5.543	41	0.867	0.001
L20	63.75 - 58	5.438	41	0.859	0.001
L21	58 - 57.83	4.432	41	0.805	0.001
L22	57.83 - 57.58	4.403	41	0.802	0.001
L23	57.58 - 52.58	4.361	41	0.798	0.001
L24	52.58 - 50.58	3.571	41	0.711	0.001
L25	50.58 - 50.33	3.280	41	0.677	0.001
L26	50.33 - 50.17	3.245	41	0.674	0.001
L27	50.17 - 49.92	3.222	41	0.672	0.001
L28	49.92 - 44.92	3.187	41	0.668	0.001
L29	44.92 - 39.92	2.533	41	0.581	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>	Branford Banm Tower (BU 876321)	<b>Page</b>	39 of 44
	<b>Project</b>	TEP No. 25579.630745	<b>Date</b>	10:25:38 12/10/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	DAR

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L30	39.92 - 34.92	1.971	41	0.494	0.001
L31	34.92 - 29.25	1.499	41	0.407	0.001
L32	34.5 - 28.25	1.463	41	0.400	0.001
L33	28.25 - 24.08	0.974	41	0.341	0.000
L34	24.08 - 23.83	0.706	41	0.275	0.000
L35	23.83 - 18.83	0.691	41	0.272	0.000
L36	18.83 - 13.83	0.436	41	0.216	0.000
L37	13.83 - 8.83	0.239	41	0.160	0.000
L38	8.83 - 3.83	0.101	41	0.104	0.000
L39	3.83 - 1.92	0.021	41	0.048	0.000
L40	1.92 - 1.67	0.006	41	0.027	0.000
L41	1.67 - 0	0.004	41	0.025	0.000

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	A-ANT-23G-2-C	41	30.906	1.826	0.008	27959
147.00	2.4" Dia x 8-ft Mount Pipe	41	30.906	1.826	0.008	27959
145.00	TME-800MHZ RRH	41	30.141	1.825	0.008	27959
136.00	MX08FRO665-21 w/ Mount Pipe	41	26.720	1.802	0.007	14002
122.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	41	21.555	1.710	0.006	6447
110.00	DMP65R-BU4D w/ Mount Pipe	41	17.413	1.579	0.005	4273
53.00	GPS_A	41	3.634	0.719	0.001	3360
49.00	KS24019-L112A	41	3.060	0.651	0.001	3371

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 142	134.139	6	7.943	0.032
L2	142 - 137	125.877	6	7.921	0.030
L3	137 - 132	117.657	6	7.860	0.028
L4	132 - 127	109.518	6	7.761	0.026
L5	127 - 122	101.503	6	7.622	0.024
L6	122 - 117	93.650	6	7.447	0.023
L7	117 - 112	85.996	6	7.234	0.021
L8	112 - 107	78.582	6	6.984	0.020
L9	107 - 99.5	71.446	6	6.695	0.018
L10	103.25 - 98.25	66.303	6	6.448	0.016
L11	98.25 - 93.25	59.665	6	6.246	0.015
L12	93.25 - 88.25	53.317	6	5.912	0.014
L13	88.25 - 83.25	47.328	6	5.557	0.012
L14	83.25 - 78.25	41.719	18	5.183	0.011
L15	78.25 - 73.25	36.506	18	4.795	0.009
L16	73.25 - 69.58	31.703	18	4.395	0.008
L17	69.58 - 69.33	28.445	18	4.095	0.007
L18	69.33 - 64.33	28.232	18	4.080	0.007
L19	64.33 - 59	24.123	18	3.776	0.006

<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>	Branford Banm Tower (BU 876321)	<b>Page</b>	40 of 44
	<b>Project</b>	TEP No. 25579.630745	<b>Date</b>	10:25:38 12/10/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	DAR

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L20	63.75 - 58	23.667	18	3.741	0.006
L21	58 - 57.83	19.287	18	3.506	0.006
L22	57.83 - 57.58	19.163	18	3.493	0.006
L23	57.58 - 52.58	18.981	18	3.475	0.006
L24	52.58 - 50.58	15.542	18	3.099	0.005
L25	50.58 - 50.33	14.277	18	2.948	0.004
L26	50.33 - 50.17	14.123	18	2.935	0.004
L27	50.17 - 49.92	14.025	18	2.927	0.004
L28	49.92 - 44.92	13.872	18	2.909	0.004
L29	44.92 - 39.92	11.026	18	2.530	0.004
L30	39.92 - 34.92	8.576	18	2.151	0.003
L31	34.92 - 29.25	6.523	18	1.772	0.002
L32	34.5 - 28.25	6.368	18	1.740	0.002
L33	28.25 - 24.08	4.240	18	1.483	0.002
L34	24.08 - 23.83	3.070	18	1.197	0.001
L35	23.83 - 18.83	3.008	18	1.185	0.001
L36	18.83 - 13.83	1.896	18	0.940	0.001
L37	13.83 - 8.83	1.040	18	0.696	0.001
L38	8.83 - 3.83	0.438	18	0.454	0.001
L39	3.83 - 1.92	0.091	18	0.210	0.000
L40	1.92 - 1.67	0.025	18	0.118	0.000
L41	1.67 - 0	0.019	18	0.108	0.000

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	A-ANT-23G-2-C	6	134.139	7.943	0.037	7116
147.00	2.4" Dia x 8-ft Mount Pipe	6	134.139	7.943	0.037	7116
145.00	TME-800MHZ RRH	6	130.832	7.937	0.036	7116
136.00	MX08FRO665-21 w/ Mount Pipe	6	116.021	7.843	0.032	3431
122.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	6	93.650	7.447	0.027	1545
110.00	DMP65R-BU4D w/ Mount Pipe	6	75.691	6.877	0.023	1015
53.00	GPS_A	18	15.816	3.133	0.005	776
49.00	KS24019-L112A	18	13.319	2.834	0.005	778

### Compression Checks

### Pole 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 P <sub>u</sub> / φP <sub>n</sub>
L1	147 - 142 (1)	TP22.875x22x0.25	5.00	0.00	0.0	18.213	-5.08	983.51	0.005
L2	142 - 137 (2)	TP23.75x22.875x0.25	5.00	0.00	0.0	18.918	-5.43	1021.55	0.005
L3	137 - 132 (3)	TP24.625x23.75x0.25	5.00	0.00	0.0	19.622	-7.99	1059.59	0.008
L4	132 - 127 (4)	TP25.5x24.625x0.25	5.00	0.00	0.0	20.326	-8.39	1097.63	0.008
L5	127 - 122 (5)	TP26.375x25.5x0.25	5.00	0.00	0.0	21.031	-8.82	1135.67	0.008

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>41 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</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 P <sub>u</sub> / φP <sub>n</sub>
L6	122 - 117 (6)	TP27.25x26.375x0.25	5.00	0.00	0.0	21.735	-12.97	1173.70	0.011
L7	117 - 112 (7)	TP28.125x27.25x0.25	5.00	0.00	0.0	22.440	-13.53	1211.74	0.011
L8	112 - 107 (8)	TP29x28.125x0.25	5.00	0.00	0.0	23.144	-19.52	1249.78	0.016
L9	107 - 99.5 (9)	TP30.313x29x0.25	7.50	0.00	0.0	23.672	-20.06	1278.31	0.016
L10	99.5 - 98.25 (10)	TP30.032x29.157x0.313	5.00	0.00	0.0	29.905	-21.22	1749.44	0.012
L11	98.25 - 93.25 (11)	TP30.907x30.032x0.313	5.00	0.00	0.0	30.785	-22.11	1800.94	0.012
L12	93.25 - 88.25 (12)	TP31.782x30.907x0.313	5.00	0.00	0.0	31.666	-23.02	1852.45	0.012
L13	88.25 - 83.25 (13)	TP32.657x31.782x0.313	5.00	0.00	0.0	32.546	-23.97	1903.95	0.013
L14	83.25 - 78.25 (14)	TP33.531x32.657x0.313	5.00	0.00	0.0	33.427	-24.95	1955.45	0.013
L15	78.25 - 73.25 (15)	TP34.406x33.531x0.313	5.00	0.00	0.0	34.307	-25.97	2006.96	0.013
L16	73.25 - 69.58 (16)	TP35.049x34.406x0.313	3.67	0.00	0.0	34.953	-26.73	2044.76	0.013
L17	69.58 - 69.33 (17)	TP35.092x35.049x0.438	0.25	0.00	0.0	48.820	-26.81	2855.97	0.009
L18	69.33 - 64.33 (18)	TP35.967x35.092x0.431	5.00	0.00	0.0	49.346	-28.06	2886.76	0.010
L19	64.33 - 59 (19)	TP36.9x35.967x0.431	5.33	0.00	0.0	49.487	-28.22	2895.00	0.010
L20	59 - 58 (20)	TP36.45x35.444x0.375	5.75	0.00	0.0	43.561	-30.44	2548.29	0.012
L21	58 - 57.83 (21)	TP36.48x36.45x0.375	0.17	0.00	0.0	43.597	-30.50	2550.39	0.012
L22	57.83 - 57.58 (22)	TP36.523x36.48x0.375	0.25	0.00	0.0	43.649	-30.56	2553.48	0.012
L23	57.58 - 52.58 (23)	TP37.398x36.523x0.375	5.00	0.00	0.0	44.706	-31.89	2615.29	0.012
L24	52.58 - 50.58 (24)	TP37.748x37.398x0.375	2.00	0.00	0.0	45.128	-32.41	2640.01	0.012
L25	50.58 - 50.33 (25)	TP37.792x37.748x0.575	0.25	0.00	0.0	68.908	-32.51	4031.10	0.008
L26	50.33 - 50.17 (26)	TP37.82x37.792x0.575	0.16	0.00	0.0	68.960	-32.56	4034.13	0.008
L27	50.17 - 49.92 (27)	TP37.864x37.82x0.375	0.25	0.00	0.0	45.268	-32.62	2648.17	0.012
L28	49.92 - 44.92 (28)	TP38.739x37.864x0.375	5.00	0.00	0.0	46.324	-33.99	2709.98	0.013
L29	44.92 - 39.92 (29)	TP39.614x38.739x0.375	5.00	0.00	0.0	47.381	-35.32	2771.78	0.013
L30	39.92 - 34.92 (30)	TP40.489x39.614x0.375	5.00	0.00	0.0	48.437	-36.68	2833.59	0.013
L31	34.92 - 29.25 (31)	TP41.481x40.489x0.375	5.67	0.00	0.0	48.526	-36.81	2838.78	0.013
L32	29.25 - 28.25 (32)	TP40.906x39.812x0.438	6.25	0.00	0.0	57.010	-39.68	3335.09	0.012
L33	28.25 - 24.08 (33)	TP41.636x40.906x0.438	4.17	0.00	0.0	58.038	-40.99	3395.23	0.012
L34	24.08 - 23.83 (34)	TP41.68x41.636x0.625	0.25	0.00	0.0	82.622	-41.11	4833.41	0.009
L35	23.83 - 18.83 (35)	TP42.555x41.68x0.613	5.00	0.00	0.0	82.720	-43.15	4839.14	0.009
L36	18.83 - 13.83 (36)	TP43.43x42.555x0.613	5.00	0.00	0.0	84.446	-45.22	4940.10	0.009
L37	13.83 - 8.83 (37)	TP44.305x43.43x0.613	5.00	0.00	0.0	86.172	-47.31	5041.06	0.009
L38	8.83 - 3.83 (38)	TP45.18x44.305x0.6	5.00	0.00	0.0	86.128	-49.42	5038.49	0.010
L39	3.83 - 1.92 (39)	TP45.514x45.18x0.6	1.91	0.00	0.0	86.774	-50.22	5076.27	0.010
L40	1.92 - 1.67 (40)	TP45.558x45.514x0.763	0.25	0.00	0.0	109.984	-50.37	6434.04	0.008

<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>42 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</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 $\frac{P_u}{\phi P_n}$
L41	1.67 - 0 (41)	TP45.85x45.558x0.438	1.67	0.00	0.0	63.975	-50.90	3742.53	0.014

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>ux</sub> kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M <sub>uy</sub> kip-ft	φM <sub>uy</sub> kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	147 - 142 (1)	TP22.875x22x0.25	35.49	559.16	0.063	0.00	559.16	0.000
L2	142 - 137 (2)	TP23.75x22.875x0.25	73.60	596.12	0.123	0.00	596.12	0.000
L3	137 - 132 (3)	TP24.625x23.75x0.25	125.60	633.65	0.198	0.00	633.65	0.000
L4	132 - 127 (4)	TP25.5x24.625x0.25	183.63	671.68	0.273	0.00	671.68	0.000
L5	127 - 122 (5)	TP26.375x25.5x0.25	244.81	710.15	0.345	0.00	710.15	0.000
L6	122 - 117 (6)	TP27.25x26.375x0.25	331.30	749.00	0.442	0.00	749.00	0.000
L7	117 - 112 (7)	TP28.125x27.25x0.25	418.57	788.17	0.531	0.00	788.17	0.000
L8	112 - 107 (8)	TP29x28.125x0.25	536.93	827.59	0.649	0.00	827.59	0.000
L9	107 - 99.5 (9)	TP30.313x29x0.25	631.58	857.29	0.737	0.00	857.29	0.000
L10	99.5 - 98.25 (10)	TP30.032x29.157x0.313	760.62	1269.20	0.599	0.00	1269.20	0.000
L11	98.25 - 93.25 (11)	TP30.907x30.032x0.313	892.75	1331.33	0.671	0.00	1331.33	0.000
L12	93.25 - 88.25 (12)	TP31.782x30.907x0.313	1027.76	1394.04	0.737	0.00	1394.04	0.000
L13	88.25 - 83.25 (13)	TP32.657x31.782x0.313	1165.58	1457.26	0.800	0.00	1457.26	0.000
L14	83.25 - 78.25 (14)	TP33.531x32.657x0.313	1306.15	1520.92	0.859	0.00	1520.92	0.000
L15	78.25 - 73.25 (15)	TP34.406x33.531x0.313	1449.41	1584.94	0.914	0.00	1584.94	0.000
L16	73.25 - 69.58 (16)	TP35.049x34.406x0.313	1556.24	1632.13	0.954	0.00	1632.13	0.000
L17	69.58 - 69.33 (17)	TP35.092x35.049x0.438	1563.58	2528.80	0.618	0.00	2528.80	0.000
L18	69.33 - 64.33 (18)	TP35.967x35.092x0.431	1711.78	2619.07	0.654	0.00	2619.07	0.000
L19	64.33 - 59 (19)	TP36.9x35.967x0.431	1729.16	2631.92	0.657	0.00	2631.92	0.000
L20	59 - 58 (20)	TP36.45x35.444x0.375	1904.05	2235.18	0.852	0.00	2235.18	0.000
L21	58 - 57.83 (21)	TP36.48x36.45x0.375	1909.29	2238.22	0.853	0.00	2238.22	0.000
L22	57.83 - 57.58 (22)	TP36.523x36.48x0.375	1917.01	2242.68	0.855	0.00	2242.68	0.000
L23	57.58 - 52.58 (23)	TP37.398x36.523x0.375	2073.13	2332.48	0.889	0.00	2332.48	0.000
L24	52.58 - 50.58 (24)	TP37.748x37.398x0.375	2136.53	2368.60	0.902	0.00	2368.60	0.000
L25	50.58 - 50.33 (25)	TP37.792x37.748x0.575	2144.49	3822.55	0.561	0.00	3822.55	0.000
L26	50.33 - 50.17 (26)	TP37.82x37.792x0.575	2149.59	3828.35	0.561	0.00	3828.35	0.000
L27	50.17 - 49.92 (27)	TP37.864x37.82x0.375	2157.57	2380.53	0.906	0.00	2380.53	0.000
L28	49.92 - 44.92 (28)	TP38.739x37.864x0.375	2318.28	2471.33	0.938	0.00	2471.33	0.000
L29	44.92 - 39.92 (29)	TP39.614x38.739x0.375	2481.73	2562.69	0.968	0.00	2562.69	0.000
L30	39.92 - 34.92 (30)	TP40.489x39.614x0.375	2647.43	2654.54	0.997	0.00	2654.54	0.000
L31	34.92 - 29.25	TP41.481x40.489x0.375	2661.43	2662.28	1.000	0.00	2662.28	0.000



<p><b>tnxTower</b></p> <p><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>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>43 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section No.	Elevation ft	Size	$M_{ux}$ kip-ft	$\phi M_{rx}$ kip-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	$M_{uy}$ kip-ft	$\phi M_{ry}$ kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
L32	29.25 - 28.25 (31)	TP40.906x39.812x0.438	2872.25	3325.84	0.864	0.00	3325.84	0.000
L33	28.25 - 24.08 (32)	TP41.636x40.906x0.438	3014.99	3426.21	0.880	0.00	3426.21	0.000
L34	24.08 - 23.83 (33)	TP41.68x41.636x0.625	3023.60	5057.07	0.598	0.00	5057.07	0.000
L35	23.83 - 18.83 (34)	TP42.555x41.68x0.613	3197.14	5175.69	0.618	0.00	5175.69	0.000
L36	18.83 - 13.83 (35)	TP43.43x42.555x0.613	3373.32	5395.48	0.625	0.00	5395.48	0.000
L37	13.83 - 8.83 (36)	TP44.305x43.43x0.613	3552.02	5619.86	0.632	0.00	5619.86	0.000
L38	8.83 - 3.83 (38)	TP45.18x44.305x0.6	3733.12	5734.26	0.651	0.00	5734.26	0.000
L39	3.83 - 1.92 (39)	TP45.514x45.18x0.6	3802.93	5821.14	0.653	0.00	5821.14	0.000
L40	1.92 - 1.67 (40)	TP45.558x45.514x0.763	3812.09	7332.13	0.520	0.00	7332.13	0.000
L41	1.67 - 0 (41)	TP45.85x45.558x0.438	3873.43	4017.32	0.964	0.00	4017.32	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	147 - 142 (1)	TP22.875x22x0.25	7.35	295.05	0.025	0.15	587.21	0.000
L2	142 - 137 (2)	TP23.75x22.875x0.25	7.90	306.46	0.026	0.15	633.51	0.000
L3	137 - 132 (3)	TP24.625x23.75x0.25	11.30	317.88	0.036	1.05	681.56	0.002
L4	132 - 127 (4)	TP25.5x24.625x0.25	11.93	329.29	0.036	1.05	731.38	0.001
L5	127 - 122 (5)	TP26.375x25.5x0.25	12.56	340.70	0.037	1.05	782.95	0.001
L6	122 - 117 (6)	TP27.25x26.375x0.25	17.16	352.11	0.049	0.82	836.27	0.001
L7	117 - 112 (7)	TP28.125x27.25x0.25	17.78	363.52	0.049	0.82	891.36	0.001
L8	112 - 107 (8)	TP29x28.125x0.25	25.04	374.93	0.067	0.52	948.20	0.001
L9	107 - 99.5 (9)	TP30.313x29x0.25	25.48	383.49	0.066	0.52	991.98	0.001
L10	99.5 - 98.25 (10)	TP30.032x29.157x0.313	26.16	524.83	0.050	0.52	1372.01	0.000
L11	98.25 - 93.25 (11)	TP30.907x30.032x0.313	26.74	540.28	0.049	0.52	1453.98	0.000
L12	93.25 - 88.25 (12)	TP31.782x30.907x0.313	27.31	555.73	0.049	0.52	1538.33	0.000
L13	88.25 - 83.25 (13)	TP32.657x31.782x0.313	27.87	571.18	0.049	0.52	1625.07	0.000
L14	83.25 - 78.25 (14)	TP33.531x32.657x0.313	28.41	586.64	0.048	0.52	1714.18	0.000
L15	78.25 - 73.25 (15)	TP34.406x33.531x0.313	28.94	602.09	0.048	0.52	1805.66	0.000
L16	73.25 - 69.58 (16)	TP35.049x34.406x0.313	29.34	613.43	0.048	0.52	1874.33	0.000
L17	69.58 - 69.33 (17)	TP35.092x35.049x0.438	29.35	856.79	0.034	0.52	2611.79	0.000
L18	69.33 - 64.33 (18)	TP35.967x35.092x0.431	29.97	866.03	0.035	0.52	2707.07	0.000
L19	64.33 - 59 (19)	TP36.9x35.967x0.431	30.03	868.50	0.035	0.52	2722.56	0.000
L20	59 - 58 (20)	TP36.45x35.444x0.375	30.84	764.49	0.040	0.52	2425.93	0.000
L21	58 - 57.83 (21)	TP36.48x36.45x0.375	30.85	765.12	0.040	0.52	2429.93	0.000
L22	57.83 - 57.58 (22)	TP36.523x36.48x0.375	30.88	766.04	0.040	0.52	2435.82	0.000
L23	57.58 - 52.58	TP37.398x36.523x0.375	31.60	784.59	0.040	0.52	2555.16	0.000

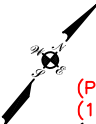
<p><b>tnxTower</b></p> <p><b>Tower Engineering Professionals</b>                  326 Tryon Road                  Raleigh, NC 27603                  Phone: (919) 661-6351                  FAX: (919) 661-6350</p>	<p><b>Job</b></p> <p>Branford Banm Tower (BU 876321)</p>	<p><b>Page</b></p> <p>44 of 44</p>
	<p><b>Project</b></p> <p>TEP No. 25579.630745</p>	<p><b>Date</b></p> <p>10:25:38 12/10/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>DAR</p>

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L24	(23) 52.58 - 50.58	TP37.748x37.398x0.375	31.85	792.00	0.040	0.33	2603.69	0.000
L25	(24) 50.58 - 50.33	TP37.792x37.748x0.575	31.87	1209.33	0.026	0.33	3959.02	0.000
L26	(25) 50.33 - 50.17	TP37.82x37.792x0.575	31.90	1210.24	0.026	0.33	3964.97	0.000
L27	(26) 50.17 - 49.92	TP37.864x37.82x0.375	31.93	794.45	0.040	0.33	2619.81	0.000
L28	(27) 49.92 - 44.92	TP38.739x37.864x0.375	32.48	812.99	0.040	0.33	2743.53	0.000
L29	(28) 44.92 - 39.92	TP39.614x38.739x0.375	32.94	831.53	0.040	0.04	2870.10	0.000
L30	(29) 39.92 - 34.92	TP40.489x39.614x0.375	33.37	850.08	0.039	0.04	2999.52	0.000
L31	(30) 34.92 - 29.25	TP41.481x40.489x0.375	33.39	851.63	0.039	0.04	3010.53	0.000
L32	(31) 29.25 - 28.25	TP40.906x39.812x0.438	34.08	1000.53	0.034	0.04	3561.62	0.000
L33	(32) 28.25 - 24.08	TP41.636x40.906x0.438	34.43	1018.57	0.034	0.04	3691.22	0.000
L34	(33) 24.08 - 23.83	TP41.68x41.636x0.625	34.44	1450.02	0.024	0.04	5236.45	0.000
L35	(34) 23.83 - 18.83	TP42.555x41.68x0.613	35.00	1451.74	0.024	0.04	5355.99	0.000
L36	(35) 18.83 - 13.83	TP43.43x42.555x0.613	35.51	1482.03	0.024	0.04	5581.81	0.000
L37	(36) 13.83 - 8.83	TP44.305x43.43x0.613	35.99	1512.32	0.024	0.04	5812.28	0.000
L38	(37) 8.83 - 3.83 (38)	TP45.18x44.305x0.6	36.47	1511.55	0.024	0.04	5927.32	0.000
L39	3.83 - 1.92 (39)	TP45.514x45.18x0.6	36.67	1522.88	0.024	0.04	6016.55	0.000
L40	1.92 - 1.67 (40)	TP45.558x45.514x0.763	36.66	1930.21	0.019	0.04	7605.65	0.000
L41	1.67 - 0 (41)	TP45.85x45.558x0.438	36.83	1122.76	0.033	0.04	4484.99	0.000

147-ft Monopole Tower Structural Analysis Report  
TEP Project Number 25579.630745, Order 586245, Revision 0

December 10, 2021  
CCI BU No 876321  
Page 9

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



(PROPOSED EQUIPMENT CONFIGURATION)

(1) 1/2" TO 53 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)

(1) 1/2" TO 49 FT LEVEL

(2) 1-5/8" TO 147 FT LEVEL

(6) 1/2" TO 147 FT LEVEL

(2) 2" CONDUIT TO 147 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION—IN CONDUIT)

(2) 3/8" TO 110 FT LEVEL

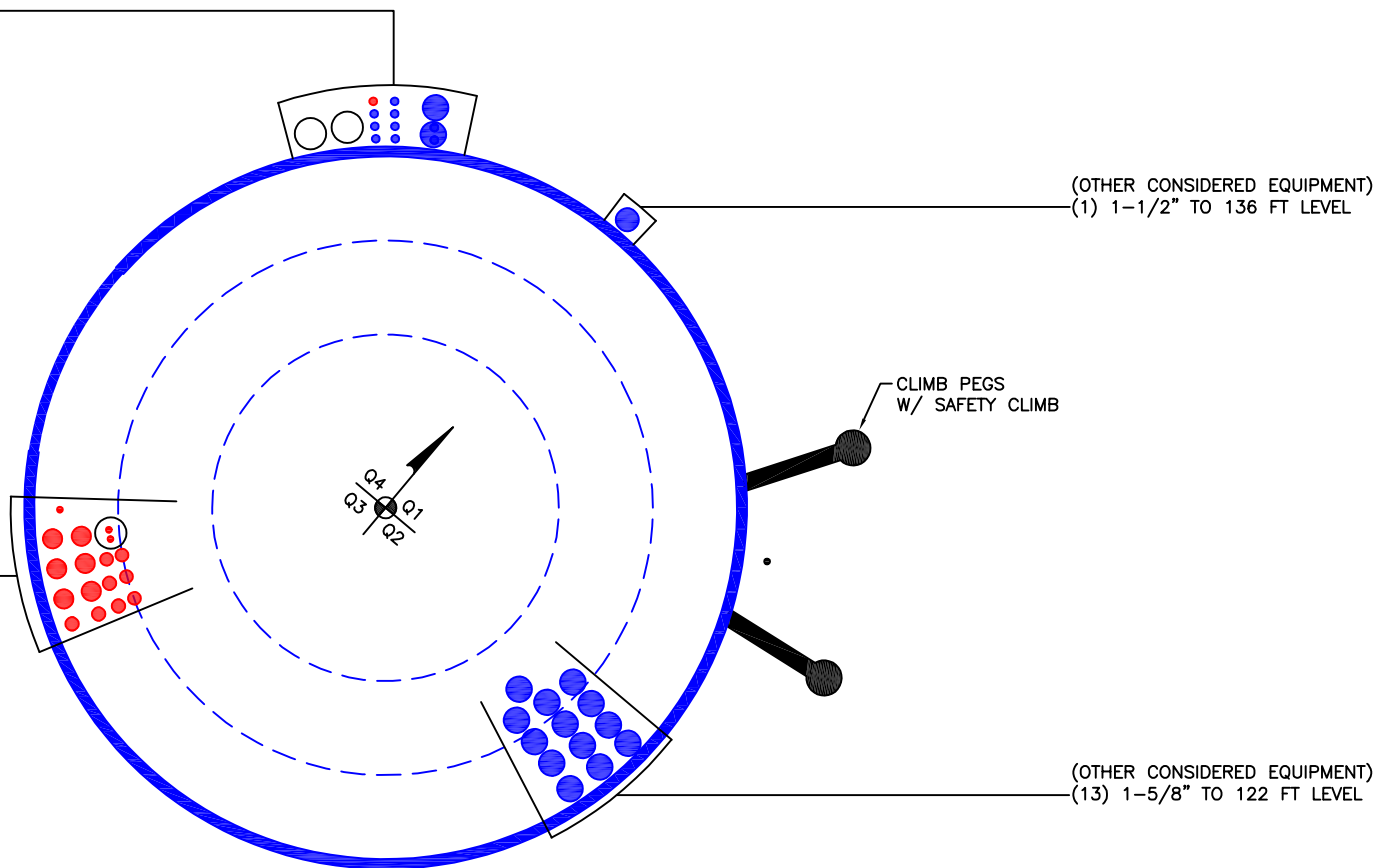
(PROPOSED EQUIPMENT CONFIGURATION)

(1) 3/8" TO 110 FT LEVEL

(4) 13/16" TO 110 FT LEVEL

(4) 7/8" TO 110 FT LEVEL

(6) 1-1/4" TO 110 FT LEVEL



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



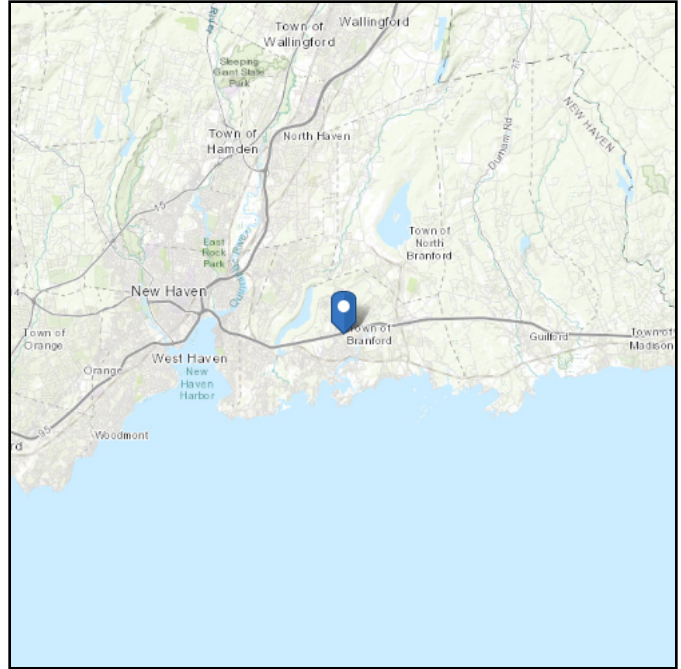
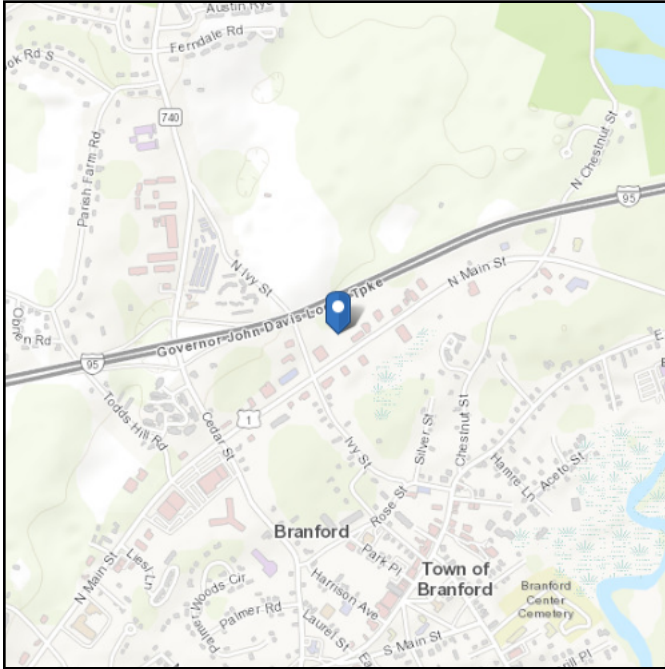


# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 57.7 ft (NAVD 88)  
**Latitude:** 41.288611  
**Longitude:** -72.813861



## Wind

### Results:

Wind Speed	121 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2  
Date Accessed: Mon Dec 06 2021

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

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

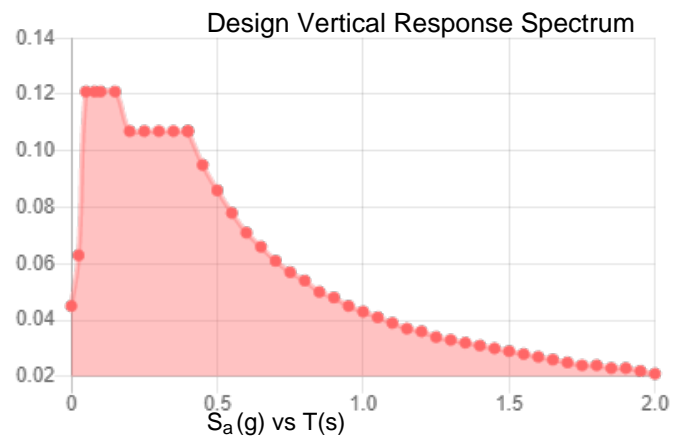
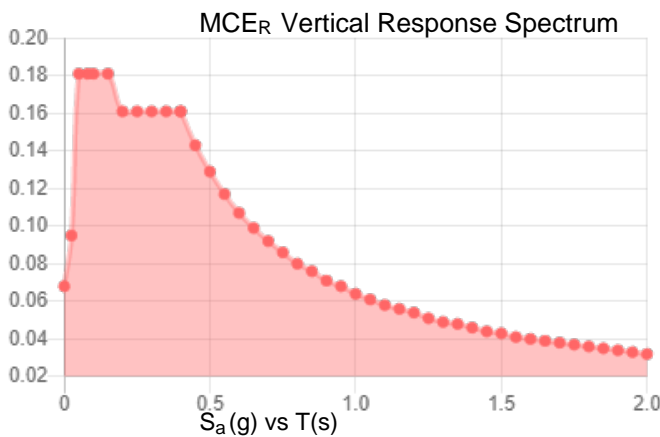
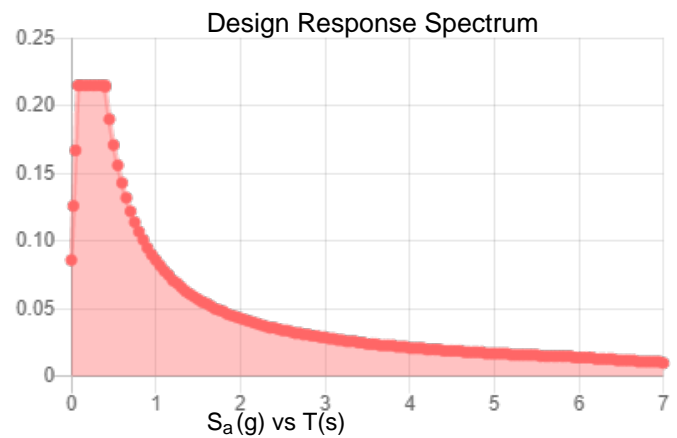
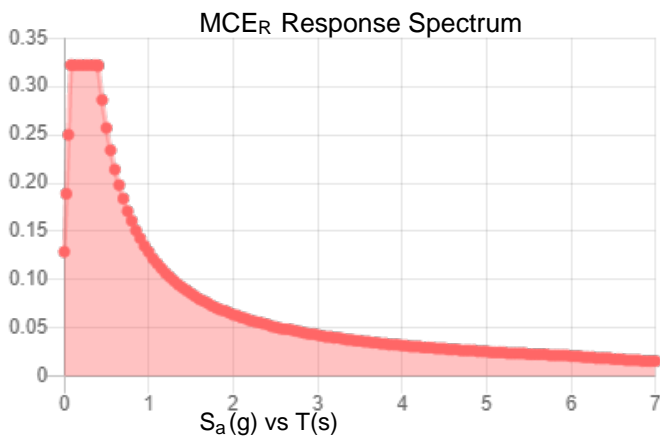


**Site Soil Class:** D - Default (see Section 11.4.3)

**Results:**

$S_s$ :	0.201	$S_{D1}$ :	0.086
$S_1$ :	0.054	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.113
$F_v$ :	2.4	PGA <sub>M</sub> :	0.177
$S_{MS}$ :	0.322	$F_{PGA}$ :	1.575
$S_{M1}$ :	0.129	$I_e$ :	1
$S_{DS}$ :	0.215	$C_v$ :	0.703

**Seismic Design Category** B



**Data Accessed:** Mon Dec 06 2021

**Date Source:**

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



## Ice

---

### Results:

Ice Thickness: 1.00 in.  
Concurrent Temperature: 15 F  
Gust Speed 50 mph

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

**Date Accessed:** Mon Dec 06 2021

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

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

---

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

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

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



Site BU: 876321  
 Work Order: 2047567



Copyright © 2019 Crown Castle

**Pole Geometry**

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	147	47.5	3.75	12	22	30.313	0.25	Auto	A607-60
2	103.25	44.25	4.75	12	29.16	36.9	0.3125	Auto	A607-65
3	63.75	34.5	5.25	12	35.44	41.481	0.375	Auto	A607-65
4	34.5	34.5	0	12	39.81	45.85	0.4375	Auto	A607-65

**Reinforcement Configuration**

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	1.92	24.08	channel	MP3-04 (1.1875in)-W	3		x				x				x		
2	33.42	50.58	channel	MP3-04 (1.1875in)	3			x				x				x	
3	62.42	69.58	channel	MP3-04 (1.1875in)	3			x				x				x	
4	1.92	34.08	channel	MP3-04 (1.1875in)	3					x			x				x
5	50.17	57.83	channel	MP3-03 (1.1875in)	3				x				x				x
6	0	1.92	plate	(TS) 1.25"x4"	6	c	c			c	c			c	c		
7	0	1.92	plate	(TS) 1.25"x6"	3				c					x			c
8																	
9																	
10																	

