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

October 3, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown #876364; ATT Site ID CTL05272
201 Main Street, Cromwell, CT 06416
Latitude: 41° 35′ 0.11″ / Longitude: -72° 38′ 59.14″

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 117-foot level of the existing 125-foot monopole tower at 201 Main Street, Cromwell, CT. The tower is owned by Crown Castle USA Inc. and the property is owned by S&S Partners Inc. AT&T now intends to replace three (3) antennas with three (3) new antennas and ancillary equipment at the 117-foot level. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:

Mount modification required per Mount Analysis
(3) Dual Radio Mounts
(3) CCI-OPA65R-BU6DA Antennas
(3) Ericsson-4415 B25 RRH
(3) Ericsson-4449 B5/B12 RRH
(3) Y CABLES for dual band radios

Remove:

(3) KMW-AM-X-CD-16-65-00T-RET Antennas
(3) ERICSSON-RRUS-11 B12 RRH
(3) ERICSSON-RRUS-32 B2 RRH
(3) POWERWAVE TECH-TT19-08BP111-001 TMA
(6) CCI-DTMABP7819VG12A Diplexers

Ground:

Install New:

6630 with IDLE Cable

Remove:

Decom UMTS Cabinet

The facility was approved by the Town of Cromwell Planning and Zoning Commission on March 8, 2000.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Allan Spotts, Mayor for the Town of Cromwell, for the municipality, Stuart Popper, Director of Planning & Development, S&S Partners Inc. is the property owner and Crown Castle is the tower owner.

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

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

Sincerely,

Domenica Tatasciore
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(508) 621-9161/ Domenica.Tatasciore@crowncastle.com

Attachments
cc:

Mayor Allan Spotts
Cromwell Town Hall
41 West Street
Cromwell, CT 06416
860-632-3412

Stuart Popper, Director of Planning & Development
Cromwell Town Hall
41 West Street
Cromwell, CT 06416
860-632-3422

S&S Partners Inc.
P.O. Box 652
Old Lyme, CT 06371
860-652-5653

Crown Castle, Tower Owner

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 770056222112: Your package has been delivered
Date: Tuesday, October 4, 2022 10:32:23 AM

FedEx

Hi. Your package was delivered Tue, 10/04/2022 at 10:21am.

Delivered to 41 WEST ST, CROMWELL, CT 06416
Received by A.ALLAN

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 770056222112

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Cromwell Town Hall Mayor Allan Spotts 41 West Street CROMWELL, CT, US, 06416
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 10/03/2022 05:29 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	CROMWELL, CT, US, 06416
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 770056233738: Your package has been delivered
Date: Tuesday, October 4, 2022 10:32:19 AM

Hi. Your package was delivered Tue, 10/04/2022 at 10:21am.

Delivered to 41 WEST ST, CROMWELL, CT 06416
Received by A.ALLAN

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 770056233738

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Cromwell Town Hall Stuart Popper, Planning Director 41 West Street CROMWELL, CT, US, 06416
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 10/03/2022 05:29 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	CROMWELL, CT, US, 06416
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

USPS Tracking®

FAQs >

Landowner S+S Partners, Inc.

Remove ×

Tracking Number:

EI378941217US

Copy Add to Informed Delivery
(https://informeddelivery.usps.com/)

Latest Update

Your item arrived at the OLD LYME, CT 06371 post office at 9:01 am on October 4, 2022 and is ready for pickup.

Delivered

Available for Pickup

Available for Pickup
OLD LYME, CT 06371
October 4, 2022, 9:01 am

Available for Pickup
OLD LYME, CT 06371
October 4, 2022, 8:54 am

See All Tracking History

Feedback

Text & Email Updates ⌄

Proof of Delivery ⌄

USPS Tracking Plus® ⌄

TOWN OF CROMWELL PLANNING AND ZONING COMMISSION
ZONING PERMIT

Date of Application 2-21-00 Permit Number _____

Name of Permit Requester SPRINT SPECTRUM L.P. A DELAWARE LIMITED PARTNERSHIP

Address of Permit Requester ONE INTERNATIONAL BLVD, STE 800, MAHWAH, NJ 07495

Phone Number: Day (860) 919-7204/(201) 684-4065 Evening (203) 748-6404, PG: (860) 588-2783

Property Owner if different S+S PARTNERS, INC.

Property Owner Address if different S+S PARTNERS, INC., ATTN: ARTHUR SIBLEY P.O. BOX 301, CROMWELL, CT 06416 (860) 434-0079

Type of Permit:

☐ Sign ☐ Filling ☒ New Construction

☐ Addition ☐ Other ☐ Swimming Pool

E & S Bond required ☒ Yes ☐ No Permit Number 00624

Zoning District F Assessor's Map# 51 Block# 47 Lot# 36

ZBA Approved ☐ Yes ☐ No Volume 412 Page 142

Wetlands/watercourses on property ☒ Yes ☐ No Permit# N/A

Description of proposed activity PROPOSED SPRINT PCS ANTENNA FACILITY WITH A 125-FOOT MONOPOLE, RELATED CABLES, EQUIPMENT CABINETS, AND POWER + TELCO HOOKUPS

NOTE: ALL CONSTRUCTION IS OUTSIDE THE REGULATED AREAS

Dimensions: H 125' W SEE PLANS L SEE PLANS

Livable Floor Area: First N/A (NONE) Second N/A (NONE)

Garage Area N/A (NONE) Special Permit needed ☒ Yes ☐ No

Volume 412 Page 142 ☒ Plot Plan attached

This permit, if issued, is based upon the plot plan submitted. Falsification, by misrepresentation or omission, or failure to comply with the conditions of approval of this permit shall constitute a violation of the Town of Cromwell Zoning Regulations.

