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

August 25, 2022

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

RE: **Notice of Exempt Modification for T-Mobile: CTHA502A**
Crown Site#876324
1358 New Britain Avenue, West Hartford, CT 06110
Latitude: 41° 43′ 50.37″ / Longitude: -72° 45′ 13.17″

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 116' level of the 130" monopole tower located at 1358 New Britain Avenue, West Hartford, CT. T-Mobile to remove all Metro antenna equipment at the 96'. T-Mobile to replace six (6) antennas and ancillary equipment at the 116' mount level of the monopole. The property and tower are owned by Crown Castle. 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 @116'-0"
(3) Ericsson – AIR6419 B41 Antennas
(3) RFS APXVAALL24_43-U-NA20 Antennas
(3) Ericsson-Radio 4480_B71+B85 RRH
(3) Ericsson- 4460 B25+B66 RRH
(3) Hybrid Cable (1-5/8")
Antenna Mount Modification

Remove: @116'-0"
(3) RFS-APXVSPP18-C-A20 Antenna
(3) RFS- APXVTM14-C-120 Antennas
(3) Alcatel Lucent -TD-RRH8x20-25 RRH
(3) Alcatel Lucent -1900 MHZ RRH
(3) Alcatel Lucent -800MHZ RRH
(4) Hybrid Cables
(6) 7/8" Coaxial Cables

Remove all Metro/T-Mobile Equipment at the 96'-0" level

(6) Diplexers
(3) Mounts
(3) Antennas

Ground:

Install New:

(1) 6160 Cabinet
(1.) B160 Battery Cabinet
(2) RP 6651
(2) PSU 4813 vR2A
(1) CRS IXRc V2
(1.) AAV Cabinet

Remove:

(1) ODE Cabinet
(1.) DUW30
(3) RUS01 B2
(6) RUS01 B4

The facility was approved by the Connecticut Siting Council TS-NEXTEL-155-010531 on July 13, 2001.

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 Shari Cantor, Mayor, Town of West Hartford and Todd Dumais, Town Planner, Town of West Hartford. Crown Castle is the property and 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, STE 250
Westborough, MA 01581
(781) 970-0053
Jeff.Barbadora@crowncastle.com

Attachments
cc:

Shari Cantor, Mayor
Town West Hartford
50 S. Main Street
West Hartford, CT
(860) 561-7440

Todd Dumais, Town Planner
Town West Hartford
50 S. Main Street
West Hartford, CT
(860) 561-7440

Crown Castle, Property & Tower Owner

CT-257

08

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

July 13, 2001

Ronald C. Clark
~~Manager, Real Estate~~ Operations
Nextel Communications
100 Corporate Park
Rocky Hill, CT 06067

RE: **TS-NEXTEL-155-010531** - Nextel Communications, Inc. request for an order to approve tower sharing at an existing telecommunications facility located at 1358 New Britain Avenue, West Hartford, Connecticut.

Dear Mr. Clark:

At a public meeting held July 11, 2001, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures, with the condition for placement of an architectural wall façade with a brick veneer consistent the adjacent church building, and vegetative landscaping, and that these plans be submitted to the West Hartford Town Planner for review. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

* The proposed shared use is to be implemented as specified in your letters dated May 31, 2001, June 11, 2001, and July 9, 2001.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/laf

c: Barry M. Feldman, Town Manager, Town of West Hartford
Donald Foster, Town Planner, Town of West Hartford
Julie M. Donaldson, Esq., Hurwitz & Sagarin LLC
Christopher B. Fisher, Esq., Cuddy & Feder & Worby LLP
Stephen J. Humes, Esq., LeBoeuf, Lamb, Greene & MacRae

1358 NEW BRITAIN AVENUE

Location	1358 NEW BRITAIN AVENUE	**Mblu**	E15/ 3771/ 1358/ /
Parcel ID	3771 2 1358 0002	**Owner**	WEST HARTFORD METHODIST CHURCH
Assessment	$161,070	**Appraisal**	$235,300
Vision Id #	18679	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$55,100	$180,200	$235,300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$34,930	$126,140	$161,070

Owner of Record

Owner	WEST HARTFORD METHODIST CHURCH
Co-Owner	C/O CROWN CASTLE (SITE 876324)
Address	PMB 331 4017 WASHINGTON ROAD MCMURRAY, PA 15317

Sale Price	$0
Certificate	1
Book & Page	515/ 149
Sale Date	07/16/1973
Instrument	U

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
WEST HARTFORD METHODIST CHURCH	$0	1	515/ 149	U	07/16/1973
	$0	1	298/ 256	U	

Building Information

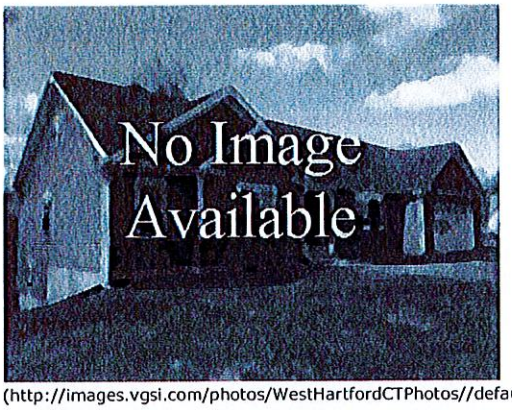
Building 1 : Section 1

Year Built:	1998
Living Area:	200
Replacement Cost:	$40,602
Building Percent Good:	82
Replacement Cost Less Depreciation:	$33,300

Building Photo

Building Attributes	
Field	**Description**

STYLE	Equipment Shed
MODEL	Comm/Ind
Grade	C 1.50
Stories:	1
Occupancy	
Exterior Wall 1	Brick w/Frame
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Built Up
Interior Wall 1	Typical
Interior Wall 2	
Floor Type	Reinf Concrete
Floor Cover	Vinyl
Heating Fuel	Typical
Heating Type	Complete HVAC
AC Type	Complete HVAC
As Built Use	ESHD
Bldg Use	Commercial
# of Bedrooms	
Total Baths	
Type	00
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	Class C
Frame Type	Rigid Steel
Plumbing	LIGHT
Ceiling	Not Applicable
Group	COM
Wall Height	10
Adjustment	



(http://images.vgsi.com/photos/WestHartfordCTPhotos//default.j

Building Layout

TEL[200]

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
TEL	TELEPHONE BUILDING	200	200
		200	200

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	201
Description	Commercial
Zone	R-6

Land Line Valuation

Size (Acres)	0.01
Frontage	
Depth	

Neighborhood		**Assessed Value**	$126,140
Alt Land Appr	No	**Appraised Value**	$180,200
Category			

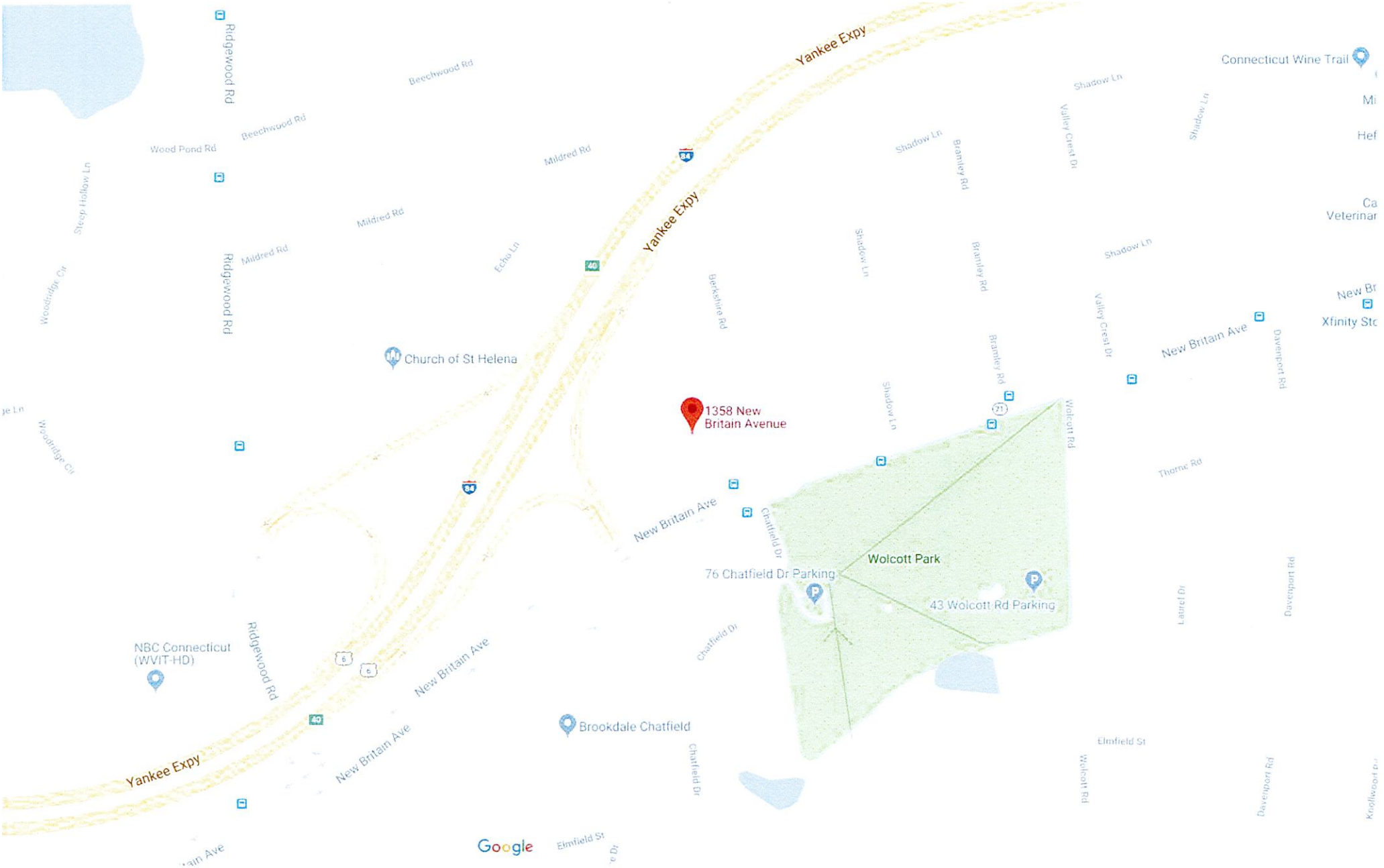
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CP18	Chn Link Fence 8' hght			800 LF	$13,800	1
CFC5	Shed - Concrete Block			135 SF	$8,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$55,100	$180,200	$235,300
2016	$55,100	$180,200	$235,300
2015	$38,400	$150,300	$188,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$34,930	$126,140	$161,070
2016	$34,930	$126,140	$161,070
2015	$26,880	$105,210	$132,090


Yankee Expy
Ridgewood Rd
Beechwood Rd
Wood Pond Rd
Mildred Rd
Steep Hollow Ln
Woodridge Cir
Echo Ln
Berkshire Rd
Shadow Ln
Bramley Rd
Valley Crest Dr
Church of St Helena
1358 New Britain Avenue
New Britain Ave
Chatfield Dr
Wolcott Park
76 Chatfield Dr Parking
43 Wolcott Rd Parking
Wolcott Rd
Thorne Rd
Davenport Rd
Laurel Dr
Elmfield St
Brookdale Chatfield
NBC Connecticut (WVIT-HD)
Connecticut Wine Trail
New Br
Xfinity Sto
Ca
Veterinar
Google

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, August 26, 2022 10:16 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777766138845: Your package has been delivered

Hi. Your package was delivered Fri, 08/26/2022 at 10:09am.

Delivered to 50 S MAIN ST, WEST HARTFORD, CT 06107
Received by C.CHARLES

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777766138845

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of West Hartford Shari Cantor, Mayor 50 S. Main Street WEST HARTFORD, CT, US, 06107
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 8/25/2022 05:43 PM
DELIVERED TO	Mailroom
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WEST HARTFORD, CT, US, 06107
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, August 26, 2022 10:16 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777766156340: Your package has been delivered

Hi. Your package was delivered Fri, 08/26/2022 at 10:09am.

Delivered to 50 S MAIN ST, WEST HARTFORD, CT 06107
Received by C.CHARLES

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777766156340

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of West Hartford Todd Dumais, Town Planner 50 S. Main Street WEST HARTFORD, CT, US, 06107
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 8/25/2022 05:43 PM
DELIVERED TO	Mailroom
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WEST HARTFORD, CT, US, 06107
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Date: **July 07, 2022**

MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(707) 379-8500

Subject:	**Structural Analysis Report**	
Carrier Designation:		
	Site Number:	CTHA502A
	Site Name:	CT03XC057
Crown Castle Designation:	**BU Number:**	876324
	Site Name:	West Hartford United Methodist
	JDE Job Number:	722181
	Work Order Number:	2132155
	Order Number:	622772 Rev. 0
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN-773R1 / 2200039	
Site Data:	**1358 New Britain Avenue, West Hartford, Hartford County, CT 06110** **Latitude *41° 43' 50.37"*, Longitude *-72° 45' 13.17"*** **130 Foot – Rohn Monopole Tower**	

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

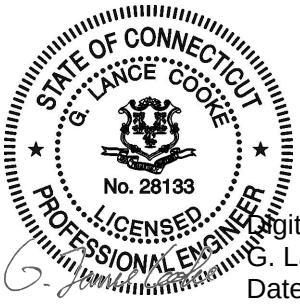
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity-98.3%**

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 – Analysis.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer



Digitally signed by G. Lance Cooke
Date: 2022.07.07 08:31:50-07'00'

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 130 ft monopole tower designed by Rohn. The tower was modified multiple times in the past to accommodate additional loading. Modifications are incorporated in this analysis per the post modification inspection reports.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	117 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 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)
116.0	116.0	3	rfs/celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	3	1-5/8
		3	ericsson	AIR 6419 B41_TMO		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	-	10' Mount Pipe [#P2.0 STD]		
		1	-	Platform Mount [LP 303-1_HR-1]		
50.0	50.0	1	lucent	KS24019-L112A	1	1/2
		1	-	Side Arm Mount [SO 702-1]		

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)
127.0	128.0	1	andrew	VHLP2-18	3 3 3 2	1/4 5/16 1/2 2C
	127.0	3	argus technologies	LLPX310R w/ Mount Pipe		
		2	dragonwave	A-ANT-18G-2-C		
		1	raycap	DC6-48-60-18-8F		
		3	samsung telecommunications	RRH-2WB		
		1	-	Side Arm Mount [SO 102-3]		
117.0	117.0	3	alcatel lucent	TME-800MHz 2X50W RRH W/FILTER	-	-
		1	-	Side Arm Mount [SO 102-3]		
	115.0	3	alcatel lucent	TME-PCS 1900MHz 4x45W-65MHz		
105.0	107.0	6	commscope	SBNHH-1D65B	6 2	7/8 1-5/8
		1	raycap	RRFDC-3315-PF-48		
		1	rfs/celwave	DB-T1-6Z-8AB-0Z		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
105.0	107.0	3	samsung telecommunications	RFV01U-D1A	-	-
	106.0	3	antel	BXA-70063/4CF w/ Mount Pipe		
		3	antel	BXA-80063-4CF-EDIN-2 w/ Mount Pipe		
		3	samsung telecommunications	RFV01U-D2A		
		1	-	Platform Mount [LP 502-1]		
96.0	96.0	3	rfs/celwave	APXV18-209015-C-A20 w/ Mount Pipe	6	1-5/8
86.0	86.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-3/8
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		
60.0	60.0	2	-	Side Arm Mount [SO 702-1]	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	1771422	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1615437	CCISITES
4-GEOTECHNICAL REPORTS	1529734	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	6581208	CCISITES
4-POST-MODIFICATION INSPECTION	6894104	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2745779	CCISITES
4-POST-MODIFICATION INSPECTION	2745780	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2364338	CCISITES
4-POST-MODIFICATION INSPECTION	2364340	CCISITES

3.1) Analysis Method

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

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

3.2) Assumptions

1) 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. Morrison Hershfield 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	% Capacity	Pass / Fail
L1	130 - 125	Pole	TP16x16x0.1875	Pole	2.8	Pass
L2	125 - 120	Pole	TP16x16x0.1875	Pole	9.2	Pass
L3	120 - 115	Pole	TP24x24x0.25	Pole	7.4	Pass
L4	115 - 110	Pole	TP24x24x0.25	Pole	15.6	Pass
L5	110 - 105	Pole	TP24x24x0.25	Pole	24.1	Pass
L6	105 - 100	Pole	TP24x24x0.25	Pole	38.5	Pass
L7	100 - 95	Pole	TP24x24x0.25	Pole	52.1	Pass
L8	95 - 90	Pole	TP24x24x0.25	Pole	66.3	Pass
L9	90 - 85	Pole	TP24x24x0.375	Pole	52.2	Pass
L10	85 - 83.5	Pole	TP24x24x0.375	Pole	55.7	Pass
L11	83.5 - 83.25	Pole + Reinf.	TP24x24x0.6	Reinf. 8 Tension Rupture	40.2	Pass
L12	83.25 - 78.25	Pole + Reinf.	TP24x24x0.6	Reinf. 8 Tension Rupture	48.8	Pass
L13	78.25 - 75	Pole + Reinf.	TP24x24x0.6	Reinf. 8 Tension Rupture	54.4	Pass
L14	75 - 74.75	Pole + Reinf.	TP24x24x0.6	Reinf. 3 Compression	55.4	Pass
L15	74.75 - 69.75	Pole + Reinf.	TP24x24x0.6	Reinf. 3 Compression	64.5	Pass
L16	69.75 - 64.75	Pole + Reinf.	TP24x24x0.6	Reinf. 3 Compression	73.8	Pass
L17	64.75 - 60	Pole + Reinf.	TP24x24x0.6	Reinf. 3 Compression	82.8	Pass
L18	60 - 59.75	Pole + Reinf.	TP30x30x0.5438	Reinf. 2 Compression	57.2	Pass
L19	59.75 - 54.75	Pole + Reinf.	TP30x30x0.5438	Reinf. 2 Compression	64.2	Pass
L20	54.75 - 49.75	Pole + Reinf.	TP30x30x0.5438	Reinf. 2 Compression	71.4	Pass
L21	49.75 - 48.5	Pole + Reinf.	TP30x30x0.5438	Reinf. 2 Compression	73.2	Pass
L22	48.5 - 48.25	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	54.2	Pass
L23	48.25 - 43.25	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	59.6	Pass
L24	43.25 - 38.25	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	65.2	Pass
L25	38.25 - 33.25	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	71.1	Pass
L26	33.25 - 30	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	74.9	Pass
L27	30 - 29.75	Pole + Reinf.	TP36x36x0.55	Pole	66.8	Pass
L28	29.75 - 24.75	Pole + Reinf.	TP36x36x0.55	Pole	72.4	Pass
L29	24.75 - 23	Pole + Reinf.	TP36x36x0.55	Pole	74.4	Pass
L30	23 - 22.75	Pole + Reinf.	TP36x36x0.55	Pole	75.4	Pass
L31	22.75 - 20.75	Pole + Reinf.	TP36x36x0.55	Pole	77.7	Pass
L32	20.75 - 20.5	Pole + Reinf.	TP36x36x0.6875	Reinf. 1 Tension Rupture	74.5	Pass
L33	20.5 - 17.75	Pole + Reinf.	TP36x36x0.6875	Reinf. 1 Tension Rupture	77.6	Pass
L34	17.75 - 17.5	Pole + Reinf.	TP36x36x0.7	Reinf. 1 Tension Rupture	76.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L35	17.5 - 12.5	Pole + Reinf.	TP36x36x0.7	Reinf. 1 Tension Rupture	81.9	Pass
L36	12.5 - 7.5	Pole + Reinf.	TP36x36x0.7	Reinf. 1 Tension Rupture	87.6	Pass
L37	7.5 - 3.25	Pole + Reinf.	TP36x36x0.7	Reinf. 1 Tension Rupture	92.6	Pass
L38	3.25 - 3	Pole + Reinf.	TP36x36x0.6875	Reinf. 1 Tension Rupture	94.7	Pass
L39	3 - 0	Pole + Reinf.	TP36x36x0.6875	Reinf. 1 Tension Rupture	98.3	Pass
					Summary	
				Pole	83.0	Pass
				Reinforcement	98.3	Pass
				Overall	98.3	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	120	7.6	Pass
1	Flange Connection	90	47.8	Pass
1	Flange Connection	60	55.2	Pass
1	Flange Connection	30	65.2	Pass
1	Anchor Rods	0	88.9	Pass
1	Base Plate		74.3	Pass
1	Base Foundation (Structure)	0	85.6	Pass
1	Base Foundation (Soil Interaction)		46.4	Pass

Structure Rating (max from all components) =	98.3%*

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.

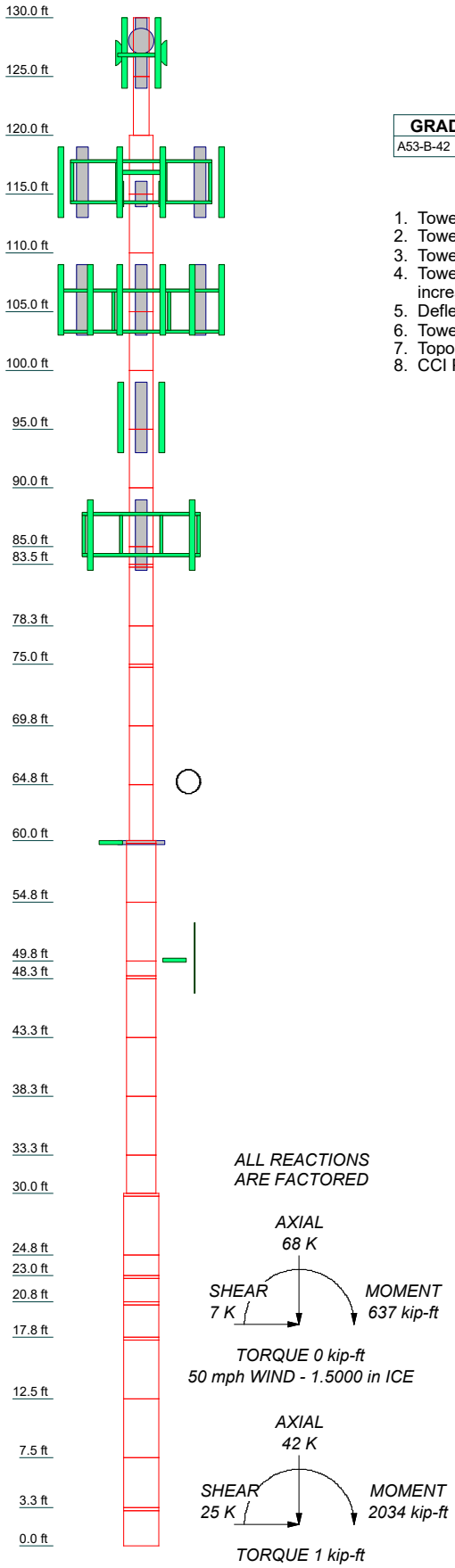
4.1) Recommendations

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	Size	Length (ft)	Grade	Weight (K)
1	P36x0.1875	5.00	A53-B-42	0.2
2	P36x0.1875	5.00		0.2
3	P24x0.25	5.00		0.3
4	P24x0.25	5.00		0.3
5	P24x0.25	5.00		0.3
6	P24x0.25	5.00		0.3
7	P24x0.25	5.00		0.3
8	P24x0.25	5.00		0.3
9	P24x0.375	5.00		0.5
10	P24x0.375	0.50		0.1
11	P24x0.375	0.25		0
12	P24x0.375	5.00		0.7
13	P24x0.6	2.25		0.5
14	P24x0.6	0.25		0
15	P24x0.6	5.00		0.7
16	P24x0.6	5.00		0.7
17	P24x0.6	4.75		0.7
18	P30x0.5625	0.25		0
19	P30x0.5625	5.00		0.8
20	P30x0.5625	5.00		0.8
21	P30x0.5625	0.25		0.2
23	P30x0.5625	5.00		1.1
24	P30x0.7375	5.00		1.1
25	P30x0.7375	5.00		1.1
26	P30x0.7375	2.25		0.7
27	P30x0.7375	0.25		0
28	P36x0.7375	5.00		1.0
29	P36x0.7375	0.75		0.4
31	P36x0.7375	2.50		0.4
33	P36x0.7375	2.75		0.7
34	P36x0.7375	0.25		0
35	P36x0.7375	5.00		1.4
36	P36x0.7	5.00		1.4
37	P36x0.7	4.25		1.2
38	P36x0.7	0.25		0.1
39	P36x0.7	3.00		0.7



ALL REACTIONS ARE FACTORED

TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE

TORQUE 1 kip-ft
REACTIONS - 117 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 117 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. CCI POLE RATING: 98.3%

Morrison Hershfield
Consulting Engineers
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
Phone: (707) 379-8500
FAX: (707) 379-8501

Job:	CN9-773R1 / 2200039		
Project:	876324 / West Hartford United Methodist		
Client: Crown Castle USA		Drawn by: RBA	App'd:
Code: TIA-222-H		Date: 07/07/22	Scale: NTS
Path:			Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Tower base elevation above sea level: 158.00 ft.
Basic wind speed of 117 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Pole Section Geometry

Section	*Elevation*	*Section Length*	*Pole Size*	*Pole Grade*	*Socket Length*
	ft	*ft*			*ft*
L1	130.00-125.00	5.00	P16x0.1875	A53-B-42 (42 ksi)	
L2	125.00-120.00	5.00	P16x0.1875	A53-B-42 (42 ksi)	
L3	120.00-115.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L4	115.00-110.00	5.00	P24x0.25	A53-B-42	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L5	110.00-105.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L6	105.00-100.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L7	100.00-95.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L8	95.00-90.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L9	90.00-85.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L10	85.00-83.50	1.50	P24x0.375	A53-B-42 (42 ksi)	
L11	83.50-83.25	0.25	P24x0.6	A53-B-42 (42 ksi)	
L12	83.25-78.25	5.00	P24x0.6	A53-B-42 (42 ksi)	
L13	78.25-75.00	3.25	P24x0.6	A53-B-42 (42 ksi)	
L14	75.00-74.75	0.25	P24x0.6	A53-B-42 (42 ksi)	
L15	74.75-69.75	5.00	P24x0.6	A53-B-42 (42 ksi)	
L16	69.75-64.75	5.00	P24x0.6	A53-B-42 (42 ksi)	
L17	64.75-60.00	4.75	P24x0.6	A53-B-42 (42 ksi)	
L18	60.00-59.75	0.25	P30x0.54375	A53-B-42 (42 ksi)	
L19	59.75-54.75	5.00	P30x0.54375	A53-B-42 (42 ksi)	
L20	54.75-49.75	5.00	P30x0.54375	A53-B-42 (42 ksi)	
L21	49.75-48.50	1.25	P30x0.54375	A53-B-42 (42 ksi)	
L22	48.50-48.25	0.25	P30x0.7375	A53-B-42 (42 ksi)	
L23	48.25-43.25	5.00	P30x0.7375	A53-B-42 (42 ksi)	
L24	43.25-38.25	5.00	P30x0.7375	A53-B-42 (42 ksi)	
L25	38.25-33.25	5.00	P30x0.7375	A53-B-42 (42 ksi)	
L26	33.25-30.00	3.25	P30x0.7375	A53-B-42 (42 ksi)	
L27	30.00-29.75	0.25	P36x0.55	A53-B-42 (42 ksi)	
L28	29.75-24.75	5.00	P36x0.55	A53-B-42 (42 ksi)	
L29	24.75-23.00	1.75	P36x0.55	A53-B-42 (42 ksi)	
L30	23.00-22.75	0.25	P36x0.55	A53-B-42 (42 ksi)	
L31	22.75-20.75	2.00	P36x0.55	A53-B-42 (42 ksi)	
L32	20.75-20.50	0.25	P36x0.6875	A53-B-42 (42 ksi)	
L33	20.50-17.75	2.75	P36x0.6875	A53-B-42 (42 ksi)	
L34	17.75-17.50	0.25	P36x0.7	A53-B-42 (42 ksi)	
L35	17.50-12.50	5.00	P36x0.7	A53-B-42 (42 ksi)	
L36	12.50-7.50	5.00	P36x0.7	A53-B-42 (42 ksi)	
L37	7.50-3.25	4.25	P36x0.7	A53-B-42 (42 ksi)	
L38	3.25-3.00	0.25	P36x0.6875	A53-B-42 (42 ksi)	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L39	3.00-0.00	3.00	P36x0.6875	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 130.00-125.00				1	1	1			
L2 125.00-120.00				1	1	1			
L3 120.00-115.00				1	1	1			
L4 115.00-110.00				1	1	1			
L5 110.00-105.00				1	1	1			
L6 105.00-100.00				1	1	1			
L7 100.00-95.00				1	1	1			
L8 95.00-90.00				1	1	1			
L9 90.00-85.00				1	1	1			
L10 85.00-83.50				1	1	1			
L11 83.50-83.25				1	1	0.937077			
L12 83.25-78.25				1	1	0.937077			
L13 78.25-75.00				1	1	0.937077			
L14 75.00-74.75				1	1	0.937077			
L15 74.75-69.75				1	1	0.937077			
L16 69.75-64.75				1	1	0.937077			
L17 64.75-60.00				1	1	0.937077			
L18 60.00-59.75				1	1	0.961898			
L19 59.75-54.75				1	1	0.961898			
L20 54.75-49.75				1	1	0.961898			
L21 49.75-48.50				1	1	0.961898			
L22 48.50-48.25				1	1	0.979382			
L23 48.25-43.25				1	1	0.979382			
L24 43.25-38.25				1	1	0.979382			
L25 38.25-33.25				1	1	0.979382			
L26 33.25-30.00				1	1	0.979382			
L27 30.00-29.75				1	1	0.979046			
L28 29.75-24.75				1	1	0.979046			
L29 24.75-23.00				1	1	0.979046			

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
L30 23.00-22.75				1	1	0.979046			
L31 22.75-20.75				1	1	0.979046			
L32 20.75-20.50				1	1	0.952228			
L33 20.50-17.75				1	1	0.952228			
L34 17.75-17.50				1	1	1.04022			
L35 17.50-12.50				1	1	1.04022			
L36 12.50-7.50				1	1	1.04022			
L37 7.50-3.25				1	1	1.04022			
L38 3.25-3.00				1	1	0.952228			
L39 3.00-0.00				1	1	0.952228			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
FSJ4-50B(1/2)	B	No	Surface Ar (CaAa)	127.00 - 0.00	3	2	-0.100 -0.050	0.5300		0.14
CONDUIT(2)	B	No	Surface Ar (CaAa)	127.00 - 0.00	2	2	-0.050 0.050	2.0000		2.80
****										
CU12PSM9P8XXX(1-3/8)	A	No	Surface Ar (CaAa)	86.00 - 0.00	1	1	0.000 0.000	1.4110		1.66
****										
LDF4-50A(1/2)	C	No	Surface Ar (CaAa)	50.00 - 0.00	1	1	0.150 0.150	0.6250		0.15
******										
Flat Plate [#3.75"x1.25"]	A	No	Surface Af (CaAa)	22.00 - 0.00	1	1	0.450 0.450	3.7500	10.0000	0.00
Flat Plate [#3.75"x1.25"]	B	No	Surface Af (CaAa)	22.00 - 0.00	1	1	0.450 0.450	3.7500	10.0000	0.00
Flat Plate [#3.75"x1.25"]	C	No	Surface Af (CaAa)	22.00 - 0.00	1	1	0.450 0.450	3.7500	10.0000	0.00
******										
CCI-65FP-045100	A	No	Surface Af (CaAa)	75.00 - 60.00	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-65FP-045100	B	No	Surface Af (CaAa)	75.00 - 60.00	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-65FP-045100	C	No	Surface Af (CaAa)	75.00 - 60.00	1	1	0.000 0.000	4.5000	11.0000	0.00
***										
MS-600	A	No	Surface Af (CaAa)	25.00 - 0.00	1	1	-0.150 -0.150	6.0000	14.0000	0.00
MS-600	B	No	Surface Af (CaAa)	25.00 - 0.00	1	1	-0.150 -0.150	6.0000	14.0000	0.00
MS-600	C	No	Surface Af (CaAa)	25.00 - 0.00	1	1	-0.150 -0.150	6.0000	14.0000	0.00
***										
MS-600	A	No	Surface Af (CaAa)	30.00 - 19.00	1	1	0.250 0.250	6.0000	14.0000	0.00
MS-600	B	No	Surface Af (CaAa)	30.00 - 19.00	1	1	0.250 0.250	6.0000	14.0000	0.00
MS-600	C	No	Surface Af (CaAa)	30.00 - 19.00	1	1	0.250 0.250	6.0000	14.0000	0.00
***										
MS-600	A	No	Surface Af (CaAa)	51.50 - 30.00	1	1	0.350 0.350	6.0000	14.0000	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
MS-600	B	No	Surface Af (CaAa)	51.50 - 30.00	1	1	0.350 0.350	6.0000	14.0000	0.00
MS-600	C	No	Surface Af (CaAa)	51.50 - 30.00	1	1	0.350 0.350	6.0000	14.0000	0.00
******										
CCI-65FP-045100	A	No	Surface Af (CaAa)	85.00 - 75.00	1	1	0.100 0.100	4.5000	11.0000	0.00
CCI-65FP-045100	B	No	Surface Af (CaAa)	85.00 - 75.00	1	1	0.100 0.100	4.5000	11.0000	0.00
CCI-65FP-045100	C	No	Surface Af (CaAa)	85.00 - 75.00	1	1	0.100 0.100	4.5000	11.0000	0.00
***										
CCI-65FP-045100	A	No	Surface Af (CaAa)	51.50 - 30.00	1	1	0.100 0.100	4.5000	11.0000	0.00
CCI-65FP-045100	B	No	Surface Af (CaAa)	51.50 - 30.00	1	1	0.100 0.100	4.5000	11.0000	0.00
CCI-65FP-045100	C	No	Surface Af (CaAa)	51.50 - 30.00	1	1	0.100 0.100	4.5000	11.0000	0.00
***										
CCI-65FP-065125	A	No	Surface Af (CaAa)	20.50 - 0.50	1	1	0.250 0.250	6.5000	15.5000	0.00
******										

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 plf
******									
FSJ1-50A(1/4)	B	No	No	Inside Pole	127.00 - 0.00	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.04 0.04 0.04 0.04
9207(5/16)	B	No	No	Inside Pole	127.00 - 0.00	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.06 0.06 0.06 0.06
******									
*									
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	116.00 - 0.00	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	2.50 2.50 2.50 2.50
***									
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	105.00 - 0.00	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	1.30 1.30 1.30 1.30
LCF78-50A(7/8)	C	No	No	Inside Pole	105.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.34 0.34 0.34 0.34
***									
AVA7-50(1-5/8)	B	No	No	Inside Pole	96.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.70 0.70 0.70 0.70
******									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-125.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.012	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L2	125.00-120.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.00
L3	120.00-115.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.01
L4	115.00-110.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.04
L5	110.00-105.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.04
L6	105.00-100.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.06
L7	100.00-95.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.06
L8	95.00-90.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.06
L9	90.00-85.00	A	0.000	0.000	0.141	0.000	0.00
		B	0.000	0.000	2.530	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.06
L10	85.00-83.50	A	0.000	0.000	1.337	0.000	0.00
		B	0.000	0.000	1.884	0.000	0.02
		C	0.000	0.000	1.125	0.000	0.02
L11	83.50-83.25	A	0.000	0.000	0.223	0.000	0.00
		B	0.000	0.000	0.314	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.00
L12	83.25-78.25	A	0.000	0.000	4.455	0.000	0.01
		B	0.000	0.000	6.280	0.000	0.05
		C	0.000	0.000	3.750	0.000	0.06
L13	78.25-75.00	A	0.000	0.000	2.896	0.000	0.01
		B	0.000	0.000	4.082	0.000	0.03
		C	0.000	0.000	2.438	0.000	0.04
L14	75.00-74.75	A	0.000	0.000	0.223	0.000	0.00
		B	0.000	0.000	0.314	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.00
L15	74.75-69.75	A	0.000	0.000	4.455	0.000	0.01
		B	0.000	0.000	6.280	0.000	0.05
		C	0.000	0.000	3.750	0.000	0.06
L16	69.75-64.75	A	0.000	0.000	4.455	0.000	0.01
		B	0.000	0.000	6.280	0.000	0.05
		C	0.000	0.000	3.750	0.000	0.06
L17	64.75-60.00	A	0.000	0.000	4.233	0.000	0.01
		B	0.000	0.000	5.966	0.000	0.05
		C	0.000	0.000	3.563	0.000	0.06
L18	60.00-59.75	A	0.000	0.000	0.035	0.000	0.00
		B	0.000	0.000	0.127	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L19	59.75-54.75	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	2.530	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.06
L20	54.75-49.75	A	0.000	0.000	3.768	0.000	0.01
		B	0.000	0.000	5.593	0.000	0.05
		C	0.000	0.000	3.078	0.000	0.06
L21	49.75-48.50	A	0.000	0.000	2.364	0.000	0.00
		B	0.000	0.000	2.820	0.000	0.01
		C	0.000	0.000	2.266	0.000	0.02
L22	48.50-48.25	A	0.000	0.000	0.473	0.000	0.00
		B	0.000	0.000	0.564	0.000	0.00
		C	0.000	0.000	0.453	0.000	0.00

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
L23	48.25-43.25	A	0.000	0.000	9.456	0.000	0.01
		B	0.000	0.000	11.280	0.000	0.05
		C	0.000	0.000	9.063	0.000	0.06
L24	43.25-38.25	A	0.000	0.000	9.456	0.000	0.01
		B	0.000	0.000	11.280	0.000	0.05
		C	0.000	0.000	9.063	0.000	0.06
L25	38.25-33.25	A	0.000	0.000	9.456	0.000	0.01
		B	0.000	0.000	11.280	0.000	0.05
		C	0.000	0.000	9.063	0.000	0.06
L26	33.25-30.00	A	0.000	0.000	6.146	0.000	0.01
		B	0.000	0.000	7.332	0.000	0.03
		C	0.000	0.000	5.891	0.000	0.04
L27	30.00-29.75	A	0.000	0.000	0.272	0.000	0.00
		B	0.000	0.000	0.363	0.000	0.00
		C	0.000	0.000	0.252	0.000	0.00
L28	29.75-24.75	A	0.000	0.000	5.681	0.000	0.01
		B	0.000	0.000	7.505	0.000	0.05
		C	0.000	0.000	5.288	0.000	0.06
L29	24.75-23.00	A	0.000	0.000	3.651	0.000	0.00
		B	0.000	0.000	4.289	0.000	0.02
		C	0.000	0.000	3.513	0.000	0.02
L30	23.00-22.75	A	0.000	0.000	0.522	0.000	0.00
		B	0.000	0.000	0.613	0.000	0.00
		C	0.000	0.000	0.502	0.000	0.00
L31	22.75-20.75	A	0.000	0.000	4.953	0.000	0.00
		B	0.000	0.000	5.683	0.000	0.02
		C	0.000	0.000	4.796	0.000	0.02
L32	20.75-20.50	A	0.000	0.000	0.678	0.000	0.00
		B	0.000	0.000	0.769	0.000	0.00
		C	0.000	0.000	0.658	0.000	0.00
L33	20.50-17.75	A	0.000	0.000	9.253	0.000	0.00
		B	0.000	0.000	7.278	0.000	0.03
		C	0.000	0.000	6.058	0.000	0.03
L34	17.75-17.50	A	0.000	0.000	0.712	0.000	0.00
		B	0.000	0.000	0.533	0.000	0.00
		C	0.000	0.000	0.422	0.000	0.00
L35	17.50-12.50	A	0.000	0.000	14.247	0.000	0.01
		B	0.000	0.000	10.655	0.000	0.05
		C	0.000	0.000	8.438	0.000	0.06
L36	12.50-7.50	A	0.000	0.000	14.247	0.000	0.01
		B	0.000	0.000	10.655	0.000	0.05
		C	0.000	0.000	8.438	0.000	0.06
L37	7.50-3.25	A	0.000	0.000	12.110	0.000	0.01
		B	0.000	0.000	9.057	0.000	0.04
		C	0.000	0.000	7.172	0.000	0.05
L38	3.25-3.00	A	0.000	0.000	0.712	0.000	0.00
		B	0.000	0.000	0.533	0.000	0.00
		C	0.000	0.000	0.422	0.000	0.00
L39	3.00-0.00	A	0.000	0.000	8.007	0.000	0.00
		B	0.000	0.000	6.393	0.000	0.03
		C	0.000	0.000	5.063	0.000	0.04

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-125.00	A	1.460	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.725	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.00
L2	125.00-120.00	A	1.454	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.797	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.00
L3	120.00-115.00	A	1.448	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.782	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.01

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
L4	115.00-110.00	A	1.441	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.766	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.04
L5	110.00-105.00	A	1.435	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.750	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.04
L6	105.00-100.00	A	1.428	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.733	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.06
L7	100.00-95.00	A	1.421	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.715	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.06
L8	95.00-90.00	A	1.413	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.696	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.06
L9	90.00-85.00	A	1.406	0.000	0.000	0.422	0.000	0.01
		B		0.000	0.000	6.676	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.06
L10	85.00-83.50	A	1.400	0.000	0.000	1.995	0.000	0.02
		B		0.000	0.000	3.363	0.000	0.05
		C		0.000	0.000	1.364	0.000	0.03
L11	83.50-83.25	A	1.399	0.000	0.000	0.332	0.000	0.00
		B		0.000	0.000	0.560	0.000	0.01
		C		0.000	0.000	0.227	0.000	0.01
L12	83.25-78.25	A	1.394	0.000	0.000	6.642	0.000	0.08
		B		0.000	0.000	11.191	0.000	0.16
		C		0.000	0.000	4.542	0.000	0.10
L13	78.25-75.00	A	1.387	0.000	0.000	4.310	0.000	0.05
		B		0.000	0.000	7.260	0.000	0.10
		C		0.000	0.000	2.950	0.000	0.07
L14	75.00-74.75	A	1.384	0.000	0.000	0.361	0.000	0.00
		B		0.000	0.000	0.588	0.000	0.01
		C		0.000	0.000	0.256	0.000	0.01
L15	74.75-69.75	A	1.379	0.000	0.000	7.208	0.000	0.08
		B		0.000	0.000	11.734	0.000	0.16
		C		0.000	0.000	5.124	0.000	0.10
L16	69.75-64.75	A	1.369	0.000	0.000	7.190	0.000	0.07
		B		0.000	0.000	11.701	0.000	0.16
		C		0.000	0.000	5.116	0.000	0.10
L17	64.75-60.00	A	1.359	0.000	0.000	6.813	0.000	0.07
		B		0.000	0.000	11.083	0.000	0.15
		C		0.000	0.000	4.852	0.000	0.10
L18	60.00-59.75	A	1.353	0.000	0.000	0.103	0.000	0.00
		B		0.000	0.000	0.327	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L19	59.75-54.75	A	1.347	0.000	0.000	2.053	0.000	0.03
		B		0.000	0.000	6.531	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.06
L20	54.75-49.75	A	1.335	0.000	0.000	6.037	0.000	0.06
		B		0.000	0.000	10.497	0.000	0.14
		C		0.000	0.000	4.079	0.000	0.09
L21	49.75-48.50	A	1.327	0.000	0.000	3.359	0.000	0.03
		B		0.000	0.000	4.471	0.000	0.05
		C		0.000	0.000	3.261	0.000	0.04
L22	48.50-48.25	A	1.325	0.000	0.000	0.671	0.000	0.01
		B		0.000	0.000	0.894	0.000	0.01
		C		0.000	0.000	0.652	0.000	0.01
L23	48.25-43.25	A	1.317	0.000	0.000	13.408	0.000	0.12
		B		0.000	0.000	17.841	0.000	0.20
		C		0.000	0.000	13.015	0.000	0.17
L24	43.25-38.25	A	1.302	0.000	0.000	13.362	0.000	0.12
		B		0.000	0.000	17.772	0.000	0.20
		C		0.000	0.000	12.969	0.000	0.17
L25	38.25-33.25	A	1.285	0.000	0.000	13.311	0.000	0.12
		B		0.000	0.000	17.696	0.000	0.20
		C		0.000	0.000	12.918	0.000	0.16
L26	33.25-30.00	A	1.270	0.000	0.000	8.622	0.000	0.07
		B		0.000	0.000	11.457	0.000	0.13
		C		0.000	0.000	8.366	0.000	0.11

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
L27	30.00-29.75	A	1.262	0.000	0.000	0.368	0.000	0.00
		B		0.000	0.000	0.586	0.000	0.01
		C		0.000	0.000	0.348	0.000	0.01
L28	29.75-24.75	A	1.251	0.000	0.000	7.657	0.000	0.08
		B		0.000	0.000	11.991	0.000	0.16
		C		0.000	0.000	7.264	0.000	0.12
L29	24.75-23.00	A	1.234	0.000	0.000	4.744	0.000	0.04
		B		0.000	0.000	6.252	0.000	0.07
		C		0.000	0.000	4.606	0.000	0.06
L30	23.00-22.75	A	1.229	0.000	0.000	0.677	0.000	0.01
		B		0.000	0.000	0.892	0.000	0.01
		C		0.000	0.000	0.657	0.000	0.01
L31	22.75-20.75	A	1.223	0.000	0.000	6.497	0.000	0.06
		B		0.000	0.000	8.214	0.000	0.09
		C		0.000	0.000	6.340	0.000	0.07
L32	20.75-20.50	A	1.216	0.000	0.000	0.893	0.000	0.01
		B		0.000	0.000	1.107	0.000	0.01
		C		0.000	0.000	0.873	0.000	0.01
L33	20.50-17.75	A	1.207	0.000	0.000	12.102	0.000	0.10
		B		0.000	0.000	10.806	0.000	0.11
		C		0.000	0.000	8.243	0.000	0.10
L34	17.75-17.50	A	1.197	0.000	0.000	0.952	0.000	0.01
		B		0.000	0.000	0.834	0.000	0.01
		C		0.000	0.000	0.601	0.000	0.01
L35	17.50-12.50	A	1.178	0.000	0.000	18.960	0.000	0.15
		B		0.000	0.000	16.590	0.000	0.18
		C		0.000	0.000	11.972	0.000	0.15
L36	12.50-7.50	A	1.132	0.000	0.000	18.773	0.000	0.14
		B		0.000	0.000	16.379	0.000	0.17
		C		0.000	0.000	11.832	0.000	0.15
L37	7.50-3.25	A	1.063	0.000	0.000	15.726	0.000	0.11
		B		0.000	0.000	13.662	0.000	0.14
		C		0.000	0.000	9.884	0.000	0.12
L38	3.25-3.00	A	1.007	0.000	0.000	0.914	0.000	0.01
		B		0.000	0.000	0.791	0.000	0.01
		C		0.000	0.000	0.573	0.000	0.01
L39	3.00-0.00	A	0.936	0.000	0.000	10.159	0.000	0.06
		B		0.000	0.000	9.300	0.000	0.09
		C		0.000	0.000	6.747	0.000	0.08

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-125.00	1.5245	-0.9453	1.4063	-0.9193
L2	125.00-120.00	2.9252	-1.8140	2.3333	-1.5251
L3	120.00-115.00	3.2447	-2.0140	2.8546	-1.8681
L4	115.00-110.00	3.2447	-2.0140	2.8523	-1.8664
L5	110.00-105.00	3.2447	-2.0140	2.8500	-1.8647
L6	105.00-100.00	3.2447	-2.0140	2.8475	-1.8629
L7	100.00-95.00	3.2447	-2.0140	2.8449	-1.8609
L8	95.00-90.00	3.2447	-2.0140	2.8422	-1.8589
L9	90.00-85.00	3.0129	-2.0846	2.6110	-1.9309
L10	85.00-83.50	0.9721	-1.0574	1.1783	-1.4682
L11	83.50-83.25	0.9721	-1.0574	1.1781	-1.4678
L12	83.25-78.25	0.9721	-1.0574	1.1775	-1.4665
L13	78.25-75.00	0.9721	-1.0574	1.1766	-1.4644
L14	75.00-74.75	0.9721	-1.0574	1.1271	-1.4024
L15	74.75-69.75	0.9721	-1.0574	1.1266	-1.4011
L16	69.75-64.75	0.9721	-1.0574	1.1256	-1.3986
L17	64.75-60.00	0.9721	-1.0574	1.1245	-1.3959
L18	60.00-59.75	2.2834	-2.4889	1.9547	-2.4299
L19	59.75-54.75	2.2834	-2.4889	1.9537	-2.4272
L20	54.75-49.75	1.2257	-1.3287	1.3795	-1.6948
L21	49.75-48.50	0.5037	-0.4848	0.7543	-0.7213

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L22	48.50-48.25	0.5037	-0.4848	0.7542	-0.7211
L23	48.25-43.25	0.5037	-0.4848	0.7538	-0.7205
L24	43.25-38.25	0.5037	-0.4848	0.7530	-0.7193
L25	38.25-33.25	0.5037	-0.4848	0.7521	-0.7179
L26	33.25-30.00	0.5037	-0.4848	0.7513	-0.7166
L27	30.00-29.75	1.0232	-0.9855	1.1705	-1.1159
L28	29.75-24.75	0.9953	-0.9586	1.1476	-1.0936
L29	24.75-23.00	0.5317	-0.5121	0.8393	-0.7992
L30	23.00-22.75	0.5317	-0.5121	0.8388	-0.7985
L31	22.75-20.75	0.4726	-0.4552	0.7439	-0.7080
L32	20.75-20.50	0.4430	-0.4267	0.6964	-0.6625
L33	20.50-17.75	0.3171	-2.2902	0.5823	-2.3424
L34	17.75-17.50	0.3672	-2.6516	0.6563	-2.6432
L35	17.50-12.50	0.3672	-2.6516	0.6549	-2.6434
L36	12.50-7.50	0.3672	-2.6516	0.6514	-2.6439
L37	7.50-3.25	0.3672	-2.6516	0.6461	-2.6446
L38	3.25-3.00	0.3672	-2.6516	0.6417	-2.6452
L39	3.00-0.00	0.4004	-2.3345	0.6698	-2.3631