**Reinforcement Details**

	B (in)	H (in)	Gross Area (in <sup>2</sup> )	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in <sup>2</sup> )	Bolt Hole Size (in)	Reinforcement Material
1	4.78	1.61	4.13	0.61	Welded	n/a	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
2	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
3	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
4	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
5	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
6	1.25	3.25	4.0625	2.375	Capacity Input	n/a	None	n/a	0.750	4.063	0.0000	A572-65
7	1.25	5.25	6.5625	3.375	Capacity Input	n/a	None	n/a	0.750	6.563	0.0000	A572-65

**Connection Details for Custom Reinforcements**

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
(TS) 1.25"x4"	Top	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	-	-	-	-	-	-	-	-	136.5
(TS) 1.25"x6"	Top	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	-	-	-	-	-	-	-	-	322.72
MP3-04 (1.1875in)-W	Top	6	N	3	2	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	70	None	-	-	-	-	20	0.375	-

# TNX Geometry Input

Increment (ft):  [Export to TNX](#)

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	147 - 142	5		12	22.000	22.875	0.25	A607-60	1.000
2	142 - 137	5		12	22.875	23.750	0.25	A607-60	1.000
3	137 - 132	5		12	23.750	24.625	0.25	A607-60	1.000
4	132 - 127	5		12	24.625	25.500	0.25	A607-60	1.000
5	127 - 122	5		12	25.500	26.375	0.25	A607-60	1.000
6	122 - 117	5		12	26.375	27.250	0.25	A607-60	1.000
7	117 - 112	5		12	27.250	28.125	0.25	A607-60	1.000
8	112 - 107	5		12	28.125	29.000	0.25	A607-60	1.000
9	107 - 103.25	7.5	3.75	12	29.000	30.313	0.25	A607-60	1.000
10	103.25 - 98.25	5		12	29.157	30.032	0.3125	A607-65	1.000
11	98.25 - 93.25	5		12	30.032	30.907	0.3125	A607-65	1.000
12	93.25 - 88.25	5		12	30.907	31.782	0.3125	A607-65	1.000
13	88.25 - 83.25	5		12	31.782	32.657	0.3125	A607-65	1.000
14	83.25 - 78.25	5		12	32.657	33.531	0.3125	A607-65	1.000
15	78.25 - 73.25	5		12	33.531	34.406	0.3125	A607-65	1.000
16	73.25 - 69.58	3.67		12	34.406	35.049	0.3125	A607-65	1.000
17	69.58 - 69.33	0.25		12	35.049	35.092	0.4375	A607-65	0.971
18	69.33 - 64.33	5		12	35.092	35.967	0.43125	A607-65	0.979
19	64.33 - 63.75	5.33	4.75	12	35.967	36.900	0.43125	A607-65	0.978
20	63.75 - 58	5.75		12	35.444	36.450	0.375	A607-65	1.000
21	58 - 57.83	0.17		12	36.450	36.480	0.375	A607-65	1.000
22	57.83 - 57.58	0.25		12	36.480	36.523	0.375	A607-65	1.000
23	57.58 - 52.58	5		12	36.523	37.398	0.375	A607-65	1.000
24	52.58 - 50.58	2		12	37.398	37.748	0.375	A607-65	1.000
25	50.58 - 50.33	0.25		12	37.748	37.792	0.575	A607-65	0.963
26	50.33 - 50.17	0.16		12	37.792	37.820	0.575	A607-65	0.963
27	50.17 - 49.92	0.25		12	37.820	37.864	0.375	A607-65	1.000
28	49.92 - 44.92	5		12	37.864	38.739	0.375	A607-65	1.000
29	44.92 - 39.92	5		12	38.739	39.614	0.375	A607-65	1.000
30	39.92 - 34.92	5		12	39.614	40.489	0.375	A607-65	1.000
31	34.92 - 34.5	5.67	5.25	12	40.489	41.481	0.375	A607-65	1.000
32	34.5 - 28.25	6.25		12	39.812	40.906	0.4375	A607-65	1.000
33	28.25 - 24.08	4.17		12	40.906	41.636	0.4375	A607-65	1.000
34	24.08 - 23.83	0.25		12	41.636	41.680	0.625	A607-65	1.004
35	23.83 - 18.83	5		12	41.680	42.555	0.6125	A607-65	1.017
36	18.83 - 13.83	5		12	42.555	43.430	0.6125	A607-65	1.011
37	13.83 - 8.83	5		12	43.430	44.305	0.6125	A607-65	1.005
38	8.83 - 3.83	5		12	44.305	45.180	0.6	A607-65	1.020
39	3.83 - 1.92	1.91		12	45.180	45.514	0.6	A607-65	1.018
40	1.92 - 1.67	0.25		12	45.514	45.558	0.7625	A607-65	0.979
41	1.67 - 0	1.67		12	45.558	45.850	0.4375	A607-65	1.000

## TNX Section Forces

Increment (ft):		5	TNX Output		
	Section Height (ft)	P <sub>u</sub>	M <sub>ux</sub> (kip-ft)	V <sub>u</sub>	(K)
1	147 - 142	5.08	35.49	7.35	
2	142 - 137	5.43	73.60	7.90	
3	137 - 132	7.99	125.60	11.30	
4	132 - 127	8.39	183.63	11.93	
5	127 - 122	8.82	244.81	12.56	
6	122 - 117	12.97	331.30	17.16	
7	117 - 112	13.53	418.57	17.78	
8	112 - 107	19.52	536.93	25.04	
9	107 - 103.25	20.06	631.58	25.48	
10	103.25 - 98.25	21.22	760.62	26.16	
11	98.25 - 93.25	22.11	892.75	26.74	
12	93.25 - 88.25	23.02	1027.75	27.31	
13	88.25 - 83.25	23.97	1165.58	27.87	
14	83.25 - 78.25	24.95	1306.15	28.41	
15	78.25 - 73.25	25.97	1449.41	28.94	
16	73.25 - 69.58	26.73	1556.24	29.34	
17	69.58 - 69.33	26.81	1563.58	29.35	
18	69.33 - 64.33	28.06	1711.77	29.97	
19	64.33 - 63.75	28.22	1729.16	30.03	
20	63.75 - 58	30.44	1904.05	30.84	
21	58 - 57.83	30.50	1909.30	30.85	
22	57.83 - 57.58	30.56	1917.01	30.88	
23	57.58 - 52.58	31.89	2073.12	31.60	
24	52.58 - 50.58	32.41	2136.53	31.85	
25	50.58 - 50.33	32.51	2144.49	31.87	
26	50.33 - 50.17	32.56	2149.60	31.90	
27	50.17 - 49.92	32.62	2157.57	31.93	
28	49.92 - 44.92	33.99	2318.27	32.48	
29	44.92 - 39.92	35.32	2481.73	32.94	
30	39.92 - 34.92	36.68	2647.42	33.37	
31	34.92 - 34.5	36.81	2661.43	33.39	
32	34.5 - 28.25	39.68	2872.25	34.08	
33	28.25 - 24.08	40.99	3014.99	34.43	
34	24.08 - 23.83	41.11	3023.60	34.44	
35	23.83 - 18.83	43.15	3197.14	35.00	
36	18.83 - 13.83	45.22	3373.32	35.51	
37	13.83 - 8.83	47.31	3552.01	35.99	
38	8.83 - 3.83	49.42	3733.12	36.47	
39	3.83 - 1.92	50.22	3802.93	36.67	
40	1.92 - 1.67	50.37	3812.09	36.66	
41	1.67 - 0	50.90	3873.43	36.83	



## Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
147 - 142	Pole	TP22.875x22x0.25	Pole	6.6%	Pass
142 - 137	Pole	TP23.75x22.875x0.25	Pole	12.3%	Pass
137 - 132	Pole	TP24.625x23.75x0.25	Pole	19.7%	Pass
132 - 127	Pole	TP25.5x24.625x0.25	Pole	26.8%	Pass
127 - 122	Pole	TP26.375x25.5x0.25	Pole	33.6%	Pass
122 - 117	Pole	TP27.25x26.375x0.25	Pole	43.3%	Pass
117 - 112	Pole	TP28.125x27.25x0.25	Pole	51.7%	Pass
112 - 107	Pole	TP29x28.125x0.25	Pole	63.5%	Pass
107 - 103.25	Pole	TP30.313x29x0.25	Pole	71.9%	Pass
103.25 - 98.25	Pole	TP30.032x29.157x0.3125	Pole	58.3%	Pass
98.25 - 93.25	Pole	TP30.907x30.032x0.3125	Pole	65.1%	Pass
93.25 - 88.25	Pole	TP31.782x30.907x0.3125	Pole	71.4%	Pass
88.25 - 83.25	Pole	TP32.657x31.782x0.3125	Pole	77.4%	Pass
83.25 - 78.25	Pole	TP33.531x32.657x0.3125	Pole	83.0%	Pass
78.25 - 73.25	Pole	TP34.406x33.531x0.3125	Pole	88.3%	Pass
73.25 - 69.58	Pole	TP35.049x34.406x0.3125	Pole	92.0%	Pass
69.58 - 69.33	Pole + Reinf.	TP35.092x35.049x0.4375	Reinf. 3 Tension Rupture	87.9%	Pass
69.33 - 64.33	Pole + Reinf.	TP35.967x35.092x0.4313	Reinf. 3 Tension Rupture	92.1%	Pass
64.33 - 63.75	Pole + Reinf.	TP36.9x35.967x0.4313	Reinf. 3 Tension Rupture	92.6%	Pass
63.75 - 58	Pole	TP36.45x35.444x0.375	Pole	82.2%	Pass
58 - 57.83	Pole	TP36.48x36.45x0.375	Pole	82.3%	Pass
57.83 - 57.58	Pole	TP36.523x36.48x0.375	Pole	82.5%	Pass
57.58 - 52.58	Pole	TP37.398x36.523x0.375	Pole	85.7%	Pass
52.58 - 50.58	Pole	TP37.748x37.398x0.375	Pole	87.0%	Pass
50.58 - 50.33	Pole + Reinf.	TP37.792x37.748x0.575	Reinf. 5 Tension Rupture	80.2%	Pass
50.33 - 50.17	Pole + Reinf.	TP37.82x37.792x0.575	Reinf. 5 Tension Rupture	80.3%	Pass
50.17 - 49.92	Pole	TP37.864x37.82x0.375	Pole	87.4%	Pass
49.92 - 44.92	Pole	TP38.739x37.864x0.375	Pole	90.4%	Pass
44.92 - 39.92	Pole	TP39.614x38.739x0.375	Pole	93.3%	Pass
39.92 - 34.92	Pole	TP40.489x39.614x0.375	Pole	96.1%	Pass
34.92 - 34.5	Pole	TP41.481x40.489x0.375	Pole	96.3%	Pass
34.5 - 28.25	Pole	TP40.906x39.812x0.4375	Pole	83.3%	Pass
28.25 - 24.08	Pole	TP41.636x40.906x0.4375	Pole	84.8%	Pass
24.08 - 23.83	Pole + Reinf.	TP41.68x41.636x0.625	Reinf. 1 Tension Rupture	86.2%	Pass
23.83 - 18.83	Pole + Reinf.	TP42.555x41.68x0.6125	Reinf. 1 Tension Rupture	87.8%	Pass
18.83 - 13.83	Pole + Reinf.	TP43.43x42.555x0.6125	Reinf. 1 Tension Rupture	89.4%	Pass
13.83 - 8.83	Pole + Reinf.	TP44.305x43.43x0.6125	Reinf. 1 Tension Rupture	90.9%	Pass
8.83 - 3.83	Pole + Reinf.	TP45.18x44.305x0.6	Reinf. 1 Tension Rupture	92.3%	Pass
3.83 - 1.92	Pole + Reinf.	TP45.514x45.18x0.6	Reinf. 1 Tension Rupture	92.8%	Pass
1.92 - 1.67	Pole + Reinf.	TP45.558x45.514x0.7625	Reinf. 6 Compression	70.2%	Pass
1.67 - 0	Pole	TP45.85x45.558x0.4375	Pole	93.0%	Pass
				Summary	
			Pole	96.3%	Pass
			Reinforcement	92.8%	Pass
			Overall	96.3%	Pass

## Additional Calculations

Section Elevation (ft)	Moment of Inertia (in <sup>4</sup> )			Area (in <sup>2</sup> )			% Capacity*							
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7
147 - 142	1192	n/a	1192	18.19	n/a	18.19	6.6%							
142 - 137	1335	n/a	1335	18.89	n/a	18.89	12.3%							
137 - 132	1490	n/a	1490	19.59	n/a	19.59	19.7%							
132 - 127	1656	n/a	1656	20.30	n/a	20.30	26.8%							
127 - 122	1835	n/a	1835	21.00	n/a	21.00	33.6%							
122 - 117	2025	n/a	2025	21.70	n/a	21.70	43.3%							
117 - 112	2229	n/a	2229	22.41	n/a	22.41	51.7%							
112 - 107	2445	n/a	2445	23.11	n/a	23.11	63.5%							
107 - 103.25	2616	n/a	2616	23.64	n/a	23.64	71.9%							
103.25 - 98.25	3376	n/a	3376	29.86	n/a	29.86	58.3%							
98.25 - 93.25	3683	n/a	3683	30.74	n/a	30.74	65.1%							
93.25 - 88.25	4008	n/a	4008	31.62	n/a	31.62	71.4%							
88.25 - 83.25	4352	n/a	4352	32.50	n/a	32.50	77.4%							
83.25 - 78.25	4714	n/a	4714	33.38	n/a	33.38	83.0%							
78.25 - 73.25	5097	n/a	5097	34.26	n/a	34.26	88.3%							
73.25 - 69.58	5390	n/a	5390	34.90	n/a	34.90	92.0%							
69.58 - 69.33	5411	2049	7460	34.95	12.39	47.34	64.7%			87.9%				
69.33 - 64.33	5829	2148	7978	35.83	12.39	48.22	68.6%			92.1%				
64.33 - 63.75	5879	2160	8040	35.93	12.39	48.32	69.1%			92.6%				
63.75 - 58	7246	n/a	7246	43.50	n/a	43.50	82.2%							
58 - 57.83	7264	n/a	7264	43.53	n/a	43.53	82.3%							
57.83 - 57.58	7290	n/a	7290	43.59	n/a	43.59	82.5%							
57.58 - 52.58	7832	n/a	7832	44.64	n/a	44.64	85.7%							
52.58 - 50.58	8057	n/a	8057	45.06	n/a	45.06	87.0%							
50.58 - 50.33	8085	4030	12115	45.12	21.15	66.27	56.2%		79.7%			80.2%		
50.33 - 50.17	8103	4035	12138	45.15	21.15	66.30	56.3%		79.8%			80.3%		
50.17 - 49.92	8131	n/a	8131	45.20	n/a	45.20	87.4%							
49.92 - 44.92	8714	n/a	8714	46.26	n/a	46.26	90.4%							
44.92 - 39.92	9324	n/a	9324	47.31	n/a	47.31	93.3%							
39.92 - 34.92	9962	n/a	9962	48.37	n/a	48.37	96.1%							
34.92 - 34.5	10017	n/a	10017	48.46	n/a	48.46	96.3%							
34.5 - 28.25	11933	n/a	11933	56.93	n/a	56.93	83.3%							
28.25 - 24.08	12591	n/a	12591	57.96	n/a	57.96	84.8%							
24.08 - 23.83	12647	5066	17713	58.02	24.78	82.80	61.1%	86.2%			82.1%			
23.83 - 18.83	13468	5275	18743	59.25	24.78	84.03	62.8%	87.8%			83.8%			
18.83 - 13.83	14325	5488	19812	60.48	24.78	85.26	64.4%	89.4%			85.3%			
13.83 - 8.83	15217	5705	20922	61.71	24.78	86.49	66.0%	90.9%			86.8%			
8.83 - 3.83	16145	5926	22071	62.94	24.78	87.72	67.6%	92.3%			88.2%			
3.83 - 1.92	16509	6012	22521	63.41	24.78	88.19	68.1%	92.8%			88.7%			
1.92 - 1.67	16545	11658	28203	63.47	44.06	107.53	54.9%						70.2%	61.5%
1.67 - 0	16863	n/a	16863	63.88	n/a	63.88	93.0%							

Note: Section capacity checked using 5 degree increments.

Rating per TIA-222-H Section 15.5.

# Monopole Base Plate Connection

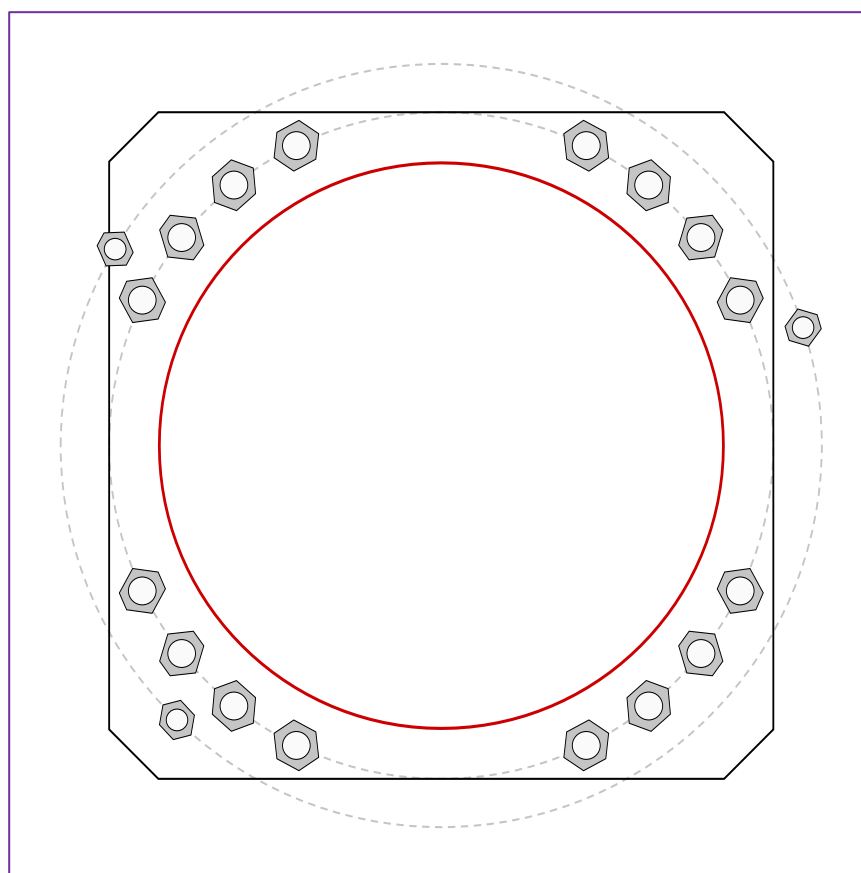


Site Info	
BU #	876321
Site Name	Branford Banm Tower
Order #	586245 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
$l_{ar}$ (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	3873.43
Axial Force (kips)	50.90
Shear Force (kips)	36.83

\*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
GROUP 1: (16) 2-1/4" $\phi$ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 54" BC Anchor Spacing: 6 in
GROUP 2: (3) 1-3/4" $\phi$ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 61.85" BC pos. (deg): 18, 149, 226
Base Plate Data
54" W x 3.5" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi); Clip: 4 in
Stiffener Data
N/A
Pole Data
45.85" x 0.4375" 12-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary <span style="float:right">(units of kips, kip-in)</span>		
GROUP 1:		
$P_{u,t} = 198.67$	$\phi P_{n,t} = 243.75$	<b>Stress Rating</b>
$V_u = 2.3$	$\phi V_n = 149.1$	<b>77.6%</b>
$M_u = n/a$	$\phi M_n = n/a$	<b>Pass</b>
GROUP 2:		
$P_{u,t} = 124.75$	$\phi P_{n,t} = 178.13$	<b>Stress Rating</b>
$V_u = 0$	$\phi V_n = 112.75$	<b>66.7%</b>
$M_u = n/a$	$\phi M_n = n/a$	<b>Pass</b>
Base Plate Summary		
Max Stress (ksi):	27.18	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	<b>57.5%</b>	<b>Pass</b>

# CCiplate

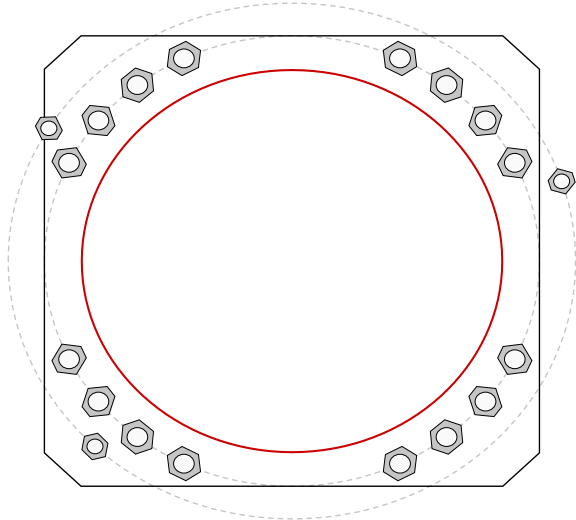
Elevation (ft)  (Base)

note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	Yes	No	
2	No	No	No	Yes	No	

Custom Bolt Connection										
Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, $\eta$ :	$I_{ar}$ (in):	Thread Type	Area Override, in <sup>2</sup>	Tension Only
1	1	25.861889	2.25	A615-75	54	0.5	1.25	N-Included		No
2	1	38.62063	2.25	A615-75	54	0.5	1.25	N-Included		No
3	1	51.37937	2.25	A615-75	54	0.5	1.25	N-Included		No
4	1	64.138111	2.25	A615-75	54	0.5	1.25	N-Included		No
5	1	115.86189	2.25	A615-75	54	0.5	1.25	N-Included		No
6	1	128.62063	2.25	A615-75	54	0.5	1.25	N-Included		No
7	1	141.37937	2.25	A615-75	54	0.5	1.25	N-Included		No
8	1	154.13811	2.25	A615-75	54	0.5	1.25	N-Included		No
9	1	205.86189	2.25	A615-75	54	0.5	1.25	N-Included		No
10	1	218.62063	2.25	A615-75	54	0.5	1.25	N-Included		No
11	1	231.37937	2.25	A615-75	54	0.5	1.25	N-Included		No
12	1	244.13811	2.25	A615-75	54	0.5	1.25	N-Included		No
13	1	295.86189	2.25	A615-75	54	0.5	1.25	N-Included		No
14	1	308.62063	2.25	A615-75	54	0.5	1.25	N-Included		No
15	1	321.37937	2.25	A615-75	54	0.5	1.25	N-Included		No
16	1	334.13811	2.25	A615-75	54	0.5	1.25	N-Included		No
17	2	18	1.75	A193 Gr. B7	61.85	0.5	1.25	N-Included		No
18	2	149	1.75	A193 Gr. B7	61.85	0.5	1.25	N-Included		No
19	2	226	1.75	A193 Gr. B7	61.85	0.5	1.25	N-Included		No

## Plot Graphic



## Pier and Pad Foundation



BU #: 876321  
 Site Name: Branford Banm Tow  
 App. Number: 586245 Rev. 0

TIA-222 Revision: H  
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	50.94	kips
Base Shear, $Vu_{comp}$ :	36.79	kips
Moment, $M_u$ :	3873.43	ft-kips
Tower Height, $H$ :	147	ft
BP Dist. Above Fdn, $bp_{dist}$ :	2.5	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	349.73	36.79	10.0%	Pass
<i>Bearing Pressure (ksf)</i>	6.73	6.06	90.1%	Pass
<i>Overturning (kip*ft)</i>	4535.84	4304.18	94.9%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	5191.27	4186.15	76.8%	Pass
<i>Pier Compression (kip)</i>	23390.64	113.07	0.5%	Pass
<i>Pad Flexure (kip*ft)</i>	4322.10	2306.48	50.8%	Pass
<i>Pad Shear - 1-way (kips)</i>	624.22	364.88	55.7%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.000	0.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	6631.37	2511.69	36.1%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$ :	7	ft
Ext. Above Grade, $E$ :	0.5	ft
Pier Rebar Size, $Sc$ :	11	
Pier Rebar Quantity, $mc$ :	16	
Pier Tie/Spiral Size, $St$ :	5	
Pier Tie/Spiral Quantity, $mt$ :	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	3	in

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	76.8%
Soil Rating*:	94.9%

Pad Properties		
Depth, $D$ :	11	ft
Pad Width, $W_1$ :	20.5	ft
Pad Thickness, $T$ :	3	ft
Pad Rebar Size (Bottom dir. 2), $Sp_2$ :	11	
Pad Rebar Quantity (Bottom dir. 2), $mp_2$ :	21	
Pad Clear Cover, $cc_{pad}$ :	3	in

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

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	125	pcf
Ultimate Net Bearing, $Q_{net}$ :	8.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	35	degrees
SPT Blow Count, $N_{blows}$ :	60	
Base Friction, $\mu$ :		
Neglected Depth, $N$ :	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, $gw$ :	4.5	ft

<--Toggle between Gross and Net



Date: December 1, 2021

B+T Group  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119  
(918) 587-4630  
towersupport@btgrp.com

**Subject:** Mount Analysis Report - Conditional Passing

**Carrier Designation:** AT&T Mobility Equipment Change-Out  
**Carrier Site Number:** CTL02220  
**Carrier Site Name:** Branford Banm Tower  
**Carrier Site FA:** 10035122

**Crown Castle Designation:** BU Number: 876321  
Site Name: Branford Banm Tower  
JDE Job Number: 686295  
Order Number: 586245, Rev.0

**Engineering Firm Designation:** B+T Group Report Designation: 136457.007.01

**Site Data:** 150 North Main Street, Branford, CT, New Haven County, 06405  
Latitude 41° 17' 19.00" Longitude -72° 48' 49.90"

**Structure Information:** Tower Height & Type: 147 ft. Monopole  
Mount Elevation: 110 ft.  
Mount Type: 14 ft. Platform Mount

B+T Group is pleased to submit this “Mount Analysis Report - Conditional Passing” to determine the structural integrity of AT&T Mobility’s antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

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

**Platform Mount**

**Sufficient**

\*See Section 4.1 of this report for the structural modifications required in order for the mount to support the loading listed in Table 1.

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 121 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Anne Delice

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

Chad E. Tuttle, P.E.





## TABLE OF CONTENTS

### 1) INTRODUCTION

### 2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Documents Provided

### 3) ANALYSIS PROCEDURE

3.1) Analysis Method

3.2) Assumptions

### 4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

4.1) Recommendations

### 5) APPENDIX A

Wire Frame and Rendered Models

### 6) APPENDIX B

Software Input Calculations

### 7) APPENDIX C

Software Analysis Output

### 8) APPENDIX D

Additional Calculations

## 1) INTRODUCTION

This is an existing 3 - sector 14 ft. Platform mount, mapped by B+T Group.

## 2) ANALYSIS CRITERIA

<b>Building Code:</b>	2018 IBC
<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Ultimate Wind Speed:</b>	121 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor at Base:</b>	1
<b>Topographic Factor at Mount:</b>	1
<b>Ice Thickness:</b>	1 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Seismic S<sub>s</sub>:</b>	0.201
<b>Seismic S<sub>1</sub>:</b>	0.054
<b>Live Loading Wind Speed:</b>	30 mph
<b>Man Live Load at Mid/End-Points:</b>	250 lb.
<b>Man Live Load at Mount Pipes:</b>	500 lb.

**Table 1 - Proposed Equipment Configuration**

Mount Centerline (ft.)	Antenna Centerline (ft.)	Qty.	Manufacturer	Model / Type	Mount / Modification Details
110	113	3	Ericsson	AIR 6449 N77	14 ft. Platform Mount
	112	3	CCI Antennas	DMP65R-BU4D	
		3	Quintel Technology	QD4616-7	
		3	Ericsson	RRUS 32 B2	
		3	Ericsson	RRUS 32 B66	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 4478 B14 CCIV2	
		3	Ericsson	RRUS-32 B30	
		4	Raycap	DC6-48-60-18-8F	
	111	3	Ericsson	AIR 6419 B77G	
53	54	1	GPS	GPS_A	-

**Table 2 - Documents Provided**

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 11/19/2021	Crown Castle
RFDS		Date: 10/06/2021	
Mount Mapping	B+T Group	Date: 12/19/2019	On File
Previous Mount Analysis		Date: 03/09/2020	

## 3) ANALYSIS PROCEDURE

### 3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by B+T Group, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision D). In addition, this analysis is in accordance with AT&T's *Mount Technical Directive - R15*.

### 3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
  - (a) Connection Bolts : ASTM A325
  - (b) Steel Pipe : ASTM A53 (GR. 35)
  - (c) HSS (Round) : ASTM 500 (GR. B-42)
  - (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
  - (e) Channel : ASTM A36 (GR. 36)
  - (f) Steel Solid Rod : ASTM A36 (GR. 36)
  - (g) Steel Plate : ASTM A36 (GR. 36)
  - (h) Steel Angle : ASTM A36 (GR. 36)
  - (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

#### 4) ANALYSIS RESULTS

**Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)**

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1	Support Tubes	110	7	37.0	Pass
	Main Horizontals	110	2	67.2	Pass
	Support Rails	110	22	58.5	Pass
	Mount Pipes	110	60	90.1	Pass
	Connection Angles	110	27	59.8	Pass
	Kickers	110	29	12.7	Pass
	Support Angles	110	15	29.4	Pass
	Connection Plates	110	28	6.3	Pass
2	Connection Bolts	110	-	61.3	Pass

<b>Structure Rating with Recommendations (max from all components) =</b>	<b>90.1%</b>
--	--------------

Notes:

- 1) Capacities listed are based on recommendations listed in Sec.4.1 being installed
- 2) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 3) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

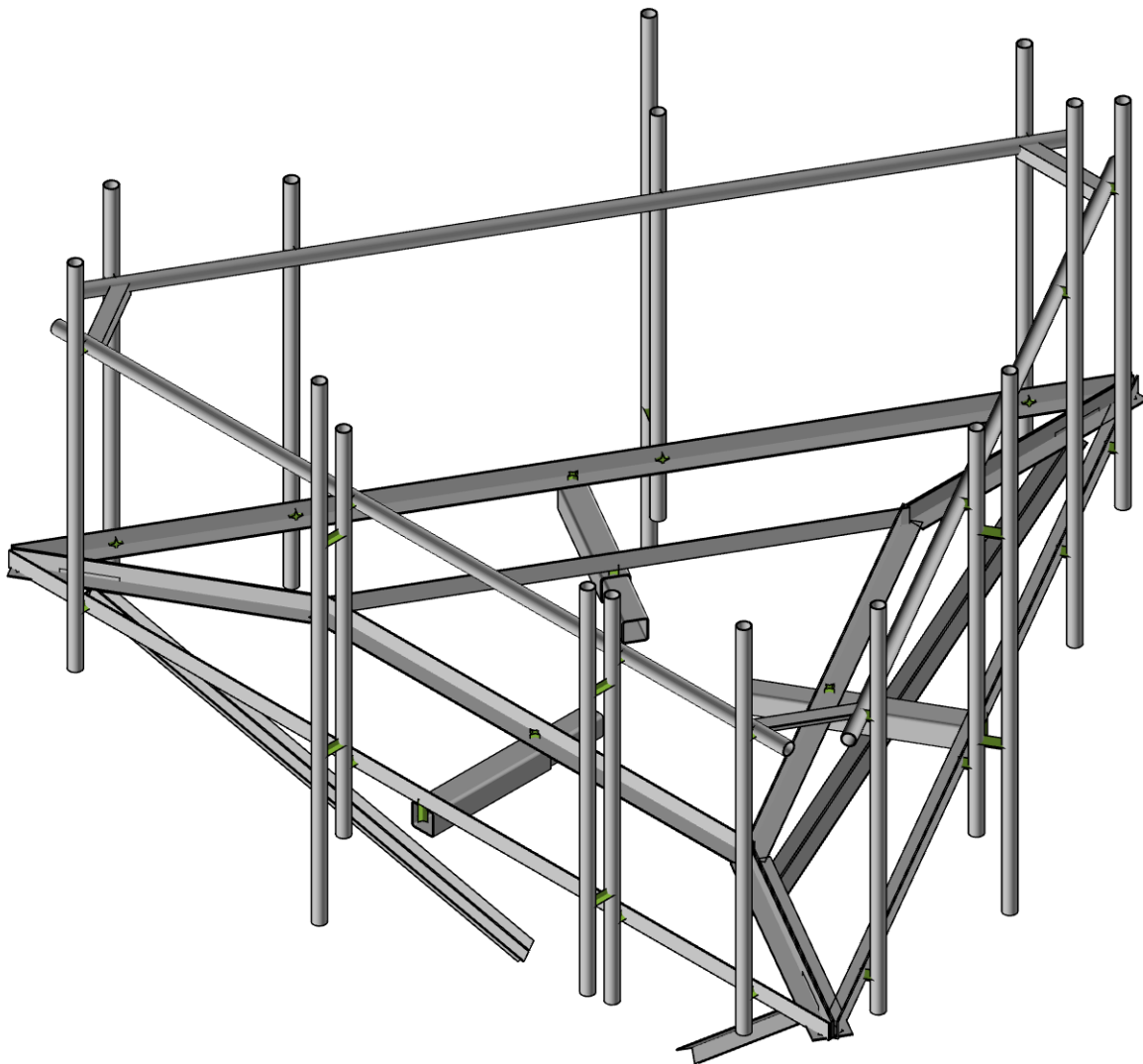
#### 4.1) Recommendations

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

1. Move Pos.2 mount pipe 1'-7" towards Pos.1 mount pipe and move Pos.3 mount pipe 2'-5" towards Pos.1 mount pipe in order to maintain 3'-0" spacing between antennas.

No modifications are required at this time provided that the above-listed changes are completed.

**APPENDIX A**  
**WIRE FRAME AND RENDERED MODELS**



Envelope Only Solution

B+T Group

KP

136457.007.01

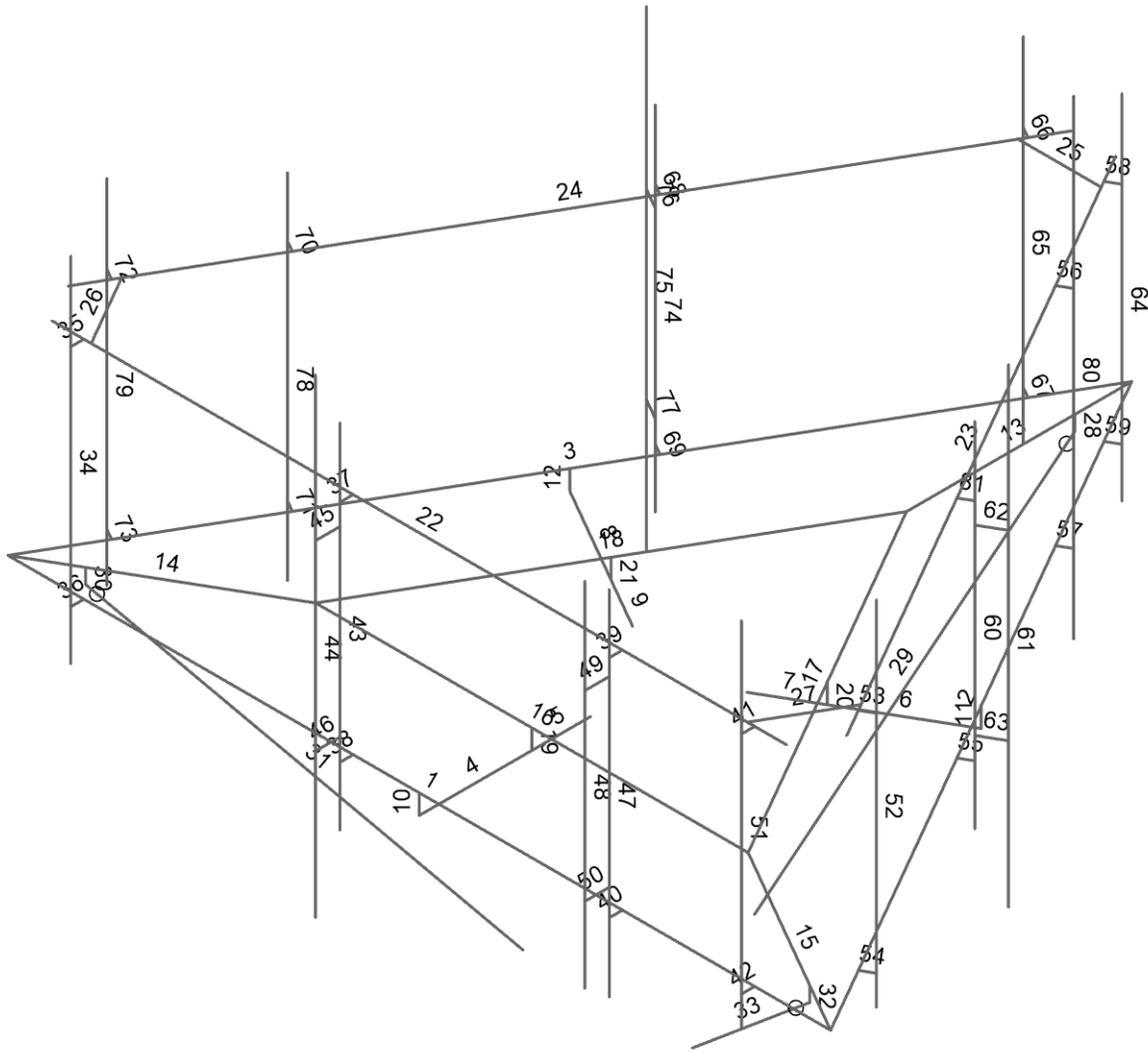
876321 - Branford Banm Tower

SK-1

Nov 29, 2021

136457\_007\_01\_Branford Banm T...