Signature _____ Marc Goodman

Check one: ☐ Owner ☐ Applicant ☒ Agent

Conditions of approval _____

Approved by _____ Date 3/6/00

Rejected by _____ Date _____

TOWN OF CROMWELL

Printed By: Shawna 04/06/2018 3:25:00PM

Parcel ID: **00015800** *Location:* 201 MAIN STREET *Map-Lot* 51-36 *Last Revaluation - October 1, 2017*

Current Owner / *Percent*

S S PARTNERS INC 100

0 PO BOX 734

OLD LYME CT 06371

Previous Owner(s)

Current Value Information

Override

Use Code	Land Value	PA 490 Value	Building Value	Outbuildings	Total Value	Total Assessed
201	281,500	0	310,600	57,900	650,000	455,000
TOTAL	**281,500**	**0**	**310,600**	**57,900**	**650,000**	**455,000**

Previous Value Information

Tax Yr	Land Value	Bldg Value	Outbuildings	Total Value	Total Assessmen
2018	388,400	310,600	57,900	756,900	529,830
2017	388,400	310,600	57,900	756,900	529,830
2016	158,200	393,390	26,730	578,320	404,830
2015	158,200	393,390	26,730	578,320	404,830
2014	158,200	393,390	26,730	578,320	404,830
2013	158,200	393,390	26,730	578,320	404,830

General Notes

(3)24X12 OHD & (1)24X14) OHD; CELL BLDG
& PLATFORM ON EXISTING TOWER;
COMMERCIAL DIESEL
NEW ENGLAND ASPHALT
120' POLE TOWER (38 RECEIVERS) ON
ACCOUNT #00015810
Daniels Propane

Sales Information

Grantee	Vol-Page	Type	SaleDate	SalePrice	Sale Verif	GeneralNotes
S S PARTNERS INC	412-142		05/24/1989	0	Other	

Patriot Properties Inc.

Property Factors

Census 5703
Flood: YES
Topo:
Street: Paved
Dev. Map
Dev. Map

Zoning Data

Desc.	%
IND	100.00

Utilities

5 Private Well
6 Septic

BAA

17G;06G;05G

Activity Information

Date	Results	Visited By
12/26/2017	Informal Review No Change	John Valente
09/08/2017	Change - Value Change Company	John Valente
05/19/2017	No Change - Field Review	Dave Stannard
09/28/2015	Permit- Miscellaneous	AO
09/28/2015	Permit- Drive By	MM
11/26/2014	Permit- Miscellaneous	AO
11/26/2014	Permit- Miscellaneous	AO
11/19/2014	Permit- Miscellaneous	AO
09/12/2012	Permit- Miscellaneous	AO
09/12/2012	Permit- Miscellaneous	

Building Permit Information

Date	Permit #	Description	Amount	% Comp	Visit Date	CO Date	GeneralNotes
08/23/2017	24953	Roofing	34,800	100			Partial Reroof
01/20/2017	24542	Other		0		10/27/2017	Three Antennas Replace
08/31/2015	23606	Other	20,000	100	09/28/2015		Structural Upgrade on Mon
11/26/2014	23051	Plumbing	4,000	100	11/26/2014		Install gas line to Hangi
11/26/2014	23040	HVAC	4,000	100	11/26/2014		250,000 Hanging Furnace -
11/19/2014	23033	Propane Tank	1,300	100	11/19/2014		2 - 120 Gal LP Tanks
08/23/2011	20102	Propane Tank	100,000	100	09/12/2012	05/08/2012	30,000 gal tank
08/02/2010	19218	Air Condition	3,500	100	03/16/2012		Ductless

Land Data

Use	Description	Units	Unit Type	Neigh	Land Adjustments	Special Land Calc	Appraised Value	PA 490 Asmt	Neigh Order	Notes
201	Commercial	87,120	SF	CH			357,400	0	5000	
201	Commercial	1.240	AC	CH			31,000	0	5000	

Total Area: 3.24 **PA 490 Use Asmt: 0** **Total Appraised: 388,400** **Assessed Value: 271,880**

ParcelID: 00015800 **Location:** 201 MAIN STREET **Printed By:** Shawna 04/06/2018 3:25:00PM

Bldg Seq 1 Of 1

Exterior Information

Building Type:	Garage/Offic
Story Ht:	1 Story
Living Units:	0
Foundation:	
Prim. Ext. Wall:	Concrete
Sec. Ext. Wall:	
Roof Type:	Irregular
Roof Cover:	Rolled Compo
Avg. Wall Ht:	16.00
Color:	

Interior Information

Prime Wall:	Minimum
Sec. Wall:	
Floor Type:	Concrete
Sec. Floor:	
Heat Fuel:	Oil
Heat Type:	Forced Air
Sec. Ht Type:	
% A/C:	0
% Sprinkled:	0
Bsmt. Gar:	0
Kitchens:	0 Add. Kit: 0
Fireplaces:	0 Gas: 0
Int. Condition:	Typical

Room Count

Total Rooms:	
Bedrooms:	

Bath Features

Full Baths:	0
Addl. Full Baths:	0
Half Baths:	0
Addl. Half Baths:	0
Full Bths Below:	0
Half Bths Below:	0
Other Fixtures:	0
Total Baths:	0 0

Condo Information

Name:	
Style:	
Location:	
Tot Units:	

General Information

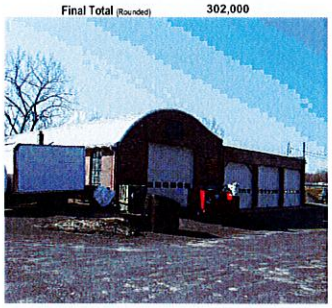
Year Blt:	1953
Grade:	C+
Remodeled Yr:	
Rem. Kitchen Yr:	
Rem. Bath Yr:	