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	4	FSJ4-50B(1/2)	125.00 - 127.00	1.0000	1.0000
L1	5	CONDUIT(2)	125.00 - 127.00	1.0000	1.0000
L2	4	FSJ4-50B(1/2)	120.00 - 125.00	1.0000	1.0000
L2	5	CONDUIT(2)	120.00 - 125.00	1.0000	1.0000
L3	4	FSJ4-50B(1/2)	115.00 - 120.00	1.0000	1.0000
L3	5	CONDUIT(2)	115.00 - 120.00	1.0000	1.0000
L4	4	FSJ4-50B(1/2)	110.00 - 115.00	1.0000	1.0000
L4	5	CONDUIT(2)	110.00 - 115.00	1.0000	1.0000
L5	4	FSJ4-50B(1/2)	105.00 - 110.00	1.0000	1.0000
L5	5	CONDUIT(2)	105.00 - 110.00	1.0000	1.0000
L6	4	FSJ4-50B(1/2)	100.00 - 105.00	1.0000	1.0000
L6	5	CONDUIT(2)	100.00 - 105.00	1.0000	1.0000
L7	4	FSJ4-50B(1/2)	95.00 - 100.00	1.0000	1.0000
L7	5	CONDUIT(2)	95.00 - 100.00	1.0000	1.0000
L8	4	FSJ4-50B(1/2)	90.00 - 95.00	1.0000	1.0000
L8	5	CONDUIT(2)	90.00 - 95.00	1.0000	1.0000
L9	4	FSJ4-50B(1/2)	85.00 - 90.00	1.0000	1.0000
L9	5	CONDUIT(2)	85.00 - 90.00	1.0000	1.0000
L9	18	CU12PSM9P8XXX(1-3/8)	85.00 - 86.00	1.0000	1.0000
L10	4	FSJ4-50B(1/2)	83.50 - 85.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L10	5	CONDUIT(2)	83.50 - 85.00	1.0000	1.0000
L10	18	CU12PSM9P8XXX(1-3/8)	83.50 - 85.00	1.0000	1.0000
L10	42	CCI-65FP-045100	83.50 - 85.00	1.0000	1.0000
L10	43	CCI-65FP-045100	83.50 - 85.00	1.0000	1.0000
L10	44	CCI-65FP-045100	83.50 - 85.00	1.0000	1.0000
L11	4	FSJ4-50B(1/2)	83.25 - 83.50	1.0000	1.0000
L11	5	CONDUIT(2)	83.25 - 83.50	1.0000	1.0000
L11	18	CU12PSM9P8XXX(1-3/8)	83.25 - 83.50	1.0000	1.0000
L11	42	CCI-65FP-045100	83.25 - 83.50	1.0000	1.0000
L11	43	CCI-65FP-045100	83.25 - 83.50	1.0000	1.0000
L11	44	CCI-65FP-045100	83.25 - 83.50	1.0000	1.0000
L12	4	FSJ4-50B(1/2)	78.25 - 83.25	1.0000	1.0000
L12	5	CONDUIT(2)	78.25 - 83.25	1.0000	1.0000
L12	18	CU12PSM9P8XXX(1-3/8)	78.25 - 83.25	1.0000	1.0000
L12	42	CCI-65FP-045100	78.25 - 83.25	1.0000	1.0000
L12	43	CCI-65FP-045100	78.25 - 83.25	1.0000	1.0000
L12	44	CCI-65FP-045100	78.25 - 83.25	1.0000	1.0000
L13	4	FSJ4-50B(1/2)	75.00 - 78.25	1.0000	1.0000
L13	5	CONDUIT(2)	75.00 - 78.25	1.0000	1.0000
L13	18	CU12PSM9P8XXX(1-3/8)	75.00 - 78.25	1.0000	1.0000
L13	42	CCI-65FP-045100	75.00 - 78.25	1.0000	1.0000
L13	43	CCI-65FP-045100	75.00 - 78.25	1.0000	1.0000
L13	44	CCI-65FP-045100	75.00 - 78.25	1.0000	1.0000
L14	4	FSJ4-50B(1/2)	74.75 - 75.00	1.0000	1.0000
L14	5	CONDUIT(2)	74.75 - 75.00	1.0000	1.0000
L14	18	CU12PSM9P8XXX(1-3/8)	74.75 - 75.00	1.0000	1.0000
L14	26	CCI-65FP-045100	74.75 - 75.00	1.0000	1.0000
L14	27	CCI-65FP-045100	74.75 - 75.00	1.0000	1.0000
L14	28	CCI-65FP-045100	74.75 - 75.00	1.0000	1.0000
L15	4	FSJ4-50B(1/2)	69.75 - 74.75	1.0000	1.0000
L15	5	CONDUIT(2)	69.75 - 74.75	1.0000	1.0000
L15	18	CU12PSM9P8XXX(1-3/8)	69.75 - 74.75	1.0000	1.0000
L15	26	CCI-65FP-045100	69.75 - 74.75	1.0000	1.0000
L15	27	CCI-65FP-045100	69.75 - 74.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	28	CCI-65FP-045100	69.75 - 74.75	1.0000	1.0000
L16	4	FSJ4-50B(1/2)	64.75 - 69.75	1.0000	1.0000
L16	5	CONDUIT(2)	64.75 - 69.75	1.0000	1.0000
L16	18	CU12PSM9P8XXX(1-3/8)	64.75 - 69.75	1.0000	1.0000
L16	26	CCI-65FP-045100	64.75 - 69.75	1.0000	1.0000
L16	27	CCI-65FP-045100	64.75 - 69.75	1.0000	1.0000
L16	28	CCI-65FP-045100	64.75 - 69.75	1.0000	1.0000
L17	4	FSJ4-50B(1/2)	60.00 - 64.75	1.0000	1.0000
L17	5	CONDUIT(2)	60.00 - 64.75	1.0000	1.0000
L17	18	CU12PSM9P8XXX(1-3/8)	60.00 - 64.75	1.0000	1.0000
L17	26	CCI-65FP-045100	60.00 - 64.75	1.0000	1.0000
L17	27	CCI-65FP-045100	60.00 - 64.75	1.0000	1.0000
L17	28	CCI-65FP-045100	60.00 - 64.75	1.0000	1.0000
L18	4	FSJ4-50B(1/2)	59.75 - 60.00	1.0000	1.0000
L18	5	CONDUIT(2)	59.75 - 60.00	1.0000	1.0000
L18	18	CU12PSM9P8XXX(1-3/8)	59.75 - 60.00	1.0000	1.0000
L19	4	FSJ4-50B(1/2)	54.75 - 59.75	1.0000	1.0000
L19	5	CONDUIT(2)	54.75 - 59.75	1.0000	1.0000
L19	18	CU12PSM9P8XXX(1-3/8)	54.75 - 59.75	1.0000	1.0000
L20	4	FSJ4-50B(1/2)	49.75 - 54.75	1.0000	1.0000
L20	5	CONDUIT(2)	49.75 - 54.75	1.0000	1.0000
L20	18	CU12PSM9P8XXX(1-3/8)	49.75 - 54.75	1.0000	1.0000
L20	20	LDF4-50A(1/2)	49.75 - 50.00	1.0000	1.0000
L20	38	MS-600	49.75 - 51.50	1.0000	1.0000
L20	39	MS-600	49.75 - 51.50	1.0000	1.0000
L20	40	MS-600	49.75 - 51.50	1.0000	1.0000
L20	46	CCI-65FP-045100	49.75 - 51.50	1.0000	1.0000
L20	47	CCI-65FP-045100	49.75 - 51.50	1.0000	1.0000
L20	48	CCI-65FP-045100	49.75 - 51.50	1.0000	1.0000
L21	4	FSJ4-50B(1/2)	48.50 - 49.75	1.0000	1.0000
L21	5	CONDUIT(2)	48.50 - 49.75	1.0000	1.0000
L21	18	CU12PSM9P8XXX(1-3/8)	48.50 - 49.75	1.0000	1.0000
L21	20	LDF4-50A(1/2)	48.50 - 49.75	1.0000	1.0000
L21	38	MS-600	48.50 - 49.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L21	39	MS-600	48.50 - 49.75	1.0000	1.0000
L21	40	MS-600	48.50 - 49.75	1.0000	1.0000
L21	46	CCI-65FP-045100	48.50 - 49.75	1.0000	1.0000
L21	47	CCI-65FP-045100	48.50 - 49.75	1.0000	1.0000
L21	48	CCI-65FP-045100	48.50 - 49.75	1.0000	1.0000
L22	4	FSJ4-50B(1/2)	48.25 - 48.50	1.0000	1.0000
L22	5	CONDUIT(2)	48.25 - 48.50	1.0000	1.0000
L22	18	CU12PSM9P8XXX(1-3/8)	48.25 - 48.50	1.0000	1.0000
L22	20	LDF4-50A(1/2)	48.25 - 48.50	1.0000	1.0000
L22	38	MS-600	48.25 - 48.50	1.0000	1.0000
L22	39	MS-600	48.25 - 48.50	1.0000	1.0000
L22	40	MS-600	48.25 - 48.50	1.0000	1.0000
L22	46	CCI-65FP-045100	48.25 - 48.50	1.0000	1.0000
L22	47	CCI-65FP-045100	48.25 - 48.50	1.0000	1.0000
L22	48	CCI-65FP-045100	48.25 - 48.50	1.0000	1.0000
L23	4	FSJ4-50B(1/2)	43.25 - 48.25	1.0000	1.0000
L23	5	CONDUIT(2)	43.25 - 48.25	1.0000	1.0000
L23	18	CU12PSM9P8XXX(1-3/8)	43.25 - 48.25	1.0000	1.0000
L23	20	LDF4-50A(1/2)	43.25 - 48.25	1.0000	1.0000
L23	38	MS-600	43.25 - 48.25	1.0000	1.0000
L23	39	MS-600	43.25 - 48.25	1.0000	1.0000
L23	40	MS-600	43.25 - 48.25	1.0000	1.0000
L23	46	CCI-65FP-045100	43.25 - 48.25	1.0000	1.0000
L23	47	CCI-65FP-045100	43.25 - 48.25	1.0000	1.0000
L23	48	CCI-65FP-045100	43.25 - 48.25	1.0000	1.0000
L24	4	FSJ4-50B(1/2)	38.25 - 43.25	1.0000	1.0000
L24	5	CONDUIT(2)	38.25 - 43.25	1.0000	1.0000
L24	18	CU12PSM9P8XXX(1-3/8)	38.25 - 43.25	1.0000	1.0000
L24	20	LDF4-50A(1/2)	38.25 - 43.25	1.0000	1.0000
L24	38	MS-600	38.25 - 43.25	1.0000	1.0000
L24	39	MS-600	38.25 - 43.25	1.0000	1.0000
L24	40	MS-600	38.25 - 43.25	1.0000	1.0000
L24	46	CCI-65FP-045100	38.25 - 43.25	1.0000	1.0000
L24	47	CCI-65FP-045100	38.25 - 43.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	48	CCI-65FP-045100	38.25 - 43.25	1.0000	1.0000
L25	4	FSJ4-50B(1/2)	33.25 - 38.25	1.0000	1.0000
L25	5	CONDUIT(2)	33.25 - 38.25	1.0000	1.0000
L25	18	CU12PSM9P8XXX(1-3/8)	33.25 - 38.25	1.0000	1.0000
L25	20	LDF4-50A(1/2)	33.25 - 38.25	1.0000	1.0000
L25	38	MS-600	33.25 - 38.25	1.0000	1.0000
L25	39	MS-600	33.25 - 38.25	1.0000	1.0000
L25	40	MS-600	33.25 - 38.25	1.0000	1.0000
L25	46	CCI-65FP-045100	33.25 - 38.25	1.0000	1.0000
L25	47	CCI-65FP-045100	33.25 - 38.25	1.0000	1.0000
L25	48	CCI-65FP-045100	33.25 - 38.25	1.0000	1.0000
L26	4	FSJ4-50B(1/2)	30.00 - 33.25	1.0000	1.0000
L26	5	CONDUIT(2)	30.00 - 33.25	1.0000	1.0000
L26	18	CU12PSM9P8XXX(1-3/8)	30.00 - 33.25	1.0000	1.0000
L26	20	LDF4-50A(1/2)	30.00 - 33.25	1.0000	1.0000
L26	38	MS-600	30.00 - 33.25	1.0000	1.0000
L26	39	MS-600	30.00 - 33.25	1.0000	1.0000
L26	40	MS-600	30.00 - 33.25	1.0000	1.0000
L26	46	CCI-65FP-045100	30.00 - 33.25	1.0000	1.0000
L26	47	CCI-65FP-045100	30.00 - 33.25	1.0000	1.0000
L26	48	CCI-65FP-045100	30.00 - 33.25	1.0000	1.0000
L27	4	FSJ4-50B(1/2)	29.75 - 30.00	1.0000	1.0000
L27	5	CONDUIT(2)	29.75 - 30.00	1.0000	1.0000
L27	18	CU12PSM9P8XXX(1-3/8)	29.75 - 30.00	1.0000	1.0000
L27	20	LDF4-50A(1/2)	29.75 - 30.00	1.0000	1.0000
L27	34	MS-600	29.75 - 30.00	1.0000	1.0000
L27	35	MS-600	29.75 - 30.00	1.0000	1.0000
L27	36	MS-600	29.75 - 30.00	1.0000	1.0000
L28	4	FSJ4-50B(1/2)	24.75 - 29.75	1.0000	1.0000
L28	5	CONDUIT(2)	24.75 - 29.75	1.0000	1.0000
L28	18	CU12PSM9P8XXX(1-3/8)	24.75 - 29.75	1.0000	1.0000
L28	20	LDF4-50A(1/2)	24.75 - 29.75	1.0000	1.0000
L28	30	MS-600	24.75 - 25.00	1.0000	1.0000
L28	31	MS-600	24.75 - 25.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L28	32	MS-600	24.75 - 25.00	1.0000	1.0000
L28	34	MS-600	24.75 - 29.75	1.0000	1.0000
L28	35	MS-600	24.75 - 29.75	1.0000	1.0000
L28	36	MS-600	24.75 - 29.75	1.0000	1.0000
L29	4	FSJ4-50B(1/2)	23.00 - 24.75	1.0000	1.0000
L29	5	CONDUIT(2)	23.00 - 24.75	1.0000	1.0000
L29	18	CU12PSM9P8XXX(1-3/8)	23.00 - 24.75	1.0000	1.0000
L29	20	LDF4-50A(1/2)	23.00 - 24.75	1.0000	1.0000
L29	30	MS-600	23.00 - 24.75	1.0000	1.0000
L29	31	MS-600	23.00 - 24.75	1.0000	1.0000
L29	32	MS-600	23.00 - 24.75	1.0000	1.0000
L29	34	MS-600	23.00 - 24.75	1.0000	1.0000
L29	35	MS-600	23.00 - 24.75	1.0000	1.0000
L29	36	MS-600	23.00 - 24.75	1.0000	1.0000
L30	4	FSJ4-50B(1/2)	22.75 - 23.00	1.0000	1.0000
L30	5	CONDUIT(2)	22.75 - 23.00	1.0000	1.0000
L30	18	CU12PSM9P8XXX(1-3/8)	22.75 - 23.00	1.0000	1.0000
L30	20	LDF4-50A(1/2)	22.75 - 23.00	1.0000	1.0000
L30	30	MS-600	22.75 - 23.00	1.0000	1.0000
L30	31	MS-600	22.75 - 23.00	1.0000	1.0000
L30	32	MS-600	22.75 - 23.00	1.0000	1.0000
L30	34	MS-600	22.75 - 23.00	1.0000	1.0000
L30	35	MS-600	22.75 - 23.00	1.0000	1.0000
L30	36	MS-600	22.75 - 23.00	1.0000	1.0000
L31	4	FSJ4-50B(1/2)	20.75 - 22.75	1.0000	1.0000
L31	5	CONDUIT(2)	20.75 - 22.75	1.0000	1.0000
L31	18	CU12PSM9P8XXX(1-3/8)	20.75 - 22.75	1.0000	1.0000
L31	20	LDF4-50A(1/2)	20.75 - 22.75	1.0000	1.0000
L31	22	Flat Plate [#3.75"x1.25"]	20.75 - 22.00	1.0000	1.0000
L31	23	Flat Plate [#3.75"x1.25"]	20.75 - 22.00	1.0000	1.0000
L31	24	Flat Plate [#3.75"x1.25"]	20.75 - 22.00	1.0000	1.0000
L31	30	MS-600	20.75 - 22.75	1.0000	1.0000
L31	31	MS-600	20.75 - 22.75	1.0000	1.0000
L31	32	MS-600	20.75 - 22.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L31	34	MS-600	20.75 - 22.75	1.0000	1.0000
L31	35	MS-600	20.75 - 22.75	1.0000	1.0000
L31	36	MS-600	20.75 - 22.75	1.0000	1.0000
L32	4	FSJ4-50B(1/2)	20.50 - 20.75	1.0000	1.0000
L32	5	CONDUIT(2)	20.50 - 20.75	1.0000	1.0000
L32	18	CU12PSM9P8XXX(1-3/8)	20.50 - 20.75	1.0000	1.0000
L32	20	LDF4-50A(1/2)	20.50 - 20.75	1.0000	1.0000
L32	22	Flat Plate [#3.75"x1.25"]	20.50 - 20.75	1.0000	1.0000
L32	23	Flat Plate [#3.75"x1.25"]	20.50 - 20.75	1.0000	1.0000
L32	24	Flat Plate [#3.75"x1.25"]	20.50 - 20.75	1.0000	1.0000
L32	30	MS-600	20.50 - 20.75	1.0000	1.0000
L32	31	MS-600	20.50 - 20.75	1.0000	1.0000
L32	32	MS-600	20.50 - 20.75	1.0000	1.0000
L32	34	MS-600	20.50 - 20.75	1.0000	1.0000
L32	35	MS-600	20.50 - 20.75	1.0000	1.0000
L32	36	MS-600	20.50 - 20.75	1.0000	1.0000
L33	4	FSJ4-50B(1/2)	17.75 - 20.50	1.0000	1.0000
L33	5	CONDUIT(2)	17.75 - 20.50	1.0000	1.0000
L33	18	CU12PSM9P8XXX(1-3/8)	17.75 - 20.50	1.0000	1.0000
L33	20	LDF4-50A(1/2)	17.75 - 20.50	1.0000	1.0000
L33	22	Flat Plate [#3.75"x1.25"]	17.75 - 20.50	1.0000	1.0000
L33	23	Flat Plate [#3.75"x1.25"]	17.75 - 20.50	1.0000	1.0000
L33	24	Flat Plate [#3.75"x1.25"]	17.75 - 20.50	1.0000	1.0000
L33	30	MS-600	17.75 - 20.50	1.0000	1.0000
L33	31	MS-600	17.75 - 20.50	1.0000	1.0000
L33	32	MS-600	17.75 - 20.50	1.0000	1.0000
L33	34	MS-600	19.00 - 20.50	1.0000	1.0000
L33	35	MS-600	19.00 - 20.50	1.0000	1.0000
L33	36	MS-600	19.00 - 20.50	1.0000	1.0000
L33	50	CCI-65FP-065125	17.75 - 20.50	1.0000	1.0000
L34	4	FSJ4-50B(1/2)	17.50 - 17.75	1.0000	1.0000
L34	5	CONDUIT(2)	17.50 - 17.75	1.0000	1.0000
L34	18	CU12PSM9P8XXX(1-3/8)	17.50 - 17.75	1.0000	1.0000
L34	20	LDF4-50A(1/2)	17.50 - 17.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L34	22	Flat Plate [#3.75"x1.25"]	17.50 - 17.75	1.0000	1.0000
L34	23	Flat Plate [#3.75"x1.25"]	17.50 - 17.75	1.0000	1.0000
L34	24	Flat Plate [#3.75"x1.25"]	17.50 - 17.75	1.0000	1.0000
L34	30	MS-600	17.50 - 17.75	1.0000	1.0000
L34	31	MS-600	17.50 - 17.75	1.0000	1.0000
L34	32	MS-600	17.50 - 17.75	1.0000	1.0000
L34	50	CCI-65FP-065125	17.50 - 17.75	1.0000	1.0000
L35	4	FSJ4-50B(1/2)	12.50 - 17.50	1.0000	1.0000
L35	5	CONDUIT(2)	12.50 - 17.50	1.0000	1.0000
L35	18	CU12PSM9P8XXX(1-3/8)	12.50 - 17.50	1.0000	1.0000
L35	20	LDF4-50A(1/2)	12.50 - 17.50	1.0000	1.0000
L35	22	Flat Plate [#3.75"x1.25"]	12.50 - 17.50	1.0000	1.0000
L35	23	Flat Plate [#3.75"x1.25"]	12.50 - 17.50	1.0000	1.0000
L35	24	Flat Plate [#3.75"x1.25"]	12.50 - 17.50	1.0000	1.0000
L35	30	MS-600	12.50 - 17.50	1.0000	1.0000
L35	31	MS-600	12.50 - 17.50	1.0000	1.0000
L35	32	MS-600	12.50 - 17.50	1.0000	1.0000
L35	50	CCI-65FP-065125	12.50 - 17.50	1.0000	1.0000
L36	4	FSJ4-50B(1/2)	7.50 - 12.50	1.0000	1.0000
L36	5	CONDUIT(2)	7.50 - 12.50	1.0000	1.0000
L36	18	CU12PSM9P8XXX(1-3/8)	7.50 - 12.50	1.0000	1.0000
L36	20	LDF4-50A(1/2)	7.50 - 12.50	1.0000	1.0000
L36	22	Flat Plate [#3.75"x1.25"]	7.50 - 12.50	1.0000	1.0000
L36	23	Flat Plate [#3.75"x1.25"]	7.50 - 12.50	1.0000	1.0000
L36	24	Flat Plate [#3.75"x1.25"]	7.50 - 12.50	1.0000	1.0000
L36	30	MS-600	7.50 - 12.50	1.0000	1.0000
L36	31	MS-600	7.50 - 12.50	1.0000	1.0000
L36	32	MS-600	7.50 - 12.50	1.0000	1.0000
L36	50	CCI-65FP-065125	7.50 - 12.50	1.0000	1.0000
L37	4	FSJ4-50B(1/2)	3.25 - 7.50	1.0000	1.0000
L37	5	CONDUIT(2)	3.25 - 7.50	1.0000	1.0000
L37	18	CU12PSM9P8XXX(1-3/8)	3.25 - 7.50	1.0000	1.0000
L37	20	LDF4-50A(1/2)	3.25 - 7.50	1.0000	1.0000
L37	22	Flat Plate [#3.75"x1.25"]	3.25 - 7.50	1.0000	1.0000
L37	23	Flat Plate [#3.75"x1.25"]	3.25 - 7.50	1.0000	1.0000
L37	24	Flat Plate [#3.75"x1.25"]	3.25 - 7.50	1.0000	1.0000
L37	30	MS-600	3.25 - 7.50	1.0000	1.0000
L37	31	MS-600	3.25 - 7.50	1.0000	1.0000
L37	32	MS-600	3.25 - 7.50	1.0000	1.0000
L37	50	CCI-65FP-065125	3.25 - 7.50	1.0000	1.0000
L38	4	FSJ4-50B(1/2)	3.00 - 3.25	1.0000	1.0000
L38	5	CONDUIT(2)	3.00 - 3.25	1.0000	1.0000
L38	18	CU12PSM9P8XXX(1-3/8)	3.00 - 3.25	1.0000	1.0000
L38	20	LDF4-50A(1/2)	3.00 - 3.25	1.0000	1.0000
L38	22	Flat Plate [#3.75"x1.25"]	3.00 - 3.25	1.0000	1.0000
L38	23	Flat Plate [#3.75"x1.25"]	3.00 - 3.25	1.0000	1.0000
L38	24	Flat Plate [#3.75"x1.25"]	3.00 - 3.25	1.0000	1.0000
L38	30	MS-600	3.00 - 3.25	1.0000	1.0000
L38	31	MS-600	3.00 - 3.25	1.0000	1.0000
L38	32	MS-600	3.00 - 3.25	1.0000	1.0000
L38	50	CCI-65FP-065125	3.00 - 3.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	4	FSJ4-50B(1/2)	0.00 - 3.00	1.0000	1.0000
L39	5	CONDUIT(2)	0.00 - 3.00	1.0000	1.0000
L39	18	CU12PSM9P8XXX(1-3/8)	0.00 - 3.00	1.0000	1.0000
L39	20	LDF4-50A(1/2)	0.00 - 3.00	1.0000	1.0000
L39	22	Flat Plate [#3.75"x1.25"]	0.00 - 3.00	1.0000	1.0000
L39	23	Flat Plate [#3.75"x1.25"]	0.00 - 3.00	1.0000	1.0000
L39	24	Flat Plate [#3.75"x1.25"]	0.00 - 3.00	1.0000	1.0000
L39	30	MS-600	0.00 - 3.00	1.0000	1.0000
L39	31	MS-600	0.00 - 3.00	1.0000	1.0000
L39	32	MS-600	0.00 - 3.00	1.0000	1.0000
L39	50	CCI-65FP-065125	0.50 - 3.00	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L10	42	CCI-65FP-045100	83.50 - 85.00	Auto	1.0000
L10	43	CCI-65FP-045100	83.50 - 85.00	Auto	1.0000
L10	44	CCI-65FP-045100	83.50 - 85.00	Auto	1.0000
L11	42	CCI-65FP-045100	83.25 - 83.50	Auto	1.0000
L11	43	CCI-65FP-045100	83.25 - 83.50	Auto	1.0000
L11	44	CCI-65FP-045100	83.25 - 83.50	Auto	1.0000
L12	42	CCI-65FP-045100	78.25 - 83.25	Auto	1.0000
L12	43	CCI-65FP-045100	78.25 - 83.25	Auto	1.0000
L12	44	CCI-65FP-045100	78.25 - 83.25	Auto	1.0000
L13	42	CCI-65FP-045100	75.00 - 78.25	Auto	1.0000
L13	43	CCI-65FP-045100	75.00 - 78.25	Auto	1.0000
L13	44	CCI-65FP-045100	75.00 - 78.25	Auto	1.0000
L14	26	CCI-65FP-045100	74.75 - 75.00	Auto	1.0000
L14	27	CCI-65FP-045100	74.75 - 75.00	Auto	1.0000
L14	28	CCI-65FP-045100	74.75 - 75.00	Auto	1.0000
L15	26	CCI-65FP-045100	69.75 - 74.75	Auto	1.0000
L15	27	CCI-65FP-045100	69.75 - 74.75	Auto	1.0000
L15	28	CCI-65FP-045100	69.75 - 74.75	Auto	1.0000
L16	26	CCI-65FP-045100	64.75 - 69.75	Auto	1.0000
L16	27	CCI-65FP-045100	64.75 - 69.75	Auto	1.0000
L16	28	CCI-65FP-045100	64.75 - 69.75	Auto	1.0000
L17	26	CCI-65FP-045100	60.00 - 64.75	Auto	1.0000
L17	27	CCI-65FP-045100	60.00 - 64.75	Auto	1.0000
L17	28	CCI-65FP-045100	60.00 - 64.75	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L20	38	MS-600	49.75 - 51.50	Auto	1.0000
L20	39	MS-600	49.75 - 51.50	Auto	1.0000
L20	40	MS-600	49.75 - 51.50	Auto	1.0000
L20	46	CCI-65FP-045100	49.75 - 51.50	Auto	1.0000
L20	47	CCI-65FP-045100	49.75 - 51.50	Auto	1.0000
L20	48	CCI-65FP-045100	49.75 - 51.50	Auto	1.0000
L21	38	MS-600	48.50 - 49.75	Auto	1.0000
L21	39	MS-600	48.50 - 49.75	Auto	1.0000
L21	40	MS-600	48.50 - 49.75	Auto	1.0000
L21	46	CCI-65FP-045100	48.50 - 49.75	Auto	1.0000
L21	47	CCI-65FP-045100	48.50 - 49.75	Auto	1.0000
L21	48	CCI-65FP-045100	48.50 - 49.75	Auto	1.0000
L22	38	MS-600	48.25 - 48.50	Auto	1.0000
L22	39	MS-600	48.25 - 48.50	Auto	1.0000
L22	40	MS-600	48.25 - 48.50	Auto	1.0000
L22	46	CCI-65FP-045100	48.25 - 48.50	Auto	1.0000
L22	47	CCI-65FP-045100	48.25 - 48.50	Auto	1.0000
L22	48	CCI-65FP-045100	48.25 - 48.50	Auto	1.0000
L23	38	MS-600	43.25 - 48.25	Auto	1.0000
L23	39	MS-600	43.25 - 48.25	Auto	1.0000
L23	40	MS-600	43.25 - 48.25	Auto	1.0000
L23	46	CCI-65FP-045100	43.25 - 48.25	Auto	1.0000
L23	47	CCI-65FP-045100	43.25 - 48.25	Auto	1.0000
L23	48	CCI-65FP-045100	43.25 - 48.25	Auto	1.0000
L24	38	MS-600	38.25 - 43.25	Auto	1.0000
L24	39	MS-600	38.25 - 43.25	Auto	1.0000
L24	40	MS-600	38.25 - 43.25	Auto	1.0000
L24	46	CCI-65FP-045100	38.25 - 43.25	Auto	1.0000
L24	47	CCI-65FP-045100	38.25 - 43.25	Auto	1.0000
L24	48	CCI-65FP-045100	38.25 - 43.25	Auto	1.0000
L25	38	MS-600	33.25 - 38.25	Auto	1.0000
L25	39	MS-600	33.25 - 38.25	Auto	1.0000
L25	40	MS-600	33.25 - 38.25	Auto	1.0000
L25	46	CCI-65FP-045100	33.25 - 38.25	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L25	47	CCI-65FP-045100	33.25 - 38.25	Auto	1.0000
L25	48	CCI-65FP-045100	33.25 - 38.25	Auto	1.0000
L26	38	MS-600	30.00 - 33.25	Auto	1.0000
L26	39	MS-600	30.00 - 33.25	Auto	1.0000
L26	40	MS-600	30.00 - 33.25	Auto	1.0000
L26	46	CCI-65FP-045100	30.00 - 33.25	Auto	1.0000
L26	47	CCI-65FP-045100	30.00 - 33.25	Auto	1.0000
L26	48	CCI-65FP-045100	30.00 - 33.25	Auto	1.0000
L27	34	MS-600	29.75 - 30.00	Auto	1.0000
L27	35	MS-600	29.75 - 30.00	Auto	1.0000
L27	36	MS-600	29.75 - 30.00	Auto	1.0000
L28	30	MS-600	24.75 - 25.00	Auto	1.0000
L28	31	MS-600	24.75 - 25.00	Auto	1.0000
L28	32	MS-600	24.75 - 25.00	Auto	1.0000
L28	34	MS-600	24.75 - 29.75	Auto	1.0000
L28	35	MS-600	24.75 - 29.75	Auto	1.0000
L28	36	MS-600	24.75 - 29.75	Auto	1.0000
L29	30	MS-600	23.00 - 24.75	Auto	1.0000
L29	31	MS-600	23.00 - 24.75	Auto	1.0000
L29	32	MS-600	23.00 - 24.75	Auto	1.0000
L29	34	MS-600	23.00 - 24.75	Auto	1.0000
L29	35	MS-600	23.00 - 24.75	Auto	1.0000
L29	36	MS-600	23.00 - 24.75	Auto	1.0000
L30	30	MS-600	22.75 - 23.00	Auto	1.0000
L30	31	MS-600	22.75 - 23.00	Auto	1.0000
L30	32	MS-600	22.75 - 23.00	Auto	1.0000
L30	34	MS-600	22.75 - 23.00	Auto	1.0000
L30	35	MS-600	22.75 - 23.00	Auto	1.0000
L30	36	MS-600	22.75 - 23.00	Auto	1.0000
L31	22	Flat Plate [#3.75"x1.25"]	20.75 - 22.00	Auto	1.0000
L31	23	Flat Plate [#3.75"x1.25"]	20.75 - 22.00	Auto	1.0000
L31	24	Flat Plate [#3.75"x1.25"]	20.75 - 22.00	Auto	1.0000
L31	30	MS-600	20.75 - 22.75	Auto	1.0000
L31	31	MS-600	20.75 - 22.75	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L31	32	MS-600	20.75 - 22.75	Auto	1.0000
L31	34	MS-600	20.75 - 22.75	Auto	1.0000
L31	35	MS-600	20.75 - 22.75	Auto	1.0000
L31	36	MS-600	20.75 - 22.75	Auto	1.0000
L32	22	Flat Plate [#3.75"x1.25"]	20.50 - 20.75	Auto	1.0000
L32	23	Flat Plate [#3.75"x1.25"]	20.50 - 20.75	Auto	1.0000
L32	24	Flat Plate [#3.75"x1.25"]	20.50 - 20.75	Auto	1.0000
L32	30	MS-600	20.50 - 20.75	Auto	1.0000
L32	31	MS-600	20.50 - 20.75	Auto	1.0000
L32	32	MS-600	20.50 - 20.75	Auto	1.0000
L32	34	MS-600	20.50 - 20.75	Auto	1.0000
L32	35	MS-600	20.50 - 20.75	Auto	1.0000
L32	36	MS-600	20.50 - 20.75	Auto	1.0000
L33	22	Flat Plate [#3.75"x1.25"]	17.75 - 20.50	Auto	1.0000
L33	23	Flat Plate [#3.75"x1.25"]	17.75 - 20.50	Auto	1.0000
L33	24	Flat Plate [#3.75"x1.25"]	17.75 - 20.50	Auto	1.0000
L33	30	MS-600	17.75 - 20.50	Auto	1.0000
L33	31	MS-600	17.75 - 20.50	Auto	1.0000
L33	32	MS-600	17.75 - 20.50	Auto	1.0000
L33	34	MS-600	19.00 - 20.50	Auto	1.0000
L33	35	MS-600	19.00 - 20.50	Auto	1.0000
L33	36	MS-600	19.00 - 20.50	Auto	1.0000
L33	50	CCI-65FP-065125	17.75 - 20.50	Auto	1.0000
L34	22	Flat Plate [#3.75"x1.25"]	17.50 - 17.75	Auto	1.0000
L34	23	Flat Plate [#3.75"x1.25"]	17.50 - 17.75	Auto	1.0000
L34	24	Flat Plate [#3.75"x1.25"]	17.50 - 17.75	Auto	1.0000
L34	30	MS-600	17.50 - 17.75	Auto	1.0000
L34	31	MS-600	17.50 - 17.75	Auto	1.0000
L34	32	MS-600	17.50 - 17.75	Auto	1.0000
L34	50	CCI-65FP-065125	17.50 - 17.75	Auto	1.0000
L35	22	Flat Plate [#3.75"x1.25"]	12.50 - 17.50	Auto	1.0000
L35	23	Flat Plate [#3.75"x1.25"]	12.50 - 17.50	Auto	1.0000
L35	24	Flat Plate [#3.75"x1.25"]	12.50 - 17.50	Auto	1.0000
L35	30	MS-600	12.50 - 17.50	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L35	31	MS-600	12.50 - 17.50	Auto	1.0000
L35	32	MS-600	12.50 - 17.50	Auto	1.0000
L35	50	CCI-65FP-065125	12.50 - 17.50	Auto	1.0000
L36	22	Flat Plate [#3.75"x1.25"]	7.50 - 12.50	Auto	1.0000
L36	23	Flat Plate [#3.75"x1.25"]	7.50 - 12.50	Auto	1.0000
L36	24	Flat Plate [#3.75"x1.25"]	7.50 - 12.50	Auto	1.0000
L36	30	MS-600	7.50 - 12.50	Auto	1.0000
L36	31	MS-600	7.50 - 12.50	Auto	1.0000
L36	32	MS-600	7.50 - 12.50	Auto	1.0000
L36	50	CCI-65FP-065125	7.50 - 12.50	Auto	1.0000
L37	22	Flat Plate [#3.75"x1.25"]	3.25 - 7.50	Auto	1.0000
L37	23	Flat Plate [#3.75"x1.25"]	3.25 - 7.50	Auto	1.0000
L37	24	Flat Plate [#3.75"x1.25"]	3.25 - 7.50	Auto	1.0000
L37	30	MS-600	3.25 - 7.50	Auto	1.0000
L37	31	MS-600	3.25 - 7.50	Auto	1.0000
L37	32	MS-600	3.25 - 7.50	Auto	1.0000
L37	50	CCI-65FP-065125	3.25 - 7.50	Auto	1.0000
L38	22	Flat Plate [#3.75"x1.25"]	3.00 - 3.25	Auto	1.0000
L38	23	Flat Plate [#3.75"x1.25"]	3.00 - 3.25	Auto	1.0000
L38	24	Flat Plate [#3.75"x1.25"]	3.00 - 3.25	Auto	1.0000
L38	30	MS-600	3.00 - 3.25	Auto	1.0000
L38	31	MS-600	3.00 - 3.25	Auto	1.0000
L38	32	MS-600	3.00 - 3.25	Auto	1.0000
L38	50	CCI-65FP-065125	3.00 - 3.25	Auto	1.0000
L39	22	Flat Plate [#3.75"x1.25"]	0.00 - 3.00	Auto	1.0000
L39	23	Flat Plate [#3.75"x1.25"]	0.00 - 3.00	Auto	1.0000
L39	24	Flat Plate [#3.75"x1.25"]	0.00 - 3.00	Auto	1.0000
L39	30	MS-600	0.00 - 3.00	Auto	1.0000
L39	31	MS-600	0.00 - 3.00	Auto	1.0000
L39	32	MS-600	0.00 - 3.00	Auto	1.0000
L39	50	CCI-65FP-065125	0.50 - 3.00	Auto	1.0000

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
******									
LLPX310R w/ Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.88 4.29 4.72 5.61	2.36 2.73 3.12 3.94	0.06 0.09 0.13 0.24
LLPX310R w/ Mount Pipe	B	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.88 4.29 4.72 5.61	2.36 2.73 3.12 3.94	0.06 0.09 0.13 0.24
LLPX310R w/ Mount Pipe	C	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.88 4.29 4.72 5.61	2.36 2.73 3.12 3.94	0.06 0.09 0.13 0.24
RRH-2WB	A	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.30 2.50 2.69 3.11	0.78 0.92 1.06 1.36	0.04 0.06 0.08 0.12

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
RRH-2WB	B	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.30 2.50 2.69 3.11	0.78 0.92 1.06 1.36	0.04 0.06 0.08 0.12
RRH-2WB	C	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.30 2.50 2.69 3.11	0.78 0.92 1.06 1.36	0.04 0.06 0.08 0.12
DC6-48-60-18-8F	C	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.92 1.46 1.64 2.04	0.92 1.46 1.64 2.04	0.02 0.04 0.06 0.11
6' x 2" Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	B	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	C	From Leg	1.00 0.00 0.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
Side Arm Mount [SO 102-3]	C	None		0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.18 4.75 5.90	3.60 4.18 4.75 5.90	0.07 0.11 0.14 0.20
******									
TME-800MHz 2X50W RRH W/FILTER	A	From Leg	1.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
TME-800MHz 2X50W RRH W/FILTER	B	From Leg	1.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
TME-800MHz 2X50W RRH W/FILTER	C	From Leg	1.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
TME-PCS 1900MHz 4x45W-65MHz	A	From Leg	1.00 0.00 -2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
TME-PCS 1900MHz 4x45W-65MHz	B	From Leg	1.00 0.00 -2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
TME-PCS 1900MHz 4x45W-65MHz	C	From Leg	1.00 0.00 -2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17

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*
						2" Ice			
Side Arm Mount [SO 102-3]	C	None		0.0000	117.00	No Ice	3.60	3.60	0.07
						1/2" Ice	4.18	4.18	0.11
						1" Ice	4.75	4.75	0.14
						2" Ice	5.90	5.90	0.20
******									
(2) 4' x 2" Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	0.79	0.79	0.03
						1/2" Ice	1.03	1.03	0.04
						1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
(2) 4' x 2" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	0.79	0.79	0.03
						1/2" Ice	1.03	1.03	0.04
						1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
(2) 4' x 2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	0.79	0.79	0.03
						1/2" Ice	1.03	1.03	0.04
						1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
Platform Mount [LP 303-1_HR-1]	C	None		0.0000	116.00	No Ice	17.09	17.09	1.50
						1/2" Ice	21.47	21.47	1.88
						1" Ice	25.72	25.72	2.35
						2" Ice	33.96	33.96	3.52
***									
AIR 6419 B41_TMO	A	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	7.00	2.83	0.10
						1/2" Ice	7.53	3.24	0.14
						1" Ice	8.07	3.67	0.19
						2" Ice	9.22	4.59	0.30
AIR 6419 B41_TMO	B	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	7.00	2.83	0.10
						1/2" Ice	7.53	3.24	0.14
						1" Ice	8.07	3.67	0.19
						2" Ice	9.22	4.59	0.30
AIR 6419 B41_TMO	C	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	7.00	2.83	0.10
						1/2" Ice	7.53	3.24	0.14
						1" Ice	8.07	3.67	0.19
						2" Ice	9.22	4.59	0.30
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	14.69	6.87	0.18
						1/2" Ice	15.46	7.55	0.31
						1" Ice	16.23	8.25	0.45
						2" Ice	17.82	9.67	0.78
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	14.69	6.87	0.18
						1/2" Ice	15.46	7.55	0.31
						1" Ice	16.23	8.25	0.45
						2" Ice	17.82	9.67	0.78
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	14.69	6.87	0.18
						1/2" Ice	15.46	7.55	0.31
						1" Ice	16.23	8.25	0.45
						2" Ice	17.82	9.67	0.78
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00 0.00 0.00	0.0000	116.00	No Ice	2.14	1.69	0.11
						1/2" Ice	2.32	1.85	0.13
						1" Ice	2.51	2.02	0.16
						2" Ice	2.91	2.39	0.22
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00	0.0000	116.00	No Ice	2.14	1.69	0.11
							2.32	1.85	0.13

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		C_AA_A *Front* *ft²*	C_AA_A *Side* *ft²*	*Weight* *K*
			0.00			1/2" Ice	2.51	2.02	0.16
						1" Ice	2.91	2.39	0.22
						2" Ice			
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.0000	116.00	No Ice	2.14	1.69	0.11
			0.00			1/2" Ice	2.32	1.85	0.13
			0.00			1" Ice	2.51	2.02	0.16
						2" Ice	2.91	2.39	0.22
Radio 4480_TMOV2	A	From Leg	4.00	0.0000	116.00	No Ice	2.88	1.40	0.08
			0.00			1/2" Ice	3.09	1.56	0.10
			0.00			1" Ice	3.31	1.73	0.13
						2" Ice	3.78	2.09	0.19
Radio 4480_TMOV2	B	From Leg	4.00	0.0000	116.00	No Ice	2.88	1.40	0.08
			0.00			1/2" Ice	3.09	1.56	0.10
			0.00			1" Ice	3.31	1.73	0.13
						2" Ice	3.78	2.09	0.19
Radio 4480_TMOV2	C	From Leg	4.00	0.0000	116.00	No Ice	2.88	1.40	0.08
			0.00			1/2" Ice	3.09	1.56	0.10
			0.00			1" Ice	3.31	1.73	0.13
						2" Ice	3.78	2.09	0.19
10' Mount Pipe[#P2.0 STD]	A	From Leg	4.00	0.0000	116.00	No Ice	2.38	2.38	0.04
			0.00			1/2" Ice	3.40	3.40	0.05
			0.00			1" Ice	4.45	4.45	0.08
						2" Ice	5.91	5.91	0.15
10' Mount Pipe[#P2.0 STD]	B	From Leg	4.00	0.0000	116.00	No Ice	2.38	2.38	0.04
			0.00			1/2" Ice	3.40	3.40	0.05
			0.00			1" Ice	4.45	4.45	0.08
						2" Ice	5.91	5.91	0.15
10' Mount Pipe[#P2.0 STD]	C	From Leg	4.00	0.0000	116.00	No Ice	2.38	2.38	0.04
			0.00			1/2" Ice	3.40	3.40	0.05
			0.00			1" Ice	4.45	4.45	0.08
						2" Ice	5.91	5.91	0.15
******									
BXA-80063-4CF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	105.00	No Ice	4.74	3.28	0.04
			0.00			1/2" Ice	5.24	3.76	0.08
			1.00			1" Ice	5.77	4.25	0.12
						2" Ice	6.86	5.28	0.24
BXA-80063-4CF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	105.00	No Ice	4.74	3.28	0.04
			0.00			1/2" Ice	5.24	3.76	0.08
			1.00			1" Ice	5.77	4.25	0.12
						2" Ice	6.86	5.28	0.24
BXA-80063-4CF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00	0.0000	105.00	No Ice	4.74	3.28	0.04
			0.00			1/2" Ice	5.24	3.76	0.08
			1.00			1" Ice	5.77	4.25	0.12
						2" Ice	6.86	5.28	0.24
(2) SBNHH-1D65B	A	From Leg	4.00	0.0000	105.00	No Ice	4.16	2.49	0.04
			0.00			1/2" Ice	4.57	2.88	0.09
			2.00			1" Ice	4.99	3.27	0.15
						2" Ice	5.85	4.09	0.28
(2) SBNHH-1D65B	B	From Leg	4.00	0.0000	105.00	No Ice	4.16	2.49	0.04
			0.00			1/2" Ice	4.57	2.88	0.09
			2.00			1" Ice	4.99	3.27	0.15
						2" Ice	5.85	4.09	0.28

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
(2) SBNHH-1D65B	C	From Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.16 4.57 4.99 5.85	2.49 2.88 3.27 4.09	0.04 0.09 0.15 0.28
BXA-70063/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.84 5.35 5.88 6.99	3.54 4.03 4.53 5.59	0.04 0.08 0.12 0.24
BXA-70063/4CF w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.84 5.35 5.88 6.99	3.54 4.03 4.53 5.59	0.04 0.08 0.12 0.24
BXA-70063/4CF w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.84 5.35 5.88 6.99	3.54 4.03 4.53 5.59	0.04 0.08 0.12 0.24
RFV01U-D1A	A	From Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
RFV01U-D1A	B	From Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
RFV01U-D1A	C	From Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
RFV01U-D2A	A	From Leg	4.00 0.00 1.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D2A	B	From Leg	4.00 0.00 1.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D2A	C	From Leg	4.00 0.00 1.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
DB-T1-6Z-8AB-0Z	B	From Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.80 5.07 5.35 5.93	2.00 2.19 2.39 2.81	0.04 0.08 0.12 0.21
RRFDC-3315-PF-48	A	From Leg	4.00 0.00 2.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.04 4.30 4.84	2.51 2.73 2.95 3.42	0.03 0.06 0.10 0.18
Dual Antenna Mount	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.56 5.21	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12

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
Dual Antenna Mount	B	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.56 5.21	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Dual Antenna Mount	C	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.56 5.21	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
Platform Mount [LP 502-1]	C	None		0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	18.28 23.54 28.53 38.85	18.28 23.54 28.53 38.85	0.93 1.43 2.07 3.71
****									
APXV18-209015-C-A20 w/ Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.36 4.94 6.14	3.16 3.71 4.28 5.47	0.06 0.10 0.15 0.28
APXV18-209015-C-A20 w/ Mount Pipe	B	From Leg	1.00 0.00 0.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.36 4.94 6.14	3.16 3.71 4.28 5.47	0.06 0.10 0.15 0.28
APXV18-209015-C-A20 w/ Mount Pipe	C	From Leg	1.00 0.00 0.00	0.0000	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.36 4.94 6.14	3.16 3.71 4.28 5.47	0.06 0.10 0.15 0.28
******									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10

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
						1" Ice 2" Ice	2.71	1.55	0.15
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.01 2.19 2.37 2.76	1.17 1.31 1.46 1.78	0.02 0.04 0.06 0.11
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Commscope MC-PK8-DSH	C	None		0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	34.24 62.95 91.66 149.08	34.24 62.95 91.66 149.08	1.75 2.10 2.45 3.15
******									
Side Arm Mount [SO 702-1]	A	From Leg	2.00 0.00 0.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.62 0.74 0.89 1.25	1.49 2.07 2.54 3.55	0.03 0.04 0.06 0.12
Side Arm Mount [SO 702-1]	C	From Leg	2.00 0.00 0.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.62 0.74 0.89 1.25	1.49 2.07 2.54 3.55	0.03 0.04 0.06 0.12
******									
KS24019-L112A	B	From Leg	4.00	0.0000	50.00	No Ice	0.14	0.14	0.01