Envelope Only Solution

B+T Group

KP

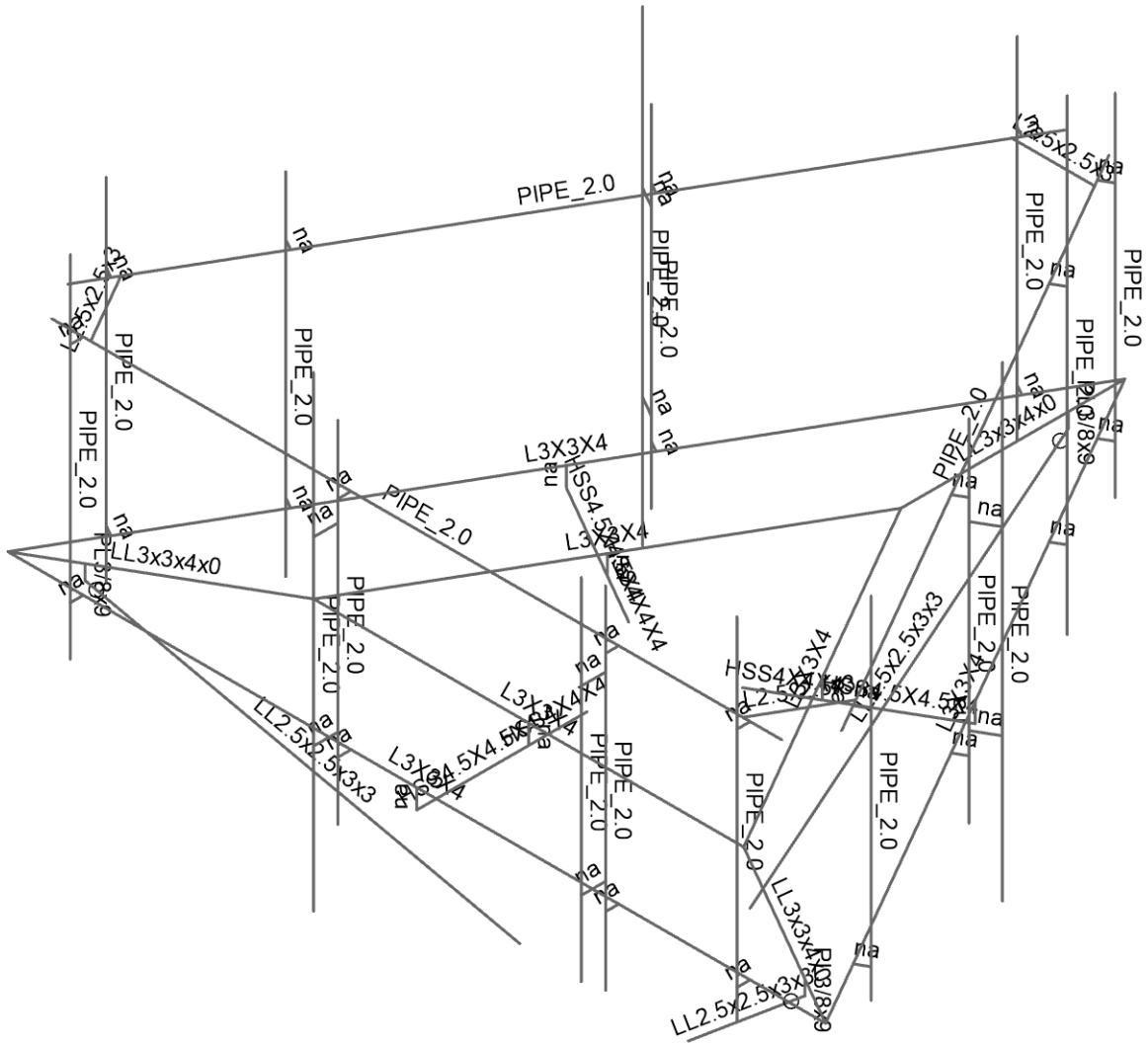
136457.007.01

876321 - Branford Banm Tower

SK-2

Nov 29, 2021

136457\_007\_01\_Branford Banm T...



Envelope Only Solution

B+T Group

KP

136457.007.01

876321 - Branford Banm Tower

SK-3

Nov 29, 2021

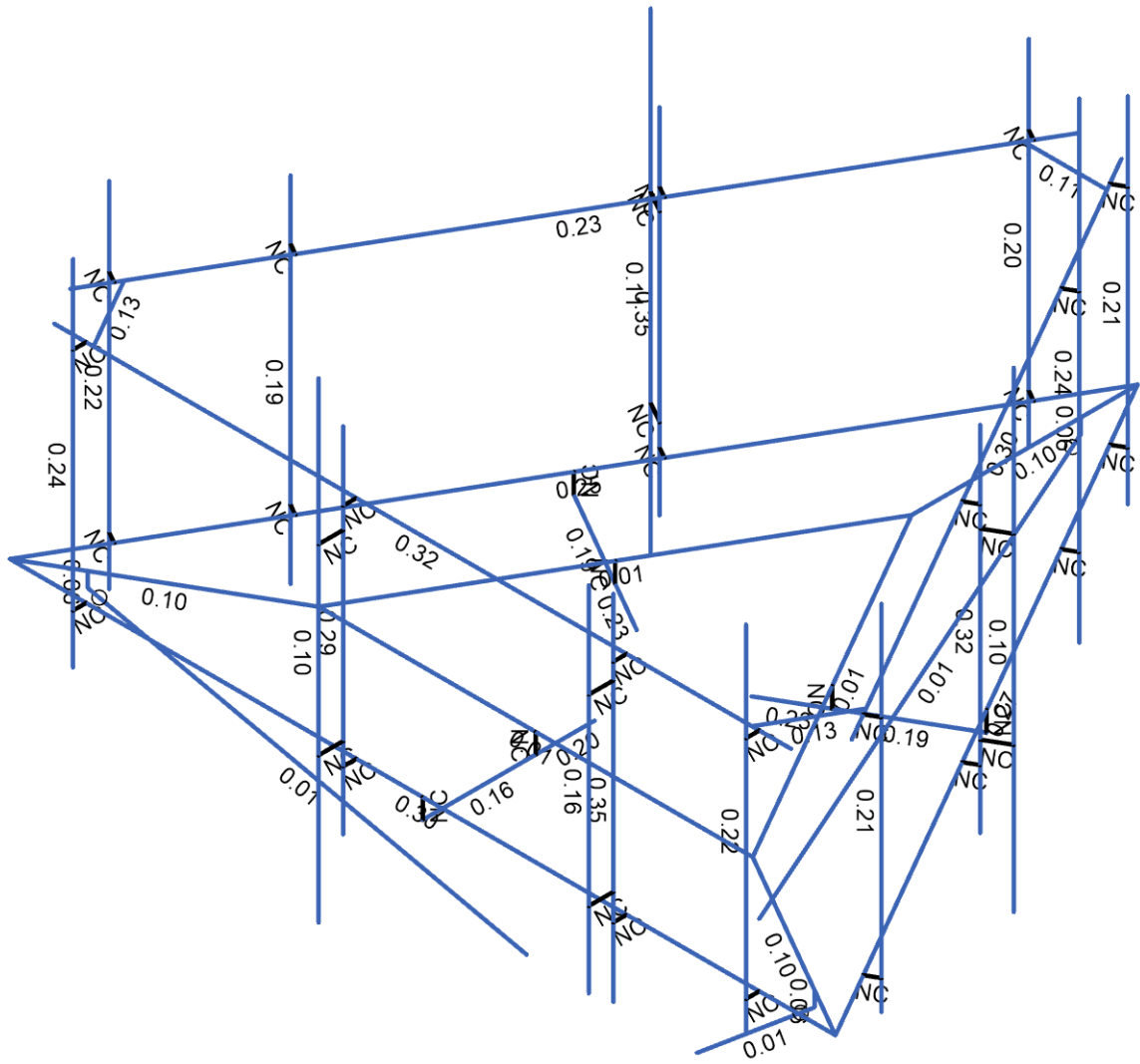
136457\_007\_01\_Branford Banm T...





Shear Check (Env)

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- 0-.50



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group
KP
136457.007.01

876321 - Branford Banm Tower
------------------------------

SK-5
Nov 29, 2021
136457_007_01_Branford Banm T...

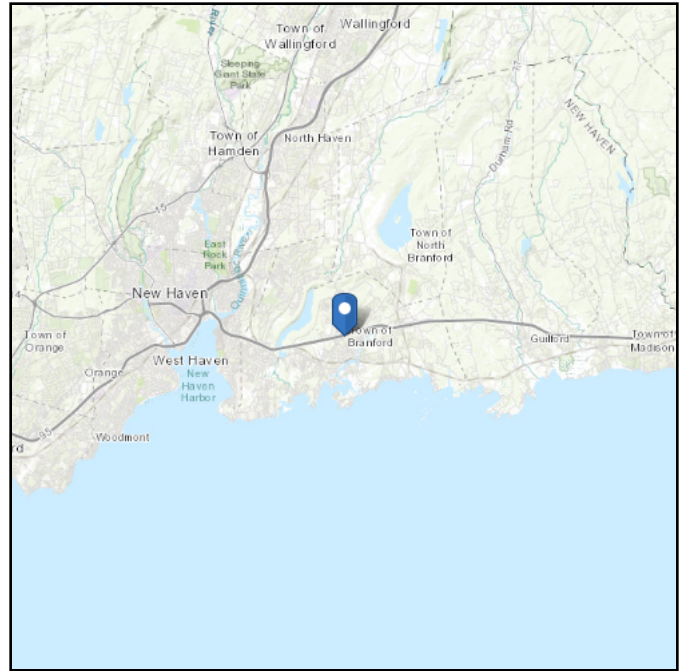
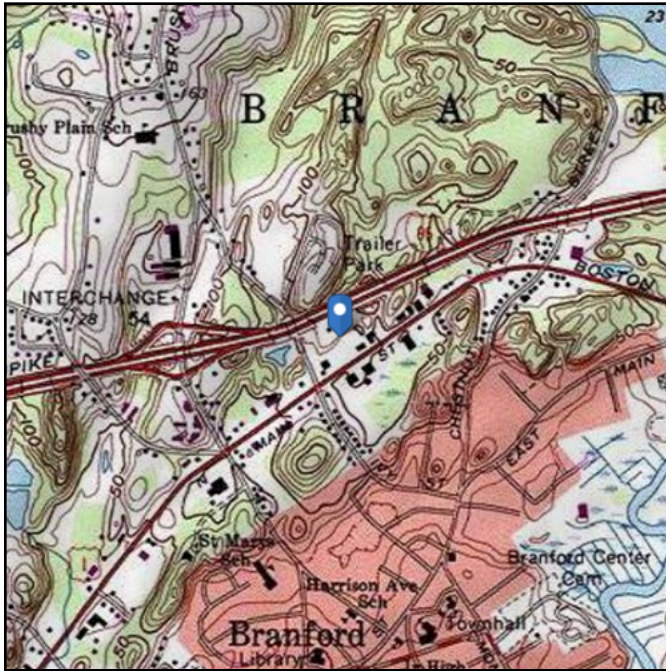
**APPENDIX B**  
**SOFTWARE INPUT CALCULATIONS**

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 57.7 ft (NAVD 88)  
**Latitude:** 41.288611  
**Longitude:** -72.813861



## Wind

### Results:

Wind Speed:	121 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Thu Nov 25 2021

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

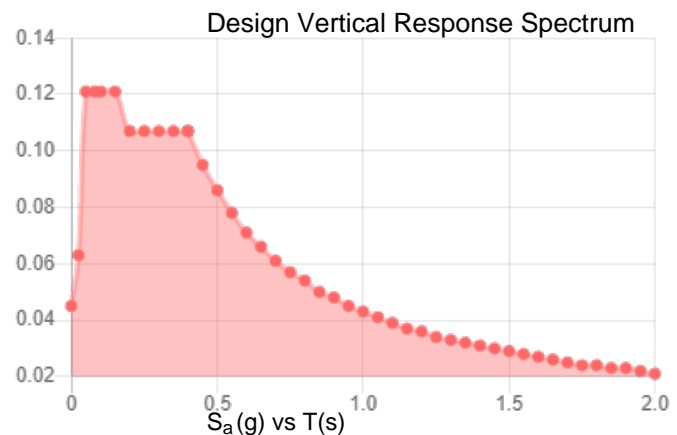
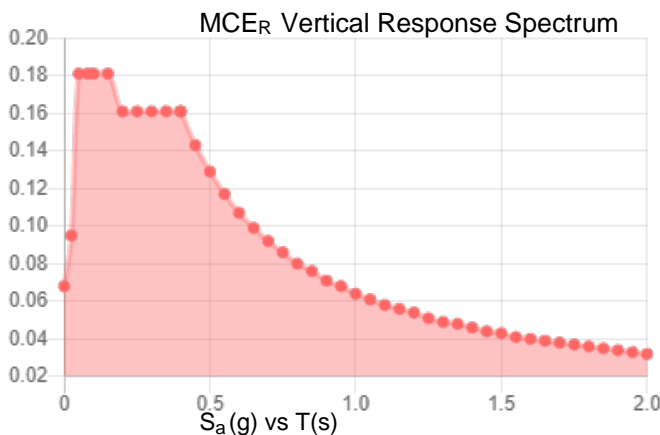
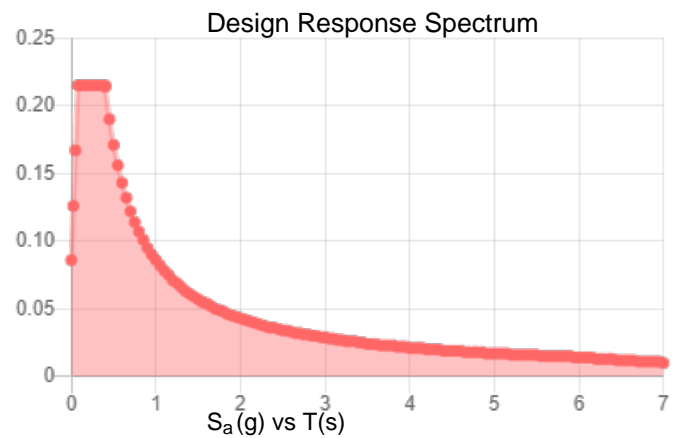
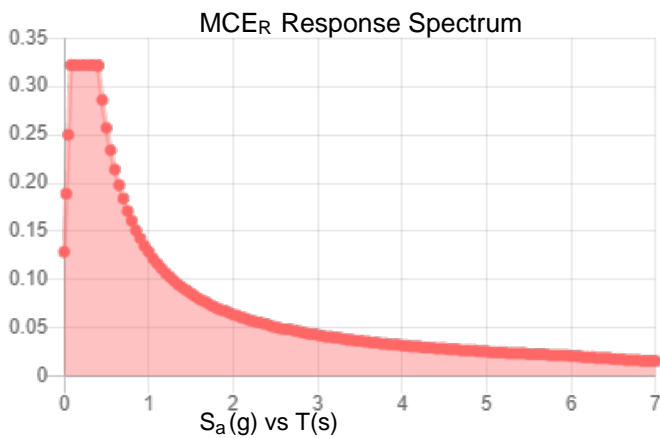
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

$S_s$ :	0.201	$S_{D1}$ :	0.086
$S_1$ :	0.054	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.113
$F_v$ :	2.4	PGA <sub>M</sub> :	0.177
$S_{MS}$ :	0.322	$F_{PGA}$ :	1.575
$S_{M1}$ :	0.129	$I_e$ :	1
$S_{DS}$ :	0.215	$C_v$ :	0.703

**Seismic Design Category** B



**Data Accessed:**

Thu Nov 25 2021

**Date Source:**

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



## Ice

---

**Results:**

Ice Thickness: 1.00 in.  
Concurrent Temperature: 15 F  
Gust Speed: 50 mph

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

**Date Accessed:** Thu Nov 25 2021

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

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

---

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

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

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

PROJECT	<b>136457.007.01 - Branford BAI</b>	<b>KSC</b>
SUBJECT	<b>Platform Mount Analysis</b>	
DATE	<b>11/29/21</b>	PAGE OF



Tower Type	:	Monopole	
Ground Elevation	$z_s$ :	58	ft [ASCE7 Hazard Tool]
Tower Height	:	147.00	ft
Mount Elevation	:	110.00	ft
Antenna Elevation	:	113.00	ft
Crest Height	:	0	ft
Risk Category	:	II	[Table 2-1 ]
Exposure Category	:	C	[Sec. 2.6.5.1.2]
Topography Category	:	1.00	[Sec. 2.6.6.2]
Wind Velocity	$V$ :	121	mph [ASCE7 Hazard Tool]
Ice wind Velocity	$V_i$ :	50	mph [ASCE7 Hazard Tool]
Service Velocity	$V_s$ :	30	mph [ASCE7 Hazard Tool]
Base Ice thickness	$t_i$ :	1.00	in [ASCE7 Hazard Tool]
Seismic Design Cat.	:	B	[ASCE7 Hazard Tool]
	$S_S$ :	0.20	
	$S_1$ :	0.05	
	$S_{DS}$ :	0.22	
	$S_{D1}$ :	0.09	
Gust Factor	$G_h$ :	1.00	[Sec. 16.6]
Pressure Coefficient	$K_z$ :	1.30	[Sec. 2.6.5.2]
Topography Factor	$K_{zt}$ :	1.00	[Sec. 2.6.6]
Elevation Factor	$K_e$ :	1.00	[Sec. 2.6.8]
Directionality Factor	$K_d$ :	0.95	[Sec. 16.6]
Shielding Factor	$K_a$ :	0.90	[Sec. 16.6]
Design Ice Thickness	$t_{iz}$ :	1.13	in [Sec. 2.6.10]
Importance Factor	$I_e$ :	1	[Table 2-3 ]
Response Coefficient	$C_s$ :	0.108	[Sec. 2.7.7.1]
Amplification	$A_s$ :	1.993197	[Sec. 16.7]
	$q_z$ :	45.88	psf

PROJECT	<b>136457.007.01 - Branford BAI</b>		<b>KSC</b>
SUBJECT	<b>Platform Mount Analysis</b>		
DATE	<b>11/29/21</b>	PAGE	OF



Manufacturer	Model	Qty	Aspect Ratio	$C_a$	$EPA_N$ (ft <sup>2</sup> )	$EPA_T$ (ft <sup>2</sup> )	$EPA_{N-Ice}$ (ft <sup>2</sup> )	$EPA_{T-Ice}$ (ft <sup>2</sup> )	$F_{A \text{ No Ice (N)}}$	$F_{A \text{ No Ice (T)}}$	$F_{A \text{ Ice (N)}}$	$F_{A \text{ Ice (T)}}$
				flat/round								
QINTEL TECHNOLOG	QD4616-7	0.5	2.34	1.20	3.93	1.72	4.53	2.21	0.20	0.09	0.03	0.01
QINTEL TECHNOLOG	QD4616-7	0.5	2.34	1.20	3.93	1.72	4.53	2.21	0.20	0.09	0.03	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.07	1.46	0.08	0.06	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.07	1.46	0.08	0.06	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	1.89	0.94	0.08	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	1.89	0.94	0.08	0.03	0.01	0.01
CCI ANTENNAS	DMP65R-BU4D	0.5	2.32	1.20	3.74	1.40	4.27	1.84	0.17	0.06	0.03	0.01
CCI ANTENNAS	DMP65R-BU4D	0.5	2.32	1.20	3.74	1.40	4.27	1.84	0.17	0.06	0.03	0.01
ERICSSON	RRUS-32 B30	1	3.15	1.23	1.97	2.76	2.63	3.47	0.10	0.14	0.02	0.02
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.64	2.16	0.06	0.08	0.01	0.01
ERICSSON	RRUS 32 B66	1	3.89	1.26	1.32	2.29	1.89	2.94	0.07	0.12	0.01	0.02
ERICSSON	RRUS 4478 B14_CCIV2	1	2.19	1.20	1.04	1.68	1.49	2.21	0.05	0.08	0.01	0.01
QINTEL TECHNOLOG	QD4616-7	0.5	2.34	1.20	3.93	1.72	4.53	2.21	0.20	0.09	0.03	0.01
QINTEL TECHNOLOG	QD4616-7	0.5	2.34	1.20	3.93	1.72	4.53	2.21	0.20	0.09	0.03	0.01
ERICSSON	RRUS 32 B66	1	3.89	1.26	1.32	2.29	1.89	2.94	0.07	0.12	0.01	0.02
ERICSSON	RRUS 4478 B14_CCIV2	1	2.19	1.20	1.04	1.68	1.49	2.21	0.05	0.08	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.07	1.46	0.08	0.06	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.07	1.46	0.08	0.06	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	1.89	0.94	0.08	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	1.89	0.94	0.08	0.03	0.01	0.01

PROJECT	<b>136457.007.01 - Branford BAI</b>			<b>KSC</b>
SUBJECT	<b>Platform Mount Analysis</b>			
DATE	<b>11/29/21</b>	PAGE	3	OF



Manufacturer	Model	Qty	Aspect Ratio	C <sub>a</sub>	EPA <sub>N</sub> (ft <sup>2</sup> )	EPA <sub>T</sub> (ft <sup>2</sup> )	EPA <sub>N-Ice</sub> (ft <sup>2</sup> )	EPA <sub>T-Ice</sub> (ft <sup>2</sup> )	F <sub>A No Ice (N)</sub>	F <sub>A No Ice (T)</sub>	F <sub>A Ice (N)</sub>	F <sub>A Ice (T)</sub>
				flat/round								
CCI ANTENNAS	DMP65R-BU4D	0.5	2.32	1.20	3.74	1.40	4.27	1.84	0.17	0.06	0.03	0.01
CCI ANTENNAS	DMP65R-BU4D	0.5	2.32	1.20	3.74	1.40	4.27	1.84	0.17	0.06	0.03	0.01
ERICSSON	RRUS-32 B30	1	3.15	1.23	1.97	2.76	2.63	3.47	0.10	0.14	0.02	0.02
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.64	2.16	0.06	0.08	0.01	0.01
QINTEL TECHNOLOG	QD4616-7	0.5	2.34	1.20	3.93	1.72	4.53	2.21	0.20	0.09	0.03	0.01
QINTEL TECHNOLOG	QD4616-7	0.5	2.34	1.20	3.93	1.72	4.53	2.21	0.20	0.09	0.03	0.01
ERICSSON	RRUS 32 B66	1	3.89	1.26	1.32	2.29	1.89	2.94	0.07	0.12	0.01	0.02
ERICSSON	RRUS 4478 B14_CCIV2	1	2.19	1.20	1.04	1.68	1.49	2.21	0.05	0.08	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.07	1.46	0.08	0.06	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.07	1.46	0.08	0.06	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	1.89	0.94	0.08	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	1.89	0.94	0.08	0.03	0.01	0.01
CCI ANTENNAS	DMP65R-BU4D	0.5	2.32	1.20	3.74	1.40	4.27	1.84	0.17	0.06	0.03	0.01
CCI ANTENNAS	DMP65R-BU4D	0.5	2.32	1.20	3.74	1.40	4.27	1.84	0.17	0.06	0.03	0.01
ERICSSON	RRUS-32 B30	1	3.15	1.23	1.97	2.76	2.63	3.47	0.10	0.14	0.02	0.02
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.64	2.16	0.06	0.08	0.01	0.01
RAYCAP	TME-DC6-48-60-18-8F	1	2.84	0.51	2.39	2.39	3.08	3.08	0.05	0.05	0.01	0.01
RAYCAP	TME-DC6-48-60-18-8F	1	2.84	0.51	2.39	2.39	3.08	3.08	0.05	0.05	0.01	0.01

**APPENDIX C**  
**SOFTWARE ANALYSIS OUTPUT**



**Node Coordinates**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	0	
2	2	0	-0.333333	2.041452	
3	3	0	-0.333333	1.124785	
4	4	1.767949	-0.333333	-1.020726	
5	5	0.974093	-0.333333	-0.562393	
6	6	-1.767949	-0.333333	-1.020726	
7	7	-0.974093	-0.333333	-0.562393	
8	8	0	-0.333333	4.041452	
9	9	0	0	4.041452	
10	10	3.5	-0.333333	-2.020726	
11	11	3.5	0	-2.020726	
12	12	-3.5	-0.333333	-2.020726	
13	13	-3.5	0	-2.020726	
14	14	0	0	-8.082904	
15	15	-7	0	4.041452	
16	16	7	0	4.041452	
17	17	3.680236	0	2.124785	
18	18	0	0	-4.24957	
19	19	-3.680236	0	2.124785	
20	20	0	0	2.124785	
21	21	0	-0.333333	2.124785	
22	22	1.840118	0	-1.062393	
23	23	1.840118	-0.333333	-1.062393	
24	24	-1.840118	0	-1.062393	
25	25	-1.840118	-0.333333	-1.062393	
26	26	-6.25	3.833333	4.041452	
27	27	6.25	3.833333	4.041452	
28	28	6.625	3.833333	3.391933	
29	29	0.375	3.833333	-7.433385	
30	30	-0.375	3.833333	-7.433385	
31	31	-6.625	3.833333	3.391933	
32	32	0	0	-7.116667	
33	33	0	-4.642942	-1.666667	
34	34	0	-0.25	-7.116667	
35	35	-6.163214	0	3.558333	
36	36	-1.443376	-4.642942	0.833333	
37	37	-6.163214	-0.25	3.558333	
38	38	6.163214	0	3.558333	
39	39	1.443376	-4.642942	0.833333	
40	40	6.163214	-0.25	3.558333	
41	41	-5.708334	5.166667	4.265618	
42	42	-5.708334	-0.833333	4.265618	
43	43	-5.708334	3.833333	4.041452	
44	44	-5.708334	3.833333	4.265618	
45	45	-5.708334	0	4.041452	
46	46	-5.708334	0	4.265618	
47	47	-1.125334	3.833333	4.041452	
48	48	-1.125334	3.833333	4.265618	
49	49	-1.125334	0	4.041452	
50	50	-1.125334	0	4.265618	
51	51	3.458333	3.833333	4.041452	
52	52	3.458333	3.833333	4.265618	
53	53	3.458333	0	4.041452	
54	54	3.458333	0	4.265618	
55	55	5.708333	3.833333	4.041452	



**Node Coordinates (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	5.708333	3.833333	4.265618	
57	57	5.708333	0	4.041452	
58	58	5.708333	0	4.265618	
59	59	-1.125334	5	4.265618	
60	60	-1.125334	-1	4.265618	
61	61	-1.125334	5.916667	4.682285	
62	62	-1.125334	-2.083333	4.682285	
63	63	-1.125334	3.475362	4.265618	
64	64	-1.125334	3.475362	4.682285	
65	65	-1.125334	0.373254	4.265618	
66	66	-1.125334	0.373254	4.682285	
67	67	3.458333	4.833333	4.265618	
68	68	3.458333	-1.166667	4.265618	
69	69	3.458333	5.166667	4.682285	
70	70	3.458333	-0.833333	4.682285	
71	71	3.458333	3.556374	4.265618	
72	72	3.458333	3.556374	4.682285	
73	73	3.458333	0.449898	4.265618	
74	74	3.458333	0.449898	4.682285	
75	75	5.708333	5.5	4.265618	
76	76	5.708333	-0.5	4.265618	
77	77	6.5483	5.5	2.810753	
78	78	6.5483	-0.5	2.810753	
79	79	6.354167	3.833333	2.922836	
80	80	6.5483	3.833333	2.810753	
81	81	6.354167	0	2.922836	
82	82	6.5483	0	2.810753	
83	83	4.25665	3.833333	-1.158501	
84	84	4.062517	0	-1.046418	
85	85	4.25665	0	-1.158501	
86	86	1.770684	3.833333	-5.01599	
87	87	1.964817	3.833333	-5.128073	
88	88	1.770684	0	-5.01599	
89	89	1.964817	0	-5.128073	
90	90	0.645833	3.833333	-6.964288	
91	91	0.839967	3.833333	-7.07637	
92	92	0.645834	0	-6.964287	
93	93	0.839967	0	-7.07637	
94	94	4.25665	5	-1.158501	
95	95	4.25665	-1	-1.158501	
96	96	4.617494	5.916667	-1.366834	
97	97	4.617494	-2.083333	-1.366834	
98	98	4.25665	3.475362	-1.158501	
99	99	4.617494	3.475362	-1.366834	
100	100	4.25665	0.373254	-1.158501	
101	101	4.617494	0.373254	-1.366834	
102	102	0.839967	5.166667	-7.07637	
103	103	0.839967	-0.833333	-7.07637	
104	104	-0.839966	5.166667	-7.076371	
105	105	-0.839966	-0.833333	-7.076371	
106	106	-0.645833	3.833333	-6.964288	
107	107	-0.839966	3.833333	-7.076371	
108	108	-0.645833	0	-6.964288	
109	109	-0.839966	0	-7.076371	
110	110	-2.937333	3.833333	-2.995294	



**Node Coordinates (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	-3.131466	3.833333	-3.107377	
112	112	-2.937333	0	-2.995294	
113	113	-3.131466	0	-3.107377	
114	114	-5.228666	3.833333	0.973412	
115	115	-5.4228	3.833333	0.861329	
116	116	-5.228666	0	0.973412	
117	117	-5.4228	0	0.861329	
118	118	-6.354166	3.833333	2.922835	
119	119	-6.5483	3.833333	2.810752	
120	120	-6.354166	0	2.922835	
121	121	-6.5483	0	2.810752	
122	122	-3.131466	5	-3.107377	
123	123	-3.131466	-1	-3.107377	
124	124	-3.49231	6.166667	-3.31571	
125	125	-3.49231	-1.833333	-3.31571	
126	126	-3.131466	3.475362	-3.107377	
127	127	-3.49231	3.475362	-3.31571	
128	128	-3.131466	0.373254	-3.107377	
129	129	-3.49231	0.373254	-3.31571	
130	130	-5.4228	4.833333	0.861329	
131	131	-5.4228	-1.166667	0.861329	
132	132	-6.5483	5.166667	2.810752	
133	133	-6.5483	-0.833333	2.810752	
134	134	1.964817	6.666667	-5.128073	
135	135	1.964817	-1.333333	-5.128073	
136	136	4.062517	3.833333	-1.046418	
137	137	4.617494	3.833333	-1.366834	
138	138	5.583333	3.833333	4.041452	
139	139	-5.583334	3.833333	4.041452	
140	140	0.708333	3.833333	-6.856035	
141	141	6.291667	3.833333	2.814583	
142	142	-6.291666	3.833333	2.814582	
143	143	-0.708333	3.833333	-6.856035	

**Node Boundary Conditions**

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	7	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	36	Reaction	Reaction	Reaction			
5	39	Reaction	Reaction	Reaction			
6	33	Reaction	Reaction	Reaction			

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e <sup>-5</sup> F <sup>-1</sup> ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	F1-ST1	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
2	F1-ST2	HSS4.5X4.5X4	Beam	Tube	A500 Gr.B Rect	Typical	3.84	11.4	11.4	18.5
3	MF-H1	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	0.031
4	Handrail	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
5	MF-P1	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
6	F1-CA1	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	0.901	0.535	0.535	0.011
7	Kicker	LL2.5x2.5x3x3	VBrace	Double Angle (3/8 Gap)	A36 Gr.36	Typical	1.8	2.46	1.07	0.023
8	MF-H2	LL3x3x4x0	Beam	Double Angle (No Gap)	A36 Gr.36	Typical	2.88	4.5	2.46	0.063
9	CP	PL3/8x9	Column	RECT	A36 Gr.36	Typical	3.375	0.04	22.781	0.154

**Member Primary Data**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	15	16	270	MF-H1	Beam	Single Angle	A36 Gr.36	Typical
2	2	16	14	270	MF-H1	Beam	Single Angle	A36 Gr.36	Typical
3	3	14	15	270	MF-H1	Beam	Single Angle	A36 Gr.36	Typical
4	4	8	2		F1-ST2	Beam	Tube	A500 Gr.B Rect	Typical
5	5	2	3		F1-ST1	Beam	Tube	A500 Gr.B Rect	Typical
6	6	10	4		F1-ST2	Beam	Tube	A500 Gr.B Rect	Typical
7	7	4	5		F1-ST1	Beam	Tube	A500 Gr.B Rect	Typical
8	8	12	6		F1-ST2	Beam	Tube	A500 Gr.B Rect	Typical
9	9	6	7		F1-ST1	Beam	Tube	A500 Gr.B Rect	Typical
10	10	8	9		RIGID	None	None	RIGID	Typical
11	11	10	11		RIGID	None	None	RIGID	Typical
12	12	12	13		RIGID	None	None	RIGID	Typical
13	13	14	18	180	MF-H2	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
14	14	15	19	180	MF-H2	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
15	15	16	17	180	MF-H2	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
16	16	19	17		MF-H1	Beam	Single Angle	A36 Gr.36	Typical
17	17	17	18		MF-H1	Beam	Single Angle	A36 Gr.36	Typical
18	18	18	19		MF-H1	Beam	Single Angle	A36 Gr.36	Typical
19	19	20	21		RIGID	None	None	RIGID	Typical
20	20	22	23		RIGID	None	None	RIGID	Typical
21	21	24	25		RIGID	None	None	RIGID	Typical
22	22	26	27		Handrail	Beam	Pipe	A53 Gr.B	Typical
23	23	28	29		Handrail	Beam	Pipe	A53 Gr.B	Typical
24	24	30	31		Handrail	Beam	Pipe	A53 Gr.B	Typical
25	25	143	140	180	F1-CA1	Beam	Single Angle	A36 Gr.36	Typical
26	26	139	142	180	F1-CA1	Beam	Single Angle	A36 Gr.36	Typical
27	27	141	138	180	F1-CA1	Beam	Single Angle	A36 Gr.36	Typical
28	28	32	34	90	CP	Column	RECT	A36 Gr.36	Typical
29	29	33	34		Kicker	VBrace	Double Angle (3/8 Gap)	A36 Gr.36	Typical
30	30	35	37	330	CP	Column	RECT	A36 Gr.36	Typical
31	31	36	37		Kicker	VBrace	Double Angle (3/8 Gap)	A36 Gr.36	Typical
32	32	38	40	30	CP	Column	RECT	A36 Gr.36	Typical
33	33	39	40		Kicker	VBrace	Double Angle (3/8 Gap)	A36 Gr.36	Typical
34	34	41	42		MF-P1	Column	Pipe	A53 Gr.B	Typical
35	35	43	44		RIGID	None	None	RIGID	Typical
36	36	45	46		RIGID	None	None	RIGID	Typical
37	37	47	48		RIGID	None	None	RIGID	Typical
38	38	49	50		RIGID	None	None	RIGID	Typical
39	39	51	52		RIGID	None	None	RIGID	Typical
40	40	53	54		RIGID	None	None	RIGID	Typical
41	41	55	56		RIGID	None	None	RIGID	Typical
42	42	57	58		RIGID	None	None	RIGID	Typical



**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
43	43	59	60		MF-P1	Column	Pipe	A53 Gr.B	Typical
44	44	61	62		MF-P1	Column	Pipe	A53 Gr.B	Typical
45	45	63	64		RIGID	None	None	RIGID	Typical
46	46	65	66		RIGID	None	None	RIGID	Typical
47	47	67	68		MF-P1	Column	Pipe	A53 Gr.B	Typical
48	48	69	70		MF-P1	Column	Pipe	A53 Gr.B	Typical
49	49	71	72		RIGID	None	None	RIGID	Typical
50	50	73	74		RIGID	None	None	RIGID	Typical
51	51	75	76		MF-P1	Column	Pipe	A53 Gr.B	Typical
52	52	77	78		MF-P1	Column	Pipe	A53 Gr.B	Typical
53	53	79	80		RIGID	None	None	RIGID	Typical
54	54	81	82		RIGID	None	None	RIGID	Typical
55	55	84	85		RIGID	None	None	RIGID	Typical
56	56	86	87		RIGID	None	None	RIGID	Typical
57	57	88	89		RIGID	None	None	RIGID	Typical
58	58	90	91		RIGID	None	None	RIGID	Typical
59	59	92	93		RIGID	None	None	RIGID	Typical
60	60	94	95		MF-P1	Column	Pipe	A53 Gr.B	Typical
61	61	96	97		MF-P1	Column	Pipe	A53 Gr.B	Typical
62	62	98	99		RIGID	None	None	RIGID	Typical
63	63	100	101		RIGID	None	None	RIGID	Typical
64	64	102	103		MF-P1	Column	Pipe	A53 Gr.B	Typical
65	65	104	105		MF-P1	Column	Pipe	A53 Gr.B	Typical
66	66	106	107		RIGID	None	None	RIGID	Typical
67	67	108	109		RIGID	None	None	RIGID	Typical
68	68	110	111		RIGID	None	None	RIGID	Typical
69	69	112	113		RIGID	None	None	RIGID	Typical
70	70	114	115		RIGID	None	None	RIGID	Typical
71	71	116	117		RIGID	None	None	RIGID	Typical
72	72	118	119		RIGID	None	None	RIGID	Typical
73	73	120	121		RIGID	None	None	RIGID	Typical
74	74	122	123		MF-P1	Column	Pipe	A53 Gr.B	Typical
75	75	124	125		MF-P1	Column	Pipe	A53 Gr.B	Typical
76	76	126	127		RIGID	None	None	RIGID	Typical
77	77	128	129		RIGID	None	None	RIGID	Typical
78	78	130	131		MF-P1	Column	Pipe	A53 Gr.B	Typical
79	79	132	133		MF-P1	Column	Pipe	A53 Gr.B	Typical
80	80	134	135		MF-P1	Column	Pipe	A53 Gr.B	Typical
81	81	136	83		RIGID	None	None	RIGID	Typical

