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

September 1, 2022

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

RE: **Notice of Exempt Modification for T-Mobile: CT11119A**
128 Mather Street, Wilton, CT 06897
Latitude: 41° 14′ 18.34″ / Longitude: -73° 25′ 26.44″

Dear Ms. Bachman:

T-Mobile currently maintains 9 (nine) antennas at the 145-foot mount on the existing 180-foot monopole tower located at 128 Mather Street, Wilton, CT. The property is owned by the Town of Wilton and tower is owned by Crown Castle. T-Mobile now intends to replace six (6) antennas, and ancillary equipment at the 145-foot 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) Ericsson – AIR6419 B41 Antennas
(3) CommScope – W-65B-R1 Antennas
(3) RFS-APXVAALL24_43-U-NA20 Antennas
(3) Ericsson- Radio 4460 B25+B66
(3) Ericsson- Radio 4480 B71+B85
(3) Hybrid Cables
Install Antenna Mounts

Remove:

(3) Ericsson-Air21 KRC118023-1_B2A_B4P Antennas
(3) Ericsson-Air32 KRD901146-1_B66A_B2A Antennas
(3) Ericsson-Radio 4449 B71+B85 RRUs
(3) Generic Twin Style 1B-AWS TMAs
Antenna Mounts
All Coax Cables
(4) Hybrid Cables

Ground:

Install New:

(1) 6160 & (1) B160 Battery Cabinet
(2) PSU4813 Voltage Booster in (P) Cabinet
(1) CSR IXRE Router in (P) Cabinet
(1) RP6651 in (P) Cabinet
Install 3' x 6' Concrete Pad

Remove:

(1) E Cabinet

The facility was approved by the Connecticut Siting Council on May 3,1988 via a Decision and Order.

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 Lynne Vanderslice, First Selectwoman, Town of Wilton, as the municipality and property owner, and Michael Wrinn, Planning Director for the Town of Wilton. 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, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Site Acquisition Specialist
1800 W. Park Drive, Suite 250
Westborough, MA 01581
(781) 970-0053
Jeff.Barbadora@crowncastle.com
Attachments
cc:

Lynne Vanderslice, First Selectwoman
Town of Wilton
238 Danbury Road
Wilton, CT 06897
203.563.0100

Michael Wrinn, Planning Director
Town Hall – Planning Department
238 Danbury Road
Wilton, CT 06897
203.563.0185

Crown Castle – Tower Owner

DOCKET NO. 94 - AN APPLICATION OF METRO MOBILE CTS OF FAIRFIELD COUNTY, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR CELLULAR TELEPHONE ANTENNAS AND ASSOCIATED EQUIPMENT IN THE TOWN OF WILTON, CONNECTICUT.	: Connecticut : Siting : Council May 3, 1988

DECISION AND ORDER

Pursuant to the foregoing opinion, the Connecticut Siting Council finds that the effects associated with the construction and operation of a cellular monopole structure at the alternative Mather Street site, including effects on the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, forests and parks, air and water purity and fish and wildlife, are not significant either alone or cumulatively with other effects, are not in conflict with the policies of the state concerning such effects, and are not sufficient reason to deny the application, and therefore, directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS) be issued to Metro Mobile CTS of Fairfield County, Inc. (Metro Mobile) for the construction, operation, and maintenance of a cellular telephone tower site and associated equipment at the "Wilton-D/AA" site on Mather Street in Wilton, Connecticut.

The proposed "D-Wilton" site on Richdale Drive and alternative "D/A Wilton" site on Quail Ridge Road are hereby denied.

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

1. The tower shall be constructed as a monopole or lattice tower, as determined by the Council in approving the development and management plan, and be no taller than necessary to provide the proposed service, and in no event shall exceed a total height of 193 feet, including antennas and associated equipment.

2. The facility shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.

3. Unless necessary to comply with condition number two, above, no lights shall be installed on this tower.

4. The Certificate Holder shall prepare a development and management (d&m) plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The d&m plan shall provide monopole and lattice tower foundation design specifications and plans for permanent evergreen screening around the outside perimeter of the eight-foot chain link fence which will surround the site.

5. The Certificate Holder shall provide the Council with the results of additional subsurface reconnaissance at the proposed site prior to the commencement of any construction at this site.

6. The Certificate Holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application are added to this facility.

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

8. If this facility does not provide, or permanently ceases to provide, cellular service following the completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

9. The Certificate Holder shall comply with any future radio frequency (RF) standards promulated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

10. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision and Order.

Pursuant to Section 16-50p, we hereby direct that a copy of the Decision and Order be served on each person listed below. A notice of issuance shall be published in the Norwalk Hour and the Wilton Bulletin.

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

The parties or intervenors to this proceeding are:

Metro Mobile CTS of Fairfield County, Inc. (Party)
50 Rockland Road
South Norwalk, CT 06854
Attn: Michael Riley

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

Fleischman and Walsh, P.C. (Representative)
1725 N. Street, N.W.
Washington, D.C. 20036
Attn: Richard Rubin, Esq.

PEACE, Inc. (Party)

Ann Caggiano (Representative)
President
PEACE, Inc.
33 Honey Hill Trail
Wilton, CT 06897

Town of Wilton (Party)

Edward C. Desmond (Representative)
First Selectman
Town of Wilton
Town Hall
238 Danbury Road
Wilton, CT 06897

Joseph C. Lee, Esq. (Its Attorney)
Alice A. Bruno, Esq.
Tyler Cooper & Alcorn
205 Church Street
P.O. Box 1936
New Haven, CT 06509

Margaret Doheny (Party)
21 Richdale Drive
Wilton, CT 06897

SNET Cellular, Inc. (Intervenor)

Donald R. Chapman, Vice President (Representative)
Operations
SNET Cellular, Inc.
555 Long Wharf Drive
New Haven, CT 06511

Peter J. Tyrrell (Its Attorney)
Senior Attorney
SNET Cellular, Inc.
227 Church Street
Room 1021
New Haven, CT 06506

Ogden Bigelow (Intervenor)
25 Hidden Lake Road
Wilton, CT 06897

John Jordon (Party)
32 Mayapple Road
Wilton, CT 06897

Veronica Tella (Party)
41 Honey Hill Trail
Wilton, CT 06897

Betsy Mitchell (Party)
125 Catalpa Road
Wilton, CT 06897
(SERVICE WAIVED)

1390E

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket 94 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 3rd day of May, 1988.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Roland Miller	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Yes
Mortimer A. Gelston	Yes
James G. Horsfall	Yes
William H. Smith	Yes
Colin C. Tait	Absent

1395E-2

Town of Wilton, CT

Property Listing Report

Map Block Lot 57-24 | Account 006518

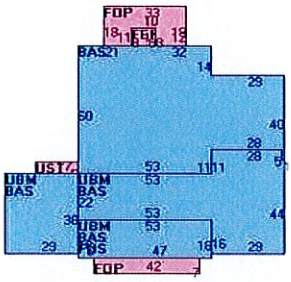
Property Information

Property Location	238 DANBURY RD
Owner	WILTON TOWN OF
Co-Owner	
Mailing Address	238 DANBURY RD WILTON CT 06897
Land Use	21 Ex Com MDL-94
Land Class	E
Zoning Code	R-2
Census Tract	
Sub Lot	

Neighborhood	6000
Acreage	11.17
Utilities	Public Water,Public Sewer
Lot Setting/Desc	Rolling
Survey Map	
Foundation	1

Photo

Sketch



Primary Construction Details

Year Built	1930
Stories	3
Building Style	City/Town Hall
Building Use	Commercial
Building Condition	Excellent
Floors	Terrazzo Monol
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Flat
Roof Cover	Rolled Compos

Exterior Walls	Brick
Interior Walls	Drywall
Heating Type	Hot Water
Heating Fuel	Oil
AC Type	Central
Gross Bldg Area	15403
Total Living Area	9792

Report Created On 9/1/2022

Town of Wilton, CT

Property Listing Report | Map Block Lot 57-24 | Account 006518

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	7362600	5153820
Extras	23800	16660
Outbuildings	129600	90720
Land	5105900	3574130
Total	12621900	8835330

Outbuilding and Extra Items

Type	Description
Vault Avg.	136 S.F.
Paving Asphaul	120000 S.F.
Vault Avg.	832 S.F.
Gas Pump	2 UNITS
Air-Cond.	4289 S.F.
Air-Cond.	1922 S.F.
Air-Cond.	1944 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Utility, Storage, Unfinished	85	0
Basement, Unfinished	4638	0
Upper Story, Finished	954	954
Open Porch	808	0
Enclosed Porch	80	0
First Floor	8838	8838
Total Area	15403	9792

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
WILTON TOWN OF	0343/0239	3/26/1980	300000
SHOFF, LOUISE E	0177/0266	6/26/1972	0

Report Created On 9/1/2022

Town of Wilton, CT

Property Listing Report | Map Block Lot 57-24 | Account 006518

Photo

Sketch

Primary Construction Details

Year Built	1989
Stories	1
Building Style	Warehouse
Building Use	Commercial
Building Condition	Average
Floors	Dirt/None
Total Rooms	
Bedrooms	
Bathrooms	
Bath Style	
Half Bath	

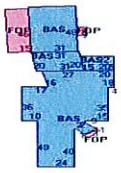
Kitchen Style	
Roof Style	Irregular
Roof Cover	Asphalt Shngl.
Exterior Walls	Concr/Cinder
Interior Walls	Minim/Masonry
Heating Type	None
Heating Fuel	None
AC Type	None
Gross Bldg Area	
Total Living Area	

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	9770	9770
Total Area		

Photo

Sketch



Primary Construction Details

Year Built	1960
Stories	1
Building Style	City/Town Hall
Building Use	Commercial
Building Condition	Average
Floors	Carpet
Total Rooms	
Bedrooms	
Bathrooms	
Bath Style	
Half Bath	

Kitchen Style	
Roof Style	Gable/Hip
Roof Cover	Asphalt Shngl.
Exterior Walls	Stucco/Masonry
Interior Walls	Drywall
Heating Type	Hot Water
Heating Fuel	Oil
AC Type	Central
Gross Bldg Area	
Total Living Area	

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Open Porch	777	0
First Floor	6505	6505
Total Area		

Report Created On 9/1/2022

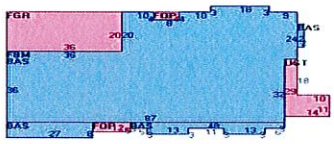
Town of Wilton, CT

Property Listing Report

Map Block Lot 57-24 | Account 006518

Photo

Sketch



Primary Construction Details

Year Built	1974
Stories	1
Building Style	Police Station
Building Use	Commercial
Building Condition	Average +20
Floors	Vinyl
Total Rooms	
Bedrooms	
Bathrooms	
Bath Style	
Half Bath	

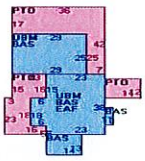
Kitchen Style	
Roof Style	Flat
Roof Cover	Rolled Compos
Exterior Walls	Brick
Interior Walls	Drywall
Heating Type	Hot Water
Heating Fuel	Oil
AC Type	Central
Gross Bldg Area	
Total Living Area	

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Garage	720	0
Open Porch	92	0
Basement,	4270	4057
First Floor	4732	4732
Utility, Storage,	226	0
Total Area		

Photo

Sketch



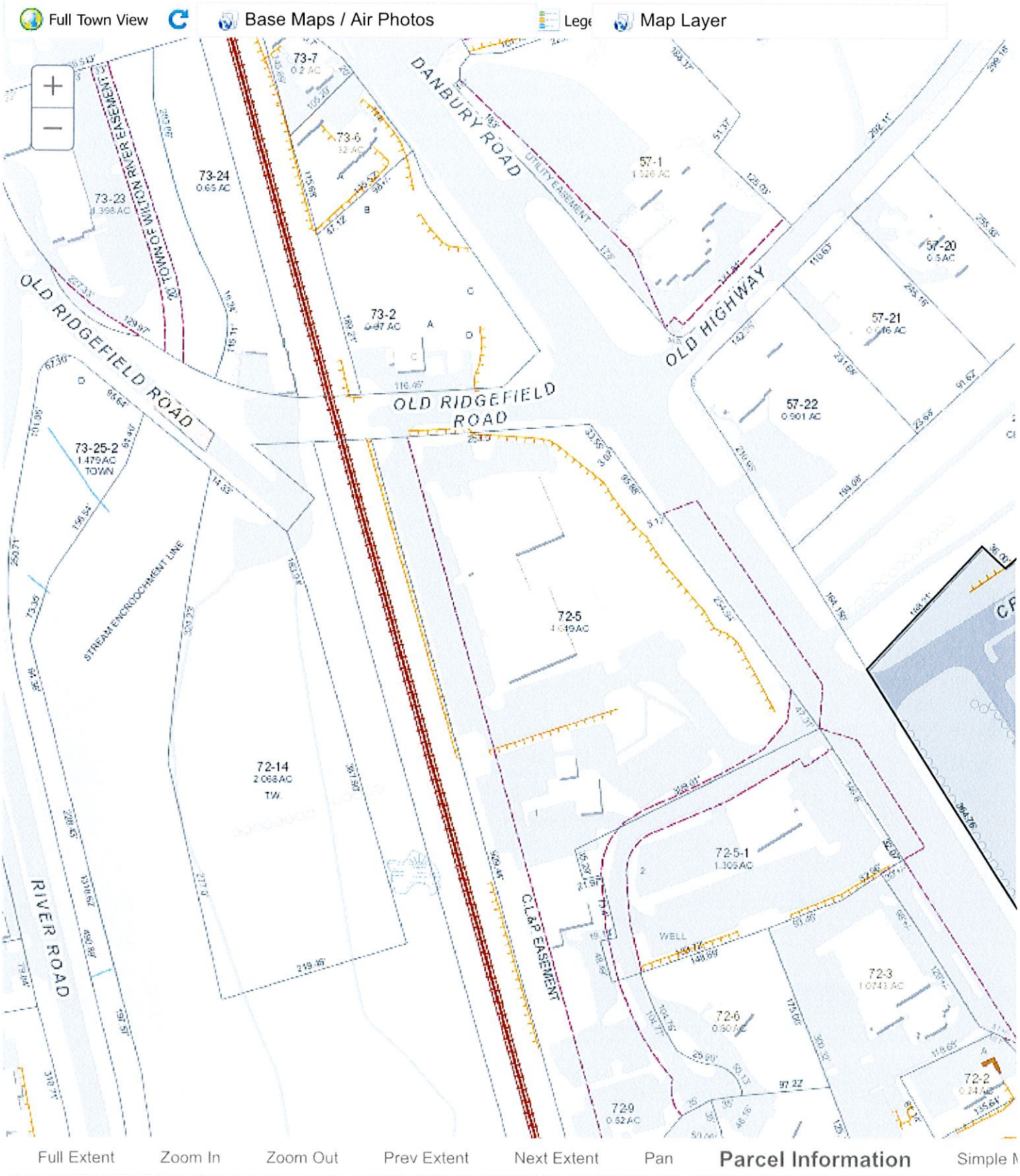
Primary Construction Details

Year Built	1933
Stories	1.25
Building Style	Res Style Comm
Building Use	Commercial
Building Condition	Average +10
Floors	Carpet
Total Rooms	
Bedrooms	
Bathrooms	
Bath Style	
Half Bath	

Kitchen Style	
Roof Style	Gable/Hip
Roof Cover	Asphalt Shngl.
Exterior Walls	Vinyl Siding
Interior Walls	Drywall
Heating Type	Forced Air
Heating Fuel	Oil
AC Type	
Gross Bldg Area	
Total Living Area	

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Patio	1410	0
Attic,	982	491
Basement,	1707	0
First Floor	1922	1922
Total Area		

Report Created On 9/1/2022



MapXpress v1.2

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, September 2, 2022 9:54 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777828870404: Your package has been delivered

Hi. Your package was delivered Fri, 09/02/2022 at 9:47am.

Delivered to 238 DANBURY RD, WILTON, CT 06897
Received by J.RODCHESTEE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777828870404

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Wilton Lynne Vanderslice, First Selectwoma 238 Danbury Road WILTON, CT, US, 06897
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 9/01/2022 05:09 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WILTON, CT, US, 06897
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, September 2, 2022 9:54 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777828936114: Your package has been delivered

Hi. Your package was delivered Fri, 09/02/2022 at 9:47am.

Delivered to 238 DANBURY RD, WILTON, CT 06897
Received by J.RODCHESTEE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777828936114

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Wilton Michael Wrinn, Planning Director 238 Danbury Road WILTON, CT, US, 06897
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 9/01/2022 05:09 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WILTON, CT, US, 06897
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

Date: **June 14, 2022**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:		
	Site Number:	CT11119A
	Site Name:	CT03XC369
Crown Castle Designation:	**BU Number:**	806353
	Site Name:	BRG 124 943066
	JDE Job Number:	719634
	Work Order Number:	2127149
	Order Number:	619924 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	102920.013.01
Site Data:	**128 Mather Street, Wilton, Fairfield County, CT** **Latitude *41° 14' 18.7"*, Longitude *-73° 25' 26.9"*** **180 Foot - Self Support Tower**	

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity – 99.3%**

This analysis utilizes an ultimate 3-second gust wind speed of 116 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: Mahsa Abdeveis

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 02/10/2023

Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 180 ft. Self-Support tower designed by FWT Inc.

The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	116 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
143.0	143.0	3	Commscope	VV-65B-R1_TMO	3	1-5/8
		3	Ericsson	AIR 6419 B41_TMO		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	Radio 4480_TMOV2		
		3	Rfs Celwave	APXVAALL24_43-U-NA20_TMO		
		3	Site Pro1	VFA12-HD Mount		
42.0	44.0	1	Gps	GPS_A	1	1/2
	42.0	1	--	Side Arm Mount [SO 305-1]		
31.0	32.0	1	Gps	GPS_A	1	1/2
	31.0	1	--	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)
178.0	184.0	1	Rfs Celwave	PD10017	2	7/8
170.0	170.0	1	--	Commscope MTC3975083 (3)	1	1-3/4
		3	Fujitsu	TA08025-B604		
		3	Fujitsu	TA08025-B605		
		3	Jma Wireless	MX08FRO665-21		
		1	Raycap	RDIDC-9181-PF-48		
164.0	166.0	1	Rfs Celwave	DB-T1-6Z-8AB-0Z	7	1-5/8
		3	Samsung Telecomm.	RFV01U-D1A		
		3	Samsung Telecomm.	RFV01U-D2A		
	164.0	1	--	Sector Mount [SM 702-3](16')		
	162.0	6	Commscope	JAHH-65B-R3B		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		6	Rfs Celwave	APL868013		
		3	Samsung Telecomm.	CBRS		
		3	Samsung Telecomm.	MT6407-77A		
154.0	158.0	3	CCI Antennas	DMP65R-BU6D	12 6 2	1-5/8 5/8 3/8
		3	CCI Antennas	OPA65R-BU6D		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 32 B30		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14		
		3	Kaelus	DBC0061F1V51-2		
		3	Powerwave Tech.	7770.00		
		6	Powerwave Tech.	LGP21401		
		3	Quintel Tech.	QS66512-2		
		3	Raycap	DC6-48-60-18-8F		
	154.0	1	--	Sector Mount [SM 1303-3]		
145.0	146.0	3	Alcatel Lucent	800 EXTERNAL NOTCH FILTER	--	--
		3	Alcatel Lucent	800MHZ 2X50W RRH		
		3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ		
124.0	131.0	2	Rfs Celwave	1142-2C	2	1/2
	124.0	2	--	Side Arm Mount [SO 303-1]		
104.0	111.0	1	Rfs Celwave	1142-2C	1 1	7/8 1/2
	108.0	1	Rfs Celwave	220-3BN		
	104.0	2	--	Side Arm Mount [SO 303-1]		
93.0	93.0	3	Ericsson	AIR 32 B2a/B66Aa	4 6	1-5/8 1-1/4
		3	Ericsson	ERICSSON AIR 21 B2A B4P		
		3	Ericsson	KRY 112 144/1		
		3	Ericsson	RADIO 4449 B12/B71		
		3	Rfs Celwave	APXVAARR24_43-U-NA20		
		1	--	Sector Mount [SM 404-3]		
62.0	65.0	1	Gps	GPS_A	1	1/2
	62.0	1	--	Side Arm Mount [SO 305-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	217757	CCI Sites
Tower Modification Drawing	3290324	CCI Sites
Tower Modification Drawing	801524	CCI Sites

Document	Reference	Source
Tower Modification Drawing	2434484	CCI Sites
Post Modification Inspection	2575710	CCI Sites
Tower Modification Drawing	6061656	CCI Sites
Post Modification Inspection	6515894	CCI Sites
Foundation Drawing	262285	CCI Sites
Geotech Report	262283	CCI Sites
Crown CAD Package	Date: 06/13/2022	CCI Sites

3.1) Analysis Method

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

3.2) Assumptions

1) The tower and structures were maintained in accordance with the - TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	180 - 168	Leg	P2x0.154	2	-3.095	29.380	10.5	Pass
T2	168 - 160	Leg	P2x0.154 (GR)	26	-12.380	40.351	30.7	Pass
T3	160 - 140	Leg	P3x0.216 (GR)	41	-53.972	91.364	59.1	Pass
T4	140 - 120	Leg	P3.5x.318 (GR)	68	-91.925	128.240	71.7	Pass
T5	120 - 100	Leg	P4x.337 (GR)	89	-124.285	165.049	75.3	Pass
T6	100 - 80	Leg	P5x0.375 (GR)	109	129.758	202.153	64.2	Pass
T7	80 - 60	Leg	P6x0.432	131	-183.411	238.435	76.9	Pass
T8	60 - 40	Leg	P6x0.432	146	-211.904	238.435	88.9	Pass
T9	40 - 20	Leg	P6x0.432	160	-239.060	266.933	89.6	Pass
T10	20 - 0	Leg	P8x.5	181	-267.000	386.074	69.2	Pass
T1	180 - 168	Diagonal	L2x1 1/2x3/16	10	-0.832	15.935	5.2	Pass
T2	168 - 160	Diagonal	L2x1 1/2x3/16	30	-3.084	15.935	19.4	Pass
T3	160 - 140	Diagonal	L2x1 1/2x3/16	46	-4.481	10.157	44.1	Pass
T4	140 - 120	Diagonal	L2x2x3/16	70	-5.011	9.511	52.7	Pass
T5	120 - 100	Diagonal	L2 1/2x2x3/16	91	-5.105	9.472	53.9	Pass
T6	100 - 80	Diagonal	L2 1/2x2 1/2x3/16	112	-5.840	10.923	53.5	Pass
T7	80 - 60	Diagonal	L3x3x3/16	133	-6.889	11.950	57.6	Pass
T8	60 - 40	Diagonal	L3 1/2x3x1/4	148	-7.276	15.837	45.9	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T9	40 - 20	Diagonal	L3 1/2x3x1/4	163	-8.343	12.837	65.0	Pass
T10	20 - 0	Diagonal	L3 1/2x3 1/2x1/4	184	-8.552	14.867	57.5	Pass
T9	40 - 20	Secondary Horizontal	L3 1/2x3 1/2x1/4	171	-4.146	23.697	17.5	Pass
T1	180 - 168	Top Girt	L2x1 1/2x3/16	6	-0.146	10.904	1.3	Pass
							Summary	
						Leg (T9)	89.6	Pass
						Diagonal (T9)	65.0	Pass
						Secondary Horizontal (T9)	17.5	Pass
						Top Girt (T1)	1.3	Pass
						Bolt Checks	87.9	Pass
						Rating =	89.6	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	59.0	Pass
1,2	Base Foundation (Structure)	Base	99.3	Pass
1,2	Base Foundation (Soil Interaction)	Base	90.0	Pass

Structure Rating (max from all components) =	99.3%

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

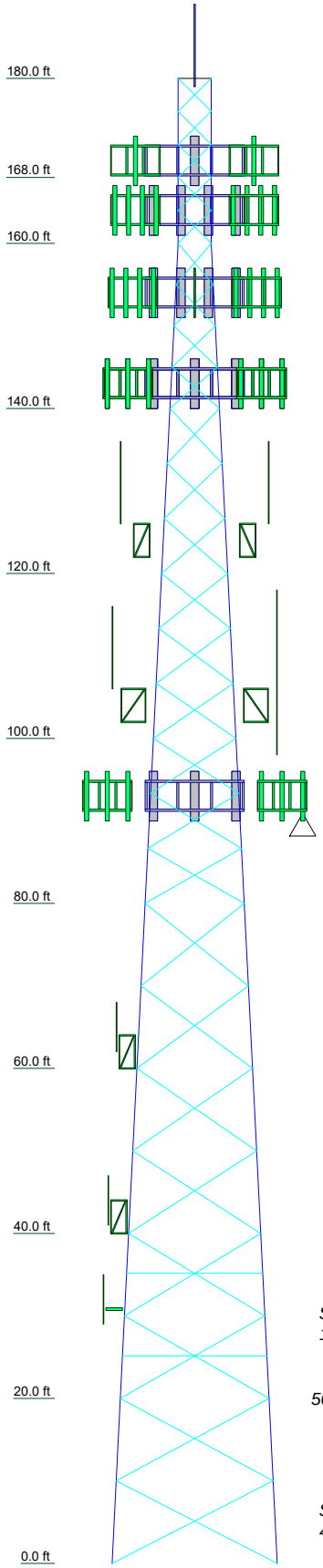
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Sec. Horizontals	Face Width (ft)	# Panels @ (ft)	Weight (K)
T1	P2x0.154		L2x1 1/2x3/16		L2x1 1/2x3/16		4	5 @ 4	0.4
T2	A								0.3
T3	P3x0.216 (GR)							4 @ 5	1.4
T4	P3.5x.318 (GR)		L2x2x3/16				6		1.9
T5	P4x.337 (GR)		L2 1/2x2x3/16			N.A.	8	9 @ 6.66667	2.4
T6	P5x0.375 (GR)	A53-B-35	L2 1/2x2 1/2x3/16	A36	N.A.		10		3.4
T7			L3x3x3/16				12		2.7
T8	P6x0.432						14		3.2
T9			L3 1/2x3x1/4			L3 1/2x3 1/2x1/4	16	8 @ 10	3.9
T10	P8x.5		L3 1/2x3 1/2x1/4			N.A.	18		4.5
							20		24.1



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P2x0.154 (GR)		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A36	36 ksi	58 ksi

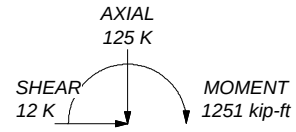
TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. Grouted pipe f'c is 7.000 ksi
9. TIA-222-H Annex S
10. TOWER RATING: 89.6%

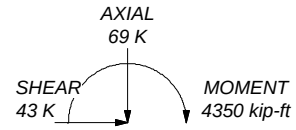
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 274 K
SHEAR: 28 K

UPLIFT: -228 K
SHEAR: 24 K



TORQUE 8 kip-ft
50 mph WIND - 1.000 in ICE



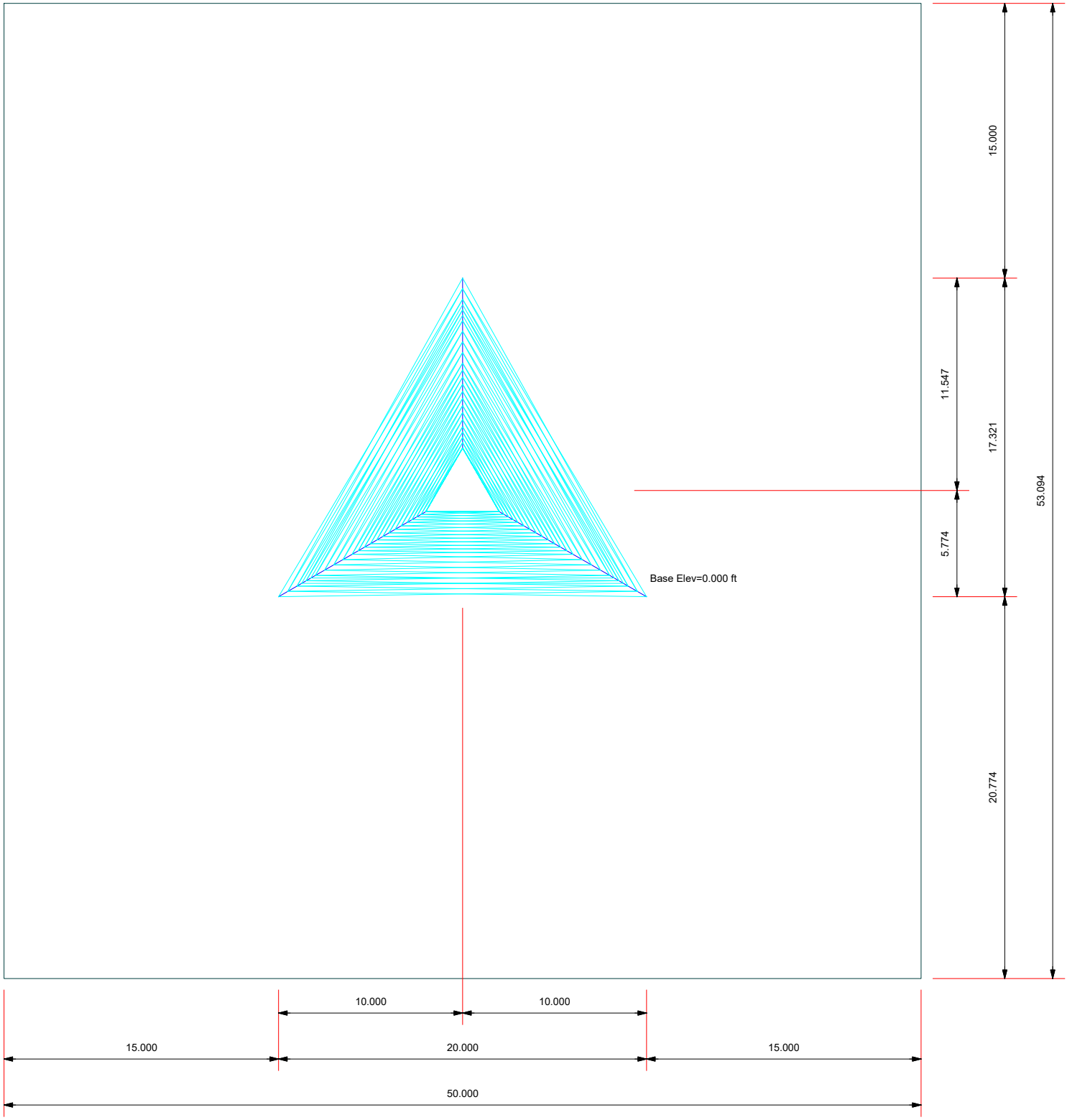
TORQUE 29 kip-ft
REACTIONS - 116 mph WIND

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

Job: 102920.013.01 - BRG 124 943066, CT (BU# 806353			
Project:			
Client: Crown Castle	Drawn by: Jayaraj B	App'd:	
Code: TIA-222-H	Date: 06/14/22	Scale: NTS	
Path:		Dwg No. E-1	