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
			0.00 0.00			1/2" Ice 1" Ice 2" Ice	0.20 0.26 0.41	0.20 0.26 0.41	0.01 0.01 0.02
Side Arm Mount [SO 702-1]	B	From Leg	2.00 0.00 0.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.62 0.74 0.89 1.25	1.49 2.07 2.54 3.55	0.03 0.04 0.06 0.12
****									
Bridge Stiffener (111" x 11.5" x 1.25")	A	From Leg	0.50 0.00 0.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.93 2.97 4.03 6.18	13.19 13.89 14.60 16.04	0.50 0.55 0.61 0.75
Bridge Stiffener (111" x 11.5" x 1.25")	B	From Leg	0.50 0.00 0.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.93 2.97 4.03 6.18	13.19 13.89 14.60 16.04	0.50 0.55 0.61 0.75
Bridge Stiffener (111" x 11.5" x 1.25")	C	From Leg	0.50 0.00 0.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.93 2.97 4.03 6.18	13.19 13.89 14.60 16.04	0.50 0.55 0.61 0.75
Channel Bridge Stiffener (44" x 6" x 1.25")	A	From Leg	0.50 0.00 0.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.59 2.87 3.15 3.73	0.76 1.16 1.42 1.98	0.10 0.12 0.13 0.18
Channel Bridge Stiffener (44" x 6" x 1.25")	B	From Leg	0.50 0.00 0.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.59 2.87 3.15 3.73	0.76 1.16 1.42 1.98	0.10 0.12 0.13 0.18
Channel Bridge Stiffener (44" x 6" x 1.25")	C	From Leg	0.50 0.00 0.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.59 2.87 3.15 3.73	0.76 1.16 1.42 1.98	0.10 0.12 0.13 0.18
******									
Channel Bridge Stiffener (56" x 8" x 1.25")	A	From Leg	0.50 0.00 0.00	0.0000	30.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.36 4.70 5.06 5.79	0.97 1.51 1.96 2.66	0.10 0.12 0.15 0.21
Channel Bridge Stiffener (56" x 8" x 1.25")	B	From Leg	0.50 0.00 0.00	0.0000	30.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.36 4.70 5.06 5.79	0.97 1.51 1.96 2.66	0.10 0.12 0.15 0.21
Channel Bridge Stiffener (56" x 8" x 1.25")	C	From Leg	0.50 0.00 0.00	0.0000	30.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.36 4.70 5.06 5.79	0.97 1.51 1.96 2.66	0.10 0.12 0.15 0.21
Bridge Stiffener (135" x 11.5" x 1.25")	A	From Leg	0.50 0.00 0.00	0.0000	30.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.34 3.61 4.89 7.49	16.80 17.63 18.48 20.19	0.50 0.56 0.63 0.80
Bridge Stiffener (135" x 11.5" x 1.25")	B	From Leg	0.50 0.00 0.00	0.0000	30.00	No Ice 1/2" Ice 1" Ice	2.34 3.61 4.89 7.49	16.80 17.63 18.48 20.19	0.50 0.56 0.63 0.80

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
						2" Ice			
Bridge Stiffener (135" x 11.5" x 1.25")	C	From Leg	0.50 0.00 0.00	0.0000	30.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.34 3.61 4.89 7.49	16.80 17.63 18.48 20.19	0.50 0.56 0.63 0.80
******									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
******											
VHLP2-18	A	Paraboloid w/o Radome	From Leg	1.00 0.00 1.00	30.0000		127.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.03 0.05 0.07 0.11
A-ANT-18G-2-C	B	Paraboloid w/o Radome	From Leg	1.00 0.00 0.00	30.0000		127.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.03 0.05 0.07 0.11
A-ANT-18G-2-C	C	Paraboloid w/o Radome	From Leg	1.00 0.00 0.00	30.0000		127.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.03 0.05 0.07 0.11
******											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	130 - 125	Pole	Max Tension	45	0.00	-0.00	0.00
			Max. Compression	26	-2.04	0.09	-0.05
			Max. Mx	20	-0.72	3.62	-0.26
			Max. My	14	-0.72	0.41	-3.46
			Max. Vy	20	-1.66	3.62	-0.26
			Max. Vx	14	1.56	0.41	-3.46
			Max. Torque	12			-0.38
L2	125 - 120	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-2.49	0.02	-0.01
			Max. Mx	20	-0.93	12.38	-0.25
			Max. My	14	-0.93	1.05	-11.74
			Max. Vy	20	-1.86	12.38	-0.25
			Max. Vx	14	1.76	1.05	-11.74
			Max. Torque	12			-0.38
L3	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.98	-0.08	0.05
			Max. Mx	20	-5.36	26.87	-0.23
			Max. My	14	-5.36	1.69	-25.76
			Max. Vy	20	-6.47	26.87	-0.23
			Max. Vx	14	6.38	1.69	-25.76
			Max. Torque	12			-0.38
L4	115 - 110	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-12.74	-0.19	0.11
			Max. Mx	20	-5.81	59.95	-0.20
			Max. My	14	-5.81	2.34	-58.39
			Max. Vy	20	-6.77	59.95	-0.20
			Max. Vx	14	6.68	2.34	-58.39
			Max. Torque	12			-0.38
L5	110 - 105	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-13.49	-0.30	0.18
			Max. Mx	20	-6.26	94.51	-0.17
			Max. My	14	-6.26	2.99	-92.52
			Max. Vy	20	-7.07	94.51	-0.17
			Max. Vx	14	6.98	2.99	-92.52
			Max. Torque	12			-0.38
L6	105 - 100	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-21.30	-1.15	0.53
			Max. Mx	20	-8.96	150.97	0.21
			Max. My	14	-8.95	3.16	-148.67
			Max. Vy	20	-10.83	150.97	0.21
			Max. Vx	14	10.74	3.16	-148.67
			Max. Torque	20			-0.57
L7	100 - 95	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.72	-1.26	0.60
			Max. Mx	20	-9.66	206.14	0.46
			Max. My	14	-9.65	3.60	-203.41
			Max. Vy	20	-11.48	206.14	0.46
			Max. Vx	14	11.39	3.60	-203.41
			Max. Torque	20			-0.57
L8	95 - 90	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.52	-1.38	0.67
			Max. Mx	20	-10.20	264.11	0.70
			Max. My	14	-10.19	4.04	-260.94
			Max. Vy	20	-11.73	264.11	0.70
			Max. Vx	14	11.64	4.04	-260.94
			Max. Torque	20			-0.57
L9	90 - 85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.29	-1.48	1.17
			Max. Mx	20	-13.98	326.38	1.06
			Max. My	2	-13.99	6.35	322.70
			Max. Vy	20	-15.01	326.38	1.06
			Max. Vx	14	14.95	4.49	-322.70
			Max. Torque	20			-0.77
L10	85 - 83.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.63	-1.51	1.20
			Max. Mx	20	-14.20	348.93	1.14
			Max. My	14	-14.18	4.63	-345.23
			Max. Vy	8	15.12	-347.66	-0.72
			Max. Vx	14	15.11	4.63	-345.23
			Max. Torque	20			-0.77
L11	83.5 - 83.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.71	-1.51	1.20
			Max. Mx	20	-14.26	352.70	1.15
			Max. My	14	-14.24	4.65	-349.00
			Max. Vy	8	15.14	-351.44	-0.73
			Max. Vx	14	15.13	4.65	-349.00
			Max. Torque	20			-0.77
L12	83.25 - 78.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.13	-1.60	1.29
			Max. Mx	20	-15.28	428.77	1.41
			Max. My	14	-15.24	5.11	-425.93
			Max. Vy	8	15.66	-428.46	-0.93
			Max. Vx	14	15.66	5.11	-425.93
			Max. Torque	20			-0.77
L13	78.25 - 75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.06	-1.65	1.35
			Max. Mx	8	-15.91	-479.90	-1.06
			Max. My	14	-15.90	5.40	-477.31
			Max. Vy	8	15.99	-479.90	-1.06
			Max. Vx	14	15.99	5.40	-477.31
			Max. Torque	20			-0.77
L14	75 - 74.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.13	-1.65	1.35
			Max. Mx	8	-15.96	-483.90	-1.07
			Max. My	14	-15.95	5.43	-481.31
			Max. Vy	8	16.00	-483.90	-1.07
			Max. Vx	14	16.01	5.43	-481.31
			Max. Torque	20			-0.77
L15	74.75 - 69.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.55	-1.73	1.44
			Max. Mx	8	-17.00	-564.51	-1.27
			Max. My	14	-16.98	5.88	-562.53
			Max. Vy	8	16.24	-564.51	-1.27

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	16.50	5.88	-562.53
			Max. Torque	20			-0.77
L16	69.75 - 64.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.96	-1.81	1.53
			Max. Mx	8	-18.06	-646.20	-1.47
			Max. My	14	-18.02	6.34	-646.11
			Max. Vy	8	16.44	-646.20	-1.47
			Max. Vx	14	16.96	6.34	-646.11
			Max. Torque	20			-0.77
L17	64.75 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.30	-1.88	1.61
			Max. Mx	8	-19.07	-724.71	-1.66
			Max. My	14	-19.03	6.76	-727.56
			Max. Vy	8	16.62	-724.71	-1.66
			Max. Vx	14	17.37	6.76	-727.56
			Max. Torque	20			-0.77
L18	60 - 59.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.34	-1.66	1.75
			Max. Mx	8	-21.31	-729.10	-1.63
			Max. My	14	-21.27	6.86	-732.17
			Max. Vy	8	17.90	-729.10	-1.63
			Max. Vx	14	18.63	6.86	-732.17
			Max. Torque	20			-0.86
L19	59.75 - 54.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.81	-1.74	1.84
			Max. Mx	8	-22.49	-819.28	-1.89
			Max. My	14	-22.45	7.23	-825.95
			Max. Vy	8	18.17	-819.28	-1.89
			Max. Vx	14	18.90	7.23	-825.95
			Max. Torque	20			-0.86
L20	54.75 - 49.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.48	-2.12	1.75
			Max. Mx	8	-23.72	-910.85	-2.22
			Max. My	14	-23.68	7.49	-921.07
			Max. Vy	8	18.45	-910.85	-2.22
			Max. Vx	14	19.20	7.49	-921.07
			Max. Torque	20			-0.86
L21	49.75 - 48.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.92	-2.14	1.76
			Max. Mx	8	-24.01	-933.99	-2.27
			Max. My	14	-23.98	7.60	-945.13
			Max. Vy	8	18.59	-933.99	-2.27
			Max. Vx	14	19.33	7.60	-945.13
			Max. Torque	20			-0.76
L22	48.5 - 48.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.03	-2.15	1.77
			Max. Mx	8	-24.10	-938.64	-2.28
			Max. My	14	-24.06	7.63	-949.96
			Max. Vy	8	18.61	-938.64	-2.28
			Max. Vx	14	19.35	7.63	-949.96
			Max. Torque	20			-0.76
L23	48.25 - 43.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.15	-2.22	1.83
			Max. Mx	8	-25.64	-1033.12	-2.48
			Max. My	14	-25.60	8.06	-1048.09
			Max. Vy	8	19.18	-1033.12	-2.48
			Max. Vx	14	19.92	8.06	-1048.09
			Max. Torque	20			-0.76
L24	43.25 - 38.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.26	-2.29	1.89
			Max. Mx	8	-27.20	-1130.35	-2.68
			Max. My	14	-27.16	8.50	-1148.93
			Max. Vy	8	19.72	-1130.35	-2.68
			Max. Vx	14	20.45	8.50	-1148.93

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	20			-0.76
L25	38.25 - 33.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.36	-2.36	1.95
			Max. Mx	8	-28.76	-1230.16	-2.87
			Max. My	14	-28.73	8.94	-1252.31
			Max. Vy	8	20.21	-1230.16	-2.87
			Max. Vx	14	20.94	8.94	-1252.31
			Max. Torque	20			-0.76
L26	33.25 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.72	-2.40	1.99
			Max. Mx	8	-29.79	-1296.33	-3.00
			Max. My	14	-29.76	9.22	-1320.77
			Max. Vy	8	20.52	-1296.33	-3.00
			Max. Vx	14	21.23	9.22	-1320.77
			Max. Torque	20			-0.76
L27	30 - 29.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.70	-2.41	2.00
			Max. Mx	8	-32.00	-1301.78	-3.01
			Max. My	14	-31.97	9.24	-1326.40
			Max. Vy	8	21.83	-1301.78	-3.01
			Max. Vx	14	22.53	9.24	-1326.40
			Max. Torque	20			-0.76
L28	29.75 - 24.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.58	-2.49	2.07
			Max. Mx	8	-33.43	-1412.23	-3.20
			Max. My	14	-33.41	9.66	-1439.52
			Max. Vy	8	22.35	-1412.23	-3.20
			Max. Vx	14	22.75	9.66	-1439.52
			Max. Torque	20			-0.76
L29	24.75 - 23	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.29	-2.52	2.09
			Max. Mx	8	-33.93	-1451.50	-3.27
			Max. My	14	-33.91	9.81	-1479.45
			Max. Vy	8	22.54	-1451.50	-3.27
			Max. Vx	14	22.94	9.81	-1479.45
			Max. Torque	20			-0.76
L30	23 - 22.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.39	-2.52	2.10
			Max. Mx	8	-34.01	-1457.13	-3.28
			Max. My	14	-34.00	9.83	-1485.18
			Max. Vy	8	22.55	-1457.13	-3.28
			Max. Vx	14	22.94	9.83	-1485.18
			Max. Torque	20			-0.76
L31	22.75 - 20.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.21	-2.56	2.12
			Max. Mx	8	-34.58	-1502.44	-3.35
			Max. My	14	-34.57	10.00	-1531.25
			Max. Vy	8	22.76	-1502.44	-3.35
			Max. Vx	14	23.15	10.00	-1531.25
			Max. Torque	20			-0.76
L32	20.75 - 20.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.33	-2.56	2.13
			Max. Mx	8	-34.68	-1508.14	-3.36
			Max. My	14	-34.66	10.02	-1537.03
			Max. Vy	8	22.78	-1508.14	-3.36
			Max. Vx	14	23.17	10.02	-1537.03
			Max. Torque	20			-0.76
L33	20.5 - 17.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.62	-2.58	2.20
			Max. Mx	8	-35.60	-1571.19	-3.46
			Max. My	14	-35.59	10.25	-1601.12
			Max. Vy	8	23.08	-1571.19	-3.46
			Max. Vx	14	23.47	10.25	-1601.12
			Max. Torque	20			-0.76
L34	17.75 - 17.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.74	-2.58	2.21

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-35.70	-1576.97	-3.47
			Max. My	14	-35.69	10.27	-1606.99
			Max. Vy	8	23.10	-1576.97	-3.47
			Max. Vx	14	23.48	10.27	-1606.99
			Max. Torque	20			-0.76
L35	17.5 - 12.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.16	-2.62	2.35
			Max. Mx	8	-37.56	-1693.64	-3.66
			Max. My	14	-37.55	10.69	-1725.54
			Max. Vy	8	23.57	-1693.64	-3.66
			Max. Vx	14	23.97	10.69	-1725.54
			Max. Torque	20			-0.76
L36	12.5 - 7.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.55	-2.65	2.47
			Max. Mx	8	-39.44	-1812.58	-3.85
			Max. My	14	-39.43	11.10	-1846.40
			Max. Vy	8	24.02	-1812.58	-3.85
			Max. Vx	14	24.42	11.10	-1846.40
			Max. Torque	20			-0.76
L37	7.5 - 3.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.54	-2.68	2.58
			Max. Mx	8	-41.04	-1915.39	-4.01
			Max. My	14	-41.04	11.45	-1950.86
			Max. Vy	8	24.38	-1915.39	-4.01
			Max. Vx	14	24.78	11.45	-1950.86
			Max. Torque	20			-0.76
L38	3.25 - 3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.65	-2.68	2.59
			Max. Mx	8	-41.13	-1921.49	-4.01
			Max. My	14	-41.13	11.47	-1957.05
			Max. Vy	8	24.39	-1921.49	-4.01
			Max. Vx	14	24.79	11.47	-1957.05
			Max. Torque	20			-0.76
L39	3 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.91	-2.71	2.65
			Max. Mx	8	-42.16	-1995.02	-4.12
			Max. My	14	-42.16	11.72	-2031.75
			Max. Vy	8	24.64	-1995.02	-4.12
			Max. Vx	14	25.04	11.72	-2031.75
			Max. Torque	20			-0.76

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	67.91	-7.05	-0.01
	Max. H_x	20	42.17	23.69	0.04
	Max. H_z	2	42.17	0.18	23.65
	Max. M_x	2	1936.80	0.18	23.65
	Max. M_z	8	1995.02	-24.62	-0.04
	Max. Torsion	10	0.43	-20.65	-11.81
	Min. Vert	19	31.63	20.37	-11.90
	Min. H_x	8	42.17	-24.62	-0.04
	Min. H_z	14	42.17	0.09	-25.03
	Min. M_x	14	-2031.75	0.09	-25.03
	Min. M_z	20	-1945.27	23.69	0.04
	Min. Torsion	20	-0.76	23.69	0.04

Tower Mast Reaction Summary

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 Only	35.14	0.00	0.00	-0.67	-0.83	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	42.17	-0.18	-23.65	-1936.80	21.55	0.38
0.9 Dead+1.0 Wind 0 deg - No Ice	31.63	-0.18	-23.65	-1915.36	21.53	0.38
1.2 Dead+1.0 Wind 30 deg - No Ice	42.17	11.81	-20.52	-1685.60	-969.91	0.36
0.9 Dead+1.0 Wind 30 deg - No Ice	31.63	11.81	-20.52	-1666.88	-959.00	0.36
1.2 Dead+1.0 Wind 60 deg - No Ice	42.17	21.60	-12.30	-996.92	-1764.87	-0.10
0.9 Dead+1.0 Wind 60 deg - No Ice	31.63	21.60	-12.30	-985.94	-1745.44	-0.09
1.2 Dead+1.0 Wind 90 deg - No Ice	42.17	24.62	0.04	4.12	-1995.02	-0.34
0.9 Dead+1.0 Wind 90 deg - No Ice	31.63	24.62	0.04	4.29	-1973.03	-0.33
1.2 Dead+1.0 Wind 120 deg - No Ice	42.17	20.65	11.81	956.77	-1688.28	-0.43
0.9 Dead+1.0 Wind 120 deg - No Ice	31.63	20.65	11.81	946.54	-1669.50	-0.42
1.2 Dead+1.0 Wind 150 deg - No Ice	42.17	12.15	21.03	1722.92	-997.90	-0.16
0.9 Dead+1.0 Wind 150 deg - No Ice	31.63	12.15	21.03	1704.24	-986.69	-0.15
1.2 Dead+1.0 Wind 180 deg - No Ice	42.17	-0.09	25.03	2031.75	11.72	-0.18
0.9 Dead+1.0 Wind 180 deg - No Ice	31.63	-0.09	25.03	2009.94	11.81	-0.17
1.2 Dead+1.0 Wind 210 deg - No Ice	42.17	-12.27	21.32	1725.33	991.73	0.05
0.9 Dead+1.0 Wind 210 deg - No Ice	31.63	-12.27	21.32	1706.76	981.20	0.05
1.2 Dead+1.0 Wind 240 deg - No Ice	42.17	-20.37	11.90	978.24	1662.62	0.32
0.9 Dead+1.0 Wind 240 deg - No Ice	31.63	-20.37	11.90	967.69	1644.69	0.32
1.2 Dead+1.0 Wind 270 deg - No Ice	42.17	-23.69	-0.04	-5.57	1945.27	0.76
0.9 Dead+1.0 Wind 270 deg - No Ice	31.63	-23.69	-0.04	-5.29	1924.18	0.75
1.2 Dead+1.0 Wind 300 deg - No Ice	42.17	-21.51	-12.61	-1036.01	1750.07	0.65
0.9 Dead+1.0 Wind 300 deg - No Ice	31.63	-21.51	-12.61	-1024.51	1731.37	0.65
1.2 Dead+1.0 Wind 330 deg - No Ice	42.17	-12.48	-21.59	-1758.04	1015.39	0.56
0.9 Dead+1.0 Wind 330 deg - No Ice	31.63	-12.48	-21.59	-1738.69	1004.59	0.56
1.2 Dead+1.0 Ice+1.0 Temp	67.91	0.00	-0.00	-2.65	-2.71	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	67.91	-0.04	-7.02	-633.91	2.44	0.10
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	67.91	3.51	-6.09	-551.36	-318.76	0.08
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	67.91	6.09	-3.48	-314.13	-551.27	-0.03
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	67.91	7.05	0.01	-1.67	-635.78	-0.09
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	67.91	6.11	3.50	310.28	-551.92	-0.11
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	67.91	3.53	6.12	547.22	-320.69	-0.05
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	67.91	-0.02	7.05	629.41	0.33	-0.05
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	67.91	-3.52	6.11	545.25	312.77	0.01

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
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	67.91	-6.05	3.53	315.58	540.88	0.08
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	67.91	-7.03	-0.01	-3.74	630.96	0.18
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	67.91	-6.07	-3.55	-323.20	542.54	0.16
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	67.91	-3.52	-6.10	-551.61	314.52	0.14
Dead+Wind 0 deg - Service	35.14	-0.04	-5.86	-477.23	4.68	0.09
Dead+Wind 30 deg - Service	35.14	2.93	-5.08	-415.40	-239.35	0.09
Dead+Wind 60 deg - Service	35.14	5.35	-3.05	-245.92	-435.07	-0.02
Dead+Wind 90 deg - Service	35.14	6.10	0.01	0.52	-491.71	-0.08
Dead+Wind 120 deg - Service	35.14	5.11	2.92	235.02	-416.18	-0.11
Dead+Wind 150 deg - Service	35.14	3.01	5.21	423.62	-246.25	-0.04
Dead+Wind 180 deg - Service	35.14	-0.02	6.20	499.67	2.27	-0.04
Dead+Wind 210 deg - Service	35.14	-3.04	5.28	424.22	243.52	0.01
Dead+Wind 240 deg - Service	35.14	-5.05	2.95	240.29	408.64	0.08
Dead+Wind 270 deg - Service	35.14	-5.87	-0.01	-1.87	478.21	0.19
Dead+Wind 300 deg - Service	35.14	-5.33	-3.12	-255.53	430.22	0.16
Dead+Wind 330 deg - Service	35.14	-3.09	-5.35	-433.28	249.35	0.14

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-35.14	0.00	0.00	35.14	0.00	0.000%
2	-0.18	-42.17	-23.65	0.18	42.17	23.65	0.000%
3	-0.18	-31.63	-23.65	0.18	31.63	23.65	0.000%
4	11.81	-42.17	-20.52	-11.81	42.17	20.52	0.000%
5	11.81	-31.63	-20.52	-11.81	31.63	20.52	0.000%
6	21.60	-42.17	-12.30	-21.60	42.17	12.30	0.000%
7	21.60	-31.63	-12.30	-21.60	31.63	12.30	0.000%
8	24.62	-42.17	0.04	-24.62	42.17	-0.04	0.000%
9	24.62	-31.63	0.04	-24.62	31.63	-0.04	0.000%
10	20.65	-42.17	11.81	-20.65	42.17	-11.81	0.000%
11	20.65	-31.63	11.81	-20.65	31.63	-11.81	0.000%
12	12.15	-42.17	21.03	-12.15	42.17	-21.03	0.000%
13	12.15	-31.63	21.03	-12.15	31.63	-21.03	0.000%
14	-0.09	-42.17	25.03	0.09	42.17	-25.03	0.000%
15	-0.09	-31.63	25.03	0.09	31.63	-25.03	0.000%
16	-12.27	-42.17	21.32	12.27	42.17	-21.32	0.000%
17	-12.27	-31.63	21.32	12.27	31.63	-21.32	0.000%
18	-20.37	-42.17	11.90	20.37	42.17	-11.90	0.000%
19	-20.37	-31.63	11.90	20.37	31.63	-11.90	0.000%
20	-23.69	-42.17	-0.04	23.69	42.17	0.04	0.000%
21	-23.69	-31.63	-0.04	23.69	31.63	0.04	0.000%
22	-21.51	-42.17	-12.61	21.51	42.17	12.61	0.000%
23	-21.51	-31.63	-12.61	21.51	31.63	12.61	0.000%
24	-12.48	-42.17	-21.59	12.48	42.17	21.59	0.000%
25	-12.48	-31.63	-21.59	12.48	31.63	21.59	0.000%
26	0.00	-67.91	0.00	-0.00	67.91	0.00	0.000%
27	-0.04	-67.91	-7.02	0.04	67.91	7.02	0.000%
28	3.51	-67.91	-6.09	-3.51	67.91	6.09	0.000%
29	6.09	-67.91	-3.48	-6.09	67.91	3.48	0.000%
30	7.05	-67.91	0.01	-7.05	67.91	-0.01	0.000%
31	6.11	-67.91	3.50	-6.11	67.91	-3.50	0.000%
32	3.53	-67.91	6.12	-3.53	67.91	-6.12	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
33	-0.02	-67.91	7.05	0.02	67.91	-7.05	0.000%
34	-3.52	-67.91	6.10	3.52	67.91	-6.11	0.000%
35	-6.05	-67.91	3.53	6.05	67.91	-3.53	0.000%
36	-7.03	-67.91	-0.01	7.03	67.91	0.01	0.000%
37	-6.07	-67.91	-3.55	6.07	67.91	3.55	0.000%
38	-3.52	-67.91	-6.10	3.52	67.91	6.10	0.000%
39	-0.04	-35.14	-5.86	0.04	35.14	5.86	0.000%
40	2.93	-35.14	-5.08	-2.93	35.14	5.08	0.000%
41	5.35	-35.14	-3.05	-5.35	35.14	3.05	0.000%
42	6.10	-35.14	0.01	-6.10	35.14	-0.01	0.000%
43	5.11	-35.14	2.92	-5.11	35.14	-2.92	0.000%
44	3.01	-35.14	5.21	-3.01	35.14	-5.21	0.000%
45	-0.02	-35.14	6.20	0.02	35.14	-6.20	0.000%
46	-3.04	-35.14	5.28	3.04	35.14	-5.28	0.000%
47	-5.05	-35.14	2.95	5.05	35.14	-2.95	0.000%
48	-5.87	-35.14	-0.01	5.87	35.14	0.01	0.000%
49	-5.33	-35.14	-3.12	5.33	35.14	3.12	0.000%
50	-3.09	-35.14	-5.35	3.09	35.14	5.35	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00015568
3	Yes	5	0.00000001	0.00006333
4	Yes	6	0.00000001	0.00043772
5	Yes	6	0.00000001	0.00014976
6	Yes	6	0.00000001	0.00045460
7	Yes	6	0.00000001	0.00015418
8	Yes	5	0.00000001	0.00017721
9	Yes	5	0.00000001	0.00007565
10	Yes	6	0.00000001	0.00041940
11	Yes	6	0.00000001	0.00014355
12	Yes	6	0.00000001	0.00045709
13	Yes	6	0.00000001	0.00015520
14	Yes	5	0.00000001	0.00015069
15	Yes	5	0.00000001	0.00006108
16	Yes	6	0.00000001	0.00044487
17	Yes	6	0.00000001	0.00015150
18	Yes	6	0.00000001	0.00042253
19	Yes	6	0.00000001	0.00014472
20	Yes	5	0.00000001	0.00045650
21	Yes	5	0.00000001	0.00021829
22	Yes	6	0.00000001	0.00047493
23	Yes	6	0.00000001	0.00016085
24	Yes	6	0.00000001	0.00045740
25	Yes	6	0.00000001	0.00015443
26	Yes	4	0.00000001	0.00039064
27	Yes	6	0.00000001	0.00060409
28	Yes	6	0.00000001	0.00075696
29	Yes	6	0.00000001	0.00074812
30	Yes	6	0.00000001	0.00060671
31	Yes	6	0.00000001	0.00074036
32	Yes	6	0.00000001	0.00075158
33	Yes	6	0.00000001	0.00059753
34	Yes	6	0.00000001	0.00073374
35	Yes	6	0.00000001	0.00073128
36	Yes	6	0.00000001	0.00060022
37	Yes	6	0.00000001	0.00074770
38	Yes	6	0.00000001	0.00074438
39	Yes	4	0.00000001	0.00053303
40	Yes	5	0.00000001	0.00014083
41	Yes	5	0.00000001	0.00014643
42	Yes	4	0.00000001	0.00056281
43	Yes	5	0.00000001	0.00012784

44	Yes	5	0.00000001	0.00014635
45	Yes	4	0.00000001	0.00053051
46	Yes	5	0.00000001	0.00014057
47	Yes	5	0.00000001	0.00012891
48	Yes	4	0.00000001	0.00070197
49	Yes	5	0.00000001	0.00015764
50	Yes	5	0.00000001	0.00014234

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 125	18.842	50	1.1932	0.0029
L2	125 - 120	17.593	50	1.1922	0.0026
L3	120 - 115	16.349	50	1.1830	0.0021
L4	115 - 110	15.112	50	1.1783	0.0020
L5	110 - 105	13.884	50	1.1668	0.0019
L6	105 - 100	12.672	50	1.1463	0.0018
L7	100 - 95	11.488	50	1.1132	0.0016
L8	95 - 90	10.346	50	1.0655	0.0015
L9	90 - 85	9.262	50	1.0025	0.0013
L10	85 - 83.5	8.239	50	0.9491	0.0011
L11	83.5 - 83.25	7.944	50	0.9307	0.0011
L12	83.25 - 78.25	7.895	50	0.9287	0.0011
L13	78.25 - 75	6.946	50	0.8829	0.0009
L14	75 - 74.75	6.357	50	0.8482	0.0009
L15	74.75 - 69.75	6.312	50	0.8454	0.0009
L16	69.75 - 64.75	5.458	50	0.7838	0.0007
L17	64.75 - 60	4.674	49	0.7127	0.0006
L18	60 - 59.75	4.004	49	0.6362	0.0005
L19	59.75 - 54.75	3.971	49	0.6338	0.0005
L20	54.75 - 49.75	3.334	49	0.5834	0.0004
L21	49.75 - 48.5	2.752	49	0.5271	0.0004
L22	48.5 - 48.25	2.616	49	0.5121	0.0004
L23	48.25 - 43.25	2.589	49	0.5098	0.0004
L24	43.25 - 38.25	2.080	49	0.4617	0.0003
L25	38.25 - 33.25	1.624	49	0.4088	0.0003
L26	33.25 - 30	1.225	49	0.3510	0.0002
L27	30 - 29.75	1.000	49	0.3107	0.0002
L28	29.75 - 24.75	0.984	49	0.3083	0.0002
L29	24.75 - 23	0.687	49	0.2580	0.0001
L30	23 - 22.75	0.596	49	0.2394	0.0001
L31	22.75 - 20.75	0.583	49	0.2367	0.0001
L32	20.75 - 20.5	0.489	49	0.2148	0.0001
L33	20.5 - 17.75	0.478	49	0.2125	0.0001
L34	17.75 - 17.5	0.363	49	0.1871	0.0001
L35	17.5 - 12.5	0.353	49	0.1848	0.0001
L36	12.5 - 7.5	0.184	49	0.1366	0.0001
L37	7.5 - 3.25	0.068	49	0.0849	0.0000
L38	3.25 - 3	0.013	49	0.0381	0.0000
L39	3 - 0	0.011	49	0.0352	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
128.00	VHLP2-18	50	18.342	1.1936	0.0028	59784
127.00	A-ANT-18G-2-C	50	18.093	1.1936	0.0027	59784
117.00	TME-800MHz 2X50W RRH W/FILTER	50	15.606	1.1802	0.0021	39289
116.00	(2) 4' x 2" Pipe Mount	50	15.359	1.1794	0.0021	39075
105.00	BXA-80063-4CF-EDIN-2 w/ Mount Pipe	50	12.672	1.1463	0.0018	10702

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
96.00	APXV18-209015-C-A20 w/ Mount Pipe	50	10.570	1.0768	0.0015	5358
86.00	MX08FRO665-21 w/ Mount Pipe	50	8.439	0.9613	0.0011	5137
60.00	Side Arm Mount [SO 702-1]	49	4.004	0.6362	0.0005	4372
50.00	KS24019-L112A	49	2.780	0.5302	0.0004	5182
30.00	Channel Bridge Stiffener (56" x 8" x 1.25")	49	1.000	0.3107	0.0002	5147

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 125	76.567	24	4.8557	0.0119
L2	125 - 120	71.494	24	4.8518	0.0108
L3	120 - 115	66.439	24	4.8145	0.0088
L4	115 - 110	61.417	24	4.7957	0.0084
L5	110 - 105	56.426	24	4.7491	0.0080
L6	105 - 100	51.503	24	4.6656	0.0075
L7	100 - 95	46.692	24	4.5305	0.0067
L8	95 - 90	42.052	24	4.3361	0.0059
L9	90 - 85	37.647	24	4.0796	0.0051
L10	85 - 83.5	33.491	24	3.8621	0.0045
L11	83.5 - 83.25	32.291	24	3.7871	0.0043
L12	83.25 - 78.25	32.093	24	3.7787	0.0043
L13	78.25 - 75	28.235	24	3.5924	0.0038
L14	75 - 74.75	25.840	24	3.4513	0.0035
L15	74.75 - 69.75	25.659	24	3.4397	0.0035
L16	69.75 - 64.75	22.199	22	3.1891	0.0030
L17	64.75 - 60	19.018	22	2.8995	0.0025
L18	60 - 59.75	16.290	22	2.5878	0.0021
L19	59.75 - 54.75	16.155	22	2.5782	0.0021
L20	54.75 - 49.75	13.562	22	2.3738	0.0018
L21	49.75 - 48.5	11.195	22	2.1457	0.0015
L22	48.5 - 48.25	10.641	22	2.0847	0.0014
L23	48.25 - 43.25	10.533	22	2.0754	0.0014
L24	43.25 - 38.25	8.461	22	1.8794	0.0013
L25	38.25 - 33.25	6.604	22	1.6638	0.0011
L26	33.25 - 30	4.984	22	1.4282	0.0009
L27	30 - 29.75	4.067	22	1.2641	0.0007
L28	29.75 - 24.75	4.002	22	1.2543	0.0007
L29	24.75 - 23	2.794	22	1.0495	0.0006
L30	23 - 22.75	2.423	22	0.9739	0.0005
L31	22.75 - 20.75	2.372	22	0.9629	0.0005
L32	20.75 - 20.5	1.988	22	0.8736	0.0005
L33	20.5 - 17.75	1.942	22	0.8644	0.0005
L34	17.75 - 17.5	1.474	22	0.7610	0.0004
L35	17.5 - 12.5	1.434	22	0.7516	0.0004
L36	12.5 - 7.5	0.749	22	0.5553	0.0003
L37	7.5 - 3.25	0.276	22	0.3450	0.0002
L38	3.25 - 3	0.053	22	0.1550	0.0001
L39	3 - 0	0.045	22	0.1433	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
128.00	VHLP2-18	24	74.537	4.8577	0.0116	15110
127.00	A-ANT-18G-2-C	24	73.522	4.8574	0.0114	15110
117.00	TME-800MHz 2X50W RRH W/FILTER	24	63.422	4.8032	0.0085	9848

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
116.00	(2) 4' x 2" Pipe Mount	24	62.419	4.8000	0.0084	9786
105.00	BXA-80063-4CF-EDIN-2 w/ Mount Pipe	24	51.503	4.6656	0.0075	2669
96.00	APXV18-209015-C-A20 w/ Mount Pipe	24	42.963	4.3821	0.0061	1334
86.00	MX08FRO665-21 w/ Mount Pipe	24	34.303	3.9118	0.0047	1274
60.00	Side Arm Mount [SO 702-1]	22	16.290	2.5878	0.0021	1079
50.00	KS24019-L112A	22	11.308	2.1586	0.0015	1277
30.00	Channel Bridge Stiffener (56" x 8" x 1.25")	22	4.067	1.2641	0.0007	1265

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	130 - 125 (1)	P16x0.1875	5.00	0.00	0.0	9.3143	-0.72	342.69	0.002
L2	125 - 120 (2)	P16x0.1875	5.00	0.00	0.0	9.3143	-0.92	342.69	0.003
L3	120 - 115 (3)	P24x0.25	5.00	0.00	0.0	18.6532	-5.35	662.26	0.008
L4	115 - 110 (4)	P24x0.25	5.00	0.00	0.0	18.6532	-5.79	662.26	0.009
L5	110 - 105 (5)	P24x0.25	5.00	0.00	0.0	18.6532	-6.24	662.26	0.009
L6	105 - 100 (6)	P24x0.25	5.00	0.00	0.0	18.6532	-8.93	662.26	0.013
L7	100 - 95 (7)	P24x0.25	5.00	0.00	0.0	18.6532	-9.63	662.26	0.015
L8	95 - 90 (8)	P24x0.25	5.00	0.00	0.0	18.6532	-10.17	662.26	0.015
L9	90 - 85 (9)	P24x0.375	5.00	0.00	0.0	27.8325	-13.94	1052.07	0.013
L10	85 - 83.5 (10)	P24x0.375	1.50	0.00	0.0	27.8325	-14.16	1052.07	0.013
L11	83.5 - 83.25 (11)	P24x0.6	0.25	0.00	0.0	44.1080	-14.22	1667.28	0.009
L12	83.25 - 78.25 (12)	P24x0.6	5.00	0.00	0.0	44.1080	-15.24	1667.28	0.009
L13	78.25 - 75 (13)	P24x0.6	3.25	0.00	0.0	44.1080	-15.91	1667.28	0.010
L14	75 - 74.75 (14)	P24x0.6	0.25	0.00	0.0	44.1080	-15.97	1667.28	0.010
L15	74.75 - 69.75 (15)	P24x0.6	5.00	0.00	0.0	44.1080	-16.97	1667.28	0.010
L16	69.75 - 64.75 (16)	P24x0.6	5.00	0.00	0.0	44.1080	-18.02	1667.28	0.011
L17	64.75 - 60 (17)	P24x0.6	4.75	0.00	0.0	44.1080	-19.04	1667.28	0.011
L18	60 - 59.75 (18)	P30x0.54375	0.25	0.00	0.0	50.3184	-21.28	1902.03	0.011
L19	59.75 - 54.75 (19)	P30x0.54375	5.00	0.00	0.0	50.3184	-22.46	1902.03	0.012
L20	54.75 - 49.75 (20)	P30x0.54375	5.00	0.00	0.0	50.3184	-23.69	1902.03	0.012
L21	49.75 - 48.5 (21)	P30x0.54375	1.25	0.00	0.0	50.3184	-23.99	1902.03	0.013
L22	48.5 - 48.25 (22)	P30x0.7375	0.25	0.00	0.0	67.7990	-24.07	2562.80	0.009
L23	48.25 - 43.25 (23)	P30x0.7375	5.00	0.00	0.0	67.7990	-25.62	2562.80	0.010
L24	43.25 - 38.25 (24)	P30x0.7375	5.00	0.00	0.0	67.7990	-27.17	2562.80	0.011

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
L25	38.25 - 33.25 (25)	P30x0.7375	5.00	0.00	0.0	67.7990	-28.73	2562.80	0.011
L26	33.25 - 30 (26)	P30x0.7375	3.25	0.00	0.0	67.7990	-29.76	2562.80	0.012
L27	30 - 29.75 (27)	P36x0.55	0.25	0.00	0.0	61.2532	-31.97	2315.37	0.014
L28	29.75 - 24.75 (28)	P36x0.55	5.00	0.00	0.0	61.2532	-33.41	2315.37	0.014
L29	24.75 - 23 (29)	P36x0.55	1.75	0.00	0.0	61.2532	-33.91	2315.37	0.015
L30	23 - 22.75 (30)	P36x0.55	0.25	0.00	0.0	61.2532	-34.00	2315.37	0.015
L31	22.75 - 20.75 (31)	P36x0.55	2.00	0.00	0.0	61.2532	-34.57	2315.37	0.015
L32	20.75 - 20.5 (32)	P36x0.6875	0.25	0.00	0.0	76.2695	-34.66	2882.99	0.012
L33	20.5 - 17.75 (33)	P36x0.6875	2.75	0.00	0.0	76.2695	-35.59	2882.99	0.012
L34	17.75 - 17.5 (34)	P36x0.7	0.25	0.00	0.0	77.6288	-35.69	2934.37	0.012
L35	17.5 - 12.5 (35)	P36x0.7	5.00	0.00	0.0	77.6288	-37.55	2934.37	0.013
L36	12.5 - 7.5 (36)	P36x0.7	5.00	0.00	0.0	77.6288	-39.43	2934.37	0.013
L37	7.5 - 3.25 (37)	P36x0.7	4.25	0.00	0.0	77.6288	-41.04	2934.37	0.014
L38	3.25 - 3 (38)	P36x0.6875	0.25	0.00	0.0	76.2695	-41.13	2882.99	0.014
L39	3 - 0 (39)	P36x0.6875	3.00	0.00	0.0	76.2695	-42.16	2882.99	0.015

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	130 - 125 (1)	P16x0.1875	3.63	133.84	0.027	0.00	133.84	0.000
L2	125 - 120 (2)	P16x0.1875	12.50	133.84	0.093	0.00	133.84	0.000
L3	120 - 115 (3)	P24x0.25	27.34	396.68	0.069	0.00	396.68	0.000
L4	115 - 110 (4)	P24x0.25	60.88	396.68	0.153	0.00	396.68	0.000
L5	110 - 105 (5)	P24x0.25	96.01	396.68	0.242	0.00	396.68	0.000
L6	105 - 100 (6)	P24x0.25	153.66	396.68	0.387	0.00	396.68	0.000
L7	100 - 95 (7)	P24x0.25	209.78	396.68	0.529	0.00	396.68	0.000
L8	95 - 90 (8)	P24x0.25	268.81	396.68	0.678	0.00	396.68	0.000
L9	90 - 85 (9)	P24x0.375	332.14	623.72	0.533	0.00	623.72	0.000
L10	85 - 83.5 (10)	P24x0.375	355.09	623.72	0.569	0.00	623.72	0.000
L11	83.5 - 83.25 (11)	P24x0.6	358.93	1035.12	0.347	0.00	1035.12	0.000
L12	83.25 - 78.25 (12)	P24x0.6	436.49	1035.12	0.422	0.00	1035.12	0.000
L13	78.25 - 75 (13)	P24x0.6	487.70	1035.12	0.471	0.00	1035.12	0.000
L14	75 - 74.75 (14)	P24x0.6	491.66	1035.12	0.475	0.00	1035.12	0.000
L15	74.75 - 69.75 (15)	P24x0.6	573.39	1035.12	0.554	0.00	1035.12	0.000
L16	69.75 - 64.75 (16)	P24x0.6	656.72	1035.12	0.634	0.00	1035.12	0.000
L17	64.75 - 60 (17)	P24x0.6	737.00	1035.12	0.712	0.00	1035.12	0.000
L18	60 - 59.75 (18)	P30x0.54375	741.65	1443.46	0.514	0.00	1443.46	0.000
L19	59.75 - 54.75 (19)	P30x0.54375	833.82	1443.46	0.578	0.00	1443.46	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L20	54.75 - 49.75 (20)	P30x0.54375	927.14	1443.46	0.642	0.00	1443.46	0.000
L21	49.75 - 48.5 (21)	P30x0.54375	950.78	1443.46	0.659	0.00	1443.46	0.000
L22	48.5 - 48.25 (22)	P30x0.7375	955.53	1989.70	0.480	0.00	1989.70	0.000
L23	48.25 - 43.25 (23)	P30x0.7375	1052.03	1989.70	0.529	0.00	1989.70	0.000
L24	43.25 - 38.25 (24)	P30x0.7375	1151.27	1989.70	0.579	0.00	1989.70	0.000
L25	38.25 - 33.25 (25)	P30x0.7375	1254.68	1989.70	0.631	0.00	1989.70	0.000
L26	33.25 - 30 (26)	P30x0.7375	1323.22	1989.70	0.665	0.00	1989.70	0.000
L27	30 - 29.75 (27)	P36x0.55	1328.86	2052.07	0.648	0.00	2052.07	0.000
L28	29.75 - 24.75 (28)	P36x0.55	1442.10	2052.07	0.703	0.00	2052.07	0.000
L29	24.75 - 23 (29)	P36x0.55	1482.08	2052.07	0.722	0.00	2052.07	0.000
L30	23 - 22.75 (30)	P36x0.55	1487.82	2052.07	0.725	0.00	2052.07	0.000
L31	22.75 - 20.75 (31)	P36x0.55	1533.93	2052.07	0.748	0.00	2052.07	0.000
L32	20.75 - 20.5 (32)	P36x0.6875	1539.72	2649.32	0.581	0.00	2649.32	0.000
L33	20.5 - 17.75 (33)	P36x0.6875	1603.85	2649.32	0.605	0.00	2649.32	0.000
L34	17.75 - 17.5 (34)	P36x0.7	1609.72	2705.17	0.595	0.00	2705.17	0.000
L35	17.5 - 12.5 (35)	P36x0.7	1728.24	2705.17	0.639	0.00	2705.17	0.000
L36	12.5 - 7.5 (36)	P36x0.7	1848.92	2705.17	0.683	0.00	2705.17	0.000
L37	7.5 - 3.25 (37)	P36x0.7	1953.11	2705.17	0.722	0.00	2705.17	0.000
L38	3.25 - 3 (38)	P36x0.6875	1959.28	2649.32	0.740	0.00	2649.32	0.000
L39	3 - 0 (39)	P36x0.6875	2033.72	2649.32	0.768	0.00	2649.32	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	130 - 125 (1)	P16x0.1875	1.66	105.63	0.016	0.29	128.62	0.002
L2	125 - 120 (2)	P16x0.1875	1.91	105.63	0.018	0.38	128.62	0.003
L3	120 - 115 (3)	P24x0.25	6.55	201.86	0.032	0.38	324.23	0.001
L4	115 - 110 (4)	P24x0.25	6.87	201.86	0.034	0.38	324.23	0.001
L5	110 - 105 (5)	P24x0.25	7.18	201.86	0.036	0.38	324.23	0.001
L6	105 - 100 (6)	P24x0.25	11.01	201.86	0.055	0.04	324.23	0.000
L7	100 - 95 (7)	P24x0.25	11.67	201.86	0.058	0.04	324.23	0.000
L8	95 - 90 (8)	P24x0.25	11.94	201.86	0.059	0.04	324.23	0.000
L9	90 - 85 (9)	P24x0.375	15.27	315.62	0.048	0.14	655.57	0.000
L10	85 - 83.5 (10)	P24x0.375	15.35	315.62	0.049	0.14	655.57	0.000
L11	83.5 - 83.25 (11)	P24x0.6	15.36	500.18	0.031	0.14	1029.03	0.000
L12	83.25 - 78.25 (12)	P24x0.6	15.67	500.18	0.031	0.14	1029.03	0.000
L13	78.25 - 75 (13)	P24x0.6	15.86	500.18	0.032	0.14	1029.03	0.000
L14	75 - 74.75 (14)	P24x0.6	15.87	500.18	0.032	0.14	1029.03	0.000
L15	74.75 - 69.75 (15)	P24x0.6	16.54	500.18	0.033	0.55	1029.03	0.001
L16	69.75 - 64.75 (16)	P24x0.6	16.80	500.18	0.034	0.55	1029.03	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L17	64.75 - 60 (17)	P24x0.6	17.02	500.18	0.034	0.55	1029.03	0.001
L18	60 - 59.75 (18)	P30x0.54375	18.30	570.61	0.032	0.55	1477.73	0.000
L19	59.75 - 54.75 (19)	P30x0.54375	18.57	570.61	0.033	0.46	1477.73	0.000
L20	54.75 - 49.75 (20)	P30x0.54375	18.86	570.61	0.033	0.56	1477.73	0.000
L21	49.75 - 48.5 (21)	P30x0.54375	19.00	570.61	0.033	0.56	1477.73	0.000
L22	48.5 - 48.25 (22)	P30x0.7375	19.02	768.84	0.025	0.56	1978.01	0.000
L23	48.25 - 43.25 (23)	P30x0.7375	19.59	768.84	0.025	0.56	1978.01	0.000
L24	43.25 - 38.25 (24)	P30x0.7375	20.12	768.84	0.026	0.56	1978.01	0.000
L25	38.25 - 33.25 (25)	P30x0.7375	20.96	768.84	0.027	0.65	1978.01	0.000
L26	33.25 - 30 (26)	P30x0.7375	21.25	768.84	0.028	0.65	1978.01	0.000
L27	30 - 29.75 (27)	P36x0.55	22.55	694.61	0.032	0.65	2164.90	0.000
L28	29.75 - 24.75 (28)	P36x0.55	22.77	694.61	0.033	0.65	2164.90	0.000
L29	24.75 - 23 (29)	P36x0.55	22.96	694.61	0.033	0.65	2164.90	0.000
L30	23 - 22.75 (30)	P36x0.55	22.96	694.61	0.033	0.65	2164.90	0.000
L31	22.75 - 20.75 (31)	P36x0.55	23.17	694.61	0.033	0.65	2164.90	0.000
L32	20.75 - 20.5 (32)	P36x0.6875	23.19	864.90	0.027	0.65	2685.18	0.000
L33	20.5 - 17.75 (33)	P36x0.6875	23.48	864.90	0.027	0.65	2685.18	0.000
L34	17.75 - 17.5 (34)	P36x0.7	23.49	880.31	0.027	0.65	2732.06	0.000
L35	17.5 - 12.5 (35)	P36x0.7	23.94	880.31	0.027	0.65	2732.06	0.000
L36	12.5 - 7.5 (36)	P36x0.7	24.36	880.31	0.028	0.65	2732.06	0.000
L37	7.5 - 3.25 (37)	P36x0.7	24.70	880.31	0.028	0.65	2732.06	0.000
L38	3.25 - 3 (38)	P36x0.6875	24.71	864.90	0.029	0.65	2685.18	0.000
L39	3 - 0 (39)	P36x0.6875	24.95	864.90	0.029	0.65	2685.18	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 125 (1)	0.002	0.027	0.000	0.016	0.002	0.030	1.050	4.8.2
L2	125 - 120 (2)	0.003	0.093	0.000	0.018	0.003	0.097	1.050	4.8.2
L3	120 - 115 (3)	0.008	0.069	0.000	0.032	0.001	0.078	1.050	4.8.2
L4	115 - 110 (4)	0.009	0.153	0.000	0.034	0.001	0.163	1.050	4.8.2
L5	110 - 105 (5)	0.009	0.242	0.000	0.036	0.001	0.253	1.050	4.8.2
L6	105 - 100 (6)	0.013	0.387	0.000	0.055	0.000	0.404	1.050	4.8.2
L7	100 - 95 (7)	0.015	0.529	0.000	0.058	0.000	0.547	1.050	4.8.2
L8	95 - 90 (8)	0.015	0.678	0.000	0.059	0.000	0.697	1.050	4.8.2
L9	90 - 85 (9)	0.013	0.533	0.000	0.048	0.000	0.548	1.050	4.8.2
L10	85 - 83.5 (10)	0.013	0.569	0.000	0.049	0.000	0.585	1.050	4.8.2
L11	83.5 - 83.25 (11)	0.009	0.347	0.000	0.031	0.000	0.356	1.050	4.8.2
L12	83.25 - 78.25 (12)	0.009	0.422	0.000	0.031	0.000	0.432	1.050	4.8.2
L13	78.25 - 75 (13)	0.010	0.471	0.000	0.032	0.000	0.482	1.050	4.8.2