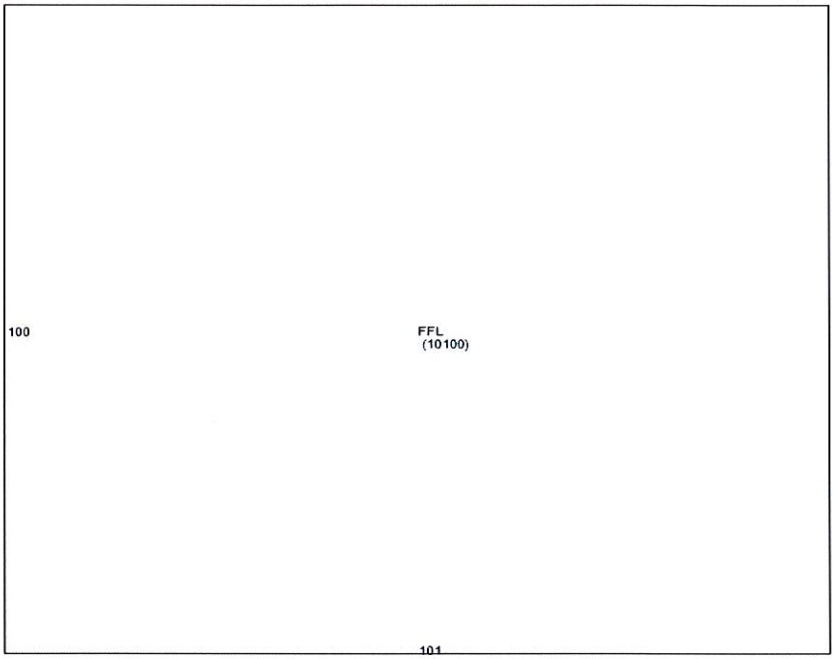
Depreciation

		%
Phys Cond	Good	30.60
Func		0.00
Econ		0.00
Spec		0.00
OV		0.00
Total %Dep:		30.60

Calculation

Basic $/SQ	57.00
Replacement Cost	435,229
Depreciation	133,180
Depreciated Value	302,049
Final Total (Rounded)	302,000





Extra Features / Yard Items (1st 10 Lines Displayed)

Code	Description	Qty	Size	Cond.	Year	Unit Price	Dep%	UndepValue	Appraised Value	Assessment
FN6	Fence 6'	1	2,520	AV	2002	17.00	13	51,408	44,700	31,290
LT2	Light 2	1	2	VG	2011	1,500.00	2	3,600	3,500	2,450
LT3	Light 3	1	3	VG	2011	2,100.00	2	7,560	7,400	5,180
PAV1	Paving Asph.	1	1,000	AV	1953	3.00	35	3,600	2,300	1,610

Total Sp. Features: **Total Yard Items** 57,900 **Total Appraised:** 57,900 **Total Assessed Value** 40,530

Sub Area Detail

Code	Desc.	Living	Gross Area
FFL	First Floor	10,100	10,100
Total		**10,100**	**10,100**

201 Main Street

Property Information

Property ID	00015800
Location	201 MAIN STREET
Owner	
Owner Address	
Map Block Lot	

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Cromwell, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 6/25/2021
Data updated on a daily basis

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

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

Site Name:	CROMWELL SE
Crown Castle Site#	876364
Site ID:	CTL05272
Project Name:	LTE
Address:	201 MAIN STREET, CROMWELL, CT 06416
County:	MIDDLESEX
Latitude:	41.5832919
Longitude:	-72.6496989
Structure Type:	MONOPOLE
Property Owner:	S & S PARTNERS INC
Property Contact:	VERONICA CHAPMAN

AT&T Existing Facility

Report Information

Report Writer: Sushil Dogra **Report Generated Date:** 09-17-2022

Site Compliance Statement

Compliance Status	Compliant
Cumulative General Population % MPE (Ground Level)	41.96%

September 17, 2022

Emissions Analysis for Site: **CTL05272– CROMWELL SE**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **201 MAIN STREET, CROMWELL, CT 06416**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of milliwatts per square centimeter (mW/cm^2). The number of mW/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 public 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 public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the 700 and 850 MHz Bands are approximately 0.467 mW/cm^2 and 0.567 mW/cm^2 respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 2300 MHz (WCS), 3450 MHz (DoD Band) and 3840 MHz (C Band) bands is 1 mW/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.

1. Theoretical Calculations

Calculations were done for the proposed AT&T Wireless antenna facility located at **201 MAIN STREET, CROMWELL, CT 06416** using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 LTE channels (700 MHz Band 14) were considered for Alpha sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
2) 2 LTE channels (700 MHz Band 14) were considered for Beta & Gamma sectors of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
3) 4 LTE channels (1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
4) 4 LTE channels (2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
5) 4 LTE channels (700 MHz Band 12) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
6) 4 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
7) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.
8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

9) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antennas used in this modeling are the Kathrein 80010798 for the 700 MHz(Band 14) / 1900 MHz / 2100 MHz channel(s), the CCI OPA65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 MHz) channel(s) in Sector A, Kathrein 80010798 for the 700 MHz(Band 14) / 1900 MHz / 2100 MHz channel(s), the CCI OPA65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 MHz) channel(s) in Sector B, Kathrein 80010798 for the 700 MHz(Band 14) / 1900 MHz / 2100 MHz channel(s), the CCI OPA65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 MHz) channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antenna mounting height centerline of the proposed antennas is 117 feet above ground level (AGL).

12) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

2. Antenna Inventory & Power Data

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (^{0})	H B W (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Total Ant Transmitter Power (Watts)	Total Ant ERP(Watts)	Ant MPE%
A	1	AT&T	Kathrein	80010798	Panel	700	LTE(B14)	20	66	13.05	6.5	4	160.00	3230.55	5298.10	480	10735.27	3.79%
A	1	AT&T	Kathrein	80010798	Panel	1900	LTE	20	63	13.65	6.5	4	160.00	3709.16	6083.03			
A	1	AT&T	Kathrein	80010798	Panel	2100	LTE	20	62	13.75	6.5	4	160.00	3795.56	6224.72			
A	2	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	20	73	12.15	6	4	160.00	2625.89	4306.46	420	9885.05	4.04%
A	2	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	20	64	13.05	6	4	160.00	3230.55	5298.10			
A	2	AT&T	CCI	OPA65R-BU6D	Panel	2300	LTE	20	55	16.05	6	4	100.00	4028.62	6606.93			
B	3	AT&T	Kathrein	80010798	Panel	700	LTE(B14)	150	66	13.05	6.5	2	80.00	1615.27	2649.05	400	9120.00	2.88%
B	3	AT&T	Kathrein	80010798	Panel	1900	LTE	150	63	13.65	6.5	4	160.00	3709.16	6083.03			
B	3	AT&T	Kathrein	80010798	Panel	2100	LTE	150	62	13.75	6.5	4	160.00	3795.56	6224.72			
B	4	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	150	73	12.15	6	4	160.00	2625.89	4306.46	420	9885.05	4.04%
B	4	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	150	64	13.05	6	4	160.00	3230.55	5298.10			
B	4	AT&T	CCI	OPA65R-BU6D	Panel	2300	LTE	150	55	16.05	6	4	100.00	4028.62	6606.93			
C	5	AT&T	Kathrein	80010798	Panel	700	LTE(B14)	270	66	13.05	6.5	2	80.00	1615.27	2649.05	400	9120.00	2.88%
C	5	AT&T	Kathrein	80010798	Panel	1900	LTE	270	63	13.65	6.5	4	160.00	3709.16	6083.03			
C	5	AT&T	Kathrein	80010798	Panel	2100	LTE	270	62	13.75	6.5	4	160.00	3795.56	6224.72			
C	6	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	270	73	12.15	6	4	160.00	2625.89	4306.46	420	9885.05	4.04%
C	6	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	270	64	13.05	6	4	160.00	3230.55	5298.10			
C	6	AT&T	CCI	OPA65R-BU6D	Panel	2300	LTE	270	55	16.05	6	4	100.00	4028.62	6606.93			

Table 2.1: Antenna Inventory & Power Data

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Cumulative Site MPE%	
Carrier	**MPE%**
AT&T (Max MPE% at Sector A)	7.83%
Verizon	23.68%
Sprint	1.02%
Clearwire	0.14%
MetroPCS	2.20%
Nextel	0.96%
Dish	6.13%
Site Total MPE%	**41.96%**

Table 2.2: Cumulative Site MPE%

AT&T Max MPE% Per Sector	
AT&T Sector A Total	7.83%
AT&T Sector B Total	6.92%
AT&T Sector C Total	6.92%
Site Total MPE%	**41.96%**

Table 2.3: AT&T MPE% Per Sector

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	FREQ. (MHz)	TECH.	#of Channels	Transmitter Power (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Total Power Density (mW/cm^2)	Allowable MPE (mW/cm^2)	Calculated MPE%
A	1	AT&T	Kathrein	80010798	700	LTE(B14)	4	160.00	3230.55	5298.10	117.00	0.008490	0.467	1.82%
A	1	AT&T	Kathrein	80010798	1900	LTE	4	160.00	3709.16	6083.03	117.00	0.009748	1.000	0.97%
A	1	AT&T	Kathrein	80010798	2100	LTE	4	160.00	3795.56	6224.72	117.00	0.009975	1.000	1.00%
A	2	AT&T	CCI	OPA65R-BU6D	700	LTE(B12)	4	160.00	2625.89	4306.46	117.00	0.006901	0.467	1.48%
A	2	AT&T	CCI	OPA65R-BU6D	850	5G	4	160.00	3230.55	5298.10	117.00	0.008490	0.567	1.50%
A	2	AT&T	CCI	OPA65R-BU6D	2300	LTE	4	100.00	4028.62	6606.93	117.00	0.010588	1.000	1.06%
													Total	**7.83%**

Table 2.4: Detailed MPE% at AT&T Sector A

3. Compliance Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A	7.83%
Sector B	6.92%
Sector C	6.92%
AT&T Maximum Total (per sector)	7.83%
Site Total MPE%	**41.96%**
Site Compliance Status	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is 41.96% of the allowable FCC established general public 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 within the allowable 100% threshold standard per the federal government.

Date: September 19, 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:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	CT5272
	Carrier Site Name:	Cromwell SE
	Carrier Site FA:	10070985
Crown Castle Designation:	**BU Number:**	876364
	Site Name:	Cromwell / First Line Emergenc
	JDE Job Number:	715661
	Order Number:	614870, Rev.1
Engineering Firm Designation:	**Report Designation:**	84470.020.01.0002
Site Data:	**201 Main St., Cromwell, CT, Middlesex County, 06416** **Latitude 41° 35' 0.11" Longitude -72° 38' 59.14"**	
Structure Information:	**Tower Height & Type:**	**125 ft. Monopole**
	Mount Elevation:	**115 ft.**
	Mount Type:	**12.5 ft. Platform Mount**

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

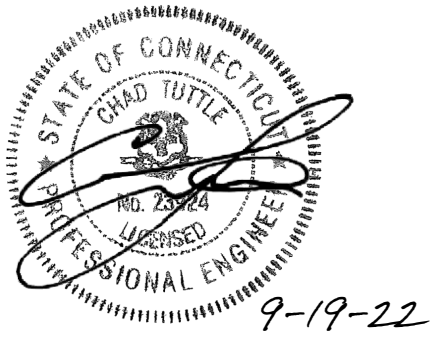
The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Platform Mount (typical) **Sufficient**
***The capacities listed are based on recommendations listed in Sec.4.1 being installed**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 119 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Suman Rana, P.E.

Respectfully submitted by: MTS Engineering, P.L.L.C
COA: BER: 2386985 Expires: 03/31/2023



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 - sector 12.5 ft. Platform Mount, designed by SitePro1 (Part# RMQP).