Plot Plan

Total Area - 0.06 Acres

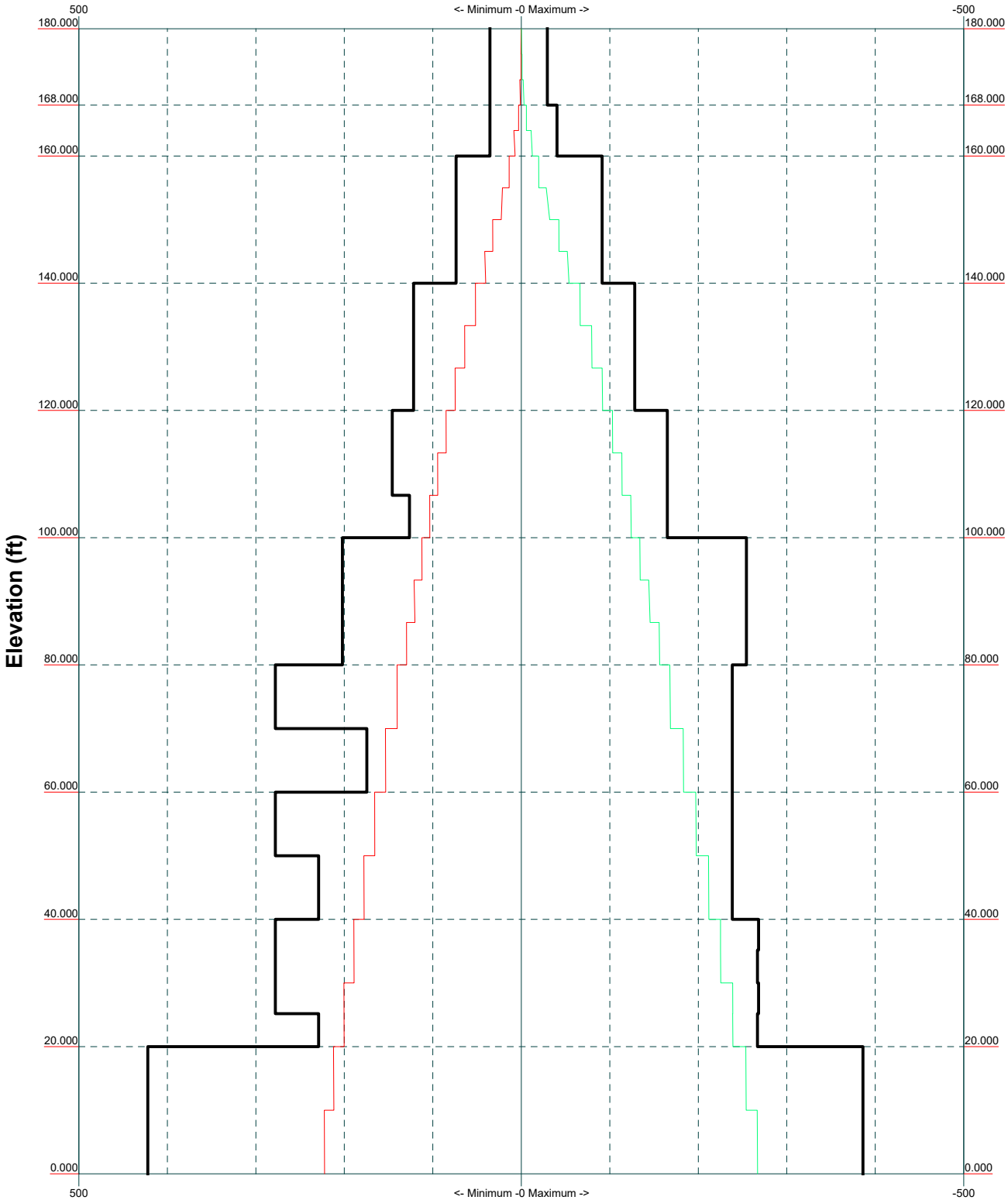


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***102920.013.01 - BRG 124 943066, CT (BU# 806353***			
Project:			
Client: Crown Castle	Drawn by: Jayaraj B	App'd:	
Code: TIA-222-H	Date: 06/14/22	Scale: NTS	
Path:		Dwg No. E-2	

TIA-222-H - 116 mph/50 mph 1.000 in Ice Exposure B

Leg Capacity ——— **Leg Compression (K)**



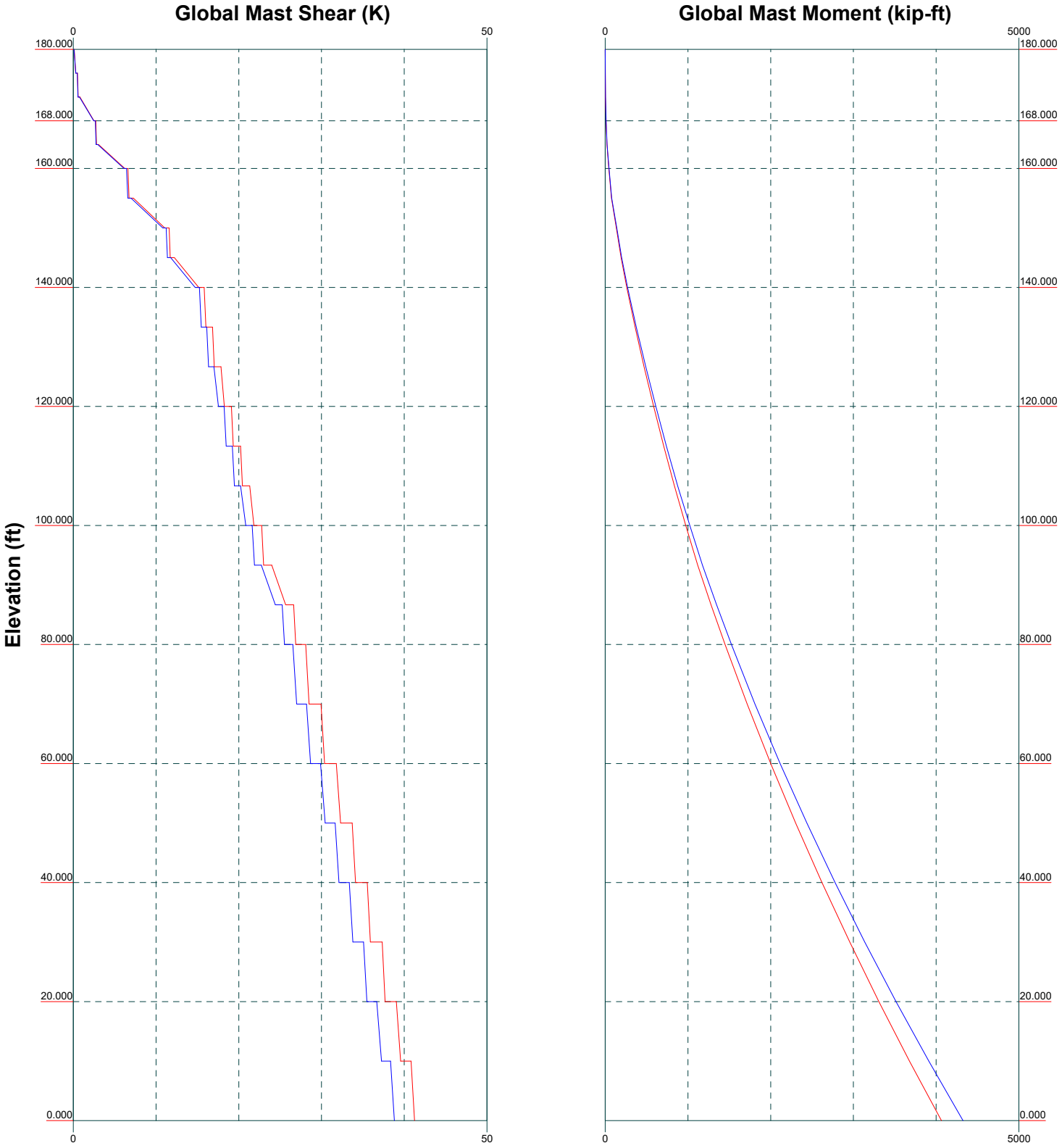
B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 102920.013.01 - BRG 124 943066, CT (BU# 806353		
Project:		
Client: Crown Castle	Drawn by: Jayaraj B	App'd:
Code: TIA-222-H	Date: 06/14/22	Scale: NTS
Path:		Dwg No. E-3

TIA-222-H - 116 mph/50 mph 1.000 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz

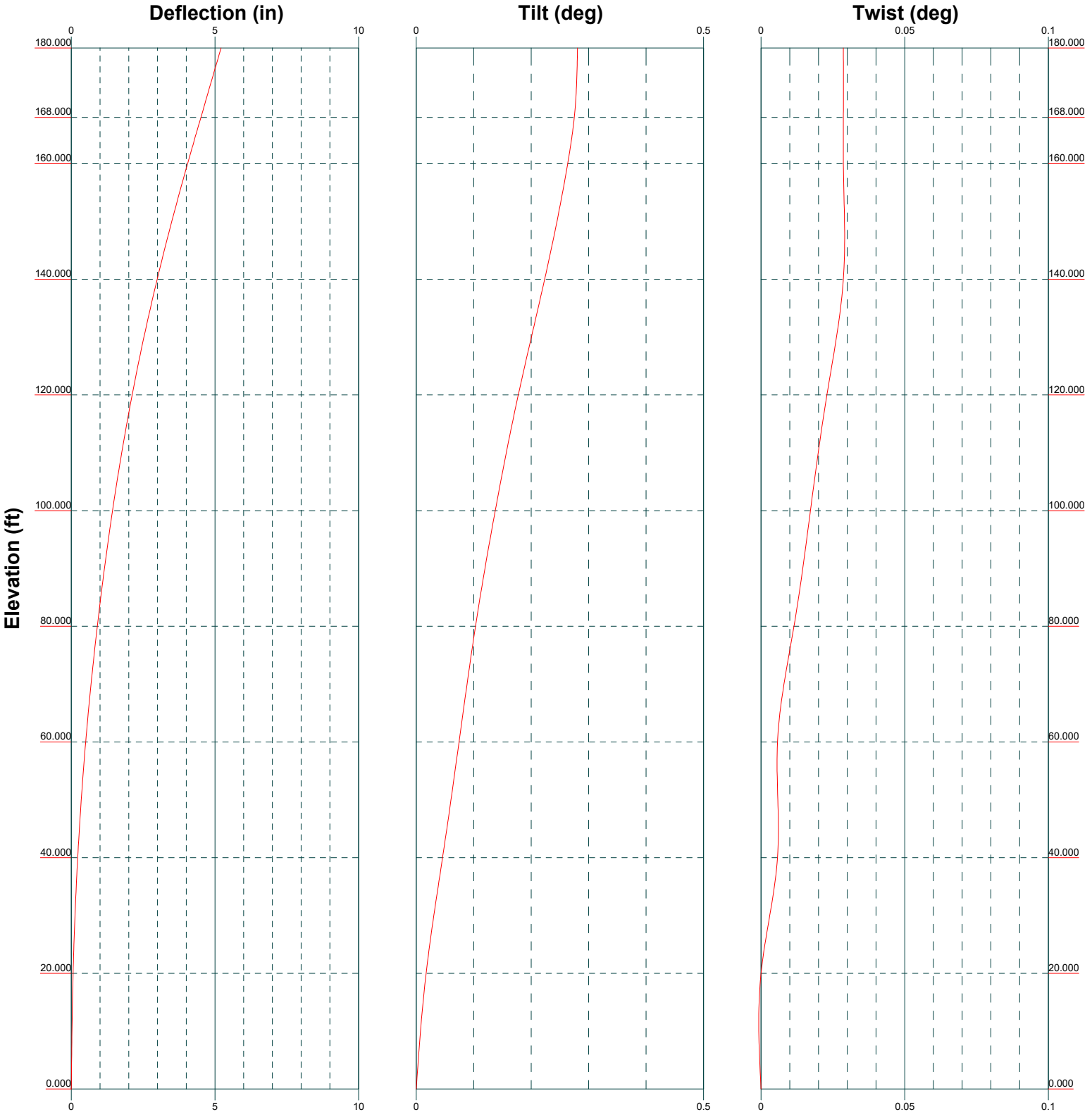


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 102920.013.01 - BRG 124 943066, CT (BU# 806353		
Project:		
Client: Crown Castle	Drawn by: Jayaraj B	App'd:
Code: TIA-222-H	Date: 06/14/22	Scale: NTS
Path:		Dwg No. E-4

TIA-222-H - Service - 60 mph

Maximum Values

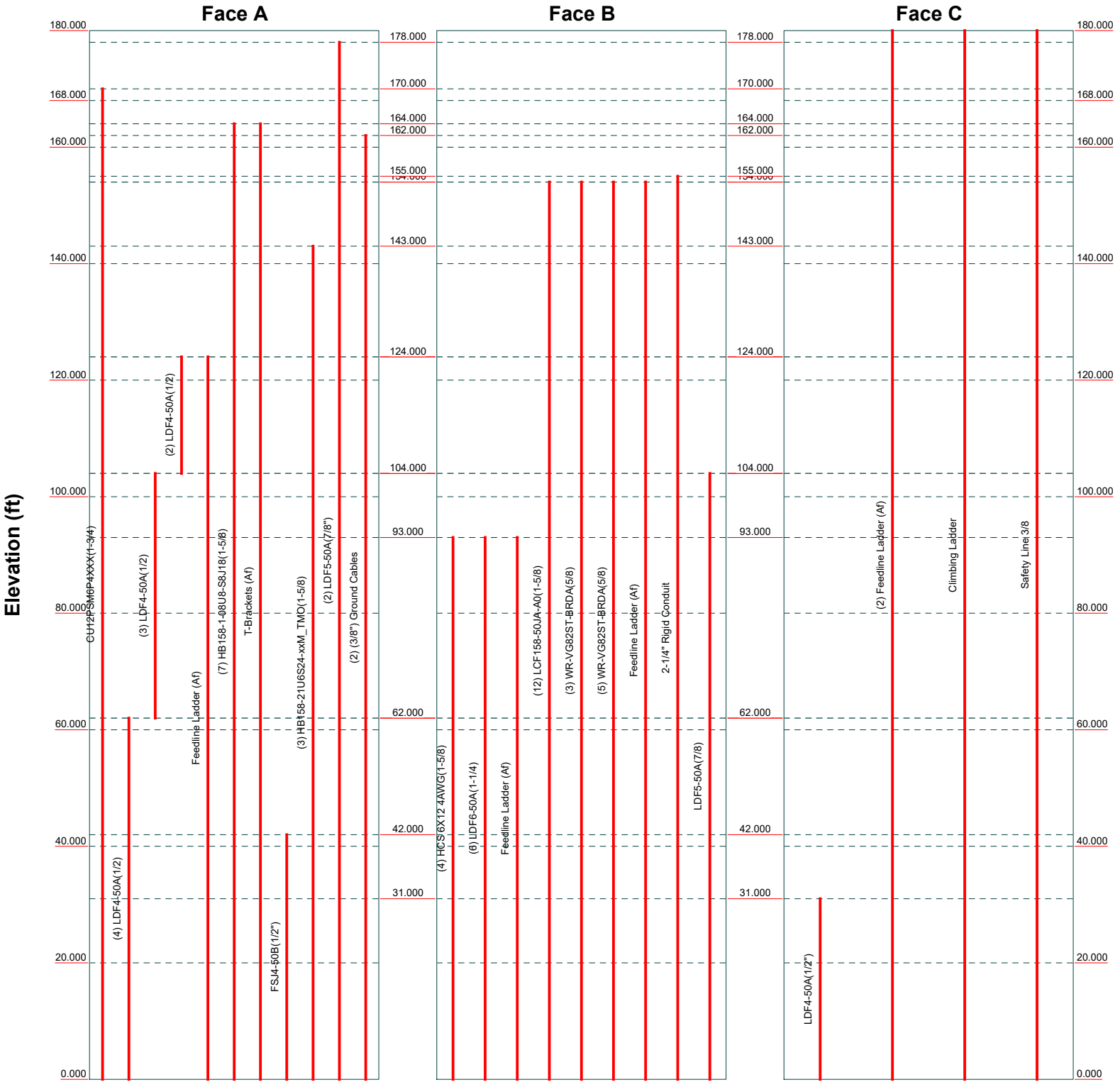


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 102920.013.01 - BRG 124 943066, CT (BU# 806353			
Project:			
Client: Crown Castle	Drawn by: Jayaraj B	App'd:	
Code: TIA-222-H	Date: 06/14/22	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 180'

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



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

Job: ***102920.013.01 - BRG 124 943066, CT (BU# 806353***		
Project:		
Client: Crown Castle	Drawn by: Jayaraj B	App'd:
Code: TIA-222-H	Date: 06/14/22	Scale: NTS
Path:		Dwg No. E-7

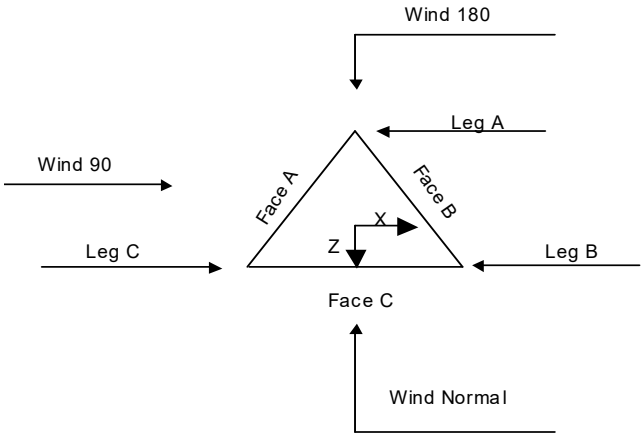
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 4.000 ft at the top and 20.000 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Tower base elevation above sea level: 427.000 ft.
Basic wind speed of 116 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
Grouted pipe f'_c is 7.000 ksi.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	180.000-168.000			4.000	1	12.000
T2	168.000-160.000			4.000	1	8.000
T3	160.000-140.000			4.000	1	20.000
T4	140.000-120.000			6.000	1	20.000
T5	120.000-100.000			8.000	1	20.000
T6	100.000-80.000			10.000	1	20.000
T7	80.000-60.000			12.000	1	20.000
T8	60.000-40.000			14.000	1	20.000
T9	40.000-20.000			16.000	1	20.000
T10	20.000-0.000			18.000	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	180.000-168.000	4.000	X Brace	No	No	0.000	0.000
T2	168.000-160.000	4.000	X Brace	No	No	0.000	0.000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T3	160.000-140.000	5.000	X Brace	No	No	0.000	0.000
T4	140.000-120.000	6.667	X Brace	No	No	0.000	0.000
T5	120.000-100.000	6.667	X Brace	No	No	0.000	0.000
T6	100.000-80.000	6.667	X Brace	No	No	0.000	0.000
T7	80.000-60.000	10.000	X Brace	No	No	0.000	0.000
T8	60.000-40.000	10.000	X Brace	No	No	0.000	0.000
T9	40.000-20.000	10.000	X Brace	No	Yes	0.000	0.000
T10	20.000-0.000	10.000	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.000-168.000	Pipe	P2x0.154	A53-B-35 (35 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T2 168.000-160.000	Grouted Pipe	P2x0.154	A53-B-35 (35 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T3 160.000-140.000	Grouted Pipe	P3x0.216	A53-B-35 (35 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T4 140.000-120.000	Grouted Pipe	P3.5x.318	A53-B-35 (35 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T5 120.000-100.000	Grouted Pipe	P4x.337	A53-B-35 (35 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T6 100.000-80.000	Grouted Pipe	P5x0.375	A53-B-35 (35 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 80.000-60.000	Pipe	P6x0.432	A53-B-35 (35 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 60.000-40.000	Pipe	P6x0.432	A53-B-35 (35 ksi)	Single Angle	L3 1/2x3x1/4	A36 (36 ksi)
T9 40.000-20.000	Pipe	P6x0.432	A53-B-35 (35 ksi)	Single Angle	L3 1/2x3x1/4	A36 (36 ksi)
T10 20.000-0.000	Pipe	P8x.5	A53-B-35 (35 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.000-168.000	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T9 40.000-20.000	Single Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 180.000-168.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 168.000-160.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T3 160.000-140.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T4 140.000-120.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T5 120.000-100.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T6 100.000-80.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T7 80.000-60.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T8 60.000-40.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T9 40.000-20.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T10 20.000-0.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 180.000-168.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 168.000-160.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3	Yes	No	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
160.000-140.000				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
140.000-120.000				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
120.000-100.000				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
100.000-80.000				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
80.000-60.000				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
60.000-40.000				1	1	1	1	1	1	1
T9	No	No	1	1	1	1	1	1	1	1
40.000-20.000				1	1	1	1	1	0.5	1
T10	Yes	No	1	1	1	1	1	1	1	1
20.000-0.000				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
180.000-168.000														
T2	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
168.000-160.000														
T3	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
160.000-140.000														
T4	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
140.000-120.000														
T5	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
120.000-100.000														
T6	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
100.000-80.000														
T7	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
80.000-60.000														
T8	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
60.000-40.000														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T9 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180.000-168.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 168.000-160.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 160.000-140.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 140.000-120.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 120.000-100.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 100.000-80.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 80.000-60.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 60.000-40.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 40.000-20.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 20.000-0.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.000-168.000	Flange	0.000 A325N	0	0.625 A325N	1	0.625 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T2 168.000-160.000	Flange	0.625 A325N	4	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0
T3 160.000-140.000	Flange	0.625 A325N	4	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0
T4 140.000-120.000	Flange	0.750 A325N	4	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0
T5 120.000-100.000	Flange	0.750 A325N	4	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0
T6 100.000-80.000	Flange	0.875 A490N	4	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0
T7 80.000-60.000	Flange	0.875 A325N	4	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0
T8 60.000-40.000	Flange	1.000 A325N	4	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0
T9 40.000-20.000	Flange	1.000 A325N	4	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.500 A325N	1
T10 20.000-0.000	Flange	1.500 A36	0	0.625 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0

Grouted Pipe Properties

Size	F_y ksi	A_s in^2	A_c in^2	Wt plf	E_c ksi	E_m ksi	F_{ym} ksi
P2x0.154 (GR)	35.000	1.075	3.356	10.647	4768.962	40914.218	53.581
P3x0.216 (GR)	35.000	2.228	7.393	22.984	4768.962	41656.327	54.738
P3.5x.318 (GR)	35.000	3.678	8.888	31.033	4768.962	38218.387	49.377
P4x.337 (GR)	35.000	4.407	11.497	38.949	4768.962	38951.934	50.521
P5x0.375 (GR)	35.000	6.112	18.194	58.701	4768.962	40356.758	52.712

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF4-50A(1/2")	C	No	No	Ar (CaAa)	31.000 - 0.000	-1.000	-0.32	1	1	0.850 0.750	0.630		0.000
Feedline Ladder (Af) *	C	No	No	Af (CaAa)	180.000 - 0.000	-1.000	-0.33	2	1	3.000	3.000		0.008
Climbing Ladder	C	No	No	Af (CaAa)	180.000 - 0.000	0.000	0.025	1	1	3.000	3.000		0.008
Safety Line 3/8 *	C	No	No	Ar (CaAa)	180.000 - 0.000	0.000	0.025	1	1	0.375	0.375		0.000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
HCS 6X12 4AWG(1-5/8)	B	No	No	Ar (CaAa)	93.000 - 0.000	0.000	0.05	4	2	0.850 0.750	1.660		0.002
LDF6-50A(1-1/4)	B	No	No	Ar (CaAa)	93.000 - 0.000	0.000	0.15	6	6	0.850 0.750	1.550		0.001
Feedline Ladder (Af) *	B	No	No	Af (CaAa)	93.000 - 0.000	0.000	0.1	1	1	3.000	3.000		0.008
LCF158-50JA-A0(1-5/8)	B	No	No	Ar (CaAa)	154.000 - 0.000	0.000	0.3	12	6	0.850 0.750	1.980		0.001
WR-VG82ST-BRDA(5/8)	B	No	No	Ar (CaAa)	154.000 - 0.000	0.000	0.365	3	2	0.500	0.645		0.000
WR-VG82ST-BRDA(5/8)	B	No	No	Ar (CaAa)	154.000 - 0.000	5.500	0.3	5	5	1.500 1.000	0.645		0.000
Feedline Ladder (Af)	B	No	No	Af (CaAa)	154.000 - 0.000	0.000	0.32	1	1	3.000	3.000		0.008
2-1/4" Rigid Conduit *	B	No	No	Ar (CaAa)	155.000 - 0.000	0.000	0.385	1	1	0.850 0.750	2.250		0.003
LDF5-50A(7/8) *	B	No	No	Ar (CaAa)	104.000 - 0.000	0.000	0.345	1	1	0.850 0.750	1.090		0.000
CU12PSM6P4XXX(1-3/4)	A	No	No	Ar (CaAa)	170.000 - 0.000	0.000	-0.09	1	1	0.850 0.750	1.750		0.003
LDF4-50A(1/2)	A	No	No	Ar (CaAa)	62.000 - 0.000	0.000	-0.1	4	2	0.500	0.630		0.000
LDF4-50A(1/2)	A	No	No	Ar (CaAa)	104.000 - 62.000	0.000	-0.1	3	2	0.500	0.630		0.000
LDF4-50A(1/2)	A	No	No	Ar (CaAa)	124.000 - 104.000	0.000	-0.1	2	2	0.500	0.630		0.000
Feedline Ladder (Af) *	A	No	No	Af (CaAa)	124.000 - 0.000	0.000	0	1	1	3.000	3.000		0.008
HB158-1-08U8-S8J18(1-5/8)	A	No	No	Ar (CaAa)	164.000 - 0.000	0.000	0.1	7	4	0.850 0.750	1.980		0.001
T-Brackets (Af) *	A	No	No	Af (CaAa)	164.000 - 0.000	0.000	0.1	1	1	1.000	1.000		0.008
FSJ4-50B(1/2") *	A	No	No	Ar (CaAa)	42.000 - 0.000	0.000	0.03	1	1	0.850 0.750	0.520		0.000
HB158-21U6S24-xxM_TMO (1-5/8) *	A	No	No	Ar (CaAa)	143.000 - 0.000	0.000	0.14	3	2	0.850 0.750	1.996		0.003
LDF5-50A(7/8") *	A	No	No	Ar (CaAa)	178.000 - 0.000	5.500	0.1	2	2	0.850 0.750	1.090		0.000
(3/8") Ground Cables * * *	A	No	No	Ar (CaAa)	162.000 - 0.000	0.000	-0.15	2	2	0.500	0.440		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
*								
*								
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	180.000-168.000	A	0.000	0.000	2.530	0.000	0.012
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	18.450	0.000	0.305
T2	168.000-160.000	A	0.000	0.000	9.531	0.000	0.097
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	12.300	0.000	0.203
T3	160.000-140.000	A	0.000	0.000	42.470	0.000	0.443
		B	0.000	0.000	50.863	0.000	0.331
		C	0.000	0.000	30.750	0.000	0.508
T4	140.000-120.000	A	0.000	0.000	55.153	0.000	0.606
		B	0.000	0.000	72.340	0.000	0.469
		C	0.000	0.000	30.750	0.000	0.508
T5	120.000-100.000	A	0.000	0.000	65.421	0.000	0.745
		B	0.000	0.000	72.776	0.000	0.470
		C	0.000	0.000	30.750	0.000	0.508
T6	100.000-80.000	A	0.000	0.000	66.429	0.000	0.748
		B	0.000	0.000	101.742	0.000	0.757
		C	0.000	0.000	30.750	0.000	0.508
T7	80.000-60.000	A	0.000	0.000	66.555	0.000	0.748
		B	0.000	0.000	116.400	0.000	0.908
		C	0.000	0.000	30.750	0.000	0.508
T8	60.000-40.000	A	0.000	0.000	67.793	0.000	0.751
		B	0.000	0.000	116.400	0.000	0.908
		C	0.000	0.000	30.750	0.000	0.508
T9	40.000-20.000	A	0.000	0.000	68.729	0.000	0.754
		B	0.000	0.000	116.400	0.000	0.908
		C	0.000	0.000	31.443	0.000	0.510
T10	20.000-0.000	A	0.000	0.000	68.729	0.000	0.754
		B	0.000	0.000	116.400	0.000	0.908
		C	0.000	0.000	32.010	0.000	0.511

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	180.000-168.000	A	1.004	0.000	0.000	8.143	0.000	0.064
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	28.086	0.000	0.547
T2	168.000-160.000	A	0.998	0.000	0.000	18.477	0.000	0.255
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	18.686	0.000	0.364

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T3	160.000-140.000	A	0.989	0.000	0.000	78.689	0.000	1.121
		B		0.000	0.000	79.352	0.000	1.113
		C		0.000	0.000	46.573	0.000	0.905
T4	140.000-120.000	A	0.975	0.000	0.000	103.572	0.000	1.468
		B		0.000	0.000	112.370	0.000	1.567
		C		0.000	0.000	46.348	0.000	0.897
T5	120.000-100.000	A	0.959	0.000	0.000	123.340	0.000	1.737
		B		0.000	0.000	113.129	0.000	1.563
		C		0.000	0.000	46.090	0.000	0.889
T6	100.000-80.000	A	0.940	0.000	0.000	123.903	0.000	1.734
		B		0.000	0.000	165.757	0.000	2.265
		C		0.000	0.000	45.785	0.000	0.880
T7	80.000-60.000	A	0.916	0.000	0.000	122.813	0.000	1.711
		B		0.000	0.000	190.696	0.000	2.594
		C		0.000	0.000	45.412	0.000	0.868
T8	60.000-40.000	A	0.886	0.000	0.000	121.855	0.000	1.695
		B		0.000	0.000	189.227	0.000	2.547
		C		0.000	0.000	44.927	0.000	0.853
T9	40.000-20.000	A	0.842	0.000	0.000	123.743	0.000	1.679
		B		0.000	0.000	187.090	0.000	2.480
		C		0.000	0.000	46.766	0.000	0.850
T10	20.000-0.000	A	0.754	0.000	0.000	119.304	0.000	1.589
		B		0.000	0.000	182.855	0.000	2.350
		C		0.000	0.000	47.097	0.000	0.819

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	180.000-168.000	0.618	4.016	0.373	3.670
T2	168.000-160.000	-1.194	1.804	-1.696	1.557
T3	160.000-140.000	3.607	1.674	3.149	1.713
T4	140.000-120.000	5.020	1.435	4.621	1.631
T5	120.000-100.000	4.433	1.304	3.824	1.504
T6	100.000-80.000	8.011	0.920	7.677	1.252
T7	80.000-60.000	10.529	0.755	10.205	1.139
T8	60.000-40.000	10.981	0.849	10.996	1.298
T9	40.000-20.000	10.437	0.909	10.680	1.391
T10	20.000-0.000	12.685	1.223	12.630	1.865

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	4	Feedline Ladder (Af)	168.00 - 180.00	0.6000	0.5970
T1	6	Climbing Ladder	168.00 - 180.00	0.6000	0.5970
T1	7	Safety Line 3/8	168.00 - 180.00	0.6000	0.5970