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L14	75 - 74.75 (14)	0.010	0.475	0.000	0.032	0.000	0.486	1.050	4.8.2
L15	74.75 - 69.75 (15)	0.010	0.554	0.000	0.033	0.001	0.565	1.050	4.8.2
L16	69.75 - 64.75 (16)	0.011	0.634	0.000	0.034	0.001	0.646	1.050	4.8.2
L17	64.75 - 60 (17)	0.011	0.712	0.000	0.034	0.001	0.725	1.050	4.8.2
L18	60 - 59.75 (18)	0.011	0.514	0.000	0.032	0.000	0.526	1.050	4.8.2
L19	59.75 - 54.75 (19)	0.012	0.578	0.000	0.033	0.000	0.591	1.050	4.8.2
L20	54.75 - 49.75 (20)	0.012	0.642	0.000	0.033	0.000	0.656	1.050	4.8.2
L21	49.75 - 48.5 (21)	0.013	0.659	0.000	0.033	0.000	0.672	1.050	4.8.2
L22	48.5 - 48.25 (22)	0.009	0.480	0.000	0.025	0.000	0.490	1.050	4.8.2
L23	48.25 - 43.25 (23)	0.010	0.529	0.000	0.025	0.000	0.539	1.050	4.8.2
L24	43.25 - 38.25 (24)	0.011	0.579	0.000	0.026	0.000	0.590	1.050	4.8.2
L25	38.25 - 33.25 (25)	0.011	0.631	0.000	0.027	0.000	0.643	1.050	4.8.2
L26	33.25 - 30 (26)	0.012	0.665	0.000	0.028	0.000	0.677	1.050	4.8.2
L27	30 - 29.75 (27)	0.014	0.648	0.000	0.032	0.000	0.662	1.050	4.8.2
L28	29.75 - 24.75 (28)	0.014	0.703	0.000	0.033	0.000	0.718	1.050	4.8.2
L29	24.75 - 23 (29)	0.015	0.722	0.000	0.033	0.000	0.738	1.050	4.8.2
L30	23 - 22.75 (30)	0.015	0.725	0.000	0.033	0.000	0.741	1.050	4.8.2
L31	22.75 - 20.75 (31)	0.015	0.748	0.000	0.033	0.000	0.764	1.050	4.8.2
L32	20.75 - 20.5 (32)	0.012	0.581	0.000	0.027	0.000	0.594	1.050	4.8.2
L33	20.5 - 17.75 (33)	0.012	0.605	0.000	0.027	0.000	0.618	1.050	4.8.2
L34	17.75 - 17.5 (34)	0.012	0.595	0.000	0.027	0.000	0.608	1.050	4.8.2
L35	17.5 - 12.5 (35)	0.013	0.639	0.000	0.027	0.000	0.652	1.050	4.8.2
L36	12.5 - 7.5 (36)	0.013	0.683	0.000	0.028	0.000	0.698	1.050	4.8.2
L37	7.5 - 3.25 (37)	0.014	0.722	0.000	0.028	0.000	0.737	1.050	4.8.2
L38	3.25 - 3 (38)	0.014	0.740	0.000	0.029	0.000	0.755	1.050	4.8.2
L39	3 - 0 (39)	0.015	0.768	0.000	0.029	0.000	0.783	1.050	4.8.2

Section Capacity Table

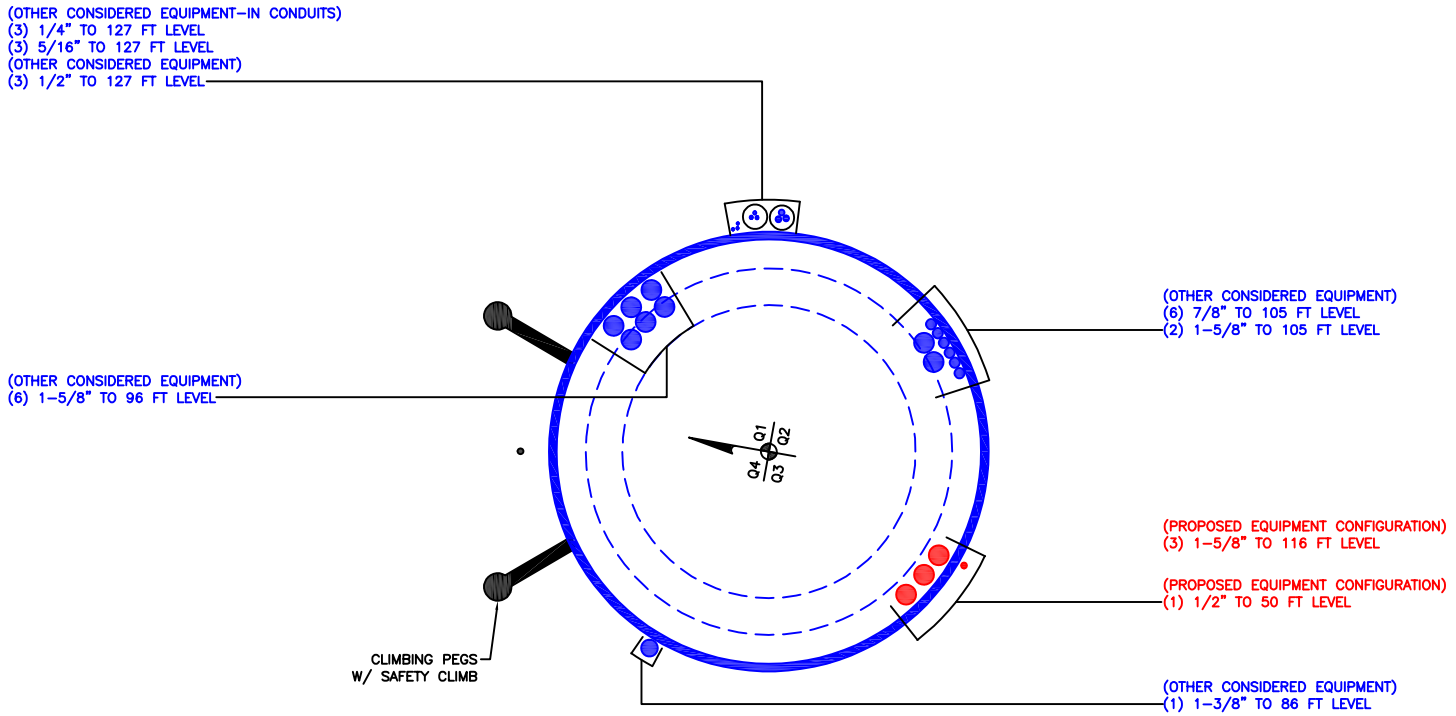
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	130 - 125	Pole	P16x0.1875	1	-0.72	359.83	2.8	Pass
L2	125 - 120	Pole	P16x0.1875	2	-0.92	359.83	9.2	Pass
L3	120 - 115	Pole	P24x0.25	3	-5.35	695.38	7.4	Pass
L4	115 - 110	Pole	P24x0.25	4	-5.79	695.38	15.6	Pass
L5	110 - 105	Pole	P24x0.25	5	-6.24	695.38	24.1	Pass
L6	105 - 100	Pole	P24x0.25	6	-8.93	695.38	38.5	Pass
L7	100 - 95	Pole	P24x0.25	7	-9.63	695.38	52.1	Pass
L8	95 - 90	Pole	P24x0.25	8	-10.17	695.38	66.3	Pass
L9	90 - 85	Pole	P24x0.375	9	-13.94	1104.67	52.2	Pass
L10	85 - 83.5	Pole	P24x0.375	10	-14.16	1104.67	55.7	Pass
L11	83.5 - 83.25	Pole	P24x0.6	11	-14.22	1750.64	33.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L12	83.25 - 78.25	Pole	P24x0.6	12	-15.24	1750.64	41.1	Pass
L13	78.25 - 75	Pole	P24x0.6	13	-15.91	1750.64	45.9	Pass
L14	75 - 74.75	Pole	P24x0.6	14	-15.97	1750.64	46.2	Pass
L15	74.75 - 69.75	Pole	P24x0.6	15	-16.97	1750.64	53.8	Pass
L16	69.75 - 64.75	Pole	P24x0.6	16	-18.02	1750.64	61.6	Pass
L17	64.75 - 60	Pole	P24x0.6	17	-19.04	1750.64	69.0	Pass
L18	60 - 59.75	Pole	P30x0.54375	18	-21.28	1997.13	50.1	Pass
L19	59.75 - 54.75	Pole	P30x0.54375	19	-22.46	1997.13	56.2	Pass
L20	54.75 - 49.75	Pole	P30x0.54375	20	-23.69	1997.13	62.5	Pass
L21	49.75 - 48.5	Pole	P30x0.54375	21	-23.99	1997.13	64.0	Pass
L22	48.5 - 48.25	Pole	P30x0.7375	22	-24.07	2690.94	46.7	Pass
L23	48.25 - 43.25	Pole	P30x0.7375	23	-25.62	2690.94	51.4	Pass
L24	43.25 - 38.25	Pole	P30x0.7375	24	-27.17	2690.94	56.2	Pass
L25	38.25 - 33.25	Pole	P30x0.7375	25	-28.73	2690.94	61.2	Pass
L26	33.25 - 30	Pole	P30x0.7375	26	-29.76	2690.94	64.5	Pass
L27	30 - 29.75	Pole	P36x0.55	27	-31.97	2431.14	63.1	Pass
L28	29.75 - 24.75	Pole	P36x0.55	28	-33.41	2431.14	68.4	Pass
L29	24.75 - 23	Pole	P36x0.55	29	-33.91	2431.14	70.3	Pass
L30	23 - 22.75	Pole	P36x0.55	30	-34.00	2431.14	70.6	Pass
L31	22.75 - 20.75	Pole	P36x0.55	31	-34.57	2431.14	72.7	Pass
L32	20.75 - 20.5	Pole	P36x0.6875	32	-34.66	3027.14	56.6	Pass
L33	20.5 - 17.75	Pole	P36x0.6875	33	-35.59	3027.14	58.9	Pass
L34	17.75 - 17.5	Pole	P36x0.7	34	-35.69	3081.09	57.9	Pass
L35	17.5 - 12.5	Pole	P36x0.7	35	-37.55	3081.09	62.1	Pass
L36	12.5 - 7.5	Pole	P36x0.7	36	-39.43	3081.09	66.4	Pass
L37	7.5 - 3.25	Pole	P36x0.7	37	-41.04	3081.09	70.2	Pass
L38	3.25 - 3	Pole	P36x0.6875	38	-41.13	3027.14	71.9	Pass
L39	3 - 0	Pole	P36x0.6875	39	-42.16	3027.14	74.6	Pass
							Summary	
						Pole (L39)	74.6	Pass
						RATING =	**74.6**	**Pass**

***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT-IN CONDUITS)
(3) 1/4" TO 127 FT LEVEL
(3) 5/16" TO 127 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 1/2" TO 127 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(6) 1-5/8" TO 96 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
Q1
Q2
Q3
Q4
(OTHER CONSIDERED EQUIPMENT)
(6) 7/8" TO 105 FT LEVEL
(2) 1-5/8" TO 105 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(3) 1-5/8" TO 116 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1/2" TO 50 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/8" TO 86 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876324

Work Order: 2132155

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	130	10		0	16	16	0.1875		A53-B-42
2	120	30		0	24.00	24	0.25		A53-B-42
3	90	30		0	24.00	24	0.375		A53-B-42
4	60	30		0	30.00	30	0.375		A53-B-42
5	30	30		0	36.00	36	0.375		A53-B-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	20.75	plate	FP 3.375 x 1.25 BW	3	117	231	357															
2	30	60	plate	MS-450 (1.1875")	3				45	165	285												
3	60	75	plate	MS-450 (1.1875")	3				45	165	285												
4	0	23	plate	MS-600 (1.1875")	3							59	174	294									
5	23	30	plate	MS-600 (1.1875")	3							20	137	260									
6	3.25	17.75	plate	CCI-SFP-065125	1	20																	
7	30	48.5	plate	CCI-SFP-060100	3		15	150	255														
8	75	83.5	plate	CCI-SFP-045100	3		45	165	285														
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	3.375	1.25	4.21875	0.625	Welded	n/a	PC 8.8 - M20 (100)	12.000	24.000	2.656	1.1875	A572-65
2	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
3	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
4	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
5	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
6	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
7	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
8	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
FP 3.375 x 1.25 BW	Top	4	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	80	CJP Groove	3.375	1.25	45	0.3125	-	-	-

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	130 - 125	5		0	16.000	16.000	0.1875	A53-B-42	1.000
2	125 - 120	5	0	0	16.000	16.000	0.1875	A53-B-42	1.000
3	120 - 115	5		0	24.000	24.000	0.25	A53-B-42	1.000
4	115 - 110	5		0	24.000	24.000	0.25	A53-B-42	1.000
5	110 - 105	5		0	24.000	24.000	0.25	A53-B-42	1.000
6	105 - 100	5		0	24.000	24.000	0.25	A53-B-42	1.000
7	100 - 95	5		0	24.000	24.000	0.25	A53-B-42	1.000
8	95 - 90	5	0	0	24.000	24.000	0.25	A53-B-42	1.000
9	90 - 85	5		0	24.000	24.000	0.375	A53-B-42	1.000
10	85 - 83.5	1.5		0	24.000	24.000	0.375	A53-B-42	1.000
11	83.5 - 83.25	0.25		0	24.000	24.000	0.6	A53-B-42	0.937
12	83.25 - 78.25	5		0	24.000	24.000	0.6	A53-B-42	0.937
13	78.25 - 75	3.25		0	24.000	24.000	0.6	A53-B-42	0.937
14	75 - 74.75	0.25		0	24.000	24.000	0.6	A53-B-42	0.937
15	74.75 - 69.75	5		0	24.000	24.000	0.6	A53-B-42	0.937
16	69.75 - 64.75	5		0	24.000	24.000	0.6	A53-B-42	0.937
17	64.75 - 60	4.75	0	0	24.000	24.000	0.6	A53-B-42	0.937
18	60 - 59.75	0.25		0	30.000	30.000	0.54375	A53-B-42	0.962
19	59.75 - 54.75	5		0	30.000	30.000	0.54375	A53-B-42	0.962
20	54.75 - 49.75	5		0	30.000	30.000	0.54375	A53-B-42	0.962
21	49.75 - 48.5	1.25		0	30.000	30.000	0.54375	A53-B-42	0.962
22	48.5 - 48.25	0.25		0	30.000	30.000	0.7375	A53-B-42	0.979
23	48.25 - 43.25	5		0	30.000	30.000	0.7375	A53-B-42	0.979
24	43.25 - 38.25	5		0	30.000	30.000	0.7375	A53-B-42	0.979
25	38.25 - 33.25	5		0	30.000	30.000	0.7375	A53-B-42	0.979
26	33.25 - 30	3.25	0	0	30.000	30.000	0.7375	A53-B-42	0.979
27	30 - 29.75	0.25		0	36.000	36.000	0.55	A53-B-42	0.979
28	29.75 - 24.75	5		0	36.000	36.000	0.55	A53-B-42	0.979
29	24.75 - 23	1.75		0	36.000	36.000	0.55	A53-B-42	0.979
30	23 - 22.75	0.25		0	36.000	36.000	0.55	A53-B-42	0.979
31	22.75 - 20.75	2		0	36.000	36.000	0.55	A53-B-42	0.979
32	20.75 - 20.5	0.25		0	36.000	36.000	0.6875	A53-B-42	0.952
33	20.5 - 17.75	2.75		0	36.000	36.000	0.6875	A53-B-42	0.952
34	17.75 - 17.5	0.25		0	36.000	36.000	0.7	A53-B-42	1.040
35	17.5 - 12.5	5		0	36.000	36.000	0.7	A53-B-42	1.040
36	12.5 - 7.5	5		0	36.000	36.000	0.7	A53-B-42	1.040
37	7.5 - 3.25	4.25		0	36.000	36.000	0.7	A53-B-42	1.040
38	3.25 - 3	0.25		0	36.000	36.000	0.6875	A53-B-42	0.952
39	3 - 0	3		0	36.000	36.000	0.6875	A53-B-42	0.952

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	130 - 125	0.72	3.63	1.66
2	125 - 120	0.92	12.50	1.91
3	120 - 115	5.35	27.34	6.55
4	115 - 110	5.79	60.88	6.87
5	110 - 105	6.24	96.01	7.18
6	105 - 100	8.93	153.66	11.01
7	100 - 95	9.63	209.78	11.67
8	95 - 90	10.17	268.81	11.94
9	90 - 85	13.94	332.14	15.27
10	85 - 83.5	14.16	355.09	15.35
11	83.5 - 83.25	14.22	358.93	15.36
12	83.25 - 78.25	15.24	436.48	15.67
13	78.25 - 75	15.91	487.70	15.86
14	75 - 74.75	15.97	491.66	15.87
15	74.75 - 69.75	16.97	573.39	16.54
16	69.75 - 64.75	18.02	656.72	16.80
17	64.75 - 60	19.04	736.99	17.02
18	60 - 59.75	21.28	741.65	18.30
19	59.75 - 54.75	22.46	833.81	18.57
20	54.75 - 49.75	23.69	927.14	18.86
21	49.75 - 48.5	23.99	950.79	19.00
22	48.5 - 48.25	24.07	955.54	19.02
23	48.25 - 43.25	25.62	1052.03	19.59
24	43.25 - 38.25	27.17	1151.27	20.12
25	38.25 - 33.25	28.73	1254.68	20.96
26	33.25 - 30	29.76	1323.22	21.25
27	30 - 29.75	31.97	1328.85	22.55
28	29.75 - 24.75	33.41	1442.10	22.77
29	24.75 - 23	33.91	1482.08	22.96
30	23 - 22.75	34.00	1487.81	22.96
31	22.75 - 20.75	34.57	1533.93	23.17
32	20.75 - 20.5	34.66	1539.72	23.19
33	20.5 - 17.75	35.59	1603.85	23.48
34	17.75 - 17.5	35.69	1609.72	23.49
35	17.5 - 12.5	37.55	1728.24	23.94
36	12.5 - 7.5	39.43	1848.92	24.36
37	7.5 - 3.25	41.04	1953.11	24.70
38	3.25 - 3	41.13	1959.28	24.71
39	3 - 0	42.16	2033.73	24.95

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
130 - 125	Pole	TP16x16x0.1875	Pole	2.8%	Pass
125 - 120	Pole	TP16x16x0.1875	Pole	9.2%	Pass
120 - 115	Pole	TP24x24x0.25	Pole	7.4%	Pass
115 - 110	Pole	TP24x24x0.25	Pole	15.6%	Pass
110 - 105	Pole	TP24x24x0.25	Pole	24.1%	Pass
105 - 100	Pole	TP24x24x0.25	Pole	38.5%	Pass
100 - 95	Pole	TP24x24x0.25	Pole	52.1%	Pass
95 - 90	Pole	TP24x24x0.25	Pole	66.3%	Pass
90 - 85	Pole	TP24x24x0.375	Pole	52.2%	Pass
85 - 83.5	Pole	TP24x24x0.375	Pole	55.7%	Pass
83.5 - 83.25	Pole + Reinf.	TP24x24x0.6	Reinf. 8 Tension Rupture	40.2%	Pass
83.25 - 78.25	Pole + Reinf.	TP24x24x0.6	Reinf. 8 Tension Rupture	48.8%	Pass
78.25 - 75	Pole + Reinf.	TP24x24x0.6	Reinf. 8 Tension Rupture	54.4%	Pass
75 - 74.75	Pole + Reinf.	TP24x24x0.6	Reinf. 3 Compression	55.4%	Pass
74.75 - 69.75	Pole + Reinf.	TP24x24x0.6	Reinf. 3 Compression	64.5%	Pass
69.75 - 64.75	Pole + Reinf.	TP24x24x0.6	Reinf. 3 Compression	73.8%	Pass
64.75 - 60	Pole + Reinf.	TP24x24x0.6	Reinf. 3 Compression	82.8%	Pass
60 - 59.75	Pole + Reinf.	TP30x30x0.5438	Reinf. 2 Compression	57.2%	Pass
59.75 - 54.75	Pole + Reinf.	TP30x30x0.5438	Reinf. 2 Compression	64.2%	Pass
54.75 - 49.75	Pole + Reinf.	TP30x30x0.5438	Reinf. 2 Compression	71.4%	Pass
49.75 - 48.5	Pole + Reinf.	TP30x30x0.5438	Reinf. 2 Compression	73.2%	Pass
48.5 - 48.25	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	54.2%	Pass
48.25 - 43.25	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	59.6%	Pass
43.25 - 38.25	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	65.2%	Pass
38.25 - 33.25	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	71.1%	Pass
33.25 - 30	Pole + Reinf.	TP30x30x0.7375	Reinf. 2 Compression	74.9%	Pass
30 - 29.75	Pole + Reinf.	TP36x36x0.55	Pole	66.8%	Pass
29.75 - 24.75	Pole + Reinf.	TP36x36x0.55	Pole	72.4%	Pass
24.75 - 23	Pole + Reinf.	TP36x36x0.55	Pole	74.4%	Pass
23 - 22.75	Pole + Reinf.	TP36x36x0.55	Pole	75.4%	Pass
22.75 - 20.75	Pole + Reinf.	TP36x36x0.55	Pole	77.7%	Pass
20.75 - 20.5	Pole + Reinf.	TP36x36x0.6875	Reinf. 1 Tension Rupture	74.5%	Pass
20.5 - 17.75	Pole + Reinf.	TP36x36x0.6875	Reinf. 1 Tension Rupture	77.6%	Pass
17.75 - 17.5	Pole + Reinf.	TP36x36x0.7	Reinf. 1 Tension Rupture	76.3%	Pass
17.5 - 12.5	Pole + Reinf.	TP36x36x0.7	Reinf. 1 Tension Rupture	81.9%	Pass
12.5 - 7.5	Pole + Reinf.	TP36x36x0.7	Reinf. 1 Tension Rupture	87.6%	Pass
7.5 - 3.25	Pole + Reinf.	TP36x36x0.7	Reinf. 1 Tension Rupture	92.6%	Pass
3.25 - 3	Pole + Reinf.	TP36x36x0.6875	Reinf. 1 Tension Rupture	94.7%	Pass
3 - 0	Pole + Reinf.	TP36x36x0.6875	Reinf. 1 Tension Rupture	98.3%	Pass
				Summary	
			Pole	83.0%	Pass
			Reinforcement	98.3%	Pass
			Overall	98.3%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity* (100% Max. Allowable)								
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8
130 - 125	291	n/a	291	9.31	n/a	9.31	2.8%								
125 - 120	291	n/a	291	9.31	n/a	9.31	9.2%								
120 - 115	1315	n/a	1315	18.65	n/a	18.65	7.4%								
115 - 110	1315	n/a	1315	18.65	n/a	18.65	15.6%								
110 - 105	1315	n/a	1315	18.65	n/a	18.65	24.1%								
105 - 100	1315	n/a	1315	18.65	n/a	18.65	38.5%								
100 - 95	1315	n/a	1315	18.65	n/a	18.65	52.1%								
95 - 90	1315	n/a	1315	18.65	n/a	18.65	66.3%								
90 - 85	1942	n/a	1942	27.83	n/a	27.83	52.2%								
85 - 83.5	1942	n/a	1942	27.83	n/a	27.83	55.7%								
83.5 - 83.25	1942	1067	3009	27.83	13.50	41.33	36.2%								40.2%
83.25 - 78.25	1942	1067	3009	27.83	13.50	41.33	44.0%								48.8%
78.25 - 75	1942	1067	3009	27.83	13.50	41.33	49.0%								54.4%
75 - 74.75	1942	1067	3009	27.83	13.50	41.33	49.4%			55.4%					
74.75 - 69.75	1942	1067	3009	27.83	13.50	41.33	57.6%			64.5%					
69.75 - 64.75	1942	1067	3009	27.83	13.50	41.33	65.8%			73.8%					
64.75 - 60	1942	1067	3009	27.83	13.50	41.33	73.8%			82.8%					
60 - 59.75	3829	1634	5463	34.90	13.50	48.40	53.4%		57.2%						
59.75 - 54.75	3829	1634	5463	34.90	13.50	48.40	59.9%		64.2%						
54.75 - 49.75	3829	1634	5463	34.90	13.50	48.40	66.5%		71.4%						
49.75 - 48.5	3829	1634	5463	34.90	13.50	48.40	68.2%		73.2%						
48.5 - 48.25	3831	3463	7294	34.90	31.50	66.40	52.0%		54.2%					48.2%	
48.25 - 43.25	3831	3463	7294	34.90	31.50	66.40	57.2%		59.6%					53.0%	
43.25 - 38.25	3831	3463	7294	34.90	31.50	66.40	62.6%		65.2%					58.0%	
38.25 - 33.25	3831	3463	7294	34.90	31.50	66.40	68.2%		71.1%					63.2%	
33.25 - 30	3831	3463	7294	34.90	31.50	66.40	71.9%		74.9%					66.6%	
30 - 29.75	6659	3004	9663	41.97	18.00	59.97	66.8%					62.2%			
29.75 - 24.75	6659	3004	9663	41.97	18.00	59.97	72.4%					67.4%			
24.75 - 23	6659	3004	9663	41.97	18.00	59.97	74.4%					69.3%			
23 - 22.75	6660	2933	9593	41.97	18.00	59.97	75.4%				69.7%				
22.75 - 20.75	6660	2933	9593	41.97	18.00	59.97	77.7%				71.9%				
20.75 - 20.5	6661	5291	11952	41.97	30.66	72.63	62.9%	74.5%			58.9%				
20.5 - 17.75	6661	5291	11952	41.97	30.66	72.63	65.5%	77.6%			61.4%				
17.75 - 17.5	6660	5449	12109	41.97	38.78	80.75	64.5%	76.3%			61.1%		45.2%		
17.5 - 12.5	6660	5449	12109	41.97	38.78	80.75	69.2%	81.9%			65.5%		48.5%		
12.5 - 7.5	6660	5449	12109	41.97	38.78	80.75	74.0%	87.6%			70.1%		51.9%		
7.5 - 3.25	6660	5449	12109	41.97	38.78	80.75	78.1%	92.6%			74.0%		54.8%		
3.25 - 3	6661	5291	11952	41.97	30.66	72.63	80.0%	94.7%			74.9%				
3 - 0	6661	5291	11952	41.97	30.66	72.63	83.0%	98.3%			77.7%				

Note: Section capacity checked using 5 degree increments.

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

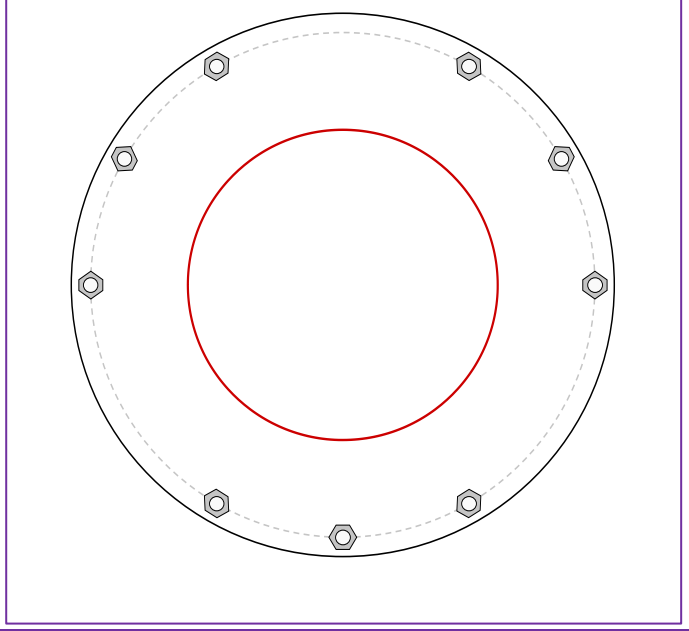
Monopole Flange Plate Connection

Elevation = 120 ft.

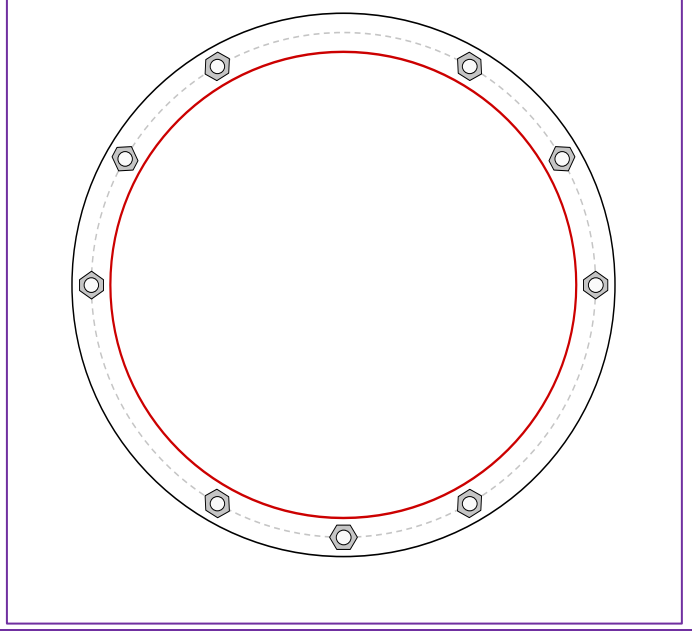
BU #	876324
Site Name	Hartford United Meth
Order #	622772 Rev. 0
TIA-222 Revision	H

Applied Loads	
Moment (kip-ft)	12.50
Axial Force (kips)	0.92
Shear Force (kips)	1.91

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(9) 3/4" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

28" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

28" OD x 0.75" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

16" x 0.1875" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

24" x 0.25" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	2.46	
Allowable (kips)	30.06	
Stress Rating:	**8.2%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	2.47	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**7.6%**	**Pass**
Tension Side Stress Rating:	**5.1%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	2.04	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**6.3%**	**Pass**
Tension Side Stress Rating:	**2.4%**	**Pass**

CCIplate

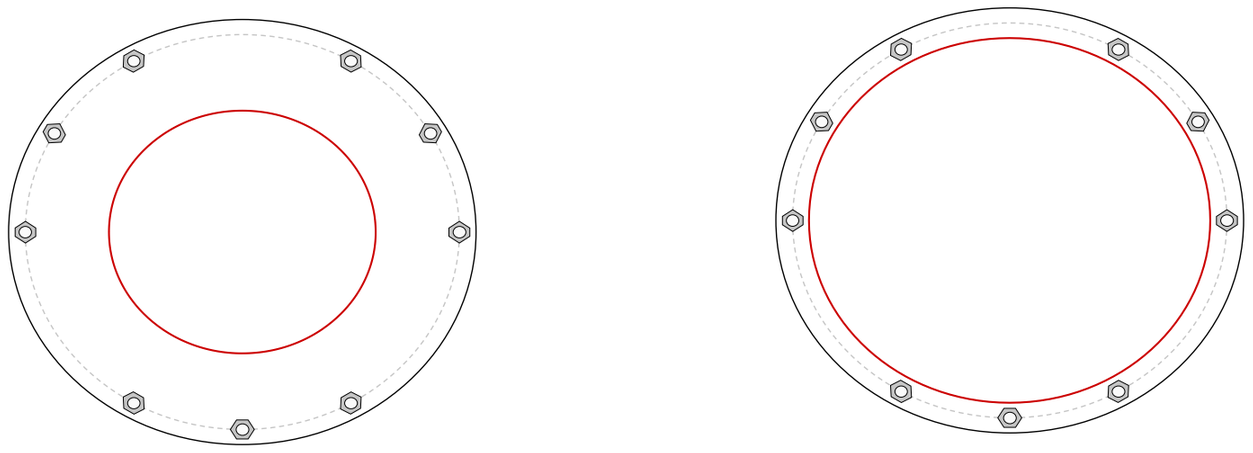
Elevation (ft)	120	*(Flange)*

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

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	I_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	0.75	A325	26	0.5	0	N-Included		No
2	1	30	0.75	A325	26	0.5	0	N-Included		No
3	1	60	0.75	A325	26	0.5	0	N-Included		No
4	1	120	0.75	A325	26	0.5	0	N-Included		No
5	1	150	0.75	A325	26	0.5	0	N-Included		No
6	1	180	0.75	A325	26	0.5	0	N-Included		No
7	1	240	0.75	A325	26	0.5	0	N-Included		No
8	1	270	0.75	A325	26	0.5	0	N-Included		No
9	1	300	0.75	A325	26	0.5	0	N-Included		No

Plot Graphic



Monopole Flange Plate Connection

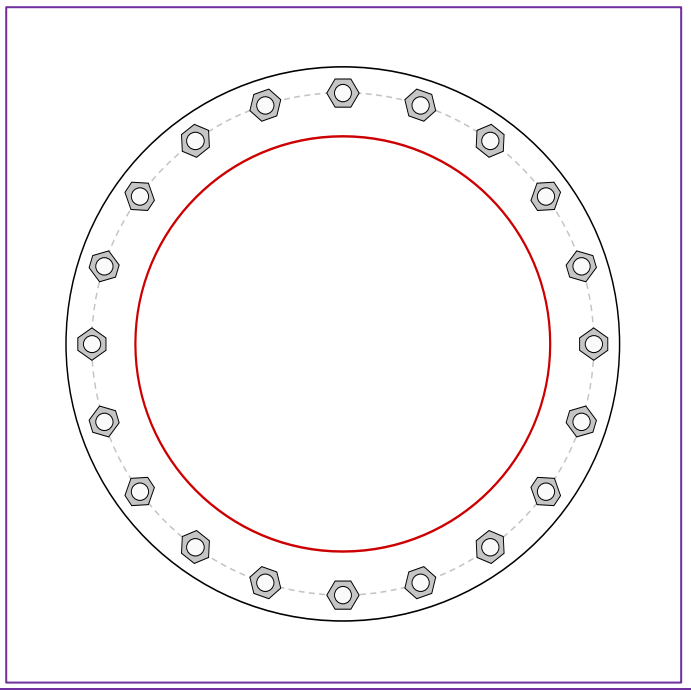
Elevation = 90 ft.

BU #	876324
Site Name	Hartford United Meth
Order #	622772 Rev. 0

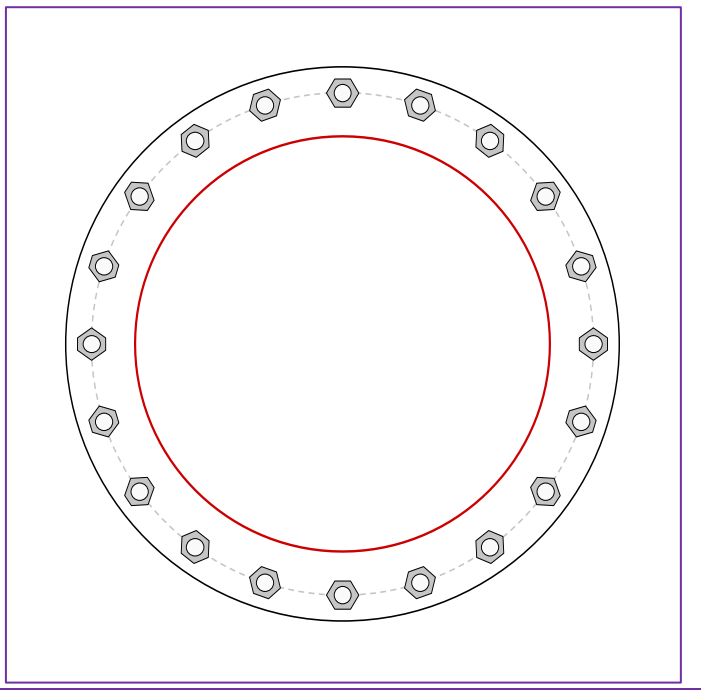
TIA-222 Revision	H

Applied Loads	
Moment (kip-ft)	268.81
Axial Force (kips)	10.17
Shear Force (kips)	11.94

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(20) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 29" BC

Top Plate Data

32" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

32" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

24" x 0.25" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	21.73	
Allowable (kips)	54.53	
Stress Rating:	**39.8%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	15.48	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**47.8%**	**Pass**
Tension Side Stress Rating:	**22.8%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	15.48	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**47.8%**	**Pass**
Tension Side Stress Rating:	**22.8%**	**Pass**

Monopole Flange Plate Connection

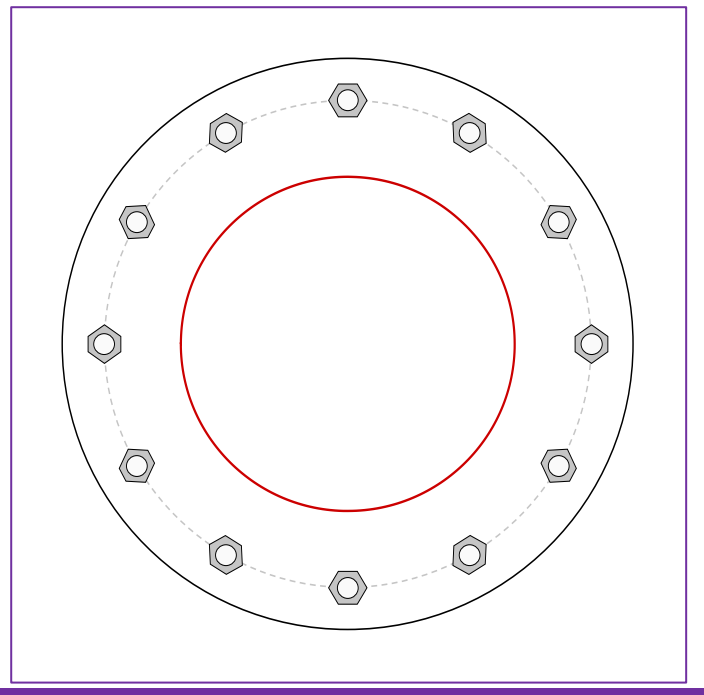
Elevation = 60 ft.

BU #	876324
Site Name	Hartford United Meth
Order #	622772 Rev. 0

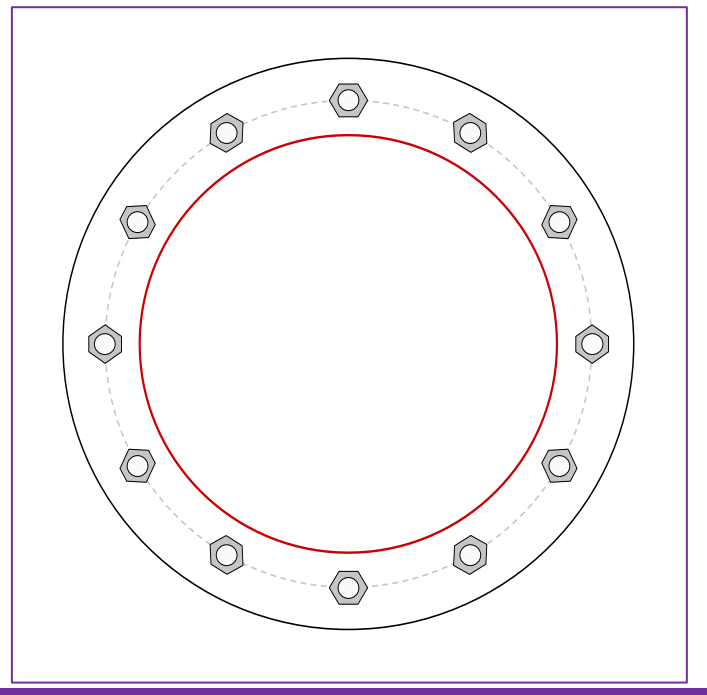
TIA-222 Revision	H

Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	291.15	Moment (kip-ft)	445.84
Axial Force (kips)	19.04	Axial Force (kips)	0.00
Shear Force (kips)	17.02	Shear Force (kips)	0.00

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1-1/2" ø bolts (A325 N; Fy=81 ksi, Fu=120 ksi) on 35" BC

Top Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 1 Data

(3) Welded, 5''x1'', A572-65, Lu=6", Upper Plate Width=10.5'', Lower Plate Width=10.5'', Neglect Flange in MOI: No

Bottom Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	31.66	
Allowable (kips)	126.88	
Stress Rating:	**25.0%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	15.05	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**46.4%**	**Pass**
Tension Side Stress Rating:	**26.2%**	**Pass**

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	155.08	
Max Tension (kip):	155.08	
Comp. Capacity (kip):	280.73	
Tens. Capacity (kip):	292.50	(Yield)
Comp. Stress Rating:	**55.2%**	**Pass**
Tens. Stress Rating:	**53.0%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	7.12	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**22.0%**	**Pass**
Tension Side Stress Rating:	**7.5%**	**Pass**

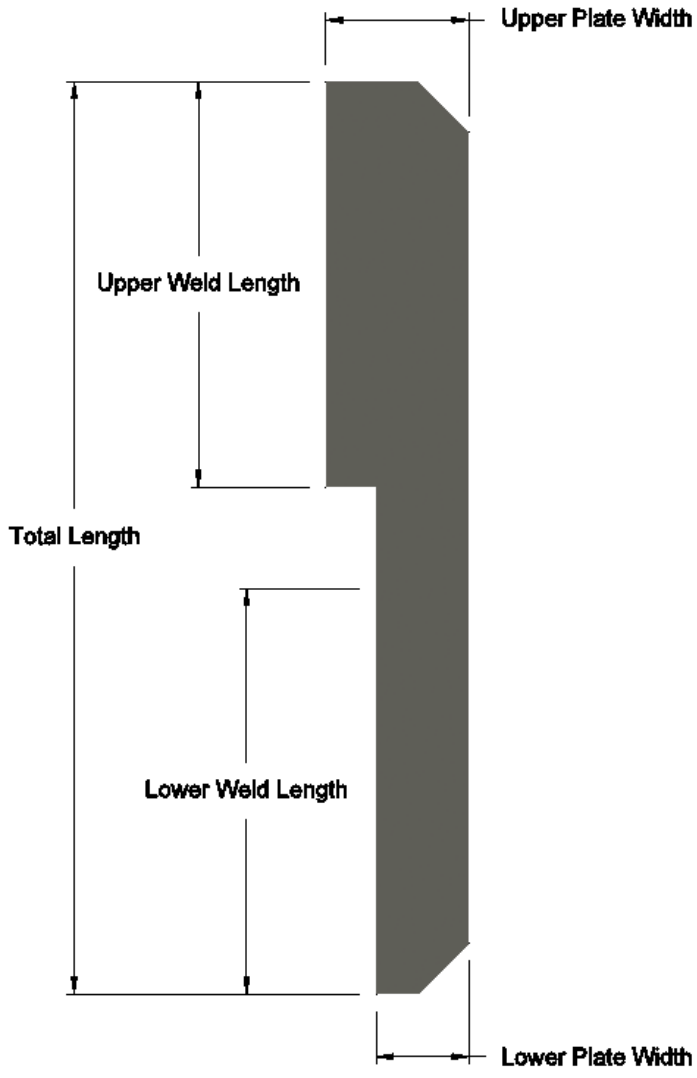
Welded Bridge Stiffener Design

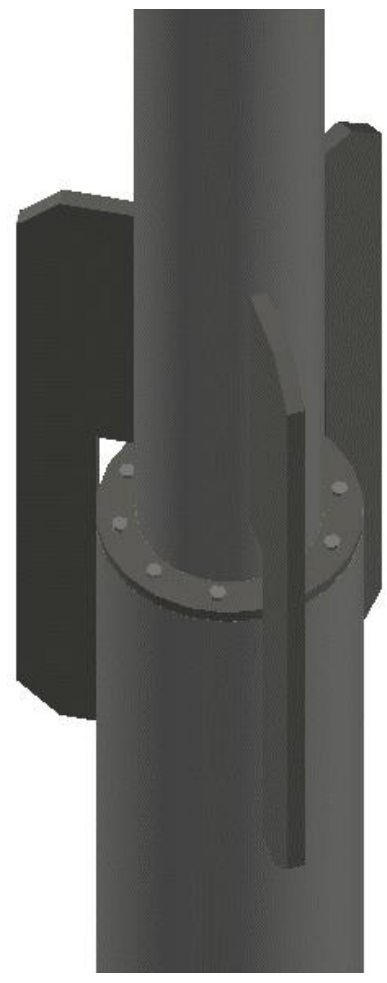
Elevation = 60 ft.

BU #	876324
Site Name	Hartford United Meth
Order #	622772 Rev. 0

TIA-222 Revision	H

Applied Loads to Design Groups	
Moment (kip-ft)	445.84
Axial Force (kips)	0.00
Shear Force (kips)	0.00





Design Properties

Bridge Stiffener Group 1 Data

(3) Welded, 5''x1'', A572-65, Lu=6", Upper Plate Width=10.5'', Lower Plate Width=10.5'', Neglect Flange in MOI: No

Total Length:	96	in
Weld Type:	Fillet (both sides)	
Weld Size:	0.25	in
Exx:	70	ksi
Upper Weld Length:	48	in
Upper Plate Width:	10.5	in
Lower Weld Length:	42	in
Lower Plate Width:	10.5	in
Stiffener Front EPA (No Ice):	10.30	ft²
Stiffener Side EPA (No Ice):	1.33	ft²
Stiffener Front EPA (1/2'' Ice):	10.85	ft²
Stiffener Side EPA (1/2'' Ice):	2.69	ft²
Stiffener Weight (No Ice):	0.286	kip
Stiffener Weight (1/2'' Ice):	0.323	kip

Upper Weld Size:	***Good***
Upper Weld Rating:	**31.74%**
Lower Weld Size:	***Good***
Lower Weld Rating:	**34.76%**
Top Plate Lateral-Torsional Buckling Rating:	**6.27%**
Top Plate Tension Yield Rating:	**8.28%**
Top Plate Tension Rupture Rating:	**8.97%**
Top Plate Interaction Rating:	**7.08%**
Bottom Plate Lateral-Torsional Buckling Rating:	**5.77%**
Bottom Plate Tension Yield Rating:	**9.47%**
Bottom Plate Tension Rupture Rating:	**10.26%**
Bottom Plate Interaction Rating:	**6.83%**
Top Pole Punching Shear Rating:	**15.67%**
Bottom Pole Punching Shear Rating:	**14.88%**

Monopole Flange Plate Connection

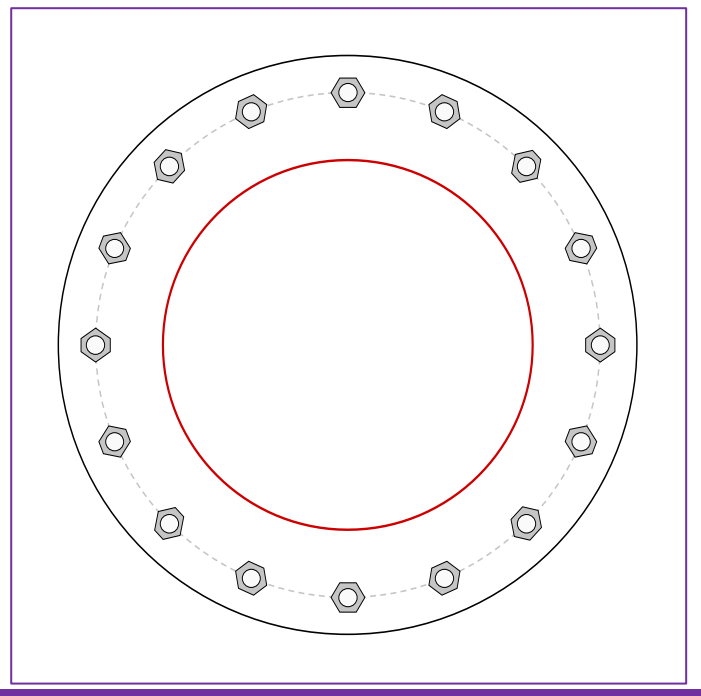
Elevation = 30 ft.