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.207
Seismic S_1:	0.056
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
115	117	3	CCI Antennas	HPA-65R-BUU-H6	12.5 ft. Platform Mount
		3	CCI Antennas	OPA65R-BU6D	
		3	Kathrein	80010798K	
		3	Ericsson	RADIO 4449 B5/B12	
		3	Ericsson	RRUS 32 B66	
		3	Ericsson	RRUS 4415 B25	
		3	Ericsson	RRUS-32 B30	
		2	Raycap	DC6-48-60-18-8F	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 07/18/2022	Crown Castle
RFDS		Date: 07/01/2022	
CD's by B+T Group		Date: 08/16/2022	
Mount Manufacturer Drawing	SitePro1 (Part# RMQP)	Date: 07/09/2015	SitePro1

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.3), 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 *AT&T's Mount Technical Directive – R22.0*

Manufacturers drawing were used to create the model.

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
Existing Mount pipes	2" Std. Pipe	6'-0"	In Pos.1, All Sectors
Existing Mount pipes	2" Std. Pipe	8'-0"	In Pos.3 & Pos.4, All Sectors
Proposed RRH Mount Pipes	2" Std. Pipe	6'-0"	Attached To Support Arm, 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	115	50	14.9	Pass
	Support Tubes		7	43.0	Pass
	Mount Pipes		75	55.5	Pass
	Connection Plates		11	27.8	Pass
	Support Angles		12	23.6	Pass
	Support Rails		66	36.5	Pass
	Connection Angles		68	26.5	Pass
3	Mount to Tower Connection		-	42.23	Pass

Structure Rating with Recommendations (max from all components) =	55.5%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical
3) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

4.1) Recommendations

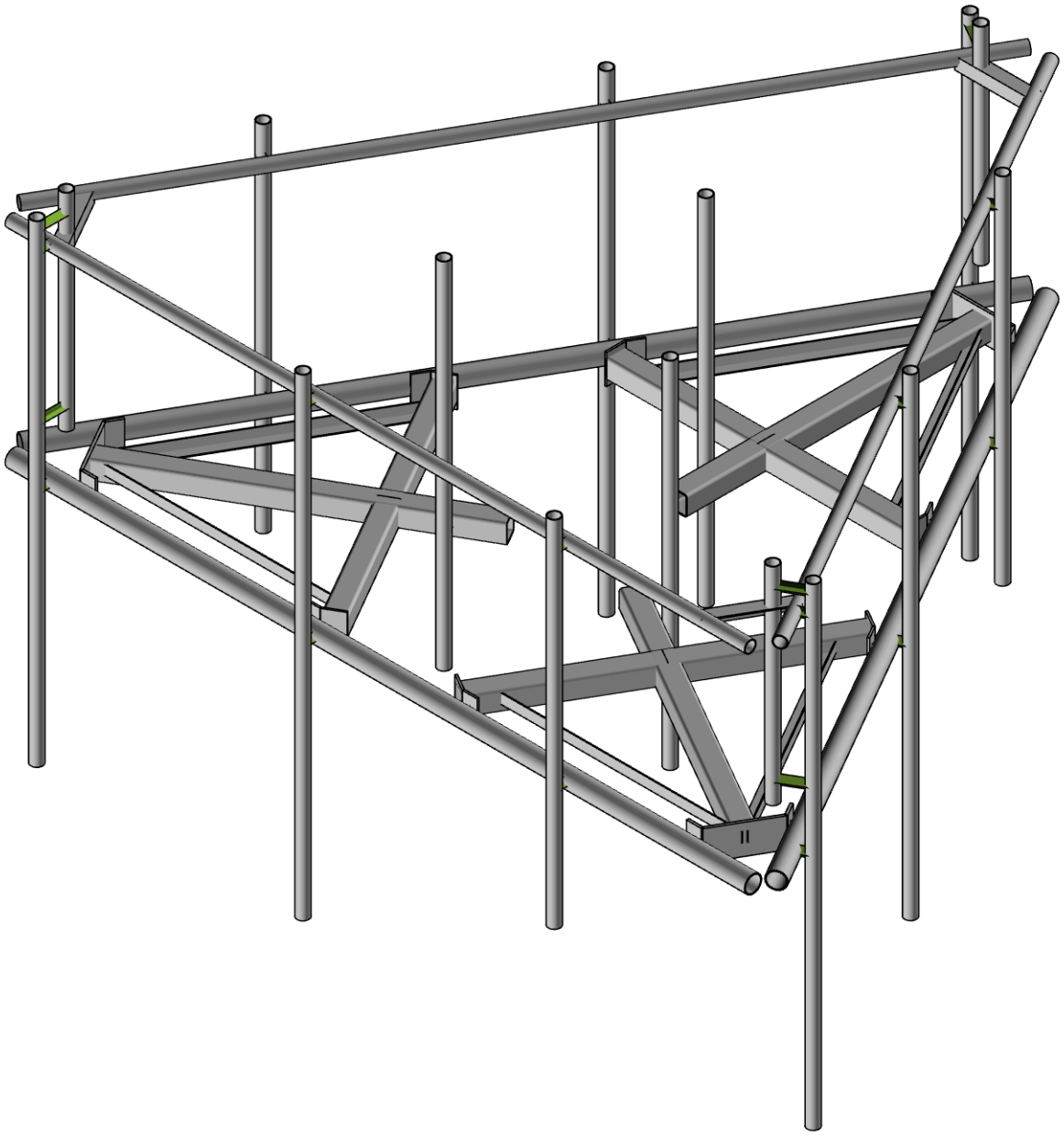
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modification listed below must be completed.

1. Install (1) New SitePro1 (Part# HRK-12) (P/N: ANT.51653) support rail kit 3’-6’’ above the main horizontal.
2. Install (3) proposed 6-ft long, P2STD (2.375” O.D. x 0.143”) mount pipe or equivalent approved Conmat item attached to the support arm of the mount using Rosenberger Site Solutions Part # C10-902-997 cross over plates or equivalent approved Conmat item on all sectors to install RRH units and Raycap.