**Member Advanced Data**

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
1	1		Yes	Default	None
2	2		Yes	N/A	None
3	3		Yes	N/A	None
4	4		Yes	Default	None
5	5		Yes	N/A	None
6	6		Yes	N/A	None
7	7		Yes	N/A	None
8	8		Yes	N/A	None
9	9		Yes	N/A	None
10	10		Yes	** NA **	None
11	11		Yes	** NA **	None
12	12		Yes	** NA **	None
13	13		Yes	N/A	None

**Member Advanced Data (Continued)**

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
14	14		Yes	N/A	None
15	15		Yes	N/A	None
16	16		Yes	N/A	None
17	17		Yes	N/A	None
18	18		Yes	Default	None
19	19		Yes	** NA **	None
20	20		Yes	** NA **	None
21	21		Yes	** NA **	None
22	22		Yes	N/A	None
23	23		Yes	N/A	None
24	24		Yes	N/A	None
25	25		Yes	N/A	None
26	26		Yes	N/A	None
27	27		Yes	N/A	None
28	28		Yes	** NA **	None
29	29	BenPIN	Yes	** NA **	None
30	30		Yes	** NA **	None
31	31	BenPIN	Yes	** NA **	None
32	32		Yes	** NA **	None
33	33	BenPIN	Yes	** NA **	None
34	34		Yes	** NA **	None
35	35		Yes	** NA **	None
36	36		Yes	** NA **	None
37	37		Yes	** NA **	None
38	38		Yes	** NA **	None
39	39		Yes	** NA **	None
40	40		Yes	** NA **	None
41	41		Yes	** NA **	None
42	42		Yes	** NA **	None
43	43		Yes	** NA **	None
44	44		Yes	** NA **	None
45	45		Yes	** NA **	None
46	46		Yes	** NA **	None
47	47		Yes	** NA **	None
48	48		Yes	** NA **	None
49	49		Yes	** NA **	None
50	50		Yes	** NA **	None
51	51		Yes	** NA **	None
52	52		Yes	** NA **	None
53	53		Yes	** NA **	None
54	54		Yes	** NA **	None
55	55		Yes	** NA **	None
56	56		Yes	** NA **	None
57	57		Yes	** NA **	None
58	58		Yes	** NA **	None
59	59		Yes	** NA **	None
60	60		Yes	** NA **	None
61	61		Yes	** NA **	None
62	62		Yes	** NA **	None
63	63		Yes	** NA **	None
64	64		Yes	** NA **	None
65	65		Yes	** NA **	None
66	66		Yes	** NA **	None
67	67		Yes	** NA **	None
68	68		Yes	** NA **	None

**Member Advanced Data (Continued)**

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
69	69		Yes	** NA **	None
70	70		Yes	** NA **	None
71	71		Yes	** NA **	None
72	72		Yes	** NA **	None
73	73		Yes	** NA **	None
74	74		Yes	** NA **	None
75	75		Yes	** NA **	None
76	76		Yes	** NA **	None
77	77		Yes	** NA **	None
78	78		Yes	** NA **	None
79	79		Yes	** NA **	None
80	80		Yes	** NA **	None
81	81		Yes	** NA **	None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Function
1	1	MF-H1	14	7	7	Lbyy	Lateral
2	2	MF-H1	14	7	7	Lbyy	Lateral
3	3	MF-H1	14	7	7	Lbyy	Lateral
4	4	F1-ST2	2			Lbyy	Lateral
5	5	F1-ST1	0.917			Lbyy	Lateral
6	6	F1-ST2	2			Lbyy	Lateral
7	7	F1-ST1	0.917			Lbyy	Lateral
8	8	F1-ST2	2			Lbyy	Lateral
9	9	F1-ST1	0.917			Lbyy	Lateral
10	13	MF-H2	3.833			Lbyy	Lateral
11	14	MF-H2	3.833			Lbyy	Lateral
12	15	MF-H2	3.833			Lbyy	Lateral
13	16	MF-H1	7.36	3.68	3.68	Lbyy	Lateral
14	17	MF-H1	7.36	3.68	3.68	Lbyy	Lateral
15	18	MF-H1	7.36	3.68	3.68	Lbyy	Lateral
16	22	Handrail	12.5			Lbyy	Lateral
17	23	Handrail	12.5			Lbyy	Lateral
18	24	Handrail	12.5			Lbyy	Lateral
19	25	F1-CA1	1.417			Lbyy	Lateral
20	26	F1-CA1	1.417			Lbyy	Lateral
21	27	F1-CA1	1.417			Lbyy	Lateral
22	28	CP	0.25			Lbyy	Lateral
23	29	Kicker	7			Lbyy	Lateral
24	30	CP	0.25			Lbyy	Lateral
25	31	Kicker	7			Lbyy	Lateral
26	32	CP	0.25			Lbyy	Lateral
27	33	Kicker	7			Lbyy	Lateral
28	34	MF-P1	6			Lbyy	Lateral
29	43	MF-P1	6			Lbyy	Lateral
30	44	MF-P1	8			Lbyy	Lateral
31	47	MF-P1	6			Lbyy	Lateral
32	48	MF-P1	6			Lbyy	Lateral
33	51	MF-P1	6			Lbyy	Lateral
34	52	MF-P1	6			Lbyy	Lateral
35	60	MF-P1	6			Lbyy	Lateral
36	61	MF-P1	8			Lbyy	Lateral
37	64	MF-P1	6			Lbyy	Lateral
38	65	MF-P1	6			Lbyy	Lateral
39	74	MF-P1	6			Lbyy	Lateral

**Hot Rolled Steel Design Parameters (Continued)**

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Function
40	75	MF-P1	8			Lbyy	Lateral
41	78	MF-P1	6			Lbyy	Lateral
42	79	MF-P1	6			Lbyy	Lateral
43	80	MF-P1	8			Lbyy	Lateral

**Member Point Loads (BLC 1 : Dead)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	Y	-0.055	%5
2	48	Y	-0.055	%75
3	48	Y	0	0
4	48	Y	0	0
5	48	Y	0	0
6	44	Y	-0.048	%5
7	44	Y	-0.048	%35
8	44	Y	-0.033	%65
9	44	Y	-0.033	%90
10	44	Y	0	0
11	34	Y	-0.038	%10
12	34	Y	-0.038	%55
13	34	Y	-0.077	%45
14	34	Y	-0.071	%45
15	34	Y	0	0
16	47	Y	-0.053	%50
17	47	Y	-0.059	%50
18	47	Y	0	0
19	47	Y	0	0
20	47	Y	0	0
21	78	Y	-0.055	%5
22	78	Y	-0.055	%75
23	78	Y	-0.053	%50
24	78	Y	-0.059	%50
25	78	Y	0	0
26	75	Y	-0.048	%5
27	75	Y	-0.048	%35
28	75	Y	-0.033	%65
29	75	Y	-0.033	%90
30	75	Y	0	0
31	65	Y	-0.038	%10
32	65	Y	-0.038	%55
33	65	Y	-0.077	%45
34	65	Y	-0.071	%45
35	65	Y	0	0
36	80	Y	-0.055	%5
37	80	Y	-0.055	%75
38	80	Y	-0.053	%50
39	80	Y	-0.059	%50
40	80	Y	0	0
41	61	Y	-0.048	%5
42	61	Y	-0.048	%35
43	61	Y	-0.033	%65
44	61	Y	-0.033	%90
45	61	Y	0	0
46	52	Y	-0.038	%10
47	52	Y	-0.038	%55
48	52	Y	-0.077	%45

**Member Point Loads (BLC 1 : Dead) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
49	52	Y	-0.071	%45
50	52	Y	0	0
51	5	Y	-0.033	%50
52	5	Y	0	0
53	5	Y	0	0
54	5	Y	0	0
55	5	Y	0	0
56	9	Y	-0.033	%50
57	9	Y	0	0
58	9	Y	0	0
59	9	Y	0	0
60	9	Y	0	0

**Member Point Loads (BLC 2 : 0 Wind - No Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	Z	-0.196	%5
2	48	Z	-0.196	%75
3	48	Z	0	0
4	48	Z	0	0
5	48	Z	0	0
6	44	Z	-0.084	%5
7	44	Z	-0.084	%35
8	44	Z	-0.076	%65
9	44	Z	-0.076	%90
10	44	Z	0	0
11	34	Z	-0.173	%10
12	34	Z	-0.173	%55
13	34	Z	-0.101	%45
14	34	Z	-0.059	%45
15	34	Z	0	0
16	47	Z	-0.069	%50
17	47	Z	-0.052	%50
18	47	Z	0	0
19	47	Z	0	0
20	47	Z	0	0
21	78	Z	-0.196	%5
22	78	Z	-0.196	%75
23	78	Z	-0.069	%50
24	78	Z	-0.052	%50
25	78	Z	0	0
26	75	Z	-0.084	%5
27	75	Z	-0.084	%35
28	75	Z	-0.076	%65
29	75	Z	-0.076	%90
30	75	Z	0	0
31	65	Z	-0.173	%10
32	65	Z	-0.173	%55
33	65	Z	-0.101	%45
34	65	Z	-0.059	%45
35	65	Z	0	0
36	80	Z	-0.196	%5
37	80	Z	-0.196	%75
38	80	Z	-0.069	%50
39	80	Z	-0.052	%50
40	80	Z	0	0



**Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
41	61	Z	-0.084	%5
42	61	Z	-0.084	%35
43	61	Z	-0.076	%65
44	61	Z	-0.076	%90
45	61	Z	0	0
46	52	Z	-0.173	%10
47	52	Z	-0.173	%55
48	52	Z	-0.101	%45
49	52	Z	-0.059	%45
50	52	Z	0	0
51	5	Z	-0.05	%50
52	5	Z	0	0
53	5	Z	0	0
54	5	Z	0	0
55	5	Z	0	0
56	9	Z	-0.05	%50
57	9	Z	0	0
58	9	Z	0	0
59	9	Z	0	0
60	9	Z	0	0

**Member Point Loads (BLC 3 : 90 Wind - No Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	X	-0.086	%5
2	48	X	-0.086	%75
3	48	X	0	0
4	48	X	0	0
5	48	X	0	0
6	44	X	-0.056	%5
7	44	X	-0.056	%35
8	44	X	-0.032	%65
9	44	X	-0.032	%90
10	44	X	0	0
11	34	X	-0.065	%10
12	34	X	-0.065	%55
13	34	X	-0.141	%45
14	34	X	-0.082	%45
15	34	X	0	0
16	47	X	-0.12	%50
17	47	X	-0.084	%50
18	47	X	0	0
19	47	X	0	0
20	47	X	0	0
21	78	X	-0.086	%5
22	78	X	-0.086	%75
23	78	X	-0.12	%50
24	78	X	-0.084	%50
25	78	X	0	0
26	75	X	-0.056	%5
27	75	X	-0.056	%35
28	75	X	-0.032	%65
29	75	X	-0.032	%90
30	75	X	0	0
31	65	X	-0.065	%10
32	65	X	-0.065	%55

**Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
33	65	X	-0.141	%45
34	65	X	-0.082	%45
35	65	X	0	0
36	80	X	-0.086	%5
37	80	X	-0.086	%75
38	80	X	-0.12	%50
39	80	X	-0.084	%50
40	80	X	0	0
41	61	X	-0.056	%5
42	61	X	-0.056	%35
43	61	X	-0.032	%65
44	61	X	-0.032	%90
45	61	X	0	0
46	52	X	-0.065	%10
47	52	X	-0.065	%55
48	52	X	-0.141	%45
49	52	X	-0.082	%45
50	52	X	0	0
51	5	X	-0.05	%50
52	5	X	0	0
53	5	X	0	0
54	5	X	0	0
55	5	X	0	0
56	9	X	-0.05	%50
57	9	X	0	0
58	9	X	0	0
59	9	X	0	0
60	9	X	0	0

**Member Point Loads (BLC 4 : 0 Wind - Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	Z	-0.034	%5
2	48	Z	-0.034	%75
3	48	Z	0	0
4	48	Z	0	0
5	48	Z	0	0
6	44	Z	-0.014	%5
7	44	Z	-0.014	%35
8	44	Z	-0.013	%65
9	44	Z	-0.013	%90
10	44	Z	0	0
11	34	Z	-0.034	%10
12	34	Z	-0.034	%55
13	34	Z	-0.017	%45
14	34	Z	-0.01	%45
15	34	Z	0	0
16	47	Z	-0.012	%50
17	47	Z	-0.009	%50
18	47	Z	0	0
19	47	Z	0	0
20	47	Z	0	0
21	78	Z	-0.034	%5
22	78	Z	-0.034	%75
23	78	Z	-0.012	%50
24	78	Z	-0.009	%50

**Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
25	78	Z	0	0
26	75	Z	-0.014	%5
27	75	Z	-0.014	%35
28	75	Z	-0.013	%65
29	75	Z	-0.013	%90
30	75	Z	0	0
31	65	Z	-0.034	%10
32	65	Z	-0.034	%55
33	65	Z	-0.017	%45
34	65	Z	-0.01	%45
35	65	Z	0	0
36	80	Z	-0.034	%5
37	80	Z	-0.034	%75
38	80	Z	-0.012	%50
39	80	Z	-0.009	%50
40	80	Z	0	0
41	61	Z	-0.014	%5
42	61	Z	-0.014	%35
43	61	Z	-0.013	%65
44	61	Z	-0.013	%90
45	61	Z	0	0
46	52	Z	-0.034	%10
47	52	Z	-0.034	%55
48	52	Z	-0.017	%45
49	52	Z	-0.01	%45
50	52	Z	0	0
51	5	Z	-0.009	%50
52	5	Z	0	0
53	5	Z	0	0
54	5	Z	0	0
55	5	Z	0	0
56	9	Z	-0.009	%50
57	9	Z	0	0
58	9	Z	0	0
59	9	Z	0	0
60	9	Z	0	0

**Member Point Loads (BLC 5 : 90 Wind - Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	X	-0.015	%5
2	48	X	-0.015	%75
3	48	X	0	0
4	48	X	0	0
5	48	X	0	0
6	44	X	-0.01	%5
7	44	X	-0.01	%35
8	44	X	-0.006	%65
9	44	X	-0.006	%90
10	44	X	0	0
11	34	X	-0.015	%10
12	34	X	-0.015	%55
13	34	X	-0.024	%45
14	34	X	-0.014	%45
15	34	X	0	0
16	47	X	-0.02	%50

**Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
17	47	X	-0.014	%50
18	47	X	0	0
19	47	X	0	0
20	47	X	0	0
21	78	X	-0.015	%5
22	78	X	-0.015	%75
23	78	X	-0.02	%50
24	78	X	-0.014	%50
25	78	X	0	0
26	75	X	-0.01	%5
27	75	X	-0.01	%35
28	75	X	-0.006	%65
29	75	X	-0.006	%90
30	75	X	0	0
31	65	X	-0.015	%10
32	65	X	-0.015	%55
33	65	X	-0.024	%45
34	65	X	-0.014	%45
35	65	X	0	0
36	80	X	-0.015	%5
37	80	X	-0.015	%75
38	80	X	-0.02	%50
39	80	X	-0.014	%50
40	80	X	0	0
41	61	X	-0.01	%5
42	61	X	-0.01	%35
43	61	X	-0.006	%65
44	61	X	-0.006	%90
45	61	X	0	0
46	52	X	-0.015	%10
47	52	X	-0.015	%55
48	52	X	-0.024	%45
49	52	X	-0.014	%45
50	52	X	0	0
51	5	X	-0.009	%50
52	5	X	0	0
53	5	X	0	0
54	5	X	0	0
55	5	X	0	0
56	9	X	-0.009	%50
57	9	X	0	0
58	9	X	0	0
59	9	X	0	0
60	9	X	0	0

**Member Point Loads (BLC 6 : 0 Wind - Service)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	Z	-0.012	%5
2	48	Z	-0.012	%75
3	48	Z	0	0
4	48	Z	0	0
5	48	Z	0	0
6	44	Z	-0.005	%5
7	44	Z	-0.005	%35
8	44	Z	-0.005	%65

**Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
9	44	Z	-0.005	%90
10	44	Z	0	0
11	34	Z	-0.011	%10
12	34	Z	-0.011	%55
13	34	Z	-0.006	%45
14	34	Z	-0.004	%45
15	34	Z	0	0
16	47	Z	-0.004	%50
17	47	Z	-0.003	%50
18	47	Z	0	0
19	47	Z	0	0
20	47	Z	0	0
21	78	Z	-0.012	%5
22	78	Z	-0.012	%75
23	78	Z	-0.004	%50
24	78	Z	-0.003	%50
25	78	Z	0	0
26	75	Z	-0.005	%5
27	75	Z	-0.005	%35
28	75	Z	-0.005	%65
29	75	Z	-0.005	%90
30	75	Z	0	0
31	65	Z	-0.011	%10
32	65	Z	-0.011	%55
33	65	Z	-0.006	%45
34	65	Z	-0.004	%45
35	65	Z	0	0
36	80	Z	-0.012	%5
37	80	Z	-0.012	%75
38	80	Z	-0.004	%50
39	80	Z	-0.003	%50
40	80	Z	0	0
41	61	Z	-0.005	%5
42	61	Z	-0.005	%35
43	61	Z	-0.005	%65
44	61	Z	-0.005	%90
45	61	Z	0	0
46	52	Z	-0.011	%10
47	52	Z	-0.011	%55
48	52	Z	-0.006	%45
49	52	Z	-0.004	%45
50	52	Z	0	0
51	5	Z	-0.003	%50
52	5	Z	0	0
53	5	Z	0	0
54	5	Z	0	0
55	5	Z	0	0
56	9	Z	-0.003	%50
57	9	Z	0	0
58	9	Z	0	0
59	9	Z	0	0
60	9	Z	0	0

**Member Point Loads (BLC 7 : 90 Wind - Service)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	X	-0.005	%5
2	48	X	-0.005	%75
3	48	X	0	0
4	48	X	0	0
5	48	X	0	0
6	44	X	-0.003	%5
7	44	X	-0.003	%35
8	44	X	-0.002	%65
9	44	X	-0.002	%90
10	44	X	0	0
11	34	X	-0.004	%10
12	34	X	-0.004	%55
13	34	X	-0.009	%45
14	34	X	-0.005	%45
15	34	X	0	0
16	47	X	-0.007	%50
17	47	X	-0.005	%50
18	47	X	0	0
19	47	X	0	0
20	47	X	0	0
21	78	X	-0.005	%5
22	78	X	-0.005	%75
23	78	X	-0.007	%50
24	78	X	-0.005	%50
25	78	X	0	0
26	75	X	-0.003	%5
27	75	X	-0.003	%35
28	75	X	-0.002	%65
29	75	X	-0.002	%90
30	75	X	0	0
31	65	X	-0.004	%10
32	65	X	-0.004	%55
33	65	X	-0.009	%45
34	65	X	-0.005	%45
35	65	X	0	0
36	80	X	-0.005	%5
37	80	X	-0.005	%75
38	80	X	-0.007	%50
39	80	X	-0.005	%50
40	80	X	0	0
41	61	X	-0.003	%5
42	61	X	-0.003	%35
43	61	X	-0.002	%65
44	61	X	-0.002	%90
45	61	X	0	0
46	52	X	-0.004	%10
47	52	X	-0.004	%55
48	52	X	-0.009	%45
49	52	X	-0.005	%45
50	52	X	0	0
51	5	X	-0.003	%50
52	5	X	0	0
53	5	X	0	0
54	5	X	0	0
55	5	X	0	0

**Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
56	9	X	-0.003	%50
57	9	X	0	0
58	9	X	0	0
59	9	X	0	0
60	9	X	0	0

**Member Point Loads (BLC 8 : Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	Y	-0.075	%5
2	48	Y	-0.075	%75
3	48	Y	0	0
4	48	Y	0	0
5	48	Y	0	0
6	44	Y	-0.036	%5
7	44	Y	-0.036	%35
8	44	Y	-0.029	%65
9	44	Y	-0.029	%90
10	44	Y	0	0
11	34	Y	-0.093	%10
12	34	Y	-0.093	%55
13	34	Y	-0.06	%45
14	34	Y	-0.036	%45
15	34	Y	0	0
16	47	Y	-0.047	%50
17	47	Y	-0.035	%50
18	47	Y	0	0
19	47	Y	0	0
20	47	Y	0	0
21	78	Y	-0.075	%5
22	78	Y	-0.075	%75
23	78	Y	-0.047	%50
24	78	Y	-0.035	%50
25	78	Y	0	0
26	75	Y	-0.036	%5
27	75	Y	-0.036	%35
28	75	Y	-0.029	%65
29	75	Y	-0.029	%90
30	75	Y	0	0
31	65	Y	-0.093	%10
32	65	Y	-0.093	%55
33	65	Y	-0.06	%45
34	65	Y	-0.036	%45
35	65	Y	0	0
36	80	Y	-0.075	%5
37	80	Y	-0.075	%75
38	80	Y	-0.047	%50
39	80	Y	-0.035	%50
40	80	Y	0	0
41	61	Y	-0.036	%5
42	61	Y	-0.036	%35
43	61	Y	-0.029	%65
44	61	Y	-0.029	%90
45	61	Y	0	0
46	52	Y	-0.093	%10
47	52	Y	-0.093	%55



**Member Point Loads (BLC 8 : Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
48	52	Y	-0.06	%45
49	52	Y	-0.036	%45
50	52	Y	0	0
51	5	Y	-0.044	%50
52	5	Y	0	0
53	5	Y	0	0
54	5	Y	0	0
55	5	Y	0	0
56	9	Y	-0.044	%50
57	9	Y	0	0
58	9	Y	0	0
59	9	Y	0	0
60	9	Y	0	0

**Member Point Loads (BLC 9 : 0 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	Z	-0.023	%5
2	48	Z	-0.023	%75
3	48	Z	0	0
4	48	Z	0	0
5	48	Z	0	0
6	44	Z	-0.021	%5
7	44	Z	-0.021	%35
8	44	Z	-0.014	%65
9	44	Z	-0.014	%90
10	44	Z	0	0
11	34	Z	-0.016	%10
12	34	Z	-0.016	%55
13	34	Z	-0.017	%45
14	34	Z	-0.015	%45
15	34	Z	0	0
16	47	Z	-0.011	%50
17	47	Z	-0.013	%50
18	47	Z	0	0
19	47	Z	0	0
20	47	Z	0	0
21	78	Z	-0.023	%5
22	78	Z	-0.023	%75
23	78	Z	-0.011	%50
24	78	Z	-0.013	%50
25	78	Z	0	0
26	75	Z	-0.021	%5
27	75	Z	-0.021	%35
28	75	Z	-0.014	%65
29	75	Z	-0.014	%90
30	75	Z	0	0
31	65	Z	-0.016	%10
32	65	Z	-0.016	%55
33	65	Z	-0.017	%45
34	65	Z	-0.015	%45
35	65	Z	0	0
36	80	Z	-0.023	%5
37	80	Z	-0.023	%75
38	80	Z	-0.011	%50
39	80	Z	-0.013	%50

**Member Point Loads (BLC 9 : 0 Seismic) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
40	80	Z	0	0
41	61	Z	-0.021	%5
42	61	Z	-0.021	%35
43	61	Z	-0.014	%65
44	61	Z	-0.014	%90
45	61	Z	0	0
46	52	Z	-0.016	%10
47	52	Z	-0.016	%55
48	52	Z	-0.017	%45
49	52	Z	-0.015	%45
50	52	Z	0	0
51	5	Z	-0.007	%50
52	5	Z	0	0
53	5	Z	0	0
54	5	Z	0	0
55	5	Z	0	0
56	9	Z	-0.007	%50
57	9	Z	0	0
58	9	Z	0	0
59	9	Z	0	0
60	9	Z	0	0

**Member Point Loads (BLC 10 : 90 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	48	X	-0.023	%5
2	48	X	-0.023	%75
3	48	X	0	0
4	48	X	0	0
5	48	X	0	0
6	44	X	-0.021	%5
7	44	X	-0.021	%35
8	44	X	-0.014	%65
9	44	X	-0.014	%90
10	44	X	0	0
11	34	X	-0.016	%10
12	34	X	-0.016	%55
13	34	X	-0.017	%45
14	34	X	-0.015	%45
15	34	X	0	0
16	47	X	-0.011	%50
17	47	X	-0.013	%50
18	47	X	0	0
19	47	X	0	0
20	47	X	0	0
21	78	X	-0.023	%5
22	78	X	-0.023	%75
23	78	X	-0.011	%50
24	78	X	-0.013	%50
25	78	X	0	0
26	75	X	-0.021	%5
27	75	X	-0.021	%35
28	75	X	-0.014	%65
29	75	X	-0.014	%90
30	75	X	0	0
31	65	X	-0.016	%10

**Member Point Loads (BLC 10 : 90 Seismic) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
32	65	X	-0.016	%55
33	65	X	-0.017	%45
34	65	X	-0.015	%45
35	65	X	0	0
36	80	X	-0.023	%5
37	80	X	-0.023	%75
38	80	X	-0.011	%50
39	80	X	-0.013	%50
40	80	X	0	0
41	61	X	-0.021	%5
42	61	X	-0.021	%35
43	61	X	-0.014	%65
44	61	X	-0.014	%90
45	61	X	0	0
46	52	X	-0.016	%10
47	52	X	-0.016	%55
48	52	X	-0.017	%45
49	52	X	-0.015	%45
50	52	X	0	0
51	5	X	-0.007	%50
52	5	X	0	0
53	5	X	0	0
54	5	X	0	0
55	5	X	0	0
56	9	X	-0.007	%50
57	9	X	0	0
58	9	X	0	0
59	9	X	0	0
60	9	X	0	0

**Member Point Loads (BLC 15 : Maint LL 1)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%5

**Member Point Loads (BLC 16 : Maint LL 2)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%5

**Member Point Loads (BLC 17 : Maint LL 3)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	24	Y	-0.25	%5

**Member Point Loads (BLC 18 : Maint LL 4)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	3	Y	-0.25	%5

**Member Point Loads (BLC 19 : Maint LL 5)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	23	Y	-0.25	%5

**Member Point Loads (BLC 20 : Maint LL 6)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%5

**Member Point Loads (BLC 21 : Maint LL 7)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%95

**Member Point Loads (BLC 22 : Maint LL 8)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

**Member Point Loads (BLC 23 : Maint LL 9)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	24	Y	-0.25	%95

**Member Point Loads (BLC 24 : Maint LL 10)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	3	Y	-0.25	%95

**Member Point Loads (BLC 25 : Maint LL 11)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	23	Y	-0.25	%95

**Member Point Loads (BLC 26 : Maint LL 12)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%95

**Member Point Loads (BLC 27 : Maint LL 13)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	4	Y	-0.25	%10

**Member Point Loads (BLC 28 : Maint LL 14)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	8	Y	-0.25	%10



**Member Point Loads (BLC 29 : Maint LL 15)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%10

**Member Distributed Loads (BLC 2 : 0 Wind - No Ice)**

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.021	-0.021	0	%100
2	2	Z	-0.021	-0.021	0	%100
3	3	Z	-0.021	-0.021	0	%100
4	4	Z	-0.02	-0.02	0	%100
5	5	Z	-0.017	-0.017	0	%100
6	6	Z	-0.02	-0.02	0	%100
7	7	Z	-0.017	-0.017	0	%100
8	8	Z	-0.02	-0.02	0	%100
9	9	Z	-0.017	-0.017	0	%100
10	13	Z	-0.017	-0.017	0	%100
11	14	Z	-0.017	-0.017	0	%100
12	15	Z	-0.017	-0.017	0	%100
13	16	Z	-0.021	-0.021	0	%100
14	17	Z	-0.021	-0.021	0	%100
15	18	Z	-0.021	-0.021	0	%100
16	22	Z	-0.01	-0.01	0	%100
17	23	Z	-0.01	-0.01	0	%100
18	24	Z	-0.01	-0.01	0	%100
19	25	Z	-0.012	-0.012	0	%100
20	26	Z	-0.012	-0.012	0	%100
21	27	Z	-0.012	-0.012	0	%100
22	28	Z	-0.037	-0.037	0	%100
23	29	Z	-0.03	-0.03	0	%100
24	30	Z	-0.037	-0.037	0	%100
25	31	Z	-0.03	-0.03	0	%100
26	32	Z	-0.037	-0.037	0	%100
27	33	Z	-0.03	-0.03	0	%100
28	34	Z	-0.01	-0.01	0	%100
29	43	Z	-0.01	-0.01	0	%100
30	44	Z	-0.01	-0.01	0	%100
31	47	Z	-0.01	-0.01	0	%100
32	48	Z	-0.01	-0.01	0	%100
33	51	Z	-0.01	-0.01	0	%100
34	52	Z	-0.01	-0.01	0	%100
35	60	Z	-0.01	-0.01	0	%100
36	61	Z	-0.01	-0.01	0	%100
37	64	Z	-0.01	-0.01	0	%100
38	65	Z	-0.01	-0.01	0	%100
39	74	Z	-0.01	-0.01	0	%100
40	75	Z	-0.01	-0.01	0	%100
41	78	Z	-0.01	-0.01	0	%100
42	79	Z	-0.01	-0.01	0	%100
43	80	Z	-0.01	-0.01	0	%100

**Member Distributed Loads (BLC 3 : 90 Wind - No Ice)**

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.021	-0.021	0	%100
2	2	X	-0.021	-0.021	0	%100



**Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
3	3	X	-0.021	-0.021	0	%100
4	4	X	-0.02	-0.02	0	%100
5	5	X	-0.017	-0.017	0	%100
6	6	X	-0.02	-0.02	0	%100
7	7	X	-0.017	-0.017	0	%100
8	8	X	-0.02	-0.02	0	%100
9	9	X	-0.017	-0.017	0	%100
10	13	X	-0.017	-0.017	0	%100
11	14	X	-0.017	-0.017	0	%100
12	15	X	-0.017	-0.017	0	%100
13	16	X	-0.021	-0.021	0	%100
14	17	X	-0.021	-0.021	0	%100
15	18	X	-0.021	-0.021	0	%100
16	22	X	-0.01	-0.01	0	%100
17	23	X	-0.01	-0.01	0	%100
18	24	X	-0.01	-0.01	0	%100
19	25	X	-0.012	-0.012	0	%100
20	26	X	-0.012	-0.012	0	%100
21	27	X	-0.012	-0.012	0	%100
22	28	X	-0.037	-0.037	0	%100
23	29	X	-0.03	-0.03	0	%100
24	30	X	-0.037	-0.037	0	%100
25	31	X	-0.03	-0.03	0	%100
26	32	X	-0.037	-0.037	0	%100
27	33	X	-0.03	-0.03	0	%100
28	34	X	-0.01	-0.01	0	%100
29	43	X	-0.01	-0.01	0	%100
30	44	X	-0.01	-0.01	0	%100
31	47	X	-0.01	-0.01	0	%100
32	48	X	-0.01	-0.01	0	%100
33	51	X	-0.01	-0.01	0	%100
34	52	X	-0.01	-0.01	0	%100
35	60	X	-0.01	-0.01	0	%100
36	61	X	-0.01	-0.01	0	%100
37	64	X	-0.01	-0.01	0	%100
38	65	X	-0.01	-0.01	0	%100
39	74	X	-0.01	-0.01	0	%100
40	75	X	-0.01	-0.01	0	%100
41	78	X	-0.01	-0.01	0	%100
42	79	X	-0.01	-0.01	0	%100
43	80	X	-0.01	-0.01	0	%100

**Member Distributed Loads (BLC 4 : 0 Wind - Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.006	-0.006	0	%100
2	2	Z	-0.006	-0.006	0	%100
3	3	Z	-0.006	-0.006	0	%100
4	4	Z	-0.006	-0.006	0	%100
5	5	Z	-0.005	-0.005	0	%100
6	6	Z	-0.006	-0.006	0	%100
7	7	Z	-0.005	-0.005	0	%100
8	8	Z	-0.006	-0.006	0	%100
9	9	Z	-0.005	-0.005	0	%100
10	13	Z	-0.005	-0.005	0	%100
11	14	Z	-0.005	-0.005	0	%100

**Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
12	15	Z	-0.005	-0.005	0	%100
13	16	Z	-0.006	-0.006	0	%100
14	17	Z	-0.006	-0.006	0	%100
15	18	Z	-0.006	-0.006	0	%100
16	22	Z	-0.002	-0.002	0	%100
17	23	Z	-0.002	-0.002	0	%100
18	24	Z	-0.002	-0.002	0	%100
19	25	Z	-0.004	-0.004	0	%100
20	26	Z	-0.004	-0.004	0	%100
21	27	Z	-0.004	-0.004	0	%100
22	28	Z	-0.014	-0.014	0	%100
23	29	Z	-0.008	-0.008	0	%100
24	30	Z	-0.014	-0.014	0	%100
25	31	Z	-0.008	-0.008	0	%100
26	32	Z	-0.014	-0.014	0	%100
27	33	Z	-0.008	-0.008	0	%100
28	34	Z	-0.002	-0.002	0	%100
29	43	Z	-0.002	-0.002	0	%100
30	44	Z	-0.002	-0.002	0	%100
31	47	Z	-0.002	-0.002	0	%100
32	48	Z	-0.002	-0.002	0	%100
33	51	Z	-0.002	-0.002	0	%100
34	52	Z	-0.002	-0.002	0	%100
35	60	Z	-0.002	-0.002	0	%100
36	61	Z	-0.002	-0.002	0	%100
37	64	Z	-0.002	-0.002	0	%100
38	65	Z	-0.002	-0.002	0	%100
39	74	Z	-0.002	-0.002	0	%100
40	75	Z	-0.002	-0.002	0	%100
41	78	Z	-0.002	-0.002	0	%100
42	79	Z	-0.002	-0.002	0	%100
43	80	Z	-0.002	-0.002	0	%100

**Member Distributed Loads (BLC 5 : 90 Wind - Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.006	-0.006	0	%100
2	2	X	-0.006	-0.006	0	%100
3	3	X	-0.006	-0.006	0	%100
4	4	X	-0.006	-0.006	0	%100
5	5	X	-0.005	-0.005	0	%100
6	6	X	-0.006	-0.006	0	%100
7	7	X	-0.005	-0.005	0	%100
8	8	X	-0.006	-0.006	0	%100
9	9	X	-0.005	-0.005	0	%100
10	13	X	-0.005	-0.005	0	%100
11	14	X	-0.005	-0.005	0	%100
12	15	X	-0.005	-0.005	0	%100
13	16	X	-0.006	-0.006	0	%100
14	17	X	-0.006	-0.006	0	%100
15	18	X	-0.006	-0.006	0	%100
16	22	X	-0.002	-0.002	0	%100
17	23	X	-0.002	-0.002	0	%100
18	24	X	-0.002	-0.002	0	%100
19	25	X	-0.004	-0.004	0	%100
20	26	X	-0.004	-0.004	0	%100





**Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
21	27	X	-0.004	-0.004	0	%100
22	28	X	-0.014	-0.014	0	%100
23	29	X	-0.008	-0.008	0	%100
24	30	X	-0.014	-0.014	0	%100
25	31	X	-0.008	-0.008	0	%100
26	32	X	-0.014	-0.014	0	%100
27	33	X	-0.008	-0.008	0	%100
28	34	X	-0.002	-0.002	0	%100
29	43	X	-0.002	-0.002	0	%100
30	44	X	-0.002	-0.002	0	%100
31	47	X	-0.002	-0.002	0	%100
32	48	X	-0.002	-0.002	0	%100
33	51	X	-0.002	-0.002	0	%100
34	52	X	-0.002	-0.002	0	%100
35	60	X	-0.002	-0.002	0	%100
36	61	X	-0.002	-0.002	0	%100
37	64	X	-0.002	-0.002	0	%100
38	65	X	-0.002	-0.002	0	%100
39	74	X	-0.002	-0.002	0	%100
40	75	X	-0.002	-0.002	0	%100
41	78	X	-0.002	-0.002	0	%100
42	79	X	-0.002	-0.002	0	%100
43	80	X	-0.002	-0.002	0	%100