BU #	876324
Site Name	Hartford United Meth
Order #	622772 Rev. 0

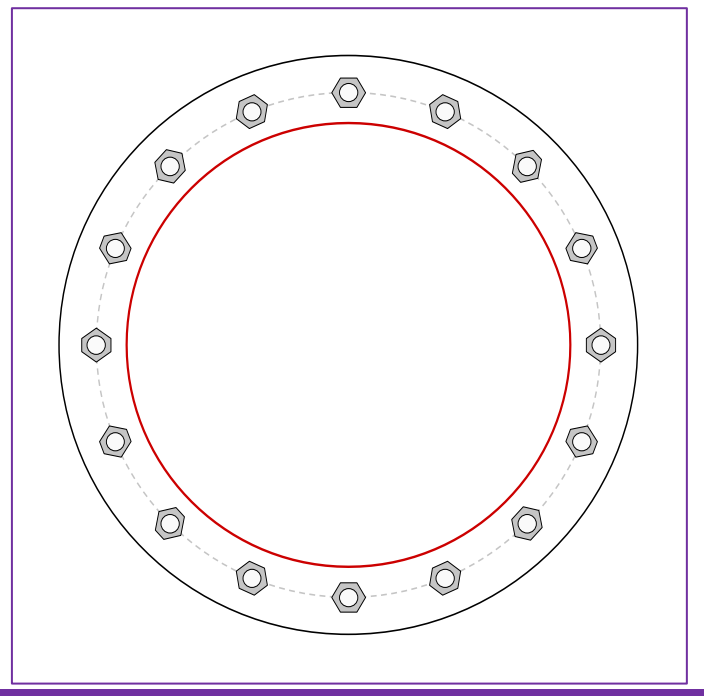
TIA-222 Revision	H

Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	572.49	Moment (kip-ft)	750.73
Axial Force (kips)	29.76	Axial Force (kips)	0.00
Shear Force (kips)	21.25	Shear Force (kips)	0.00

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(16) 1-1/2" ø bolts (A325 N; Fy=81 ksi, Fu=120 ksi) on 41" BC

Top Plate Data

47" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 1 Data

(3) Welded, 6.5''x1'', A572-65, Lu=6", Upper Plate Width=10.5'', Lower Plate Width=10.5'', Neglect Flange in MOI: No

Bottom Plate Data

47" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	40.01	
Allowable (kips)	126.88	
Stress Rating:	**31.5%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	21.05	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**65.0%**	**Pass**
Tension Side Stress Rating:	**35.6%**	**Pass**

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	237.85	
Max Tension (kip):	237.85	
Comp. Capacity (kip):	364.95	
Tens. Capacity (kip):	380.25	(Yield)
Comp. Stress Rating:	**65.2%**	**Pass**
Tens. Stress Rating:	**62.6%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	9.45	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**29.2%**	**Pass**
Tension Side Stress Rating:	**10.7%**	**Pass**

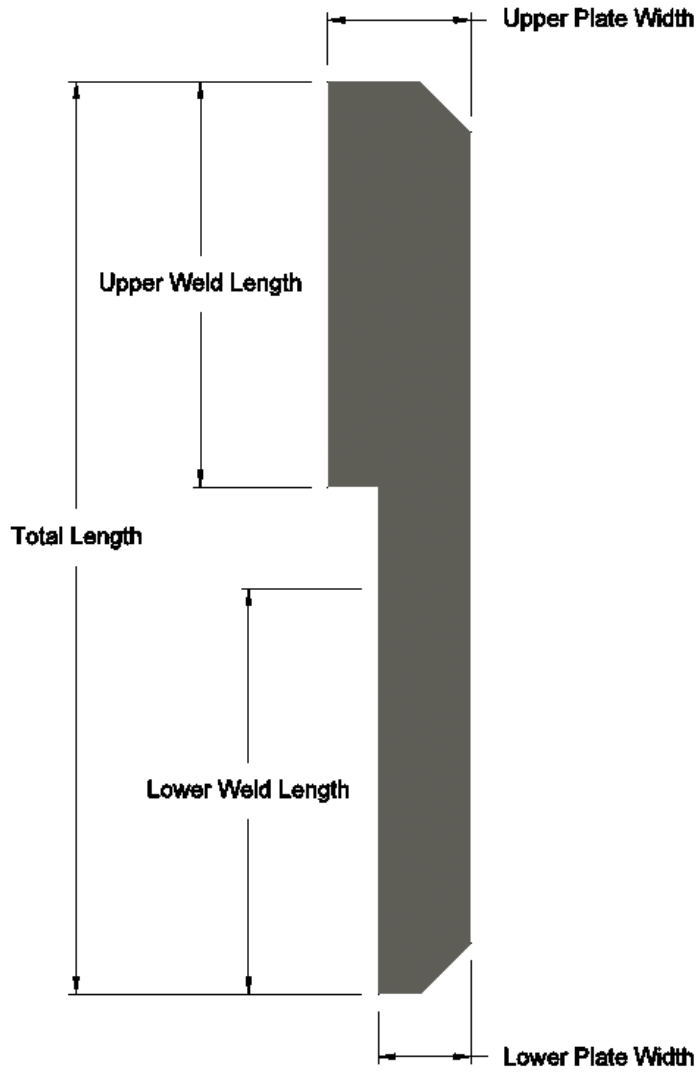
Welded Bridge Stiffener Design

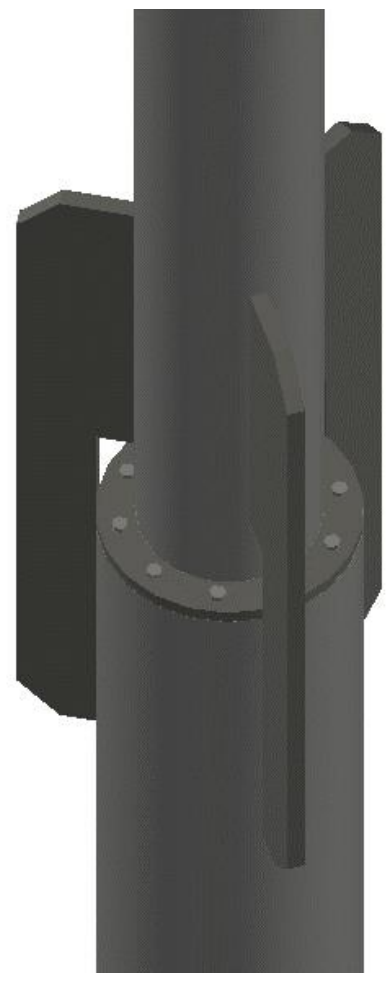
Elevation = 30 ft.

BU #	876324
Site Name	Hartford United Meth
Order #	622772 Rev. 0

TIA-222 Revision	H

Applied Loads to Design Groups	
Moment (kip-ft)	750.73
Axial Force (kips)	0.00
Shear Force (kips)	0.00





Design Properties

Bridge Stiffener Group 1 Data

(3) Welded, 6.5''x1'', A572-65, Lu=6", Upper Plate Width=10.5'', Lower Plate Width=10.5'', Neglect Flange in MOI: No

Total Length:	120	in
Weld Type:	Fillet (both sides)	
Weld Size:	0.25	in
Exx:	70	ksi
Upper Weld Length:	60	in
Upper Plate Width:	10.5	in
Lower Weld Length:	54	in
Lower Plate Width:	10.5	in
Stiffener Front EPA (No Ice):	13.54	ft²
Stiffener Side EPA (No Ice):	1.67	ft²
Stiffener Front EPA (1/2'' Ice):	14.20	ft²
Stiffener Side EPA (1/2'' Ice):	3.36	ft²
Stiffener Weight (No Ice):	0.357	kip
Stiffener Weight (1/2'' Ice):	0.403	kip

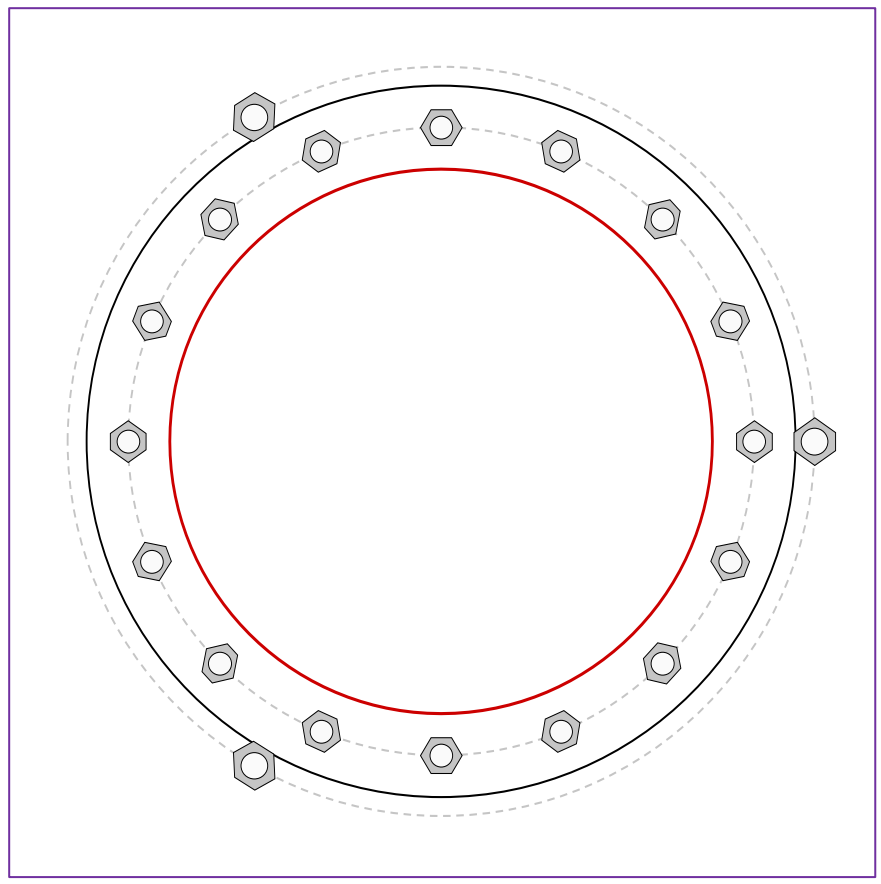
Upper Weld Size:	***Good***
Upper Weld Rating:	**36.67%**
Lower Weld Size:	***Good***
Lower Weld Rating:	**39.84%**
Top Plate Lateral-Torsional Buckling Rating:	**6.13%**
Top Plate Tension Yield Rating:	**10.16%**
Top Plate Tension Rupture Rating:	**11.01%**
Top Plate Interaction Rating:	**7.34%**
Bottom Plate Lateral-Torsional Buckling Rating:	**5.18%**
Bottom Plate Tension Yield Rating:	**11.29%**
Bottom Plate Tension Rupture Rating:	**12.24%**
Bottom Plate Interaction Rating:	**6.67%**
Top Pole Punching Shear Rating:	**14.33%**
Bottom Pole Punching Shear Rating:	**12.52%**

Monopole Base Plate Connection

Site Info	
BU #	876324
Site Name	Hartford United Meth
Order #	622772 Rev. 0

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

Applied Loads	
Moment (kip-ft)	2033.73
Axial Force (kips)	42.16
Shear Force (kips)	24.95



Connection Properties

Anchor Rod Data

GROUP 1: (16) 1-1/2" ø bolts (A354-BC N; Fy=109 ksi, Fu=125 ksi) on 41.5" BC
GROUP 2: (3) 1-3/4" ø bolts (Williams N N; Fy=127.7 ksi, Fu=125 ksi) on 49.5" BC

Base Plate Data

47" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Stiffener Data

N/A

Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

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

GROUP 1:

Pu_t = 95.85	ϕPn_t = 132.19	**Stress Rating**
Vu = 1.56	ϕVn = 82.83	**72.5%**
Mu = n/a	ϕMn = n/a	**Pass**

GROUP 2:

Pu_t = 216.62	ϕPn_t = 243.75	**Stress Rating**
Vu = 0	ϕVn = 121.88	**88.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	24.09	(Flexural)
Allowable Stress (ksi):	32.4	
Stress Rating:	**74.4%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

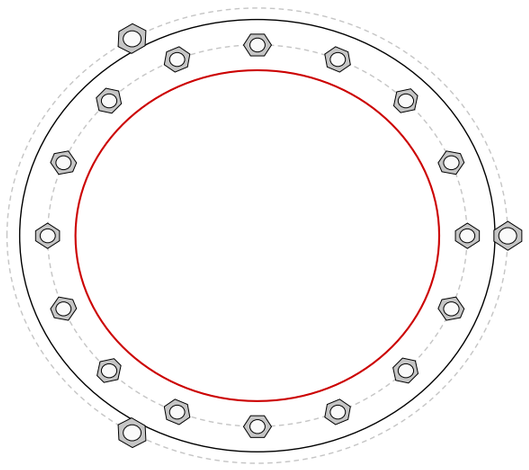
note: Bending interaction not considered when Grout Considered = "Yes"

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

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	I_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	1.5	A354-BC	41.5	0.5	0	N-Included		No
2	1	22.5	1.5	A354-BC	41.5	0.5	0	N-Included		No
3	1	45	1.5	A354-BC	41.5	0.5	0	N-Included		No
4	1	67.5	1.5	A354-BC	41.5	0.5	0	N-Included		No
5	1	90	1.5	A354-BC	41.5	0.5	0	N-Included		No
6	1	112.5	1.5	A354-BC	41.5	0.5	0	N-Included		No
7	1	135	1.5	A354-BC	41.5	0.5	0	N-Included		No
8	1	157.5	1.5	A354-BC	41.5	0.5	0	N-Included		No
9	1	180	1.5	A354-BC	41.5	0.5	0	N-Included		No
10	1	202.5	1.5	A354-BC	41.5	0.5	0	N-Included		No
11	1	225	1.5	A354-BC	41.5	0.5	0	N-Included		No
12	1	247.5	1.5	A354-BC	41.5	0.5	0	N-Included		No
13	1	270	1.5	A354-BC	41.5	0.5	0	N-Included		No
14	1	292.5	1.5	A354-BC	41.5	0.5	0	N-Included		No
15	1	315	1.5	A354-BC	41.5	0.5	0	N-Included		No
16	1	337.5	1.5	A354-BC	41.5	0.5	0	N-Included		No
17	2	0	1.75	Williams N	49.5	0.5	0	N-Included	2.6	No
18	2	120	1.75	Williams N	49.5	0.5	0	N-Included	2.6	No
19	2	240	1.75	Williams N	49.5	0.5	0	N-Included	2.6	No

Plot Graphic



Drilled Pier Foundation

BU # :	876324
Site Name:	West Hartford United Metho
Order Number:	622772 Rev. 0
TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2033.73	
Axial Force (kips)	42.16	
Shear Force (kips)	24.95	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	60	ksi

Pier Design Data		
Depth	24	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 24' below grade		
Pier Diameter	5.5	ft
Rebar Quantity	20	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	5	
Tie Spacing		in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	9.52	-
Soil Safety Factor	2.73	-
Max Moment (kip-ft)	2279.42	-
Rating*	*46.4%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	294.68	-
End Bearing (kips)	71.27	-
Weight of Concrete (kips)	74.53	-
Total Capacity (kips)	365.95	-
Axial (kips)	116.69	-
Rating*	*30.4%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	9.65	-
Critical Moment (kip-ft)	2279.14	-
Critical Moment Capacity	2535.21	-
Rating*	*85.6%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	18.35	-
Critical Shear (kip)	321.79	-
Critical Shear Capacity	369.21	-
Rating*	*83.0%*	-

Structural Foundation Rating*	**85.6%**
Soil Interaction Rating*	**46.4%**

*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	7	# of Layers	5

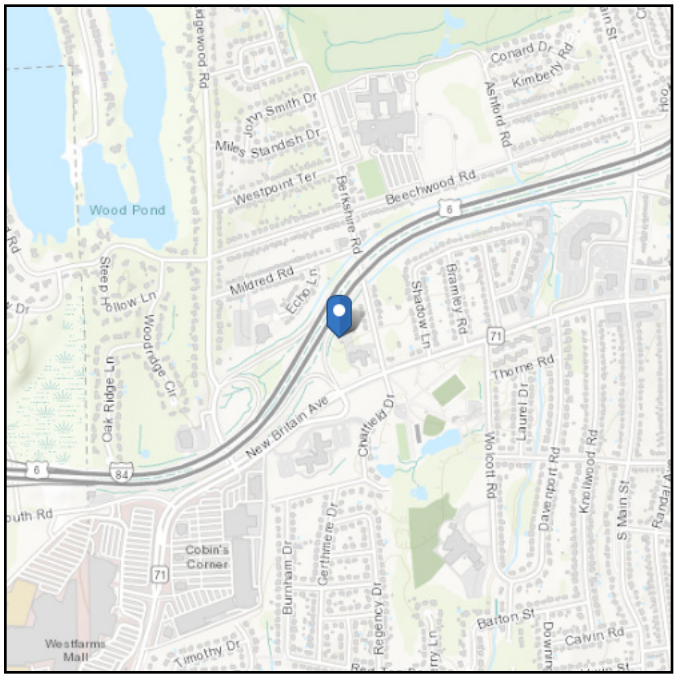
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	6	6	70	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	6	7	1	108	150	0	0	0.000	0.000					Cohesionless
3	7	8.25	1.25	63	87.6	0	0	0.000	0.000					Cohesionless
4	8.25	16	7.75	63	87.6	2	0	1.100	1.100					Cohesive
5	16	24	8	63	87.6	3.25	0	1.777	1.777			4		Cohesive

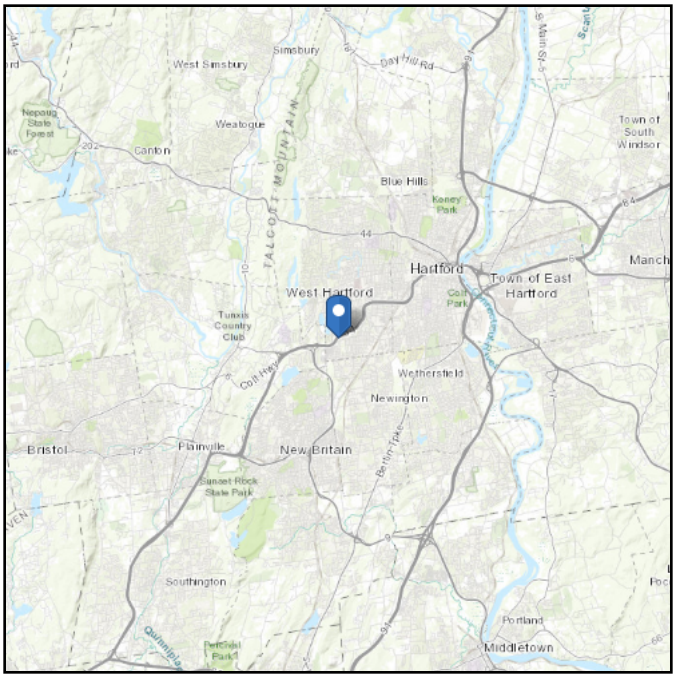
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 158.39 ft (NAVD 88)
Latitude: 41.730658
Longitude: -72.753658





Wind

Results:

Wind Speed	117 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: Thu Jul 07 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.

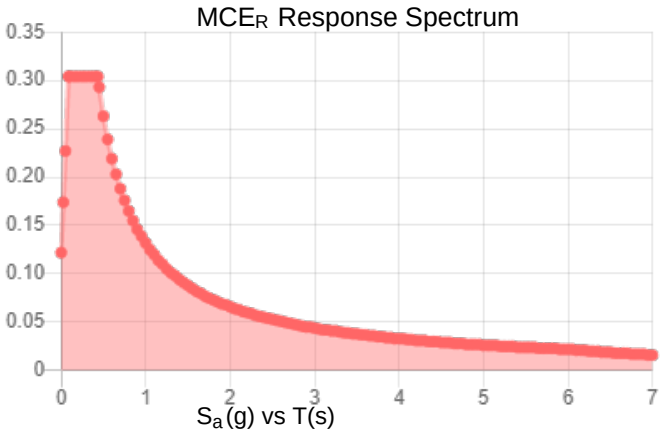
Seismic

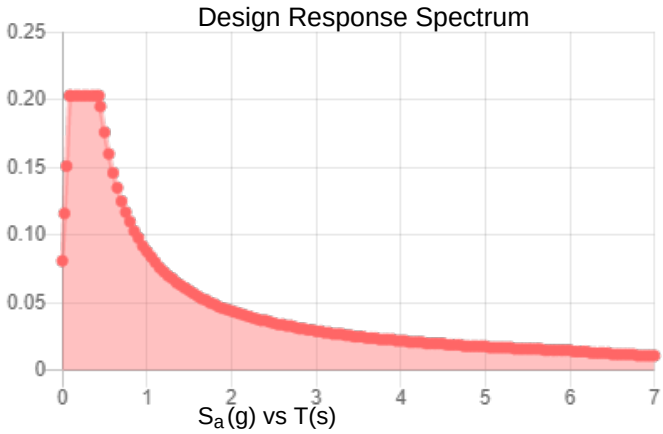
Site Soil Class: D - Stiff Soil

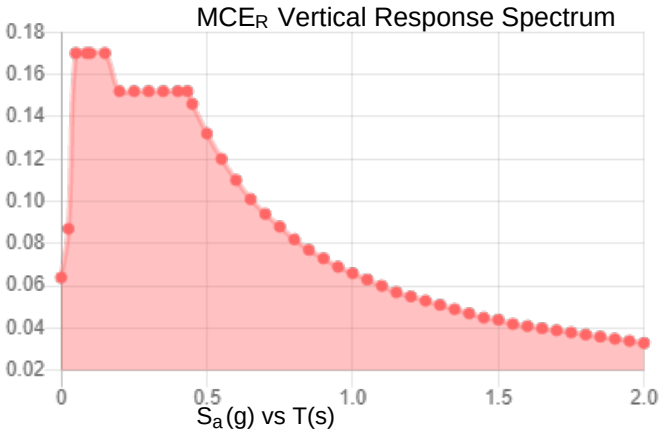
Results:

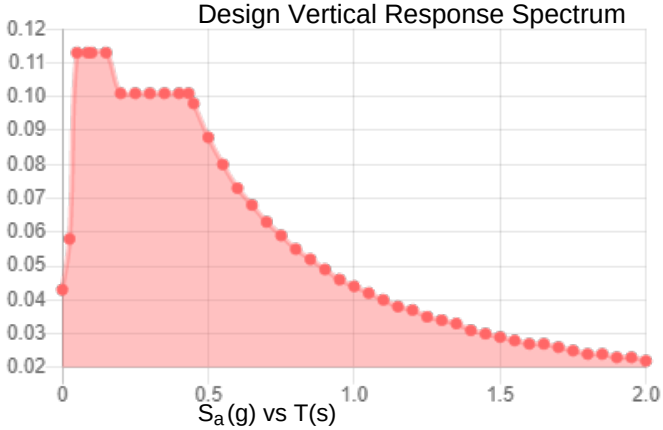
S_S :	0.19	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.103
F_v :	2.4	PGA_M :	0.164
S_{MS} :	0.304	F_{PGA} :	1.594
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.203	C_v :	0.7

Seismic Design Category B









Data Accessed: **Thu Jul 07 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:	1.50 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Jul 07 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 28, 2022

MTS Engineering, P.L.L.C.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	**Mount Analysis – Conditional Passing Report**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CTHA502A
	Carrier Site Name:	Crown West Hartford Monopole
Crown Castle Designation:	**BU Number:**	876324
	Site Name:	West Hartford United Methodist
	JDE Job Number:	722181
	Order Number:	622772, Rev. 0
Engineering Firm Designation:	**Report Designation:**	127816.009.01
Site Data:	**1358 New Britain Avenue, West Hartford, CT, Hartford County, 06110 Latitude 41° 43' 50.37" Longitude -72° 45' 13.17"**	
Structure Information:	**Tower Height & Type:**	**130 ft. Monopole**
	Mount Elevation:	**116 ft.**
	Mount Type:	**12.66 ft. Platform Mount**

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

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

Platform Mount **Sufficient**

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

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Erika Ruiz

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER:2386985 Expires: 02/01/2023

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 - sector 12.66' Platform Mount, mapped & analyzed by MTS Engineering, P.L.L.C.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	117 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.19
Seismic S_1:	0.055
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	Manufacturer	Model / Type	Mount / Modification Details
116	116	3	Ericsson	AIR 6419 B41_TMO	12.66' Platform Mount
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	Radio 4460 B2/B25 B66_TMO	
		3	Ericsson	Radio 4480_TMOV2	
50	50	1	Lucent	KS24019-L112A	-

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 06/23/2022	Crown Castle
RFDS		Date: 06/17/2022	
Mount Mapping	MTS Engineering, P.L.L.C.	Date: 09/28/2021	On File
Mount Analysis		Date: 10/04/2021	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by MTS Engineering, P.L.L.C., was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Mount Analysis* (Revision E). In addition, this analysis is in accordance with OTHER SOW.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
   The following assumptions have been included in the analysis of the mount

Component	Section	Length	Note
Proposed Mount Pipe for New Antenna	2" Std. Pipe	10'-0"	Position 2, All Sectors

5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

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

4) ANALYSIS RESULTS

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

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1,2	Main Horizontals	116	8	55.8	Pass
	Support Rails		26	62.8	Pass
	Support Pipes		28	54.8	Pass
	Mount Pipes		92	62.4	Pass
	Support Angles		19	3.7	Pass
	Connection Plates		43	44.4	Pass
	Verticals		45	70.3	Pass
	Diagonals		69	47.4	Pass

Structure Rating with Recommendations (max from all components) =	70.3%

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

4.1) Recommendations

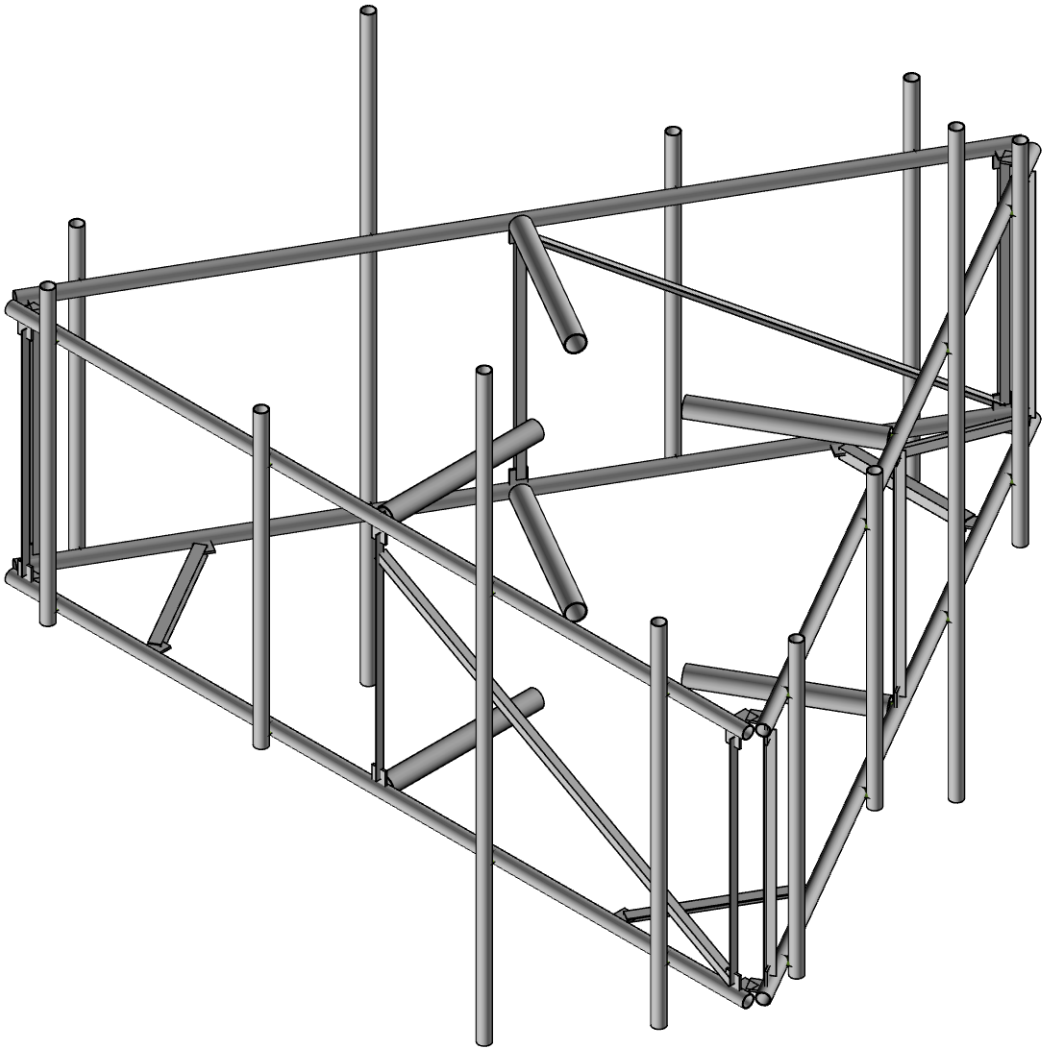
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modification listed below must be completed.

1. Replace existing Mount Pipes with (3) New 2” Std. x 10’ long Mount Pipes, in Position 2.

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

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

MTS Engineering, P.L.L.C.	876324 - West Hartford United Methodist	SK-1
MP		Jun 28, 2022
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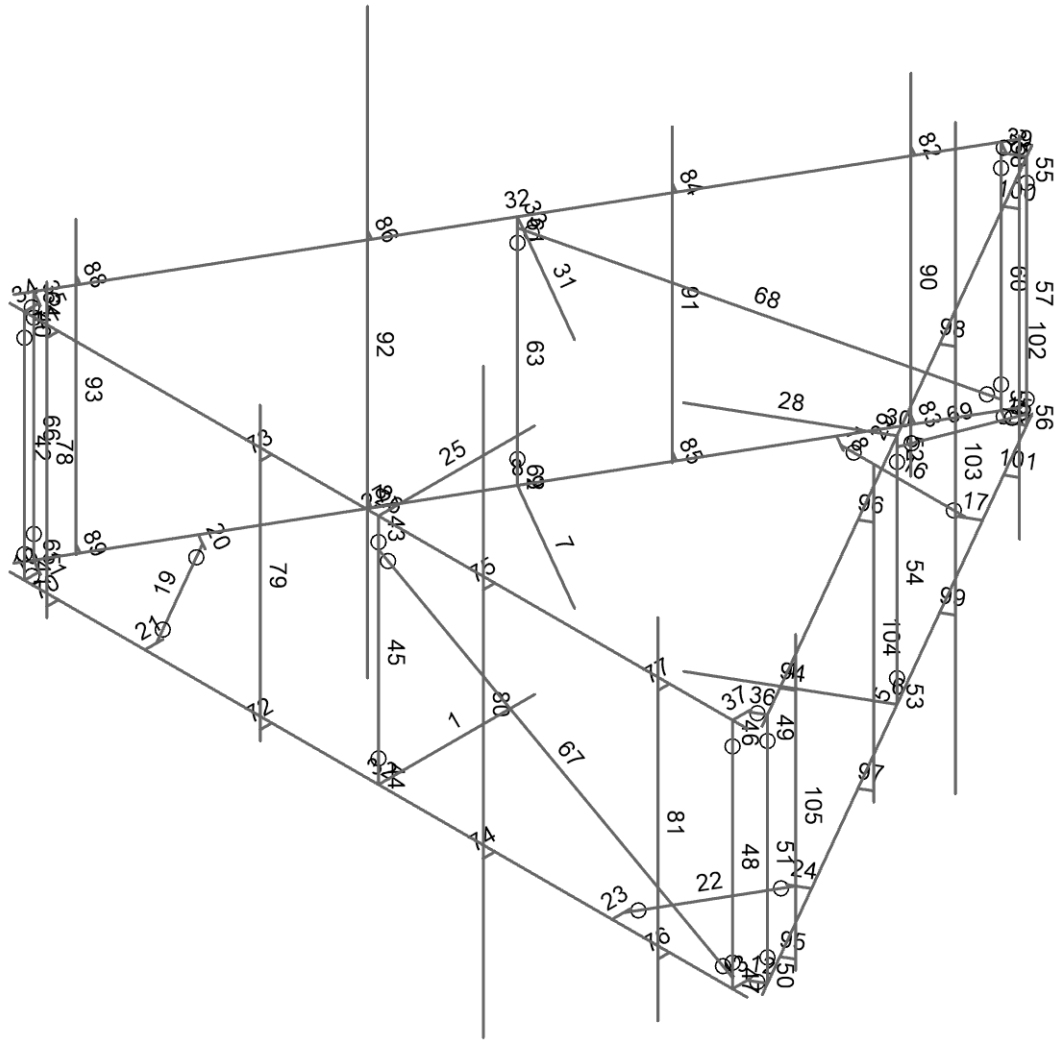

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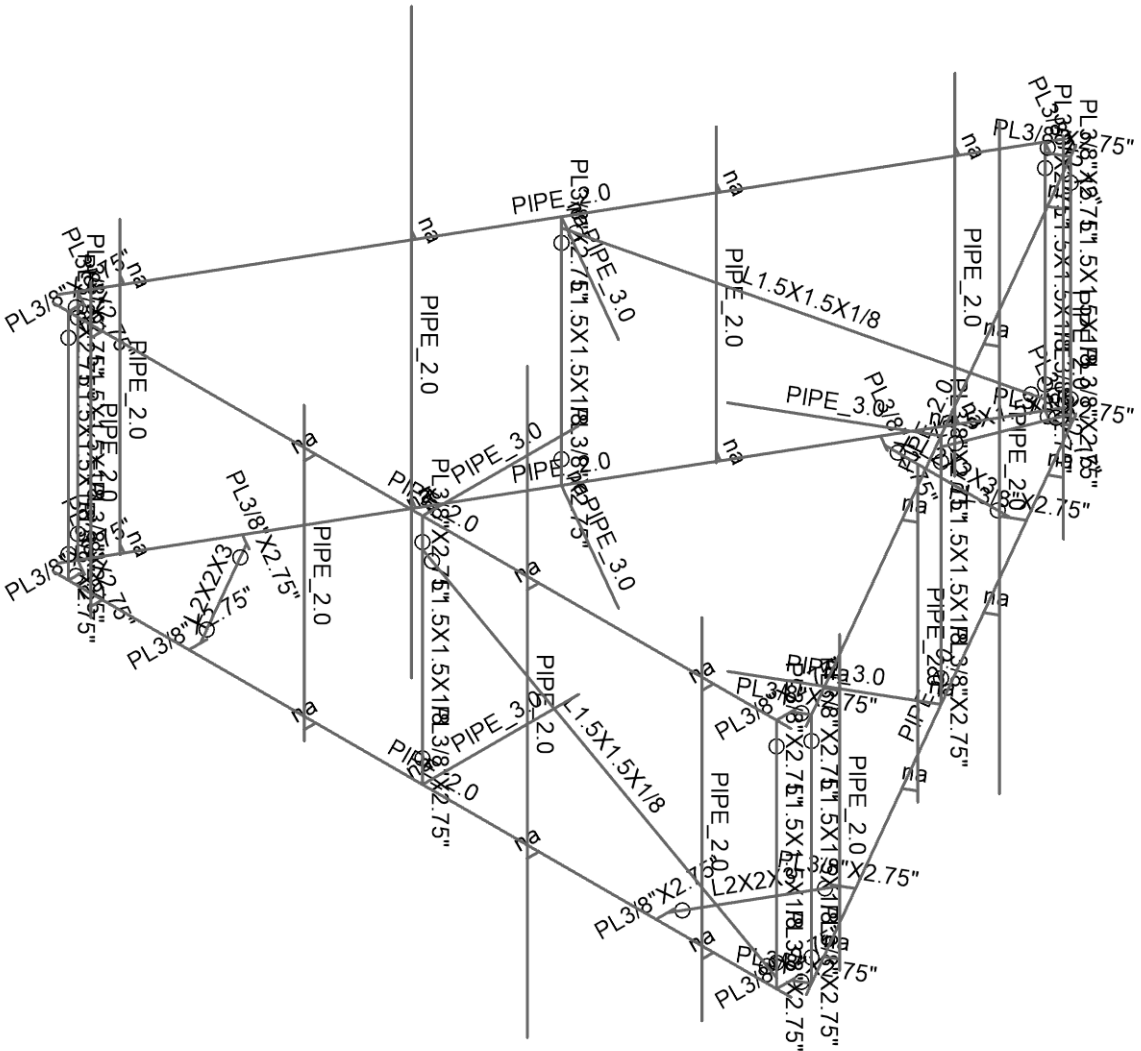

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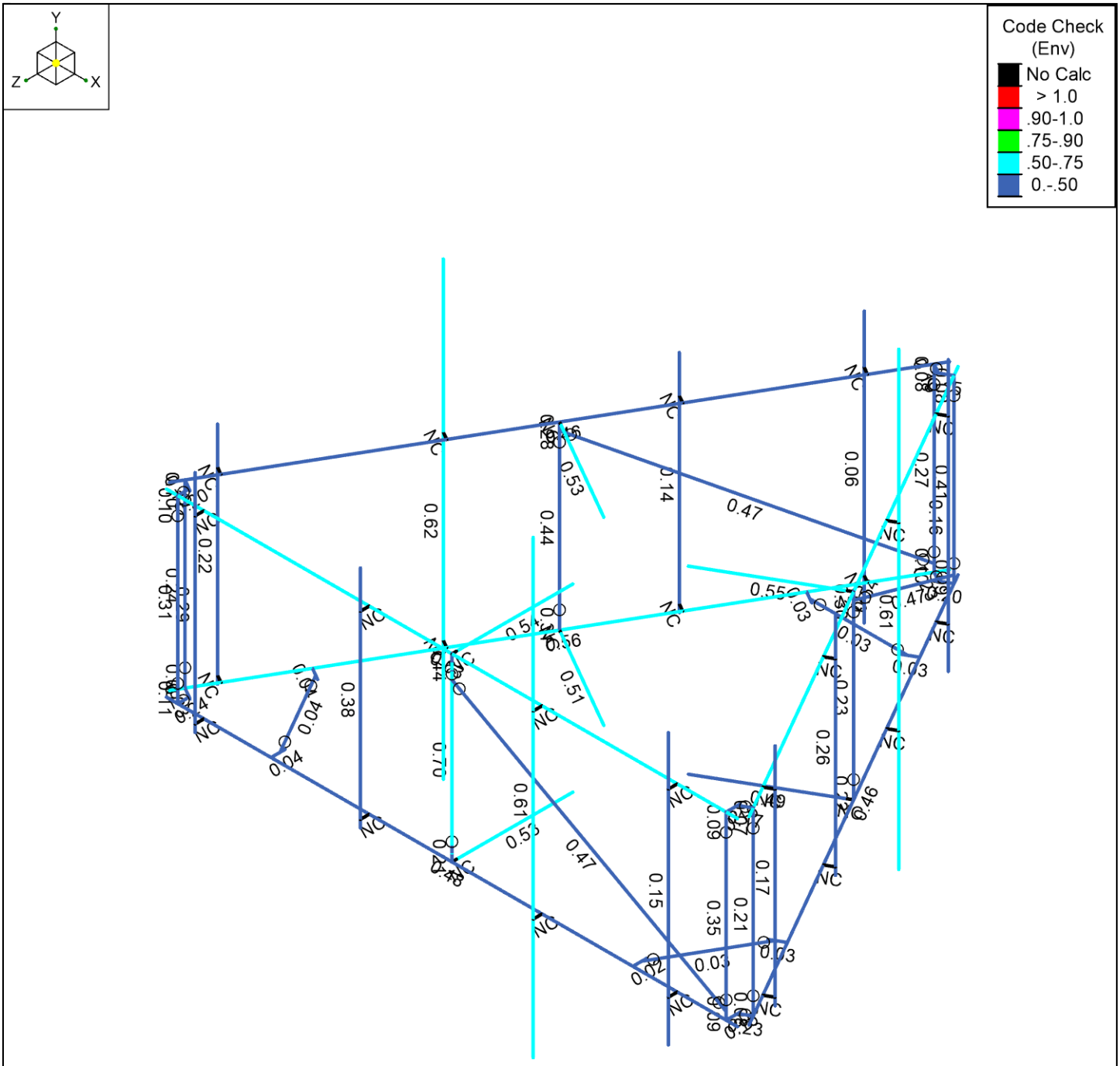

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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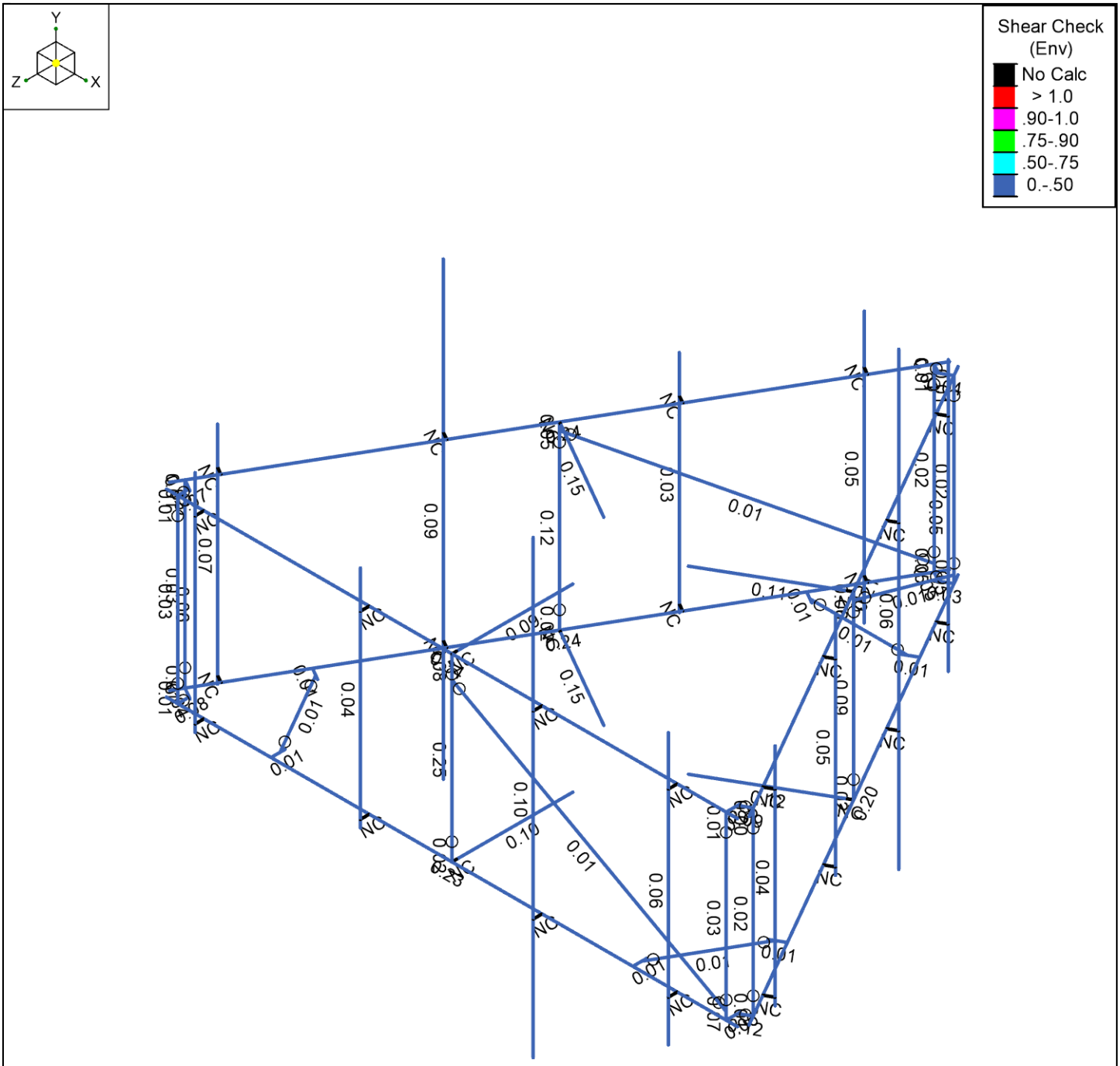

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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127816.009.01		127816_009_01_West Hartford U…

APPENDIX B

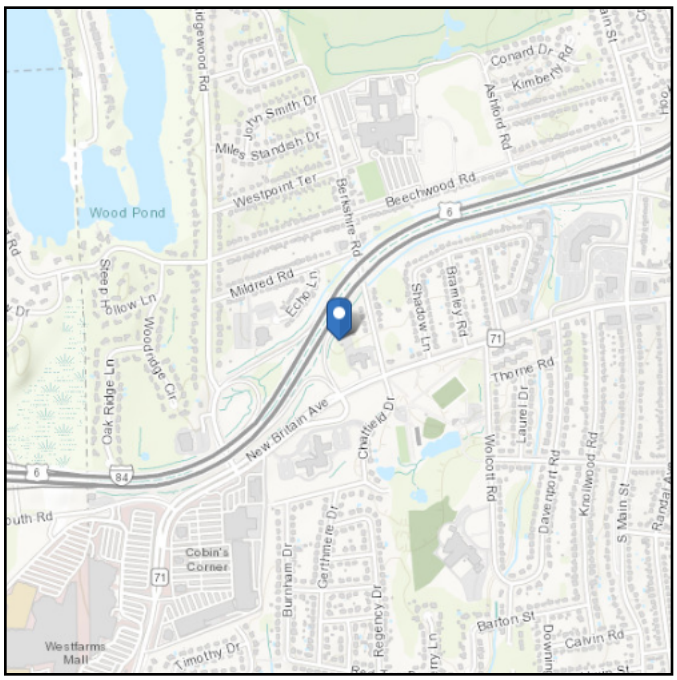
SOFTWARE INPUT CALCULATIONS

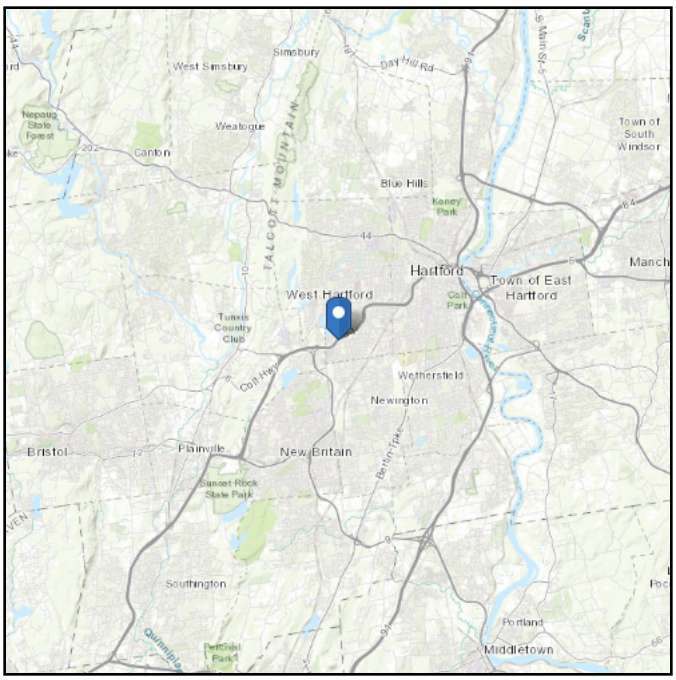
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 158.39 ft (NAVD 88)
Latitude: 41.730658
Longitude: -72.753658





Wind

Results:

Wind Speed	117 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 Jun 24 2022

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

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

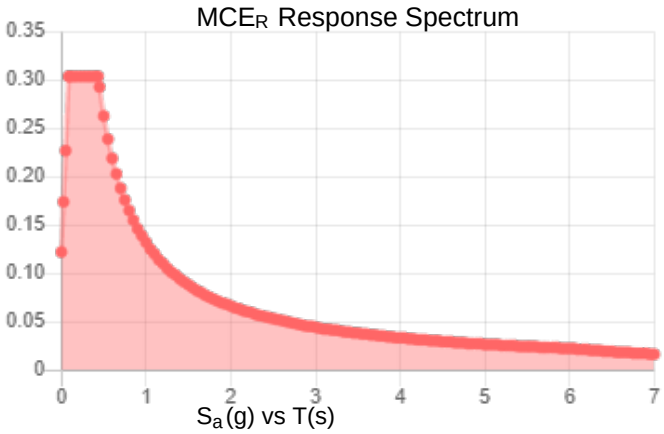
Seismic

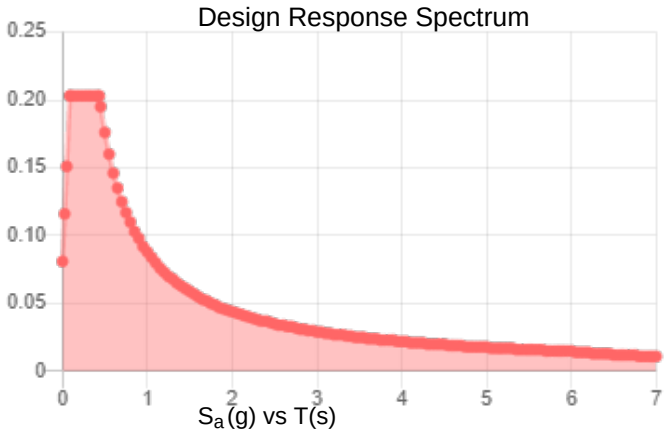
Site Soil Class: D - Default (see Section 11.4.3)

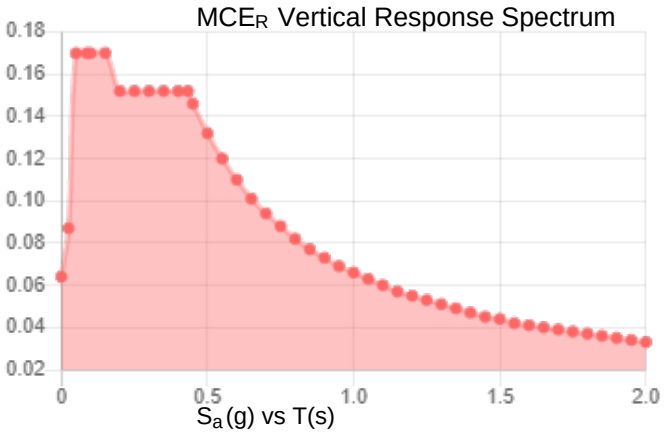
Results:

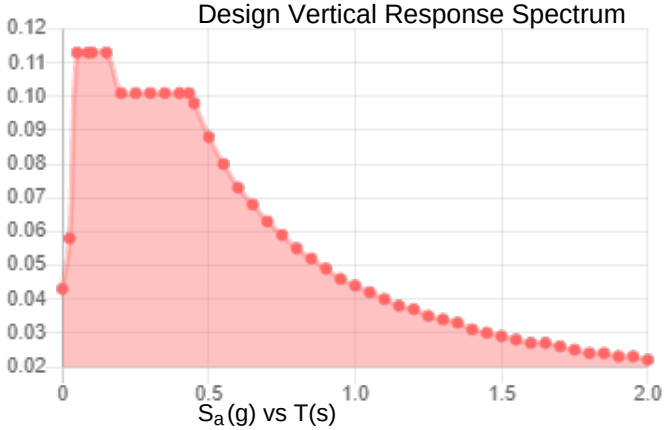
S_S :	0.19	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.103
F_v :	2.4	PGA_M :	0.164
S_{MS} :	0.304	F_{PGA} :	1.594
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.203	C_v :	0.7

Seismic Design Category B









Data Accessed: **Fri Jun 24 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:	1.50 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 Jun 24 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.