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

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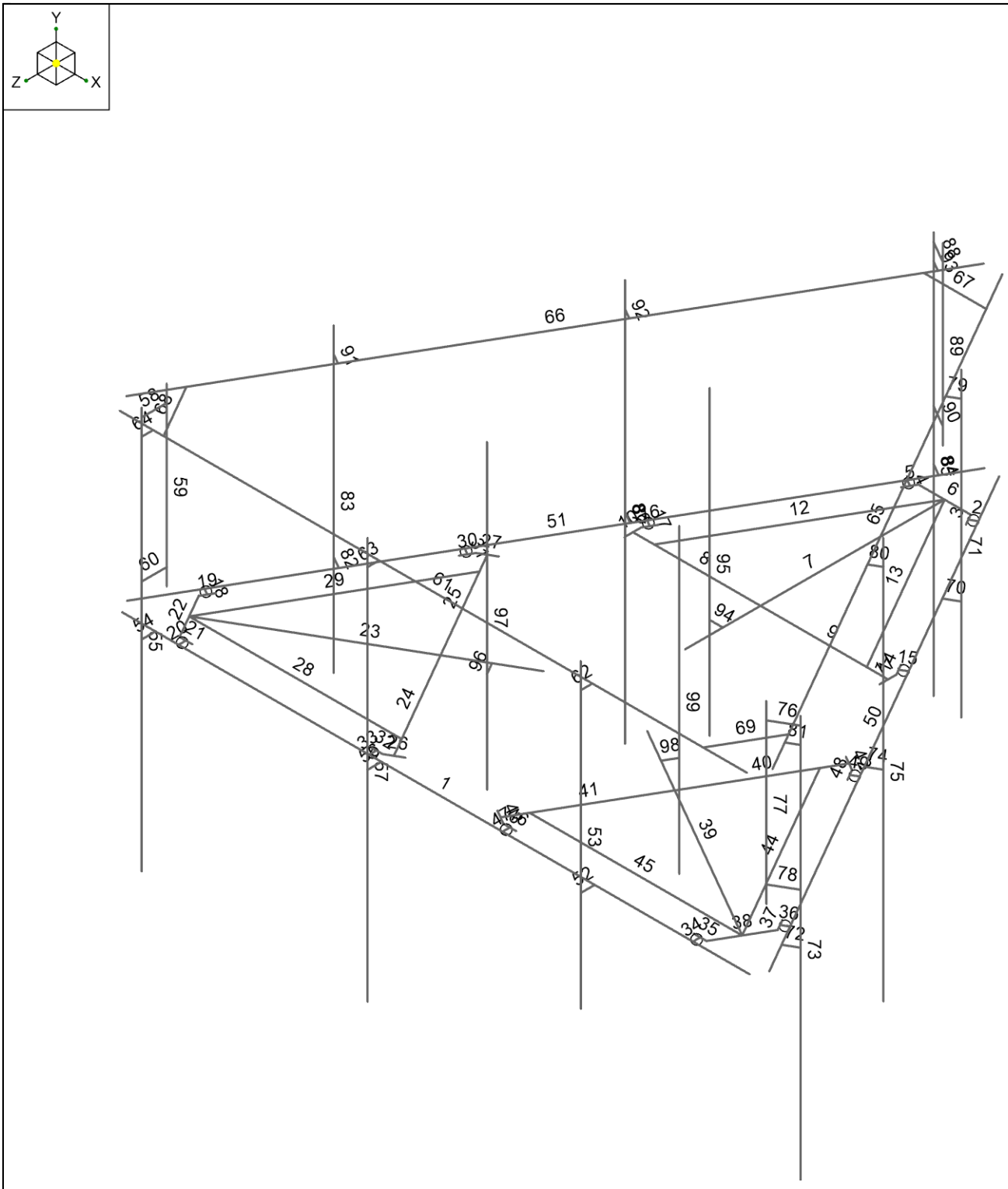

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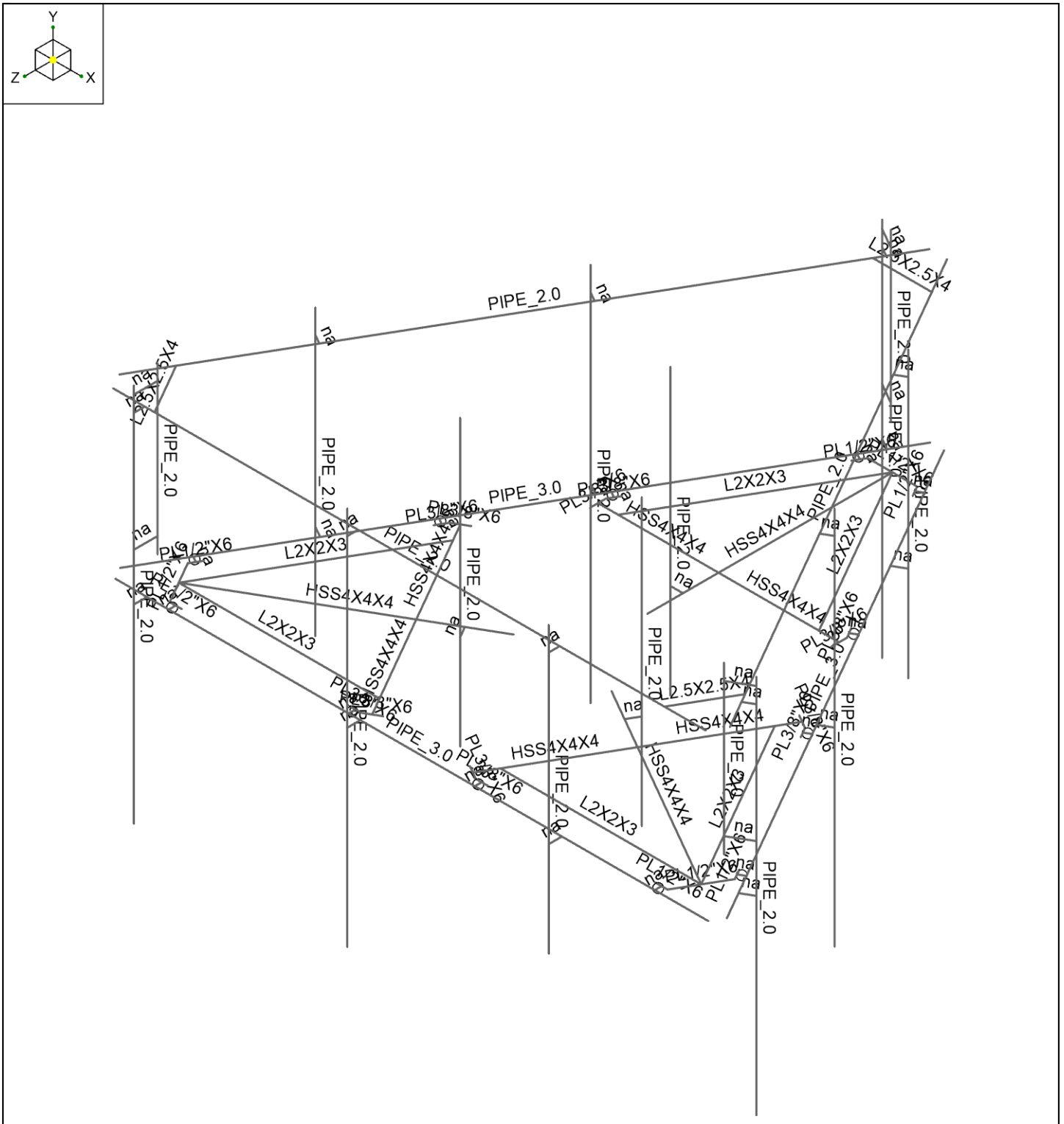