**Member Distributed Loads (BLC 6 : 0 Wind - Service)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.001	-0.001	0	%100
5	5	Z	-0.001	-0.001	0	%100
6	6	Z	-0.001	-0.001	0	%100
7	7	Z	-0.001	-0.001	0	%100
8	8	Z	-0.001	-0.001	0	%100
9	9	Z	-0.001	-0.001	0	%100
10	13	Z	-0.001	-0.001	0	%100
11	14	Z	-0.001	-0.001	0	%100
12	15	Z	-0.001	-0.001	0	%100
13	16	Z	-0.001	-0.001	0	%100
14	17	Z	-0.001	-0.001	0	%100
15	18	Z	-0.001	-0.001	0	%100
16	22	Z	-0.0003	-0.0003	0	%100
17	23	Z	-0.0003	-0.0003	0	%100
18	24	Z	-0.0003	-0.0003	0	%100
19	25	Z	-0.0007	-0.0007	0	%100
20	26	Z	-0.0007	-0.0007	0	%100
21	27	Z	-0.0007	-0.0007	0	%100
22	28	Z	-0.002	-0.002	0	%100
23	29	Z	-0.002	-0.002	0	%100
24	30	Z	-0.002	-0.002	0	%100
25	31	Z	-0.002	-0.002	0	%100
26	32	Z	-0.002	-0.002	0	%100
27	33	Z	-0.002	-0.002	0	%100
28	34	Z	-0.0003	-0.0003	0	%100
29	43	Z	-0.0003	-0.0003	0	%100



**Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
30	44	Z	-0.0003	-0.0003	0	%100
31	47	Z	-0.0003	-0.0003	0	%100
32	48	Z	-0.0003	-0.0003	0	%100
33	51	Z	-0.0003	-0.0003	0	%100
34	52	Z	-0.0003	-0.0003	0	%100
35	60	Z	-0.0003	-0.0003	0	%100
36	61	Z	-0.0003	-0.0003	0	%100
37	64	Z	-0.0003	-0.0003	0	%100
38	65	Z	-0.0003	-0.0003	0	%100
39	74	Z	-0.0003	-0.0003	0	%100
40	75	Z	-0.0003	-0.0003	0	%100
41	78	Z	-0.0003	-0.0003	0	%100
42	79	Z	-0.0003	-0.0003	0	%100
43	80	Z	-0.0003	-0.0003	0	%100

**Member Distributed Loads (BLC 7 : 90 Wind - Service)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.001	-0.001	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.001	-0.001	0	%100
9	9	X	-0.001	-0.001	0	%100
10	13	X	-0.001	-0.001	0	%100
11	14	X	-0.001	-0.001	0	%100
12	15	X	-0.001	-0.001	0	%100
13	16	X	-0.001	-0.001	0	%100
14	17	X	-0.001	-0.001	0	%100
15	18	X	-0.001	-0.001	0	%100
16	22	X	-0.0003	-0.0003	0	%100
17	23	X	-0.0003	-0.0003	0	%100
18	24	X	-0.0003	-0.0003	0	%100
19	25	X	-0.0007	-0.0007	0	%100
20	26	X	-0.0007	-0.0007	0	%100
21	27	X	-0.0007	-0.0007	0	%100
22	28	X	-0.002	-0.002	0	%100
23	29	X	-0.002	-0.002	0	%100
24	30	X	-0.002	-0.002	0	%100
25	31	X	-0.002	-0.002	0	%100
26	32	X	-0.002	-0.002	0	%100
27	33	X	-0.002	-0.002	0	%100
28	34	X	-0.0003	-0.0003	0	%100
29	43	X	-0.0003	-0.0003	0	%100
30	44	X	-0.0003	-0.0003	0	%100
31	47	X	-0.0003	-0.0003	0	%100
32	48	X	-0.0003	-0.0003	0	%100
33	51	X	-0.0003	-0.0003	0	%100
34	52	X	-0.0003	-0.0003	0	%100
35	60	X	-0.0003	-0.0003	0	%100
36	61	X	-0.0003	-0.0003	0	%100
37	64	X	-0.0003	-0.0003	0	%100
38	65	X	-0.0003	-0.0003	0	%100



**Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
39	74	X	-0.0003	-0.0003	0	%100
40	75	X	-0.0003	-0.0003	0	%100
41	78	X	-0.0003	-0.0003	0	%100
42	79	X	-0.0003	-0.0003	0	%100
43	80	X	-0.0003	-0.0003	0	%100

**Member Distributed Loads (BLC 8 : Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.007	-0.007	0	%100
2	2	Y	-0.007	-0.007	0	%100
3	3	Y	-0.007	-0.007	0	%100
4	4	Y	-0.01	-0.01	0	%100
5	5	Y	-0.009	-0.009	0	%100
6	6	Y	-0.01	-0.01	0	%100
7	7	Y	-0.009	-0.009	0	%100
8	8	Y	-0.01	-0.01	0	%100
9	9	Y	-0.009	-0.009	0	%100
10	13	Y	-0.011	-0.011	0	%100
11	14	Y	-0.011	-0.011	0	%100
12	15	Y	-0.011	-0.011	0	%100
13	16	Y	-0.007	-0.007	0	%100
14	17	Y	-0.007	-0.007	0	%100
15	18	Y	-0.007	-0.007	0	%100
16	22	Y	-0.005	-0.005	0	%100
17	23	Y	-0.005	-0.005	0	%100
18	24	Y	-0.005	-0.005	0	%100
19	25	Y	-0.006	-0.006	0	%100
20	26	Y	-0.006	-0.006	0	%100
21	27	Y	-0.006	-0.006	0	%100
22	28	Y	-0.014	-0.014	0	%100
23	29	Y	-0.01	-0.01	0	%100
24	30	Y	-0.014	-0.014	0	%100
25	31	Y	-0.01	-0.01	0	%100
26	32	Y	-0.014	-0.014	0	%100
27	33	Y	-0.01	-0.01	0	%100
28	34	Y	-0.005	-0.005	0	%100
29	43	Y	-0.005	-0.005	0	%100
30	44	Y	-0.005	-0.005	0	%100
31	47	Y	-0.005	-0.005	0	%100
32	48	Y	-0.005	-0.005	0	%100
33	51	Y	-0.005	-0.005	0	%100
34	52	Y	-0.005	-0.005	0	%100
35	60	Y	-0.005	-0.005	0	%100
36	61	Y	-0.005	-0.005	0	%100
37	64	Y	-0.005	-0.005	0	%100
38	65	Y	-0.005	-0.005	0	%100
39	74	Y	-0.005	-0.005	0	%100
40	75	Y	-0.005	-0.005	0	%100
41	78	Y	-0.005	-0.005	0	%100
42	79	Y	-0.005	-0.005	0	%100
43	80	Y	-0.005	-0.005	0	%100



**Member Distributed Loads (BLC 9 : 0 Seismic)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.003	-0.003	0	%100
5	5	Z	-0.003	-0.003	0	%100
6	6	Z	-0.003	-0.003	0	%100
7	7	Z	-0.003	-0.003	0	%100
8	8	Z	-0.003	-0.003	0	%100
9	9	Z	-0.003	-0.003	0	%100
10	13	Z	-0.002	-0.002	0	%100
11	14	Z	-0.002	-0.002	0	%100
12	15	Z	-0.002	-0.002	0	%100
13	16	Z	-0.001	-0.001	0	%100
14	17	Z	-0.001	-0.001	0	%100
15	18	Z	-0.001	-0.001	0	%100
16	22	Z	-0.0008	-0.0008	0	%100
17	23	Z	-0.0008	-0.0008	0	%100
18	24	Z	-0.0008	-0.0008	0	%100
19	25	Z	-0.0007	-0.0007	0	%100
20	26	Z	-0.0007	-0.0007	0	%100
21	27	Z	-0.0007	-0.0007	0	%100
22	28	Z	-0.002	-0.002	0	%100
23	29	Z	-0.001	-0.001	0	%100
24	30	Z	-0.002	-0.002	0	%100
25	31	Z	-0.001	-0.001	0	%100
26	32	Z	-0.002	-0.002	0	%100
27	33	Z	-0.001	-0.001	0	%100
28	34	Z	-0.0008	-0.0008	0	%100
29	43	Z	-0.0008	-0.0008	0	%100
30	44	Z	-0.0008	-0.0008	0	%100
31	47	Z	-0.0008	-0.0008	0	%100
32	48	Z	-0.0008	-0.0008	0	%100
33	51	Z	-0.0008	-0.0008	0	%100
34	52	Z	-0.0008	-0.0008	0	%100
35	60	Z	-0.0008	-0.0008	0	%100
36	61	Z	-0.0008	-0.0008	0	%100
37	64	Z	-0.0008	-0.0008	0	%100
38	65	Z	-0.0008	-0.0008	0	%100
39	74	Z	-0.0008	-0.0008	0	%100
40	75	Z	-0.0008	-0.0008	0	%100
41	78	Z	-0.0008	-0.0008	0	%100
42	79	Z	-0.0008	-0.0008	0	%100
43	80	Z	-0.0008	-0.0008	0	%100

**Member Distributed Loads (BLC 10 : 90 Seismic)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.003	-0.003	0	%100
5	5	X	-0.003	-0.003	0	%100
6	6	X	-0.003	-0.003	0	%100
7	7	X	-0.003	-0.003	0	%100
8	8	X	-0.003	-0.003	0	%100



**Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
9	9	X	-0.003	-0.003	0	%100
10	13	X	-0.002	-0.002	0	%100
11	14	X	-0.002	-0.002	0	%100
12	15	X	-0.002	-0.002	0	%100
13	16	X	-0.001	-0.001	0	%100
14	17	X	-0.001	-0.001	0	%100
15	18	X	-0.001	-0.001	0	%100
16	22	X	-0.0008	-0.0008	0	%100
17	23	X	-0.0008	-0.0008	0	%100
18	24	X	-0.0008	-0.0008	0	%100
19	25	X	-0.0007	-0.0007	0	%100
20	26	X	-0.0007	-0.0007	0	%100
21	27	X	-0.0007	-0.0007	0	%100
22	28	X	-0.002	-0.002	0	%100
23	29	X	-0.001	-0.001	0	%100
24	30	X	-0.002	-0.002	0	%100
25	31	X	-0.001	-0.001	0	%100
26	32	X	-0.002	-0.002	0	%100
27	33	X	-0.001	-0.001	0	%100
28	34	X	-0.0008	-0.0008	0	%100
29	43	X	-0.0008	-0.0008	0	%100
30	44	X	-0.0008	-0.0008	0	%100
31	47	X	-0.0008	-0.0008	0	%100
32	48	X	-0.0008	-0.0008	0	%100
33	51	X	-0.0008	-0.0008	0	%100
34	52	X	-0.0008	-0.0008	0	%100
35	60	X	-0.0008	-0.0008	0	%100
36	61	X	-0.0008	-0.0008	0	%100
37	64	X	-0.0008	-0.0008	0	%100
38	65	X	-0.0008	-0.0008	0	%100
39	74	X	-0.0008	-0.0008	0	%100
40	75	X	-0.0008	-0.0008	0	%100
41	78	X	-0.0008	-0.0008	0	%100
42	79	X	-0.0008	-0.0008	0	%100
43	80	X	-0.0008	-0.0008	0	%100

**Member Distributed Loads (BLC 39 : BLC 1 Transient Area Loads)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	2	Y	-0.012	-0.009	7	9.333
2	2	Y	-0.009	-0.005	9.333	11.667
3	2	Y	-0.005	-0.002	11.667	14
4	13	Y	-0.002	-0.009	0	1.917
5	13	Y	-0.009	-0.017	1.917	3.833
6	17	Y	-0.01	-0.01	0.013	7.347
7	3	Y	-0.002	-0.005	0	2.333
8	3	Y	-0.005	-0.009	2.333	4.667
9	3	Y	-0.009	-0.012	4.667	7
10	3	Y	-0.012	-0.009	7	9.333
11	3	Y	-0.009	-0.005	9.333	11.667
12	3	Y	-0.005	-0.002	11.667	14
13	18	Y	-0.01	-0.01	0.013	7.347
14	1	Y	-0.0001953	-0.006	0	2
15	1	Y	-0.006	-0.009	2	4
16	1	Y	-0.009	-0.009	4	6
17	1	Y	-0.009	-0.009	6	8



**Member Distributed Loads (BLC 39 : BLC 1 Transient Area Loads) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
18	1	Y	-0.009	-0.009	8	10
19	1	Y	-0.009	-0.006	10	12
20	1	Y	-0.006	-0.0001953	12	14
21	14	Y	-0.002	-0.009	0	1.917
22	14	Y	-0.009	-0.017	1.917	3.833
23	15	Y	-0.002	-0.009	0	1.917
24	15	Y	-0.009	-0.017	1.917	3.833
25	16	Y	-0.01	-0.01	0.013	7.347
26	2	Y	-0.002	-0.005	0	2.333
27	2	Y	-0.005	-0.009	2.333	4.667
28	2	Y	-0.009	-0.012	4.667	7

**Member Distributed Loads (BLC 40 : BLC 8 Transient Area Loads)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.0001052	-0.003	0	2
2	1	Y	-0.003	-0.005	2	4
3	1	Y	-0.005	-0.005	4	6
4	1	Y	-0.005	-0.005	6	8
5	1	Y	-0.005	-0.005	8	10
6	1	Y	-0.005	-0.003	10	12
7	1	Y	-0.003	-0.0001052	12	14
8	14	Y	-0.001	-0.005	0	1.917
9	14	Y	-0.005	-0.009	1.917	3.833
10	15	Y	-0.001	-0.005	0	1.917
11	15	Y	-0.005	-0.009	1.917	3.833
12	16	Y	-0.005	-0.005	0.013	7.347
13	2	Y	-0.0009893	-0.003	0	2.333
14	2	Y	-0.003	-0.005	2.333	4.667
15	2	Y	-0.005	-0.006	4.667	7
16	2	Y	-0.006	-0.005	7	9.333
17	2	Y	-0.005	-0.003	9.333	11.667
18	2	Y	-0.003	-0.0009893	11.667	14
19	13	Y	-0.0009701	-0.005	0	1.917
20	13	Y	-0.005	-0.008	1.917	3.833
21	17	Y	-0.005	-0.005	0.013	7.347
22	3	Y	-0.0009893	-0.003	0	2.333
23	3	Y	-0.003	-0.005	2.333	4.667
24	3	Y	-0.005	-0.006	4.667	7
25	3	Y	-0.006	-0.005	7	9.333
26	3	Y	-0.005	-0.003	9.333	11.667
27	3	Y	-0.003	-0.0009893	11.667	14
28	18	Y	-0.005	-0.005	0.013	7.347

**Member Area Loads (BLC 1 : Dead)**

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	15	19	17	16	Y	Two Way	-0.01
2	16	17	18	14	Y	Two Way	-0.01
3	15	19	18	14	Y	Two Way	-0.01

**Member Area Loads (BLC 8 : Ice)**

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	15	19	17	16	Y	Two Way	-0.005
2	16	17	18	14	Y	Two Way	-0.005
3	15	19	18	14	Y	Two Way	-0.005

**Node Loads and Enforced Displacements (BLC 11 : Live Load a)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	45	L	Y	-0.5
2	81	L	Y	-0.5
3	108	L	Y	-0.5

**Node Loads and Enforced Displacements (BLC 12 : Live Load b)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	49	L	Y	-0.5
2	84	L	Y	-0.5
3	112	L	Y	-0.5

**Node Loads and Enforced Displacements (BLC 13 : Live Load c)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	53	L	Y	-0.5
2	88	L	Y	-0.5
3	116	L	Y	-0.5

**Node Loads and Enforced Displacements (BLC 14 : Live Load d)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	57	L	Y	-0.5
2	92	L	Y	-0.5
3	120	L	Y	-0.5

**Basic Load Cases**

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		60		3
2	0 Wind - No Ice	WLZ			60	43	
3	90 Wind - No Ice	WLX			60	43	
4	0 Wind - Ice	WLZ			60	43	
5	90 Wind - Ice	WLX			60	43	
6	0 Wind - Service	WLZ			60	43	
7	90 Wind - Service	WLX			60	43	
8	Ice	OL1			60	43	3
9	0 Seismic	ELZ			60	43	
10	90 Seismic	ELX			60	43	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL		3			
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		





**Basic Load Cases (Continued)**

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	Maint LL 16	LL					
31	Maint LL 17	LL					
32	Maint LL 18	LL					
33	Maint LL 19	LL					
34	Maint LL 20	LL					
35	Maint LL 21	LL					
36	Maint LL 22	LL					
37	Maint LL 23	LL					
38	Maint LL 24	LL					
39	BLC 1 Transient Area Loads	None				28	
40	BLC 8 Transient Area Loads	None				28	

**Load Combinations**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		



**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5

**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5
104	1.2 D + 1.5 LL Maint (19)	Yes	Y	1	1.2					33	1.5
105	1.2 D + 1.5 LL Maint (20)	Yes	Y	1	1.2					34	1.5
106	1.2 D + 1.5 LL Maint (21)	Yes	Y	1	1.2					35	1.5
107	1.2 D + 1.5 LL Maint (22)	Yes	Y	1	1.2					36	1.5
108	1.2 D + 1.5 LL Maint (23)	Yes	Y	1	1.2					37	1.5
109	1.2 D + 1.5 LL Maint (24)	Yes	Y	1	1.2					38	1.5

**Envelope Node Reactions**

Node Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC		
1	3	max	4.688	5	1.31	54	1.075	2	-0.908	13	3.526	5	0.967	11
2		min	-4.717	11	0.558	12	-1.058	8	-3.358	55	-3.533	11	-1.041	5
3	5	max	2.676	3	1.268	57	4.727	3	1.594	3	4.102	9	3.058	58
4		min	-2.673	9	0.548	3	-4.754	9	-0.114	9	-4.075	3	0.471	4
5	7	max	2.66	7	1.304	50	4.764	13	2.059	2	4.036	13	-0.942	11
6		min	-2.66	13	0.584	8	-4.798	7	-0.399	8	-4.046	7	-2.737	54
7	36	max	0.273	12	1.889	6	1.105	6	0	109	0	109	0	109
8		min	-1.914	6	-0.312	12	-0.158	12	0	1	0	1	0	1
9	39	max	1.956	10	1.928	10	1.13	10	0	109	0	109	0	109
10		min	-0.288	4	-0.326	4	-0.167	4	0	1	0	1	0	1
11	33	max	0.103	5	2.169	2	0.686	8	0	109	0	109	0	109
12		min	-0.103	11	-0.611	8	-2.558	2	0	1	0	1	0	1
13	Totals:	max	6.609	5	8.375	19	7.914	2						
14		min	-6.609	11	4.432	13	-7.914	8						

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

Member	Shape	Code Check	Loc [ft]	LC	Shear	Check	Loc [ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	L3X3X4	0.588	7	5	0.299	7	y	2	15.778	46.656	1.688	2.161	1	H2-1
2	2	L3X3X4	0.672	7	9	0.266	7	y	6	15.778	46.656	1.688	2.161	1	H2-1
3	3	L3X3X4	0.66	7	13	0.255	7	y	10	15.778	46.656	1.688	2.161	1	H2-1
4	4	HSS4.5X4.5X4	0.116	1.917	6	0.164	2	z	5	156.915	158.976	20.907	20.907	1.582	H1-1b
5	5	HSS4X4X4	0.342	0.917	5	0.199	0.917	z	5	139.028	139.518	16.181	16.181	1.179	H1-1b
6	6	HSS4.5X4.5X4	0.118	1.917	9	0.193	2	z	9	156.915	158.976	20.907	20.907	1.74	H1-1b
7	7	HSS4X4X4	0.37	0.917	9	0.232	0.917	z	9	139.028	139.518	16.181	16.181	1.177	H1-1b
8	8	HSS4.5X4.5X4	0.126	1.917	2	0.192	2	z	13	156.915	158.976	20.907	20.907	1.578	H1-1b
9	9	HSS4X4X4	0.369	0.917	13	0.232	0.917	z	13	139.028	139.518	16.181	16.181	1.177	H1-1b



Company : B+T Group  
 Designer : KP  
 Job Number : 136457.007.01  
 Model Name : 876321 - Branford Banm Tower

11/29/2021  
 8:03:18 PM  
 Checked By : \_\_\_\_\_

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

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
10	13	LL3x3x4x0	0.279	0	13	0.096	0.958	y	4		76.456	93.312	6.48	4.364	1.643	H1-1b
11	14	LL3x3x4x0	0.292	0	8	0.099	0.958	y	8		76.456	93.312	6.48	4.364	1.693	H1-1b
12	15	LL3x3x4x0	0.294	0	9	0.097	0.958	y	8		76.456	93.312	6.48	4.364	1.732	H1-1b
13	16	L3X3X4	0.211	3.68	11	0.014	3.68	y	18		34.564	46.656	1.688	3.699	1.5	H2-1
14	17	L3X3X4	0.235	3.68	3	0.014	3.68	y	21		34.564	46.656	1.688	3.699	1.5	H2-1
15	18	L3X3X4	0.237	3.68	8	0.014	3.68	y	14		34.564	46.656	1.688	3.699	1.5	H2-1
16	22	PIPE 2.0	0.585	9.766	8	0.321	11.719		8		6.295	32.13	1.872	1.872	1.984	H3-6
17	23	PIPE 2.0	0.499	11.719	13	0.298	11.719		13		6.295	32.13	1.872	1.872	2.12	H3-6
18	24	PIPE 2.0	0.468	0.781	13	0.228	11.719		4		6.295	32.13	1.872	1.872	1.824	H1-1b
19	25	L2.5x2.5x3	0.543	0	12	0.114	1.417	z	5		27.174	29.192	0.873	1.972	1.5	H2-1
20	26	L2.5x2.5x3	0.567	1.417	7	0.131	0.576	z	9		27.174	29.192	0.873	1.972	1.5	H2-1
21	27	L2.5x2.5x3	0.598	0	8	0.135	1.417	z	13		27.174	29.192	0.873	1.972	1.5	H2-1
22	28	PL3/8x9	0.058	0	4	0.063	0	y	2		105.017	109.35	0.854	20.503	1.667	H1-1b
23	29	LL2.5x2.5x3x3	0.127	3.5	3	0.006	7	z	11		31.22	58.32	3.954	2.511	1.136	H1-1b
24	30	PL3/8x9	0.058	0	8	0.055	0	y	6		105.017	109.35	0.854	20.503	1.667	H1-1b
25	31	LL2.5x2.5x3x3	0.123	3.5	7	0.006	7	z	3		31.22	58.32	3.954	2.511	1.136	H1-1b
26	32	PL3/8x9	0.056	0	8	0.057	0	y	10		105.017	109.35	0.854	20.503	1.667	H1-1b
27	33	LL2.5x2.5x3x3	0.122	3.5	9	0.006	7	z	13		31.22	58.32	3.954	2.511	1.136	H1-1b
28	34	PIPE 2.0	0.56	5.125	6	0.238	1.375		8		20.867	32.13	1.872	1.872	1.989	H1-1b
29	43	PIPE 2.0	0.625	5	11	0.288	5		6		20.867	32.13	1.872	1.872	2.082	H1-1b
30	44	PIPE 2.0	0.268	5.5	11	0.101	5.5		7		14.916	32.13	1.872	1.872	3	H1-1b
31	47	PIPE 2.0	0.613	4.813	11	0.349	4.813		9		20.867	32.13	1.872	1.872	2.077	H1-1b
32	48	PIPE 2.0	0.238	1.625	11	0.158	4.688		8		20.867	32.13	1.872	1.872	2.007	H1-1b
33	51	PIPE 2.0	0.452	5.5	10	0.225	5.5		13		20.867	32.13	1.872	1.872	2.626	H1-1b
34	52	PIPE 2.0	0.629	5.5	9	0.215	1.688		12		20.867	32.13	1.872	1.872	2.622	H1-1b
35	60	PIPE 2.0	0.901	5	9	0.318	5		10		20.867	32.13	1.872	1.872	2.01	H3-6
36	61	PIPE 2.0	0.358	5.5	3	0.101	5.5		10		14.916	32.13	1.872	1.872	3	H1-1b
37	64	PIPE 2.0	0.564	5.125	2	0.205	5.125		5		20.867	32.13	1.872	1.872	1.857	H1-1b
38	65	PIPE 2.0	0.659	5.125	2	0.201	1.375		4		20.867	32.13	1.872	1.872	1.858	H1-1b
39	74	PIPE 2.0	0.868	5	13	0.352	5		2		20.867	32.13	1.872	1.872	2.054	H3-6
40	75	PIPE 2.0	0.353	5.75	7	0.112	5.75		2		14.916	32.13	1.872	1.872	3	H1-1b
41	78	PIPE 2.0	0.661	4.813	7	0.194	4.813		5		20.867	32.13	1.872	1.872	1.92	H1-1b
42	79	PIPE 2.0	0.488	5.125	7	0.222	5.125		9		20.867	32.13	1.872	1.872	1.888	H1-1b
43	80	PIPE 2.0	0.653	6.667	3	0.236	6.667		13		14.916	32.13	1.872	1.872	1.836	H1-1b

**APPENDIX D**  
**ADDITIONAL CALCULATIONS**

PROJECT	<b>136457.007.01 - Branford BANM Towe KSC</b>		
SUBJECT	<b>Platform Mount Analysis</b>		
DATE	<b>12/01/21</b>	PAGE	1 OF 1

[REF: AISC 360-05]

**Reactions at Bolted Connection**

Tension	:	1.075	k
Vertical Shear	:	1.31	k
Horizontal Shear	:	4.688	k
Torsion	:	0.967	k.ft
Moment from Horizontal Forces	:	3.526	k.ft
Moment from Vertical Forces	:	-0.908	k.ft

**Bolt Parameters**

Bolt Grade	:	A307	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in <sup>2</sup>
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

**Summary of Forces**

Shear Resultant Force	:	4.87	k
Force from Horz. Moment	:	6.39	k
Force from Vert. Moment	:	-1.64	k
Shear Load / Bolt	:	1.22	k
Tension Load / Bolt	:	0.27	k
Resultant from Moments / Bolt	:	3.30	k

**Bolt Checks**

Nominal Tensile Stress, $F_{nt}$	:	45.00	ksi	[AISC Table J3.2]
Available Tensile Stress, $\Phi R_{nt}$	:	10.36	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	<b>34.42%</b>		<b>OKAY</b>
Nominal Shear Stress, $F_{nv}$	:	24.00	ksi	[AISC Table J3.2]
Available Shear Stress, $\Phi R_{nv}$	:	5.53	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	<b>26.88%</b>		<b>OKAY</b>
Unity Check, Combined	:	<b>61.30%</b>		<b>OKAY</b>
Available Bearing Strength, $\Phi R_n$	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	<b>3.51%</b>		<b>OKAY</b>

PROJECT	<b>136457.007.01 - Branford BANM Towe KSC</b>		
SUBJECT	<b>Platform Mount Analysis</b>		
DATE	<b>12/01/21</b>	PAGE	1 OF 1



**B+T Group**  
 1717 S. Boulder, Suite 300  
 Tulsa, OK 74119  
 (918) 587-4630

**B+T GRP**

[REF: AISC 360-05]

**Connecting Member Parameters**

Plate Yield Strength, $F_y$	:	36.00	ksi	[AISC Table 2-5]
Plate Tensile Strength, $F_u$	:	58.00	ksi	[AISC Table 2-5]
Plate Height	:	9.00	in	
Plate Width	:	9.00	in	
Plate Thickness	:	0.50	in	
Edge Distance	:	1.06	in	
Gross Tension Area, $A_{gt}$	:	4.50	in <sup>2</sup>	
Gross Shear Area, $A_{gv}$	:	0.75	in <sup>2</sup>	
Net Area for tension, $A_{nt}$	:	4.16	in <sup>2</sup>	
Net Area for shear, $A_{nt}$	:	3.00	in <sup>2</sup>	

**Plate Check**

Available Tensile Yield	:	145.80	k	[Eq. J4-1]
Available Tensile Rupture	:	180.80	k	[Eq. J4-2]
Unity Check, Plate Tension	:	<b>2.45%</b>		<b>OKAY</b>
Available Shear Yield	:	16.20	k	[Eq. J4-3]
Available Shear Rupture	:	104.40	k	[Eq. J4-4]
Unity Check, Plate Shear	:	<b>30.05%</b>		<b>OKAY</b>
Available Block Shear, $\Phi R_n$	:	77.40	k	[Eq. J4-5]
Unity Check, Block Shear	:	<b>6.29%</b>		<b>OKAY</b>



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

AT&T Existing Facility

Site ID: CTL02220

876321

150 North Main Street  
Branford, Connecticut 06405

**February 21, 2022**

**EBI Project Number: 6222000324**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>33.82%</b>

February 21, 2022

AT&T

Emissions Analysis for Site: CTL02220 - 876321

EBI Consulting was directed to analyze the proposed AT&T facility located at **150 North Main Street** in **Branford, Connecticut** for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

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

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed AT&T Wireless antenna facility located at 150 North Main Street in Branford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

- 1) 4 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 2) 2 LTE DE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 4 LTE FN channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) 4 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 4 LTE / 5G channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 6) 4 LTE / 5G channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

- 7) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.
- 8) 2 C-Band Channels (3700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 144.58 Watts per Channel.
- 9) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antennas used in this modeling are the Quintel QD4616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the CCI DMP65R-BU4DA for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector A, the Quintel QD4616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the CCI DMP65R-BU4DA for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector B, the Quintel QD4616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the CCI DMP65R-BU4DA for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 12) The antenna mounting height centerlines of the proposed antennas are 111, 112, and 113 feet above ground level (AGL).



# EBI Consulting

environmental | engineering | due diligence

---

- 13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 14) All calculations were done with respect to uncontrolled / general population threshold limits.

## AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Quintel QD4616-7	Make / Model:	Quintel QD4616-7	Make / Model:	Quintel QD4616-7
Frequency Bands:	700 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	700 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	700 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	10.8712 dBd / 10.8712 dBd / 14.3071 dBd / 14.8883 dBd	Gain:	10.8712 dBd / 10.8712 dBd / 14.3071 dBd / 14.8883 dBd	Gain:	10.8712 dBd / 10.8712 dBd / 14.3071 dBd / 14.8883 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	14	Channel Count:	14	Channel Count:	14
Total TX Power (W):	560.00 Watts	Total TX Power (W):	560.00 Watts	Total TX Power (W):	560.00 Watts
ERP (W):	12,177.80	ERP (W):	12,177.80	ERP (W):	12,177.80
Antenna A1 MPE %:	<b>4.97%</b>	Antenna B1 MPE %:	<b>4.97%</b>	Antenna C1 MPE %:	<b>4.97%</b>
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz
Gain:	23.45 dBd	Gain:	23.45 dBd	Gain:	23.45 dBd
Height (AGL):	113 feet	Height (AGL):	113 feet	Height (AGL):	113 feet
Channel Count:	1	Channel Count:	1	Channel Count:	1
Total TX Power (W):	144.58 Watts	Total TX Power (W):	144.58 Watts	Total TX Power (W):	144.58 Watts
ERP (W):	31,996.92	ERP (W):	31,996.92	ERP (W):	31,996.92
Antenna A2 MPE %:	<b>10.05%</b>	Antenna B2 MPE %:	<b>10.05%</b>	Antenna C2 MPE %:	<b>10.05%</b>
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz
Gain:	23.45 dBd	Gain:	23.45 dBd	Gain:	23.45 dBd
Height (AGL):	111 feet	Height (AGL):	111 feet	Height (AGL):	111 feet
Channel Count:	1	Channel Count:	1	Channel Count:	1
Total TX Power (W):	144.58 Watts	Total TX Power (W):	144.58 Watts	Total TX Power (W):	144.58 Watts
ERP (W):	31,996.92	ERP (W):	31,996.92	ERP (W):	31,996.92
Antenna A3 MPE %:	<b>10.43%</b>	Antenna B3 MPE %:	<b>10.43%</b>	Antenna C3 MPE %:	<b>10.43%</b>
Antenna #:	4	Antenna #:	4	Antenna #:	4
Make / Model:	CCI DMP65R-BU4DA	Make / Model:	CCI DMP65R-BU4DA	Make / Model:	CCI DMP65R-BU4DA
Frequency Bands:	700 MHz / 850 MHz / 2300 MHz	Frequency Bands:	700 MHz / 850 MHz / 2300 MHz	Frequency Bands:	700 MHz / 850 MHz / 2300 MHz
Gain:	9.95 dBd / 10.25 dBd / 14.65 dBd	Gain:	9.95 dBd / 10.25 dBd / 14.65 dBd	Gain:	9.95 dBd / 10.25 dBd / 14.65 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	420.00 Watts	Total TX Power (W):	420.00 Watts	Total TX Power (W):	420.00 Watts
ERP (W):	6,193.92	ERP (W):	6,193.92	ERP (W):	6,193.92
Antenna A4 MPE %:	<b>2.97%</b>	Antenna B4 MPE %:	<b>2.97%</b>	Antenna C4 MPE %:	<b>2.97%</b>

- An adjusted power reduction factor of 0.32 was applied to the AIR 6449 antennas per guidance from AT&T.

- Specifications were not available for the Ericsson AIR 6419 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.



Site Composite MPE %	
Carrier	MPE %
AT&T (Max at Sector A):	28.42%
Metro PCS	0.53%
Pagenet	0.11%
Cingular	0.17%
Nextel	0.46%
Clearwire	0.1%
Sprint	0.32%
T-Mobile	3.71%
<b>Site Total MPE % :</b>	<b>33.82%</b>

AT&T MPE % Per Sector	
AT&T Sector A Total:	28.42%
AT&T Sector B Total:	28.42%
AT&T Sector C Total:	28.42%
Site Total MPE % :	33.82%

### AT&T Maximum MPE Power Values (Sector A)

AT&T Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
AT&T 700 MHz LTE FN	4	488.85	112.0	6.26	700 MHz LTE FN	467	1.34%
AT&T 700 MHz LTE DE	2	488.85	112.0	3.13	700 MHz LTE DE	467	0.67%
AT&T 1900 MHz LTE/5G	4	1078.38	112.0	13.80	1900 MHz LTE/5G	1000	1.38%
AT&T 2100 MHz LTE/5G	4	1232.79	112.0	15.78	2100 MHz LTE/5G	1000	1.58%
AT&T 3700 MHz C-Band	1	31996.92	113.0	100.47	3700 MHz C-Band	1000	10.05%
AT&T 3700 MHz C-Band	1	31996.92	111.0	104.34	3700 MHz C-Band	1000	10.43%
AT&T 700 MHz LTE	4	395.42	112.0	5.06	700 MHz LTE	467	1.08%
AT&T 850 MHz 5G	4	423.70	112.0	5.42	850 MHz 5G	567	0.96%
AT&T 2300 MHz LTE	4	729.36	112.0	9.33	2300 MHz LTE	1000	0.93%
						<b>Total:</b>	<b>28.42%</b>

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

## Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	28.42%
Sector B:	28.42%
Sector C:	28.42%
AT&T Maximum MPE % (Sector A):	28.42%
Site Total:	33.82%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **33.82%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



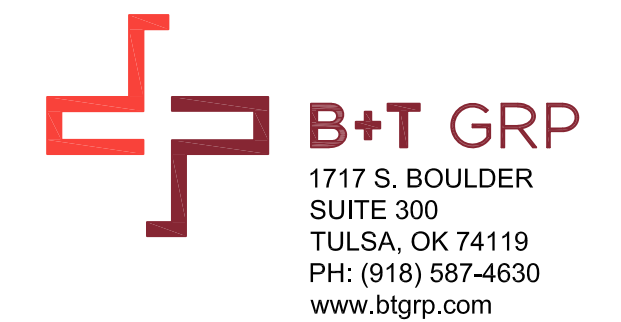


THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.  
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.