PROJECT	**127816.009.01 - West Hartford United KSC**
SUBJECT	**Platform Mount Analysis**
DATE	**06-28-22**

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	158	ft	[ASCE7 Hazard Tool]
Tower Height		:	130.00	ft	
Mount Elevation		:	117.00	ft	
Antenna Elevation		:	116.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	117	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.50	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.19		
	S_1	:	0.06		
	S_{DS}	:	0.20		
	S_{D1}	:	0.09		
Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.31		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.99		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.70	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.102		[Sec. 2.7.7.1]
Amplification	A_s	:	2.6		[Sec. 16.7]
	q_z	:	43.30	psf	

PROJECT	**127816.009.01 - West Hartford United KSC**
SUBJECT	**Platform Mount Analysis**
DATE	**06-28-22**

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

B+T GRP

Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A (N)}$ (k)	$F_{A (T)}$ (k)	$F_{A (N)}$ Ice (k)	$F_{A (T)}$ Ice (k)
ERICSSON	AIR 6419 B41_TMO	0.5	36.3	20.9	9.0	96.5	3.50	1.42	4.32	2.07	0.15	0.06	0.03	0.02
ERICSSON	AIR 6419 B41_TMO	0.5					3.50	1.42	4.32	2.07	0.15	0.06	0.03	0.02
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5	95.9	24.0	8.5	149.9	7.34	2.66	8.51	3.69	0.32	0.11	0.07	0.03
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5					7.34	2.66	8.51	3.69	0.32	0.11	0.07	0.03
ERICSSON	Radio 4480_TMOV2	1	22.0	15.7	7.5	81.0	2.88	1.40	4.04	2.35	0.11	0.05	0.02	0.01
ERICSSON	DIO 4460 B2/B25 B66_TM	1	17.0	15.1	11.9	109.0	2.14	1.69	3.15	2.60	0.08	0.07	0.02	0.01
ERICSSON	AIR 6419 B41_TMO	0.5	36.3	20.9	9.0	96.5	3.50	1.42	4.32	2.07	0.15	0.06	0.03	0.02
ERICSSON	AIR 6419 B41_TMO	0.5					3.50	1.42	4.32	2.07	0.15	0.06	0.03	0.02
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5	95.9	24.0	8.5	149.9	7.34	2.66	8.51	3.69	0.32	0.11	0.07	0.03
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5					7.34	2.66	8.51	3.69	0.32	0.11	0.07	0.03
ERICSSON	Radio 4480_TMOV2	1	22.0	15.7	7.5	81.0	2.88	1.40	4.04	2.35	0.11	0.05	0.02	0.01
ERICSSON	DIO 4460 B2/B25 B66_TM	1	17.0	15.1	11.9	109.0	2.14	1.69	3.15	2.60	0.08	0.07	0.02	0.01
ERICSSON	AIR 6419 B41_TMO	0.5	36.3	20.9	9.0	96.5	3.50	1.42	4.32	2.07	0.15	0.06	0.03	0.02
ERICSSON	AIR 6419 B41_TMO	0.5					3.50	1.42	4.32	2.07	0.15	0.06	0.03	0.02
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5	95.9	24.0	8.5	149.9	7.34	2.66	8.51	3.69	0.32	0.11	0.07	0.03
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5					7.34	2.66	8.51	3.69	0.32	0.11	0.07	0.03
ERICSSON	Radio 4480_TMOV2	1	22.0	15.7	7.5	81.0	2.88	1.40	4.04	2.35	0.11	0.05	0.02	0.01
ERICSSON	DIO 4460 B2/B25 B66_TM	1	17.0	15.1	11.9	109.0	2.14	1.69	3.15	2.60	0.08	0.07	0.02	0.01

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	1.083333	
2	2	-6.333333	0	3.765832	
3	3	6.333333	0	3.765832	
4	4	0	0	3.666666	
5	5	0.938194	0	-0.541667	
6	6	6.427973	0	3.601911	
7	7	0.09464	0	-7.367744	
8	8	3.175426	0	-1.833333	
9	9	-0.938194	0	-0.541667	
10	10	-0.09464	0	-7.367744	
11	11	-6.427973	0	3.601911	
12	12	-3.175426	0	-1.833333	
13	13	0	0	0	
14	14	-6.083332	0	3.512213	
15	15	-6.03234	0	3.541654	
16	16	6.083332	0	3.512213	
17	17	6.083332	0	3.453332	
18	18	0	0	-7.024427	
19	19	-0.050992	0	-6.994986	
20	20	1.25474	0	-5.358392	
21	21	0.984107	0	-5.202142	
22	22	-1.25474	0	-5.358392	
23	23	-0.984107	0	-5.202142	
24	24	-5.267873	0	1.59256	
25	25	-4.99724	0	1.74881	
26	26	-4.013134	0	3.765832	
27	27	-4.013134	0	3.453332	
28	28	4.013134	0	3.567909	
29	29	4.013134	0	3.765832	
30	30	4.013134	0	3.453332	
31	31	5.267873	0	1.59256	
32	32	4.99724	0	1.74881	
33	33	0	4	1.083333	
34	34	-6.333333	4	3.765832	
35	35	6.333333	4	3.765832	
36	36	0	4	3.666666	
37	37	0.938194	4	-0.541667	
38	38	6.427973	4	3.601911	
39	39	0.09464	4	-7.367744	
40	40	3.175426	4	-1.833333	
41	41	-0.938194	4	-0.541667	
42	42	-0.09464	4	-7.367744	
43	43	-6.427973	4	3.601911	
44	44	-3.175426	4	-1.833333	
45	45	-6.083332	4	3.512213	
46	46	-6.03234	4	3.541654	
47	47	6.083332	4	3.512213	
48	48	6.083332	4	3.453332	
49	49	0	4	-7.024427	
50	50	-0.050992	4	-6.994986	
51	51	-6.083332	4	3.765832	
52	52	-6.083332	3.6875	3.765832	
53	53	-6.083332	0.3125	3.765832	
54	54	-6.083332	0	3.765832	
55	55	-6.083332	3.83333	3.765832	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-6.083332	0.16667	3.765832	
57	57	0	4	3.765832	
58	58	0	3.6875	3.765832	
59	59	0	0.3125	3.765832	
60	60	0	0	3.765832	
61	61	0	3.83333	3.765832	
62	62	0	0.16667	3.765832	
63	63	6.083332	4	3.765832	
64	64	6.083332	3.6875	3.765832	
65	65	6.083332	0.3125	3.765832	
66	66	6.083332	0	3.765832	
67	67	6.083332	3.83333	3.765832	
68	68	6.302972	4	3.385404	
69	69	6.302972	3.6875	3.385404	
70	70	6.302972	0.3125	3.385404	
71	71	6.302972	0	3.385404	
72	72	6.302972	3.83333	3.385404	
73	73	6.302972	0.16667	3.385404	
74	74	3.261306	4	-1.882916	
75	75	3.261306	3.6875	-1.882916	
76	76	3.261306	0.3125	-1.882916	
77	77	3.261306	0	-1.882916	
78	78	3.261306	0.16667	-1.882916	
79	79	0.21964	4	-7.151236	
80	80	0.21964	3.6875	-7.151236	
81	81	0.21964	0.3125	-7.151236	
82	82	0.21964	0	-7.151236	
83	83	0.21964	3.83333	-7.151236	
84	84	-0.21964	4	-7.151236	
85	85	-0.21964	3.6875	-7.151236	
86	86	-0.21964	0.3125	-7.151236	
87	87	-0.21964	0	-7.151236	
88	88	-0.21964	3.83333	-7.151236	
89	89	-3.261306	4	-1.882916	
90	90	-3.261306	3.6875	-1.882916	
91	91	-3.261306	0.3125	-1.882916	
92	92	-3.261306	0	-1.882916	
93	93	-3.261306	0.16667	-1.882916	
94	94	-6.302972	4	3.385404	
95	95	-6.302972	3.6875	3.385404	
96	96	-6.302972	0.3125	3.385404	
97	97	-6.302972	0	3.385404	
98	98	-6.302972	3.83333	3.385404	
99	99	-6.302972	0.16667	3.385404	
100	100	6.083332	0.16667	3.765832	
101	101	0	3.500696	3.765832	
102	102	-3.261306	3.83333	-1.882916	
103	103	-0.21964	0.16667	-7.151236	
104	104	3.261306	3.83333	-1.882916	
105	105	0.21964	0.16667	-7.151236	
106	106	-4.013134	0	3.567909	
107	107	0	0	3.567909	
108	108	0	0	2.629715	
109	109	5.096467	0	1.691521	
110	110	1.083333	0	-5.25943	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	4.5548	0	2.629715	
112	112	-1.083333	0	-5.25943	
113	113	-5.096467	0	1.691521	
114	114	0	0	-5.25943	
115	115	-4.5548	0	2.629715	
116	116	-5.499997	0	3.765832	
117	117	-5.499997	0	3.964163	
118	118	-5.499997	4	3.765832	
119	119	-5.499997	4	3.964163	
120	120	-1.833331	0	3.765832	
121	121	-1.833331	0	3.964163	
122	122	-1.833331	4	3.765832	
123	123	-1.833331	4	3.964163	
124	124	2.000002	0	3.765832	
125	125	2.000002	0	3.964163	
126	126	2.000002	4	3.765832	
127	127	2.000002	4	3.964163	
128	128	5.000002	0	3.765832	
129	129	5.000002	0	3.964163	
130	130	5.000002	4	3.765832	
131	131	5.000002	4	3.964163	
132	132	-5.499997	4.833333	3.964163	
133	133	-5.499997	-0.166667	3.964163	
134	134	-1.833331	4.833333	3.964163	
135	135	-1.833331	-0.166667	3.964163	
136	136	2.000002	7.333333	3.964163	
137	137	2.000002	-2.666667	3.964163	
138	138	5.000002	5.083333	3.964163	
139	139	5.000002	-0.916667	3.964163	
140	140	-0.933065	4	-6.312212	
141	141	-0.761305	4	-6.213045	
142	142	-0.933065	0	-6.312212	
143	143	-0.761305	0	-6.213045	
144	144	-2.433067	4	-3.714129	
145	145	-2.261309	4	-3.614963	
146	146	-2.433067	0	-3.714129	
147	147	-2.261309	0	-3.614963	
148	148	-4.349734	4	-0.394366	
149	149	-4.177975	4	-0.2952	
150	150	-4.349734	0	-0.394366	
151	151	-4.177975	0	-0.2952	
152	152	-6.183065	4	2.781055	
153	153	-6.011305	4	2.880221	
154	154	-6.183065	0	2.781055	
155	155	-6.011305	0	2.880221	
156	156	-0.933065	5.083333	-6.312212	
157	157	-0.933065	-0.916667	-6.312212	
158	158	-2.433067	4.833333	-3.714129	
159	159	-2.433067	-0.166667	-3.714129	
160	160	-4.349734	7.333333	-0.394366	
161	161	-4.349734	-2.666667	-0.394366	
162	162	-6.183065	4.833333	2.781055	
163	163	-6.183065	-0.166667	2.781055	
164	164	6.183069	4	2.781053	
165	165	6.011305	4	2.880221	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
166	166	6.183069	0	2.781053	
167	167	6.011305	0	2.880221	
168	168	4.349735	4	-0.394365	
169	169	4.177975	4	-0.2952	
170	170	4.349735	0	-0.394365	
171	171	4.177975	0	-0.2952	
172	172	2.433068	4	-3.714129	
173	173	2.261309	4	-3.614963	
174	174	2.433068	0	-3.714129	
175	175	2.261309	0	-3.614963	
176	176	0.933068	4	-6.312205	
177	177	0.761309	4	-6.21304	
178	178	0.933068	0	-6.312205	
179	179	0.761309	0	-6.21304	
180	180	0.933068	5.083333	-6.312205	
181	181	0.933068	-0.916667	-6.312205	
182	182	2.433068	7.333333	-3.714129	
183	183	2.433068	-2.666667	-3.714129	
184	184	4.349735	4.833333	-0.394365	
185	185	4.349735	-0.166667	-0.394365	
186	186	6.183069	4.833333	2.781053	
187	187	6.183069	-0.166667	2.781053	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	41	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	9	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	33	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	37	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
2	Support Rails	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
3	F1-S1	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	MF-P1	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
5	F1-SA1	L2X2X3	Beam	Single Angle	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
6	F1-C1	PL3/8"X2.75"	Beam	RECT	A36 Gr.36	Typical	1.031	0.012	0.65	0.044
7	F1-C2	PL3/8"X2.75"	Column	RECT	A36 Gr.36	Typical	1.031	0.012	0.65	0.044
8	F1-V1	L1.5X1.5X1/8	Column	Single Angle	A36 Gr.36	Typical	0.359	0.078	0.078	0.002

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
9	F1-D1	L1.5X1.5X1/8	VBrace	Single Angle	A36 Gr.36	Typical	0.359	0.078	0.078	0.002

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	4		F1-S1	Beam	Pipe	A53 Gr.B	Typical
2	2	2	3		MF-H1	Beam	Pipe	A53 Gr.B	Typical
3	3	4	60		RIGID	None	None	RIGID	Typical
4	4	5	8		F1-S1	Beam	Pipe	A53 Gr.B	Typical
5	5	6	7		MF-H1	Beam	Pipe	A53 Gr.B	Typical
6	6	8	77		RIGID	None	None	RIGID	Typical
7	7	9	12		F1-S1	Beam	Pipe	A53 Gr.B	Typical
8	8	10	11		MF-H1	Beam	Pipe	A53 Gr.B	Typical
9	9	12	92		RIGID	None	None	RIGID	Typical
10	10	54	14	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
11	11	97	15	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
12	12	71	16	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
13	13	66	17	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
14	14	87	18	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
15	15	82	19	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
16	16	112	110	180	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
17	17	20	21	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
18	18	22	23	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
19	19	106	113	180	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
20	20	24	25	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
21	21	26	27	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
22	22	109	28	180	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
23	23	29	30	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
24	24	31	32	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
25	25	33	36		F1-S1	Beam	Pipe	A53 Gr.B	Typical
26	26	34	35		Support Rails	Beam	Pipe	A53 Gr.B	Typical
27	27	36	57		RIGID	None	None	RIGID	Typical
28	28	37	40		F1-S1	Beam	Pipe	A53 Gr.B	Typical
29	29	38	39		Support Rails	Beam	Pipe	A53 Gr.B	Typical
30	30	40	74		RIGID	None	None	RIGID	Typical
31	31	41	44		F1-S1	Beam	Pipe	A53 Gr.B	Typical
32	32	42	43		Support Rails	Beam	Pipe	A53 Gr.B	Typical
33	33	44	89		RIGID	None	None	RIGID	Typical
34	34	51	45	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
35	35	94	46	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
36	36	68	47	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
37	37	63	48	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
38	38	84	49	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
39	39	79	50	90	F1-C1	Beam	RECT	A36 Gr.36	Typical
40	40	51	52		F1-C2	Column	RECT	A36 Gr.36	Typical
41	41	53	54		F1-C2	Column	RECT	A36 Gr.36	Typical
42	42	55	56	270	F1-V1	Column	Single Angle	A36 Gr.36	Typical
43	43	57	58		F1-C2	Column	RECT	A36 Gr.36	Typical
44	44	59	60		F1-C2	Column	RECT	A36 Gr.36	Typical
45	45	61	62	270	F1-V1	Column	Single Angle	A36 Gr.36	Typical
46	46	63	64		F1-C2	Column	RECT	A36 Gr.36	Typical
47	47	65	66		F1-C2	Column	RECT	A36 Gr.36	Typical
48	48	67	100	270	F1-V1	Column	Single Angle	A36 Gr.36	Typical
49	49	68	69	60	F1-C2	Column	RECT	A36 Gr.36	Typical
50	50	70	71	60	F1-C2	Column	RECT	A36 Gr.36	Typical
51	51	72	73	150	F1-V1	Column	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
52	52	74	75	60	F1-C2	Column	RECT	A36 Gr.36	Typical
53	53	76	77	60	F1-C2	Column	RECT	A36 Gr.36	Typical
54	54	104	78	150	F1-V1	Column	Single Angle	A36 Gr.36	Typical
55	55	79	80	60	F1-C2	Column	RECT	A36 Gr.36	Typical
56	56	81	82	60	F1-C2	Column	RECT	A36 Gr.36	Typical
57	57	83	105	150	F1-V1	Column	Single Angle	A36 Gr.36	Typical
58	58	84	85	120	F1-C2	Column	RECT	A36 Gr.36	Typical
59	59	86	87	120	F1-C2	Column	RECT	A36 Gr.36	Typical
60	60	88	103	30	F1-V1	Column	Single Angle	A36 Gr.36	Typical
61	61	89	90	120	F1-C2	Column	RECT	A36 Gr.36	Typical
62	62	91	92	120	F1-C2	Column	RECT	A36 Gr.36	Typical
63	63	102	93	30	F1-V1	Column	Single Angle	A36 Gr.36	Typical
64	64	94	95	120	F1-C2	Column	RECT	A36 Gr.36	Typical
65	65	96	97	120	F1-C2	Column	RECT	A36 Gr.36	Typical
66	66	98	99	30	F1-V1	Column	Single Angle	A36 Gr.36	Typical
67	67	100	101	90	F1-D1	VBrace	Single Angle	A36 Gr.36	Typical
68	68	102	103	90	F1-D1	VBrace	Single Angle	A36 Gr.36	Typical
69	69	104	105	180	F1-D1	VBrace	Single Angle	A36 Gr.36	Typical
70	70	116	117		RIGID	None	None	RIGID	Typical
71	71	118	119		RIGID	None	None	RIGID	Typical
72	72	120	121		RIGID	None	None	RIGID	Typical
73	73	122	123		RIGID	None	None	RIGID	Typical
74	74	124	125		RIGID	None	None	RIGID	Typical
75	75	126	127		RIGID	None	None	RIGID	Typical
76	76	128	129		RIGID	None	None	RIGID	Typical
77	77	130	131		RIGID	None	None	RIGID	Typical
78	78	132	133		MF-P1	Column	Pipe	A53 Gr.B	Typical
79	79	134	135		MF-P1	Column	Pipe	A53 Gr.B	Typical
80	80	136	137		MF-P1	Column	Pipe	A53 Gr.B	Typical
81	81	138	139		MF-P1	Column	Pipe	A53 Gr.B	Typical
82	82	140	141		RIGID	None	None	RIGID	Typical
83	83	142	143		RIGID	None	None	RIGID	Typical
84	84	144	145		RIGID	None	None	RIGID	Typical
85	85	146	147		RIGID	None	None	RIGID	Typical
86	86	148	149		RIGID	None	None	RIGID	Typical
87	87	150	151		RIGID	None	None	RIGID	Typical
88	88	152	153		RIGID	None	None	RIGID	Typical
89	89	154	155		RIGID	None	None	RIGID	Typical
90	90	156	157		MF-P1	Column	Pipe	A53 Gr.B	Typical
91	91	158	159		MF-P1	Column	Pipe	A53 Gr.B	Typical
92	92	160	161		MF-P1	Column	Pipe	A53 Gr.B	Typical
93	93	162	163		MF-P1	Column	Pipe	A53 Gr.B	Typical
94	94	164	165		RIGID	None	None	RIGID	Typical
95	95	166	167		RIGID	None	None	RIGID	Typical
96	96	168	169		RIGID	None	None	RIGID	Typical
97	97	170	171		RIGID	None	None	RIGID	Typical
98	98	172	173		RIGID	None	None	RIGID	Typical
99	99	174	175		RIGID	None	None	RIGID	Typical
100	100	176	177		RIGID	None	None	RIGID	Typical
101	101	178	179		RIGID	None	None	RIGID	Typical
102	102	180	181		MF-P1	Column	Pipe	A53 Gr.B	Typical
103	103	182	183		MF-P1	Column	Pipe	A53 Gr.B	Typical
104	104	184	185		MF-P1	Column	Pipe	A53 Gr.B	Typical
105	105	186	187		MF-P1	Column	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	N/A	None
2	2			Yes	N/A	None
3	3			Yes	** NA **	None
4	4			Yes	N/A	None
5	5			Yes	N/A	None
6	6			Yes	** NA **	None
7	7			Yes	N/A	None
8	8			Yes	N/A	None
9	9			Yes	** NA **	None
10	10		BenPIN	Yes	Default	None
11	11			Yes	N/A	None
12	12		BenPIN	Yes	Default	None
13	13			Yes	N/A	None
14	14		BenPIN	Yes	Default	None
15	15			Yes	N/A	None
16	16	BenPIN	BenPIN	Yes	Default	None
17	17			Yes	N/A	None
18	18			Yes	N/A	None
19	19	BenPIN	BenPIN	Yes	Default	None
20	20			Yes	N/A	None
21	21			Yes	N/A	None
22	22	BenPIN	BenPIN	Yes	Default	None
23	23			Yes	N/A	None
24	24			Yes	N/A	None
25	25			Yes	N/A	None
26	26			Yes	N/A	None
27	27			Yes	** NA **	None
28	28			Yes	N/A	None
29	29			Yes	N/A	None
30	30			Yes	** NA **	None
31	31			Yes	N/A	None
32	32			Yes	N/A	None
33	33			Yes	** NA **	None
34	34		BenPIN	Yes	Default	None
35	35			Yes	N/A	None
36	36		BenPIN	Yes	Default	None
37	37			Yes	N/A	None
38	38		BenPIN	Yes	Default	None
39	39			Yes	N/A	None
40	40			Yes	** NA **	None
41	41			Yes	** NA **	None
42	42	BenPIN	BenPIN	Yes	** NA **	None
43	43			Yes	** NA **	None
44	44			Yes	** NA **	None
45	45	BenPIN	BenPIN	Yes	** NA **	None
46	46			Yes	** NA **	None
47	47			Yes	** NA **	None
48	48	BenPIN	BenPIN	Yes	** NA **	None
49	49			Yes	** NA **	None
50	50			Yes	** NA **	None
51	51	BenPIN	BenPIN	Yes	** NA **	None
52	52			Yes	** NA **	None
53	53			Yes	** NA **	None
54	54	BenPIN	BenPIN	Yes	** NA **	None
55	55			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
56	56			Yes	** NA **	None
57	57	BenPIN	BenPIN	Yes	** NA **	None
58	58			Yes	** NA **	None
59	59			Yes	** NA **	None
60	60	BenPIN	BenPIN	Yes	** NA **	None
61	61			Yes	** NA **	None
62	62			Yes	** NA **	None
63	63	BenPIN	BenPIN	Yes	** NA **	None
64	64			Yes	** NA **	None
65	65			Yes	** NA **	None
66	66	BenPIN	BenPIN	Yes	** NA **	None
67	67	BenPIN	BenPIN	Yes	** NA **	None
68	68	BenPIN	BenPIN	Yes	** NA **	None
69	69	BenPIN	BenPIN	Yes	** NA **	None
70	70			Yes	** NA **	None
71	71			Yes	** NA **	None
72	72			Yes	** NA **	None
73	73			Yes	** NA **	None
74	74			Yes	** NA **	None
75	75			Yes	** NA **	None
76	76			Yes	** NA **	None
77	77			Yes	** NA **	None
78	78			Yes	** NA **	None
79	79			Yes	** NA **	None
80	80			Yes	** NA **	None
81	81			Yes	** NA **	None
82	82			Yes	** NA **	None
83	83			Yes	** NA **	None
84	84			Yes	** NA **	None
85	85			Yes	** NA **	None
86	86			Yes	** NA **	None
87	87			Yes	** NA **	None
88	88			Yes	** NA **	None
89	89			Yes	** NA **	None
90	90			Yes	** NA **	None
91	91			Yes	** NA **	None
92	92			Yes	** NA **	None
93	93			Yes	** NA **	None
94	94			Yes	** NA **	None
95	95			Yes	** NA **	None
96	96			Yes	** NA **	None
97	97			Yes	** NA **	None
98	98			Yes	** NA **	None
99	99			Yes	** NA **	None
100	100			Yes	** NA **	None
101	101			Yes	** NA **	None
102	102			Yes	** NA **	None
103	103			Yes	** NA **	None
104	104			Yes	** NA **	None
105	105			Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	F1-S1	2.583	Lbyy	N/A	N/A	Lateral
2	2	MF-H1	12.667	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
3	4	F1-S1	2.583	Lbyy	N/A	N/A	Lateral
4	5	MF-H1	12.667	Lbyy	N/A	N/A	Lateral
5	7	F1-S1	2.583	Lbyy	N/A	N/A	Lateral
6	8	MF-H1	12.667	Lbyy	N/A	N/A	Lateral
7	10	F1-C1	0.254	Lbyy	N/A	N/A	Lateral
8	11	F1-C1	0.313	Lbyy	N/A	N/A	Lateral
9	12	F1-C1	0.254	Lbyy	N/A	N/A	Lateral
10	13	F1-C1	0.312	Lbyy	N/A	N/A	Lateral
11	14	F1-C1	0.254	Lbyy	N/A	N/A	Lateral
12	15	F1-C1	0.313	Lbyy	N/A	N/A	Lateral
13	16	F1-SA1	2.167	Lbyy	N/A	N/A	Lateral
14	17	F1-C1	0.312	Lbyy	N/A	N/A	Lateral
15	18	F1-C1	0.312	Lbyy	N/A	N/A	Lateral
16	19	F1-SA1	2.167	Lbyy	N/A	N/A	Lateral
17	20	F1-C1	0.313	Lbyy	N/A	N/A	Lateral
18	21	F1-C1	0.312	Lbyy	N/A	N/A	Lateral
19	22	F1-SA1	2.167	Lbyy	N/A	N/A	Lateral
20	23	F1-C1	0.312	Lbyy	N/A	N/A	Lateral
21	24	F1-C1	0.313	Lbyy	N/A	N/A	Lateral
22	25	F1-S1	2.583	Lbyy	N/A	N/A	Lateral
23	26	Support Rails	12.667	Lbyy	N/A	N/A	Lateral
24	28	F1-S1	2.583	Lbyy	N/A	N/A	Lateral
25	29	Support Rails	12.667	Lbyy	N/A	N/A	Lateral
26	31	F1-S1	2.583	Lbyy	N/A	N/A	Lateral
27	32	Support Rails	12.667	Lbyy	N/A	N/A	Lateral
28	34	F1-C1	0.254	Lbyy	N/A	N/A	Lateral
29	35	F1-C1	0.313	Lbyy	N/A	N/A	Lateral
30	36	F1-C1	0.254	Lbyy	N/A	N/A	Lateral
31	37	F1-C1	0.312	Lbyy	N/A	N/A	Lateral
32	38	F1-C1	0.254	Lbyy	N/A	N/A	Lateral
33	39	F1-C1	0.313	Lbyy	N/A	N/A	Lateral
34	40	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
35	41	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
36	42	F1-V1	3.667	Lbyy	N/A	N/A	Lateral
37	43	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
38	44	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
39	45	F1-V1	3.667	Lbyy	N/A	N/A	Lateral
40	46	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
41	47	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
42	48	F1-V1	3.667	Lbyy	N/A	N/A	Lateral
43	49	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
44	50	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
45	51	F1-V1	3.667	Lbyy	N/A	N/A	Lateral
46	52	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
47	53	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
48	54	F1-V1	3.667	Lbyy	N/A	N/A	Lateral
49	55	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
50	56	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
51	57	F1-V1	3.667	Lbyy	N/A	N/A	Lateral
52	58	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
53	59	F1-C2	0.313	Lbyy	N/A	N/A	Lateral
54	60	F1-V1	3.667	Lbyy	N/A	N/A	Lateral
55	61	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
56	62	F1-C2	0.313	Lbyy	N/A	N/A	Lateral
57	63	F1-V1	3.667	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
58	64	F1-C2	0.312	Lbyy	N/A	N/A	Lateral
59	65	F1-C2	0.313	Lbyy	N/A	N/A	Lateral
60	66	F1-V1	3.667	Lbyy	N/A	N/A	Lateral
61	67	F1-D1	6.937	Lbyy	N/A	N/A	Lateral
62	68	F1-D1	7.103	Lbyy	N/A	N/A	Lateral
63	69	F1-D1	7.103	Lbyy	N/A	N/A	Lateral
64	78	MF-P1	5	Lbyy	N/A	N/A	Lateral
65	79	MF-P1	5	Lbyy	N/A	N/A	Lateral
66	80	MF-P1	10	Lbyy	N/A	N/A	Lateral
67	81	MF-P1	6	Lbyy	N/A	N/A	Lateral
68	90	MF-P1	6	Lbyy	N/A	N/A	Lateral
69	91	MF-P1	5	Lbyy	N/A	N/A	Lateral
70	92	MF-P1	10	Lbyy	N/A	N/A	Lateral
71	93	MF-P1	5	Lbyy	N/A	N/A	Lateral
72	102	MF-P1	6	Lbyy	N/A	N/A	Lateral
73	103	MF-P1	10	Lbyy	N/A	N/A	Lateral
74	104	MF-P1	5	Lbyy	N/A	N/A	Lateral
75	105	MF-P1	5	Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	Y	-0.048	%5
2	81	Y	-0.048	%45
3	81	Y	0	0
4	81	Y	0	0
5	81	Y	0	0
6	80	Y	-0.075	%5
7	80	Y	-0.075	%80
8	80	Y	-0.081	%20
9	80	Y	-0.109	%60
10	80	Y	0	0
11	93	Y	-0.048	%5
12	93	Y	-0.048	%45
13	93	Y	0	0
14	93	Y	0	0
15	93	Y	0	0
16	92	Y	-0.075	%5
17	92	Y	-0.075	%80
18	92	Y	-0.081	%20
19	92	Y	-0.109	%60
20	92	Y	0	0
21	102	Y	-0.048	%5
22	102	Y	-0.048	%45
23	102	Y	0	0
24	102	Y	0	0
25	102	Y	0	0
26	103	Y	-0.075	%5
27	103	Y	-0.075	%80
28	103	Y	-0.081	%20
29	103	Y	-0.109	%60
30	103	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	Z	-0.151	%5
2	81	Z	-0.151	%45
3	81	Z	0	0
4	81	Z	0	0
5	81	Z	0	0
6	80	Z	-0.317	%5
7	80	Z	-0.317	%80
8	80	Z	-0.112	%20
9	80	Z	-0.083	%60
10	80	Z	0	0
11	93	Z	-0.151	%5
12	93	Z	-0.151	%45
13	93	Z	0	0
14	93	Z	0	0
15	93	Z	0	0
16	92	Z	-0.317	%5
17	92	Z	-0.317	%80
18	92	Z	-0.112	%20
19	92	Z	-0.083	%60
20	92	Z	0	0
21	102	Z	-0.151	%5
22	102	Z	-0.151	%45
23	102	Z	0	0
24	102	Z	0	0
25	102	Z	0	0
26	103	Z	-0.317	%5
27	103	Z	-0.317	%80
28	103	Z	-0.112	%20
29	103	Z	-0.083	%60
30	103	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	X	-0.061	%5
2	81	X	-0.061	%45
3	81	X	0	0
4	81	X	0	0
5	81	X	0	0
6	80	X	-0.115	%5
7	80	X	-0.115	%80
8	80	X	-0.053	%20
9	80	X	-0.066	%60
10	80	X	0	0
11	93	X	-0.061	%5
12	93	X	-0.061	%45
13	93	X	0	0
14	93	X	0	0
15	93	X	0	0
16	92	X	-0.115	%5
17	92	X	-0.115	%80
18	92	X	-0.053	%20
19	92	X	-0.066	%60
20	92	X	0	0
21	102	X	-0.061	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
22	102	X	-0.061	%45
23	102	X	0	0
24	102	X	0	0
25	102	X	0	0
26	103	X	-0.115	%5
27	103	X	-0.115	%80
28	103	X	-0.053	%20
29	103	X	-0.066	%60
30	103	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	Z	-0.034	%5
2	81	Z	-0.034	%45
3	81	Z	0	0
4	81	Z	0	0
5	81	Z	0	0
6	80	Z	-0.067	%5
7	80	Z	-0.067	%80
8	80	Z	-0.02	%20
9	80	Z	-0.015	%60
10	80	Z	0	0
11	93	Z	-0.034	%5
12	93	Z	-0.034	%45
13	93	Z	0	0
14	93	Z	0	0
15	93	Z	0	0
16	92	Z	-0.067	%5
17	92	Z	-0.067	%80
18	92	Z	-0.02	%20
19	92	Z	-0.015	%60
20	92	Z	0	0
21	102	Z	-0.034	%5
22	102	Z	-0.034	%45
23	102	Z	0	0
24	102	Z	0	0
25	102	Z	0	0
26	103	Z	-0.067	%5
27	103	Z	-0.067	%80
28	103	Z	-0.02	%20
29	103	Z	-0.015	%60
30	103	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	X	-0.016	%5
2	81	X	-0.016	%45
3	81	X	0	0
4	81	X	0	0
5	81	X	0	0
6	80	X	-0.029	%5
7	80	X	-0.029	%80
8	80	X	-0.01	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
9	80	X	-0.012	%60
10	80	X	0	0
11	93	X	-0.016	%5
12	93	X	-0.016	%45
13	93	X	0	0
14	93	X	0	0
15	93	X	0	0
16	92	X	-0.029	%5
17	92	X	-0.029	%80
18	92	X	-0.01	%20
19	92	X	-0.012	%60
20	92	X	0	0
21	102	X	-0.016	%5
22	102	X	-0.016	%45
23	102	X	0	0
24	102	X	0	0
25	102	X	0	0
26	103	X	-0.029	%5
27	103	X	-0.029	%80
28	103	X	-0.01	%20
29	103	X	-0.012	%60
30	103	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	Z	-0.01	%5
2	81	Z	-0.01	%45
3	81	Z	0	0
4	81	Z	0	0
5	81	Z	0	0
6	80	Z	-0.021	%5
7	80	Z	-0.021	%80
8	80	Z	-0.007	%20
9	80	Z	-0.005	%60
10	80	Z	0	0
11	93	Z	-0.01	%5
12	93	Z	-0.01	%45
13	93	Z	0	0
14	93	Z	0	0
15	93	Z	0	0
16	92	Z	-0.021	%5
17	92	Z	-0.021	%80
18	92	Z	-0.007	%20
19	92	Z	-0.005	%60
20	92	Z	0	0
21	102	Z	-0.01	%5
22	102	Z	-0.01	%45
23	102	Z	0	0
24	102	Z	0	0
25	102	Z	0	0
26	103	Z	-0.021	%5
27	103	Z	-0.021	%80
28	103	Z	-0.007	%20
29	103	Z	-0.005	%60
30	103	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	X	-0.004	%5
2	81	X	-0.004	%45
3	81	X	0	0
4	81	X	0	0
5	81	X	0	0
6	80	X	-0.008	%5
7	80	X	-0.008	%80
8	80	X	-0.004	%20
9	80	X	-0.004	%60
10	80	X	0	0
11	93	X	-0.004	%5
12	93	X	-0.004	%45
13	93	X	0	0
14	93	X	0	0
15	93	X	0	0
16	92	X	-0.008	%5
17	92	X	-0.008	%80
18	92	X	-0.004	%20
19	92	X	-0.004	%60
20	92	X	0	0
21	102	X	-0.004	%5
22	102	X	-0.004	%45
23	102	X	0	0
24	102	X	0	0
25	102	X	0	0
26	103	X	-0.008	%5
27	103	X	-0.008	%80
28	103	X	-0.004	%20
29	103	X	-0.004	%60
30	103	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	Y	-0.121	%5
2	81	Y	-0.121	%45
3	81	Y	0	0
4	81	Y	0	0
5	81	Y	0	0
6	80	Y	-0.258	%5
7	80	Y	-0.258	%80
8	80	Y	-0.073	%20
9	80	Y	-0.062	%60
10	80	Y	0	0
11	93	Y	-0.121	%5
12	93	Y	-0.121	%45
13	93	Y	0	0
14	93	Y	0	0
15	93	Y	0	0
16	92	Y	-0.258	%5
17	92	Y	-0.258	%80
18	92	Y	-0.073	%20
19	92	Y	-0.062	%60
20	92	Y	0	0
21	102	Y	-0.121	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
22	102	Y	-0.121	%45
23	102	Y	0	0
24	102	Y	0	0
25	102	Y	0	0
26	103	Y	-0.258	%5
27	103	Y	-0.258	%80
28	103	Y	-0.073	%20
29	103	Y	-0.062	%60
30	103	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	Z	-0.025	%5
2	81	Z	-0.025	%45
3	81	Z	0	0
4	81	Z	0	0
5	81	Z	0	0
6	80	Z	-0.04	%5
7	80	Z	-0.04	%80
8	80	Z	-0.021	%20
9	80	Z	-0.029	%60
10	80	Z	0	0
11	93	Z	-0.025	%5
12	93	Z	-0.025	%45
13	93	Z	0	0
14	93	Z	0	0
15	93	Z	0	0
16	92	Z	-0.04	%5
17	92	Z	-0.04	%80
18	92	Z	-0.021	%20
19	92	Z	-0.029	%60
20	92	Z	0	0
21	102	Z	-0.025	%5
22	102	Z	-0.025	%45
23	102	Z	0	0
24	102	Z	0	0
25	102	Z	0	0
26	103	Z	-0.04	%5
27	103	Z	-0.04	%80
28	103	Z	-0.021	%20
29	103	Z	-0.029	%60
30	103	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	81	X	-0.025	%5
2	81	X	-0.025	%45
3	81	X	0	0
4	81	X	0	0
5	81	X	0	0
6	80	X	-0.04	%5
7	80	X	-0.04	%80
8	80	X	-0.021	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
9	80	X	-0.029	%60
10	80	X	0	0
11	93	X	-0.025	%5
12	93	X	-0.025	%45
13	93	X	0	0
14	93	X	0	0
15	93	X	0	0
16	92	X	-0.04	%5
17	92	X	-0.04	%80
18	92	X	-0.021	%20
19	92	X	-0.029	%60
20	92	X	0	0
21	102	X	-0.025	%5
22	102	X	-0.025	%45
23	102	X	0	0
24	102	X	0	0
25	102	X	0	0
26	103	X	-0.04	%5
27	103	X	-0.04	%80
28	103	X	-0.021	%20
29	103	X	-0.029	%60
30	103	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	26	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

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

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

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

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	8	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	26	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

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

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	5	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	8	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 13)

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

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	4	Y	-0.25	%95

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	7	Y	-0.25	%95

Member Point Loads (BLC 30 : Maint LL 16)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	31	Y	-0.25	%95

Member Point Loads (BLC 31 : Maint LL 17)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	25	Y	-0.25	%95

Member Point Loads (BLC 32 : Maint LL 18)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Y	-0.25	%95