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	23	CU12PSM6P4XXX(1-3/4)	168.00 - 170.00	0.6000	0.5970
T1	39	LDF5-50A(7/8")	168.00 - 178.00	0.6000	0.5970
T2	4	Feedline Ladder (Af)	160.00 - 168.00	0.6000	0.6000
T2	6	Climbing Ladder	160.00 - 168.00	0.6000	0.6000
T2	7	Safety Line 3/8	160.00 - 168.00	0.6000	0.6000
T2	23	CU12PSM6P4XXX(1-3/4)	160.00 - 168.00	0.6000	0.6000
T2	30	HB158-1-08U8-S8J18(1-5/8)	160.00 - 164.00	0.6000	0.6000
T2	31	T-Brackets (Af)	160.00 - 164.00	0.6000	0.6000
T2	39	LDF5-50A(7/8")	160.00 - 168.00	0.6000	0.6000
T2	41	(3/8") Ground Cables	160.00 - 162.00	0.6000	0.6000
T3	4	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	6	Climbing Ladder	140.00 - 160.00	0.6000	0.6000
T3	7	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T3	13	LCF158-50JA-A0(1-5/8)	140.00 - 154.00	0.6000	0.6000
T3	14	WR-VG82ST-BRDA(5/8)	140.00 - 154.00	0.6000	0.6000
T3	16	WR-VG82ST-BRDA(5/8)	140.00 - 154.00	0.6000	0.6000
T3	18	Feedline Ladder (Af)	140.00 - 154.00	0.6000	0.6000
T3	19	2-1/4" Rigid Conduit	140.00 - 155.00	0.6000	0.6000
T3	23	CU12PSM6P4XXX(1-3/4)	140.00 - 160.00	0.6000	0.6000
T3	30	HB158-1-08U8-S8J18(1-5/8)	140.00 - 160.00	0.6000	0.6000
T3	31	T-Brackets (Af)	140.00 - 160.00	0.6000	0.6000
T3	36	HB158-21U6S24-xxM_TMO (1-5/8)	140.00 - 143.00	0.6000	0.6000
T3	39	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.6000
T3	41	(3/8") Ground Cables	140.00 - 160.00	0.6000	0.6000
T4	4	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	6	Climbing Ladder	120.00 - 140.00	0.6000	0.6000
T4	7	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T4	13	LCF158-50JA-A0(1-5/8)	120.00 - 140.00	0.6000	0.6000
T4	14	WR-VG82ST-BRDA(5/8)	120.00 - 140.00	0.6000	0.6000
T4	16	WR-VG82ST-BRDA(5/8)	120.00 - 140.00	0.6000	0.6000
T4	18	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	19	2-1/4" Rigid Conduit	120.00 - 140.00	0.6000	0.6000
T4	23	CU12PSM6P4XXX(1-3/4)	120.00 - 140.00	0.6000	0.6000
T4	26	LDF4-50A(1/2)	120.00 - 124.00	0.6000	0.6000
T4	27	Feedline Ladder (Af)	120.00 - 124.00	0.6000	0.6000
T4	30	HB158-1-08U8-S8J18(1-5/8)	120.00 - 140.00	0.6000	0.6000
T4	31	T-Brackets (Af)	120.00 - 140.00	0.6000	0.6000
T4	36	HB158-21U6S24-xxM_TMO (1-5/8)	120.00 - 140.00	0.6000	0.6000
T4	39	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.6000
T4	41	(3/8") Ground Cables	120.00 - 140.00	0.6000	0.6000
T5	4	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	6	Climbing Ladder	100.00 - 120.00	0.6000	0.6000
T5	7	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T5	13	LCF158-50JA-A0(1-5/8)	100.00 - 120.00	0.6000	0.6000
T5	14	WR-VG82ST-BRDA(5/8)	100.00 - 120.00	0.6000	0.6000
T5	16	WR-VG82ST-BRDA(5/8)	100.00 - 120.00	0.6000	0.6000
T5	18	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	19	2-1/4" Rigid Conduit	100.00 - 120.00	0.6000	0.6000
T5	21	LDF5-50A(7/8)	100.00 - 104.00	0.6000	0.6000
T5	23	CU12PSM6P4XXX(1-3/4)	100.00 - 120.00	0.6000	0.6000
T5	25	LDF4-50A(1/2)	100.00 - 104.00	0.6000	0.6000
T5	26	LDF4-50A(1/2)	104.00 - 120.00	0.6000	0.6000
T5	27	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	30	HB158-1-08U8-S8J18(1-5/8)	100.00 - 120.00	0.6000	0.6000
T5	31	T-Brackets (Af)	100.00 - 120.00	0.6000	0.6000
T5	36	HB158-21U6S24-xxM_TMO (1-5/8)	100.00 - 120.00	0.6000	0.6000
T5	39	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.6000
T5	41	(3/8") Ground Cables	100.00 - 120.00	0.6000	0.6000
T6	4	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	6	Climbing Ladder	80.00 - 100.00	0.6000	0.6000
T6	7	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T6	9	HCS 6X12 4AWG(1-5/8)	80.00 - 93.00	0.6000	0.6000
T6	10	LDF6-50A(1-1/4)	80.00 - 93.00	0.6000	0.6000
T6	11	Feedline Ladder (Af)	80.00 - 93.00	0.6000	0.6000
T6	13	LCF158-50JA-A0(1-5/8)	80.00 - 100.00	0.6000	0.6000
T6	14	WR-VG82ST-BRDA(5/8)	80.00 - 100.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	16	WR-VG82ST-BRDA(5/8)	80.00 - 100.00	0.6000	0.6000
T6	18	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	19	2-1/4" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T6	21	LDF5-50A(7/8)	80.00 - 100.00	0.6000	0.6000
T6	23	CU12PSM6P4XXX(1-3/4)	80.00 - 100.00	0.6000	0.6000
T6	25	LDF4-50A(1/2)	80.00 - 100.00	0.6000	0.6000
T6	27	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	30	HB158-1-08U8-S8J18(1-5/8)	80.00 - 100.00	0.6000	0.6000
T6	31	T-Brackets (Af)	80.00 - 100.00	0.6000	0.6000
T6	36	HB158-21U6S24-xxM_TMO (1-5/8)	80.00 - 100.00	0.6000	0.6000
T6	39	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.6000
T6	41	(3/8") Ground Cables	80.00 - 100.00	0.6000	0.6000
T7	4	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	6	Climbing Ladder	60.00 - 80.00	0.6000	0.6000
T7	7	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T7	9	HCS 6X12 4AWG(1-5/8)	60.00 - 80.00	0.6000	0.6000
T7	10	LDF6-50A(1-1/4)	60.00 - 80.00	0.6000	0.6000
T7	11	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	13	LCF158-50JA-A0(1-5/8)	60.00 - 80.00	0.6000	0.6000
T7	14	WR-VG82ST-BRDA(5/8)	60.00 - 80.00	0.6000	0.6000
T7	16	WR-VG82ST-BRDA(5/8)	60.00 - 80.00	0.6000	0.6000
T7	18	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	19	2-1/4" Rigid Conduit	60.00 - 80.00	0.6000	0.6000
T7	21	LDF5-50A(7/8)	60.00 - 80.00	0.6000	0.6000
T7	23	CU12PSM6P4XXX(1-3/4)	60.00 - 80.00	0.6000	0.6000
T7	24	LDF4-50A(1/2)	60.00 - 62.00	0.6000	0.6000
T7	25	LDF4-50A(1/2)	62.00 - 80.00	0.6000	0.6000
T7	27	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	30	HB158-1-08U8-S8J18(1-5/8)	60.00 - 80.00	0.6000	0.6000
T7	31	T-Brackets (Af)	60.00 - 80.00	0.6000	0.6000
T7	36	HB158-21U6S24-xxM_TMO (1-5/8)	60.00 - 80.00	0.6000	0.6000
T7	39	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T7	41	(3/8") Ground Cables	60.00 - 80.00	0.6000	0.6000
T8	4	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	6	Climbing Ladder	40.00 - 60.00	0.6000	0.6000
T8	7	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T8	9	HCS 6X12 4AWG(1-5/8)	40.00 - 60.00	0.6000	0.6000
T8	10	LDF6-50A(1-1/4)	40.00 - 60.00	0.6000	0.6000
T8	11	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	13	LCF158-50JA-A0(1-5/8)	40.00 - 60.00	0.6000	0.6000
T8	14	WR-VG82ST-BRDA(5/8)	40.00 - 60.00	0.6000	0.6000
T8	16	WR-VG82ST-BRDA(5/8)	40.00 - 60.00	0.6000	0.6000
T8	18	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	19	2-1/4" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T8	21	LDF5-50A(7/8)	40.00 - 60.00	0.6000	0.6000
T8	23	CU12PSM6P4XXX(1-3/4)	40.00 - 60.00	0.6000	0.6000
T8	24	LDF4-50A(1/2)	40.00 - 60.00	0.6000	0.6000
T8	27	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	30	HB158-1-08U8-S8J18(1-5/8)	40.00 - 60.00	0.6000	0.6000
T8	31	T-Brackets (Af)	40.00 - 60.00	0.6000	0.6000
T8	33	FSJ4-50B(1/2")	40.00 - 42.00	0.6000	0.6000
T8	36	HB158-21U6S24-xxM_TMO (1-5/8)	40.00 - 60.00	0.6000	0.6000
T8	39	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T8	41	(3/8") Ground Cables	40.00 - 60.00	0.6000	0.6000
T9	3	LDF4-50A(1/2")	20.00 - 31.00	0.6000	0.6000
T9	4	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	6	Climbing Ladder	20.00 - 40.00	0.6000	0.6000
T9	7	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T9	9	HCS 6X12 4AWG(1-5/8)	20.00 - 40.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	10	LDF6-50A(1-1/4)	20.00 - 40.00	0.6000	0.6000
T9	11	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	13	LCF158-50JA-A0(1-5/8)	20.00 - 40.00	0.6000	0.6000
T9	14	WR-VG82ST-BRDA(5/8)	20.00 - 40.00	0.6000	0.6000
T9	16	WR-VG82ST-BRDA(5/8)	20.00 - 40.00	0.6000	0.6000
T9	18	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	19	2-1/4" Rigid Conduit	20.00 - 40.00	0.6000	0.6000
T9	21	LDF5-50A(7/8)	20.00 - 40.00	0.6000	0.6000
T9	23	CU12PSM6P4XXX(1-3/4)	20.00 - 40.00	0.6000	0.6000
T9	24	LDF4-50A(1/2)	20.00 - 40.00	0.6000	0.6000
T9	27	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	30	HB158-1-08U8-S8J18(1-5/8)	20.00 - 40.00	0.6000	0.6000
T9	31	T-Brackets (Af)	20.00 - 40.00	0.6000	0.6000
T9	33	FSJ4-50B(1/2")	20.00 - 40.00	0.6000	0.6000
T9	36	HB158-21U6S24-xxM_TMO (1-5/8)	20.00 - 40.00	0.6000	0.6000
T9	39	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T9	41	(3/8") Ground Cables	20.00 - 40.00	0.6000	0.6000
T10	3	LDF4-50A(1/2")	0.00 - 20.00	0.6000	0.6000
T10	4	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	6	Climbing Ladder	0.00 - 20.00	0.6000	0.6000
T10	7	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T10	9	HCS 6X12 4AWG(1-5/8)	0.00 - 20.00	0.6000	0.6000
T10	10	LDF6-50A(1-1/4)	0.00 - 20.00	0.6000	0.6000
T10	11	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	13	LCF158-50JA-A0(1-5/8)	0.00 - 20.00	0.6000	0.6000
T10	14	WR-VG82ST-BRDA(5/8)	0.00 - 20.00	0.6000	0.6000
T10	16	WR-VG82ST-BRDA(5/8)	0.00 - 20.00	0.6000	0.6000
T10	18	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	19	2-1/4" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T10	21	LDF5-50A(7/8)	0.00 - 20.00	0.6000	0.6000
T10	23	CU12PSM6P4XXX(1-3/4)	0.00 - 20.00	0.6000	0.6000
T10	24	LDF4-50A(1/2)	0.00 - 20.00	0.6000	0.6000
T10	27	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	30	HB158-1-08U8-S8J18(1-5/8)	0.00 - 20.00	0.6000	0.6000
T10	31	T-Brackets (Af)	0.00 - 20.00	0.6000	0.6000
T10	33	FSJ4-50B(1/2")	0.00 - 20.00	0.6000	0.6000
T10	36	HB158-21U6S24-xxM_TMO (1-5/8)	0.00 - 20.00	0.6000	0.6000
T10	39	LDF5-50A(7/8")	0.00 - 20.00	0.6000	0.6000
T10	41	(3/8") Ground Cables	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
PD10017	A	From Leg	0.500 0.000 6.000	0.000	178.000	No Ice 1/2" Ice 1" Ice	4.114 5.641 7.185	4.114 5.641 7.185	0.025 0.055 0.095
*									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	2.012 2.189 2.373	1.168 1.311 1.461	0.022 0.040 0.060
(2) 12' x 2" Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	2.850 4.078 5.323	2.850 4.078 5.323	0.044 0.065 0.094
(2) 12' x 2" Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	2.850 4.078 5.323	2.850 4.078 5.323	0.044 0.065 0.094
(2) 12' x 2" Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	2.850 4.078 5.323	2.850 4.078 5.323	0.044 0.065 0.094
Commscope MTC3975083 (3) * *	C	None		0.000	170.000	No Ice 1/2" Ice 1" Ice	23.850 34.120 44.390	23.850 34.120 44.390	1.260 1.803 2.345
(2) RFV01U-D1A	A	From Leg	4.000 0.000 2.000	0.000	164.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.250 1.393 1.543	0.084 0.103 0.124
RFV01U-D1A	B	From Leg	4.000 0.000 2.000	0.000	164.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.250 1.393 1.543	0.084 0.103 0.124
RFV01U-D2A	A	From Leg	4.000 0.000 2.000	0.000	164.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.013 1.145 1.284	0.070 0.087 0.106
(2) RFV01U-D2A	B	From Leg	4.000 0.000 2.000	0.000	164.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.013 1.145 1.284	0.070 0.087 0.106
DB-T1-6Z-8AB-0Z	B	From Leg	4.000	0.000	164.000	No Ice	4.800	2.000	0.044

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	5.070	2.193	0.080
			2.000			1" Ice	5.348	2.393	0.120
(2) APL868013 w/ Mount Pipe	A	From Leg	4.000	0.000	164.000	No Ice	2.630	4.130	0.030
			0.000			1/2" Ice	3.070	4.600	0.064
			-2.000			1" Ice	3.530	5.090	0.106
(2) APL868013 w/ Mount Pipe	B	From Leg	4.000	0.000	164.000	No Ice	2.630	4.130	0.030
			0.000			1/2" Ice	3.070	4.600	0.064
			-2.000			1" Ice	3.530	5.090	0.106
(2) APL868013 w/ Mount Pipe	C	From Leg	4.000	0.000	164.000	No Ice	2.630	4.130	0.030
			0.000			1/2" Ice	3.070	4.600	0.064
			-2.000			1" Ice	3.530	5.090	0.106
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.000	0.000	164.000	No Ice	5.500	4.380	0.096
			0.000			1/2" Ice	5.970	4.840	0.169
			-2.000			1" Ice	6.450	5.300	0.254
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.000	0.000	164.000	No Ice	5.500	4.380	0.096
			0.000			1/2" Ice	5.970	4.840	0.169
			-2.000			1" Ice	6.450	5.300	0.254
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.000	0.000	164.000	No Ice	5.500	4.380	0.096
			0.000			1/2" Ice	5.970	4.840	0.169
			-2.000			1" Ice	6.450	5.300	0.254
CBRS w/ Mount Pipe	A	From Leg	4.000	0.000	164.000	No Ice	1.450	0.990	0.032
			0.000			1/2" Ice	1.670	1.180	0.048
			-2.000			1" Ice	1.900	1.390	0.068
CBRS w/ Mount Pipe	B	From Leg	4.000	0.000	164.000	No Ice	1.450	0.990	0.032
			0.000			1/2" Ice	1.670	1.180	0.048
			-2.000			1" Ice	1.900	1.390	0.068
CBRS w/ Mount Pipe	C	From Leg	4.000	0.000	164.000	No Ice	1.450	0.990	0.032
			0.000			1/2" Ice	1.670	1.180	0.048
			-2.000			1" Ice	1.900	1.390	0.068
MT6407-77A w/ Mount Pipe	A	From Leg	4.000	0.000	164.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			-2.000			1" Ice	5.615	3.624	0.180
MT6407-77A w/ Mount Pipe	B	From Leg	4.000	0.000	164.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			-2.000			1" Ice	5.615	3.624	0.180
MT6407-77A w/ Mount Pipe	C	From Leg	4.000	0.000	164.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			-2.000			1" Ice	5.615	3.624	0.180
(2) 6' x 2" Mount Pipe	A	From Leg	4.000	0.000	164.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
(2) 6' x 2" Mount Pipe	B	From Leg	4.000	0.000	164.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
(2) 6' x 2" Mount Pipe	C	From Leg	4.000	0.000	164.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
Sector Mount [SM 702-3](16')	C	None		0.000	164.000	No Ice	47.865	47.865	1.909
						1/2" Ice	62.031	62.031	2.805
						1" Ice	76.025	76.025	3.959
*									
7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	154.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			4.000			1" Ice	6.607	5.711	0.157
7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	154.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			4.000			1" Ice	6.607	5.711	0.157

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.055 0.103 0.157
QS66512-2 w/ Mount Pipe	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	4.040 4.420 4.820	4.180 4.570 4.970	0.137 0.206 0.287
QS66512-2 w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	4.040 4.420 4.820	4.180 4.570 4.970	0.137 0.206 0.287
QS66512-2 w/ Mount Pipe	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	4.040 4.420 4.820	4.180 4.570 4.970	0.137 0.206 0.287
OPA65R-BU6D w/ Mount Pipe	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	12.250 13.000 13.760	6.050 6.710 7.390	0.089 0.176 0.275
OPA65R-BU6D w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	12.250 13.000 13.760	6.050 6.710 7.390	0.089 0.176 0.275
OPA65R-BU6D w/ Mount Pipe	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	12.250 13.000 13.760	6.050 6.710 7.390	0.089 0.176 0.275
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.115 0.201 0.298
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.115 0.201 0.298
DMP65R-BU6D w/ Mount Pipe	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.115 0.201 0.298
(2) LGP21401	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.207 0.274 0.348	0.014 0.021 0.030
(2) LGP21401	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.207 0.274 0.348	0.014 0.021 0.030
(2) LGP21401	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.207 0.274 0.348	0.014 0.021 0.030
RRUS 32 B30	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.692 2.912 3.138	1.573 1.756 1.945	0.060 0.080 0.104
RRUS 32 B30	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.692 2.912 3.138	1.573 1.756 1.945	0.060 0.080 0.104
RRUS 32 B30	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.692 2.912 3.138	1.573 1.756 1.945	0.060 0.080 0.104
RRUS 32 B2	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.731 2.953 3.182	1.668 1.855 2.049	0.053 0.074 0.098
RRUS 32 B2	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.731 2.953 3.182	1.668 1.855 2.049	0.053 0.074 0.098
RRUS 32 B2	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.731 2.953 3.182	1.668 1.855 2.049	0.053 0.074 0.098

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DBC0061F1V51-2	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	0.433 0.518 0.609	0.413 0.496 0.586	0.025 0.031 0.038
DBC0061F1V51-2	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	0.433 0.518 0.609	0.413 0.496 0.586	0.025 0.031 0.038
DBC0061F1V51-2	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	0.433 0.518 0.609	0.413 0.496 0.586	0.025 0.031 0.038
RRUS 4478 B14	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.843 2.012 2.190	1.059 1.197 1.342	0.060 0.076 0.094
RRUS 4478 B14	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.843 2.012 2.190	1.059 1.197 1.342	0.060 0.076 0.094
RRUS 4478 B14	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.843 2.012 2.190	1.059 1.197 1.342	0.060 0.076 0.094
RRUS 4449 B5/B12	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.968 2.144 2.328	1.408 1.564 1.727	0.071 0.090 0.111
RRUS 4449 B5/B12	B	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.968 2.144 2.328	1.408 1.564 1.727	0.071 0.090 0.111
RRUS 4449 B5/B12	C	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.968 2.144 2.328	1.408 1.564 1.727	0.071 0.090 0.111
(3) DC6-48-60-18-8F	A	From Leg	4.000 0.000 4.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	0.850 1.356 1.532	0.850 1.356 1.532	0.019 0.036 0.055
(2) 5' x 2" Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.188 1.496 1.807	1.188 1.496 1.807	0.018 0.027 0.040
(2) 5' x 2" Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.188 1.496 1.807	1.188 1.496 1.807	0.018 0.027 0.040
(2) 5' x 2" Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	1.188 1.496 1.807	1.188 1.496 1.807	0.018 0.027 0.040
12.5' x 2.375" Horizontal Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.980 4.250 5.550	0.010 0.050 0.100	0.046 0.068 0.981
12.5' x 2.375" Horizontal Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.980 4.250 5.550	0.010 0.050 0.100	0.046 0.068 0.981
12.5' x 2.375" Horizontal Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	154.000	No Ice 1/2" Ice 1" Ice	2.980 4.250 5.550	0.010 0.050 0.100	0.046 0.068 0.981
Sector Mount [SM 1303-3]	C	None		0.000	154.000	No Ice 1/2" Ice 1" Ice	38.780 46.780 54.730	38.780 46.780 54.730	1.104 1.763 2.567
Pipe Mount [PM 601-3]	C	None		0.000	154.000	No Ice 1/2" Ice 1" Ice	3.170 3.790 4.420	3.170 3.790 4.420	0.195 0.232 0.279
*									
800 EXTERNAL NOTCH FILTER	A	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	0.660 0.763	0.321 0.398	0.011 0.017

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.000			1" Ice	0.873	0.483	0.024
800 EXTERNAL NOTCH FILTER	B	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	0.660 0.763	0.321 0.398	0.011 0.017
			1.000			1" Ice	0.873	0.483	0.024
800 EXTERNAL NOTCH FILTER	C	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	0.660 0.763	0.321 0.398	0.011 0.017
			1.000			1" Ice	0.873	0.483	0.024
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	2.322 2.527	2.238 2.441	0.060 0.083
			1.000			1" Ice	2.739	2.651	0.110
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	2.322 2.527	2.238 2.441	0.060 0.083
			1.000			1" Ice	2.739	2.651	0.110
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	2.322 2.527	2.238 2.441	0.060 0.083
			1.000			1" Ice	2.739	2.651	0.110
800MHZ 2X50W RRH	A	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	2.134 2.320	1.773 1.946	0.053 0.074
			1.000			1" Ice	2.512	2.127	0.098
800MHZ 2X50W RRH	B	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	2.134 2.320	1.773 1.946	0.053 0.074
			1.000			1" Ice	2.512	2.127	0.098
800MHZ 2X50W RRH	C	From Leg	1.000 0.000	0.000	145.000	No Ice 1/2" Ice	2.134 2.320	1.773 1.946	0.053 0.074
			1.000			1" Ice	2.512	2.127	0.098
*									
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	6.580 7.060	3.500 3.900	0.111 0.162
			0.000			1" Ice	7.570	4.320	0.220
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	6.580 7.060	3.500 3.900	0.111 0.162
			0.000			1" Ice	7.570	4.320	0.220
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	6.580 7.060	3.500 3.900	0.111 0.162
			0.000			1" Ice	7.570	4.320	0.220
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	14.690 15.460	6.870 7.550	0.183 0.311
			0.000			1" Ice	16.230	8.250	0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	14.690 15.460	6.870 7.550	0.183 0.311
			0.000			1" Ice	16.230	8.250	0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	14.690 15.460	6.870 7.550	0.183 0.311
			0.000			1" Ice	16.230	8.250	0.453
VV-65B-R1_TMO w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	8.154 8.704	5.426 6.558	0.067 0.127
			0.000			1" Ice	9.219	7.414	0.196
VV-65B-R1_TMO w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	8.154 8.704	5.426 6.558	0.067 0.127
			0.000			1" Ice	9.219	7.414	0.196
VV-65B-R1_TMO w/ Mount Pipe	C	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	8.154 8.704	5.426 6.558	0.067 0.127
			0.000			1" Ice	9.219	7.414	0.196
Radio 4480_TMOV2	A	From Leg	4.000 0.000	0.000	143.000	No Ice 1/2" Ice	2.878 3.091	1.397 1.558	0.081 0.103
			0.000			1" Ice	3.312	1.727	0.128
Radio 4480_TMOV2	B	From Leg	4.000	0.000	143.000	No Ice	2.878	1.397	0.081

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	3.091	1.558	0.103
			0.000			1" Ice	3.312	1.727	0.128
Radio 4480_TMOV2	C	From Leg	4.000	0.000	143.000	No Ice	2.878	1.397	0.081
			0.000			1/2" Ice	3.091	1.558	0.103
			0.000			1" Ice	3.312	1.727	0.128
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000	0.000	143.000	No Ice	2.139	1.686	0.109
			0.000			1/2" Ice	2.321	1.850	0.131
			0.000			1" Ice	2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000	0.000	143.000	No Ice	2.139	1.686	0.109
			0.000			1/2" Ice	2.321	1.850	0.131
			0.000			1" Ice	2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000	0.000	143.000	No Ice	2.139	1.686	0.109
			0.000			1/2" Ice	2.321	1.850	0.131
			0.000			1" Ice	2.511	2.022	0.156
10' x 2" Mount Pipe	A	From Leg	4.000	0.000	143.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
10' x 2" Mount Pipe	B	From Leg	4.000	0.000	143.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
10' x 2" Mount Pipe	C	From Leg	4.000	0.000	143.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	143.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	143.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	143.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
Site Pro1 VFA12-HD Mount	A	From Leg	2.000	0.000	143.000	No Ice	13.200	9.200	0.658
			0.000			1/2" Ice	19.500	14.600	0.804
			0.000			1" Ice	25.800	19.500	1.015
Site Pro1 VFA12-HD Mount	B	From Leg	2.000	0.000	143.000	No Ice	13.200	9.200	0.658
			0.000			1/2" Ice	19.500	14.600	0.804
			0.000			1" Ice	25.800	19.500	1.015
Site Pro1 VFA12-HD Mount	C	From Leg	2.000	0.000	143.000	No Ice	13.200	9.200	0.658
			0.000			1/2" Ice	19.500	14.600	0.804
			0.000			1" Ice	25.800	19.500	1.015
* 1142-2C	B	From Leg	6.000	0.000	124.000	No Ice	2.092	2.092	0.024
			0.000			1/2" Ice	3.374	3.374	0.041
			7.000			1" Ice	4.673	4.673	0.066
1142-2C	C	From Leg	6.000	0.000	124.000	No Ice	2.092	2.092	0.024
			0.000			1/2" Ice	3.374	3.374	0.041
			7.000			1" Ice	4.673	4.673	0.066
Side Arm Mount [SO 303-1]	B	From Leg	3.000	0.000	124.000	No Ice	1.080	5.310	0.115
			0.000			1/2" Ice	1.630	7.570	0.158
			0.000			1" Ice	2.210	9.930	0.217
Side Arm Mount [SO 303-1]	C	From Leg	3.000	0.000	124.000	No Ice	1.080	5.310	0.115
			0.000			1/2" Ice	1.630	7.570	0.158
			0.000			1" Ice	2.210	9.930	0.217
* 220-3BN	B	From Leg	6.000	0.000	104.000	No Ice	5.720	5.720	0.024
			0.000			1/2" Ice	7.831	7.831	0.066

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			4.000			1" Ice	9.959	9.959	0.120
1142-2C	C	From Leg	6.000	0.000	104.000	No Ice	2.092	2.092	0.024
			0.000			1/2" Ice	3.374	3.374	0.041
			7.000			1" Ice	4.673	4.673	0.066
Side Arm Mount [SO 303-1]	B	From Leg	3.000	0.000	104.000	No Ice	1.080	5.310	0.115
			0.000			1/2" Ice	1.630	7.570	0.158
			0.000			1" Ice	2.210	9.930	0.217
Side Arm Mount [SO 303-1]	C	From Leg	3.000	0.000	104.000	No Ice	1.080	5.310	0.115
			0.000			1/2" Ice	1.630	7.570	0.158
			0.000			1" Ice	2.210	9.930	0.217
*									
APXVAARR24_43-U-NA20	A	From Leg	4.000	0.000	93.000	No Ice	14.670	5.320	0.153
			0.000			1/2" Ice	15.430	5.990	0.266
			0.000			1" Ice	16.210	6.680	0.387
APXVAARR24_43-U-NA20	B	From Leg	4.000	0.000	93.000	No Ice	14.670	5.320	0.153
			0.000			1/2" Ice	15.430	5.990	0.266
			0.000			1" Ice	16.210	6.680	0.387
APXVAARR24_43-U-NA20	C	From Leg	4.000	0.000	93.000	No Ice	14.670	5.320	0.153
			0.000			1/2" Ice	15.430	5.990	0.266
			0.000			1" Ice	16.210	6.680	0.387
AIR 32 B2a/B66Aa	A	From Leg	4.000	0.000	93.000	No Ice	3.860	2.510	0.172
			0.000			1/2" Ice	4.230	2.860	0.220
			0.000			1" Ice	4.610	3.220	0.273
AIR 32 B2a/B66Aa	B	From Leg	4.000	0.000	93.000	No Ice	3.860	2.510	0.172
			0.000			1/2" Ice	4.230	2.860	0.220
			0.000			1" Ice	4.610	3.220	0.273
AIR 32 B2a/B66Aa	C	From Leg	4.000	0.000	93.000	No Ice	3.860	2.510	0.172
			0.000			1/2" Ice	4.230	2.860	0.220
			0.000			1" Ice	4.610	3.220	0.273
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.000	0.000	93.000	No Ice	3.140	2.590	0.112
			0.000			1/2" Ice	3.450	2.880	0.164
			0.000			1" Ice	3.770	3.190	0.225
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.000	0.000	93.000	No Ice	3.140	2.590	0.112
			0.000			1/2" Ice	3.450	2.880	0.164
			0.000			1" Ice	3.770	3.190	0.225
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.000	0.000	93.000	No Ice	3.140	2.590	0.112
			0.000			1/2" Ice	3.450	2.880	0.164
			0.000			1" Ice	3.770	3.190	0.225
KRY 112 144/1	A	From Leg	4.000	0.000	93.000	No Ice	0.350	0.175	0.011
			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
KRY 112 144/1	B	From Leg	4.000	0.000	93.000	No Ice	0.350	0.175	0.011
			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
KRY 112 144/1	C	From Leg	4.000	0.000	93.000	No Ice	0.350	0.175	0.011
			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
RADIO 4449 B12/B71	A	From Leg	4.000	0.000	93.000	No Ice	1.650	1.163	0.074
			0.000			1/2" Ice	1.810	1.301	0.090
			0.000			1" Ice	1.978	1.447	0.109
RADIO 4449 B12/B71	B	From Leg	4.000	0.000	93.000	No Ice	1.650	1.163	0.074
			0.000			1/2" Ice	1.810	1.301	0.090
			0.000			1" Ice	1.978	1.447	0.109
RADIO 4449 B12/B71	C	From Leg	4.000	0.000	93.000	No Ice	1.650	1.163	0.074
			0.000			1/2" Ice	1.810	1.301	0.090
			0.000			1" Ice	1.978	1.447	0.109
Sector Mount [SM 404-3]	C	None		0.000	93.000	No Ice	20.430	20.430	0.920

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1/2" Ice	28.680	28.680	1.311
						1" Ice	36.800	36.800	1.839
*									
GPS_A	C	From Leg	3.000	0.000	62.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			3.000			1" Ice	0.393	0.393	0.010
Side Arm Mount [SO 305-1]	C	From Leg	1.500	0.000	62.000	No Ice	0.530	1.520	0.030
			0.000			1/2" Ice	0.780	2.070	0.044
			0.000			1" Ice	1.060	2.660	0.064
*									
GPS_A	C	From Leg	3.000	0.000	42.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			2.000			1" Ice	0.393	0.393	0.010
Side Arm Mount [SO 305-1]	C	From Leg	1.500	0.000	42.000	No Ice	0.530	1.520	0.030
			0.000			1/2" Ice	0.780	2.070	0.044
			0.000			1" Ice	1.060	2.660	0.064
*									
GPS_A	C	From Leg	3.000	0.000	31.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			1.000			1" Ice	0.393	0.393	0.010
Side Arm Mount [SO 701-1]	C	From Leg	1.500	0.000	31.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
*									
(2) 3'x8" Knife Plate	A	From Leg	0.000	0.000	20.000	No Ice	2.333	0.250	0.048
			0.000			1/2" Ice	2.625	0.500	0.054
			0.000			1" Ice	2.917	0.750	0.060
(2) 3'x8" Knife Plate	B	From Leg	0.000	0.000	20.000	No Ice	2.333	0.250	0.048
			0.000			1/2" Ice	2.625	0.500	0.054
			0.000			1" Ice	2.917	0.750	0.060
(2) 3'x8" Knife Plate	C	From Leg	0.000	0.000	20.000	No Ice	2.333	0.250	0.048
			0.000			1/2" Ice	2.625	0.500	0.054
			0.000			1" Ice	2.917	0.750	0.060
(2) 3'x8" Knife Plate	A	From Leg	0.000	0.000	60.000	No Ice	2.333	0.250	0.048
			0.000			1/2" Ice	2.625	0.500	0.054
			0.000			1" Ice	2.917	0.750	0.060
(2) 3'x8" Knife Plate	B	From Leg	0.000	0.000	60.000	No Ice	2.333	0.250	0.048
			0.000			1/2" Ice	2.625	0.500	0.054
			0.000			1" Ice	2.917	0.750	0.060
(2) 3'x8" Knife Plate	C	From Leg	0.000	0.000	60.000	No Ice	2.333	0.250	0.048
			0.000			1/2" Ice	2.625	0.500	0.054
			0.000			1" Ice	2.917	0.750	0.060
*									
*									
*									