**AT&T SITE NUMBER:** CTL02220  
**AT&T SITE NAME:** BRANFORD CENTRAL  
**AT&T FA CODE:** 10035122  
**AT&T PACE NUMBER:** MRCTB055097, MRCTB053757  
**AT&T PROJECT:** 5G NR 1SR CBAND, 5G NR ACTIVATION

**BUSINESS UNIT #:** 876321  
**SITE ADDRESS:** 150 NORTH MAIN STREET BRANFORD, CT 06405  
**COUNTY:** NEW HAVEN  
**SITE TYPE:** MONOPOLE  
**TOWER HEIGHT:** 147'-0"



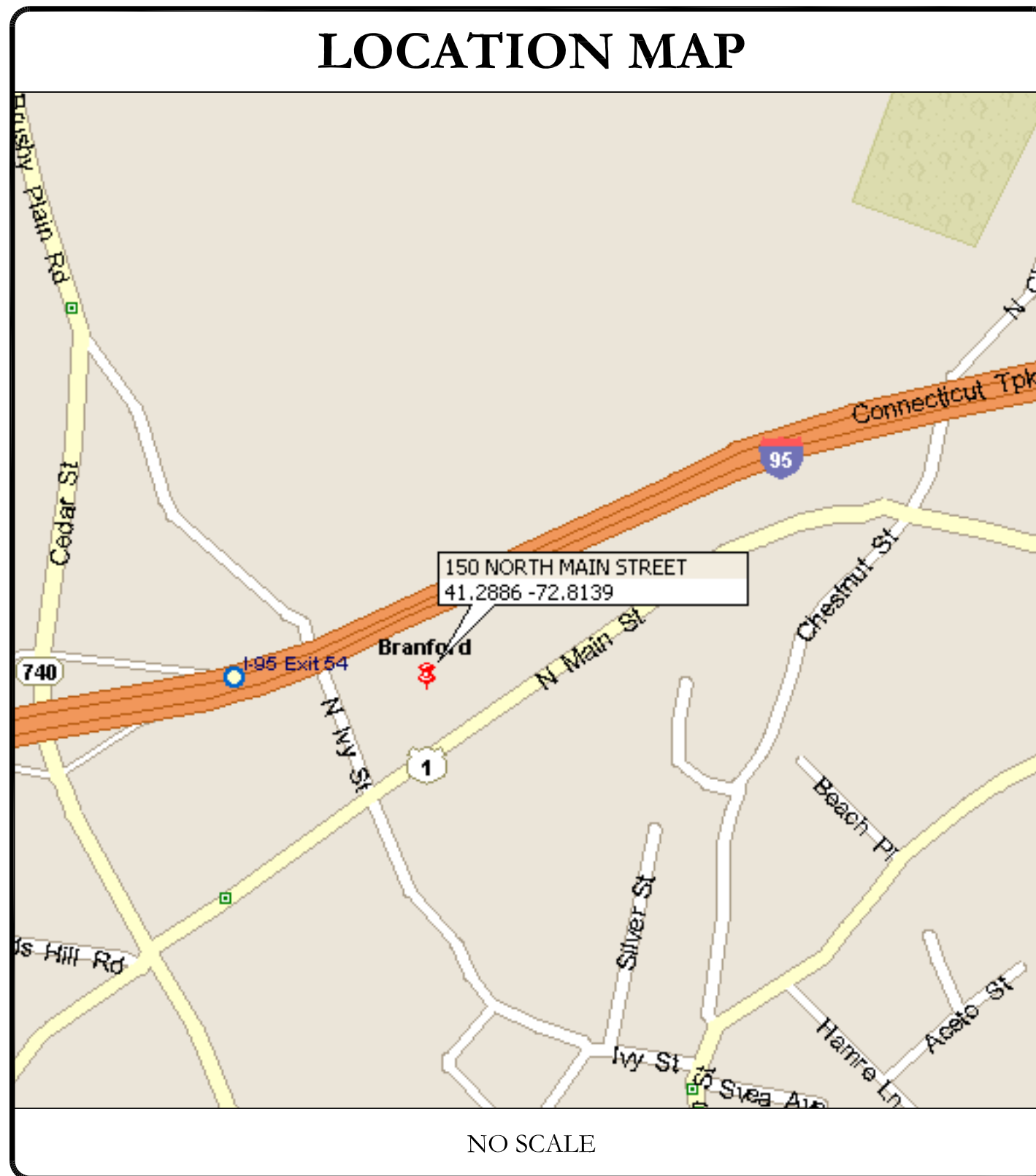
**AT&T**  
**SITE NUMBER: CTL02220**  
**BU #: 876321**  
**BRANFORD BANM TOWER**  
 150 NORTH MAIN STREET  
 BRANFORD, CT 06405  
 EXISTING  
 147'-0" MONOPOLE

SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME:	BRANFORD BANM TOWER
SITE ADDRESS:	150 NORTH MAIN STREET BRANFORD, CT 06405
COUNTY:	NEW HAVEN
MAP/PARCEL #:	D06-E06-001-001-1
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 17' 19.0" N
LONGITUDE:	72° 48' 50.0" W
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	56'
CURRENT ZONING:	IG-1
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	PREMIER REALTY HOLDINGS LLC 150 NORTH MAIN ST BRANFORD, CT 06405
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO. 1.800.286.2000
TELCO PROVIDER:	AT&T 1.800.288.2020

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	FINAL EQUIPMENT SCHEDULE
C-4	EQUIPMENT MOUNTING DETAILS
C-5	EQUIPMENT SPECS
G-1	GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM

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.

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



ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ

PROJECT TEAM	
A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277  PAUL PEDICONE - PROJECT MANAGER PAUL.PEDICONE@CROWNCastle.COM  JASON D'MAMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCastle.COM

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

PROJECT DESCRIPTION
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY. <b>TOWER SCOPE OF WORK:</b> <ul style="list-style-type: none"> <li>REMOVE (3) POWERWAVE - 7770 ANTENNAS</li> <li>REMOVE (3) ANDREW - SBNHH-1D65A ANTENNAS</li> <li>REMOVE (3) CCI - OPA65R-BU4DA ANTENNAS</li> <li>REMOVE (6) POWERWAVE - LGP2140X TMA's</li> <li>REMOVE (6) COAX CABLES</li> <li>RELOCATE (12) RADIOS</li> <li>INSTALL (3) QUINTEL - QD4616-7 ANTENNAS</li> <li>INSTALL (6) ERICSSON - AIR6449 N77D + AIR6419 N77G STACKED ANTENNAS</li> <li>INSTALL (2) PWRT-606-S DC TRUNK</li> <li>INSTALL (1) FB-L98B-034-XXX FIBER TRUNK</li> <li>INSTALL (3) Y CABLES</li> </ul> <b>GROUND SCOPE OF WORK:</b> <ul style="list-style-type: none"> <li>REMOVE (12) POWERWAVE - LGP 21901 DIPLEXER</li> <li>REMOVE RRUW RACK NEXT TO LTE FIF RACK,</li> <li>INSTALL NEW 23" FIF RACK</li> <li>INSTALL (4) RECTIFIERS IN EXISTING POWER PLANT</li> <li>INSTALL (1) DC12-48-60-RM IN NEW 23" FIF RACK</li> <li>INSTALL (1) 6648 W/ XCEDE CABLE</li> </ul>

**NOTE:**  
THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. AT&T IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

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:								
<table border="0"> <tr> <td>CODE TYPE</td> <td>CODE</td> </tr> <tr> <td>BUILDING</td> <td>2018 CT SBC (2015 IBC)</td> </tr> <tr> <td>MECHANICAL</td> <td>2018 CT SBC (2015 IMC)</td> </tr> <tr> <td>ELECTRICAL</td> <td>2018 CT SBC (2017 NEC)</td> </tr> </table>	CODE TYPE	CODE	BUILDING	2018 CT SBC (2015 IBC)	MECHANICAL	2018 CT SBC (2015 IMC)	ELECTRICAL	2018 CT SBC (2017 NEC)
CODE TYPE	CODE							
BUILDING	2018 CT SBC (2015 IBC)							
MECHANICAL	2018 CT SBC (2015 IMC)							
ELECTRICAL	2018 CT SBC (2017 NEC)							
<b>REFERENCE DOCUMENTS:</b>								
STRUCTURAL ANALYSIS: TOWER ENGINEERING PROFESSIONALS DATED: 12/10/21								
MOUNT ANALYSIS: B+T GROUP DATED: 12/1/21								
AC ELECTRICAL POWER DESIGN: BY OTHERS DATED:								
RFDS REVISION: PRELIMINARY DATED: 10/6/21								
ORDER ID: 586245 REVISION: 0								

B&T ENGINEERING, INC.  
 PEC.0001564  
 Expires 2/10/23

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.

<b>SHEET NUMBER:</b> <b>T-1</b>	<b>REVISION:</b> <b>0</b>
------------------------------------	------------------------------

1:36457.009.01\_Branford\_BANM\_TOWER.dwg - Sheet: T-1 - User: m.jones - Feb 18, 2022 - 4:01pm



**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: AT&T  
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.  
4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.  
4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR--CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL THE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN--2, XHHW, XHHW--2, THW, THW--2, RHW, OR RHW--2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN--2, XHHW, XHHW--2, THW, THW--2, RHW, OR RHW--2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI--CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI--CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN--2, XHHW, XHHW--2, THW, THW--2, RHW, OR RHW--2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP--STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT) OR METAL--CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID--TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID--TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION--TYPE AND APPROVED FOR THE LOCATION USED. SET SIZING 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 LOCKNUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY--COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY--COATED OR NON--CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
- 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



575 MOROSGO DRIVE  
ATLANTA, GA 30324-3300



3530 TORINGDON WAY, SUITE 300  
CHARLOTTE, NC 28277



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


AT&T  
SITE NUMBER: **CTL02220**  
BU #: **876321**  
**BRANFORD BANM TOWER**

150 NORTH MAIN STREET  
BRANFORD, CT 06405

EXISTING  
147'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ



B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/23

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**

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.  
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.



AT&T  
SITE NUMBER: **CTL02220**


BU #: **876321**  
**BRANFORD BANM TOWER**

150 NORTH MAIN STREET  
BRANFORD, CT 06405

EXISTING  
147'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ



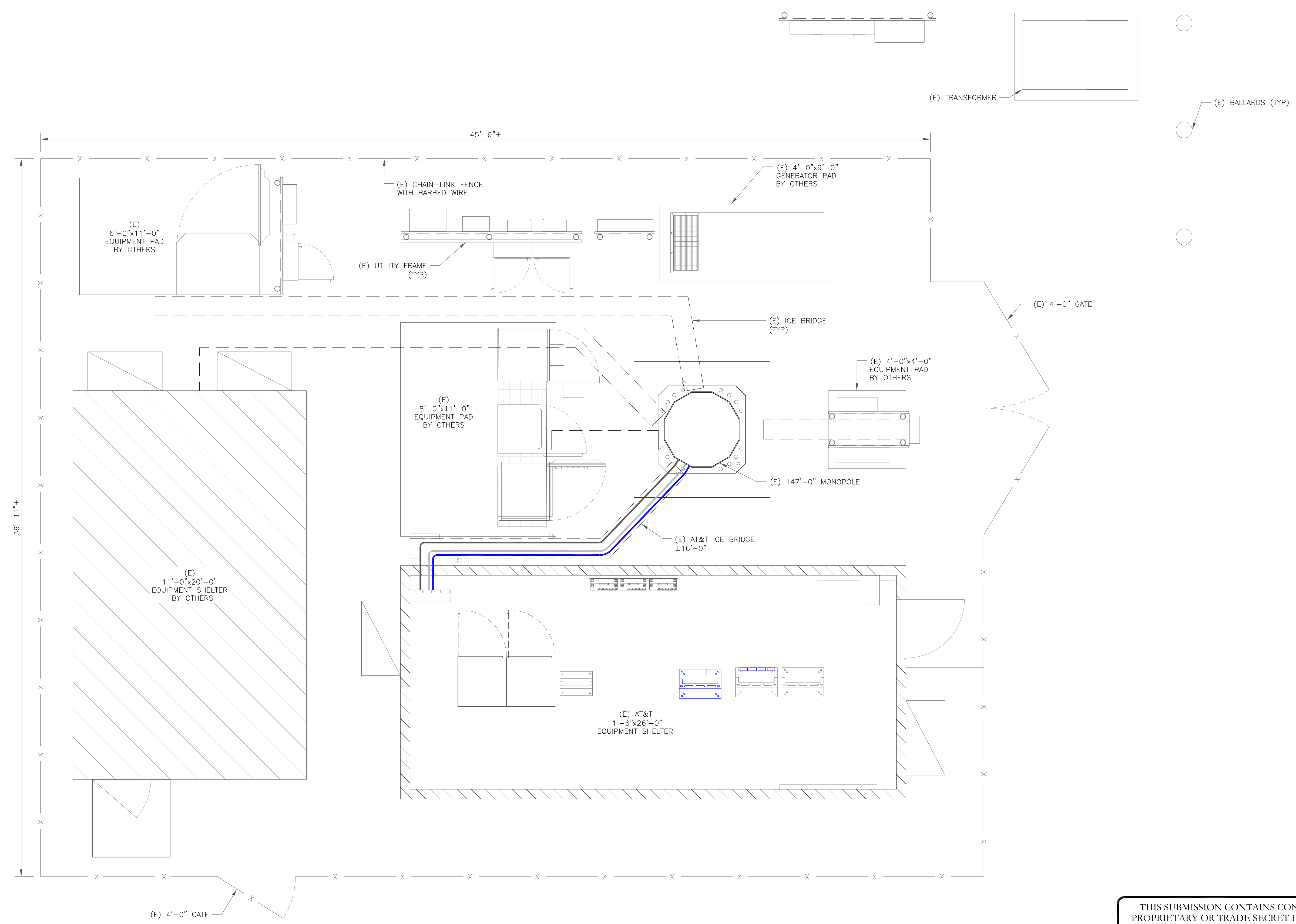
B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/23

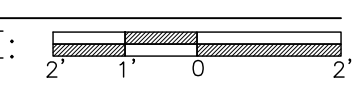
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

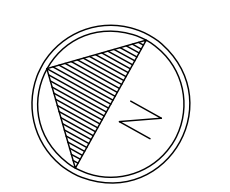
SHEET NUMBER: **C-1.1** REVISION: **0**

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.

DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.



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

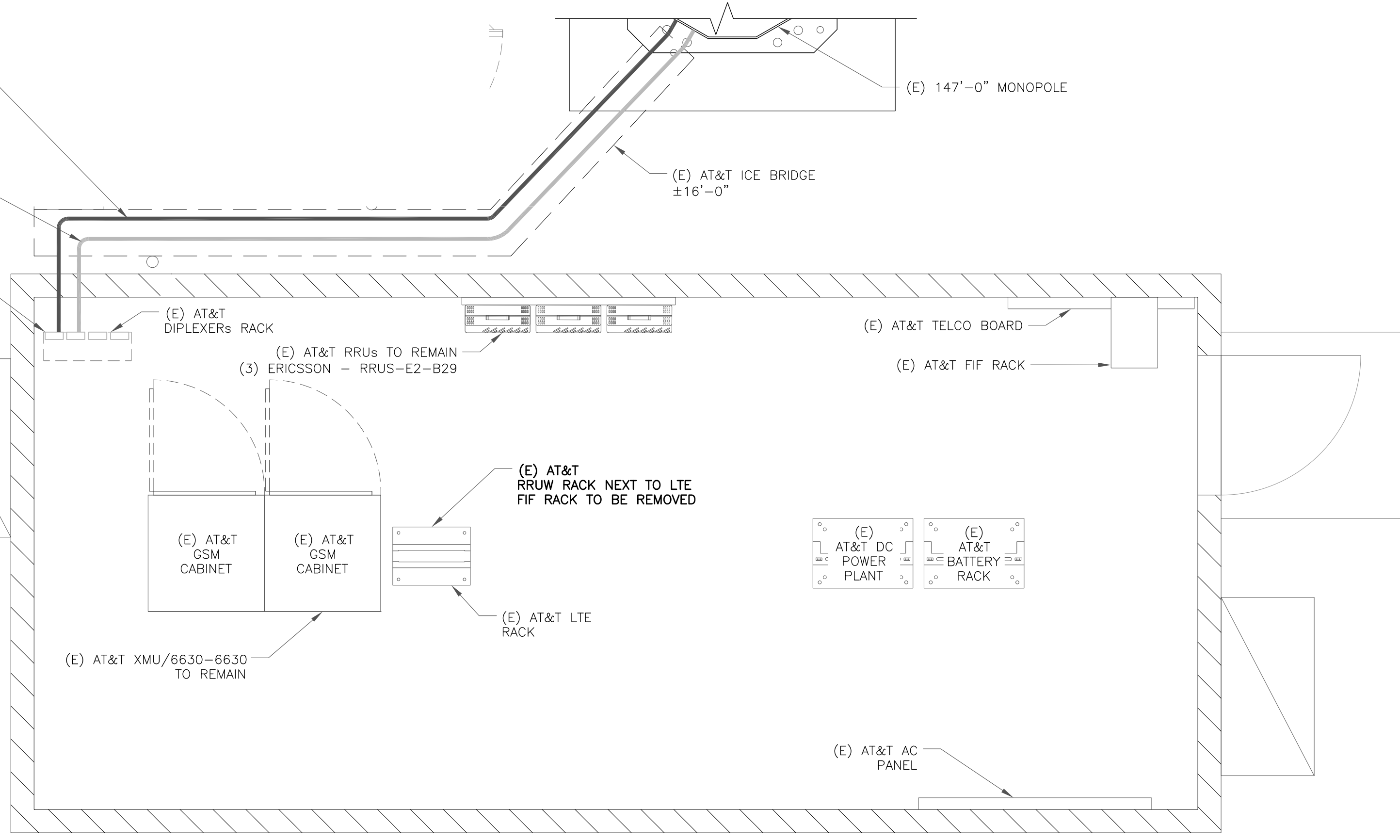


136457.009.01\_BRANFORD BANM TOWER.dwg - Sheet: C-1.1 - User: mjones - Feb 18, 2022 - 4:03pm

- (E) AT&T FEEDLINES TO REMAIN
- (6) COAX CABLES (1-1/4")
- (1) COAX CABLE (1/2")
- (2) WR-VG66ST-BRD DC TRUNK
- (4) WR-VG86ST-BRD DC TRUNK
- (2) FB-L98B-034-XXX FIBER TRUNK

- (E) AT&T FEEDLINES TO BE REMOVED
- (6) COAX CABLES (1-1/4")

- (E) AT&T DIPLEXERS TO BE REMOVED
- (12) POWERWAVE - LGP 21901 DIPLEXER ARRESTOR



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

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.  
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.

575 MOROSGO DRIVE  
ATLANTA, GA 30324-3300

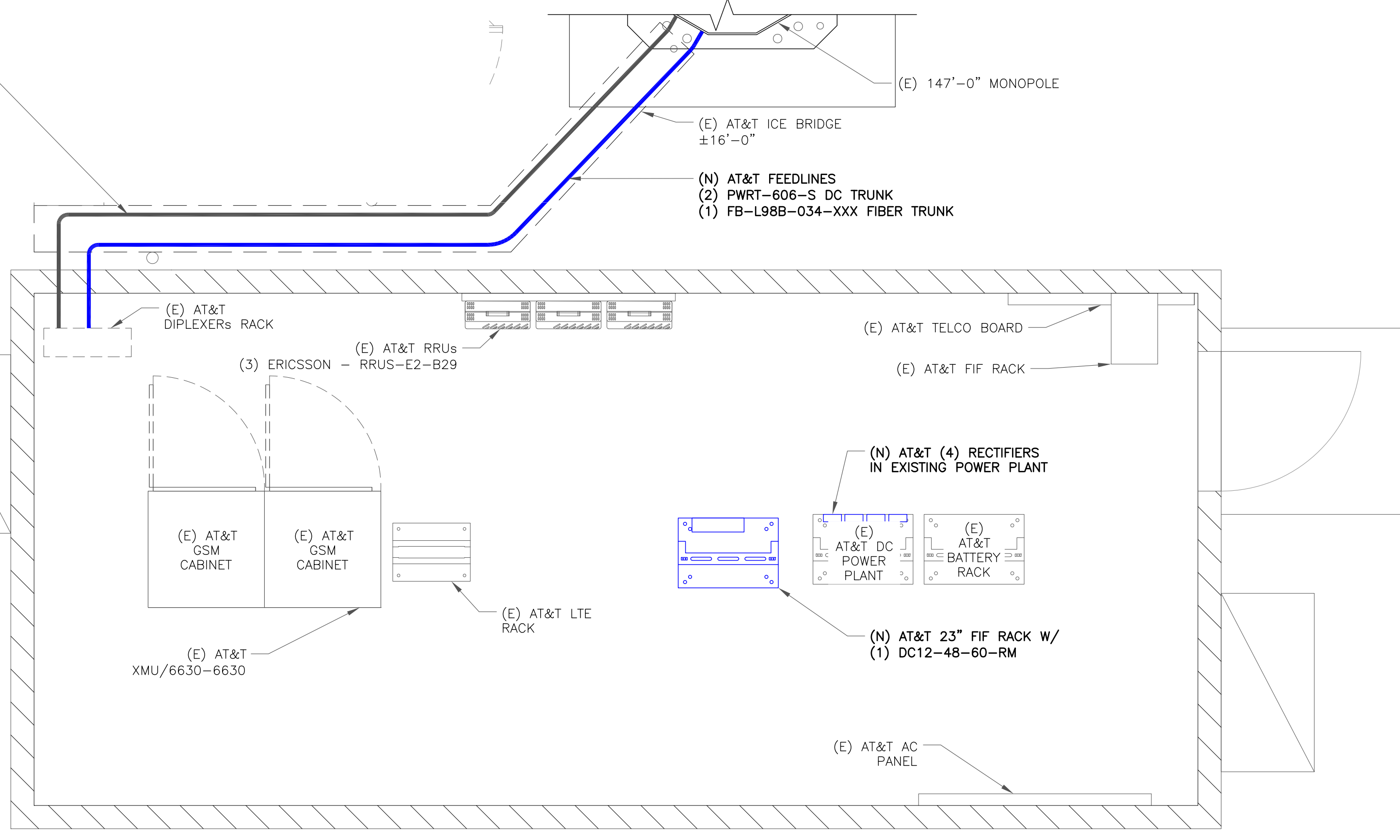
3530 TORINGDON WAY, SUITE 300  
CHARLOTTE, NC 28277

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

AT&T  
SITE NUMBER: CTL02220  
  
BU #: 876321  
BRANFORD BANM TOWER  
  
150 NORTH MAIN STREET  
BRANFORD, CT 06405  
  
EXISTING  
147'-0" MONOPOLE

- (E) AT&T FEEDLINES
- (6) COAX CABLES (1-1/4")
- (1) COAX CABLE (1/2")
- (2) WR-VG66ST-BRD DC TRUNK
- (4) WR-VG86ST-BRD DC TRUNK
- (2) FB-L98B-034-XXX FIBER TRUNK

- (N) AT&T FEEDLINES
- (2) PWRT-606-S DC TRUNK
- (1) FB-L98B-034-XXX FIBER TRUNK



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

- GROUND SCOPE OF WORK:
- REMOVE (12) POWERWAVE - LGP 21901 DIPLEXER
  - REMOVE RRW RACK NEXT TO LTE FIF RACK
  - INSTALL (4) RECTIFIERS IN EXISTING POWER PLANT
  - INSTALL (1) DC12-48-60-RM IN NEW 23" FIF RACK
  - INSTALL NEW 23" FIF RACK

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

ISSUED FOR:

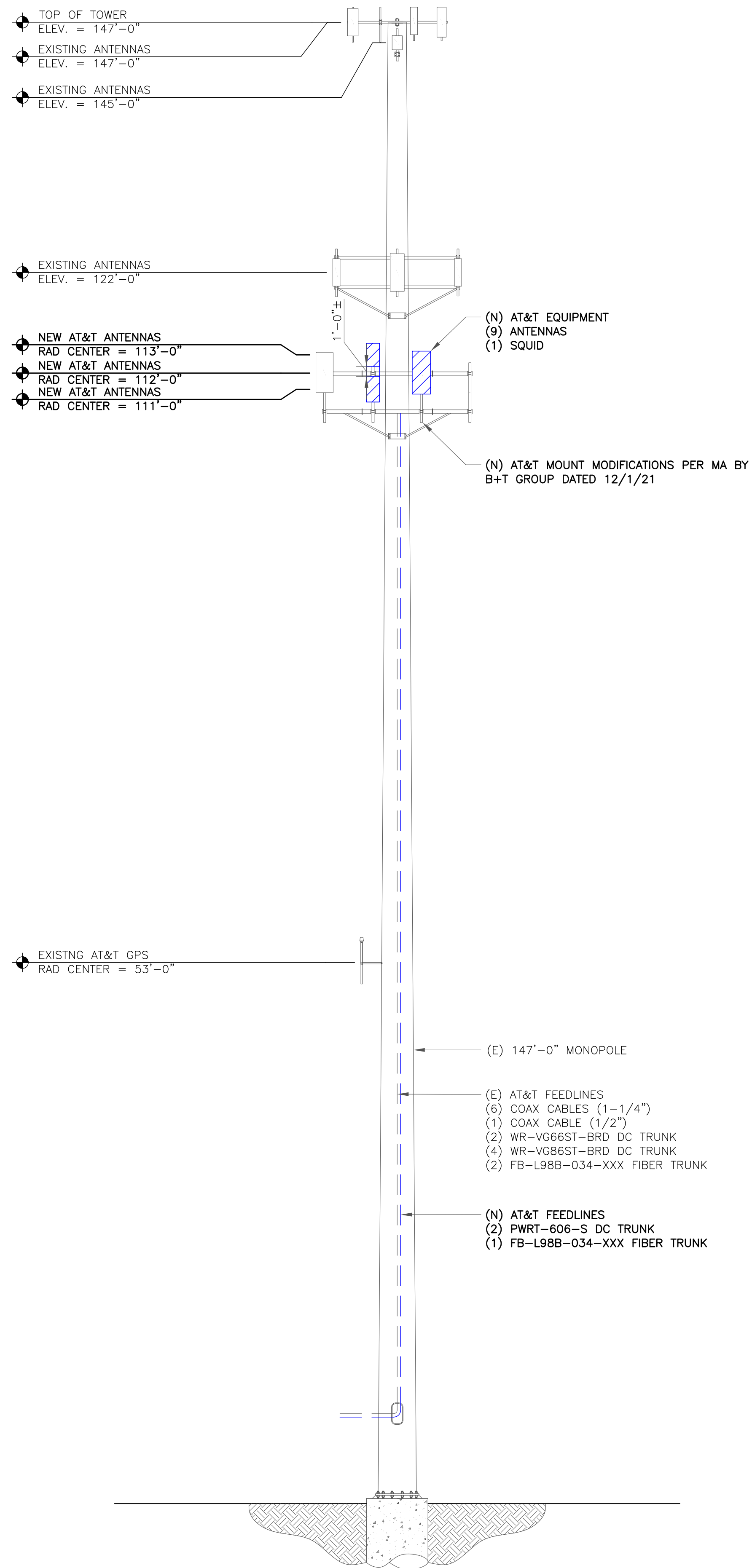
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/23

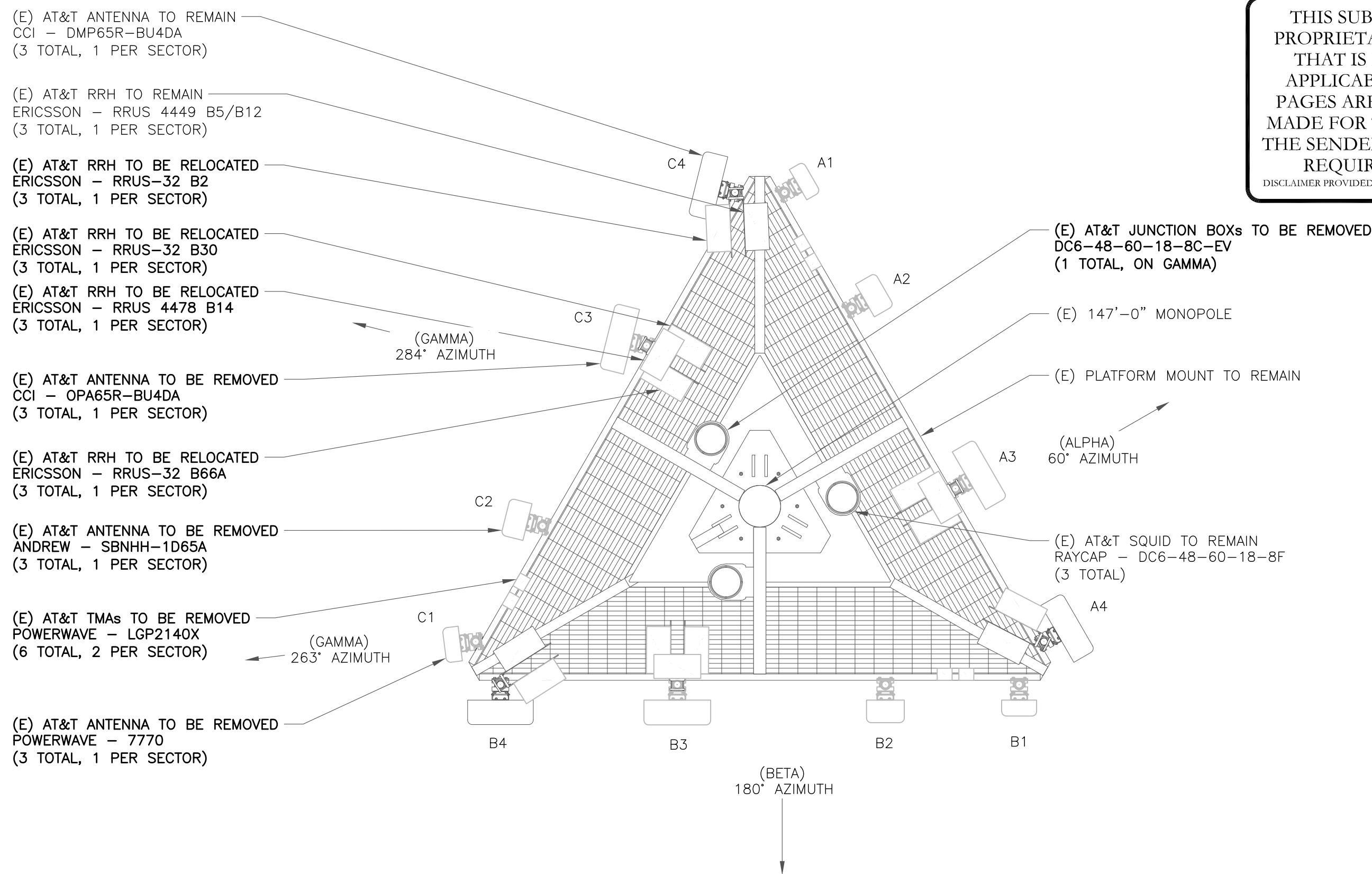
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-1.2  
REVISION: 0

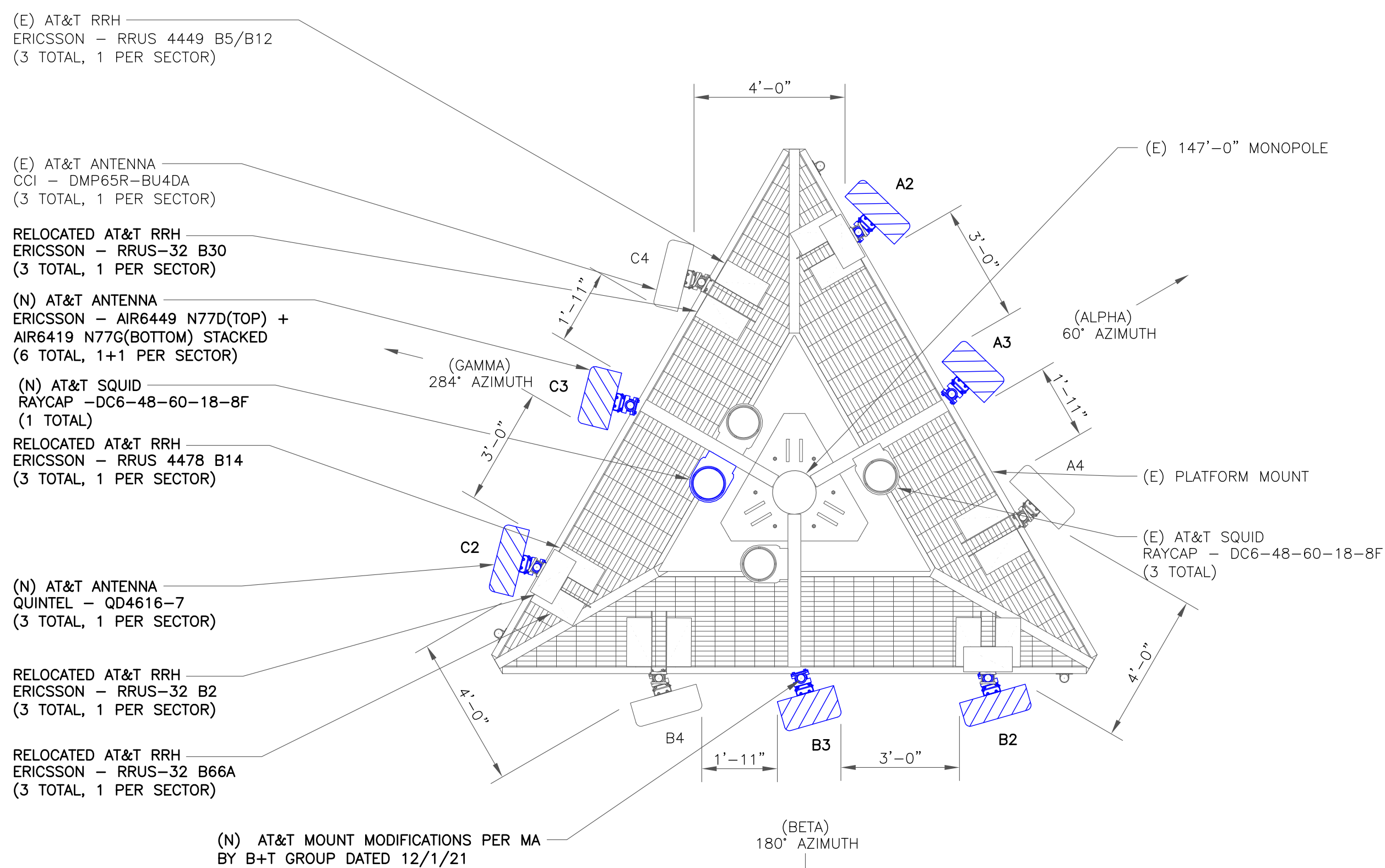




1 FINAL ELEVATION  
SCALE: NOT TO SCALE



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



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

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.  
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.

**AT&T**  
575 MOROSGO DRIVE  
ATLANTA, GA 30324-3300

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

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

AT&T  
SITE NUMBER: CTL02220  
BU #: 876321  
BRANFORD BANM TOWER  
150 NORTH MAIN STREET  
BRANFORD, CT 06405  
EXISTING  
147'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ

"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.

- INSTALLER NOTES:
- REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
  - REFERENCE C-4 & C-5 FOR NEW EQUIPMENT SPECIFICATIONS.
  - CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
  - 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
  - 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
  - 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
  - ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
  - 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.



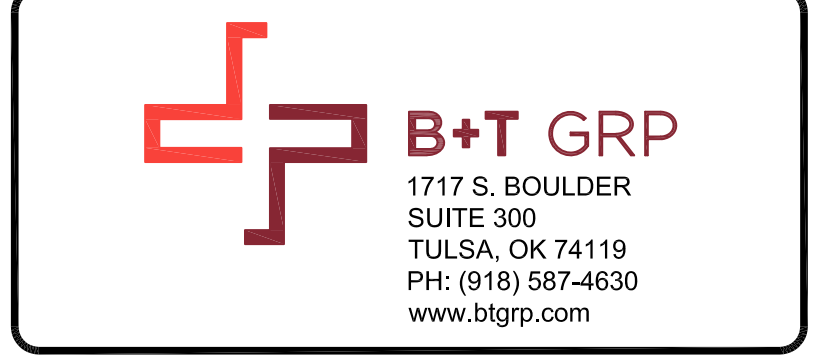
B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/23  
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

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

1:36457.009.01\_BRANFORD BANM TOWER.dwg - Sheet C-2 - User: m.jones - Feb 18, 2022 - 4:03pm



THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.  
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.



AT&T  
 SITE NUMBER: **CTL02220**  
 BU #: **876321**  
**BRANFORD BANM TOWER**  
 150 NORTH MAIN STREET  
 BRANFORD, CT 06405  
 EXISTING  
 147'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.  
 PEC.0001564  
 Expires 2/10/23

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.