Envelope Only Solution

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APPENDIX B

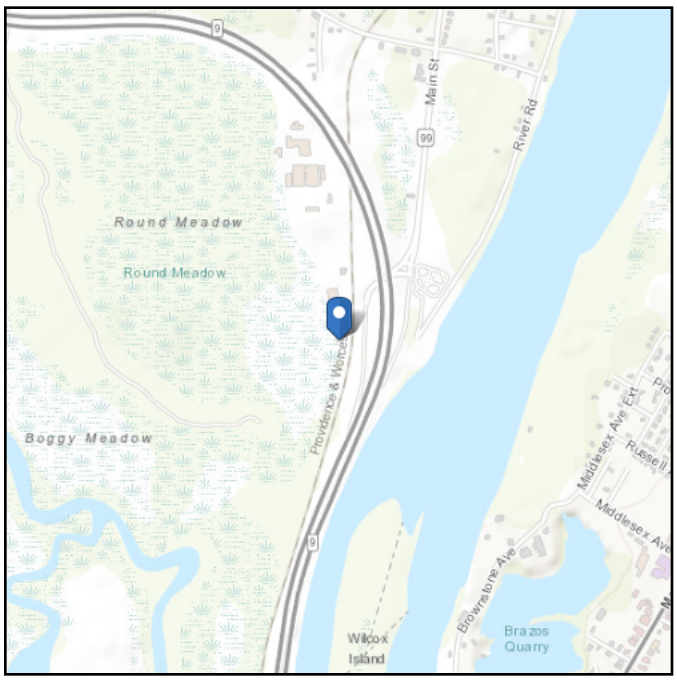
SOFTWARE INPUT CALCULATIONS

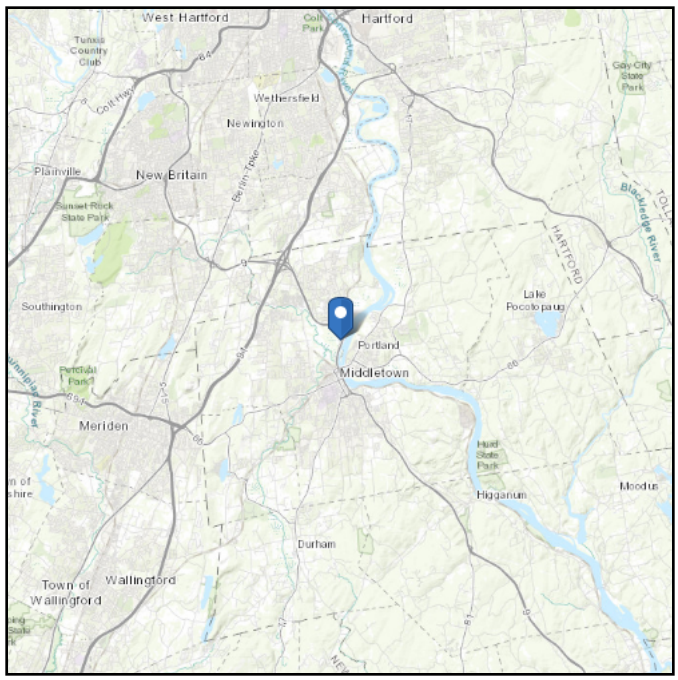
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 8.26 ft (NAVD 88)
Latitude: 41.583364
Longitude: -72.649761





Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Fri Sep 02 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.

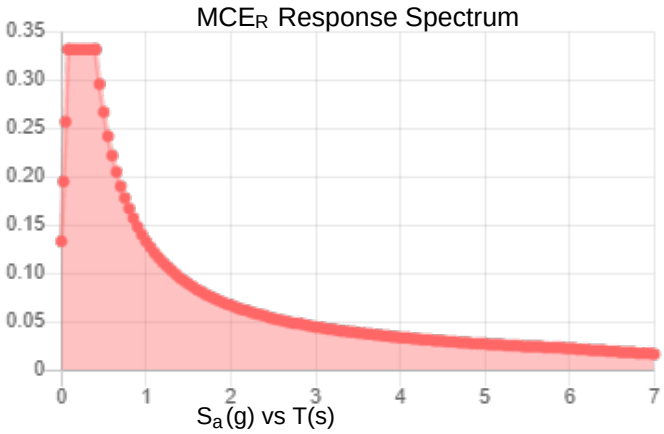
Seismic

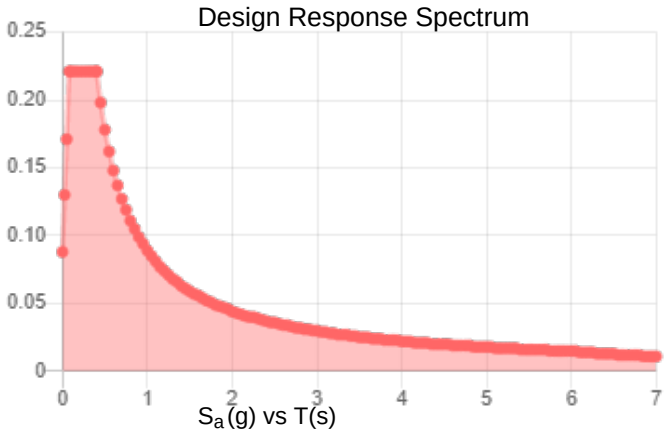
Site Soil Class: D - Default (see Section 11.4.3)