Load Combinations

Comb. No.	Description
1	Dead Only

Comb. No.	Description
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	180 - 168	Leg	Max Tension	7	1.680	-0.162	0.091
			Max. Compression	10	-3.095	-0.161	-0.103
			Max. Mx	8	-1.040	0.373	0.008
			Max. My	14	1.563	-0.001	0.376

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-0.321	0.263	0.008
			Max. Vx	14	0.312	0.027	-0.245
		Diagonal	Max Tension	13	0.723	0.000	0.000
			Max. Compression	24	-0.832	0.000	0.000
			Max. Mx	16	0.291	0.011	0.001
			Max. My	24	0.698	0.007	-0.003
			Max. Vy	34	-0.011	0.011	0.000
			Max. Vx	24	-0.001	0.005	-0.003
		Top Girt	Max Tension	18	0.188	0.000	0.000
			Max. Compression	23	-0.146	0.000	0.000
			Max. Mx	26	0.049	-0.014	0.000
			Max. Vy	26	0.014	0.000	0.000
T2	168 - 160	Leg	Max Tension	7	8.398	-0.001	0.000
			Max. Compression	10	-12.380	0.005	0.001
			Max. Mx	20	-1.284	0.263	0.008
			Max. My	14	-3.356	0.027	-0.245
			Max. Vy	20	1.027	-0.024	0.051
			Max. Vx	2	1.067	0.060	-0.090
		Diagonal	Max Tension	25	2.926	0.000	0.000
			Max. Compression	12	-3.084	0.000	0.000
			Max. Mx	8	-1.834	-0.022	0.002
			Max. My	24	2.901	0.010	-0.005
			Max. Vy	33	-0.014	0.019	0.001
			Max. Vx	24	-0.002	0.010	-0.005
T3	160 - 140	Leg	Max Tension	7	41.360	-0.466	-0.013
			Max. Compression	10	-53.972	0.447	0.002
			Max. Mx	14	36.550	0.642	0.014
			Max. My	20	-5.133	-0.018	0.741
			Max. Vy	14	-1.043	-0.540	0.009
			Max. Vx	8	0.992	-0.031	0.254
		Diagonal	Max Tension	25	4.382	0.000	0.000
			Max. Compression	24	-4.481	0.000	0.000
			Max. Mx	10	3.239	0.027	0.002
			Max. My	24	-3.998	-0.012	-0.004
			Max. Vy	31	-0.015	0.021	-0.002
			Max. Vx	24	0.001	0.000	0.000
T4	140 - 120	Leg	Max Tension	7	74.818	-0.299	-0.064
			Max. Compression	10	-91.925	0.315	-0.036
			Max. Mx	22	49.598	-0.545	-0.004
			Max. My	4	-7.593	-0.053	-0.608
			Max. Vy	22	-0.101	-0.545	-0.004
			Max. Vx	19	0.151	-0.154	0.335
		Diagonal	Max Tension	20	5.382	0.000	0.000
			Max. Compression	20	-5.412	0.000	0.000
			Max. Mx	10	4.138	0.028	-0.001
			Max. My	28	1.097	0.022	-0.003
			Max. Vy	31	-0.020	0.027	-0.003
			Max. Vx	28	0.001	0.000	0.000
T5	120 - 100	Leg	Max Tension	7	103.611	-0.358	-0.079
			Max. Compression	10	-124.285	0.460	-0.029
			Max. Mx	2	-117.932	0.465	-0.044
			Max. My	16	-11.415	0.002	0.562
			Max. Vy	3	-0.106	0.465	-0.045
			Max. Vx	19	0.186	-0.188	0.457
		Diagonal	Max Tension	20	5.047	0.000	0.000
			Max. Compression	20	-5.105	0.000	0.000
			Max. Mx	10	4.037	0.043	-0.002
			Max. My	29	0.934	0.036	-0.005
			Max. Vy	31	-0.027	0.042	-0.004
			Max. Vx	29	0.002	0.000	0.000
T6	100 - 80	Leg	Max Tension	7	129.758	-0.476	-0.014

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	10	-156.299	0.831	0.023
			Max. Mx	18	-155.330	0.841	0.055
			Max. My	4	-13.918	0.011	-0.698
			Max. Vy	22	-0.571	-0.573	-0.021
			Max. Vx	16	0.515	-0.013	0.426
		Diagonal	Max Tension	20	5.876	0.000	0.000
			Max. Compression	20	-5.885	0.000	0.000
			Max. Mx	31	1.415	0.049	0.006
			Max. My	29	-1.286	0.040	-0.007
			Max. Vy	29	0.035	0.048	-0.006
			Max. Vx	29	0.002	0.000	0.000
T7	80 - 60	Leg	Max Tension	7	153.492	-0.707	-0.043
			Max. Compression	10	-183.411	1.093	0.029
			Max. Mx	18	-182.759	1.107	0.084
			Max. My	4	-15.244	-0.092	-1.083
			Max. Vy	18	-0.123	1.107	0.084
			Max. Vx	4	0.154	-0.092	-1.083
		Diagonal	Max Tension	20	6.844	0.000	0.000
			Max. Compression	20	-6.889	0.000	0.000
			Max. Mx	31	1.590	0.086	0.011
			Max. My	34	1.606	0.082	0.012
			Max. Vy	29	0.047	0.083	-0.012
			Max. Vx	34	-0.003	0.000	0.000
T8	60 - 40	Leg	Max Tension	7	177.939	-0.943	-0.042
			Max. Compression	10	-211.904	-0.141	0.015
			Max. Mx	18	-196.976	1.107	0.084
			Max. My	4	-17.506	-0.074	-0.978
			Max. Vy	22	-0.176	-0.959	-0.029
			Max. Vx	4	0.130	-0.074	-0.978
		Diagonal	Max Tension	20	7.211	0.000	0.000
			Max. Compression	20	-7.276	0.000	0.000
			Max. Mx	10	5.634	0.134	0.010
			Max. My	34	2.000	0.124	0.017
			Max. Vy	29	0.064	0.120	0.015
			Max. Vx	34	-0.004	0.000	0.000
T9	40 - 20	Leg	Max Tension	7	200.465	1.535	-0.028
			Max. Compression	18	-239.060	-0.422	0.036
			Max. Mx	18	-225.161	3.377	-0.013
			Max. My	8	-17.685	-0.437	1.983
			Max. Vy	18	-1.191	3.308	-0.015
			Max. Vx	4	0.483	-0.453	-1.915
		Diagonal	Max Tension	21	7.517	0.103	-0.002
			Max. Compression	18	-8.343	0.000	0.000
			Max. Mx	31	0.966	0.160	-0.012
			Max. My	18	-7.878	0.012	0.016
			Max. Vy	29	0.069	0.130	-0.011
			Max. Vx	28	-0.003	0.000	0.000
		Secondary Horizontal	Max Tension	8	1.281	0.058	0.003
			Max. Compression	9	-1.063	0.051	0.020
			Max. Mx	36	0.015	0.135	0.027
			Max. My	30	0.256	0.102	0.029
			Max. Vy	36	-0.072	0.135	0.027
			Max. Vx	30	-0.005	0.000	0.000
T10	20 - 0	Leg	Max Tension	7	222.592	-1.739	-0.039
			Max. Compression	18	-267.000	0.000	-0.000
			Max. Mx	35	-106.061	4.101	-0.017
			Max. My	8	-20.531	-0.154	2.470
			Max. Vy	31	-0.729	-3.083	0.000
			Max. Vx	4	-0.345	-0.153	-2.392
		Diagonal	Max Tension	20	7.996	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	18	-8.552	0.000	0.000
			Max. Mx	29	-0.059	0.206	-0.021
			Max. My	28	3.660	0.124	-0.025
			Max. Vy	29	0.080	0.206	-0.021
			Max. Vx	28	0.004	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	273.906	24.208	-13.141
	Max. H_x	18	273.906	24.208	-13.141
	Max. H_z	7	-227.997	-20.804	11.217
	Min. Vert	7	-227.997	-20.804	11.217
	Min. H_x	7	-227.997	-20.804	11.217
	Min. H_z	18	273.906	24.208	-13.141
Leg B	Max. Vert	10	272.615	-23.225	-13.663
	Max. H_x	23	-221.780	19.770	11.651
	Max. H_z	23	-221.780	19.770	11.651
	Min. Vert	23	-221.780	19.770	11.651
	Min. H_x	10	272.615	-23.225	-13.663
	Min. H_z	10	272.615	-23.225	-13.663
Leg A	Max. Vert	2	257.567	0.545	25.482
	Max. H_x	20	23.175	2.485	1.722
	Max. H_z	2	257.567	0.545	25.482
	Min. Vert	15	-210.202	-0.494	-21.547
	Min. H_x	11	-107.770	-2.441	-11.429
	Min. H_z	15	-210.202	-0.494	-21.547

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	57.610	0.000	0.000	5.532	-23.461	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	69.132	-0.070	-39.365	-4062.063	-19.240	17.774
0.9 Dead+1.0 Wind 0 deg - No Ice	51.849	-0.070	-39.365	-4063.723	-12.201	17.774
1.2 Dead+1.0 Wind 30 deg - No Ice	69.132	19.662	-34.329	-3533.780	-2054.216	28.623
0.9 Dead+1.0 Wind 30 deg - No Ice	51.849	19.662	-34.329	-3535.440	-2047.178	28.623
1.2 Dead+1.0 Wind 60 deg - No Ice	69.132	35.627	-20.647	-2115.434	-3690.343	24.504
0.9 Dead+1.0 Wind 60 deg - No Ice	51.849	35.627	-20.647	-2117.094	-3683.305	24.504
1.2 Dead+1.0 Wind 90 deg - No Ice	69.132	41.881	0.070	15.552	-4325.250	6.056
0.9 Dead+1.0 Wind 90 deg - No Ice	51.849	41.881	0.070	13.892	-4318.212	6.056
1.2 Dead+1.0 Wind 120 deg -	69.132	36.099	21.000	2167.635	-3739.933	-7.089

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
No Ice						
0.9 Dead+1.0 Wind 120 deg - No Ice	51.849	36.099	21.000	2165.975	-3732.894	-7.089
1.2 Dead+1.0 Wind 150 deg - No Ice	69.132	18.830	32.750	3447.739	-2007.166	-8.334
0.9 Dead+1.0 Wind 150 deg - No Ice	51.849	18.830	32.750	3446.079	-2000.128	-8.334
1.2 Dead+1.0 Wind 180 deg - No Ice	69.132	0.070	37.638	3941.816	-37.066	-17.774
0.9 Dead+1.0 Wind 180 deg - No Ice	51.849	0.070	37.638	3940.156	-30.028	-17.774
1.2 Dead+1.0 Wind 210 deg - No Ice	69.132	-19.662	34.329	3547.057	1997.910	-28.623
0.9 Dead+1.0 Wind 210 deg - No Ice	51.849	-19.662	34.329	3545.398	2004.949	-28.623
1.2 Dead+1.0 Wind 240 deg - No Ice	69.132	-37.123	21.510	2195.474	3749.674	-24.504
0.9 Dead+1.0 Wind 240 deg - No Ice	51.849	-37.123	21.510	2193.815	3756.712	-24.504
1.2 Dead+1.0 Wind 270 deg - No Ice	69.132	-41.881	-0.070	-2.274	4268.945	-6.056
0.9 Dead+1.0 Wind 270 deg - No Ice	51.849	-41.881	-0.070	-3.934	4275.983	-6.056
1.2 Dead+1.0 Wind 300 deg - No Ice	69.132	-34.603	-20.136	-2087.595	3567.991	7.089
0.9 Dead+1.0 Wind 300 deg - No Ice	51.849	-34.603	-20.136	-2089.254	3575.029	7.089
1.2 Dead+1.0 Wind 330 deg - No Ice	69.132	-18.830	-32.750	-3434.461	1950.861	8.334
0.9 Dead+1.0 Wind 330 deg - No Ice	51.849	-18.830	-32.750	-3436.121	1957.899	8.334
1.2 Dead+1.0 Ice+1.0 Temp	124.503	0.000	0.000	10.655	-69.231	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	124.503	-0.016	-10.652	-1098.271	-67.358	4.588
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	124.503	5.448	-9.519	-971.920	-631.260	8.093
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	124.503	9.884	-5.735	-577.239	-1082.127	7.227
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	124.503	11.499	0.016	12.528	-1251.049	2.157
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	124.503	9.665	5.628	594.000	-1070.502	-1.283
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	124.503	5.194	9.047	962.596	-615.736	-2.117
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	124.503	0.016	10.361	1097.632	-71.104	-4.588
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	124.503	-5.448	9.519	993.230	492.798	-8.093
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	124.503	-10.136	5.881	609.524	962.675	-7.227
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	124.503	-11.499	-0.016	8.782	1112.587	-2.157
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	124.503	-9.413	-5.482	-561.715	913.031	1.283
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	124.503	-5.194	-9.047	-941.286	477.275	2.117
Dead+Wind 0 deg - Service	57.610	-0.020	-11.222	-1146.869	-20.950	5.005
Dead+Wind 30 deg - Service	57.610	5.605	-9.786	-997.213	-597.327	8.053
Dead+Wind 60 deg - Service	57.610	10.151	-5.883	-595.373	-1060.499	6.887
Dead+Wind 90 deg - Service	57.610	11.931	0.020	8.042	-1240.182	1.690
Dead+Wind 120 deg - Service	57.610	10.284	5.982	617.399	-1074.465	-2.010

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 150 deg - Service	57.610	5.371	9.341	980.308	-584.077	-2.355
Dead+Wind 180 deg - Service	57.610	0.020	10.736	1120.330	-25.971	-5.005
Dead+Wind 210 deg - Service	57.610	-5.605	9.786	1008.278	550.406	-8.053
Dead+Wind 240 deg - Service	57.610	-10.573	6.126	625.239	1046.144	-6.887
Dead+Wind 270 deg - Service	57.610	-11.931	-0.020	3.022	1193.261	-1.690
Dead+Wind 300 deg - Service	57.610	-9.863	-5.739	-587.532	994.978	2.010
Dead+Wind 330 deg - Service	57.610	-5.371	-9.341	-969.243	537.156	2.355

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-57.610	0.000	-0.000	57.610	0.000	0.000%
2	-0.070	-69.132	-39.365	0.070	69.132	39.365	0.000%
3	-0.070	-51.849	-39.365	0.070	51.849	39.365	0.000%
4	19.662	-69.132	-34.329	-19.662	69.132	34.329	0.000%
5	19.662	-51.849	-34.329	-19.662	51.849	34.329	0.000%
6	35.627	-69.132	-20.647	-35.627	69.132	20.647	0.000%
7	35.627	-51.849	-20.647	-35.627	51.849	20.647	0.000%
8	41.881	-69.132	0.070	-41.881	69.132	-0.070	0.000%
9	41.881	-51.849	0.070	-41.881	51.849	-0.070	0.000%
10	36.099	-69.132	21.000	-36.099	69.132	-21.000	0.000%
11	36.099	-51.849	21.000	-36.099	51.849	-21.000	0.000%
12	18.830	-69.132	32.750	-18.830	69.132	-32.750	0.000%
13	18.830	-51.849	32.750	-18.830	51.849	-32.750	0.000%
14	0.070	-69.132	37.638	-0.070	69.132	-37.638	0.000%
15	0.070	-51.849	37.638	-0.070	51.849	-37.638	0.000%
16	-19.662	-69.132	34.329	19.662	69.132	-34.329	0.000%
17	-19.662	-51.849	34.329	19.662	51.849	-34.329	0.000%
18	-37.123	-69.132	21.510	37.123	69.132	-21.510	0.000%
19	-37.123	-51.849	21.510	37.123	51.849	-21.510	0.000%
20	-41.881	-69.132	-0.070	41.881	69.132	0.070	0.000%
21	-41.881	-51.849	-0.070	41.881	51.849	0.070	0.000%
22	-34.603	-69.132	-20.136	34.603	69.132	20.136	0.000%
23	-34.603	-51.849	-20.136	34.603	51.849	20.136	0.000%
24	-18.830	-69.132	-32.750	18.830	69.132	32.750	0.000%
25	-18.830	-51.849	-32.750	18.830	51.849	32.750	0.000%
26	0.000	-124.503	0.000	-0.000	124.503	-0.000	0.000%
27	-0.016	-124.503	-10.652	0.016	124.503	10.652	0.000%
28	5.448	-124.503	-9.519	-5.448	124.503	9.519	0.000%
29	9.884	-124.503	-5.735	-9.884	124.503	5.735	0.000%
30	11.499	-124.503	0.016	-11.499	124.503	-0.016	0.000%
31	9.665	-124.503	5.628	-9.665	124.503	-5.628	0.000%
32	5.194	-124.503	9.047	-5.194	124.503	-9.047	0.000%
33	0.016	-124.503	10.361	-0.016	124.503	-10.361	0.000%
34	-5.448	-124.503	9.519	5.448	124.503	-9.519	0.000%
35	-10.136	-124.503	5.881	10.136	124.503	-5.881	0.000%
36	-11.499	-124.503	-0.016	11.499	124.503	0.016	0.000%
37	-9.413	-124.503	-5.482	9.413	124.503	5.482	0.000%
38	-5.194	-124.503	-9.047	5.194	124.503	9.047	0.000%
39	-0.020	-57.610	-11.222	0.020	57.610	11.222	0.000%
40	5.605	-57.610	-9.786	-5.605	57.610	9.786	0.000%
41	10.151	-57.610	-5.883	-10.151	57.610	5.883	0.000%
42	11.931	-57.610	0.020	-11.931	57.610	-0.020	0.000%
43	10.284	-57.610	5.982	-10.284	57.610	-5.982	0.000%
44	5.371	-57.610	9.341	-5.371	57.610	-9.341	0.000%
45	0.020	-57.610	10.736	-0.020	57.610	-10.736	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
46	-5.605	-57.610	9.786	5.605	57.610	-9.786	0.000%
47	-10.573	-57.610	6.126	10.573	57.610	-6.126	0.000%
48	-11.931	-57.610	-0.020	11.931	57.610	0.020	0.000%
49	-9.863	-57.610	-5.739	9.863	57.610	5.739	0.000%
50	-5.371	-57.610	-9.341	5.371	57.610	9.341	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 168	5.212	43	0.279	0.031
T2	168 - 160	4.511	43	0.276	0.031
T3	160 - 140	4.048	43	0.265	0.031
T4	140 - 120	2.989	43	0.222	0.027
T5	120 - 100	2.117	43	0.177	0.023
T6	100 - 80	1.435	43	0.135	0.018
T7	80 - 60	0.905	43	0.104	0.013
T8	60 - 40	0.501	42	0.076	0.008
T9	40 - 20	0.223	42	0.047	0.005
T10	20 - 0	0.063	47	0.019	0.003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.000	PD10017	43	5.095	0.279	0.031	932871
170.000	MX08FRO665-21 w/ Mount Pipe	43	4.627	0.278	0.031	374604
164.000	(2) RFV01U-D1A	43	4.278	0.271	0.031	66170
154.000	7770.00 w/ Mount Pipe	43	3.713	0.253	0.030	31344
145.000	800 EXTERNAL NOTCH FILTER	43	3.238	0.233	0.028	26242
143.000	AIR 6419 B41_TMO w/ Mount Pipe	43	3.137	0.229	0.028	25340
124.000	1142-2C	43	2.276	0.186	0.024	24236
104.000	220-3BN	43	1.558	0.143	0.019	30447
93.000	APXVAARR24_43-U-NA20	43	1.234	0.123	0.016	34751
62.000	GPS_A	42	0.536	0.079	0.009	37492
60.000	(2) 3'x8" Knife Plate	42	0.501	0.076	0.008	37458
42.000	GPS_A	42	0.245	0.050	0.006	41217
31.000	GPS_A	47	0.136	0.034	0.004	41028
20.000	(2) 3'x8" Knife Plate	47	0.063	0.019	0.003	41935

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 168	18.209	10	0.970	0.111

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T2	168 - 160	15.771	10	0.960	0.112
T3	160 - 140	14.162	10	0.923	0.110
T4	140 - 120	10.459	10	0.775	0.097
T5	120 - 100	7.426	19	0.620	0.081
T6	100 - 80	5.045	19	0.471	0.064
T7	80 - 60	3.187	19	0.362	0.045
T8	60 - 40	1.769	19	0.265	0.030
T9	40 - 20	0.789	19	0.165	0.019
T10	20 - 0	0.222	19	0.065	0.009

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.000	PD10017	10	17.802	0.970	0.111	364542
170.000	MX08FRO665-21 w/ Mount Pipe	10	16.177	0.965	0.112	137549
164.000	(2) RFV01U-D1A	10	14.962	0.945	0.111	20647
154.000	7770.00 w/ Mount Pipe	10	12.993	0.884	0.107	9360
145.000	800 EXTERNAL NOTCH FILTER	10	11.329	0.815	0.101	7592
143.000	AIR 6419 B41_TMO w/ Mount Pipe	10	10.976	0.799	0.099	7294
124.000	1142-2C	19	7.978	0.651	0.084	6934
104.000	220-3BN	19	5.475	0.498	0.067	8704
93.000	APXVAARR24_43-U-NA20	19	4.341	0.429	0.057	9927
62.000	GPS_A	19	1.891	0.275	0.031	10697
60.000	(2) 3'x8" Knife Plate	19	1.769	0.265	0.030	10688
42.000	GPS_A	19	0.868	0.176	0.020	11801
31.000	GPS_A	19	0.483	0.118	0.015	11743
20.000	(2) 3'x8" Knife Plate	19	0.222	0.065	0.009	11974

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Diagonal	A325N	0.625	1	0.723	7.875	0.092 ✔	1.05	Member Block Shear
		Top Girt	A325N	0.625	1	0.188	7.875	0.024 ✔	1.05	Member Block Shear
T2	168	Leg	A325N	0.625	4	1.761	20.340	0.087 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	2.926	7.875	0.372 ✔	1.05	Member Block Shear
T3	160	Leg	A325N	0.625	4	10.329	20.340	0.508 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	4.382	7.875	0.556 ✔	1.05	Member Block Shear
T4	140	Leg	A325N	0.750	4	18.705	30.101	0.621 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	5.382	7.875	0.683 ✔	1.05	Member Block Shear
T5	120	Leg	A325N	0.750	4	25.903	30.101	0.861 ✔	1.05	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	0.625	1	5.047	9.914	0.509 ✔	1.05	Member Block Shear
T6	100	Leg	A490N	0.875	4	32.440	51.945	0.624 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	5.876	9.914	0.593 ✔	1.05	Member Block Shear
T7	80	Leg	A325N	0.875	4	38.373	41.556	0.923 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	6.844	10.934	0.626 ✔	1.05	Member Block Shear
T8	60	Leg	A325N	1.000	4	44.485	54.517	0.816 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	7.276	13.806	0.527 ✔	1.05	Bolt Shear
T9	40	Leg	A325N	1.000	4	50.066	54.517	0.918 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	8.343	13.806	0.604 ✔	1.05	Bolt Shear
		Secondary Horizontal	A325N	0.500	1	4.146	8.836	0.469 ✔	1.05	Bolt Shear
T10	20	Diagonal	A325N	0.625	1	8.552	13.806	0.619 ✔	1.05	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 168	P2x0.154	12.000	4.000	61.0 K=1.00	1.075	-3.095	27.981	0.111 [1] ✔
T2	168 - 160	P2x0.154 (GR)	8.000	4.000	61.0 K=1.00	1.075	-12.380	38.430	0.322 [1] ✔
T3	160 - 140	P3x0.216 (GR)	20.033	5.008	51.7 K=1.00	2.228	-53.972	87.013	0.620 [1] ✔
T4	140 - 120	P3.5x.318 (GR)	20.033	6.678	61.3 K=1.00	3.678	-91.925	122.133	0.753 [1] ✔
T5	120 - 100	P4x.337 (GR)	20.033	6.678	54.3 K=1.00	4.407	-124.285	157.190	0.791 [1] ✔
T6	100 - 80	P5x0.375 (GR)	20.033	6.678	43.6 K=1.00	6.112	-156.299	242.300	0.645 [1] ✔
T7	80 - 60	P6x0.432	20.033	10.017	54.8 K=1.00	8.405	-183.411	227.081	0.808 [1] ✔
T8	60 - 40	P6x0.432	20.033	10.017	54.8 K=1.00	8.405	-211.904	227.081	0.933 [1] ✔
T9	40 - 20	P6x0.432	20.033	5.151	28.2 K=1.00	8.405	-239.060	254.222	0.940 [1] ✔
T10	20 - 0	P8x.5	20.033	10.017	41.8 K=1.00	12.763	-267.000	367.690	0.726 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 168	L2x1 1/2x3/16	5.657	2.543	101.1 K=1.07	0.621	-0.832	15.177	0.055 [1] ✔
T2	168 - 160	L2x1 1/2x3/16	5.657	2.543	101.1 K=1.07	0.621	-3.084	15.177	0.203 [1] ✔
T3	160 - 140	L2x1 1/2x3/16	7.621	3.637	135.6 K=1.00	0.621	-4.481	9.673	0.463 [1] ✔
T4	140 - 120	L2x2x3/16	10.162	4.935	150.3 K=1.00	0.715	-5.011	9.058	0.553 [1] ✔
T5	120 - 100	L2 1/2x2x3/16	11.744	5.701	160.2 K=1.00	0.809	-5.105	9.021	0.566 [1] ✔
T6	100 - 80	L2 1/2x2 1/2x3/16	13.438	6.498	157.5 K=1.00	0.902	-5.840	10.403	0.561 [1] ✔
T7	80 - 60	L3x3x3/16	16.803	8.223	165.6 K=1.00	1.090	-6.889	11.381	0.605 [1] ✔
T8	60 - 40	L3 1/2x3x1/4	18.448	9.047	172.1 K=1.00	1.560	-7.276	15.083	0.482 [1] ✔
T9	40 - 20	L3 1/2x3x1/4	20.158	10.049	191.1 K=1.00	1.560	-8.343	12.226	0.682 [1] ✔
T10	20 - 0	L3 1/2x3 1/2x1/4	21.916	10.690	184.8 K=1.00	1.690	-8.552	14.159	0.604 [1] ✔

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	40 - 20	L3 1/2x3 1/2x1/4	17.486	8.467	146.4 K=1.00	1.690	-4.146	22.568	0.184 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 168	L2x1 1/2x3/16	4.000	3.510	130.8 K=1.00	0.621	-0.146	10.385	0.014 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 168	P2x0.154	12.000	4.000	61.0	1.075	1.680	33.848	0.050 [1] ✔
T2	168 - 160	P2x0.154 (GR)	8.000	4.000	61.0	1.075	7.045	33.848	0.208 [1] ✔
T3	160 - 140	P3x0.216 (GR)	20.033	5.008	51.7	2.228	41.315	70.197	0.589 [1] ✔
T4	140 - 120	P3.5x.318 (GR)	20.033	6.678	61.3	3.678	74.818	115.870	0.646 [1] ✔
T5	120 - 100	P4x.337 (GR)	20.033	6.678	54.3	4.407	103.611	138.834	0.746 [1] ✔
T6	100 - 80	P5x0.375 (GR)	20.033	6.678	43.6	6.112	129.758	192.527	0.674 [1] ✔
T7	80 - 60	P6x0.432	20.033	10.017	54.8	8.405	153.492	264.756	0.580 [1] ✔
T8	60 - 40	P6x0.432	20.033	10.017	54.8	8.405	177.939	264.756	0.672 [1] ✔
T9	40 - 20	P6x0.432	20.033	4.865	26.6	8.405	200.465	264.756	0.757 [1] ✔
T10	20 - 0	P8x.5	20.033	10.017	41.8	12.763	222.592	402.026	0.554 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 168	L2x1 1/2x3/16	5.657	2.543	73.4	0.360	0.723	15.675	0.046 [1] ✔
T2	168 - 160	L2x1 1/2x3/16	5.657	2.543	73.4	0.360	2.926	15.675	0.187 [1] ✔
T3	160 - 140	L2x1 1/2x3/16	7.621	3.637	103.3	0.360	4.382	15.675	0.280 [1] ✔
T4	140 - 120	L2x2x3/16	9.197	4.474	89.9	0.431	5.382	18.739	0.287 [1] ✔
T5	120 - 100	L2 1/2x2x3/16	11.744	5.701	117.0	0.501	5.047	21.806	0.231 [1] ✔
T6	100 - 80	L2 1/2x2 1/2x3/16	13.438	6.498	102.5	0.571	5.876	24.840	0.237 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	80 - 60	L3x3x3/16	16.803	8.223	107.0	0.712	6.844	30.973	0.221 [1]
T8	60 - 40	L3 1/2x3x1/4	18.448	9.047	120.8	1.029	7.211	44.778	0.161 [1]
T9	40 - 20	L3 1/2x3x1/4	20.158	10.049	132.1	1.029	7.517	44.778	0.168 [1]
T10	20 - 0	L3 1/2x3 1/2x1/4	21.916	10.690	119.3	1.127	7.996	49.019	0.163 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	40 - 20	L3 1/2x3 1/2x1/4	17.486	8.467	186.4	1.150	4.146	50.039	0.083 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 168	L2x1 1/2x3/16	4.000	3.510	103.8	0.360	0.188	15.675	0.012 [1]