**FINAL ANTENNA AND FEEDLINE SCHEDULE**

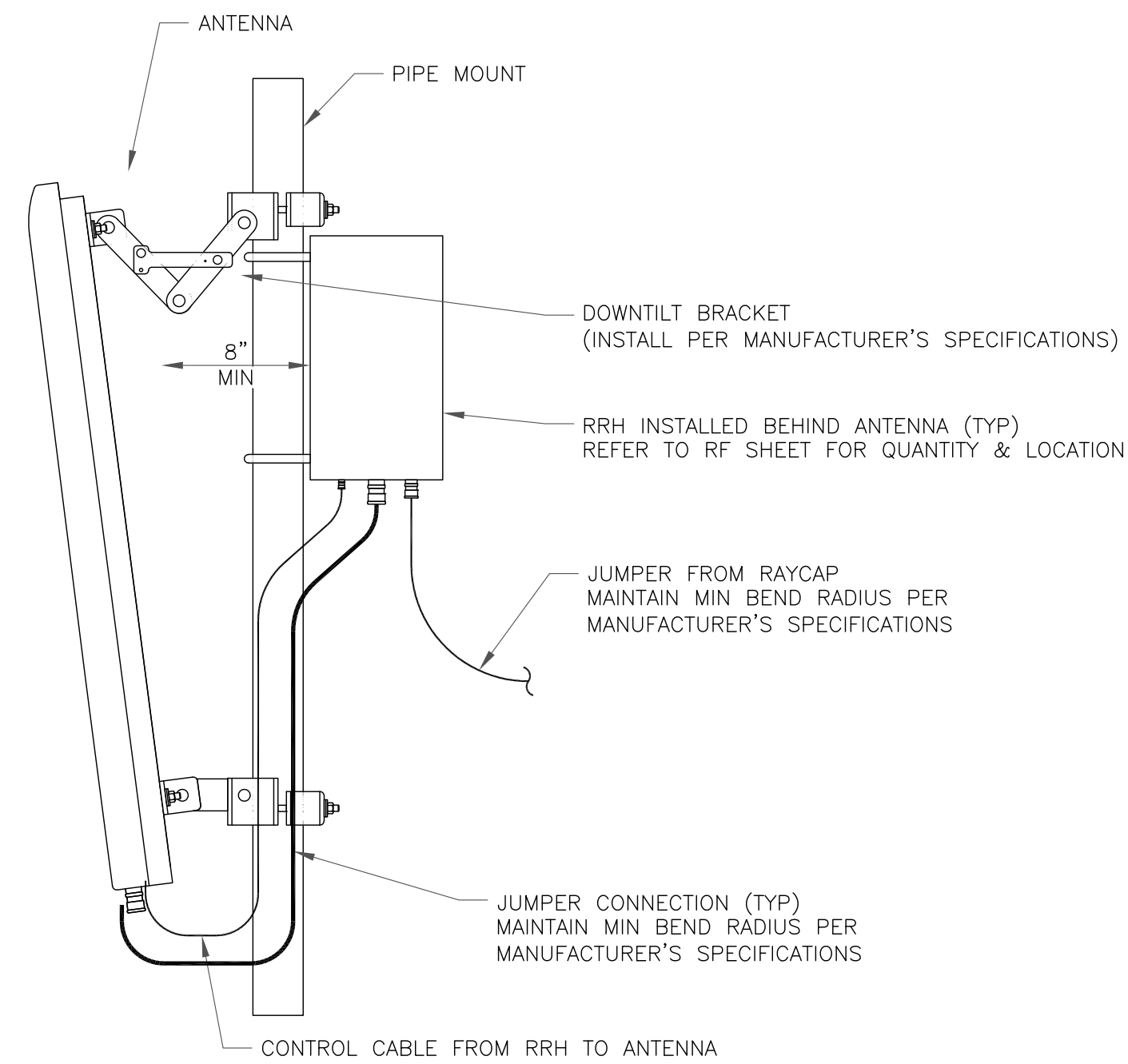
POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	SURGE PROTECTION	DC/FIBER CABLES	RRHs QTY & MODEL ON TOWER	LOCATION	DIPLEXER ON TOWER	DIPLEXER ON GROUND	RET CABLE	
ALPHA SECTOR																			
A1	-	-	-	EMPTY MOUNT PIPE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2	LTE/5G	NEW	60°	QUINTEL - QD4616-7	112'-0"	0°	3°/3°/3°/5°/5°/5°	1-1/4"	162'-0"	2	-	(1) DC6-48-60-18-8F	(1) FB-L98B-034-XXX FIBER TRUNK	(1) ERICSSON - RRUS-4478 B14 (1) ERICSSON - RRUS-32 B2 (1) ERICSSON - RRUS-32 B66A (1) ERICSSON - RRUS-E2 B29	TOWER TOWER GROUND	N N	N	N	
A3	5G CBAND	NEW	60°	ERICSSON - AIR6449 B77D ERICSSON - AIR6419 B77G	113'-0" 111'-0"	0° 0°	0° 0°	-	-	-	-	(1)	WR-VG66ST-BRD DC TRUNK (2) WR-VG86ST-BRD DC TRUNK	-	TOWER	N	N	N	
A4	LTE/LTE/5G	EXISTING	60°	CCI - DMP65R-BU4DA	112'-0"	0°	8°/3°/4°	-	-	-	-	-	-	(1) ERICSSON - RRUS-4449 B5/B12 (1) ERICSSON - RRUS-32 B30	TOWER	N	N	N	
BETA SECTOR																			
B1	-	-	-	EMPTY MOUNT PIPE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B2	LTE/5G	NEW	180°	QUINTEL - QD4616-7	112'-0"	0°	3°/3°/3°/5°/5°/5°	1-1/4"	162'-0"	2	-	(2) DC6-48-60-18-8F	(1) FB-L98B-034-XXX FIBER TRUNK (1) WR-VG66ST-BRD DC TRUNK (2) WR-VG86ST-BRD DC TRUNK	(1) ERICSSON - RRUS-4478 B14 (1) ERICSSON - RRUS-32 B2 (1) ERICSSON - RRUS-32 B66A (1) ERICSSON - RRUS-E2 B29	TOWER TOWER GROUND	N N	N	N	
B3	5G CBAND	NEW	180°	ERICSSON - AIR6449 B77D ERICSSON - AIR6419 B77G	113'-0" 111'-0"	0° 0°	0° 0°	-	-	-	-	(2)	WR-VG66ST-BRD DC TRUNK (2) WR-VG86ST-BRD DC TRUNK	-	TOWER	N	N	N	
B4	LTE/LTE/5G	EXISTING	180°	CCI - DMP65R-BU4DA	112'-0"	0°	8°/3°/4°	-	-	-	-	-	-	(1) ERICSSON - RRUS-4449 B5/B12 (1) ERICSSON - RRUS-32 B30	TOWER	N	N	N	
GAMMA SECTOR																			
C1	-	-	-	EMPTY MOUNT PIPE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2	LTE/5G	NEW	284°	QUINTEL - QD4616-7	112'-0"	0°	3°/3°/3°/5°/5°/5°	1-1/4"	162'-0"	2	-	(1) DC6-48-60-18-8F	(2) PWRT-606-S DC TRUNK (1) FB-L98B-034-XXX FIBER TRUNK	(1) ERICSSON - RRUS-4478 B14 (1) ERICSSON - RRUS-32 B2 (1) ERICSSON - RRUS-32 B66A (1) ERICSSON - RRUS-E2 B29	TOWER TOWER GROUND	N N	N	N	
C3	5G CBAND	NEW	284°	ERICSSON - AIR6449 B77D ERICSSON - AIR6419 B77G	113'-0" 111'-0"	0° 0°	0° 0°	-	-	-	-	(1)	WR-VG66ST-BRD DC TRUNK (2) WR-VG86ST-BRD DC TRUNK	-	TOWER	N	N	N	
NOTE: BOLD DENOTES NEW EQUIPMENT	LTE/5G	EXISTING	284°	CCI - DMP65R-BU4DA	112'-0"	0°	8°/3°/4°	-	-	-	-	-	-	(1) ERICSSON - RRUS-4449 B5/B12 (1) ERICSSON - RRUS-32 B30	TOWER	N	N	N	
MCL=53'-0"																			
-	-	EXISTING	120°	GPS - GPS_A	-	-	-	1/2"	162'-0"	1	-	-	-	-	TOWER	N	N	N	

1 FINAL ANTENNA AND FEEDLINE SCHEDULE  
 SCALE: NOT TO SCALE

SHEET NUMBER: **C-3** REVISION: **0**

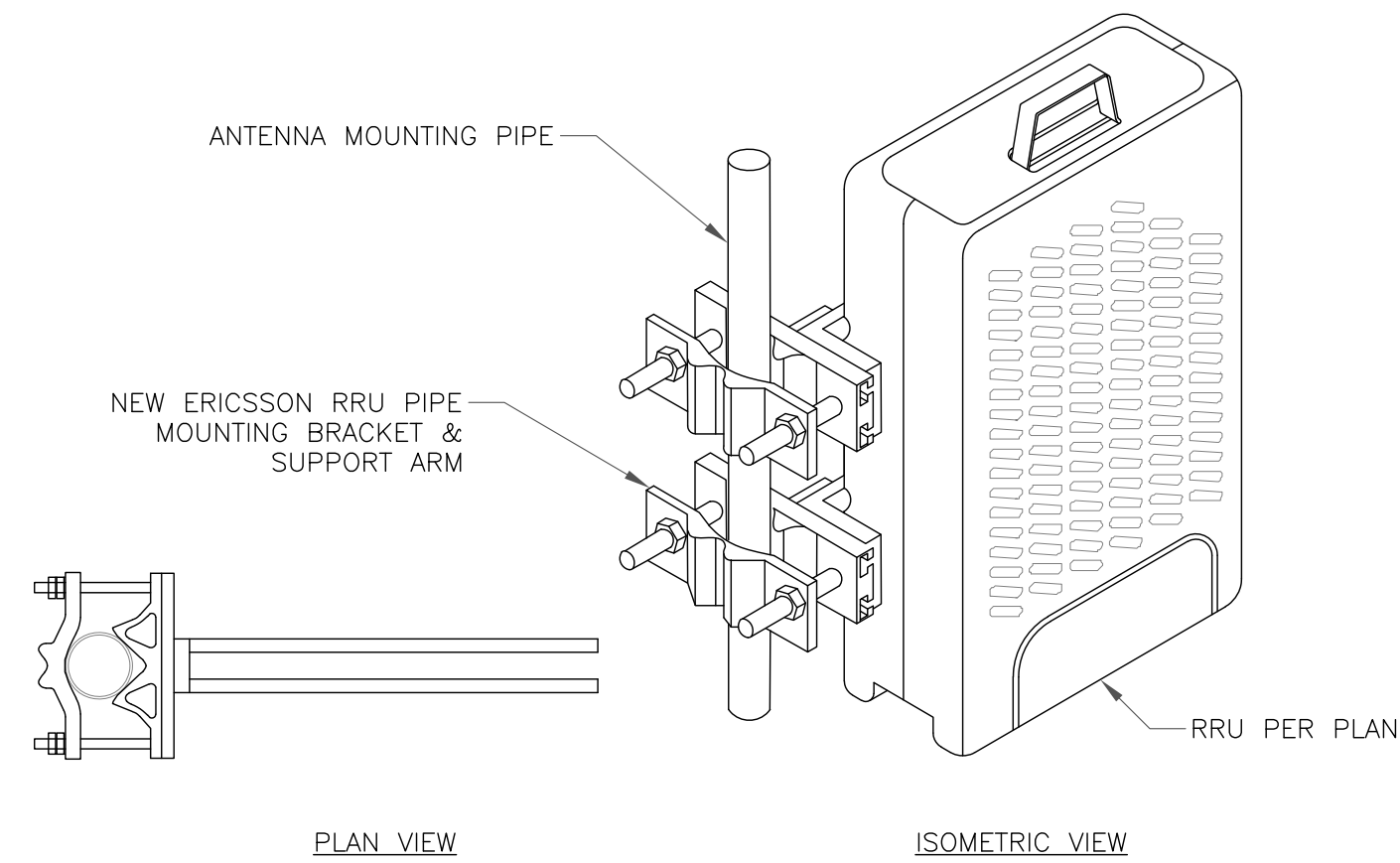
1:36457.009.01\_BRANFORD BANM TOWER.dwg - Sheet C-3 - User: mjones - Feb 18, 2022 - 4:03pm





1 GENERIC ANTENNA MOUNTING ELEVATION  
SCALE: NOT TO SCALE

**ERICSSON\_RRU\_MOUNTING\_KIT:**  
 SXK 107 2839/1: SINGLE RRU SUPPORT KIT (PART # 5335) (OR ENGINEER APPROVED EQUIVALENT)  
 SXK 107 2839/2: EXPANSION KIT (PART # 5336) (OR ENGINEER APPROVED EQUIVALENT)  
**MOUNTING NOTES:**  
 REFER TO PRODUCT SPECS FOR BOLT SIZE & PIPE DIAMETER TOLERANCES. THE PART NO. SXK107-2839/2 IS REQUIRED FOR (2) RRUS.



2 ERICSSON - SXK 107 2839  
SCALE: NOT TO SCALE

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.  
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.

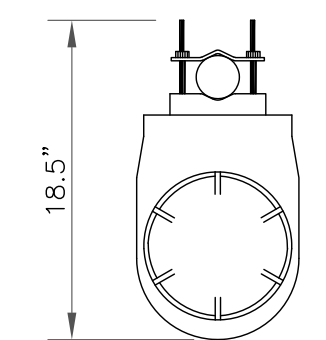
575 MOROSGO DRIVE  
ATLANTA, GA 30324-3300

3530 TORINGDON WAY, SUITE 300  
CHARLOTTE, NC 28277

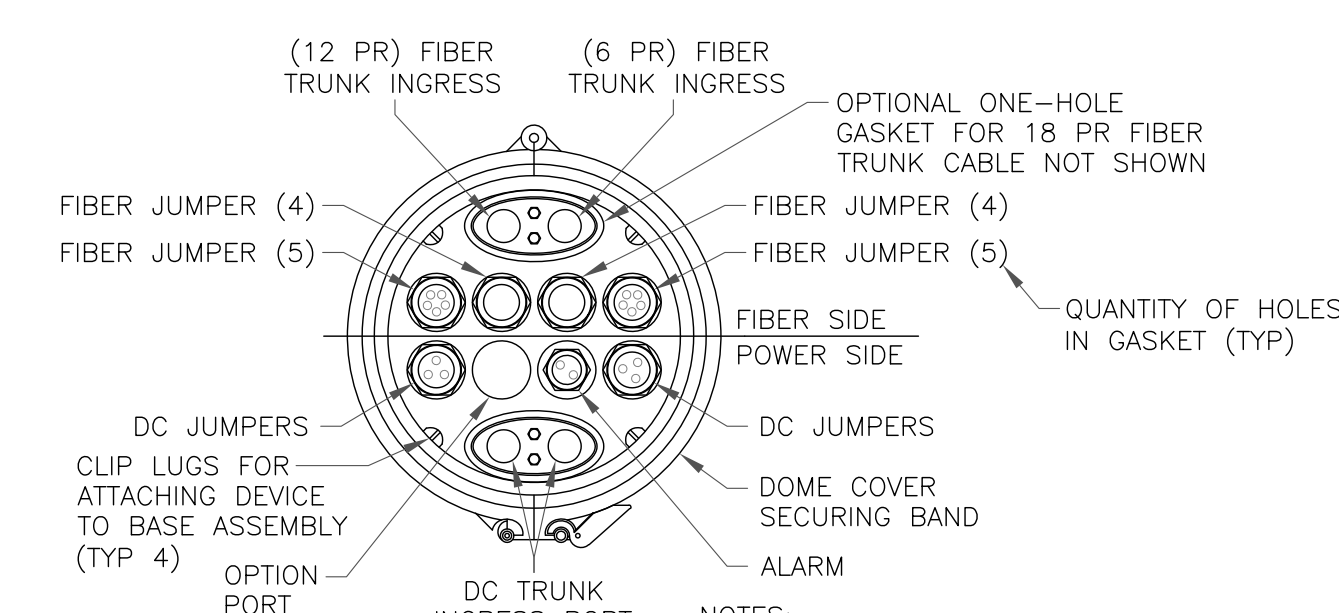
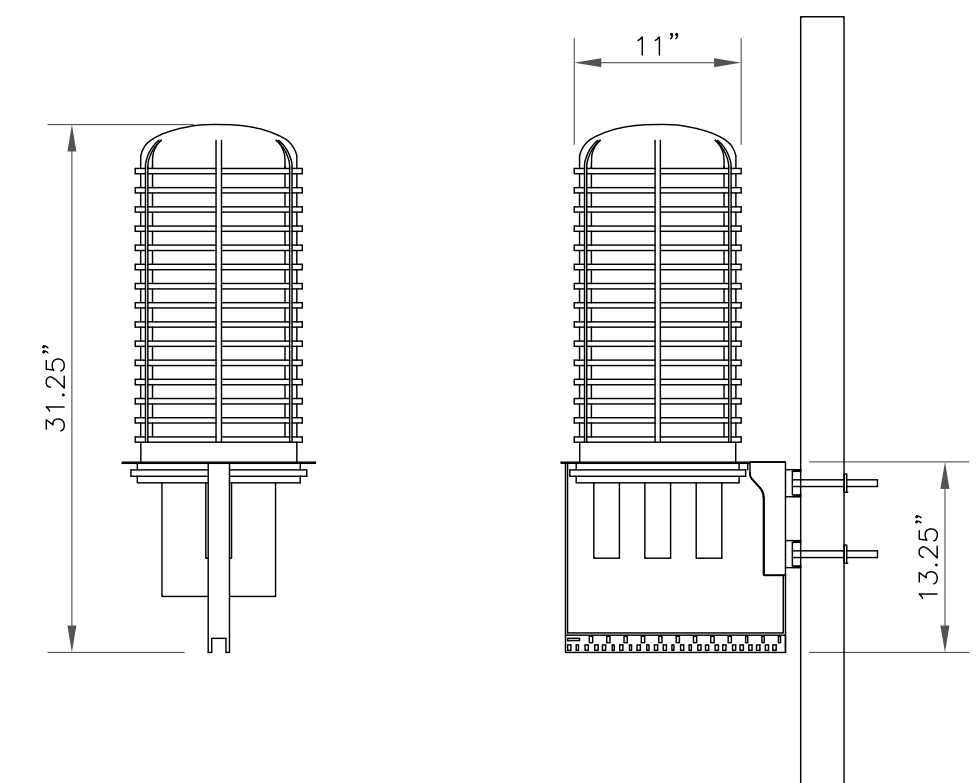
1717 S. BOULDER SUITE 300  
TULSA, OK 74119  
PH: (918) 587-4630  
www.blgrp.com

AT&T  
 SITE NUMBER: **CTL02220**  
 BU #: **876321**  
**BRANFORD BANM TOWER**  
 150 NORTH MAIN STREET  
 BRANFORD, CT 06405  
 EXISTING  
 147'-0" MONOPOLE

**RAYCAP**  
 DC6-48-60-18-8F  
 RAYCAP - DC6-48-60-18-8F  
 SIZE: 11x31.25 IN.  
 WEIGHT: 32.8 LBS  
 NOMINAL OPERATING VOLTAGE: 48 VDC  
 VOLTAGE PROTECTION RATING: 400 V  
 WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)  
 WIND LOADING: 195 MPH GUST (213.6 LBS)

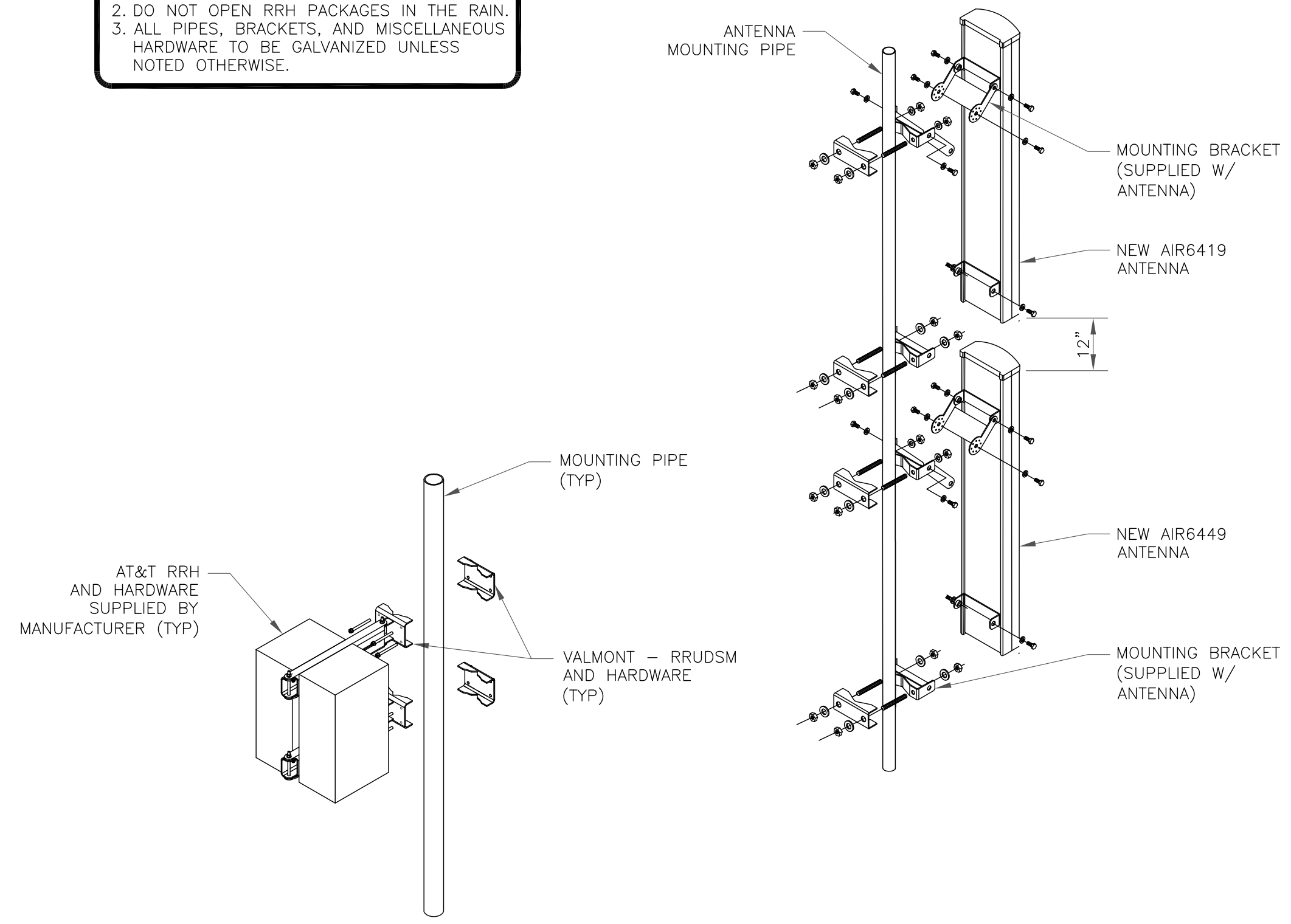


CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION



6 SQUID MOUNTING DETAIL  
SCALE: NOT TO SCALE

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



1 AEQU ANTENNA WITH RRHs MOUNTING DETAIL  
SCALE: NOT TO SCALE

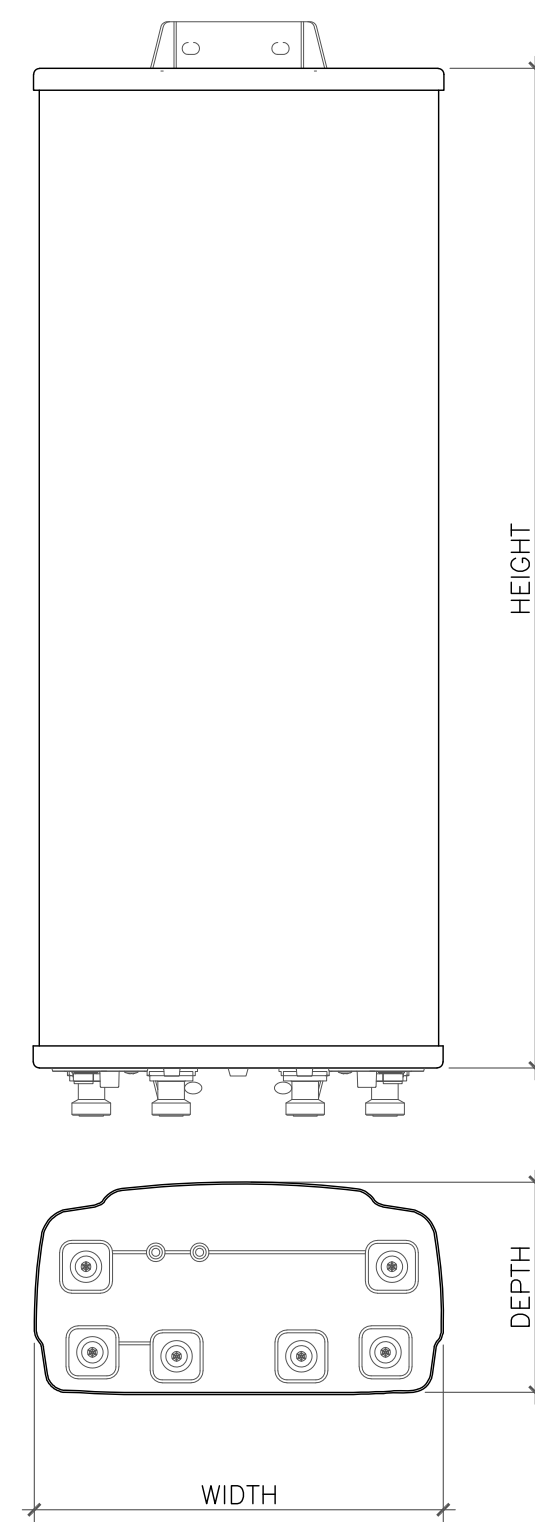
**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.  
 PEC.0001564  
 Expires 2/10/23

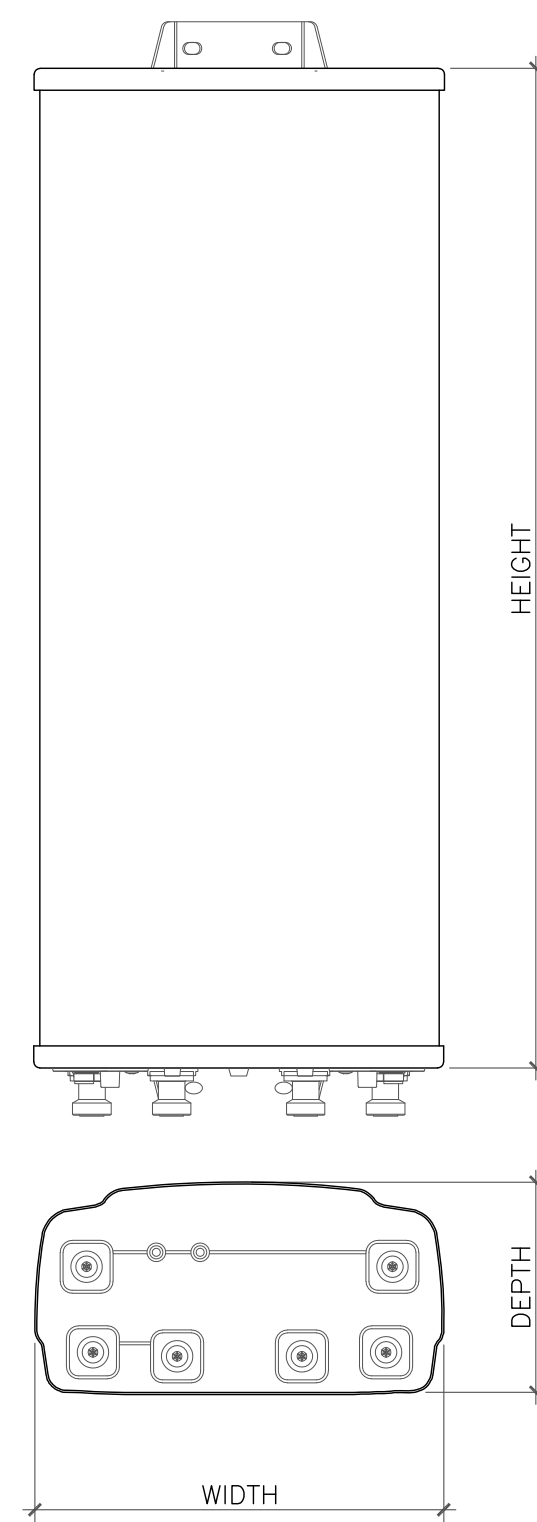
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: **C-4** REVISION: **0**



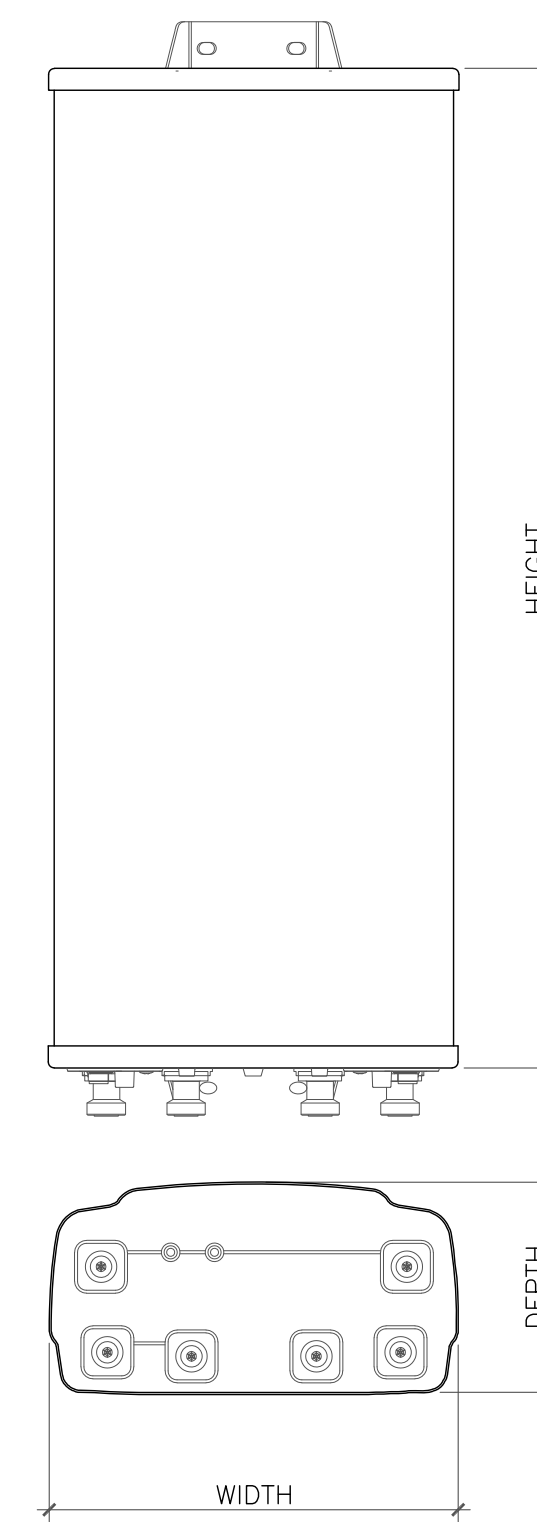
ANTENNA DIMENSIONS (INCHES)					
MANUFACTURER	MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
QUINTEL	QD4616-7	51.5"	22"	9.6"	109 LBS

1 ANTENNA DETAIL  
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)					
MANUFACTURER	MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
ERICSSON	AIR 6449 B77D	30.63"	15.87"	10.55"	33.78 LBS

2 ANTENNA DETAIL  
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)					
MANUFACTURER	MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
ERICSSON	AIR6419 N77G	27.95"	15.75"	6.68"	66.2 LBS

3 ANTENNA DETAIL  
SCALE: NOT TO SCALE

575 MOROSGO DRIVE  
ATLANTA, GA 30324-3300

3530 TORINGDON WAY, SUITE 300  
CHARLOTTE, NC 28277

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

AT&T  
SITE NUMBER: **CTL02220**

BU #: **876321**  
**BRANFORD BANM TOWER**

150 NORTH MAIN STREET  
BRANFORD, CT 06405

EXISTING  
147'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ



B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/23

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.

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.

DISCLAIMER PROVIDED BY AT&T: THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.

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



GROUNDING PLAN LEGEND:

---	GROUND WIRE		COPPER GROUND ROD
■	EXOTHERMIC WELD		GROUND ROD W/ TEST WELL
●	MECHANICAL CONNECTION		

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

575 MOROSGO DRIVE  
ATLANTA, GA 30324-3300

3530 TORINGDON WAY, SUITE 300  
CHARLOTTE, NC 28277

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

AT&T  
SITE NUMBER: CTL02220

BU #: 876321  
BRANFORD BANM TOWER

150 NORTH MAIN STREET  
BRANFORD, CT 06405

EXISTING  
147'-0" MONOPOLE

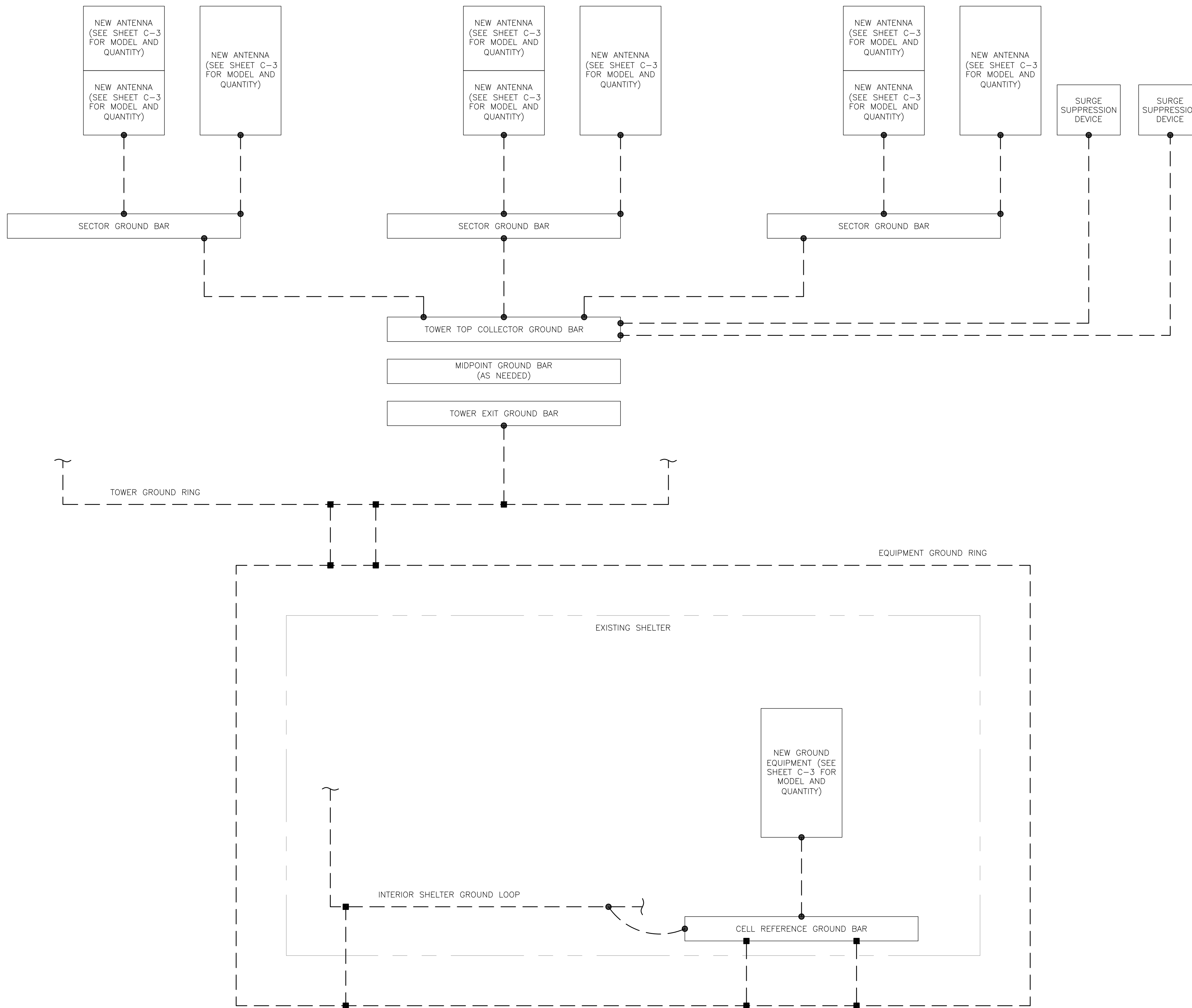
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/23

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: **G-1** REVISION: **0**

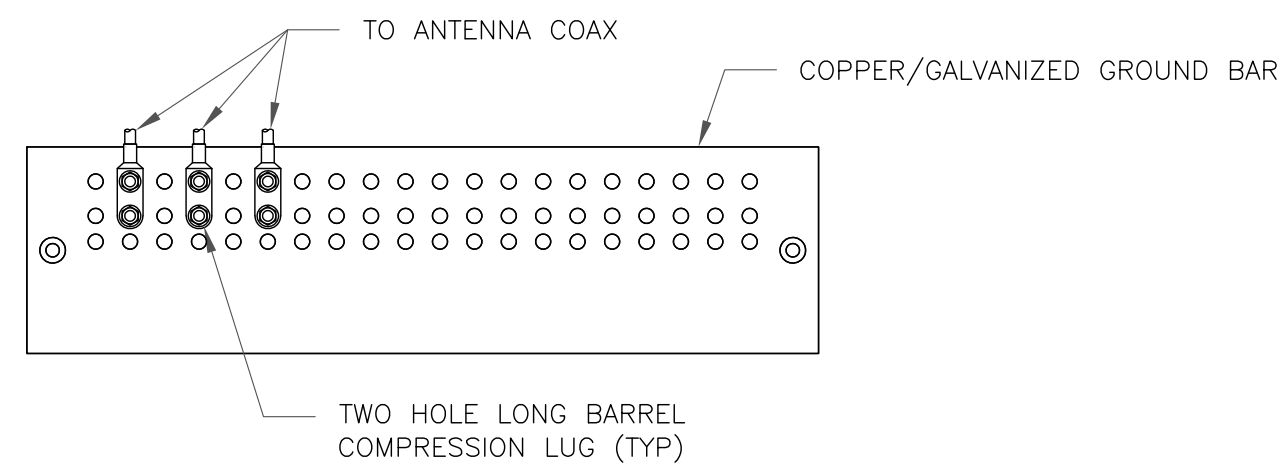


1 GROUNDING SCHEMATIC  
SCALE: NOT TO SCALE

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.

DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.