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.009	-0.009	0	%100
2	2	Z	-0.009	-0.009	0	%100
3	4	Z	-0.009	-0.009	0	%100
4	5	Z	-0.009	-0.009	0	%100
5	7	Z	-0.009	-0.009	0	%100
6	8	Z	-0.009	-0.009	0	%100
7	10	Z	-0.002	-0.002	0	%100
8	11	Z	-0.002	-0.002	0	%100
9	12	Z	-0.002	-0.002	0	%100
10	13	Z	-0.002	-0.002	0	%100
11	14	Z	-0.002	-0.002	0	%100
12	15	Z	-0.002	-0.002	0	%100
13	16	Z	-0.01	-0.01	0	%100
14	17	Z	-0.002	-0.002	0	%100
15	18	Z	-0.002	-0.002	0	%100
16	19	Z	-0.01	-0.01	0	%100
17	20	Z	-0.002	-0.002	0	%100
18	21	Z	-0.002	-0.002	0	%100
19	22	Z	-0.01	-0.01	0	%100
20	23	Z	-0.002	-0.002	0	%100
21	24	Z	-0.002	-0.002	0	%100
22	25	Z	-0.009	-0.009	0	%100
23	26	Z	-0.009	-0.009	0	%100
24	28	Z	-0.009	-0.009	0	%100
25	29	Z	-0.009	-0.009	0	%100
26	31	Z	-0.009	-0.009	0	%100
27	32	Z	-0.009	-0.009	0	%100
28	34	Z	-0.002	-0.002	0	%100
29	35	Z	-0.002	-0.002	0	%100
30	36	Z	-0.002	-0.002	0	%100
31	37	Z	-0.002	-0.002	0	%100
32	38	Z	-0.002	-0.002	0	%100
33	39	Z	-0.002	-0.002	0	%100
34	40	Z	-0.011	-0.011	0	%100
35	41	Z	-0.011	-0.011	0	%100
36	42	Z	-0.01	-0.01	0	%100
37	43	Z	-0.011	-0.011	0	%100
38	44	Z	-0.011	-0.011	0	%100
39	45	Z	-0.01	-0.01	0	%100
40	46	Z	-0.011	-0.011	0	%100
41	47	Z	-0.011	-0.011	0	%100
42	48	Z	-0.01	-0.01	0	%100
43	49	Z	-0.011	-0.011	0	%100
44	50	Z	-0.011	-0.011	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
45	51	Z	-0.01	-0.01	0	%100
46	52	Z	-0.011	-0.011	0	%100
47	53	Z	-0.011	-0.011	0	%100
48	54	Z	-0.01	-0.01	0	%100
49	55	Z	-0.011	-0.011	0	%100
50	56	Z	-0.011	-0.011	0	%100
51	57	Z	-0.01	-0.01	0	%100
52	58	Z	-0.011	-0.011	0	%100
53	59	Z	-0.011	-0.011	0	%100
54	60	Z	-0.01	-0.01	0	%100
55	61	Z	-0.011	-0.011	0	%100
56	62	Z	-0.011	-0.011	0	%100
57	63	Z	-0.01	-0.01	0	%100
58	64	Z	-0.011	-0.011	0	%100
59	65	Z	-0.011	-0.011	0	%100
60	66	Z	-0.01	-0.01	0	%100
61	67	Z	-0.01	-0.01	0	%100
62	68	Z	-0.01	-0.01	0	%100
63	69	Z	-0.01	-0.01	0	%100
64	78	Z	-0.009	-0.009	0	%100
65	79	Z	-0.009	-0.009	0	%100
66	80	Z	-0.009	-0.009	0	%100
67	81	Z	-0.009	-0.009	0	%100
68	90	Z	-0.009	-0.009	0	%100
69	91	Z	-0.009	-0.009	0	%100
70	92	Z	-0.009	-0.009	0	%100
71	93	Z	-0.009	-0.009	0	%100
72	102	Z	-0.009	-0.009	0	%100
73	103	Z	-0.009	-0.009	0	%100
74	104	Z	-0.009	-0.009	0	%100
75	105	Z	-0.009	-0.009	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.009	-0.009	0	%100
2	2	X	-0.009	-0.009	0	%100
3	4	X	-0.009	-0.009	0	%100
4	5	X	-0.009	-0.009	0	%100
5	7	X	-0.009	-0.009	0	%100
6	8	X	-0.009	-0.009	0	%100
7	10	X	-0.002	-0.002	0	%100
8	11	X	-0.002	-0.002	0	%100
9	12	X	-0.002	-0.002	0	%100
10	13	X	-0.002	-0.002	0	%100
11	14	X	-0.002	-0.002	0	%100
12	15	X	-0.002	-0.002	0	%100
13	16	X	-0.01	-0.01	0	%100
14	17	X	-0.002	-0.002	0	%100
15	18	X	-0.002	-0.002	0	%100
16	19	X	-0.01	-0.01	0	%100
17	20	X	-0.002	-0.002	0	%100
18	21	X	-0.002	-0.002	0	%100
19	22	X	-0.01	-0.01	0	%100
20	23	X	-0.002	-0.002	0	%100
21	24	X	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
22	25	X	-0.009	-0.009	0	%100
23	26	X	-0.009	-0.009	0	%100
24	28	X	-0.009	-0.009	0	%100
25	29	X	-0.009	-0.009	0	%100
26	31	X	-0.009	-0.009	0	%100
27	32	X	-0.009	-0.009	0	%100
28	34	X	-0.002	-0.002	0	%100
29	35	X	-0.002	-0.002	0	%100
30	36	X	-0.002	-0.002	0	%100
31	37	X	-0.002	-0.002	0	%100
32	38	X	-0.002	-0.002	0	%100
33	39	X	-0.002	-0.002	0	%100
34	40	X	-0.011	-0.011	0	%100
35	41	X	-0.011	-0.011	0	%100
36	42	X	-0.01	-0.01	0	%100
37	43	X	-0.011	-0.011	0	%100
38	44	X	-0.011	-0.011	0	%100
39	45	X	-0.01	-0.01	0	%100
40	46	X	-0.011	-0.011	0	%100
41	47	X	-0.011	-0.011	0	%100
42	48	X	-0.01	-0.01	0	%100
43	49	X	-0.011	-0.011	0	%100
44	50	X	-0.011	-0.011	0	%100
45	51	X	-0.01	-0.01	0	%100
46	52	X	-0.011	-0.011	0	%100
47	53	X	-0.011	-0.011	0	%100
48	54	X	-0.01	-0.01	0	%100
49	55	X	-0.011	-0.011	0	%100
50	56	X	-0.011	-0.011	0	%100
51	57	X	-0.01	-0.01	0	%100
52	58	X	-0.011	-0.011	0	%100
53	59	X	-0.011	-0.011	0	%100
54	60	X	-0.01	-0.01	0	%100
55	61	X	-0.011	-0.011	0	%100
56	62	X	-0.011	-0.011	0	%100
57	63	X	-0.01	-0.01	0	%100
58	64	X	-0.011	-0.011	0	%100
59	65	X	-0.011	-0.011	0	%100
60	66	X	-0.01	-0.01	0	%100
61	67	X	-0.01	-0.01	0	%100
62	68	X	-0.01	-0.01	0	%100
63	69	X	-0.01	-0.01	0	%100
64	78	X	-0.009	-0.009	0	%100
65	79	X	-0.009	-0.009	0	%100
66	80	X	-0.009	-0.009	0	%100
67	81	X	-0.009	-0.009	0	%100
68	90	X	-0.009	-0.009	0	%100
69	91	X	-0.009	-0.009	0	%100
70	92	X	-0.009	-0.009	0	%100
71	93	X	-0.009	-0.009	0	%100
72	102	X	-0.009	-0.009	0	%100
73	103	X	-0.009	-0.009	0	%100
74	104	X	-0.009	-0.009	0	%100
75	105	X	-0.009	-0.009	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.003	-0.003	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	4	Z	-0.003	-0.003	0	%100
4	5	Z	-0.002	-0.002	0	%100
5	7	Z	-0.003	-0.003	0	%100
6	8	Z	-0.002	-0.002	0	%100
7	10	Z	-0.007	-0.007	0	%100
8	11	Z	-0.006	-0.006	0	%100
9	12	Z	-0.007	-0.007	0	%100
10	13	Z	-0.006	-0.006	0	%100
11	14	Z	-0.007	-0.007	0	%100
12	15	Z	-0.006	-0.006	0	%100
13	16	Z	-0.006	-0.006	0	%100
14	17	Z	-0.006	-0.006	0	%100
15	18	Z	-0.006	-0.006	0	%100
16	19	Z	-0.006	-0.006	0	%100
17	20	Z	-0.006	-0.006	0	%100
18	21	Z	-0.006	-0.006	0	%100
19	22	Z	-0.006	-0.006	0	%100
20	23	Z	-0.006	-0.006	0	%100
21	24	Z	-0.006	-0.006	0	%100
22	25	Z	-0.003	-0.003	0	%100
23	26	Z	-0.002	-0.002	0	%100
24	28	Z	-0.003	-0.003	0	%100
25	29	Z	-0.002	-0.002	0	%100
26	31	Z	-0.003	-0.003	0	%100
27	32	Z	-0.002	-0.002	0	%100
28	34	Z	-0.007	-0.007	0	%100
29	35	Z	-0.006	-0.006	0	%100
30	36	Z	-0.007	-0.007	0	%100
31	37	Z	-0.006	-0.006	0	%100
32	38	Z	-0.007	-0.007	0	%100
33	39	Z	-0.006	-0.006	0	%100
34	40	Z	-0.008	-0.008	0	%100
35	41	Z	-0.008	-0.008	0	%100
36	42	Z	-0.006	-0.006	0	%100
37	43	Z	-0.008	-0.008	0	%100
38	44	Z	-0.008	-0.008	0	%100
39	45	Z	-0.006	-0.006	0	%100
40	46	Z	-0.008	-0.008	0	%100
41	47	Z	-0.008	-0.008	0	%100
42	48	Z	-0.006	-0.006	0	%100
43	49	Z	-0.008	-0.008	0	%100
44	50	Z	-0.008	-0.008	0	%100
45	51	Z	-0.006	-0.006	0	%100
46	52	Z	-0.008	-0.008	0	%100
47	53	Z	-0.008	-0.008	0	%100
48	54	Z	-0.006	-0.006	0	%100
49	55	Z	-0.008	-0.008	0	%100
50	56	Z	-0.008	-0.008	0	%100
51	57	Z	-0.006	-0.006	0	%100
52	58	Z	-0.008	-0.008	0	%100
53	59	Z	-0.008	-0.008	0	%100
54	60	Z	-0.006	-0.006	0	%100
55	61	Z	-0.008	-0.008	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
56	62	Z	-0.008	-0.008	0	%100
57	63	Z	-0.006	-0.006	0	%100
58	64	Z	-0.008	-0.008	0	%100
59	65	Z	-0.008	-0.008	0	%100
60	66	Z	-0.006	-0.006	0	%100
61	67	Z	-0.006	-0.006	0	%100
62	68	Z	-0.006	-0.006	0	%100
63	69	Z	-0.006	-0.006	0	%100
64	78	Z	-0.002	-0.002	0	%100
65	79	Z	-0.002	-0.002	0	%100
66	80	Z	-0.002	-0.002	0	%100
67	81	Z	-0.002	-0.002	0	%100
68	90	Z	-0.002	-0.002	0	%100
69	91	Z	-0.002	-0.002	0	%100
70	92	Z	-0.002	-0.002	0	%100
71	93	Z	-0.002	-0.002	0	%100
72	102	Z	-0.002	-0.002	0	%100
73	103	Z	-0.002	-0.002	0	%100
74	104	Z	-0.002	-0.002	0	%100
75	105	Z	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.003	-0.003	0	%100
2	2	X	-0.002	-0.002	0	%100
3	4	X	-0.003	-0.003	0	%100
4	5	X	-0.002	-0.002	0	%100
5	7	X	-0.003	-0.003	0	%100
6	8	X	-0.002	-0.002	0	%100
7	10	X	-0.007	-0.007	0	%100
8	11	X	-0.006	-0.006	0	%100
9	12	X	-0.007	-0.007	0	%100
10	13	X	-0.006	-0.006	0	%100
11	14	X	-0.007	-0.007	0	%100
12	15	X	-0.006	-0.006	0	%100
13	16	X	-0.006	-0.006	0	%100
14	17	X	-0.006	-0.006	0	%100
15	18	X	-0.006	-0.006	0	%100
16	19	X	-0.006	-0.006	0	%100
17	20	X	-0.006	-0.006	0	%100
18	21	X	-0.006	-0.006	0	%100
19	22	X	-0.006	-0.006	0	%100
20	23	X	-0.006	-0.006	0	%100
21	24	X	-0.006	-0.006	0	%100
22	25	X	-0.003	-0.003	0	%100
23	26	X	-0.002	-0.002	0	%100
24	28	X	-0.003	-0.003	0	%100
25	29	X	-0.002	-0.002	0	%100
26	31	X	-0.003	-0.003	0	%100
27	32	X	-0.002	-0.002	0	%100
28	34	X	-0.007	-0.007	0	%100
29	35	X	-0.006	-0.006	0	%100
30	36	X	-0.007	-0.007	0	%100
31	37	X	-0.006	-0.006	0	%100
32	38	X	-0.007	-0.007	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
33	39	X	-0.006	-0.006	0	%100
34	40	X	-0.008	-0.008	0	%100
35	41	X	-0.008	-0.008	0	%100
36	42	X	-0.006	-0.006	0	%100
37	43	X	-0.008	-0.008	0	%100
38	44	X	-0.008	-0.008	0	%100
39	45	X	-0.006	-0.006	0	%100
40	46	X	-0.008	-0.008	0	%100
41	47	X	-0.008	-0.008	0	%100
42	48	X	-0.006	-0.006	0	%100
43	49	X	-0.008	-0.008	0	%100
44	50	X	-0.008	-0.008	0	%100
45	51	X	-0.006	-0.006	0	%100
46	52	X	-0.008	-0.008	0	%100
47	53	X	-0.008	-0.008	0	%100
48	54	X	-0.006	-0.006	0	%100
49	55	X	-0.008	-0.008	0	%100
50	56	X	-0.008	-0.008	0	%100
51	57	X	-0.006	-0.006	0	%100
52	58	X	-0.008	-0.008	0	%100
53	59	X	-0.008	-0.008	0	%100
54	60	X	-0.006	-0.006	0	%100
55	61	X	-0.008	-0.008	0	%100
56	62	X	-0.008	-0.008	0	%100
57	63	X	-0.006	-0.006	0	%100
58	64	X	-0.008	-0.008	0	%100
59	65	X	-0.008	-0.008	0	%100
60	66	X	-0.006	-0.006	0	%100
61	67	X	-0.006	-0.006	0	%100
62	68	X	-0.006	-0.006	0	%100
63	69	X	-0.006	-0.006	0	%100
64	78	X	-0.002	-0.002	0	%100
65	79	X	-0.002	-0.002	0	%100
66	80	X	-0.002	-0.002	0	%100
67	81	X	-0.002	-0.002	0	%100
68	90	X	-0.002	-0.002	0	%100
69	91	X	-0.002	-0.002	0	%100
70	92	X	-0.002	-0.002	0	%100
71	93	X	-0.002	-0.002	0	%100
72	102	X	-0.002	-0.002	0	%100
73	103	X	-0.002	-0.002	0	%100
74	104	X	-0.002	-0.002	0	%100
75	105	X	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0004	-0.0004	0	%100
2	2	Z	-0.0003	-0.0003	0	%100
3	4	Z	-0.0004	-0.0004	0	%100
4	5	Z	-0.0003	-0.0003	0	%100
5	7	Z	-0.0004	-0.0004	0	%100
6	8	Z	-0.0003	-0.0003	0	%100
7	10	Z	-0.0001	-0.0001	0	%100
8	11	Z	-0.0001	-0.0001	0	%100
9	12	Z	-0.0001	-0.0001	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
10	13	Z	-0.0001	-0.0001	0	%100
11	14	Z	-0.0001	-0.0001	0	%100
12	15	Z	-0.0001	-0.0001	0	%100
13	16	Z	-0.0007	-0.0007	0	%100
14	17	Z	-0.0001	-0.0001	0	%100
15	18	Z	-0.0001	-0.0001	0	%100
16	19	Z	-0.0007	-0.0007	0	%100
17	20	Z	-0.0001	-0.0001	0	%100
18	21	Z	-0.0001	-0.0001	0	%100
19	22	Z	-0.0007	-0.0007	0	%100
20	23	Z	-0.0001	-0.0001	0	%100
21	24	Z	-0.0001	-0.0001	0	%100
22	25	Z	-0.0004	-0.0004	0	%100
23	26	Z	-0.0003	-0.0003	0	%100
24	28	Z	-0.0004	-0.0004	0	%100
25	29	Z	-0.0003	-0.0003	0	%100
26	31	Z	-0.0004	-0.0004	0	%100
27	32	Z	-0.0003	-0.0003	0	%100
28	34	Z	-0.0001	-0.0001	0	%100
29	35	Z	-0.0001	-0.0001	0	%100
30	36	Z	-0.0001	-0.0001	0	%100
31	37	Z	-0.0001	-0.0001	0	%100
32	38	Z	-0.0001	-0.0001	0	%100
33	39	Z	-0.0001	-0.0001	0	%100
34	40	Z	-0.0007	-0.0007	0	%100
35	41	Z	-0.0007	-0.0007	0	%100
36	42	Z	-0.0006	-0.0006	0	%100
37	43	Z	-0.0007	-0.0007	0	%100
38	44	Z	-0.0007	-0.0007	0	%100
39	45	Z	-0.0006	-0.0006	0	%100
40	46	Z	-0.0007	-0.0007	0	%100
41	47	Z	-0.0007	-0.0007	0	%100
42	48	Z	-0.0006	-0.0006	0	%100
43	49	Z	-0.0007	-0.0007	0	%100
44	50	Z	-0.0007	-0.0007	0	%100
45	51	Z	-0.0006	-0.0006	0	%100
46	52	Z	-0.0007	-0.0007	0	%100
47	53	Z	-0.0007	-0.0007	0	%100
48	54	Z	-0.0006	-0.0006	0	%100
49	55	Z	-0.0007	-0.0007	0	%100
50	56	Z	-0.0007	-0.0007	0	%100
51	57	Z	-0.0006	-0.0006	0	%100
52	58	Z	-0.0007	-0.0007	0	%100
53	59	Z	-0.0007	-0.0007	0	%100
54	60	Z	-0.0006	-0.0006	0	%100
55	61	Z	-0.0007	-0.0007	0	%100
56	62	Z	-0.0007	-0.0007	0	%100
57	63	Z	-0.0006	-0.0006	0	%100
58	64	Z	-0.0007	-0.0007	0	%100
59	65	Z	-0.0007	-0.0007	0	%100
60	66	Z	-0.0006	-0.0006	0	%100
61	67	Z	-0.0006	-0.0006	0	%100
62	68	Z	-0.0006	-0.0006	0	%100
63	69	Z	-0.0006	-0.0006	0	%100
64	78	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
65	79	Z	-0.0003	-0.0003	0	%100
66	80	Z	-0.0003	-0.0003	0	%100
67	81	Z	-0.0003	-0.0003	0	%100
68	90	Z	-0.0003	-0.0003	0	%100
69	91	Z	-0.0003	-0.0003	0	%100
70	92	Z	-0.0003	-0.0003	0	%100
71	93	Z	-0.0003	-0.0003	0	%100
72	102	Z	-0.0003	-0.0003	0	%100
73	103	Z	-0.0003	-0.0003	0	%100
74	104	Z	-0.0003	-0.0003	0	%100
75	105	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0004	-0.0004	0	%100
2	2	X	-0.0003	-0.0003	0	%100
3	4	X	-0.0004	-0.0004	0	%100
4	5	X	-0.0003	-0.0003	0	%100
5	7	X	-0.0004	-0.0004	0	%100
6	8	X	-0.0003	-0.0003	0	%100
7	10	X	-0.0001	-0.0001	0	%100
8	11	X	-0.0001	-0.0001	0	%100
9	12	X	-0.0001	-0.0001	0	%100
10	13	X	-0.0001	-0.0001	0	%100
11	14	X	-0.0001	-0.0001	0	%100
12	15	X	-0.0001	-0.0001	0	%100
13	16	X	-0.0007	-0.0007	0	%100
14	17	X	-0.0001	-0.0001	0	%100
15	18	X	-0.0001	-0.0001	0	%100
16	19	X	-0.0007	-0.0007	0	%100
17	20	X	-0.0001	-0.0001	0	%100
18	21	X	-0.0001	-0.0001	0	%100
19	22	X	-0.0007	-0.0007	0	%100
20	23	X	-0.0001	-0.0001	0	%100
21	24	X	-0.0001	-0.0001	0	%100
22	25	X	-0.0004	-0.0004	0	%100
23	26	X	-0.0003	-0.0003	0	%100
24	28	X	-0.0004	-0.0004	0	%100
25	29	X	-0.0003	-0.0003	0	%100
26	31	X	-0.0004	-0.0004	0	%100
27	32	X	-0.0003	-0.0003	0	%100
28	34	X	-0.0001	-0.0001	0	%100
29	35	X	-0.0001	-0.0001	0	%100
30	36	X	-0.0001	-0.0001	0	%100
31	37	X	-0.0001	-0.0001	0	%100
32	38	X	-0.0001	-0.0001	0	%100
33	39	X	-0.0001	-0.0001	0	%100
34	40	X	-0.0007	-0.0007	0	%100
35	41	X	-0.0007	-0.0007	0	%100
36	42	X	-0.0006	-0.0006	0	%100
37	43	X	-0.0007	-0.0007	0	%100
38	44	X	-0.0007	-0.0007	0	%100
39	45	X	-0.0006	-0.0006	0	%100
40	46	X	-0.0007	-0.0007	0	%100
41	47	X	-0.0007	-0.0007	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
42	48	X	-0.0006	-0.0006	0	%100
43	49	X	-0.0007	-0.0007	0	%100
44	50	X	-0.0007	-0.0007	0	%100
45	51	X	-0.0006	-0.0006	0	%100
46	52	X	-0.0007	-0.0007	0	%100
47	53	X	-0.0007	-0.0007	0	%100
48	54	X	-0.0006	-0.0006	0	%100
49	55	X	-0.0007	-0.0007	0	%100
50	56	X	-0.0007	-0.0007	0	%100
51	57	X	-0.0006	-0.0006	0	%100
52	58	X	-0.0007	-0.0007	0	%100
53	59	X	-0.0007	-0.0007	0	%100
54	60	X	-0.0006	-0.0006	0	%100
55	61	X	-0.0007	-0.0007	0	%100
56	62	X	-0.0007	-0.0007	0	%100
57	63	X	-0.0006	-0.0006	0	%100
58	64	X	-0.0007	-0.0007	0	%100
59	65	X	-0.0007	-0.0007	0	%100
60	66	X	-0.0006	-0.0006	0	%100
61	67	X	-0.0006	-0.0006	0	%100
62	68	X	-0.0006	-0.0006	0	%100
63	69	X	-0.0006	-0.0006	0	%100
64	78	X	-0.0003	-0.0003	0	%100
65	79	X	-0.0003	-0.0003	0	%100
66	80	X	-0.0003	-0.0003	0	%100
67	81	X	-0.0003	-0.0003	0	%100
68	90	X	-0.0003	-0.0003	0	%100
69	91	X	-0.0003	-0.0003	0	%100
70	92	X	-0.0003	-0.0003	0	%100
71	93	X	-0.0003	-0.0003	0	%100
72	102	X	-0.0003	-0.0003	0	%100
73	103	X	-0.0003	-0.0003	0	%100
74	104	X	-0.0003	-0.0003	0	%100
75	105	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.011	-0.011	0	%100
2	2	Y	-0.008	-0.008	0	%100
3	4	Y	-0.011	-0.011	0	%100
4	5	Y	-0.008	-0.008	0	%100
5	7	Y	-0.011	-0.011	0	%100
6	8	Y	-0.008	-0.008	0	%100
7	10	Y	-0.009	-0.009	0	%100
8	11	Y	-0.009	-0.009	0	%100
9	12	Y	-0.009	-0.009	0	%100
10	13	Y	-0.009	-0.009	0	%100
11	14	Y	-0.009	-0.009	0	%100
12	15	Y	-0.009	-0.009	0	%100
13	16	Y	-0.009	-0.009	0	%100
14	17	Y	-0.009	-0.009	0	%100
15	18	Y	-0.009	-0.009	0	%100
16	19	Y	-0.009	-0.009	0	%100
17	20	Y	-0.009	-0.009	0	%100
18	21	Y	-0.009	-0.009	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
19	22	Y	-0.009	-0.009	0	%100
20	23	Y	-0.009	-0.009	0	%100
21	24	Y	-0.009	-0.009	0	%100
22	25	Y	-0.011	-0.011	0	%100
23	26	Y	-0.008	-0.008	0	%100
24	28	Y	-0.011	-0.011	0	%100
25	29	Y	-0.008	-0.008	0	%100
26	31	Y	-0.011	-0.011	0	%100
27	32	Y	-0.008	-0.008	0	%100
28	34	Y	-0.009	-0.009	0	%100
29	35	Y	-0.009	-0.009	0	%100
30	36	Y	-0.009	-0.009	0	%100
31	37	Y	-0.009	-0.009	0	%100
32	38	Y	-0.009	-0.009	0	%100
33	39	Y	-0.009	-0.009	0	%100
34	40	Y	-0.009	-0.009	0	%100
35	41	Y	-0.009	-0.009	0	%100
36	42	Y	-0.008	-0.008	0	%100
37	43	Y	-0.009	-0.009	0	%100
38	44	Y	-0.009	-0.009	0	%100
39	45	Y	-0.008	-0.008	0	%100
40	46	Y	-0.009	-0.009	0	%100
41	47	Y	-0.009	-0.009	0	%100
42	48	Y	-0.008	-0.008	0	%100
43	49	Y	-0.009	-0.009	0	%100
44	50	Y	-0.009	-0.009	0	%100
45	51	Y	-0.008	-0.008	0	%100
46	52	Y	-0.009	-0.009	0	%100
47	53	Y	-0.009	-0.009	0	%100
48	54	Y	-0.008	-0.008	0	%100
49	55	Y	-0.009	-0.009	0	%100
50	56	Y	-0.009	-0.009	0	%100
51	57	Y	-0.008	-0.008	0	%100
52	58	Y	-0.009	-0.009	0	%100
53	59	Y	-0.009	-0.009	0	%100
54	60	Y	-0.008	-0.008	0	%100
55	61	Y	-0.009	-0.009	0	%100
56	62	Y	-0.009	-0.009	0	%100
57	63	Y	-0.008	-0.008	0	%100
58	64	Y	-0.009	-0.009	0	%100
59	65	Y	-0.009	-0.009	0	%100
60	66	Y	-0.008	-0.008	0	%100
61	67	Y	-0.008	-0.008	0	%100
62	68	Y	-0.008	-0.008	0	%100
63	69	Y	-0.008	-0.008	0	%100
64	78	Y	-0.008	-0.008	0	%100
65	79	Y	-0.008	-0.008	0	%100
66	80	Y	-0.008	-0.008	0	%100
67	81	Y	-0.008	-0.008	0	%100
68	90	Y	-0.008	-0.008	0	%100
69	91	Y	-0.008	-0.008	0	%100
70	92	Y	-0.008	-0.008	0	%100
71	93	Y	-0.008	-0.008	0	%100
72	102	Y	-0.008	-0.008	0	%100
73	103	Y	-0.008	-0.008	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
74	104	Y	-0.008	-0.008	0	%100
75	105	Y	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	4	Z	-0.002	-0.002	0	%100
4	5	Z	-0.001	-0.001	0	%100
5	7	Z	-0.002	-0.002	0	%100
6	8	Z	-0.001	-0.001	0	%100
7	10	Z	-0.0008	-0.0008	0	%100
8	11	Z	-0.0008	-0.0008	0	%100
9	12	Z	-0.0008	-0.0008	0	%100
10	13	Z	-0.0008	-0.0008	0	%100
11	14	Z	-0.0008	-0.0008	0	%100
12	15	Z	-0.0008	-0.0008	0	%100
13	16	Z	-0.0006	-0.0006	0	%100
14	17	Z	-0.0008	-0.0008	0	%100
15	18	Z	-0.0008	-0.0008	0	%100
16	19	Z	-0.0006	-0.0006	0	%100
17	20	Z	-0.0008	-0.0008	0	%100
18	21	Z	-0.0008	-0.0008	0	%100
19	22	Z	-0.0006	-0.0006	0	%100
20	23	Z	-0.0008	-0.0008	0	%100
21	24	Z	-0.0008	-0.0008	0	%100
22	25	Z	-0.002	-0.002	0	%100
23	26	Z	-0.001	-0.001	0	%100
24	28	Z	-0.002	-0.002	0	%100
25	29	Z	-0.001	-0.001	0	%100
26	31	Z	-0.002	-0.002	0	%100
27	32	Z	-0.001	-0.001	0	%100
28	34	Z	-0.0008	-0.0008	0	%100
29	35	Z	-0.0008	-0.0008	0	%100
30	36	Z	-0.0008	-0.0008	0	%100
31	37	Z	-0.0008	-0.0008	0	%100
32	38	Z	-0.0008	-0.0008	0	%100
33	39	Z	-0.0008	-0.0008	0	%100
34	40	Z	-0.0008	-0.0008	0	%100
35	41	Z	-0.0008	-0.0008	0	%100
36	42	Z	-0.0003	-0.0003	0	%100
37	43	Z	-0.0008	-0.0008	0	%100
38	44	Z	-0.0008	-0.0008	0	%100
39	45	Z	-0.0003	-0.0003	0	%100
40	46	Z	-0.0008	-0.0008	0	%100
41	47	Z	-0.0008	-0.0008	0	%100
42	48	Z	-0.0003	-0.0003	0	%100
43	49	Z	-0.0008	-0.0008	0	%100
44	50	Z	-0.0008	-0.0008	0	%100
45	51	Z	-0.0003	-0.0003	0	%100
46	52	Z	-0.0008	-0.0008	0	%100
47	53	Z	-0.0008	-0.0008	0	%100
48	54	Z	-0.0003	-0.0003	0	%100
49	55	Z	-0.0008	-0.0008	0	%100
50	56	Z	-0.0008	-0.0008	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
51	57	Z	-0.0003	-0.0003	0	%100
52	58	Z	-0.0008	-0.0008	0	%100
53	59	Z	-0.0008	-0.0008	0	%100
54	60	Z	-0.0003	-0.0003	0	%100
55	61	Z	-0.0008	-0.0008	0	%100
56	62	Z	-0.0008	-0.0008	0	%100
57	63	Z	-0.0003	-0.0003	0	%100
58	64	Z	-0.0008	-0.0008	0	%100
59	65	Z	-0.0008	-0.0008	0	%100
60	66	Z	-0.0003	-0.0003	0	%100
61	67	Z	-0.0003	-0.0003	0	%100
62	68	Z	-0.0003	-0.0003	0	%100
63	69	Z	-0.0003	-0.0003	0	%100
64	78	Z	-0.001	-0.001	0	%100
65	79	Z	-0.001	-0.001	0	%100
66	80	Z	-0.001	-0.001	0	%100
67	81	Z	-0.001	-0.001	0	%100
68	90	Z	-0.001	-0.001	0	%100
69	91	Z	-0.001	-0.001	0	%100
70	92	Z	-0.001	-0.001	0	%100
71	93	Z	-0.001	-0.001	0	%100
72	102	Z	-0.001	-0.001	0	%100
73	103	Z	-0.001	-0.001	0	%100
74	104	Z	-0.001	-0.001	0	%100
75	105	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.001	-0.001	0	%100
3	4	X	-0.002	-0.002	0	%100
4	5	X	-0.001	-0.001	0	%100
5	7	X	-0.002	-0.002	0	%100
6	8	X	-0.001	-0.001	0	%100
7	10	X	-0.0008	-0.0008	0	%100
8	11	X	-0.0008	-0.0008	0	%100
9	12	X	-0.0008	-0.0008	0	%100
10	13	X	-0.0008	-0.0008	0	%100
11	14	X	-0.0008	-0.0008	0	%100
12	15	X	-0.0008	-0.0008	0	%100
13	16	X	-0.0006	-0.0006	0	%100
14	17	X	-0.0008	-0.0008	0	%100
15	18	X	-0.0008	-0.0008	0	%100
16	19	X	-0.0006	-0.0006	0	%100
17	20	X	-0.0008	-0.0008	0	%100
18	21	X	-0.0008	-0.0008	0	%100
19	22	X	-0.0006	-0.0006	0	%100
20	23	X	-0.0008	-0.0008	0	%100
21	24	X	-0.0008	-0.0008	0	%100
22	25	X	-0.002	-0.002	0	%100
23	26	X	-0.001	-0.001	0	%100
24	28	X	-0.002	-0.002	0	%100
25	29	X	-0.001	-0.001	0	%100
26	31	X	-0.002	-0.002	0	%100
27	32	X	-0.001	-0.001	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
28	34	X	-0.0008	-0.0008	0	%100
29	35	X	-0.0008	-0.0008	0	%100
30	36	X	-0.0008	-0.0008	0	%100
31	37	X	-0.0008	-0.0008	0	%100
32	38	X	-0.0008	-0.0008	0	%100
33	39	X	-0.0008	-0.0008	0	%100
34	40	X	-0.0008	-0.0008	0	%100
35	41	X	-0.0008	-0.0008	0	%100
36	42	X	-0.0003	-0.0003	0	%100
37	43	X	-0.0008	-0.0008	0	%100
38	44	X	-0.0008	-0.0008	0	%100
39	45	X	-0.0003	-0.0003	0	%100
40	46	X	-0.0008	-0.0008	0	%100
41	47	X	-0.0008	-0.0008	0	%100
42	48	X	-0.0003	-0.0003	0	%100
43	49	X	-0.0008	-0.0008	0	%100
44	50	X	-0.0008	-0.0008	0	%100
45	51	X	-0.0003	-0.0003	0	%100
46	52	X	-0.0008	-0.0008	0	%100
47	53	X	-0.0008	-0.0008	0	%100
48	54	X	-0.0003	-0.0003	0	%100
49	55	X	-0.0008	-0.0008	0	%100
50	56	X	-0.0008	-0.0008	0	%100
51	57	X	-0.0003	-0.0003	0	%100
52	58	X	-0.0008	-0.0008	0	%100
53	59	X	-0.0008	-0.0008	0	%100
54	60	X	-0.0003	-0.0003	0	%100
55	61	X	-0.0008	-0.0008	0	%100
56	62	X	-0.0008	-0.0008	0	%100
57	63	X	-0.0003	-0.0003	0	%100
58	64	X	-0.0008	-0.0008	0	%100
59	65	X	-0.0008	-0.0008	0	%100
60	66	X	-0.0003	-0.0003	0	%100
61	67	X	-0.0003	-0.0003	0	%100
62	68	X	-0.0003	-0.0003	0	%100
63	69	X	-0.0003	-0.0003	0	%100
64	78	X	-0.001	-0.001	0	%100
65	79	X	-0.001	-0.001	0	%100
66	80	X	-0.001	-0.001	0	%100
67	81	X	-0.001	-0.001	0	%100
68	90	X	-0.001	-0.001	0	%100
69	91	X	-0.001	-0.001	0	%100
70	92	X	-0.001	-0.001	0	%100
71	93	X	-0.001	-0.001	0	%100
72	102	X	-0.001	-0.001	0	%100
73	103	X	-0.001	-0.001	0	%100
74	104	X	-0.001	-0.001	0	%100
75	105	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 33 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.008	-0.008	1.546	2.485
2	2	Y	-0.0002612	-0.002	1.267	2.28
3	2	Y	-0.002	-0.006	2.28	3.293
4	2	Y	-0.006	-0.009	3.293	4.307

Member Distributed Loads (BLC 33 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
5	2	Y	-0.009	-0.006	4.307	5.32
6	2	Y	-0.006	-0.0002612	5.32	6.333
7	19	Y	-9.747e-5	-0.005	0	0.303
8	19	Y	-0.005	-0.007	0.303	0.607
9	19	Y	-0.007	-0.003	0.607	0.91
10	19	Y	-0.003	-0.0004809	0.91	1.213
11	19	Y	-0.0004809	-9.747e-5	1.213	1.517
12	21	Y	0.002	0.002	0	0.104
13	21	Y	0.002	-0.012	0.104	0.208
14	21	Y	-0.012	-0.039	0.208	0.312
15	4	Y	-0.016	-0.016	1.546	2.485
16	5	Y	-0.0004188	-0.006	1.267	3.293
17	5	Y	-0.006	-0.006	3.293	5.32
18	5	Y	-0.006	-0.006	5.32	7.347
19	5	Y	-0.006	-0.006	7.347	9.373
20	5	Y	-0.006	-0.0004188	9.373	11.4
21	16	Y	-9.747e-5	-0.0004809	0.65	0.953
22	16	Y	-0.0004809	-0.003	0.953	1.257
23	16	Y	-0.003	-0.007	1.257	1.56
24	16	Y	-0.007	-0.005	1.56	1.863
25	16	Y	-0.005	-9.747e-5	1.863	2.167
26	17	Y	0.002	0.002	0	0.104
27	17	Y	0.002	-0.012	0.104	0.208
28	17	Y	-0.012	-0.039	0.208	0.312
29	22	Y	-9.828e-5	-0.005	0	0.303
30	22	Y	-0.005	-0.007	0.303	0.607
31	22	Y	-0.007	-0.003	0.607	0.91
32	22	Y	-0.003	-0.0004791	0.91	1.213
33	22	Y	-0.0004791	-9.828e-5	1.213	1.517
34	24	Y	0.002	0.002	0	0.104
35	24	Y	0.002	-0.012	0.104	0.208
36	24	Y	-0.012	-0.04	0.208	0.313
37	7	Y	-0.016	-0.016	1.546	2.485
38	8	Y	-0.0004188	-0.006	1.267	3.293
39	8	Y	-0.006	-0.006	3.293	5.32
40	8	Y	-0.006	-0.006	5.32	7.347
41	8	Y	-0.006	-0.006	7.347	9.373
42	8	Y	-0.006	-0.0004188	9.373	11.4
43	16	Y	-9.747e-5	-0.005	0	0.303
44	16	Y	-0.005	-0.007	0.303	0.607
45	16	Y	-0.007	-0.003	0.607	0.91
46	16	Y	-0.003	-0.0004809	0.91	1.213
47	16	Y	-0.0004809	-9.747e-5	1.213	1.517
48	18	Y	0.002	0.002	0	0.104
49	18	Y	0.002	-0.012	0.104	0.208
50	18	Y	-0.012	-0.039	0.208	0.312
51	19	Y	-9.828e-5	-0.0004791	0.65	0.953
52	19	Y	-0.0004791	-0.003	0.953	1.257
53	19	Y	-0.003	-0.007	1.257	1.56
54	19	Y	-0.007	-0.005	1.56	1.863
55	19	Y	-0.005	-9.828e-5	1.863	2.167
56	20	Y	0.002	0.002	0	0.104
57	20	Y	0.002	-0.012	0.104	0.208
58	20	Y	-0.012	-0.04	0.208	0.313

Member Distributed Loads (BLC 34 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.006	-0.006	1.546	2.485
2	2	Y	-0.0002117	-0.002	1.267	2.28
3	2	Y	-0.002	-0.005	2.28	3.293
4	2	Y	-0.005	-0.007	3.293	4.307
5	2	Y	-0.007	-0.005	4.307	5.32
6	2	Y	-0.005	-0.0002117	5.32	6.333
7	19	Y	-7.898e-5	-0.004	0	0.303
8	19	Y	-0.004	-0.006	0.303	0.607
9	19	Y	-0.006	-0.003	0.607	0.91
10	19	Y	-0.003	-0.0003897	0.91	1.213
11	19	Y	-0.0003897	-7.898e-5	1.213	1.517
12	21	Y	0.002	0.002	0	0.104
13	21	Y	0.002	-0.009	0.104	0.208
14	21	Y	-0.009	-0.032	0.208	0.312
15	4	Y	-0.013	-0.013	1.546	2.485
16	5	Y	-0.000335	-0.005	1.267	3.293
17	5	Y	-0.005	-0.005	3.293	5.32
18	5	Y	-0.005	-0.005	5.32	7.347
19	5	Y	-0.005	-0.005	7.347	9.373
20	5	Y	-0.005	-0.000335	9.373	11.4
21	16	Y	-7.798e-5	-0.0003847	0.65	0.953
22	16	Y	-0.0003847	-0.003	0.953	1.257
23	16	Y	-0.003	-0.006	1.257	1.56
24	16	Y	-0.006	-0.004	1.56	1.863
25	16	Y	-0.004	-7.798e-5	1.863	2.167
26	17	Y	0.002	0.002	0	0.104
27	17	Y	0.002	-0.009	0.104	0.208
28	17	Y	-0.009	-0.031	0.208	0.312
29	22	Y	-7.862e-5	-0.004	0	0.303
30	22	Y	-0.004	-0.006	0.303	0.607
31	22	Y	-0.006	-0.003	0.607	0.91
32	22	Y	-0.003	-0.0003833	0.91	1.213
33	22	Y	-0.0003833	-7.862e-5	1.213	1.517
34	24	Y	0.002	0.002	0	0.104
35	24	Y	0.002	-0.01	0.104	0.208
36	24	Y	-0.01	-0.032	0.208	0.313
37	7	Y	-0.013	-0.013	1.546	2.485
38	8	Y	-0.000335	-0.005	1.267	3.293
39	8	Y	-0.005	-0.005	3.293	5.32
40	8	Y	-0.005	-0.005	5.32	7.347
41	8	Y	-0.005	-0.005	7.347	9.373
42	8	Y	-0.005	-0.000335	9.373	11.4
43	16	Y	-7.798e-5	-0.004	0	0.303
44	16	Y	-0.004	-0.006	0.303	0.607
45	16	Y	-0.006	-0.003	0.607	0.91
46	16	Y	-0.003	-0.0003847	0.91	1.213
47	16	Y	-0.0003847	-7.798e-5	1.213	1.517
48	18	Y	0.002	0.002	0	0.104
49	18	Y	0.002	-0.009	0.104	0.208
50	18	Y	-0.009	-0.031	0.208	0.312
51	19	Y	-7.862e-5	-0.0003833	0.65	0.953
52	19	Y	-0.0003833	-0.003	0.953	1.257
53	19	Y	-0.003	-0.006	1.257	1.56
54	19	Y	-0.006	-0.004	1.56	1.863
55	19	Y	-0.004	-7.862e-5	1.863	2.167

Member Distributed Loads (BLC 34 : BLC 8 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
56	20	Y	0.002	0.002	0	0.104
57	20	Y	0.002	-0.01	0.104	0.208
58	20	Y	-0.01	-0.032	0.208	0.313

Member Area Loads (BLC 1 : Dead)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	115	106	107	108	Y	Two Way	-0.01
2	114	110	109	111	Y	Two Way	-0.01
3	114	112	113	115	Y	Two Way	-0.01

Member Area Loads (BLC 8 : Ice)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	115	106	107	108	Y	Two Way	-0.008
2	114	110	109	111	Y	Two Way	-0.008
3	114	112	113	115	Y	Two Way	-0.008

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	116	L	Y	-0.5
2	167	L	Y	-0.5
3	143	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	120	L	Y	-0.5
2	171	L	Y	-0.5
3	147	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	124	L	Y	-0.5
2	175	L	Y	-0.5
3	151	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	128	L	Y	-0.5
2	179	L	Y	-0.5
3	155	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		30		3
2	0 Wind - No Ice	WLZ			30	75	
3	90 Wind - No Ice	WLX			30	75	
4	0 Wind - Ice	WLZ			30	75	

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
5	90 Wind - Ice	WLX			30	75	
6	0 Wind - Service	WLZ			30	75	
7	90 Wind - Service	WLX			30	75	
8	Ice	OL1			30	75	3
9	0 Seismic	ELZ			30	75	
10	90 Seismic	ELX			30	75	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL		3			
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	Maint LL 16	LL			1		
31	Maint LL 17	LL			1		
32	Maint LL 18	LL			1		
33	BLC 1 Transient Area Loads	None				58	
34	BLC 8 Transient Area Loads	None				58	

Load Combinations

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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	41	max	0.715	6	1.273	19	1.299	2	1.047	15	2.825	13	-0.875	11
2		min	-0.608	12	0.414	2	-1.103	8	0.242	9	-2.564	7	-2.653	17
3	9	max	0.506	6	1.295	15	0.662	2	1.096	14	1.649	13	-0.795	10
4		min	-0.587	12	0.353	9	-0.827	8	0.169	8	-1.844	7	-2.653	17
5	33	max	0.768	5	1.318	16	0.845	2	-0.827	2	1.632	5	0.148	62
6		min	-0.926	11	0.44	90	-1.024	8	-2.949	20	-1.955	11	-0.201	44
7	37	max	0.574	4	1.199	24	1.549	2	1.518	25	2.629	9	2.243	25
8		min	-0.66	10	0.387	86	-1.309	8	0.491	7	-2.962	3	0.603	7
9	1	max	0.709	5	1.355	20	0.558	2	-0.639	2	1.377	5	0.227	72
10		min	-0.558	11	0.277	2	-0.432	8	-2.976	20	-1.082	11	-0.145	54
11	5	max	0.472	5	1.228	25	0.708	2	1.589	14	1.807	9	2.227	24
12		min	-0.406	11	0.296	7	-0.926	8	0.334	8	-1.507	3	0.559	6
13	Totals:	max	3.64	5	7.562	14	5.62	2						
14		min	-3.64	11	2.73	8	-5.62	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PIPE_3.0	0.534	0	18	0.1	0		22	62.917	65.205	5.749	5.749	1	H1-1b
2	2	PIPE_2.0	0.482	6.333	19	0.229	6.333		21	6.131	32.13	1.872	1.872	1	H1-1b
3	4	PIPE_3.0	0.492	0	21	0.115	0		14	62.917	65.205	5.749	5.749	1	H1-1b
4	5	PIPE_2.0	0.457	6.333	20	0.205	6.333		25	6.131	32.13	1.872	1.872	1	H1-1b
5	7	PIPE_3.0	0.51	0	19	0.153	0		19	62.917	65.205	5.749	5.749	1	H1-1b
6	8	PIPE_2.0	0.558	6.333	19	0.238	6.333		15	6.131	32.13	1.872	1.872	1	H1-1b
7	10	PL3/8"X2.75"	0.242	0	81	0.077	0.003	y	39	32.051	33.413	0.261	1.914	1.667	H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
8	11	PL3/8"X2.75"	0.228	0	80	0.04	0	y	45	31.367	33.413	0.261	1.914	1.972	H1-1b
9	12	PL3/8"X2.75"	0.232	0	40	0.124	0	y	38	32.051	33.413	0.261	1.914	1.667	H1-1b
10	13	PL3/8"X2.75"	0.155	0	40	0.063	0	y	49	31.367	33.413	0.261	1.914	1.971	H1-1b
11	14	PL3/8"X2.75"	0.227	0	78	0.048	0	y	18	32.051	33.413	0.261	1.914	1.667	H1-1b
12	15	PL3/8"X2.75"	0.197	0	76	0.026	0	y	5	31.367	33.413	0.261	1.914	1.972	H1-1b
13	16	L2X2X3	0.031	1.083	14	0.008	2.167	y	69	18.49	23.393	0.558	1.214	1.124	H2-1
14	17	PL3/8"X2.75"	0.031	0	14	0.01	0.195	y	9	31.367	33.413	0.261	1.914	2.421	H1-1b
15	18	PL3/8"X2.75"	0.032	0	15	0.01	0.195	y	9	31.367	33.413	0.261	1.914	2.422	H1-1b
16	19	L2X2X3	0.037	1.083	19	0.008	0	y	23	18.49	23.393	0.558	1.215	1.126	H2-1
17	20	PL3/8"X2.75"	0.039	0	19	0.013	0.195	y	7	31.367	33.413	0.261	1.914	2.422	H1-1b
18	21	PL3/8"X2.75"	0.04	0	19	0.014	0.195	y	7	31.367	33.413	0.261	1.914	2.423	H1-1b
19	22	L2X2X3	0.028	0.97	23	0.013	0	y	25	18.49	23.393	0.558	1.22	1.156	H2-1
20	23	PL3/8"X2.75"	0.022	0	23	0.01	0.195	y	12	31.367	33.413	0.261	1.914	2.422	H1-1b
21	24	PL3/8"X2.75"	0.034	0	23	0.011	0.195	y	12	31.367	33.413	0.261	1.914	2.423	H1-1b
22	25	PIPE 3.0	0.54	0	23	0.088	0		45	62.917	65.205	5.749	5.749	1	H1-1b
23	26	PIPE 2.0	0.628	6.333	2	0.342	6.333		2	6.131	32.13	1.872	1.872	1	H3-6
24	28	PIPE 3.0	0.548	0	3	0.108	0		15	62.917	65.205	5.749	5.749	1	H1-1b
25	29	PIPE 2.0	0.537	6.333	13	0.213	6.333		7	6.131	32.13	1.872	1.872	1	H1-1b
26	31	PIPE 3.0	0.528	0	25	0.153	0		20	62.917	65.205	5.749	5.749	1	H1-1b
27	32	PIPE 2.0	0.463	6.333	15	0.244	6.333		21	6.131	32.13	1.872	1.872	1	H1-1b
28	34	PL3/8"X2.75"	0.205	0	79	0.066	0.003	y	43	32.051	33.413	0.261	1.914	1.667	H1-1b
29	35	PL3/8"X2.75"	0.173	0	80	0.034	0	y	45	31.367	33.413	0.261	1.914	1.972	H1-1b
30	36	PL3/8"X2.75"	0.169	0	44	0.091	0	y	38	32.051	33.413	0.261	1.914	1.667	H1-1b
31	37	PL3/8"X2.75"	0.158	0	2	0.046	0.251	y	38	31.367	33.413	0.261	1.914	1.972	H1-1b
32	38	PL3/8"X2.75"	0.189	0	80	0.071	0.003	y	83	32.051	33.413	0.261	1.914	1.666	H1-1b
33	39	PL3/8"X2.75"	0.146	0	78	0.036	0	y	83	31.367	33.413	0.261	1.914	1.972	H1-1b
34	40	PL3/8"X2.75"	0.098	0	77	0.007	0.169	y	78	31.367	33.413	0.261	1.914	1.082	H1-1b
35	41	PL3/8"X2.75"	0.108	0.313	20	0.008	0.143	y	82	31.367	33.413	0.261	1.914	1.085	H1-1b
36	42	L1.5X1.5X1/8	0.315	3.514	23	0.03	3.552	y	80	3.679	11.644	0.214	0.409	1.5	H2-1
37	43	PL3/8"X2.75"	0.444	0	20	0.078	0.169	y	21	31.367	33.413	0.261	1.914	1.367	H1-1b
38	44	PL3/8"X2.75"	0.208	0.313	14	0.018	0.143	z	14	31.367	33.413	0.261	1.914	2.505	H1-1b
39	45	L1.5X1.5X1/8	0.703	0.153	23	0.253	0.153	z	22	3.679	11.644	0.214	0.409	1.5	H2-1
40	46	PL3/8"X2.75"	0.094	0	2	0.007	0.169	z	8	31.367	33.413	0.261	1.914	1.1	H1-1b
41	47	PL3/8"X2.75"	0.089	0.313	20	0.068	0.313	y	18	31.367	33.413	0.261	1.914	1.893	H1-1b
42	48	L1.5X1.5X1/8	0.354	3.514	24	0.032	0.115	y	8	3.679	11.644	0.214	0.409	1.5	H2-1
43	49	PL3/8"X2.75"	0.065	0	18	0.005	0.169	y	21	31.367	33.413	0.261	1.914	1.088	H1-1b
44	50	PL3/8"X2.75"	0.08	0.313	24	0.005	0.143	y	14	31.367	33.413	0.261	1.914	1.089	H1-1b
45	51	L1.5X1.5X1/8	0.212	3.514	15	0.022	3.552	y	24	3.679	11.644	0.214	0.409	1.5	H2-1
46	52	PL3/8"X2.75"	0.297	0	24	0.059	0	y	14	31.367	33.413	0.261	1.914	2.301	H1-1b
47	53	PL3/8"X2.75"	0.221	0.313	19	0.018	0.143	z	18	31.367	33.413	0.261	1.914	1.15	H1-1b
48	54	L1.5X1.5X1/8	0.23	3.514	17	0.088	3.552	y	18	3.679	11.644	0.214	0.409	1.5	H2-1
49	55	PL3/8"X2.75"	0.08	0	18	0.006	0.169	y	20	31.367	33.413	0.261	1.914	1.081	H1-1b
50	56	PL3/8"X2.75"	0.088	0.313	24	0.053	0.313	y	23	31.367	33.413	0.261	1.914	1.394	H1-1b
51	57	L1.5X1.5X1/8	0.407	3.514	16	0.022	0.115	y	5	3.679	11.644	0.214	0.409	1.5	H2-1
52	58	PL3/8"X2.75"	0.076	0	42	0.005	0.169	y	44	31.367	33.413	0.261	1.914	1.087	H1-1b
53	59	PL3/8"X2.75"	0.103	0.313	16	0.051	0.313	y	43	31.367	33.413	0.261	1.914	2.887	H1-1b
54	60	L1.5X1.5X1/8	0.268	3.514	39	0.023	0	y	44	3.679	11.644	0.214	0.409	1.5	H2-1
55	61	PL3/8"X2.75"	0.283	0.166	16	0.05	0.166	y	42	31.367	33.413	0.261	1.914	1.232	H1-1b
56	62	PL3/8"X2.75"	0.305	0.313	23	0.023	0.143	z	22	31.367	33.413	0.261	1.914	1.106	H1-1b
57	63	L1.5X1.5X1/8	0.439	3.514	14	0.117	0.115	y	15	3.679	11.644	0.214	0.409	1.5	H2-1
58	64	PL3/8"X2.75"	0.096	0	16	0.007	0.169	z	3	31.367	33.413	0.261	1.914	1.099	H1-1b
59	65	PL3/8"X2.75"	0.086	0.313	23	0.006	0.143	z	22	31.367	33.413	0.261	1.914	1.117	H1-1b
60	66	L1.5X1.5X1/8	0.236	0.153	42	0.034	0.115	y	75	3.679	11.644	0.214	0.409	1.5	H2-1
61	67	L1.5X1.5X1/8	0.472	3.469	16	0.012	6.937	z	17	1.028	11.644	0.214	0.295	1.136	H2-1
62	68	L1.5X1.5X1/8	0.469	3.551	20	0.012	7.103	z	19	0.98	11.644	0.214	0.291	1.136	H2-1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
63	69	L1.5X1.5X1/8	0.474	3.551	20	0.011	7.103	y	21	0.98	11.644	0.214	0.291	1.136	H2-1
64	78	PIPE_2.0	0.287	0.833	80	0.058	4.792		13	23.809	32.13	1.872	1.872	1	H1-1b
65	79	PIPE_2.0	0.378	4.792	45	0.04	0.833		18	23.809	32.13	1.872	1.872	1	H1-1b
66	80	PIPE_2.0	0.606	3.333	8	0.097	3.333		2	9.837	32.13	1.872	1.872	1	H1-1b
67	81	PIPE_2.0	0.146	1.125	8	0.059	1.125		7	20.867	32.13	1.872	1.872	1	H1-1b
68	90	PIPE_2.0	0.061	5.063	57	0.049	1.125		3	20.867	32.13	1.872	1.872	1	H1-1b
69	91	PIPE_2.0	0.139	0.833	15	0.029	4.792		20	23.809	32.13	1.872	1.872	1	H1-1b
70	92	PIPE_2.0	0.624	3.333	2	0.086	3.333		8	9.837	32.13	1.872	1.872	1	H1-1b
71	93	PIPE_2.0	0.223	0.833	42	0.073	0.833		2	23.809	32.13	1.872	1.872	1	H1-1b
72	102	PIPE_2.0	0.164	1.125	22	0.048	1.125		9	20.867	32.13	1.872	1.872	1	H1-1b
73	103	PIPE_2.0	0.608	3.333	2	0.061	3.333		13	9.837	32.13	1.872	1.872	1	H1-1b
74	104	PIPE_2.0	0.259	0.833	49	0.046	4.792		15	23.809	32.13	1.872	1.872	1	H1-1b
75	105	PIPE_2.0	0.173	0.833	25	0.04	0.833		11	23.809	32.13	1.872	1.872	1	H1-1b

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CTHA502A

Crown West Hartford Monopole
1358 New Britain Avenue
West Hartford, CT 06110

August 15, 2022

Fox Hill Telecom Project Number: 221568

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**27.03 %**

Fox Hill Telecom

August 15, 2022

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

Emissions Analysis for Site: **CTHA502A – Crown West Hartford Monopole**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **1358 New Britain Avenue, West Hartford, 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 **1358 New Britain Avenue, West Hartford, 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	116
A	2	Ericsson AIR6419 B41	116
B	1	RFS APXVAALL24_43-U-NA20	116
B	2	Ericsson AIR6419 B41	116
C	1	RFS APXVAALL24_43-U-NA20	116
C	2	Ericsson AIR6419 B41	116

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 / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	455	18,843.43	6.77
Antenna A2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	6.71
						Sector A Composite MPE%	**13.48**
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	455	18,843.43	6.77
Antenna B2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	6.71
						Sector B Composite MPE%	**13.48**
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	455	18,843.43	6.77
Antenna C2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	6.71
						Sector C Composite MPE%	**13.48**

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	**13.48 %**
DISH	2.48 %
Nextel	0.47 %
Clearwire	0.13 %
AT&T	0.50 %
Verizon Wireless	9.97 %
MetroPCS (to be removed)	0.00 %
Site Total MPE %:	**27.03 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	13.48 %
T-MOBILE Sector B Total:	13.48 %
T-MOBILE Sector C Total:	13.48 %
Site Total:	27.03 %

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	116	5.51	600 MHz	400	1.38%
T-Mobile 700 MHz LTE	2	485.32	116	2.88	700 MHz	467	0.62%
T-Mobile 1900 MHz (PCS) LTE	4	1,849.52	116	21.98	1900 MHz (PCS)	1000	2.20%
T-Mobile 1900 MHz (PCS) GSM	1	693.57	116	2.06	1900 MHz (PCS)	1000	0.21%
T-Mobile 2100 MHz (AWS) LTE	4	1,981.80	116	23.55	2100 MHz (AWS)	1000	2.36%
T-Mobile 2500 MHz (BRS) LTE / 5G NR	8	2,825.08	116	67.15	2500 MHz (BRS)	1000	6.71%
						Total:	**13.48%**