[1] P_u / ϕP_n controls

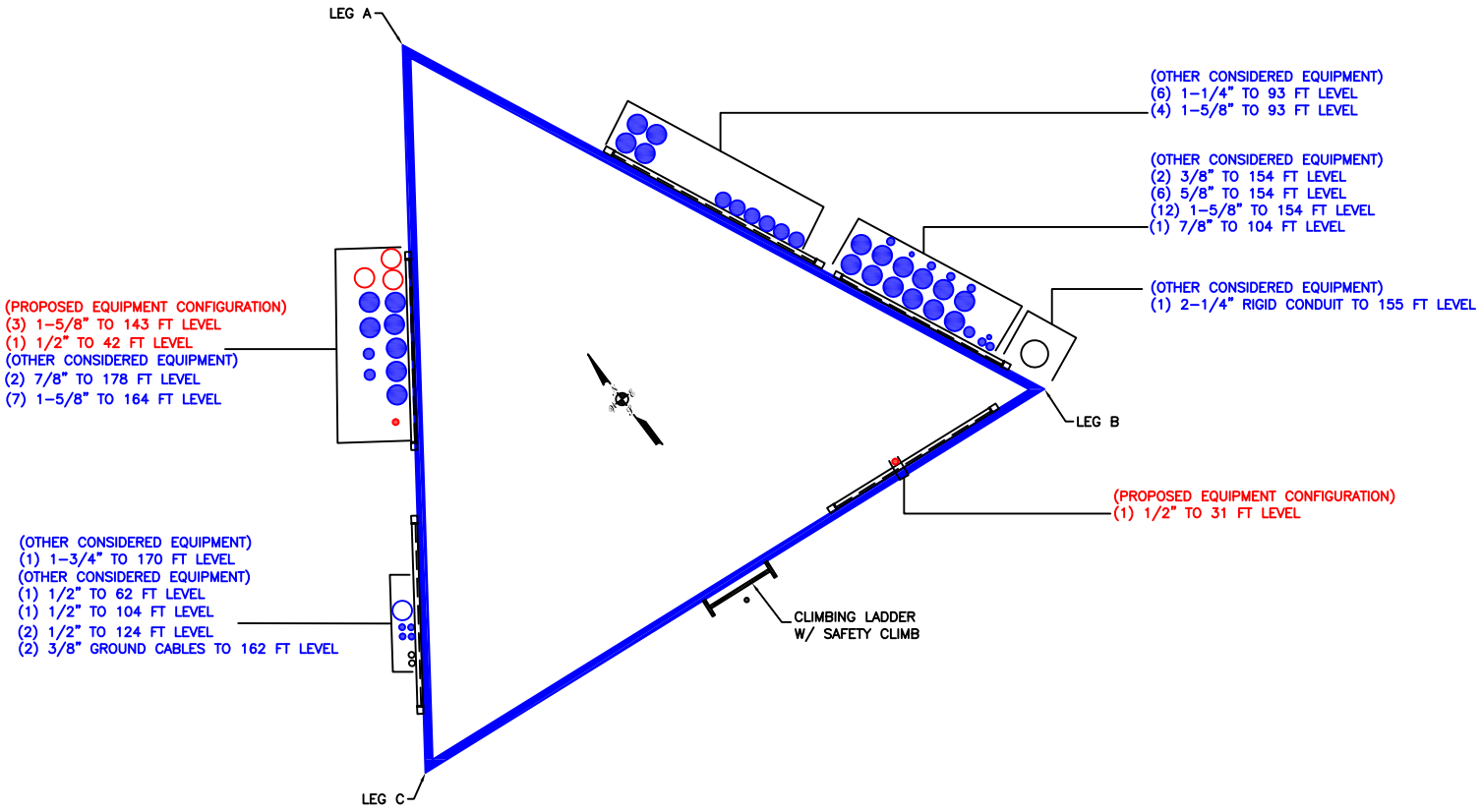
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	180 - 168	Leg	P2x0.154	2	-3.095	29.380	10.5	Pass
T2	168 - 160	Leg	P2x0.154 (GR)	26	-12.380	40.351	30.7	Pass
T3	160 - 140	Leg	P3x0.216 (GR)	41	-53.972	91.364	59.1	Pass
T4	140 - 120	Leg	P3.5x.318 (GR)	68	-91.925	128.240	71.7	Pass
T5	120 - 100	Leg	P4x.337 (GR)	89	-124.285	165.049	75.3	Pass
T6	100 - 80	Leg	P5x0.375 (GR)	109	129.758	202.153	64.2	Pass
T7	80 - 60	Leg	P6x0.432	131	-183.411	238.435	76.9	Pass
T8	60 - 40	Leg	P6x0.432	146	-211.904	238.435	88.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T9	40 - 20	Leg	P6x0.432	160	-239.060	266.933	89.6	Pass
T10	20 - 0	Leg	P8x.5	181	-267.000	386.074	69.2	Pass
T1	180 - 168	Diagonal	L2x1 1/2x3/16	10	-0.832	15.935	5.2	Pass
T2	168 - 160	Diagonal	L2x1 1/2x3/16	30	-3.084	15.935	19.4	Pass
T3	160 - 140	Diagonal	L2x1 1/2x3/16	46	-4.481	10.157	44.1	Pass
T4	140 - 120	Diagonal	L2x2x3/16	70	-5.011	9.511	52.7	Pass
T5	120 - 100	Diagonal	L2 1/2x2x3/16	91	-5.105	9.472	53.9	Pass
T6	100 - 80	Diagonal	L2 1/2x2 1/2x3/16	112	-5.840	10.923	53.5	Pass
T7	80 - 60	Diagonal	L3x3x3/16	133	-6.889	11.950	57.6	Pass
T8	60 - 40	Diagonal	L3 1/2x3x1/4	148	-7.276	15.837	45.9	Pass
T9	40 - 20	Diagonal	L3 1/2x3x1/4	163	-8.343	12.837	65.0	Pass
T10	20 - 0	Diagonal	L3 1/2x3 1/2x1/4	184	-8.552	14.867	57.5	Pass
T9	40 - 20	Secondary Horizontal	L3 1/2x3 1/2x1/4	171	-4.146	23.697	17.5	Pass
T1	180 - 168	Top Girt	L2x1 1/2x3/16	6	-0.146	10.904	1.3	Pass
							Summary	
						Leg (T9)	89.6	Pass
						Diagonal (T9)	65.0	Pass
						Secondary Horizontal (T9)	17.5	Pass
						Top Girt (T1)	1.3	Pass
						Bolt Checks	87.9	Pass
						RATING =	**89.6**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 806353

APPENDIX C

ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity

Site Info	
BU #	806353
Site Name	BRG 124 943066, CT
Order #	619924, Rev# 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	0

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	258.00	228.00
Shear Force (kips)	26.00	24.00

**TIA-222-H Section 15.5 Applied*

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

**Anchor Rod Eccentricity Applied*

Connection Properties

Anchor Rod Data

(6) 1-1/2" ø bolts (A36 N; Fy=36 ksi, Fu=58 ksi)

l_{ar} (in): 0

Analysis Results

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

Pu_t = 38	ϕPn_t = 61.34	**Stress Rating**
Vu = 4	ϕVn = 38.44	**59.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Drilled Pier Foundation

BU # :	806353
Site Name:	BRG 124 943066, CT
Order Number:	619924,Rev# 0
TIA-222 Revison:	H
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)		
Axial Force (kips)	274	228
Shear Force (kips)	28	24

Material Properties			Rebar 2, Fy Override (ksi)	Rebar 3, Fy Override (ksi)
Concrete Strength, f'c:	3	ksi		
Rebar Strength, Fy:	60	ksi		
Tie Yield Strength, Fyt:	40	ksi		

Pier Design Data		
Depth	13.2	ft
Ext. Above Grade	0.3	ft
Pier Section 1		
From 0.3' above grade to 13.2' below grade		
Pier Diameter	2.5	ft
Rebar Quantity	14	
Rebar Size	8	
Clear Cover to Ties	4	in
Tie Size	4	
Tie Spacing	16	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	7.52	7.52
Soil Safety Factor	7.47	8.71
Max Moment (kip-ft)	191.60	164.23
Rating*	*17.0%*	*14.5%*
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	191.24	191.24
End Bearing (kips)	206.28	-
Weight of Concrete (kips)	11.93	8.95
Total Capacity (kips)	397.52	267.34
Axial (kips)	375.46	228.00
Rating*	*90.0%*	*81.2%*
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.53	7.14
Critical Moment (kip-ft)	191.60	162.92
Critical Moment Capacity	505.91	354.00
Rating*	*36.1%*	*43.8%*
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	10.51	10.51
Critical Shear (kip)	64.07	54.92
Critical Shear Capacity	127.00	52.66
Rating*	*48.1%*	*99.3%*

Tie Spacing Requirements Not Met

Structural Foundation Rating*	**99.3%**
Soil Interaction Rating*	**90.0%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	N/A	# of Layers	3

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	5	5	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	5	6	1	110	150	0	30	0.000	0.000	0.77	0.77			Cohesionless
3	6	13.2	7.2	140	150	8	0	3.600	3.600	4.40	4.40	56.03		Cohesive

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 427.44 ft (NAVD 88)
Latitude: 41.238528
Longitude: -73.424139

Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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: Fri Feb 25 2022

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

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

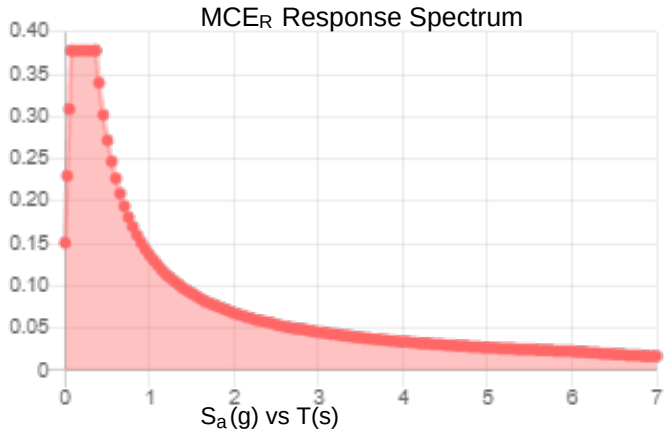
Seismic

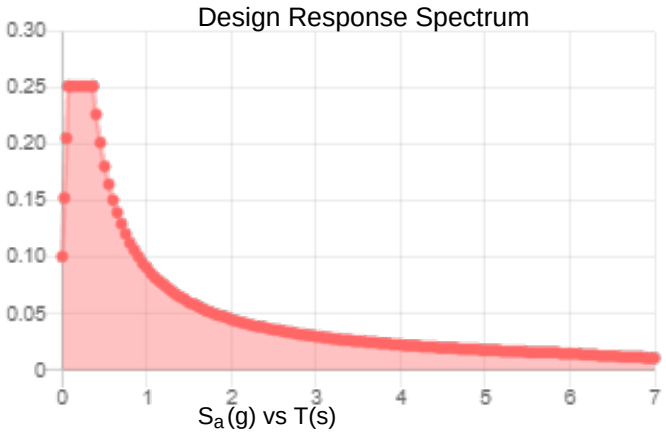
Site Soil Class: D - Stiff Soil

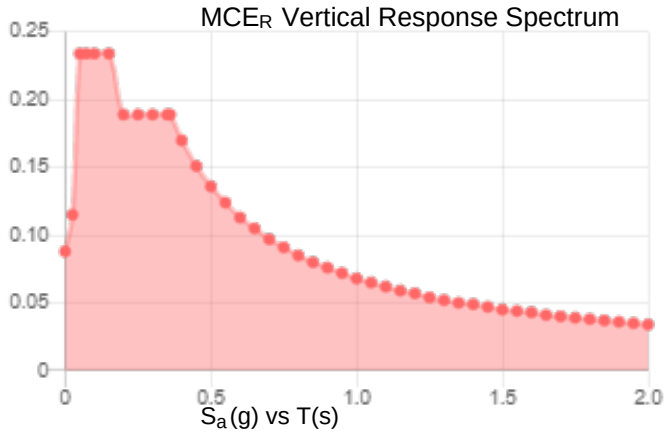
Results:

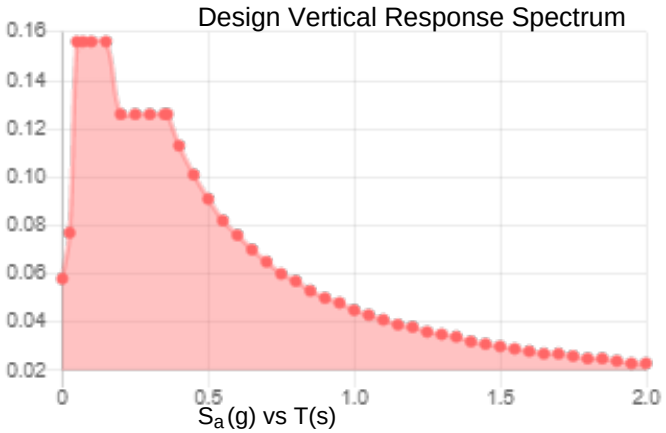
S_S :	0.236	S_{D1} :	0.091
S_1 :	0.057	T_L :	6
F_a :	1.6	PGA :	0.139
F_v :	2.4	PGA_M :	0.211
S_{MS} :	0.378	F_{PGA} :	1.523
S_{M1} :	0.136	I_e :	1
S_{DS} :	0.252	C_v :	0.773

Seismic Design Category B









Data Accessed: **Fri Feb 25 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Feb 25 2022

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

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

Date: **June 9, 2022**

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CT11119A
	Carrier Site Name:	Wilton/ Mountain Rd.& Bra
Crown Castle Designation:	**BU Number:**	806353
	Site Name:	BRG 124 943066
	JDE Job Number:	719634
	Order Number:	619924 Rev. 0
Engineering Firm Designation:	**Trylon Report Designation:**	211322
Site Data:	**128 Mather Street, Wilton, Fairfield County, CT, 06897** **Latitude 41°14'18.70" Longitude -73°25'26.90"**	
Structure Information:	**Tower Height & Type:**	**180.0 ft Self Support**
	Mount Elevation:	**143.0 ft**
	Mount Width & Type:	**12.5 ft Sector Frame**

Trylon is pleased to submit this **"Mount Replacement Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

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

Sector Frame **Sufficient***
***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Andrei Florea

Respectfully Submitted by:
Cliff Abernathy, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

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

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor at Base:	1.000
Topographic Factor at Mount:	1.000
Ice Thickness:	1.50 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.227
Seismic S_1:	0.067
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
143.0	143.0	3	COMMSCOPE	VV-65B-R1_TMO	12.5 ft Sector Frame **[Site Pro 1, VFA12-HD]**
		3	ERICSSON	AIR 6419 B41_TMO	
		3	RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	
		3	ERICSSON	RADIO 4480_TMOV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	619924 Rev.0	CCI Sites
Structural Analysis Report	B+T Group	10222224	CCI Sites
Mount Manufacturer Drawings	Site Pro 1	VFA12-HD	Trylon

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

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

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

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Sector Frame, Worst Case Sector)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2,3,4	Mount Pipe(s)	MP1	143.0	45.2	Pass
	Horizontal(s)	H1		27.1	Pass
	Standoff(s)	M21		20.8	Pass
	Bracing(s)	M3		8.1	Pass
	Plate(s)	M16		50.9	Pass
	Tieback(s)	M54A		8.2	Pass
	Mount Connection(s)	-		28.5	Pass

Structure Rating (max from all components) =	50.9%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D – Additional Calculations" for detailed mount connection calculations.
3) All sectors are typical
4) Rating per TIA-222-H, Section 15.5

Table 4 - Tieback Connection Data Table

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type	Connected Member Size	Member Compressive Capacity (lb)[3]	Notes
N75A	Proposed	837.4	Leg	P3x0.216 (GR)	4,568.2	1
N76	Proposed	805.7	Leg	P3x0.216 (GR)	4,568.2	1

Notes:

1) Tieback connection point is within 25% of either end of the connected tower member
2) Tieback connection point is NOT within 25% of either end of the connected tower member
3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

4.1) Recommendations

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

1. Site Pro 1, VFA12-HD.

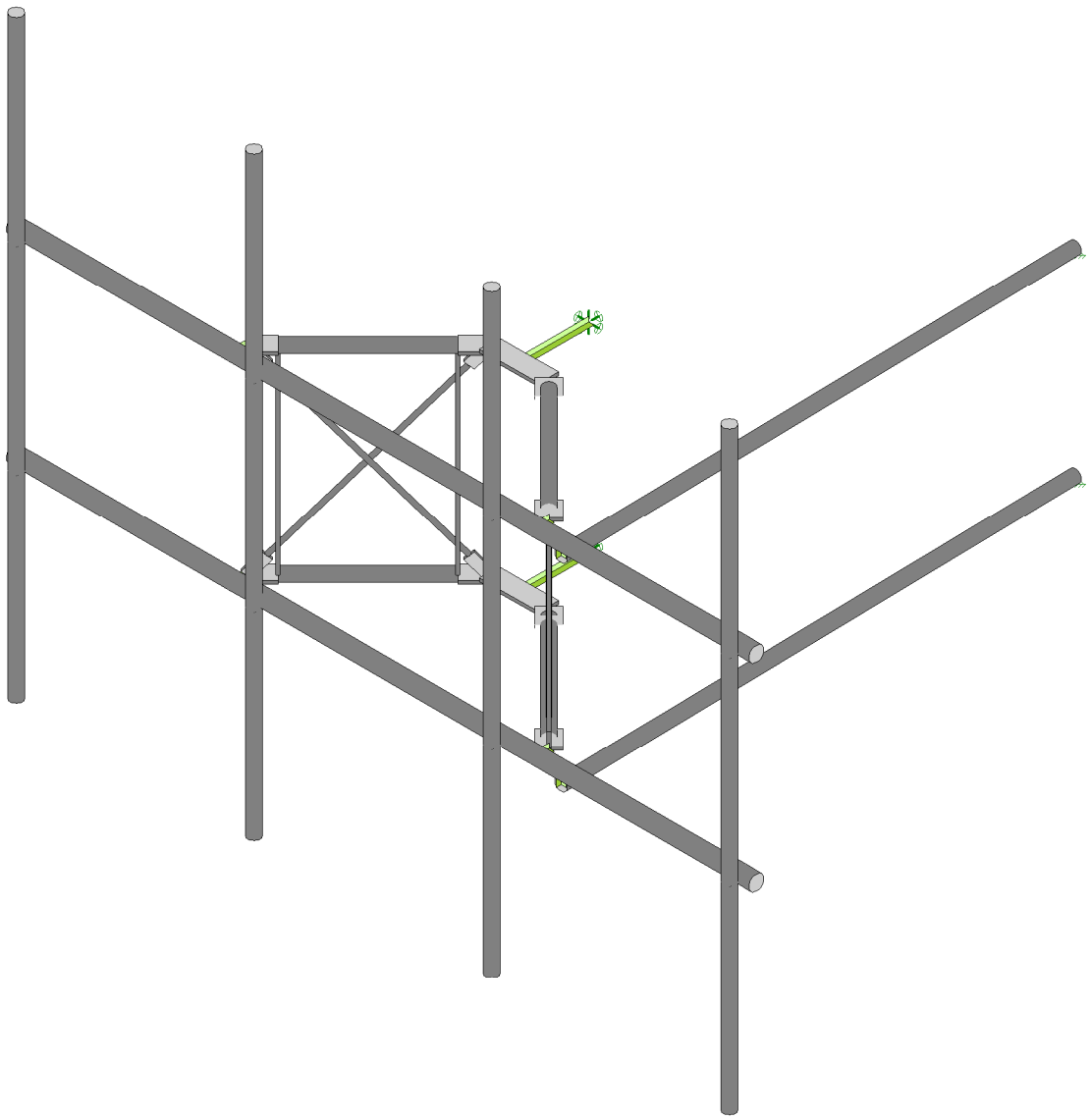
2. Install 2.375'' O.D, Schd.40, 10-ft. long antenna pipes.

3. Install the tiebacks as recommended in manufacturer's drawings (Tie-Back Position 3). Tieback connection point needs to be within 25% ends of the tower leg.

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

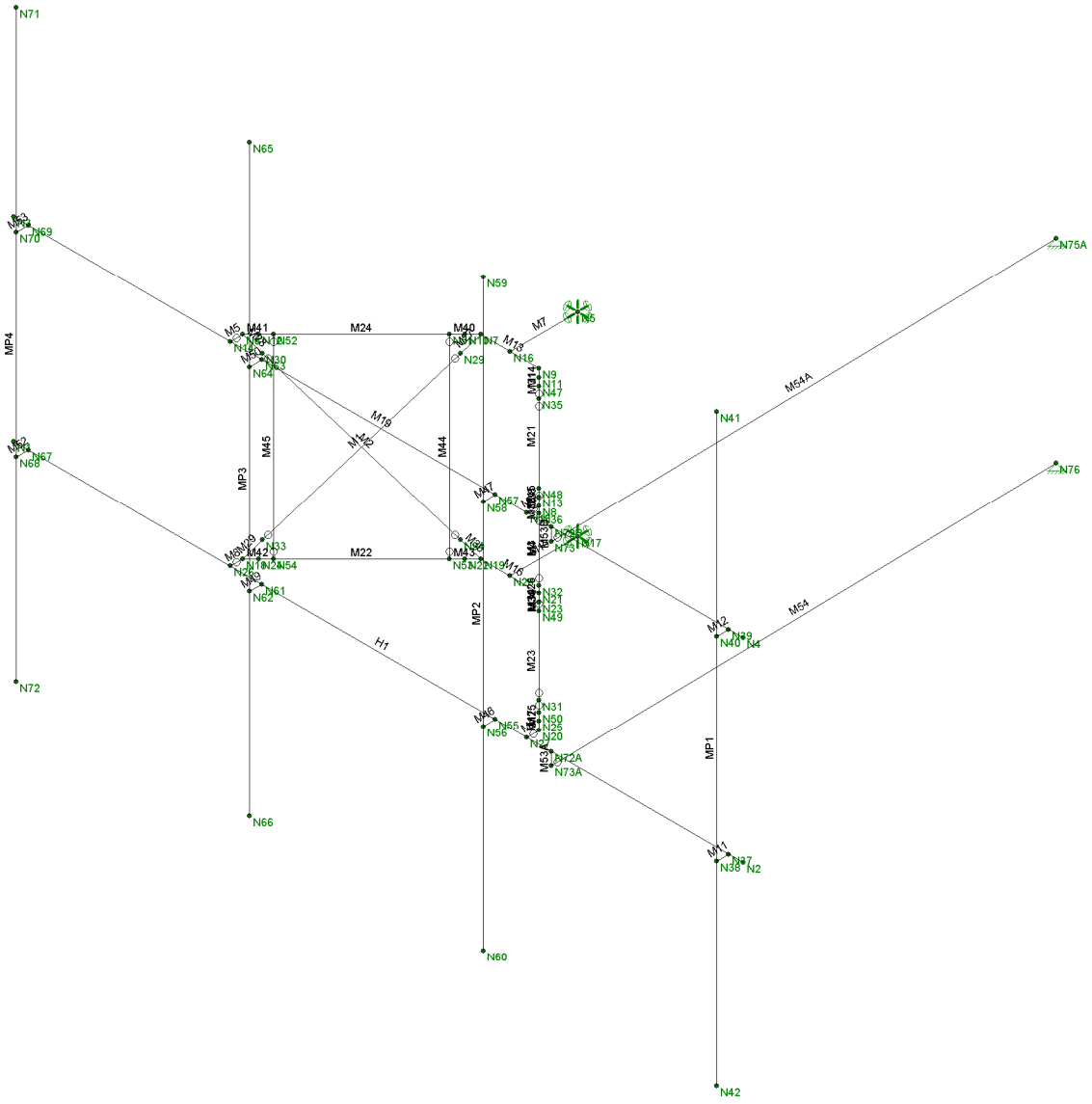
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon	806353	SK - 1
AF		June 9, 2022 at 5:34 PM
211322		806353_loaded.r3d



Envelope Only Solution

Trylon	806353	SK - 2
AF		June 9, 2022 at 5:34 PM
211322		806353_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 427.44 ft (NAVD 88)
Latitude: 41.238528
Longitude: -73.424139

Wind

Results:

Wind Speed	118 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	97 Vmph

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

Date Accessed: Thu Jun 09 2022

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

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

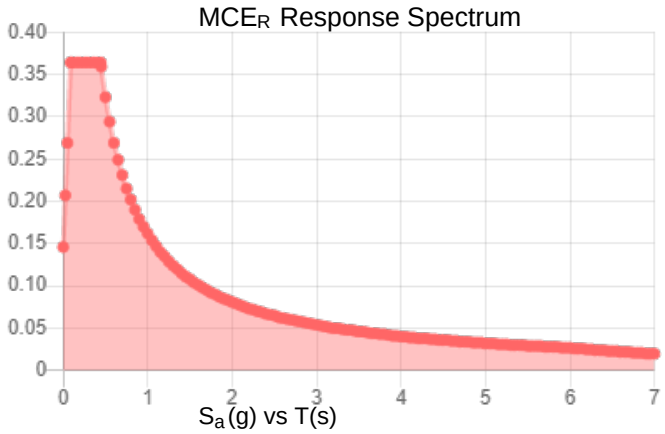
Seismic

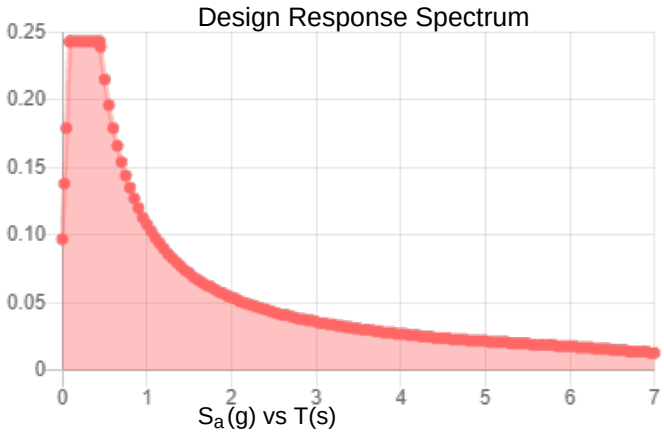
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.227	S_{DS} :	0.243
S_1 :	0.067	S_{D1} :	0.108
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.127
S_{MS} :	0.364	PGA_M :	0.197
S_{M1} :	0.162	F_{PGA} :	1.546
		I_e :	1

Seismic Design Category B





Data Accessed: **Thu Jun 09 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Jun 09 2022

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

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

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

TIA LOAD CALCULATOR 2.2

PROJECT DATA	
Job Code:	211322
Carrier Site ID:	CT11119A
Carrier Site Name:	Wilton/ Mountain Rd.& Bra

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

STRUCTURE DETAILS		
Mount Type:	Sector Frame	--
Mount Elevation:	143.0	ft.
Number of Sectors:	3	--
Structure Type:	Self Support Tower	--
Structure Height:	180.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	427.44	ft.

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

WIND PARAMETERS		
Design Wind Speed:	118	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.09	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	36.50	psf
Ground Elevation Factor (K_e):	0.98	--

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	6.93	psf
Mount Ice Thickness (t_{iz}):	1.74	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	65.69	psf
Round Member Pressure:	39.42	psf
Ice Wind Pressure:	7.49	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.23	g
1 Second Accel (S_1):	0.07	g
Short Period Des. (S_{DS}):	0.24	g
1 Second Des. (S_{D1}):	0.11	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.12	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

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

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

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

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

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

EQUIPMENT LOADING

Appurtenance Name	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
AIR 6419 B41_TMO	1	143	No Ice	7	2.83	96.50
--	--	--	w/ Ice	8.69	4.17	170.61
VV-65B-R1_TMO	1	143	No Ice	7.92	3.80	41.67
--	--	--	w/ Ice	9.05	4.90	173.62
APXVAALL24_43-U-NA20_TMO	1	143	No Ice	14.67	5.32	149.90
--	--	--	w/ Ice	17.04	7.41	425.41
RADIO 4460 B2/B25 B66_TMO	1	143	No Ice	2.14	1.69	109.00
--	--	--	w/ Ice	2.58	2.09	90.47
RADIO 4480_TMOV2	1	143	No Ice	2.88	1.40	81.00
--	--	--	w/ Ice	3.39	1.82	89.75
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

Appurtenance Name	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
AIR 6419 B41_TMO	1	143	1.00	1.09	0.95	1.74	36.50	6.55
VV-65B-R1_TMO	1	143	1.00	1.09	0.95	1.74	36.50	6.55
XVAALL24_43-U-NA20_TI	1	143	1.00	1.09	0.95	1.74	36.50	6.55
ADIO 4460 B2/B25 B66_TM	1	143	1.00	1.09	0.95	1.74	36.50	6.55
RADIO 4480_TMOV2	1	143	1.00	1.09	0.95	1.74	36.50	6.55

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
AIR 6419 B41_TMO	1	No Ice	229.93	127.20	195.68	92.96	195.68	127.20
--	--	w/ Ice	51.22	31.24	44.56	24.59	44.56	31.24
VV-65B-R1_TMO	1	No Ice	260.03	158.52	226.19	124.68	226.19	158.52
--	--	w/ Ice	53.36	34.99	47.24	28.87	47.24	34.99
APXVAALL24_43-U-NA20_TMO	1	No Ice	481.86	251.52	405.08	174.74	405.08	251.52
--	--	w/ Ice	100.48	57.87	86.28	43.67	86.28	57.87
RADIO 4460 B2/B25 B66_TMO	1	No Ice	70.26	59.10	66.54	55.37	66.54	59.10
--	--	w/ Ice	15.23	13.06	14.51	12.33	14.51	13.06
RADIO 4480_TMOV2	1	No Ice	94.54	58.05	82.38	45.89	82.38	58.05
--	--	w/ Ice	20.02	13.04	17.69	10.71	17.69	13.04
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

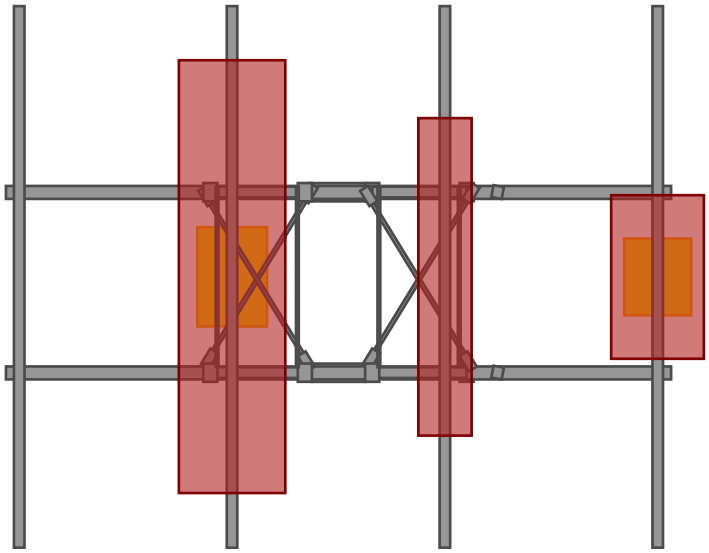
EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	Weight [lbs]	F_p [lbs]
AIR 6419 B41_TMO	1	143	96.5	14.02
VV-65B-R1_TMO	1	143	41.67	6.05
APXVAALL24_43-U-NA20_TMO	1	143	149.9	21.78
RADIO 4460 B2/B25 B66_TMO	1	143	109	15.84
RADIO 4480_TMOV2	1	143	81	11.77

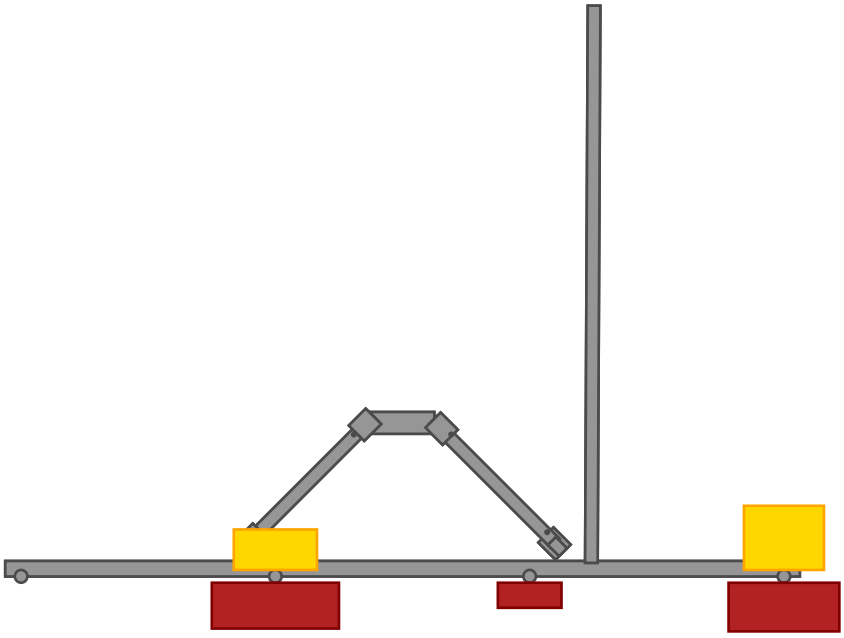
ELEVATION VIEW



MP4 MP3 MP2 MP1

*these drawings are intended to show approximate locations of equipment on the mount and should not be used to determine exact placement of equipment or additional hardware

PLAN VIEW



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

Equipment Name	Total Quantity	Antenna Centerline	Mount Pipe Positions	Equipment Azimuths
AIR 6419 B41_TMO	1	143	MP1	0
VV-65B-R1_TMO	1	143	MP2	0
APXVAALL24_43-U-NA20_TMO	1	143	MP3	0
RADIO 4460 B2/B25 B66_TMO	1	143	MP1	0
RADIO 4480_TMOV2	1	143	MP3	0

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

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

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A653 SS Gr33	29500	11346	.3	.65	.49	33	45
2	A653 SS Gr50/1	29500	11346	.3	.65	.49	50	65