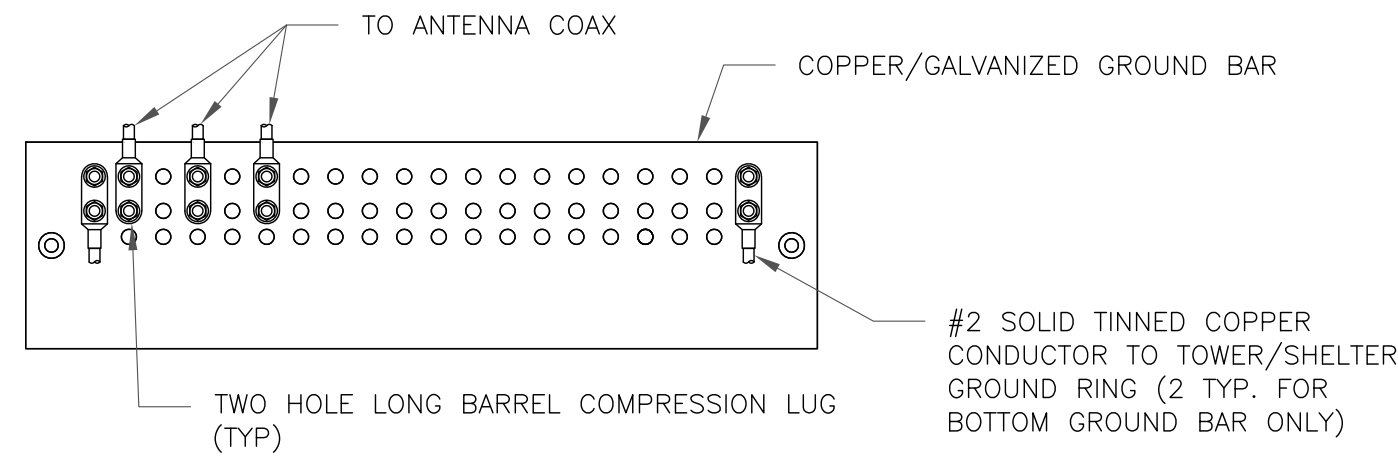




NOTES:

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

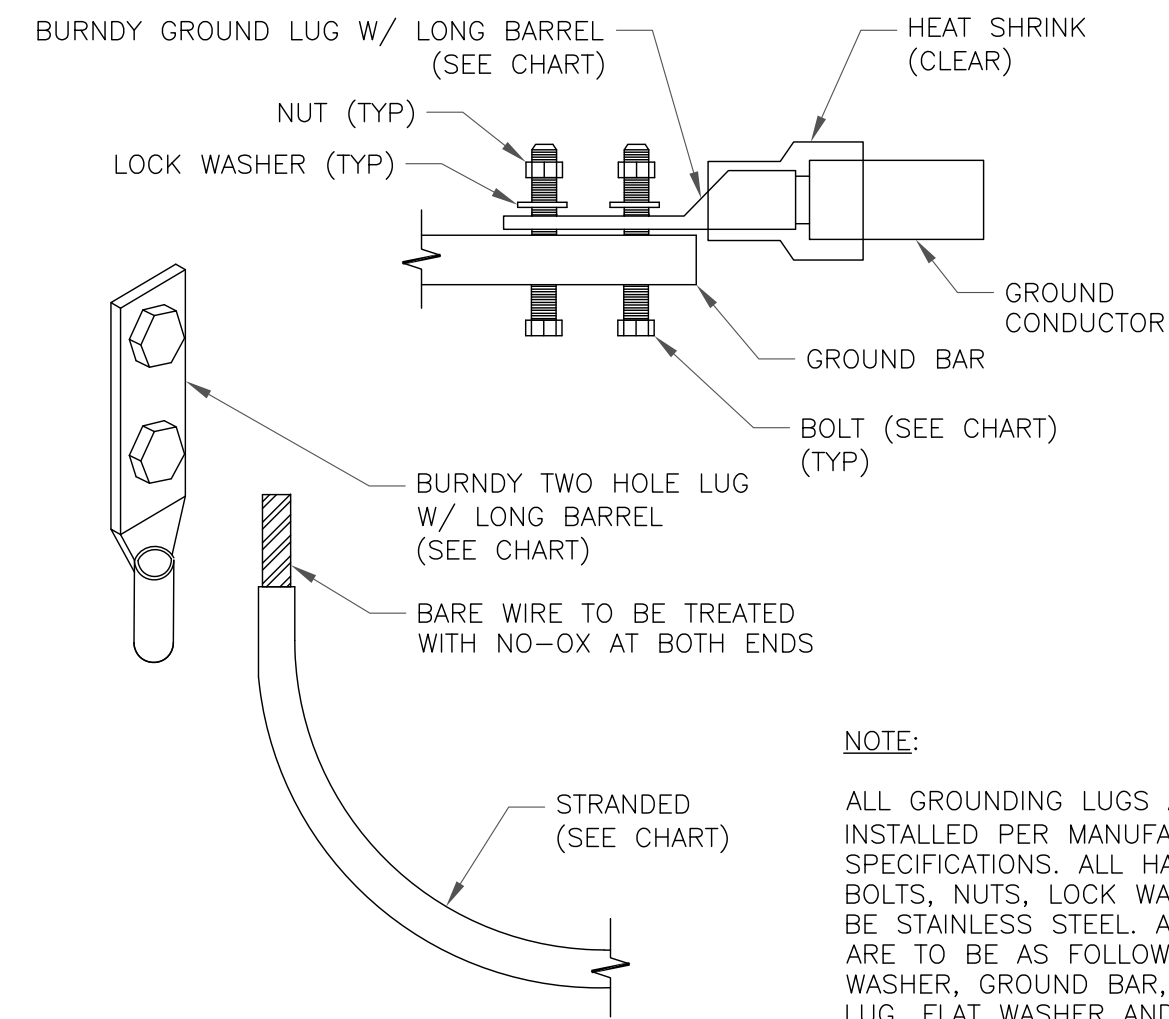


NOTES:

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

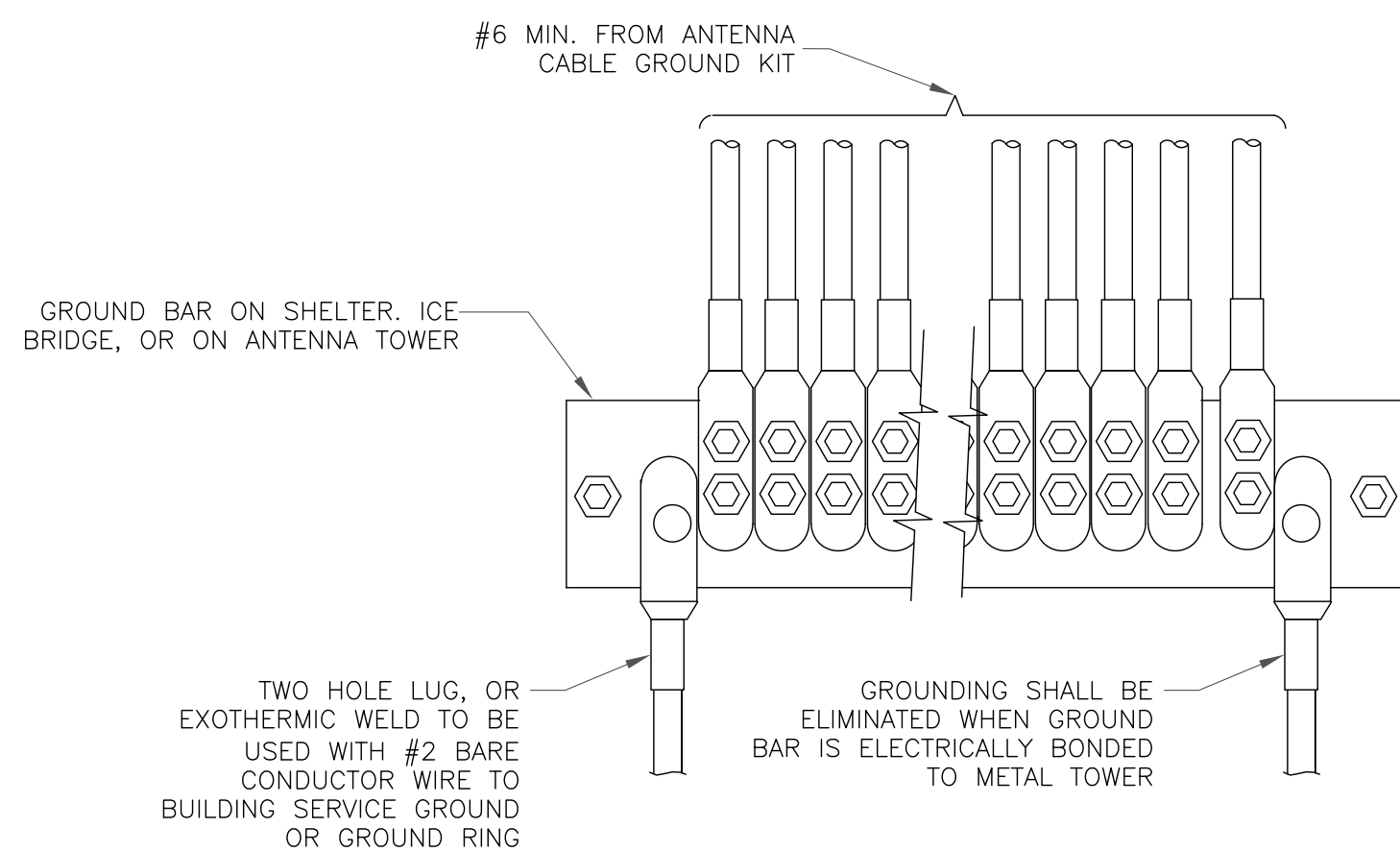
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



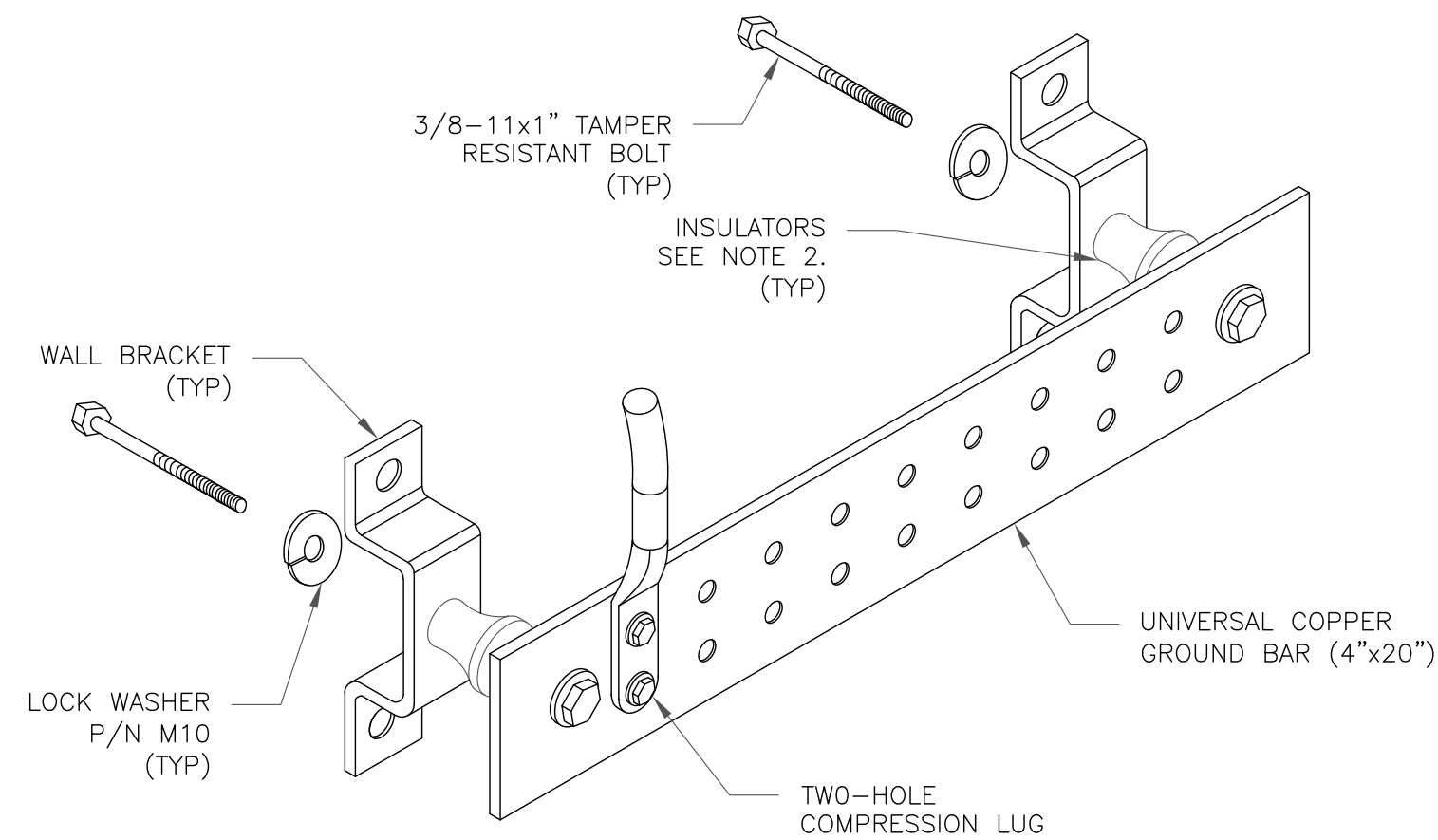
NOTE:

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.

3 MECHANICAL LUG CONNECTION  
SCALE: NOT TO SCALE



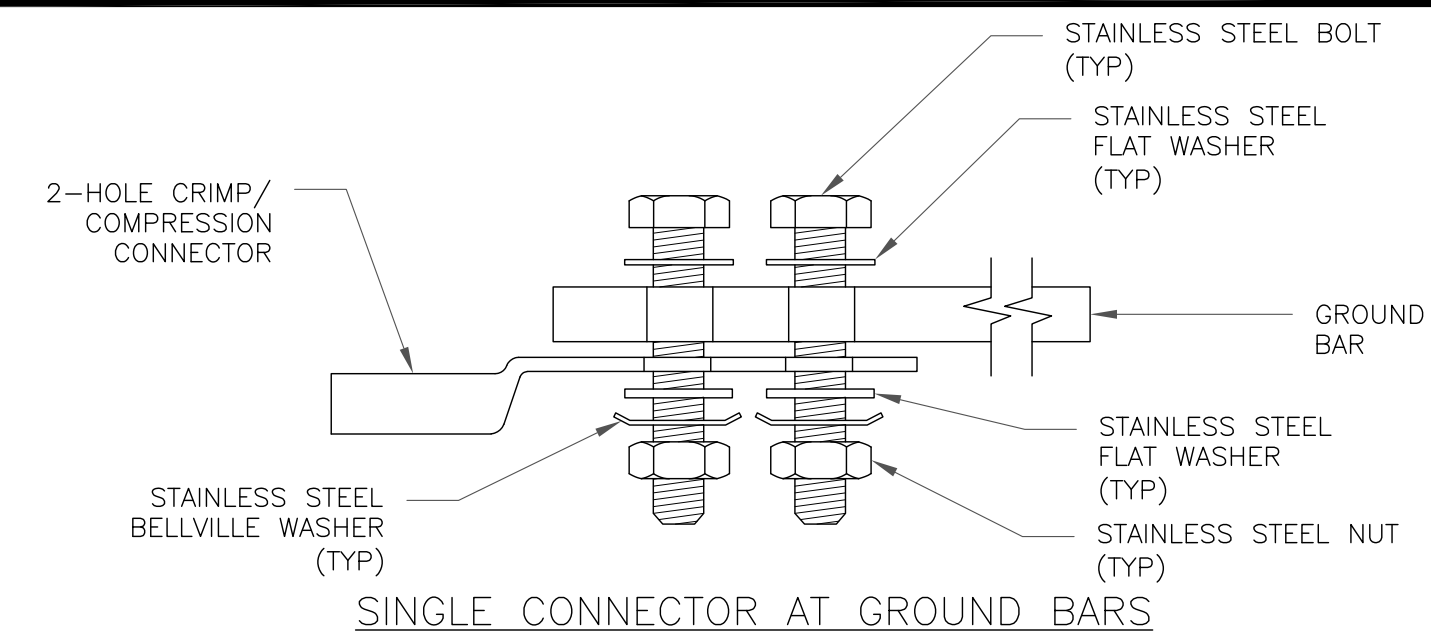
4 GROUNDWIRE INSTALLATION  
SCALE: NOT TO SCALE



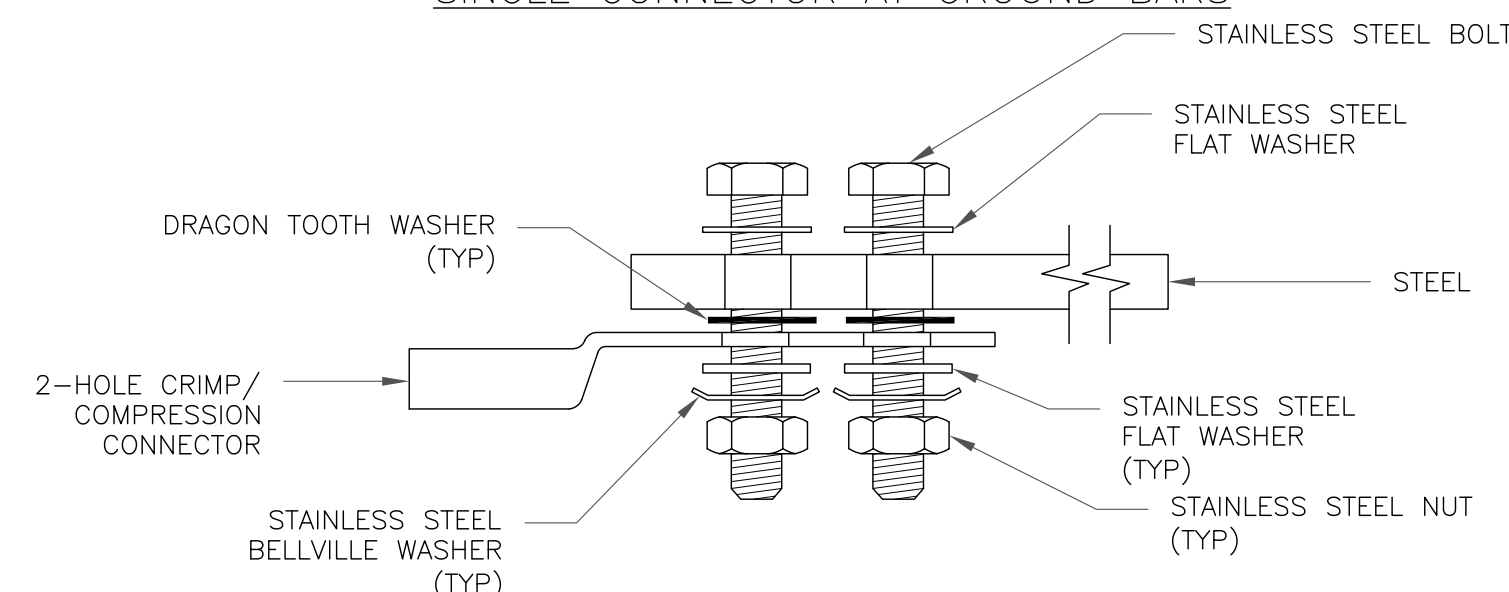
NOTES:

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

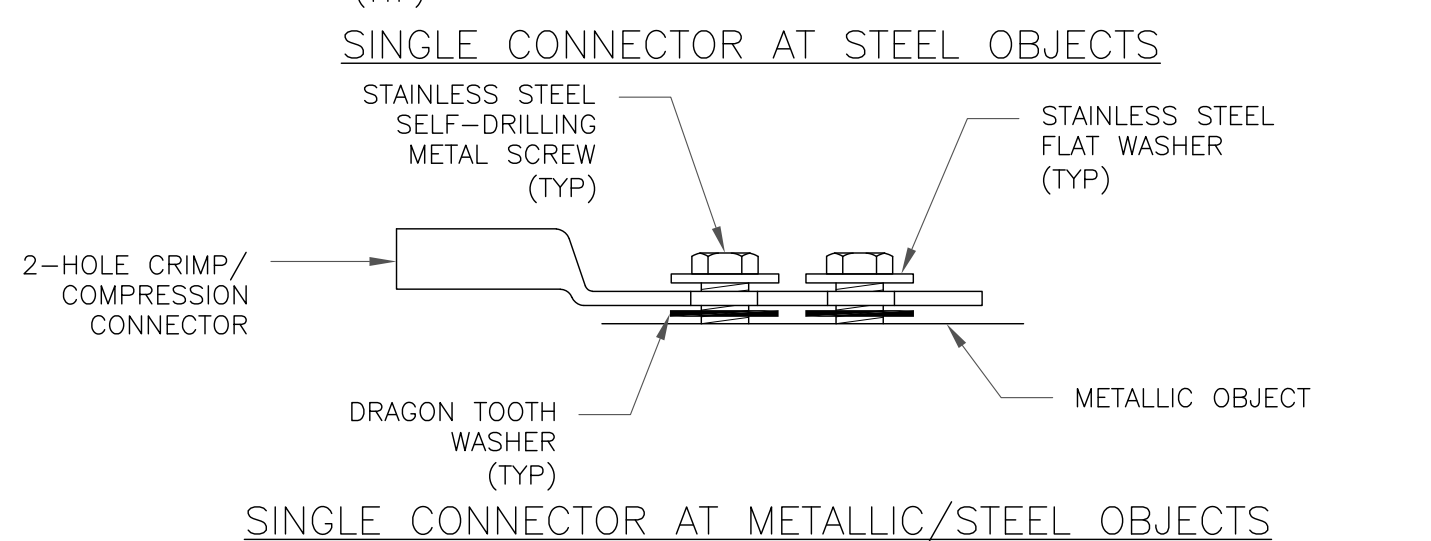
5 GROUND BAR DETAIL  
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS

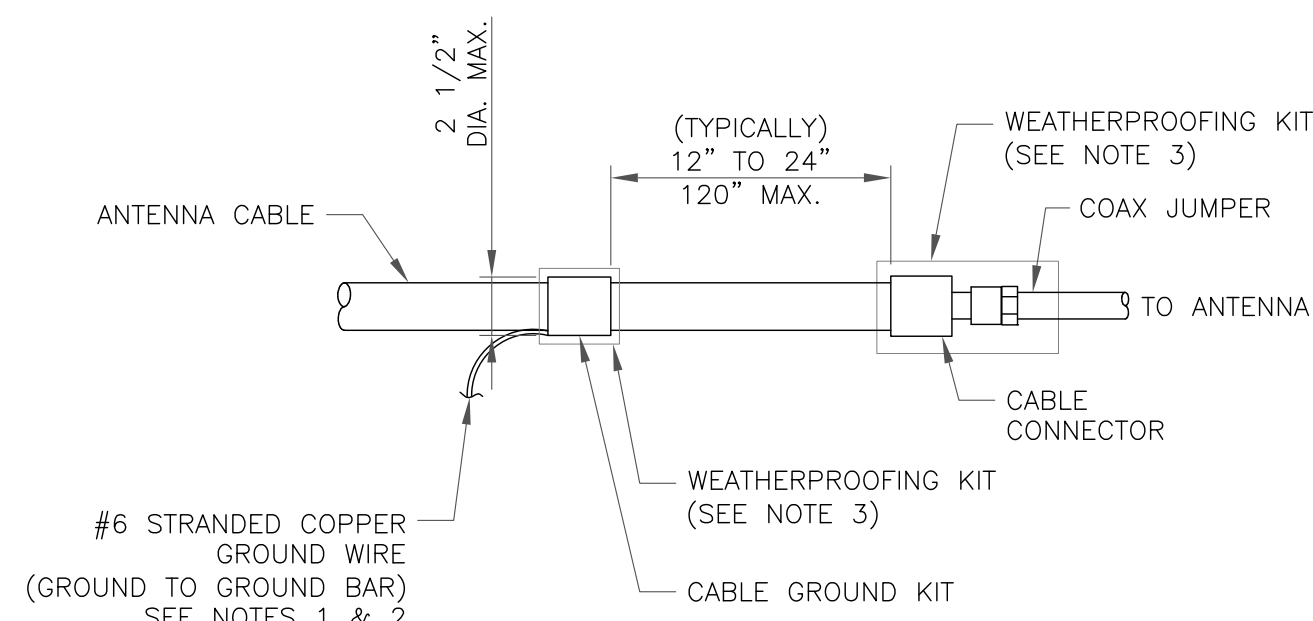


SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.

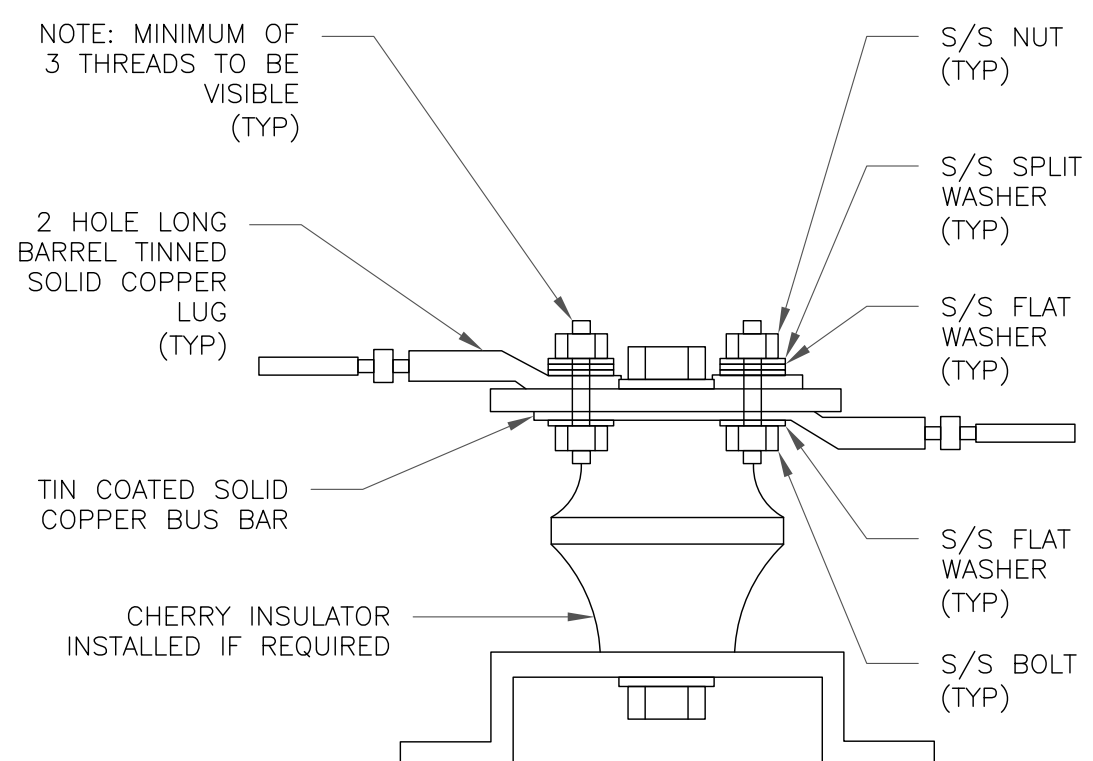
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.



NOTES:

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

6 CABLE GROUND KIT CONNECTION  
SCALE: NOT TO SCALE



7 LUG DETAIL  
SCALE: NOT TO SCALE

575 MOROSGO DRIVE  
ATLANTA, GA 30324-3300

3530 TORINGDON WAY, SUITE 300  
CHARLOTTE, NC 28277

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

AT&T  
SITE NUMBER: CTL02220

BU #: 876321  
BRANFORD BANM TOWER

150 NORTH MAIN STREET  
BRANFORD, CT 06405

EXISTING  
147'-0" MONOPOLE

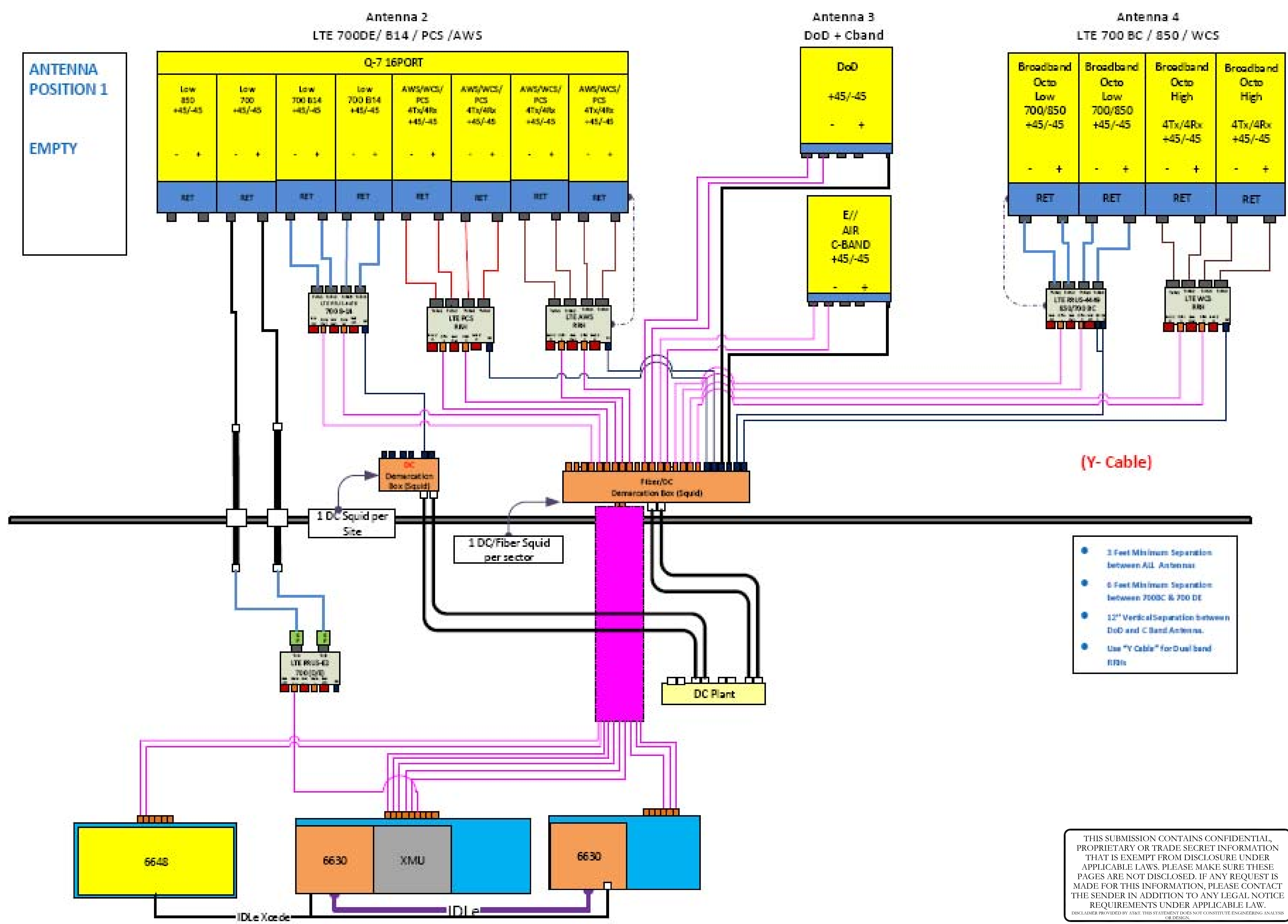
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/17/21	NA	PRELIMINARY REVIEW	YXI
0	2/18/22	TDG	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/23

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

136457.009.01\_BRFANFORD BANM TOWER.dwg - Sheet G-2 - User: m.jones - Feb 18, 2022 - 4:03pm



ANTENNA POSITION 1  
EMPTY

Antenna 2  
LTE 700DE/ B14 / PCS / AWS

Antenna 3  
DoD + Cband

Antenna 4  
LTE 700 BC / 850 / WCS

Q-7 16PORT							
Low B50 +45/-45	Low 700 +45/-45	Low 700 B14 +45/-45	Low 700 B14 +45/-45	AWS/WCS/ PCS 4Tx/4Rx +45/-45	AWS/WCS/ PCS 4Tx/4Rx +45/-45	AWS/WCS/ PCS 4Tx/4Rx +45/-45	AWS/WCS/ PCS 4Tx/4Rx +45/-45
- +	- +	- +	- +	- +	- +	- +	- +
RET	RET	RET	RET	RET	RET	RET	RET

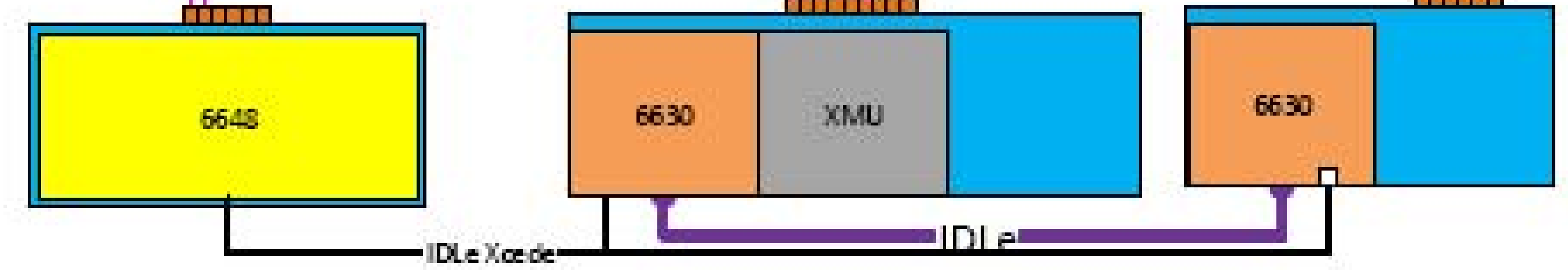
DoD +45/-45
- +

Broadband Octo Low 700/850 +45/-45	Broadband Octo Low 700/850 +45/-45	Broadband Octo High 4Tx/4Rx +45/-45	Broadband Octo High 4Tx/4Rx +45/-45
- +	- +	- +	- +
RET	RET	RET	RET

(Y-Cable)

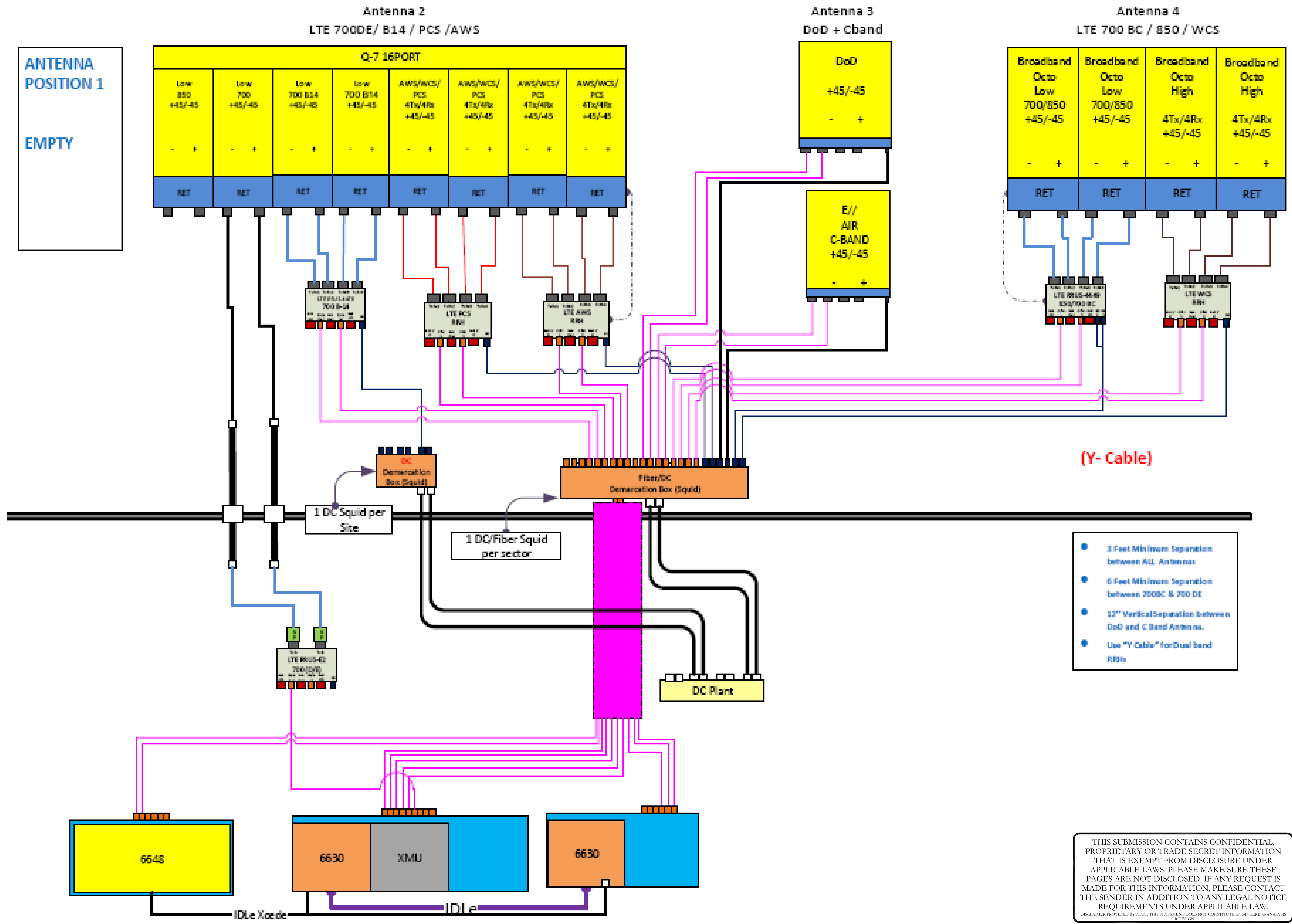
- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700C & 700 DE
- 12" Vertical Separation between DoD and C Band Antennas
- Use "Y-Cable" for Dual band RFs

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.  
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.









THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.

DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.