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:	13.48 %
Sector B:	13.48 %
Sector C:	13.48 %
T-MOBILE Maximum Total (per sector):	13.48 %
Site Total:	27.03 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **27.03 %** 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: CTHA502A
T-MOBILE SITE NAME: CROWN WEST HARTFORD MONOPOLE
SITE TYPE: MONOPOLE
TOWER HEIGHT: 130'-0"

BUSINESS UNIT #: 876324
SITE ADDRESS: 1358 NEW BRITAIN AVENUE WEST HARTFORD, CT 06110
COUNTY: HARTFORD
JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE ANCHOR SITE CONFIGURATION: 67E5D998E 6160

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WEST HARTFORD UNITED METHODIST
SITE ADDRESS:	1358 NEW BRITAIN AVENUE WEST HARTFORD, CT 06110
COUNTY:	HARTFORD
MAP/PARCEL #:	0381 1 7 0001
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.730759°
LONGITUDE:	-72.753663°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	151'
CURRENT ZONING:	R-6 RESIDENCE DISTRICT
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	WEST HARTFORD METHODIST CHURCH 1358 NEW BRITAIN AVENUE WEST HARTFORD, CT 06110
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	CONNECTICUT LIGHT AND POWER COMPANY 1 (860) 947-2000
TELCO PROVIDER:	LIGHTOWER

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1505 WESTLAKE AVENUE NORTH, SUITE 800 SEATTLE, WA 98109 TRICIA 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-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

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

PROJECT DESCRIPTION

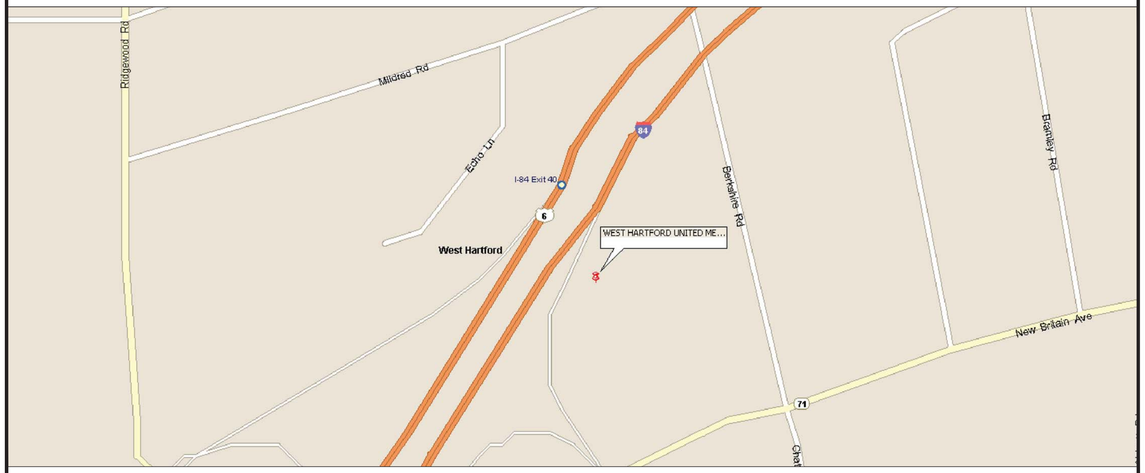
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (9) ANTENNAS
- REMOVE (9) RRHs
- REMOVE (6) DIPLEXERs
- REMOVE (6) 7/8" COAX CABLES
- REMOVE (4) HYBRID CABLES
- REMOVE (3) MOUNTS
- ROTATE (E) PLATFORM MOUNT ±50 DEGREES COUNTER CLOCKWISE TO REDUCE ANTENNA SKEWING
- INSTALL MOUNT MODIFICATIONS AS PER MOUNT ANALYSIS BY B+T GROUP DATED JUNE 28, 2022
- INSTALL (6) ANTENNAS
- INSTALL (6) RRHs
- INSTALL (3) HYBRID CABLES (1-5/8")

GROUND SCOPE OF WORK:
- REMOVE (1) LEGACY ODE CABINET
- REMOVE (1) DUW30
- REMOVE (3) RUS01 B2
- REMOVE (6) RUS01 B4
- RELOCATE (1) BB 6630
- INSTALL (1) 6160 AC V1 CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (2) RP 6651 IN 6160 AC V1 CABINET
- INSTALL (2) PSU 4813 VR4A (KIT) IN 6160 AC V1 CABINET
- INSTALL (1) CSR IXRE V2 (GEN2) IN 6160 AC V1 CABINET
- UPDATE CABINET BREAKER
- INSTALL (1) 2'-0"x4'-0" ICE BRIDGE

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	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	MORRISON HERSHFIELD
DATED:	7/7/22
MOUNT ANALYSIS:	B+T GROUP
DATED:	6/28/22
RFDS REVISION:	6
DATED:	8/11/22
ORDER ID:	622772
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
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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

T-MOBILE SITE NUMBER:
CTHA502A

BU #: **876324**
WEST HARTFORD UNITED METHODIST

1358 NEW BRITAIN AVENUE
WEST HARTFORD, CT 06110

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/22	DAS	PRELIMINARY REVIEW	KT
0	8/15/22	BLJ	CONSTRUCTION	ANP
1	8/22/22	BLJ	CONSTRUCTION	ANP

STATE OF CONNECTICUT
No. 23824
LICENSED
PROFESSIONAL ENGINEER
8/22/22

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

SHEET NUMBER: T-1
REVISION: 1

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
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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

T-MOBILE SITE NUMBER:
CTHA502A

BU #: **876324**
WEST HARTFORD UNITED METHODIST

1358 NEW BRITAIN AVENUE
WEST HARTFORD, CT 06110

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/22	DAS	PRELIMINARY REVIEW	KT
0	8/15/22	BLJ	CONSTRUCTION	ANP
1	8/22/22	BLJ	CONSTRUCTION	ANP

No. 23924
8/22/22

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

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

SHEET NUMBER:	REVISION:
T-2	1

127816.008.01_WEST HARTFORD UNITED METHODIST.dwg — Sheet:T–2 — User: ashley.pope — Aug 22, 2022 — 8:47pm

SITE PLAN DISCLAIMER:

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

1 OVERALL SITE PLAN
SCALE: 50' 25' 0 50' 1" = 50'-0" (FULL SIZE) 1" = 100'-0" (11x17)

N

T-Mobile
35 GRIFFIN ROAD
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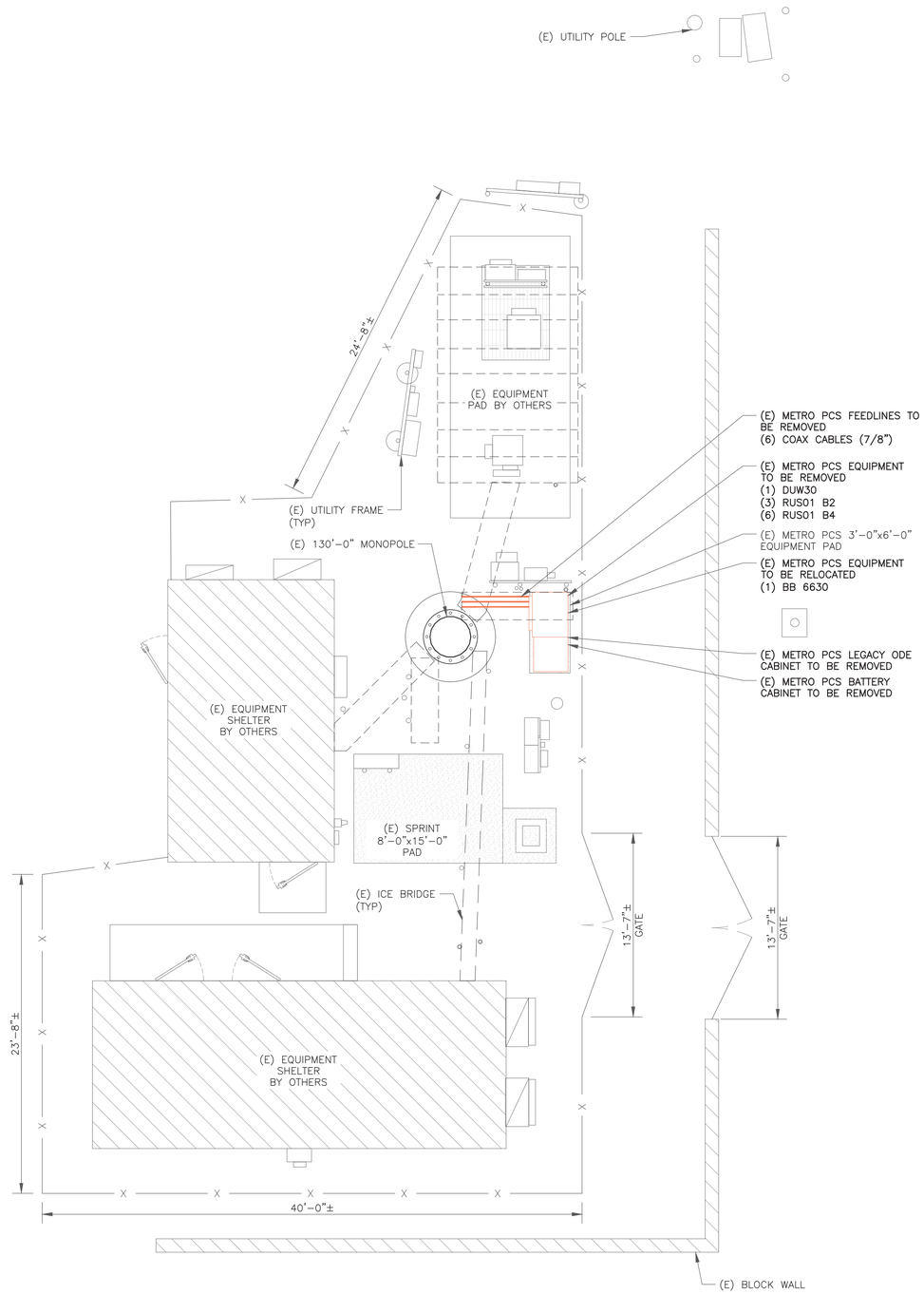
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

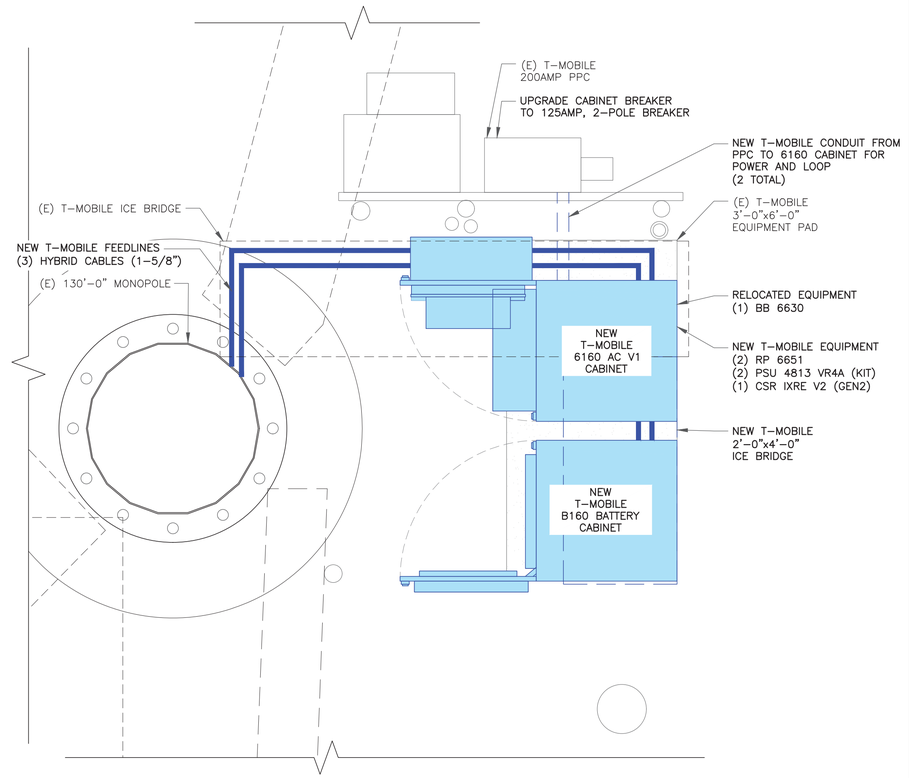
SHEET NUMBER: C-1.1
REVISION: 1

127816.008.01_WEST HARTFORD UNITED METHODIST.dwg – Sheet:C-1.1 – User: ashley.pope – Aug 22, 2022 – 8:47pm



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

N



2 ENLARGED SITE PLAN
SCALE: 1' 6" 0 1' 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

N

T-Mobile
35 GRIFFIN ROAD
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T-MOBILE SITE NUMBER:
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BU #: **876324**
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1358 NEW BRITAIN AVENUE
WEST HARTFORD, CT 06110

EXISTING
130'-0" MONOPOLE

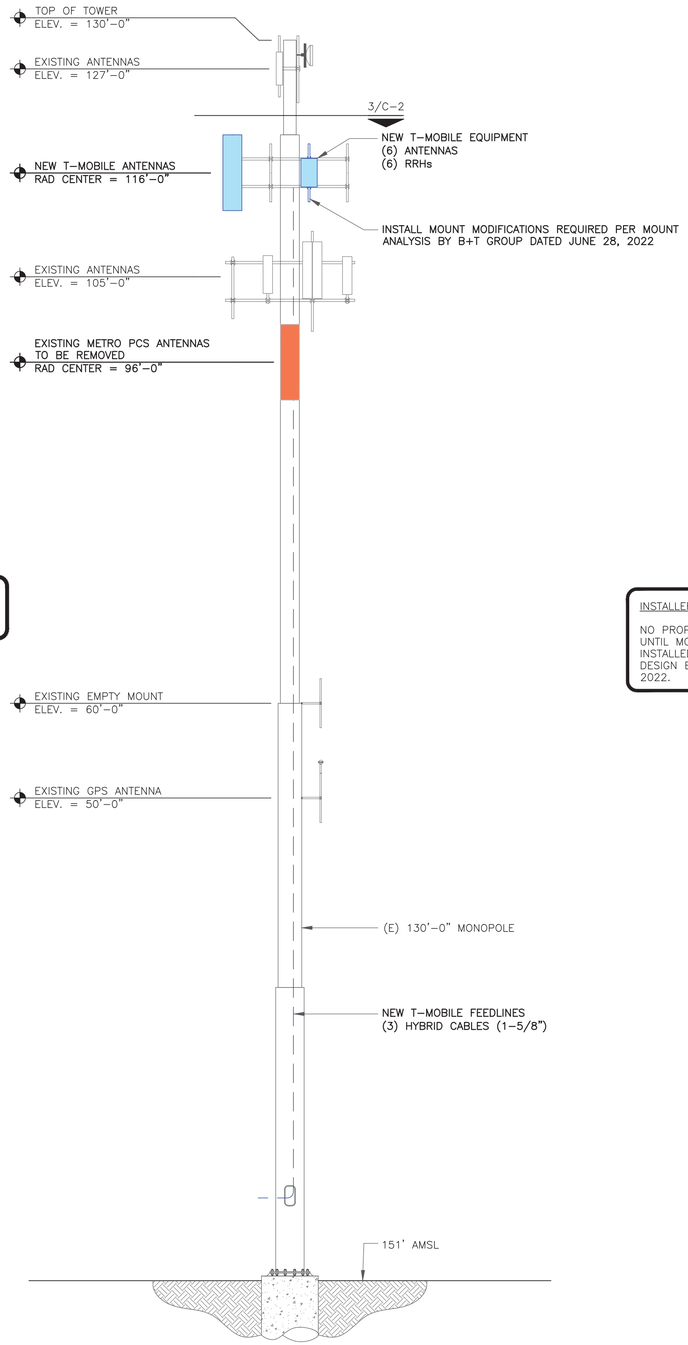
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/22	DAS	PRELIMINARY REVIEW	KT
0	8/15/22	BLJ	CONSTRUCTION	ANP
1	8/22/22	BLJ	CONSTRUCTION	ANP

STATE OF CONNECTICUT
No. 23824
LICENSED
PROFESSIONAL ENGINEER
8/22/22

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

SHEET NUMBER: C-1.2
REVISION: 1



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

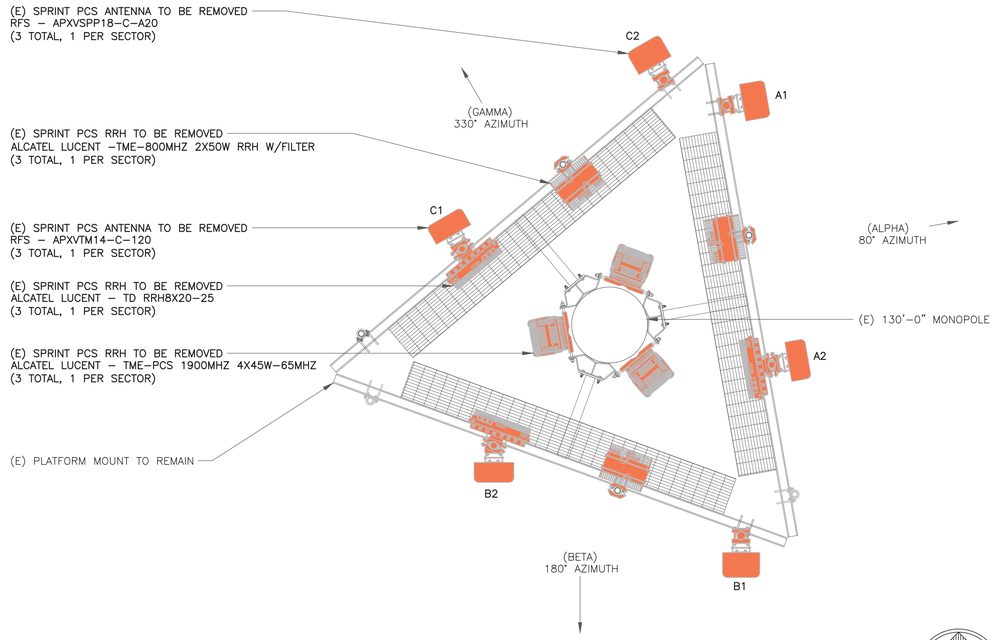
T-MOBILE EQUIPMENT

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

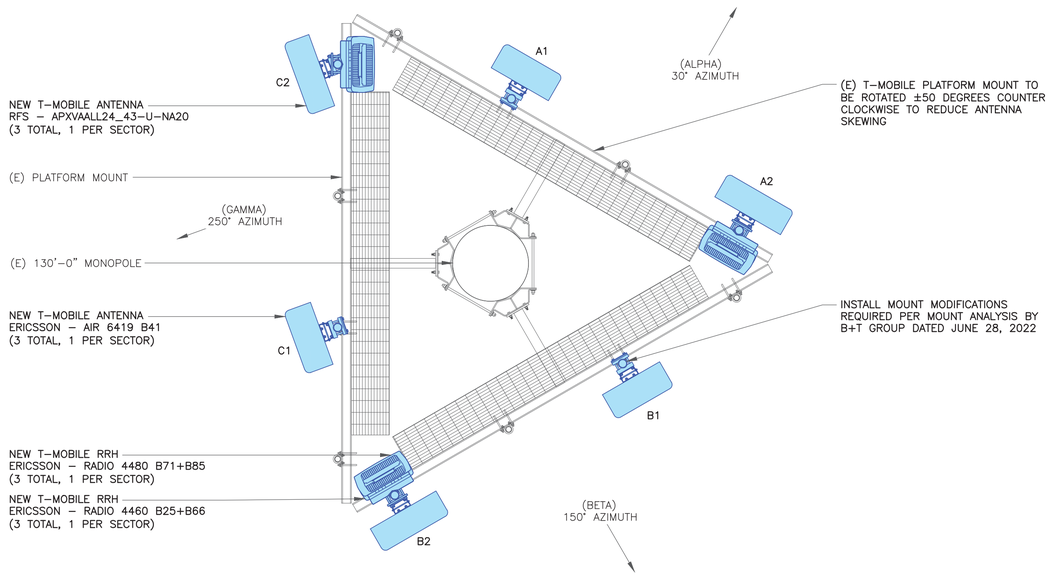
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

INSTALLER NOTE:

NO PROPOSED LOADING TO BE ADDED UNTIL MOUNT MODIFICATIONS ARE INSTALLED PER MOUNT MODIFICATION DESIGN BY B+T GROUP DATED JUNE 28, 2022.



2 EXISTING ANTENNA LAYOUT AT 116'-0" LEVEL
SCALE: 2' 1' 0 2' — 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)



3 FINAL ANTENNA LAYOUT AT 116'-0" LEVEL
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
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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

T-MOBILE SITE NUMBER:
CTHA502A

BU #: **876324**
WEST HARTFORD UNITED METHODIST

1358 NEW BRITAIN AVENUE
WEST HARTFORD, CT 06110

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/22	DAS	PRELIMINARY REVIEW	KT
0	8/15/22	BLJ	CONSTRUCTION	ANP
1	8/22/22	BLJ	CONSTRUCTION	ANP

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

SHEET NUMBER: C-2

REVISION: 1

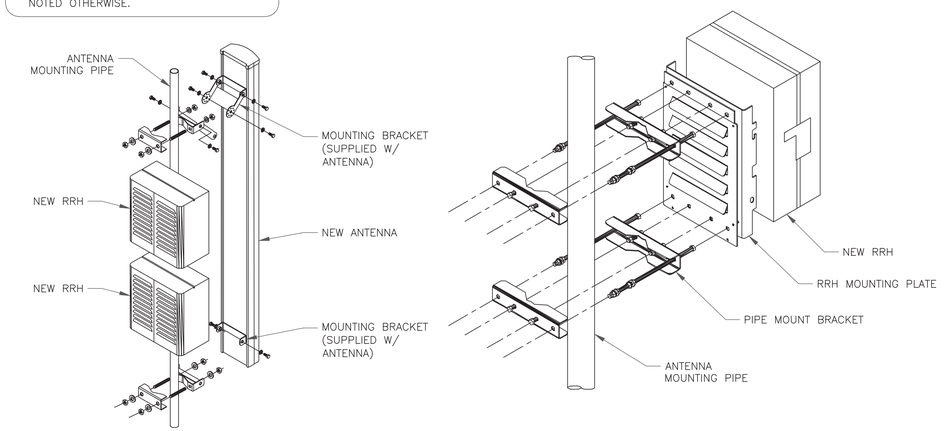
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A1	L2500/N2500	ERICSSON	AIR 6419 B41	30°	0°	2°/2°	116'-0"	–	–
	A2	L700/L600/N600/ L2100/L1900	RFS	APXVAALL24_43-U-NA20	30°	0°	2°/2°/ 2°/2°	116'-0"	(1) 4480 B71+B85 (1) 4460 B25+B66	(1) 6/24 4AWG HYBRID
BETA	B1	L2500/N2500	ERICSSON	AIR 6419 B41	150°	0°	2°/2°	116'-0"	–	–
	B2	L700/L600/N600/ L2100/L1900	RFS	APXVAALL24_43-U-NA20	150°	0°	2°/2°/ 2°/2°	116'-0"	(1) 4480 B71+B85 (1) 4460 B25+B66	(1) 6/24 4AWG HYBRID
GAMMA	C1	L2500/N2500	ERICSSON	AIR 6419 B41	250°	0°	2°/2°	116'-0"	–	–
	C2	L700/L600/N600/ L2100/L1900	RFS	APXVAALL24_43-U-NA20	250°	0°	2°/2°/ 2°/2°	116'-0"	(1) 4480 B71+B85 (1) 4460 B25+B66	(1) 6/24 4AWG HYBRID

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 RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

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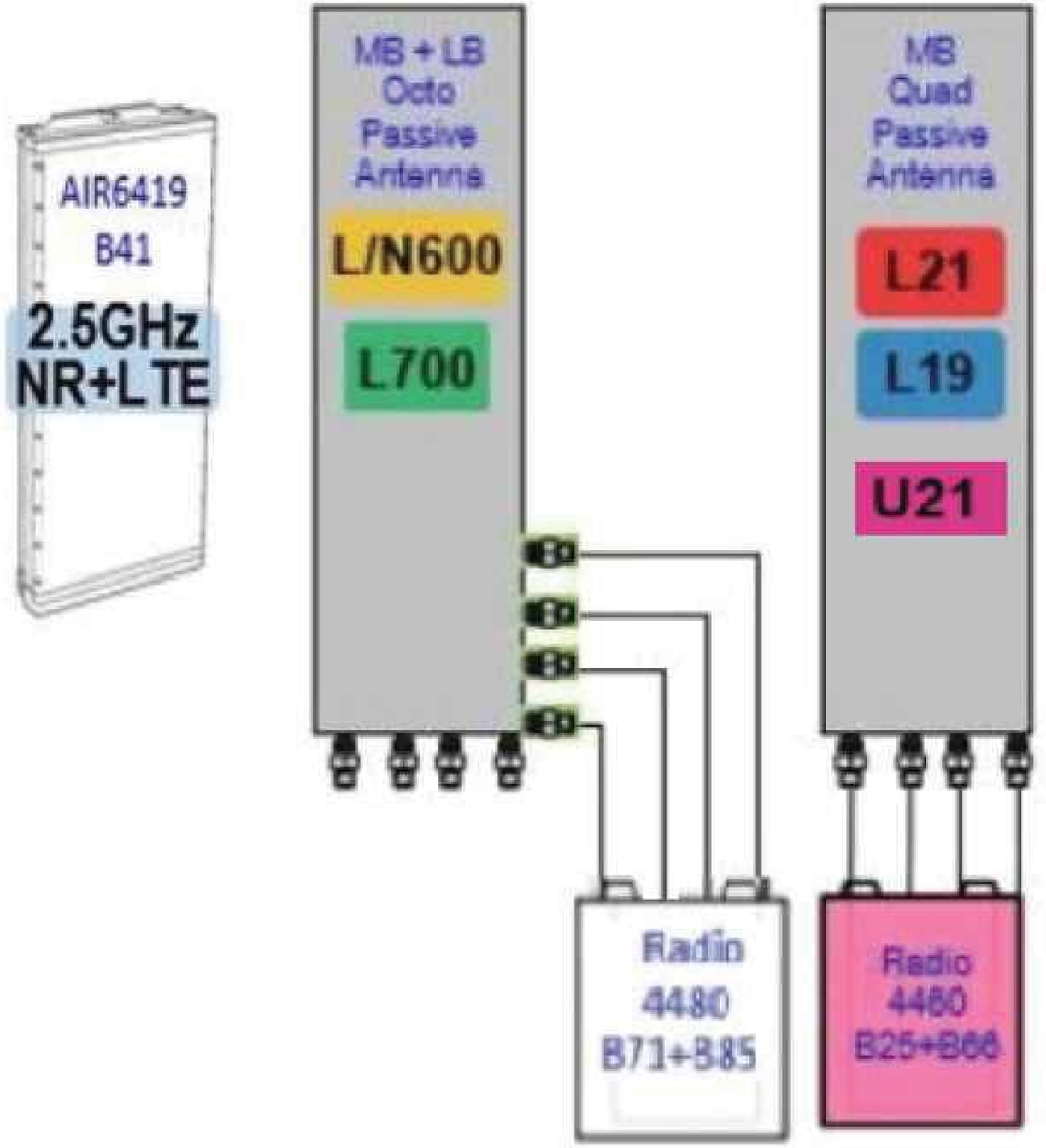
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-3

REVISION: 1



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile

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CROWN CASTLE

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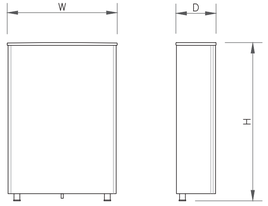
STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/22/22

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

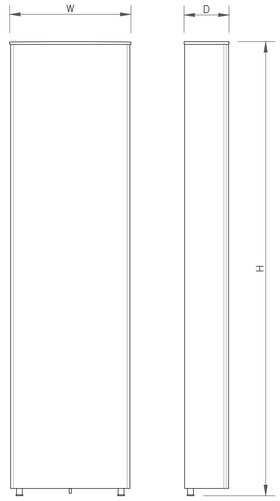
SHEET NUMBER: C-4

REVISION: 1



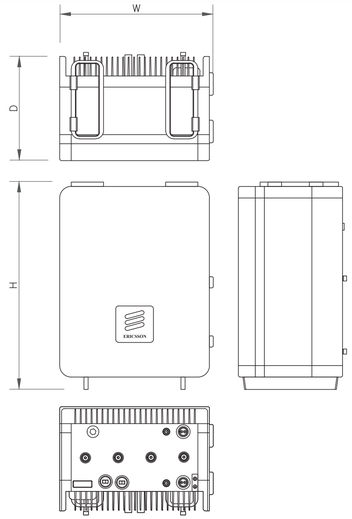
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR 6419 B41
WIDTH	20.91"
DEPTH	9.02"
HEIGHT	36.25"
WEIGHT	96.50 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



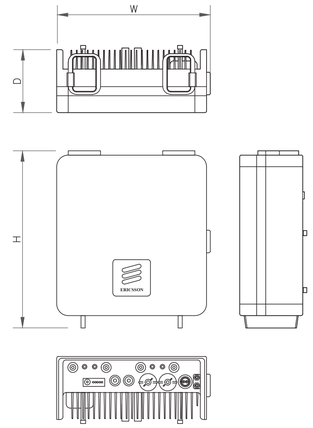
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24.00"
DEPTH	8.50"
HEIGHT	95.90"
WEIGHT	149.90 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



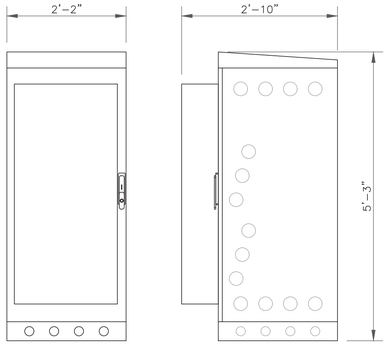
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4460 B25+B66
WIDTH	15.10"
DEPTH	11.90"
HEIGHT	17.00"
WEIGHT	109 LBS

3 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4480 B71+B85
WIDTH	15.70"
DEPTH	7.50"
HEIGHT	22.0"
WEIGHT	81.00 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



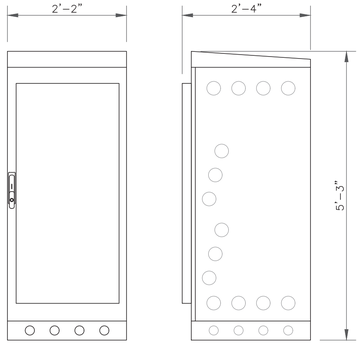
EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 34.0"
(1600.0mm x 660.0mm x 864.0mm)

WEIGHT (EMPTY): 320 LBS (145 kg)

WEIGHT (FULLY LOADED): 1,500 LBS (681 kg)

5 ERICSSON – 6160
SCALE: NOT TO SCALE



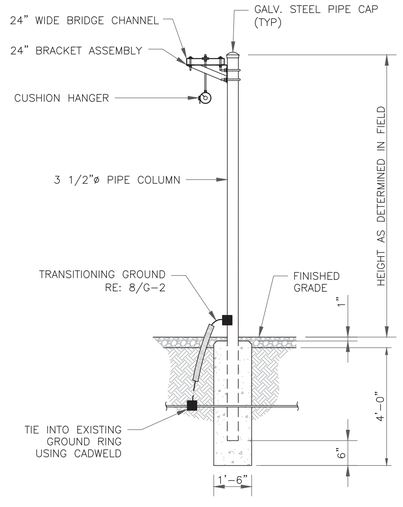
EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 28.0"
(1600.0mm x 660.0mm x 711.0mm)

WEIGHT (EMPTY): 295 LBS (134 kg)

WEIGHT (FULLY LOADED): 2,000 LBS (908 kg)

6 ERICSSON – B160
SCALE: NOT TO SCALE



7 ICE BRIDGE DETAIL
SCALE: NOT TO SCALE

8 NOT USED
SCALE: NOT TO SCALE

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BU #: **876324**
WEST HARTFORD UNITED METHODIST

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

SHEET NUMBER: C-5

REVISION: 1

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
SURGE	2	30A	1	2	60A	1	BTS
			3	4			
SAFETY LIGHT	1	15A	5	6	20A	1	TELCO GFCI
GFCI	1	20A	7	8	20A	1	FIBER
			9	10	125A	2	6160
			11	12			
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			

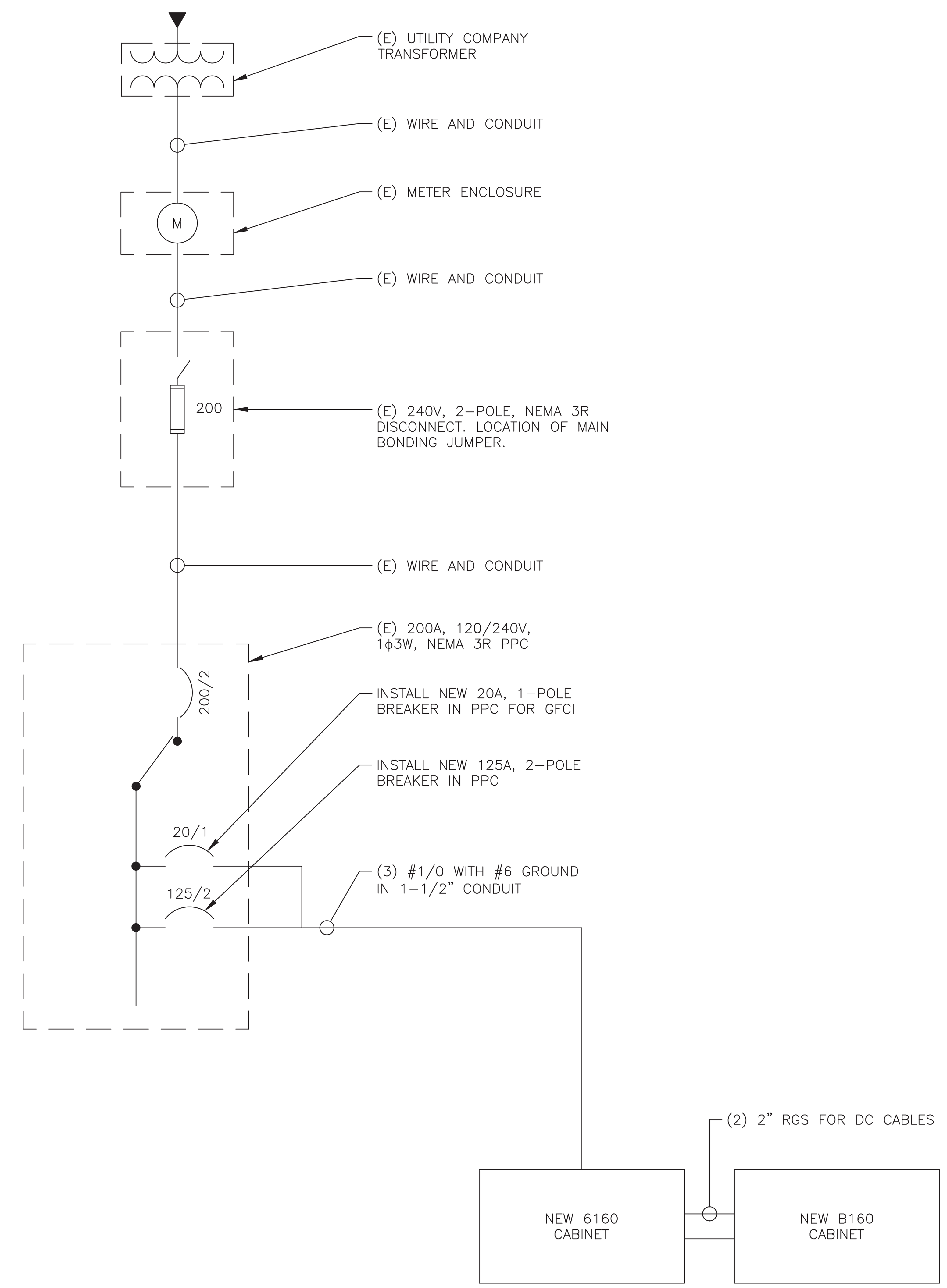
RATED VOLTAGE: ■120/240 □_______. 1 PHASE, 3 WIRE	BRANCH POLES: □12 ■24 □30 □42	APPROVED MF'RS
RATED AMPS: □100 ■200 □400 □_______.	CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X
□MAIN LUGS ONLY / MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
□FUSED ■CIRCUIT BREAKER BRANCH DEVICES	□____________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

REPLACE EXISTING BREAKERS IN POSITIONS 10 AND 12 WITH A NEW 2P 125A BREAKER
INSTALL NEW 1P 20A BREAKER IN POSITION 57IF 125A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

(1) FINAL T-MOBILE PANEL DETAIL
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
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CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
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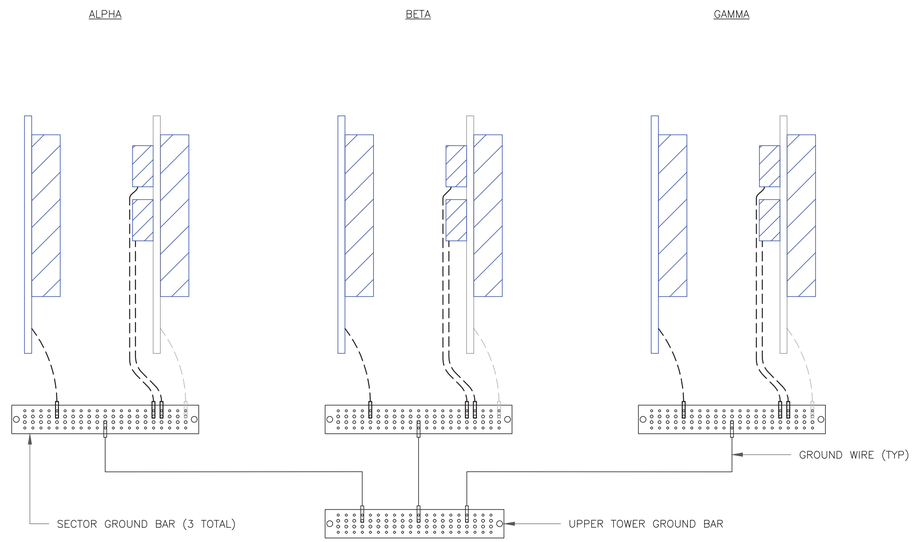
STATE OF CONNECTICUT PROFESSIONAL ENGINEER No. 23924 LICENSED
8/22/22

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

SHEET NUMBER: E-1
REVISION: 1

127816.008.01_WEST HARTFORD UNITED METHODIST.dwg - Sheet:E-1 - User: ashley.pope - Aug 22, 2022 - 8:48pm



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
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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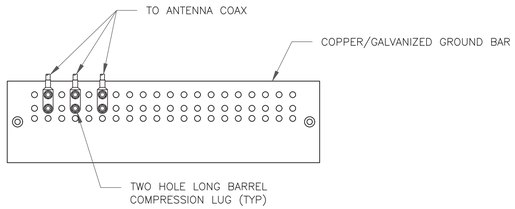
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-1

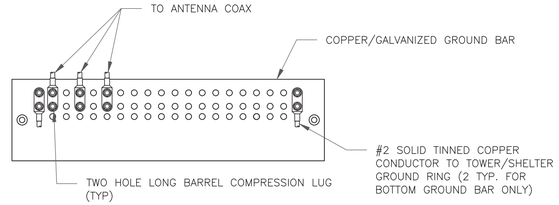
REVISION: 1



NOTES:

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

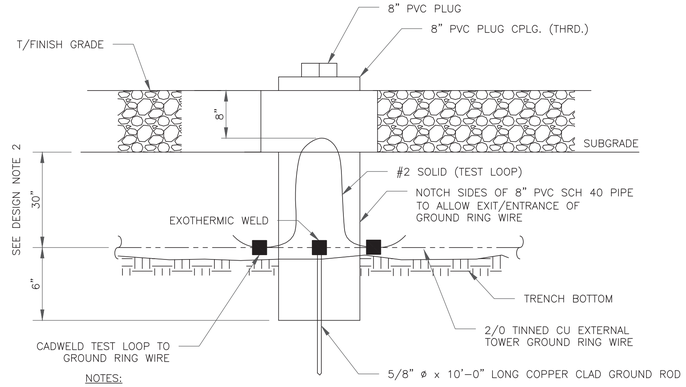
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

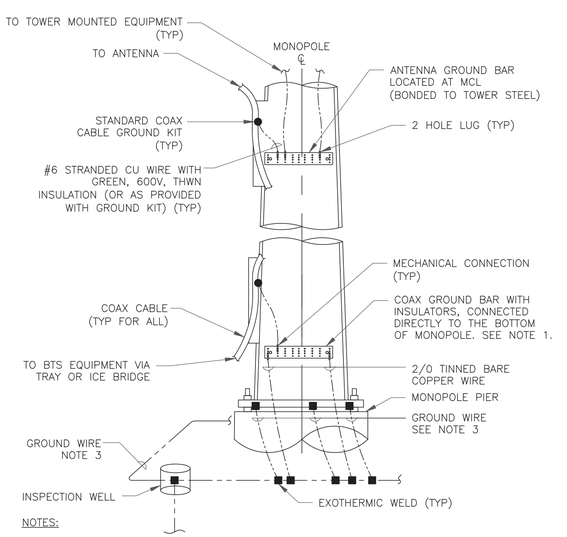
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

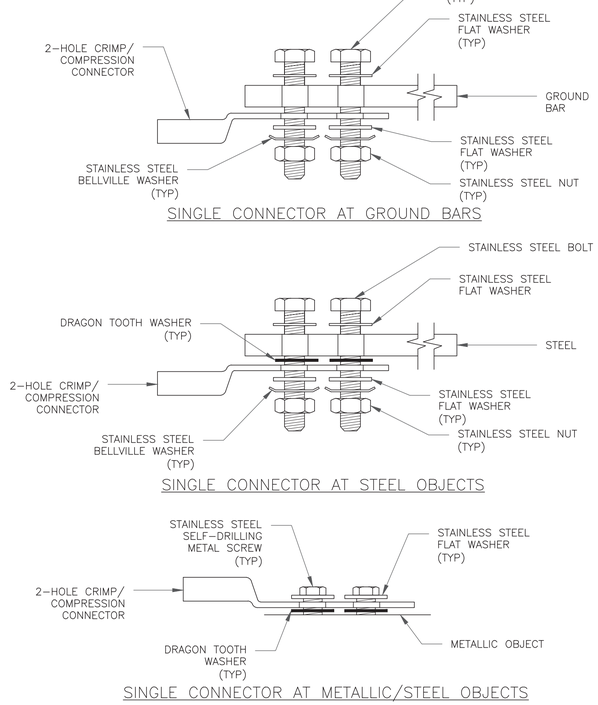
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



NOTES:

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

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE

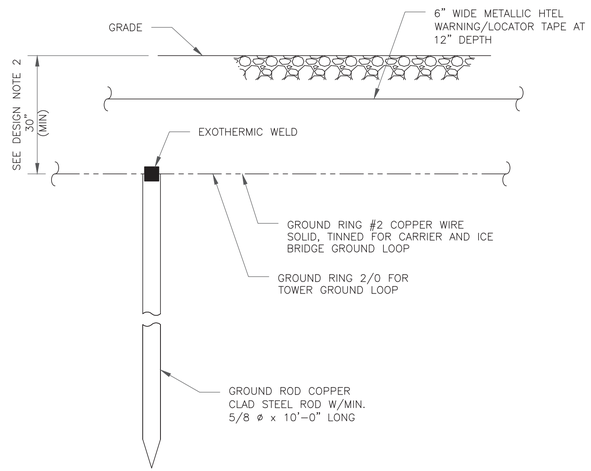


SINGLE CONNECTOR AT GROUND BARS

SINGLE CONNECTOR AT STEEL OBJECTS

SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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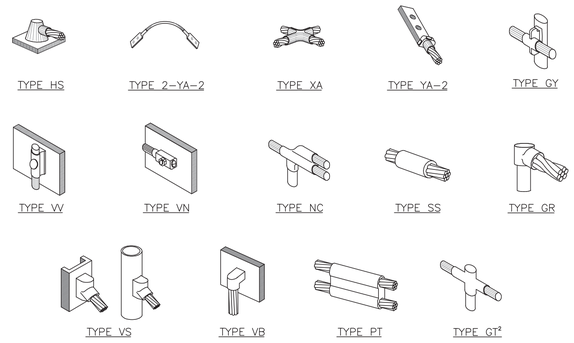
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-2
REVISION: 1

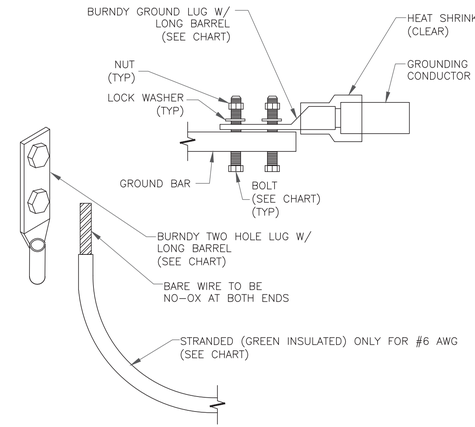


NOTE:

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

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

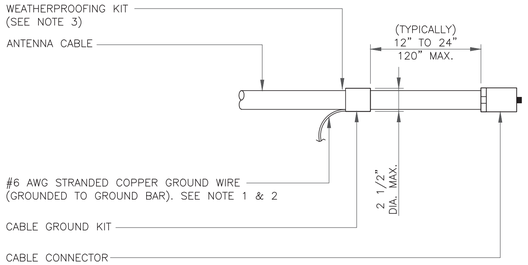
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

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

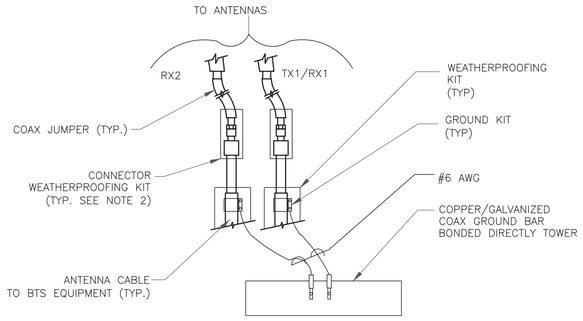
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

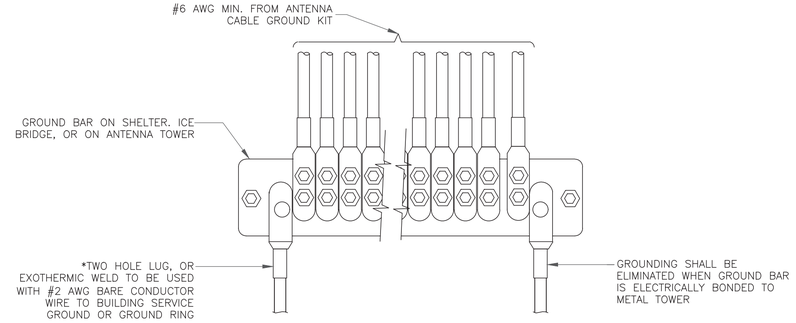
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



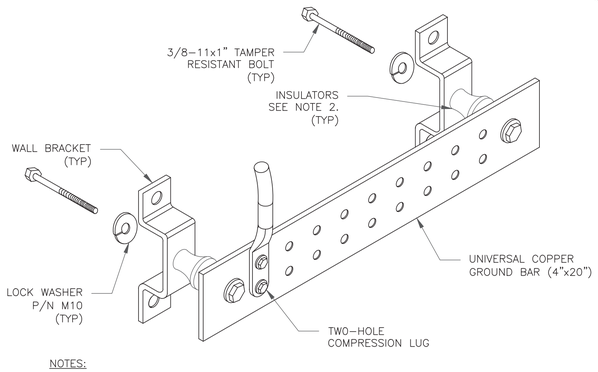
NOTES:

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

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



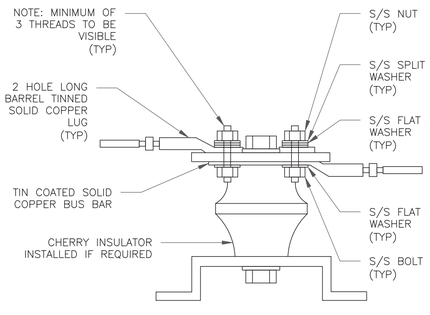
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



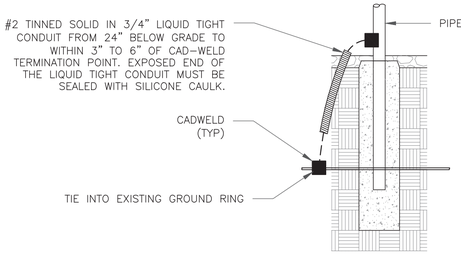
NOTES:

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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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

T-MOBILE SITE NUMBER:
CTHA502A

BU #: **876324**
WEST HARTFORD UNITED METHODIST

1358 NEW BRITAIN AVENUE
WEST HARTFORD, CT 06110

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/14/22	DAS	PRELIMINARY REVIEW	KT
0	8/15/22	BLJ	CONSTRUCTION	ANP
1	8/22/22	BLJ	CONSTRUCTION	ANP

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

SHEET NUMBER: G-3
REVISION: 1