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe 2.375" O.D S...	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Pipe 2.875"O.D Sc...	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
3	SR 3/4"	SR 3/4"	Beam	BAR	A36 Gr.36	Typical	.442	.016	.016	.031
4	Plate	PL 4"x0.625"	Beam	RECT	A36 Gr.36	Typical	2.5	.081	3.333	.293
5	SR 5/8"	SR 5/8_HRB	Beam	BAR	A36 Gr.36	Typical	.307	.007	.007	.015
6	D Plate	PL 2"x0.625"	Beam	RECT	A36 Gr.36	Typical	1.25	.041	.417	.131

Cold Formed Steel Section Sets

	Label	Shape	Type	Design ...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1	162T125-18	Beam	None	A653 S...	Typical	.078	.013	.042	9e-6

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N5	Reaction	Reaction	Reaction	Reaction	Reaction	
2	N17	Reaction	Reaction	Reaction	Reaction	Reaction	
3	N75A	Reaction	Reaction	Reaction			
4	N76	Reaction	Reaction	Reaction			

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL			-1		8			
2	Structure Wind X	WLX						54		
3	Structure Wind Y	WLY						54		
4	Wind Load 0 AZI	WLX					16			
5	Wind Load 30 AZI	None					16			
6	Wind Load 45 AZI	None					16			
7	Wind Load 60 AZI	None					16			
8	Wind Load 90 AZI	WLY					16			
9	Wind Load 120 AZI	None					16			
10	Wind Load 135 AZI	None					16			
11	Wind Load 150 AZI	None					16			
12	Ice Weight	OL1					8	54		
13	Ice Structure Wind X	OL2						54		
14	Ice Structure Wind Y	OL3						54		
15	Ice Wind Load 0 AZI	OL2					16			
16	Ice Wind Load 30 AZI	None					16			
17	Ice Wind Load 45 AZI	None					16			
18	Ice Wind Load 60 AZI	None					16			
19	Ice Wind Load 90 AZI	OL3					16			
20	Ice Wind Load 120 AZI	None					16			
21	Ice Wind Load 135 AZI	None					16			
22	Ice Wind Load 150 AZI	None					16			
23	Seismic Load X	ELX	-.145				8			
24	Seismic Load Y	ELY		-.145			8			
25	Live Load 1 (Lv)	None					1			
26	Live Load 2 (Lv)	None					1			
27	Live Load 3 (Lv)	None					1			
28	Maintenance Load 1 (...	None					1			
29	Maintenance Load 2 (...	None					1			
30	Maintenance Load 3 (...	None					1			
31	Maintenance Load 4 (...	None					1			

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.4DL	Yes	Y		DL	1.4																		
2	1.2DL + 1WL 0 ...	Yes	Y		DL	1.2	2	1	3		4	1												
3	1.2DL + 1WL 30 ...	Yes	Y		DL	1.2	2	.866	3	.5	5	1												
4	1.2DL + 1WL 45 ...	Yes	Y		DL	1.2	2	.707	3	.707	6	1												
5	1.2DL + 1WL 60 ...	Yes	Y		DL	1.2	2	.5	3	.866	7	1												
6	1.2DL + 1WL 90 ...	Yes	Y		DL	1.2	2		3	1	8	1												
7	1.2DL + 1WL 12...	Yes	Y		DL	1.2	2	-.5	3	.866	9	1												

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
8	1.2DL + 1WL 13...	Yes	Y		DL	1.2	2	-.707	3	.707	10	1														
9	1.2DL + 1WL 15...	Yes	Y		DL	1.2	2	-.866	3	.5	11	1														
10	1.2DL + 1WL 18...	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1WL 21...	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1														
12	1.2DL + 1WL 22...	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1														
13	1.2DL + 1WL 24...	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1WL 27...	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1WL 30...	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														
16	1.2DL + 1WL 31...	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1WL 33...	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1WL 0 ...	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1WL 30 ...	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1WL 45 ...	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1WL 60 ...	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1WL 90 ...	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1WL 12...	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1WL 13...	Yes	Y		DL	.9	2	-.707	3	.707	10	1														
25	0.9DL + 1WL 15...	Yes	Y		DL	.9	2	-.866	3	.5	11	1														
26	0.9DL + 1WL 18...	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1WL 21...	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1														
28	0.9DL + 1WL 22...	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1														
29	0.9DL + 1WL 24...	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1WL 27...	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1WL 30...	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1WL 31...	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1WL 33...	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	1	14		15	1												
35	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	.866	14	.5	16	1												
36	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	.707	14	.707	17	1												
37	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	.5	14	.866	18	1												
38	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13		14	1	19	1												
39	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	.866	20	1												
40	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	.707	21	1												
41	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	.5	22	1												
42	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	-1	14		15	-1												
43	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	-.5	16	-1												
44	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	-.707	17	-1												
45	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13		14	-1	19	-1												
47	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1DLi + 1...	Yes	Y		DL	1.2	OL1	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	1	24																	
51	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	.866	24	.5																
52	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	.707	24	.707																
53	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	.5	24	.866																
54	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23		24	1																
55	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	-.5	24	.866																
56	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	-.707	24	.707																
57	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	-.866	24	.5																
58	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	-1	24																	
59	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	-.866	24	-.5																
60	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	-.707	24	-.707																
61	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	-.5	24	-.866																
62	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23		24	-1																
63	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	.5	24	-.866																
64	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	.707	24	-.707																

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
65	(1.2+0.2Sds)DL ...	Yes	Y		DL	1.248	23	.866	24	-.5														
66	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	1	24															
67	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	.866	24	.5														
68	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	.707	24	.707														
69	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	.5	24	.866														
70	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23		24	1														
71	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	-.5	24	.866														
72	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	-.707	24	.707														
73	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	-.866	24	.5														
74	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	-1	24															
75	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	-.866	24	-.5														
76	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	-.707	24	-.707														
77	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	-.5	24	-.866														
78	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23		24	-1														
79	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	.5	24	-.866														
80	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	.707	24	-.707														
81	(0.9-0.2Sds)DL ...	Yes	Y		DL	.852	23	.866	24	-.5														
82	1.2DL + 1Lv1	Yes	Y		DL	1.2	25	1.5																
83	1.2DL + 1Lv2	Yes	Y		DL	1.2	26	1.5																
84	1.2DL + 1Lv3	Yes	Y		DL	1.2	27	1.5																
85	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	.065	3		4	.065										
86	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	.056	3	.032	5	.065										
87	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	.046	3	.046	6	.065										
88	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	.032	3	.056	7	.065										
89	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2		3	.065	8	.065										
90	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	-.032	3	.056	9	.065										
91	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	-.046	3	.046	10	.065										
92	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	-.056	3	.032	11	.065										
93	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	-.065	3		4	-.065										
94	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	-.056	3	-.032	5	-.065										
95	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	-.046	3	-.046	6	-.065										
96	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	-.032	3	-.056	7	-.065										
97	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2		3	-.065	8	-.065										
98	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	.032	3	-.056	9	-.065										
99	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	.046	3	-.046	10	-.065										
100	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	28	1.5	2	.056	3	-.032	11	-.065										
101	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	.065	3		4	.065										
102	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	.056	3	.032	5	.065										
103	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	.046	3	.046	6	.065										
104	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	.032	3	.056	7	.065										
105	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2		3	.065	8	.065										
106	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	-.032	3	.056	9	.065										
107	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	-.046	3	.046	10	.065										
108	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	-.056	3	.032	11	.065										
109	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	-.065	3		4	-.065										
110	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	-.056	3	-.032	5	-.065										
111	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	-.046	3	-.046	6	-.065										
112	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	-.032	3	-.056	7	-.065										
113	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2		3	-.065	8	-.065										
114	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	.032	3	-.056	9	-.065										
115	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	.046	3	-.046	10	-.065										
116	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	29	1.5	2	.056	3	-.032	11	-.065										
117	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	.065	3		4	.065										
118	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	.056	3	.032	5	.065										
119	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	.046	3	.046	6	.065										
120	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	.032	3	.056	7	.065										
121	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2		3	.065	8	.065										

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
122	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	-.032	3	.056	9	.065										
123	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	-.046	3	.046	10	.065										
124	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	-.056	3	.032	11	.065										
125	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	-.065	3		4	-.065										
126	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	-.056	3	-.032	5	-.065										
127	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	-.046	3	-.046	6	-.065										
128	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	-.032	3	-.056	7	-.065										
129	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2		3	-.065	8	-.065										
130	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	.032	3	-.056	9	-.065										
131	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	.046	3	-.046	10	-.065										
132	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	30	1.5	2	.056	3	-.032	11	-.065										
133	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	.065	3		4	.065										
134	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	.056	3	.032	5	.065										
135	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	.046	3	.046	6	.065										
136	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	.032	3	.056	7	.065										
137	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2		3	.065	8	.065										
138	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	-.032	3	.056	9	.065										
139	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	-.046	3	.046	10	.065										
140	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	-.056	3	.032	11	.065										
141	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	-.065	3		4	-.065										
142	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	-.056	3	-.032	5	-.065										
143	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	-.046	3	-.046	6	-.065										
144	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	-.032	3	-.056	7	-.065										
145	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2		3	-.065	8	-.065										
146	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	.032	3	-.056	9	-.065										
147	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	.046	3	-.046	10	-.065										
148	1.2DL + 1.5Lm +...	Yes	Y		DL	1.2	31	1.5	2	.056	3	-.032	11	-.065										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N5	max	396.531	19	932.083	136	1538.62	43	298.842	85	-414.32	20	0	148
2		min	-2677.659	43	-1538.824	96	333.482	19	-182.088	141	-1752.452	45	0	1
3	N17	max	2646.065	36	1535.855	88	1526.029	34	305.901	99	-435.78	27	0	148
4		min	-276.563	27	-929.81	144	348.02	26	-185.754	139	-1725.264	35	0	1
5	N75A	max	837.52	15	36.134	22	52.92	38	0	148	0	148	0	148
6		min	-558.692	23	-37.155	14	-7.008	31	0	1	0	1	0	1
7	N76	max	524.607	32	37.168	6	69.077	39	0	148	0	148	0	148
8		min	-804.895	8	-35.512	30	.038	32	0	1	0	1	0	1
9	Totals:	max	1839.39	2	1056.584	6	3138.544	38						
10		min	-1839.388	26	-1056.567	30	800.131	78						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M16	PL 4"x0.625"	.535	6	87	.139	6	y	86	76418.78	81000	1054.688	6750	1...	H1-1b
2	M13	PL 4"x0.625"	.525	6	95	.121	6	y	94	76418.78	81000	1054.688	6750	1	H1-1b
3	MP1	PIPE_2.0	.475	80	89	.056	80		90	9836.597	32130	1871.625	1871.625	1	H1-1b
4	MP4	PIPE_2.0	.370	80	1...	.045	80		1...	9836.597	32130	1871.625	1871.625	4...	H1-1b
5	MP3	PIPE_2.0	.337	80	10	.036	40		2	9836.597	32130	1871.625	1871.625	1	H1-1b
6	M19	PIPE_2.5	.290	43.75	94	.097	43.75		12	41048.6...	50715	3596.25	3596.25	1	H1-1b
7	H1	PIPE_2.5	.285	43.75	86	.117	43.75		92	41048.6...	50715	3596.25	3596.25	1	H1-1b
8	M15	PL 4"x0.625"	.239	4.512	1...	.093	4.512	y	1...	79311.0...	81000	1054.688	6750	1...	H1-1b
9	M23	PIPE_2.0	.222	2.188	88	.050	27.813		1...	29810.2...	32130	1871.625	1871.625	1	H1-1b
10	M21	PIPE_2.0	.219	2.188	96	.054	27.813		48	29810.2...	32130	1871.625	1871.625	1	H1-1b
11	M17	PL 4"x0.625"	.210	4.512	91	.089	4.512	y	1...	79311.0...	81000	1054.688	6750	1	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
12	MP2	PIPE_2.0	.183	80	86	.024	40		93	9836.597	32130	1871.625	1871.625	1	H1-1b
13	M22	PIPE_2.0	.181	2.188	90	.054	27.813		42	29810.2...	32130	1871.625	1871.625	1	H1-1b
14	M24	PIPE_2.0	.177	27.813	98	.055	2.188		34	29810.2...	32130	1871.625	1871.625	1	H1-1b
15	M34	PL 4"x0.625"	.175	4.511	87	.089	2.209	y	1...	79311.0...	81000	1054.688	6750	1	H1-1b
16	M14	PL 4"x0.625"	.164	0	95	.093	2.303	y	1...	79311.0...	81000	1054.688	6750	1	H1-1b
17	M42	PL 4"x0.625"	.163	4.512	1...	.096	2.209	y	42	79311.0...	81000	1054.688	6750	1	H1-1b
18	M41	PL 4"x0.625"	.162	4.512	1...	.098	2.209	y	34	79311.0...	81000	1054.688	6750	1....	H1-1b
19	M40	PL 4"x0.625"	.120	0	1...	.099	0	y	34	79311.0...	81000	1054.688	6750	1....	H1-1b
20	M43	PL 4"x0.625"	.120	4.511	1...	.097	4.511	y	42	79311.0...	81000	1054.688	6750	1....	H1-1b
21	M44	SR 5/8_HRB	.097	40	26	.022	0		85	2503.081	9940.19	103.542	103.542	1	H1-1b*
22	M54A	PIPE_2.0	.087	51.692	46	.006	0		38	13195.1...	32130	1871.625	1871.625	1....	H1-1b
23	M3	SR 3/4"	.086	44	43	.011	44		46	4289.781	14313.8...	178.929	178.929	1	H1-1b*
24	M54	PIPE_2.0	.074	51.692	38	.006	103....		46	13195.1...	32130	1871.625	1871.625	1....	H1-1b
25	M1	SR 3/4"	.072	0	1...	.010	0		9	4289.781	14313.8...	178.929	178.929	1	H1-1b*
26	M38	SR 5/8_HRB	.053	20	26	.018	0		85	2503.081	9940.19	103.542	103.542	1	H1-1b
27	M45	SR 5/8_HRB	.047	20	2	.015	0		93	2503.081	9940.19	103.542	103.542	1	H1-1b
28	M39	SR 5/8_HRB	.039	19.583	34	.010	0		93	2503.081	9940.19	103.542	103.542	1	H1-1b
29	M26	PL 2"x0.625"	.033	0	34	.005	0	y	35	39953.2...	40500	527.345	1687.5	1....	H1-1b*
30	M32	PL 2"x0.625"	.032	0	85	.005	4.46	y	35	39953.2...	40500	527.345	1687.5	1	H1-1b*
31	M30	PL 2"x0.625"	.025	4.46	1...	.004	4.46	y	48	39953.2...	40500	527.345	1687.5	1....	H1-1b*
32	M28	PL 2"x0.625"	.025	4.46	1...	.004	0	y	48	39953.2...	40500	527.345	1687.5	1	H1-1b*
33	M25	PL 2"x0.625"	.020	0	40	.005	0	y	46	39953.2...	40500	527.345	1687.5	1....	H1-1b
34	M31	PL 2"x0.625"	.020	4.46	48	.004	4.46	y	46	39953.2...	40500	527.345	1687.5	1....	H1-1b
35	M29	PL 2"x0.625"	.016	4.46	44	.004	4.46	y	9	39953.2...	40500	527.345	1687.5	1....	H1-1b
36	M27	PL 2"x0.625"	.016	0	36	.004	0	y	9	39953.2...	40500	527.345	1687.5	1....	H1-1b
37	M2	SR 3/4"	.005	0	27	.009	44		48	4289.781	14313.8...	178.929	178.929	1	H1-1b*
38	M4	SR 3/4"	.000	0	1...	.013	44		35	4289.781	14313.8...	178.929	178.929	1	H1-1a

Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[in]	LC	Shear...	Loc[in]	Dir	LC	phi*Pn[l...	phi*Tn[l...	phi*Mn...	phi*Mn...	phi*...	phi*...	Cb	Eqn
No Data to Print ...																

APPENDIX D

ADDITIONAL CALCULATIONS

Trylon

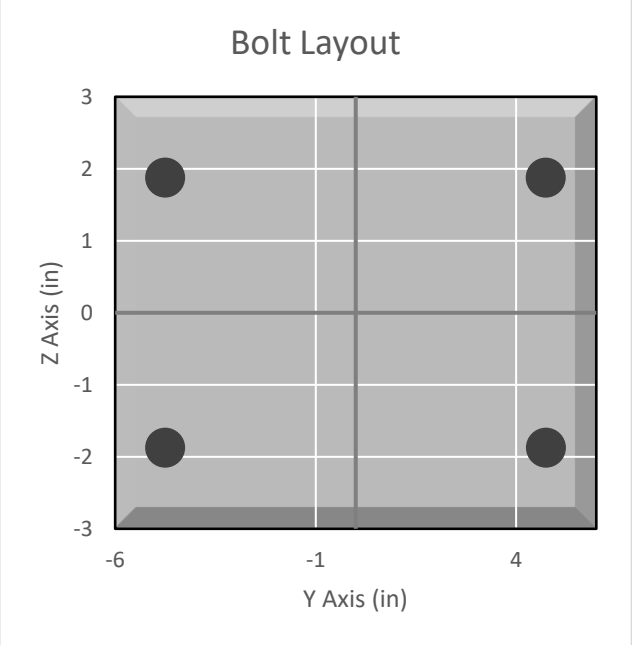
Analysis date: 6/9/2022

BOLT TOOL 1.5.2

Project Data	
Job Code:	211322
Carrier Site ID:	CT11119A
Carrier Site Name:	Wilton/ Mountain Rd.& Bra

Code	
Design Standard:	TIA-222-H
Slip Check:	Yes
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	Threaded Rod	
Diameter:	0.625	in
Grade:	AE J429 Gr.	--
Yield Strength (Fy):	57	ksi
Ultimate Strength (Fu):	74	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	9.5	in



Connection Description
Mounting Kit to Tower Leg

Bolt Check*		
Tensile Capacity (ϕT_n):	12543.1	lbs
Shear Capacity (ϕV_n):	8513.6	lbs
Tension Force (T_u):	3470.0	lbs
Shear Force (V_u):	492.3	lbs
Tension Usage:	26.3%	--
Shear Usage:	5.5%	--
Interaction:	26.3%	Pass
Controlling Member:	M7	--
Controlling LC:	44	--

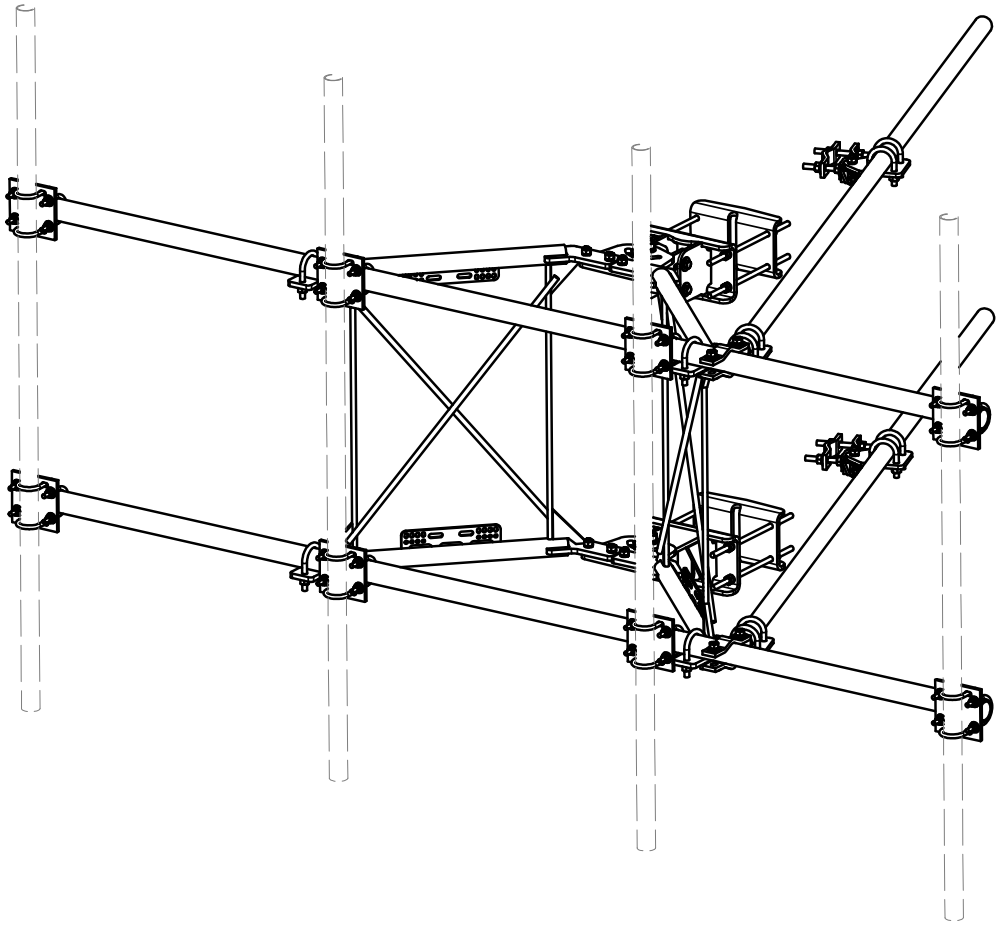
**Rating per TIA-222-H Section 15.5*

Slip Check*		
Sliding Capacity (ϕR_{ns}):	13119.6	lbs
Torsion Capacity (ϕR_{nr}):	5193.2	lb-ft
Sliding Force (V_{us}):	1538.6	lbs
Torsional Force (T_{ur}):	0.0	lb-ft
Sliding Usage:	11.2%	--
Torsion Usage:	0.0%	--
Interaction:	11.2%	Pass
Controlling Member:	M7	--
Controlling LC:	43	--

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

APPENDIX E

SUPPLEMENTAL DRAWINGS



PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	1	X-HDCAMTBW	CLAMP WELDMENT FOR BCAM-HD		33.86	33.86
3	1	X-MHTPHD	MULTI-HOLE TAPER PLATE WELDMENT		36.24	36.24
4	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
5	2	X-LCBP4	BENT BACKING PLATE	13 in	19.00	38.01
6	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-HDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM-HD		2.58	2.58
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
14	2	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	153.87
15	4	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	1.92
16	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
17	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
18	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
19	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)	18 in	0.40	3.19
20	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
21	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
22	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
23	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
24	2	G5807	5/8" x 7" HDG HEX BOLT GR5 FULL THREAD	7 in	0.70	1.41
25	1	G5806	5/8" x 6" HDG HEX BOLT GR5 FULL THREAD	6 in	0.62	0.62
26	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
27	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
28	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
29	25	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.76
30	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
31	71	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.22
32	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
33	16	X-UB1212	1/2" X 2" X 3" X 1-1/4" U-BOLT (HDG.)		0.60	9.56
34	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
35	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
36	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					TOTAL WT. #	738.06

REVISION HISTORY

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

TOLERANCE NOTES

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

DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

SITE PRO 1 — A valmont COMPANY

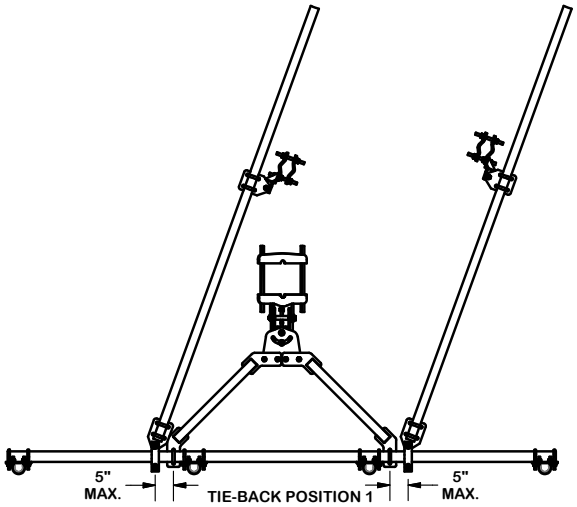
Engineering Support Team: 1-888-753-7446

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

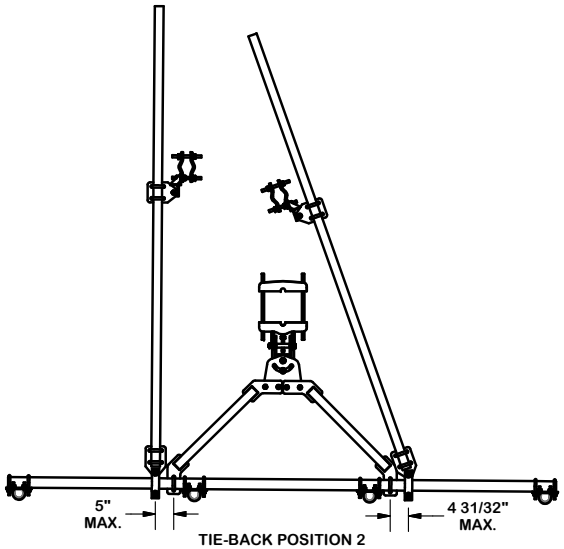
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA12-HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD

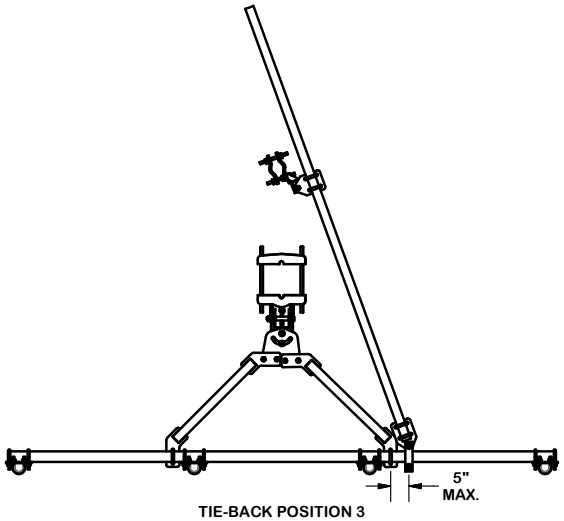
TIE-BACK POSITIONS



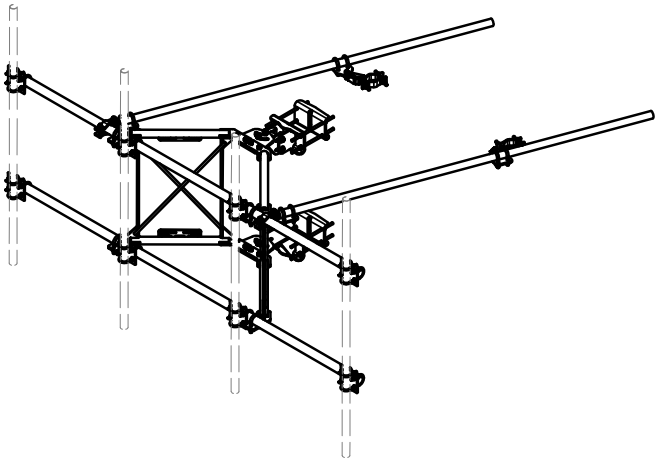
TIE-BACK POSITION 1
-20° / +20° TOP PARALLEL

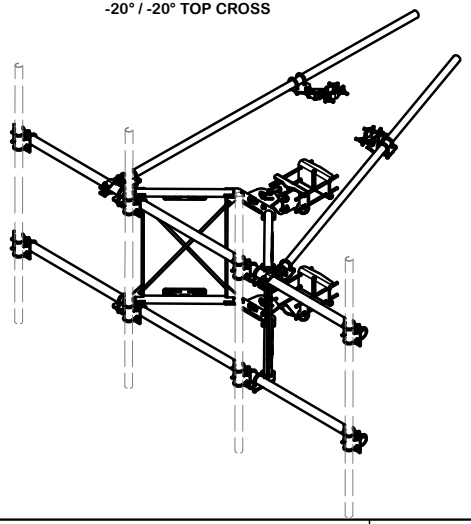


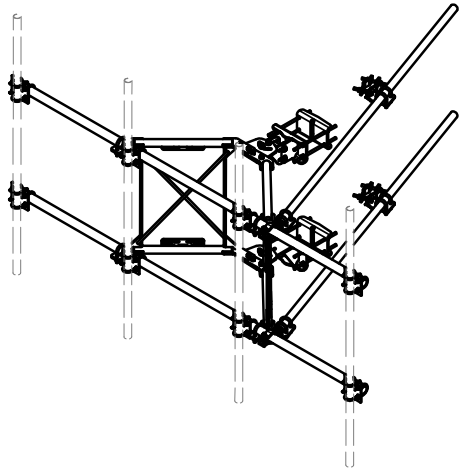
TIE-BACK POSITION 2
-20° / -20° TOP CROSS



TIE-BACK POSITION 3
-20° SAME SIDE STACKED







REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

TOLERANCE NOTES

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

DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

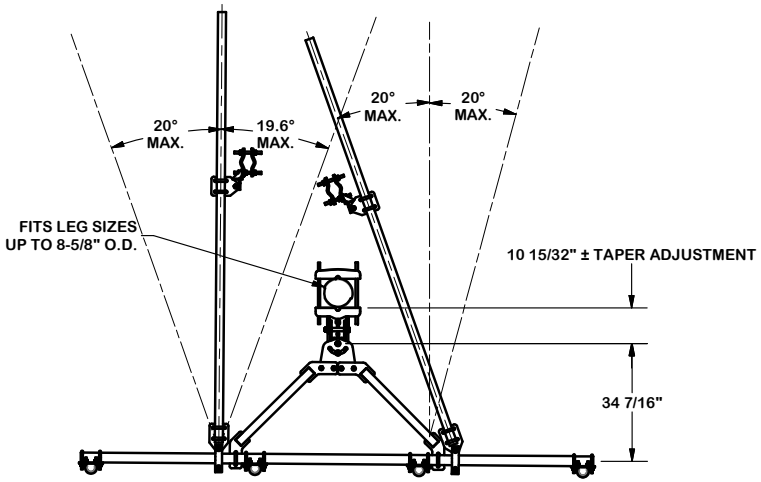
SITE PRO 1
A valmont COMPANY

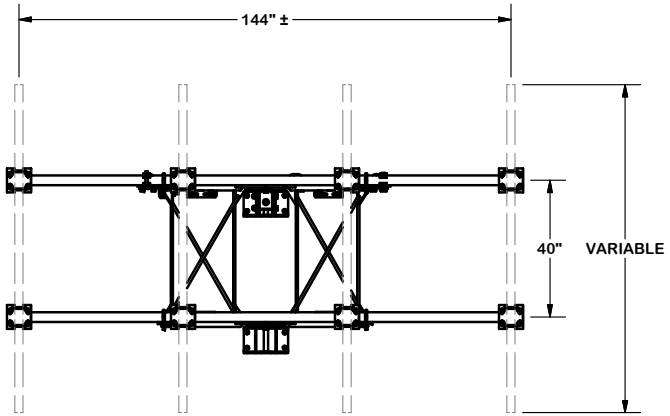
Engineering Support Team:
1-888-753-7446

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA12-HD

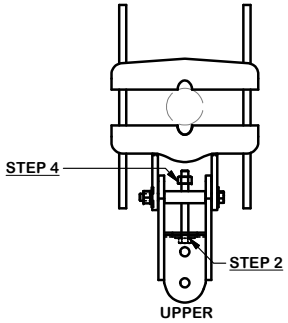
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD

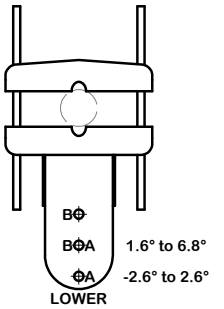


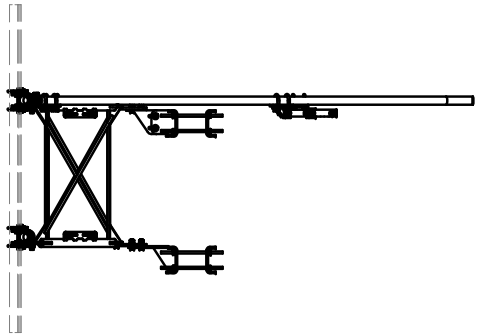


ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
   - HOLE A = -2.6° TO 2.6°
   - HOLE B = 1.6° TO 6.8°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 100 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.







REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

TOLERANCE NOTES

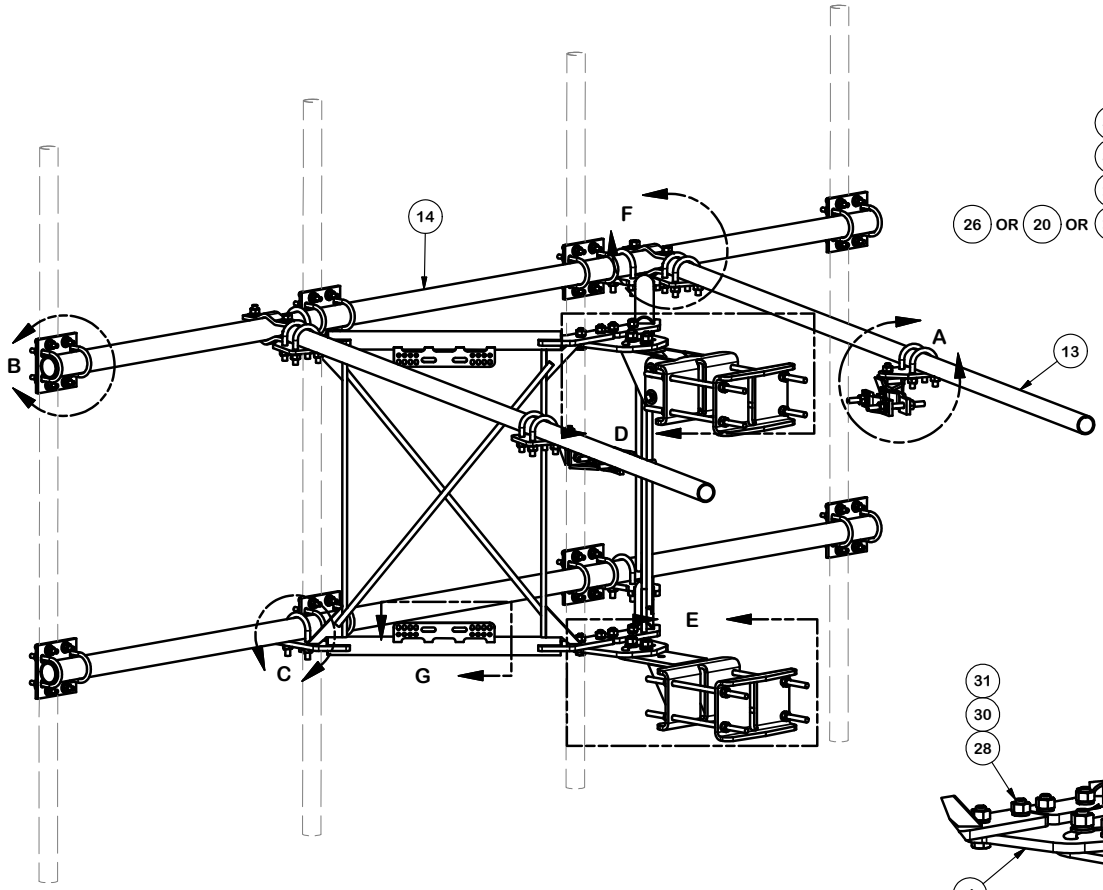
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

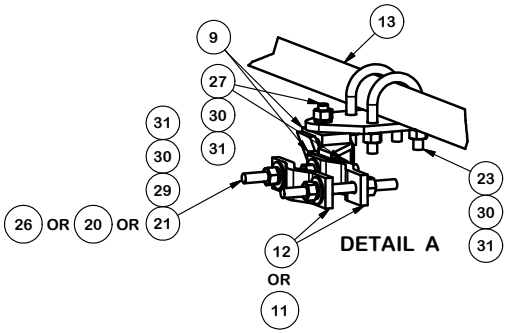
DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

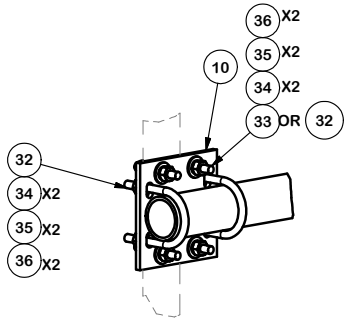
SITE PRO 1
A valmont COMPANY
Engineering Support Team:
1-888-753-7446
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

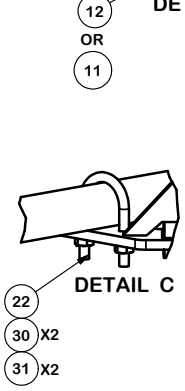
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA12-HD

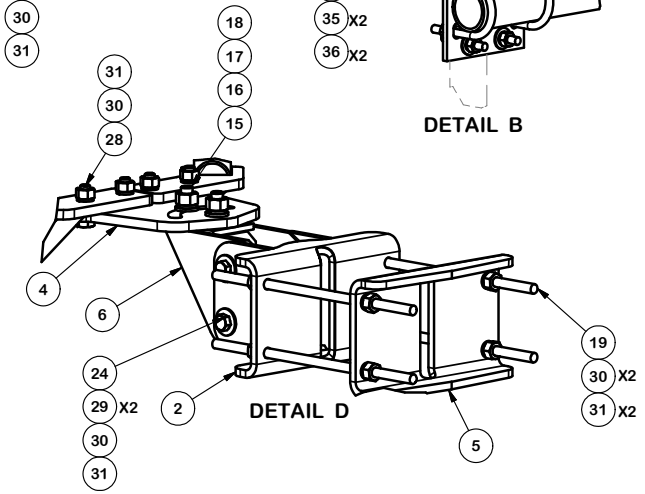
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD

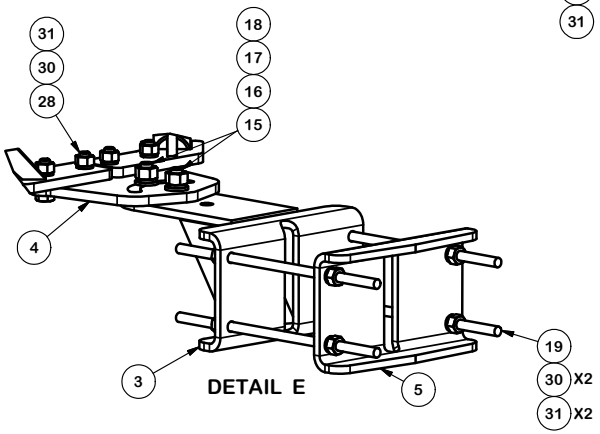


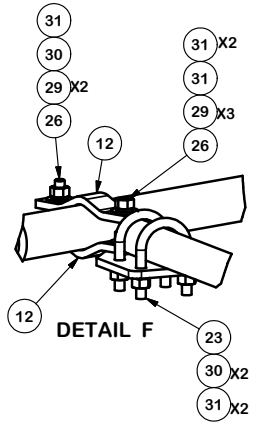








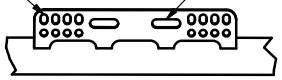




7/16" LUG HOLES

REVIEW CARRIER STANDARDS FOR PROPER SURFACE PREPARTION AND ASSEMBLY OF ELECTRICAL CONNECTIONS

9/16" SLOTTED HOLE FOR EQUIPMENT PIPE U-BOLT



DETAIL G

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

TOLERANCE NOTES

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

DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

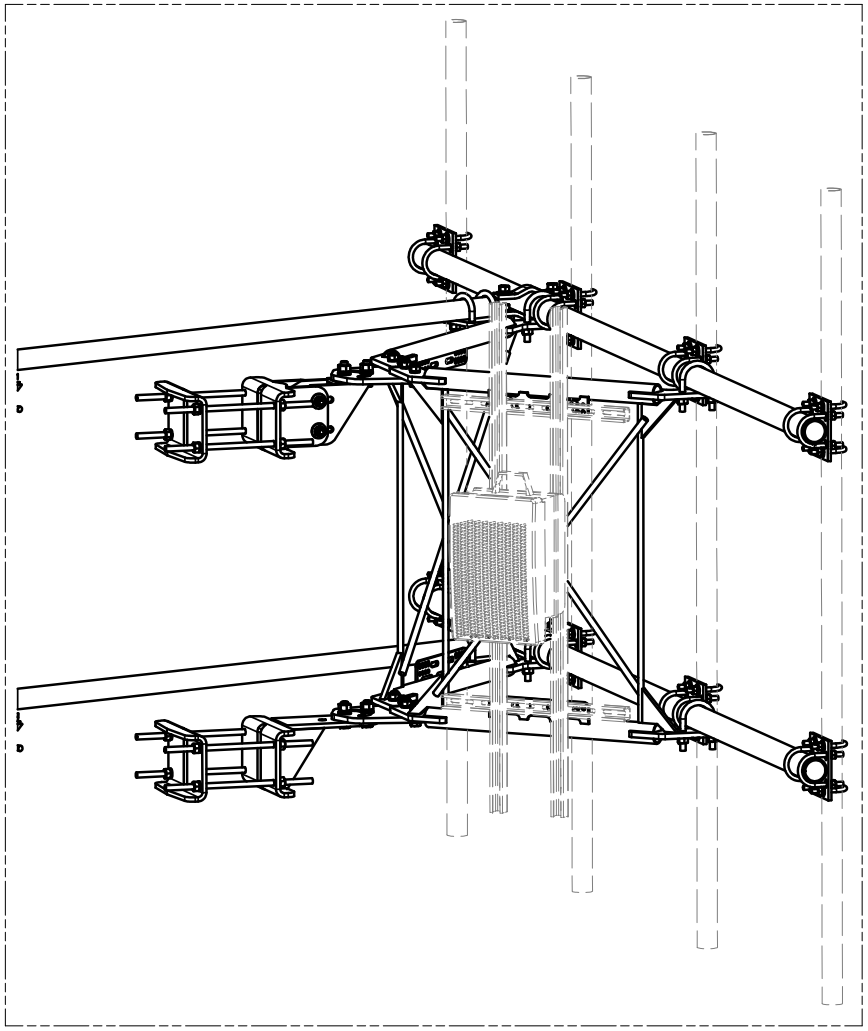
SITE PRO 1 — A valmont COMPANY

Engineering Support Team: 1-888-753-7446

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

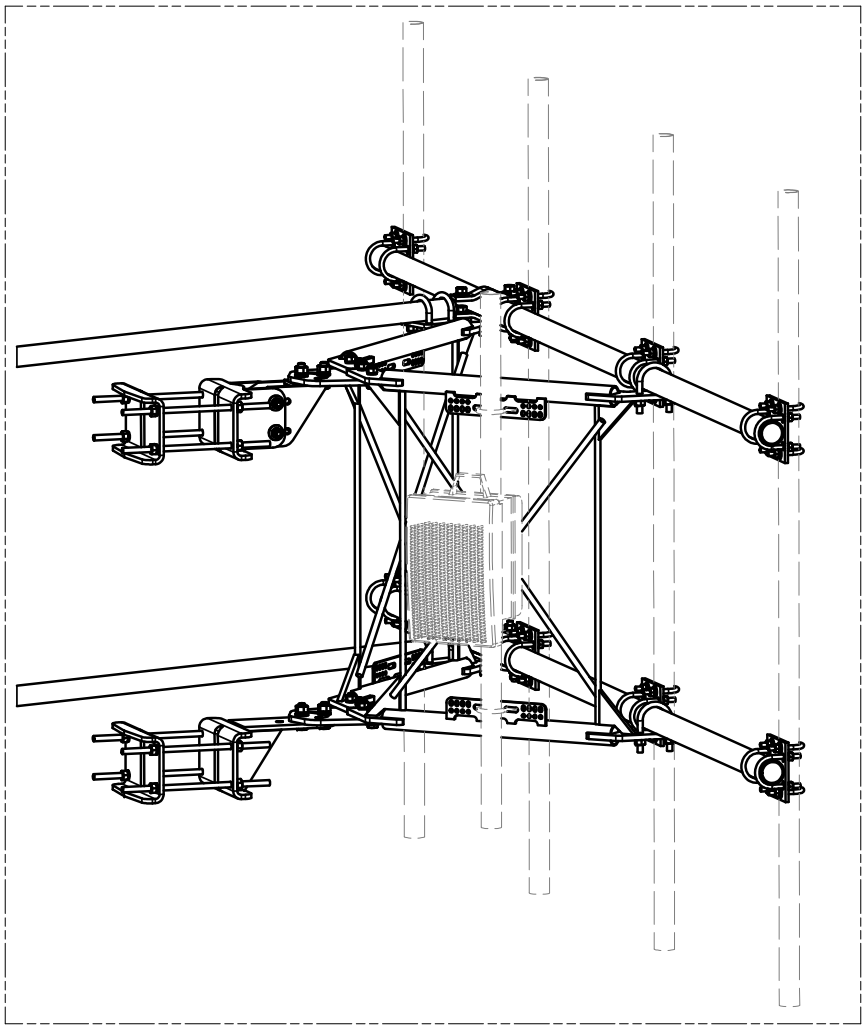
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA12-HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

TOLERANCE NOTES

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

DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

SITE PRO 1
A valmont COMPANY

Engineering Support Team:
1-888-753-7446

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA12-HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD

FOX HILL TELECOM

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CT11119A

Wilton/ Mountain Rd.& Bra
128 Mather Street
Wilton, CT 06897

August 29, 2022

Fox Hill Telecom Project Number: 221560

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	25.22 %

FOX HILL TELECOM

August 29, 2022

T-MOBILE
Attn: RF Manager
35 Griffin Road South
Bloomfield, CT 06009

Emissions Analysis for Site: **CT11119A – Wilton/ Mountain Rd.& Bra**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **128 Mather Street, Wilton, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. 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 performed for the proposed upgrades to the T-MOBILE antenna facility located at **128 Mather Street, Wilton, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	40
GSM	1900 MHz (PCS)	1	15
LTE	2100 MHz (AWS)	4	40
LTE / 5G NR	2500 MHz (BRS)	8	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAALL24_43-U-NA20	143
A	2	Commscope VV-65B-R1	143
A	3	Ericsson AIR6419 B41	143
B	1	RFS APXVAALL24_43-U-NA20	143
B	2	Commscope VV-65B-R1	143
B	3	Ericsson AIR6419 B41	143
C	1	RFS APXVAALL24_43-U-NA20	143
C	2	Commscope VV-65B-R1	143
C	3	Ericsson AIR6419 B41	143

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	4	120	2,824.56	1.29
Antenna A2	Commscope VV-65B-R1	1900 MHz (PCS) / 2100 MHz (AWS)	16.55 / 16.85	9	335	15,654.24	2.99
Antenna A3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	4.33
						Sector A Composite MPE%	**8.61**
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	4	120	2,824.56	1.29
Antenna B2	Commscope VV-65B-R1	1900 MHz (PCS) / 2100 MHz (AWS)	16.55 / 16.85	9	335	15,654.24	2.99
Antenna B3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	4.33
						Sector B Composite MPE%	**8.61**
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	4	120	2,824.56	1.29
Antenna C2	Commscope VV-65B-R1	1900 MHz (PCS) / 2100 MHz (AWS)	16.55 / 16.85	9	335	15,654.24	2.99
Antenna C3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	4.33
						Sector C Composite MPE%	**8.61**

Table 3: T-MOBILE Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**8.61 %**
Verizon Wireless	7.25 %
AT&T	4.37 %
MetroPCS	0.18 %
Nextel	0.19 %
Town	4.62 %
Site Total MPE %:	**25.22 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	8.61 %
T-MOBILE Sector B Total:	8.61 %
T-MOBILE Sector C Total:	8.61 %
Site Total:	25.22 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	2	926.96	143	3.55	600 MHz	400	0.89%
T-Mobile 700 MHz LTE	2	485.32	143	1.86	700 MHz	467	0.40%
T-Mobile 1900 MHz (PCS) LTE	4	1,807.42	143	13.85	1900 MHz (PCS)	1000	1.38%
T-Mobile 1900 MHz (PCS) GSM	1	677.78	143	1.30	1900 MHz (PCS)	1000	0.13%
T-Mobile 2100 MHz (AWS) LTE	4	1,936.69	143	14.84	2100 MHz (AWS)	1000	1.48%
T-Mobile 2500 MHz (BRS) LTE / 5G NR	8	2,825.08	143	43.29	2500 MHz (BRS)	1000	4.33%
						Total:	**8.61 %**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	8.61 %
Sector B:	8.61 %
Sector C:	8.61 %
T-MOBILE Maximum Total (per sector):	8.61 %
Site Total:	25.22 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **25.22 %** 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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

T-Mobile

T-MOBILE SITE NUMBER: CT11119A
T-MOBILE SITE NAME: WILTON/ MOUNTAIN RD.& BRA
SITE TYPE: SELF SUPPORT
TOWER HEIGHT: 180'-0"

BUSINESS UNIT #: 806353
SITE ADDRESS: 128 MATHER STREET WILTON, CT 06897
COUNTY: FAIRFIELD
JURISDICTION: FAIRFIELD COUNTY

CT11119A _SPRINT RETAIN: 67E5998E_1xAIR+1OP+1QP

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BRG 124 943066
SITE ADDRESS:	128 MATHER STREET WILTON, CT 06897
COUNTY:	FAIRFIELD
MAP/PARCEL #:	TBD
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	40.81370000° (40° 48' 49.10")
LONGITUDE:	-73.05700000° (-73° 03' 25.40")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	±426 FT
CURRENT ZONING:	TBD
JURISDICTION:	FAIRFIELD COUNTY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	TBD ---- ----
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	TBD
TELCO PROVIDER:	TBD

PROJECT TEAM

A&E FIRM:	INFINIGY 500 WEST OFFICE CENTER DR. SUITE 150, FORT WASHINGTON, PA 19034
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 PATRICIA PELON - PROJECT MANAGER TRICIA.PELON@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM

DRAWING INDEX

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

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

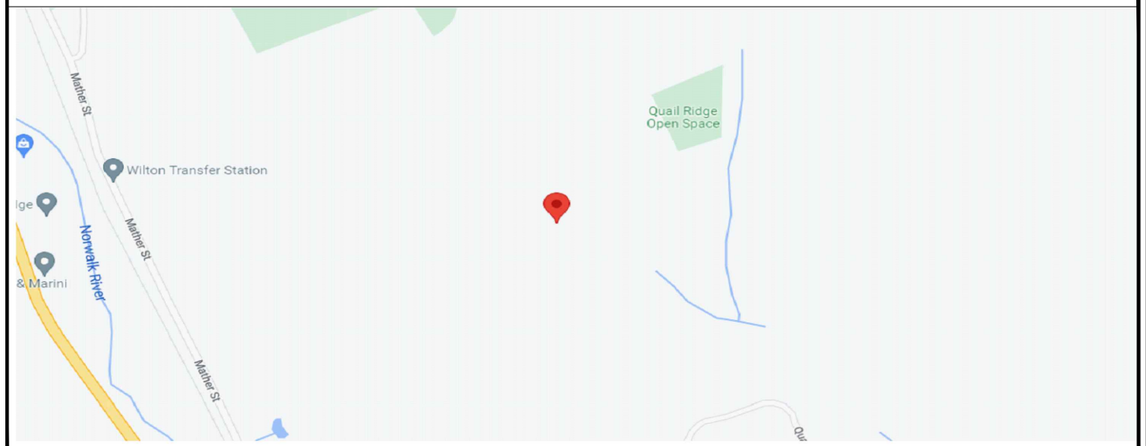
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (9) ANTENNAS
- REMOVE (3) RRHS
- REMOVE (3) TMA
- REMOVE ANTENNA MOUNTS
- REMOVE ALL COAX CABLES
- REMOVE (4) HYBRID CABLES
- INSTALL (9) ANTENNAS
- INSTALL (6) RRHS
- INSTALL (3) HYBRID CABLES
- INSTALL ANTENNA MOUNTS

GROUND SCOPE OF WORK:
- INSTALL (1) 6160 & (1) B160 BATTERY CABINET
- INSTALL (2) PSU4813 VOLTAGE BOOSTER IN (P) CABINET
- INSTALL (1) CSR IXRE ROUTER IN (P) CABINET
- INSTALL (1) RP6651 IN (P) CABINET
- INSTALL 3' X 6' CONCRETE PAD
- REMOVE (1) (E) CABINET

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

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	06/14/2022
MOUNT ANALYSIS:	TRYLON
DATED:	06/09/2022
RFDS REVISION:	5
DATED:	8/12/2022
ORDER ID:	619924
REVISION:	0

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

APPROVALS

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

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

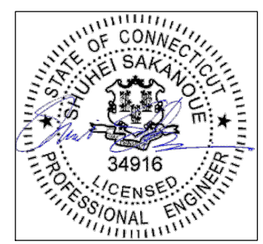
BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS



08/18/22

SHEET NUMBER: T-1
REVISION: 0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   - SLAB AND WALLS..............................3/4"
   - BEAMS AND COLUMNS.........................1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

APWA UNIFORM COLOR CODE:

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

ABBREVIATIONS:

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

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

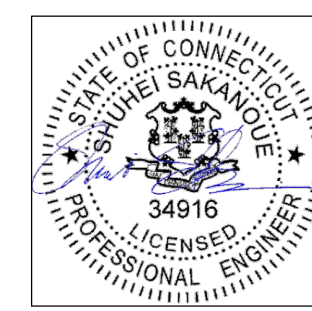
BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS



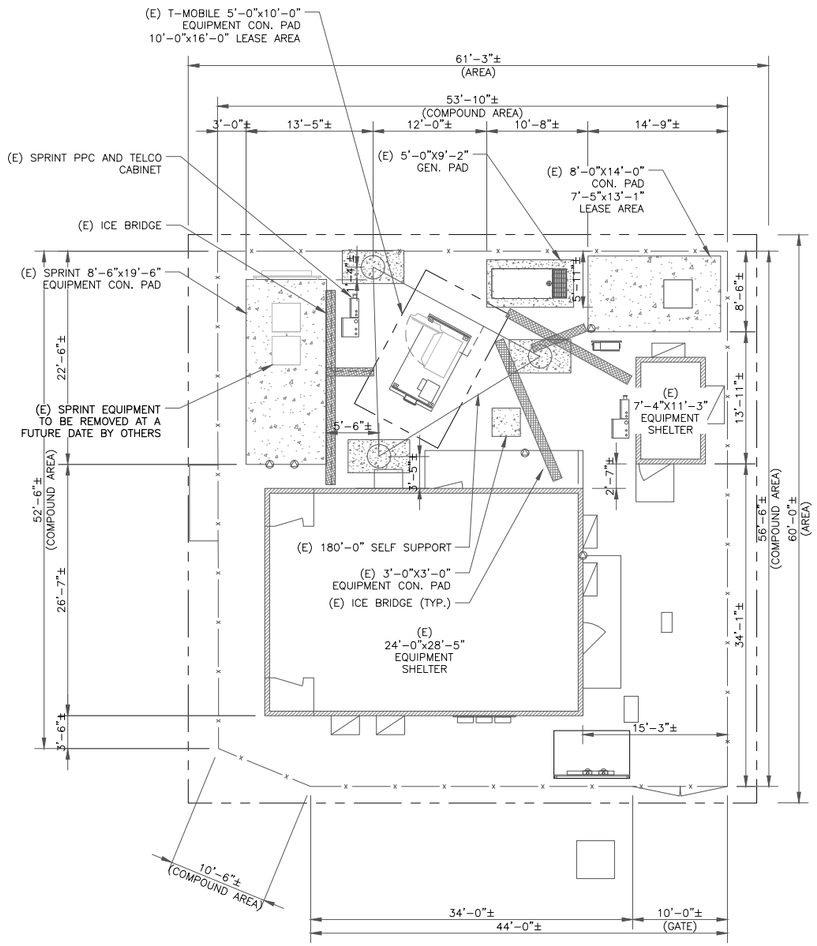
08/18/22

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**

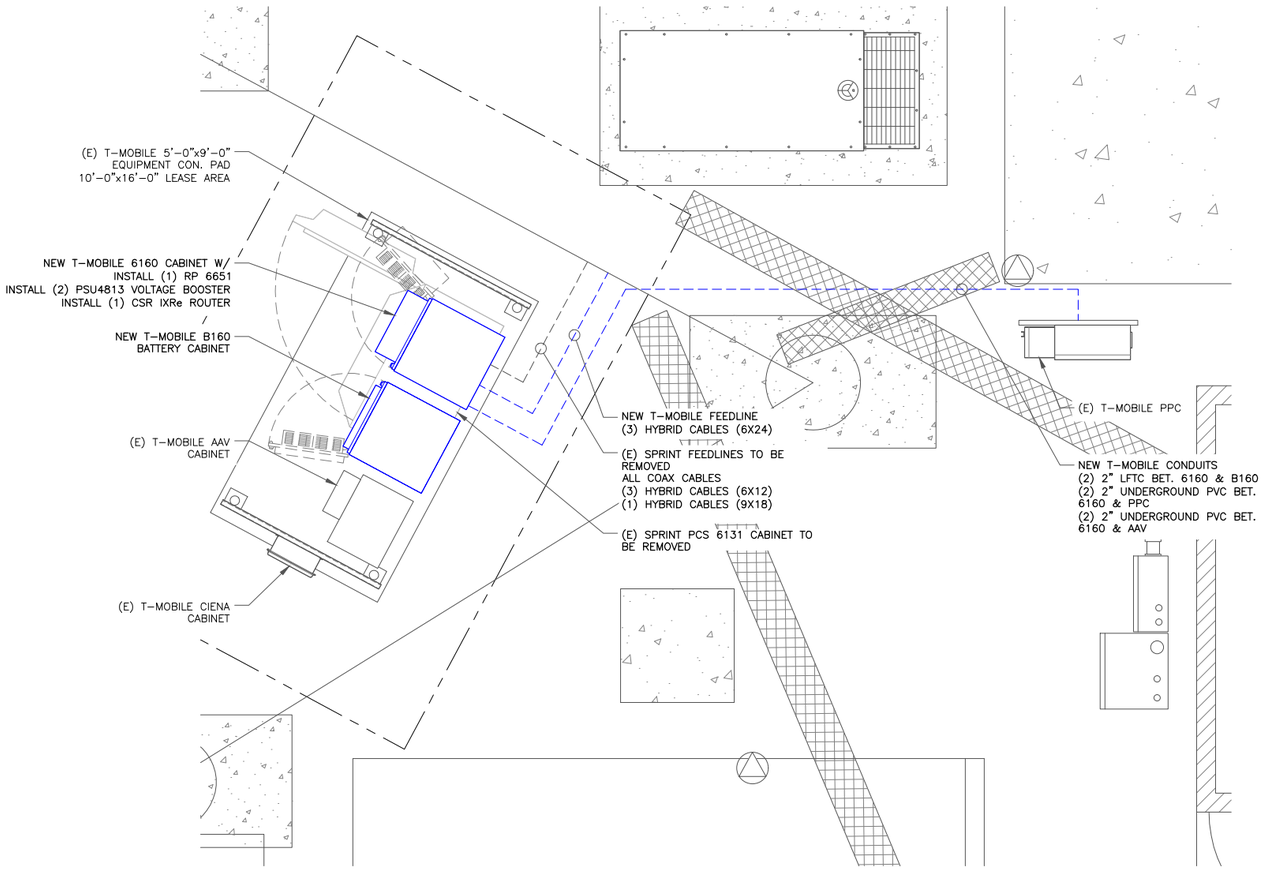
NOTE:

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



1 SITE PLAN

SCALE: 8' 6' 4' 2' 0 8' 1/8"=1'-0" (FULL SIZE) 1/16"=1'-0" (11x17)



2 ENLARGED SITE PLAN

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

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

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

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER

08/18/22

SHEET NUMBER:	REVISION:
C-1	0

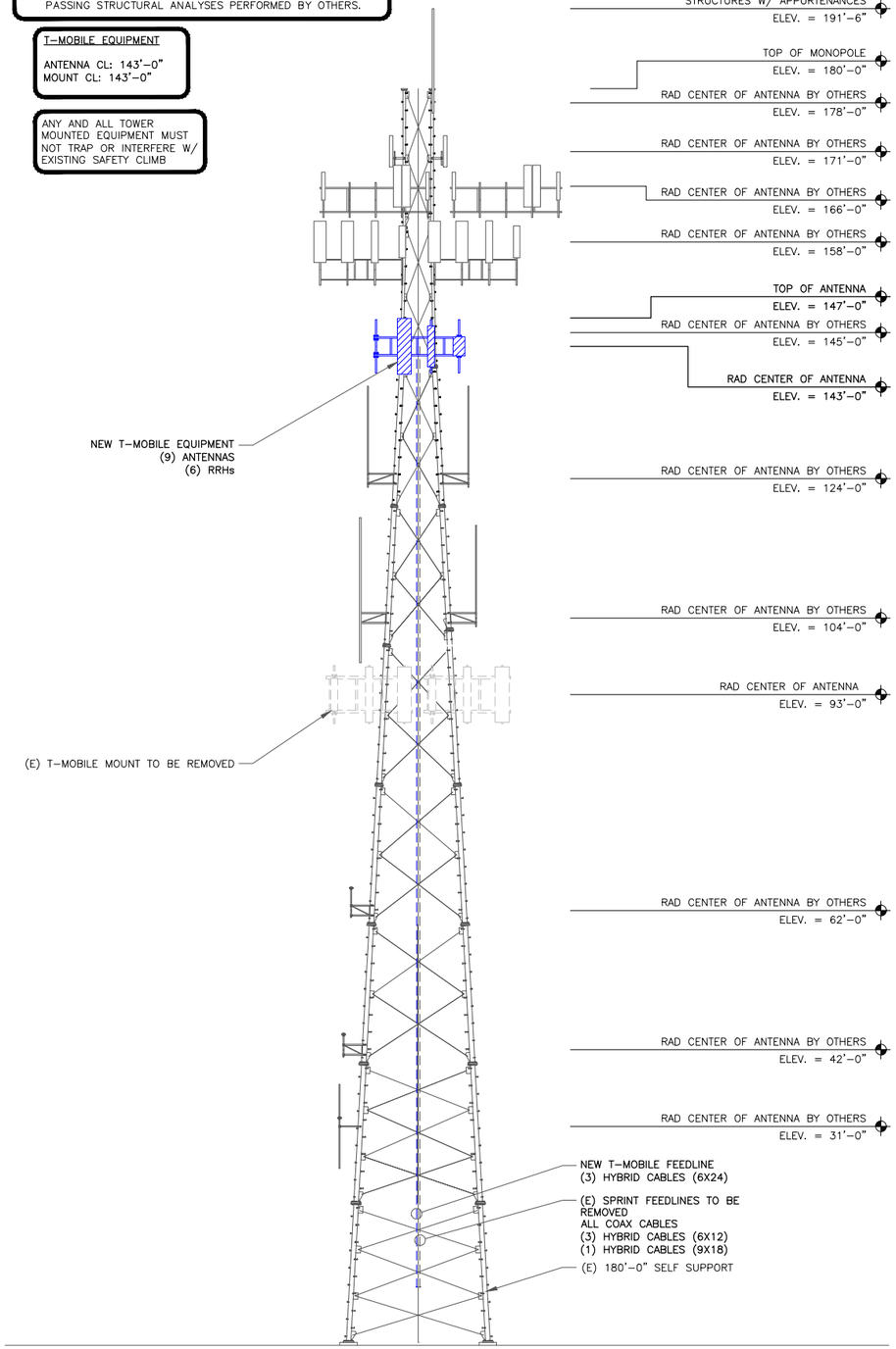
NOTES:

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

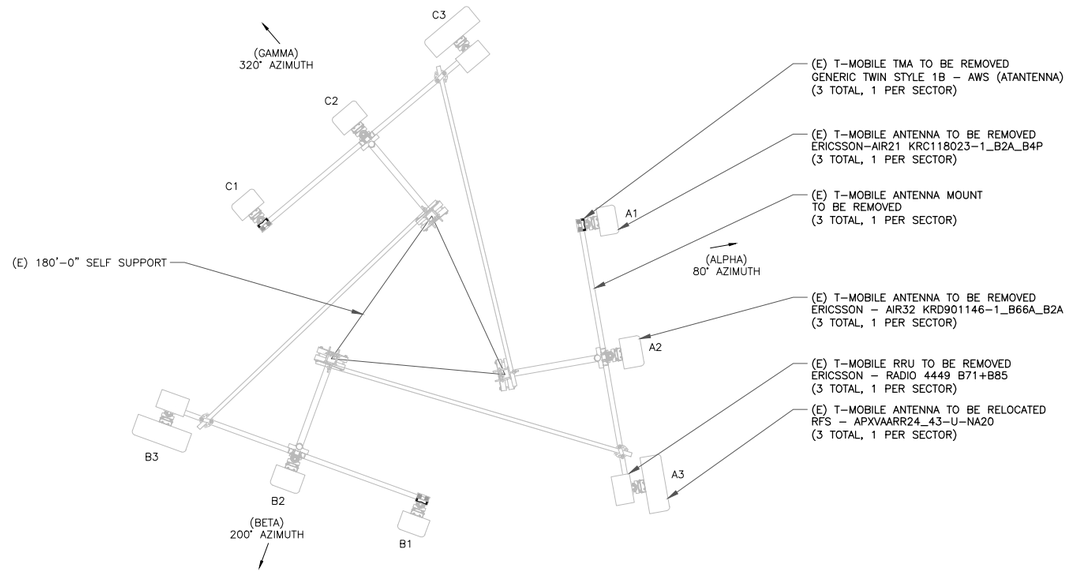
T-MOBILE EQUIPMENT

ANTENNA CL: 143'-0"
MOUNT CL: 143'-0"

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



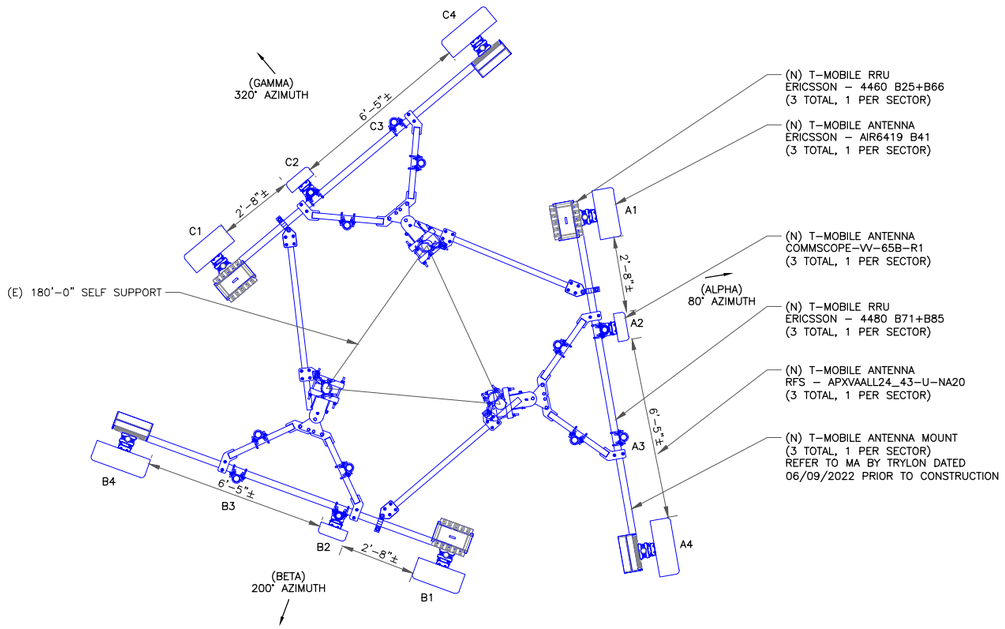
1 FINAL ELEVATION
SCALE: 4' 2' 0 4' 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)



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

ANTENNA @ 93'-0" RAD CENTER

N



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

ANTENNA @ 143'-0" RAD CENTER

N

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED
PROFESSIONAL ENGINEER

08/18/22

SHEET NUMBER: C-2

REVISION: 0

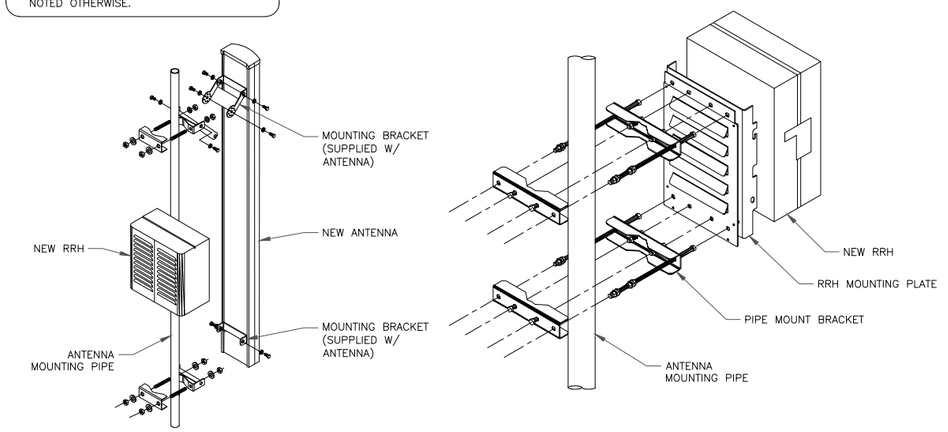
ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	L2500. N2500	143'-0"	80°	ERICSSON	ERICSSON – AIR6419 B41	0°	2°/2°	(1) ERICSSON – RRUS 4460 B25+B66	–
ALPHA	A2	L2100, L1900, G1900	143'-0"	80°	COMMSCOPE	VV-65B-R1	0°	2°/2°	–	–
ALPHA	A3	–	–	–	–	–	–	–	–	–
ALPHA	A4	L700, L600, N600	143'-0"	80°	RFS	APXVAALL24_43-U-NA20	0°	2°/2°	(1) ERICSSON – RRU 4480 B71+B85	(1) 6X24 HYBRID 60M IN LENGTH
BETA	B1	L2500. N2500	143'-0"	200°	ERICSSON	ERICSSON – AIR6419 B41	0°	2°/2°	(1) ERICSSON – RRUS 4460 B25+B66	–
BETA	B2	L2100, L1900, G1900	143'-0"	200°	COMMSCOPE	VV-65B-R1	0°	2°/2°	–	–
BETA	B3	–	–	–	–	–	–	–	–	–
BETA	B4	L700, L600, N600	143'-0"	200°	RFS	APXVAALL24_43-U-NA20	0°	2°/2°	(1) ERICSSON – RRU 4480 B71+B85	(1) 6X24 HYBRID 60M IN LENGTH
GAMMA	C1	L2500. N2500	143'-0"	320°	ERICSSON	ERICSSON – AIR6419 B41	0°	2°/2°	(1) ERICSSON – RRUS 4460 B25+B66	–
GAMMA	C2	L2100, L1900, G1900	143'-0"	320°	COMMSCOPE	VV-65B-R1	0°	2°/2°	–	–
GAMMA	C3	–	–	–	–	–	–	–	–	–
GAMMA	C4	L700, L600, N600	143'-0"	320°	RFS	APXVAALL24_43-U-NA20	0°	2°/2°	(1) ERICSSON – RRU 4480 B71+B85	(1) 6X24 HYBRID 60M IN LENGTH

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

NOTE:

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

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

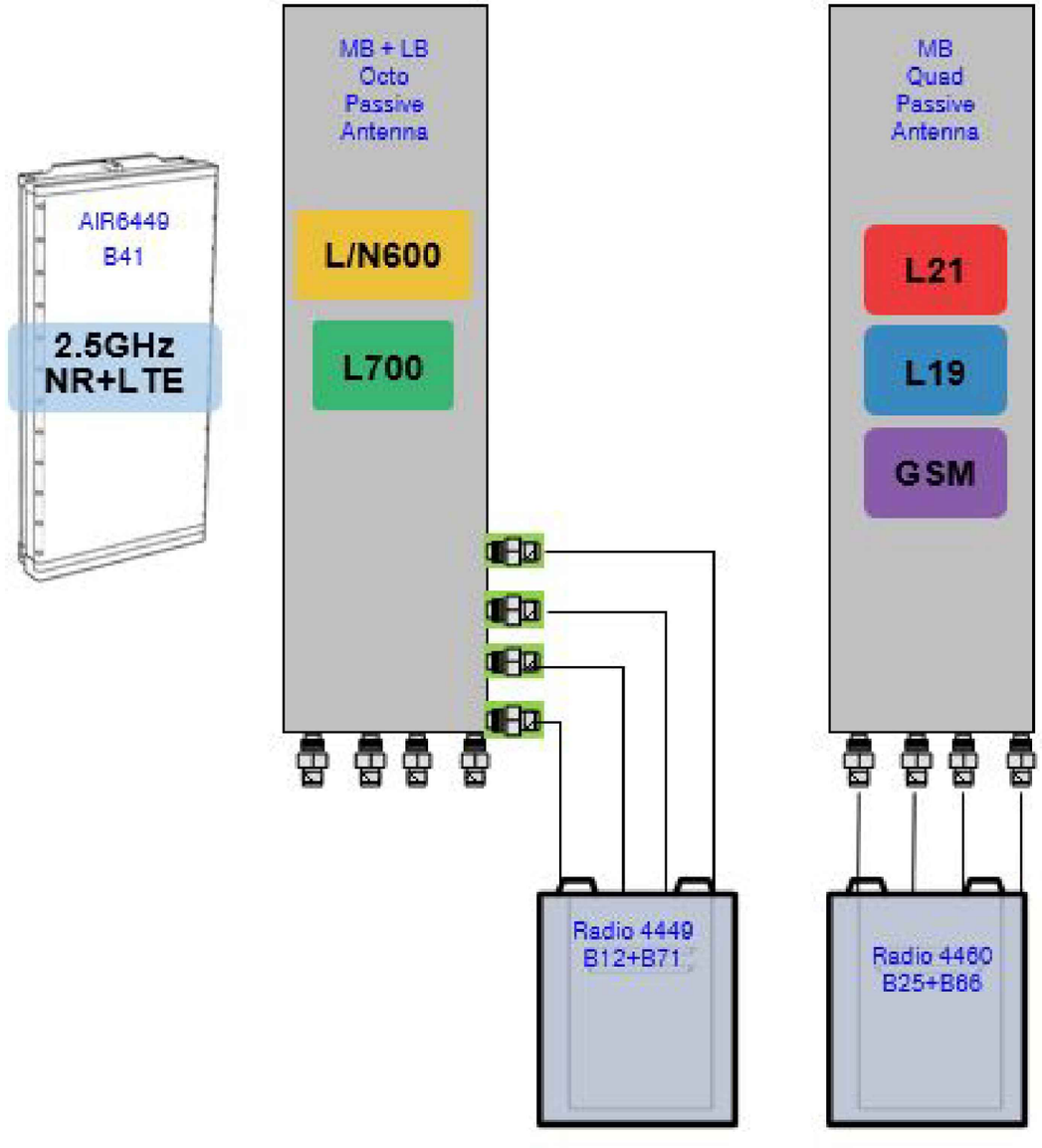
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER

08/18/22

SHEET NUMBER: C-3

REVISION: 0



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS

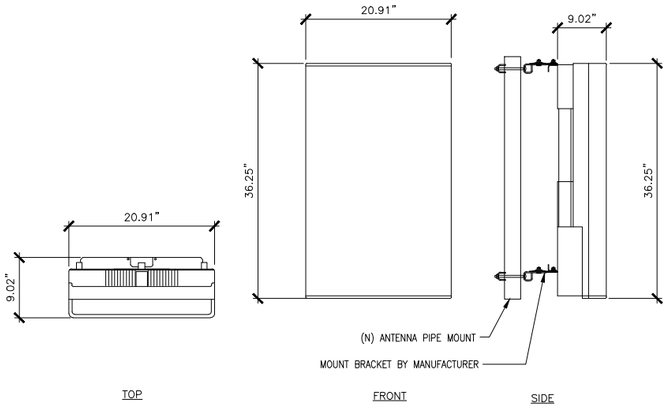
STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER

08/18/22

SHEET NUMBER: C-4

REVISION: 0

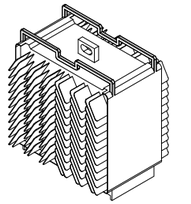
MANUFACTURER: ERICSSON
MODEL: AIR6419 B41
WEIGHT: 96.5 LBS (W/ MOUNT BRACKET 113)
DIMENSIONS: 36.25"H. X 20.91"W. X 9.02"D.
FREQUENCY: REFER TO RF DATA SHEET

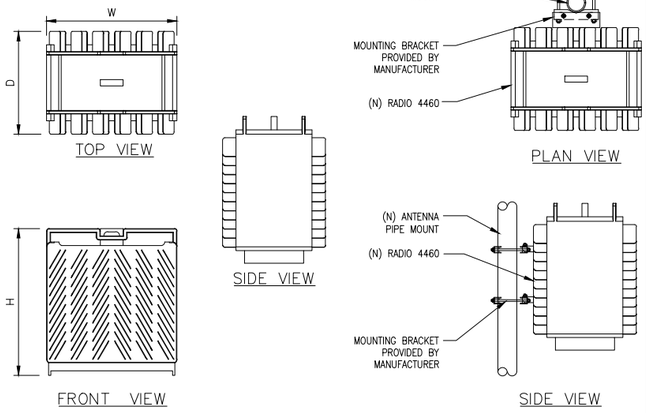


1 (N) AIR6419 B41 ANTENNA SPEC
SCALE: NOT TO SCALE

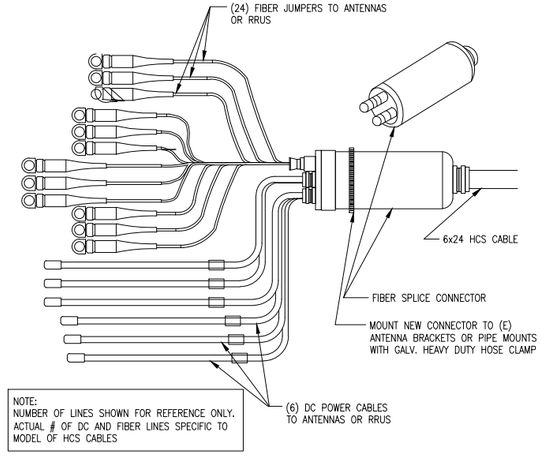
ERICSSON RADIO-4460 B25 B66

DIMENSIONS, WxDxH:	17.0"x15.1"x11.9"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	109 lbs
TEMPERATURE:	-40° TO 55° C

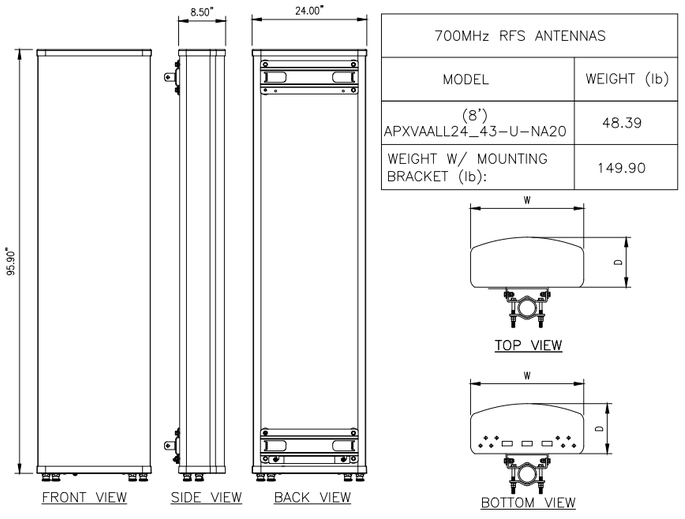




2 (N) RADIO 4460 SPEC
SCALE: NOT TO SCALE



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

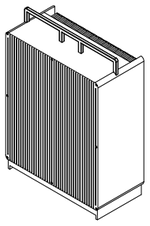


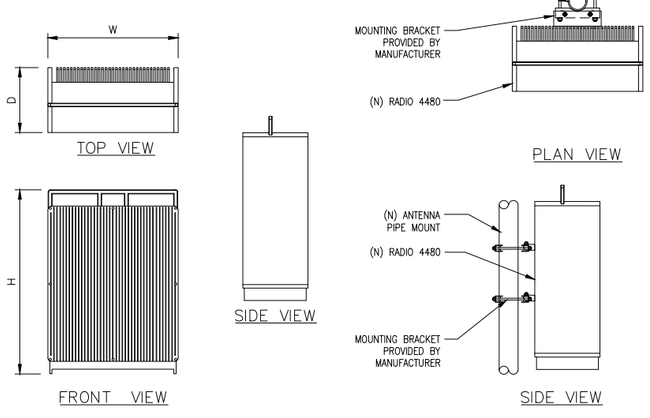
700MHz RFS ANTENNAS	
MODEL	WEIGHT (lb)
(8') APXVAALL24_43-U-NA20	48.39
WEIGHT W/ MOUNTING BRACKET (lb):	149.90

4 (N) APXVAALL24_43-U-NA20 ANTENNA SPEC
SCALE: NOT TO SCALE

ERICSSON RADIO-4480 B71 B85

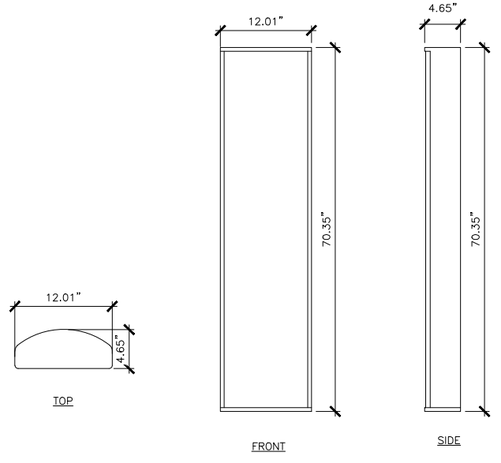
DIMENSIONS, WxDxH:	21.8"x15.7"x7.5"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	93 lbs
TEMPERATURE:	-40° TO 55° C





5 (N) RADIO 4480 SPEC
SCALE: NOT TO SCALE

MANUFACTURER: COMMSCOPE
MODEL: VV-65B-R1
WEIGHT: 33.30 LBS
DIMENSIONS: 70.35"H. X 12.01"W. X 4.65"D.
FREQUENCY: REFER TO RF DATA SHEET



6 (N) VV-65B-R1 ANTENNA SPEC
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

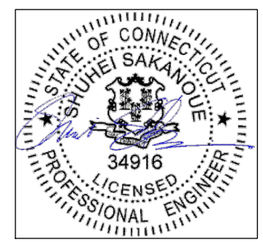
BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

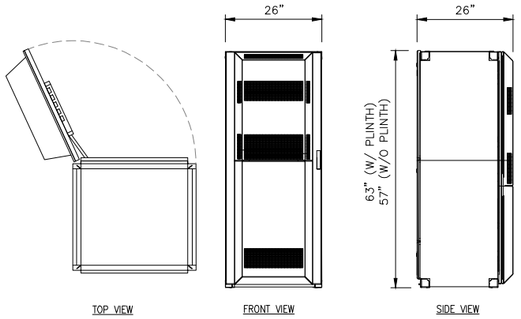
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS



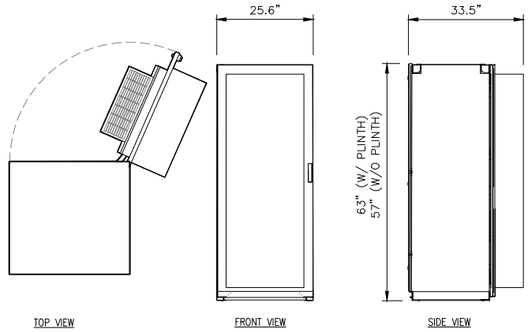
08/18/22

SHEET NUMBER: C-5
REVISION: 0



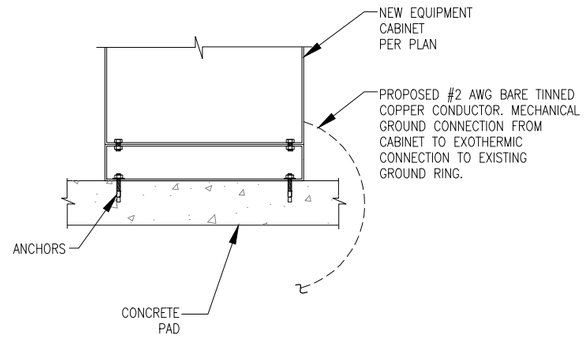
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

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

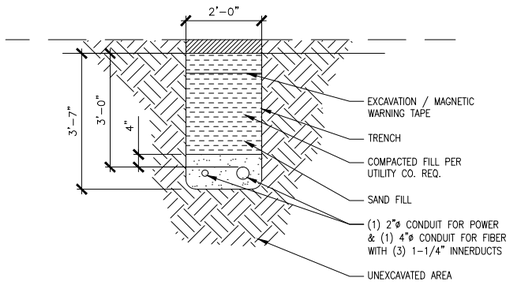


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

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



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



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

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

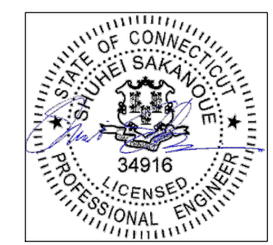
BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS



08/18/22

SHEET NUMBER: C-6

REVISION: 0

NOTES:

1. EXISTING DISTRIBUTION PANEL WAS NOT ACCESSIBLE DURING SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL INFORM ENGINEER IF THERE ARE ANY DISCREPANCIES IN PANEL SCHEDULE.

T-MOBILE PANEL SCHEDULE

MAIN: 200A MAIN BREAKER | **VOTAGE/PHASE:** 120/240V, 1-PHASE, 3-WIRE | **SHORT CIRCUIT CURRENT RATING:** --

MOUNTING: INSIDE PPC ENCLOSURE | **ENCLOSURE:** NEMA 3R | **SURGE PROTECTION DEVICE:** YES

DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	PHASE LOADS (VA) A	PHASE LOADS (VA) B	CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
6160	**8750**	**C**	**100**	**1**	8751		7	60	NC	1	SURGE ARRESTOR
	8750	**C**		**2**		8751	8		NC	1	
6160 GFI	**180**	**NC**	**20**	**3**	180		9	20	NC	0	OFF
TELCO FAN	200	NC	10	4		200	10	20	NC	0	OFF
MMBS (TO BE OFF)	0	C	100	5	180		11	20	NC	180	EXTERNAL RECEPTACLE
	0	C		6		180	12	20	NC	180	INTERNAL RECEPTACLE
				BASE LOAD (VA) =	9111	9131					
				25% OF CONTINUOUS LOAD (VA) =	2188	2188					
				TOTAL LOAD (VA) =	11299	11319					
				TOTAL LOAD (A) =	94	94					

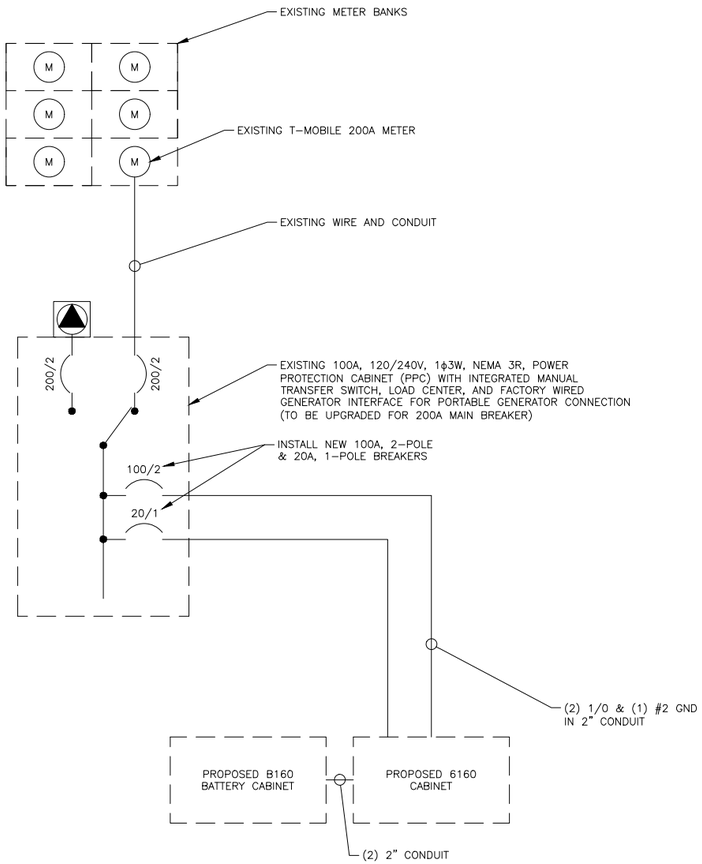
C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD

NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED VALUES.

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN–2, XHHW, OR XHHW–2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE–LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

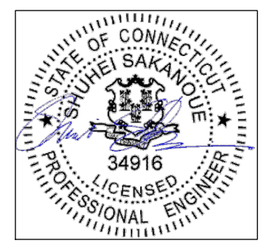
BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

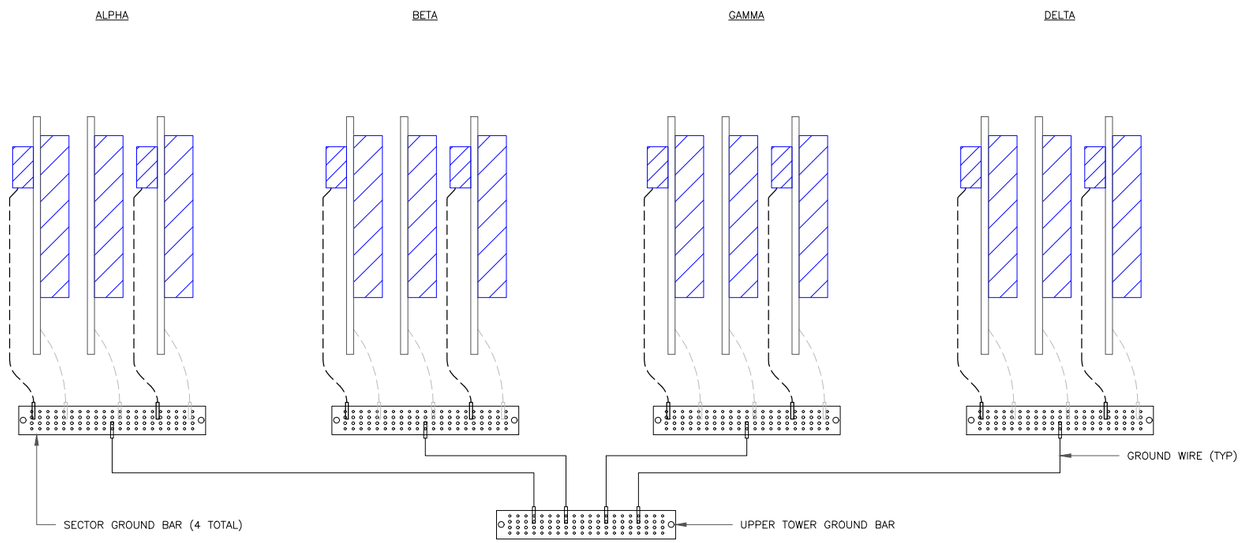
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS



08/18/22

SHEET NUMBER: E-1 | **REVISION:** 0



NOTE:

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

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

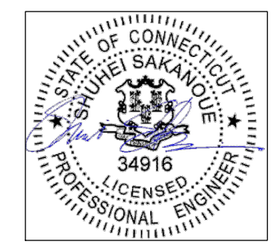
BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

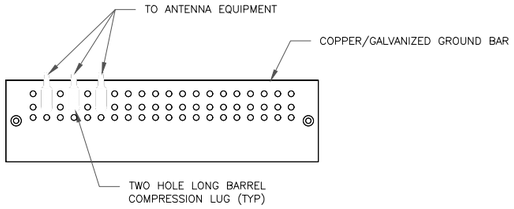
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS



08/18/22

SHEET NUMBER: G-1

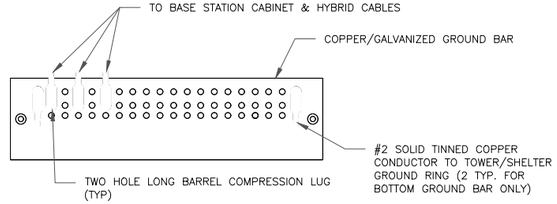
REVISION: 0



NOTES:

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

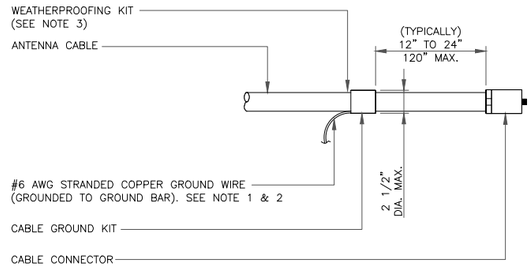
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

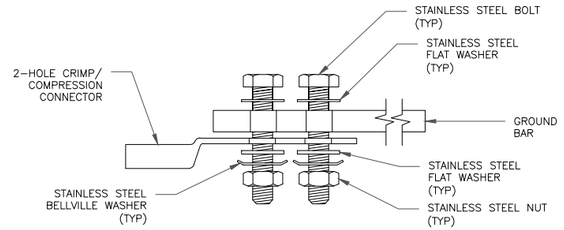
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



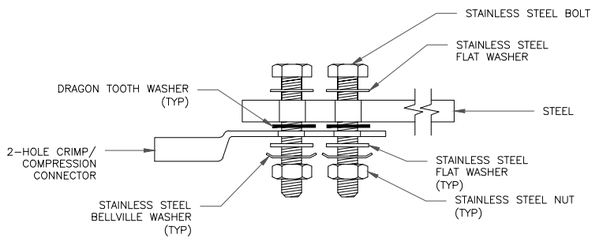
NOTES:

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

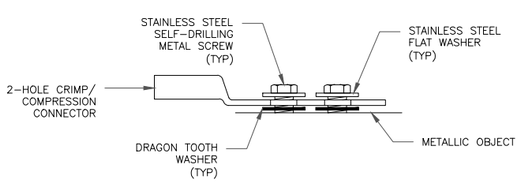
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

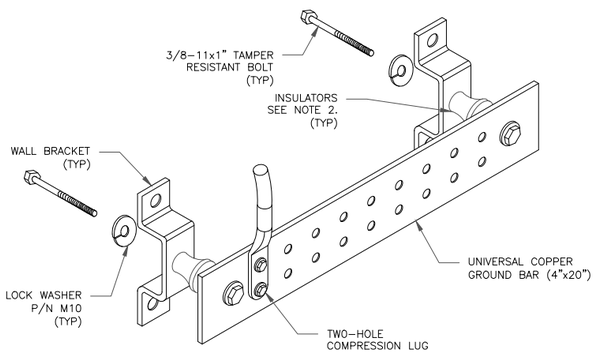


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

5 GROUND BAR DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
500 West Office Center Dr.
Suite 150 | Fort Washington, PA 19034
www.infinigy.com

T-MOBILE SITE NUMBER:
CT11119A

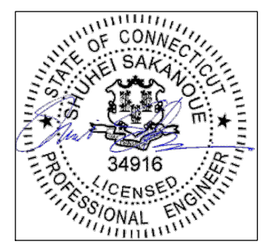
BU #: **806353**
BRG 124 943066

128 MATHER STREET
WILTON, CT 06897

EXISTING 180'-0" SELF SUPPORT

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	07/11/22	RCD	PRELIMINARY	SS
B	08/02/22	DGD	PRELIMINARY	SS
0	08/18/22	DGD	100% FINALS	SS



08/18/22

SHEET NUMBER: G-2

REVISION: 0