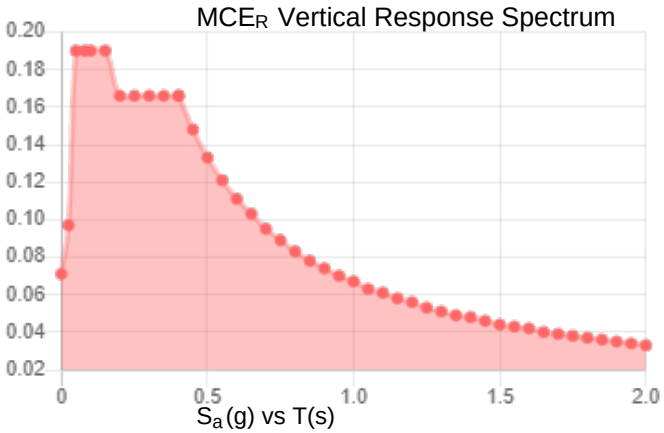
Results:

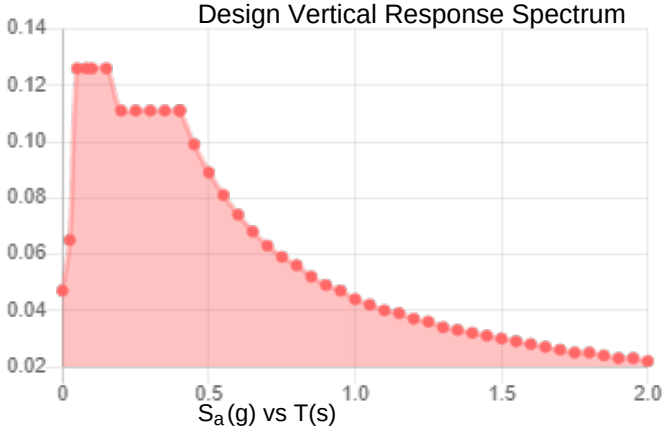
S_S :	0.207	S_{D1} :	0.089
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.115
F_v :	2.4	PGA_M :	0.181
S_{MS} :	0.332	F_{PGA} :	1.57
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.221	C_v :	0.715

Seismic Design Category B









Data Accessed: **Fri Sep 02 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Sep 02 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	**84470.020.01.0002 - Cromwell / First**	**KSC**
SUBJECT	**Platform Mount Analysis**	
DATE	**09-17-22**	

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	8	ft	[ASCE7 Hazard Tool]
Tower Height		:	125.00	ft	
Mount Elevation		:	115.00	ft	
Antenna Elevation		:	117.00	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	:	119	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.21		
	S_1	:	0.06		
	S_{DS}	:	0.22		
	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	:	1.00		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.13	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.111		[Sec. 2.7.7.1]
Amplification	A_s	:	2.68		[Sec. 16.7]
	q_z	:	44.88	psf	

PROJECT	**84470.020.01.0002 - Cromwell / First KSC**
SUBJECT	**Platform Mount Analysis**
DATE	**09-17-22**

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

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)
CCI ANTENNAS	HPA-65R-BUU-H6	0.5	72.0	14.8	9.0	47.9	4.61	2.33	5.40	3.05	0.21	0.10	0.04	0.02
CCI ANTENNAS	HPA-65R-BUU-H6	0.5					4.61	2.33	5.40	3.05	0.21	0.10	0.04	0.02
KATHREIN	80010798K	0.5	78.5	14.8	6.7	86.3	3.92	1.82	4.55	2.39	0.18	0.08	0.04	0.02
KATHREIN	80010798K	0.5					3.92	1.82	4.55	2.39	0.18	0.08	0.04	0.02
ERICSSON	RRUS 32 B66	1	27.2	7.0	12.1	53.0	1.67	2.74	2.39	3.53	0.07	0.12	0.01	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	6.88	2.93	0.28	0.10	0.05	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	6.88	2.93	0.28	0.10	0.05	0.02
ERICSSON	RRUS-32 B30	1	29.9	9.5	13.3	77.0	2.42	3.31	3.23	4.17	0.10	0.14	0.02	0.02
ERICSSON	RADIO 4449 B5/B12	1	15.0	10.4	13.2	73.0	1.30	1.64	1.82	2.22	0.05	0.07	0.01	0.01
ERICSSON	RRUS 4415 B25	1	15.0	13.2	5.4	44.0	1.64	0.68	2.22	1.11	0.07	0.03	0.01	0.00
CCI ANTENNAS	HPA-65R-BUU-H6	0.5	72.0	14.8	9.0	47.9	4.61	2.33	5.40	3.05	0.21	0.10	0.04	0.02
CCI ANTENNAS	HPA-65R-BUU-H6	0.5					4.61	2.33	5.40	3.05	0.21	0.10	0.04	0.02
KATHREIN	80010798K	0.5	78.5	14.8	6.7	86.3	3.92	1.82	4.55	2.39	0.18	0.08	0.04	0.02
KATHREIN	80010798K	0.5					3.92	1.82	4.55	2.39	0.18	0.08	0.04	0.02
ERICSSON	RRUS 32 B66	1	27.2	7.0	12.1	53.0	1.67	2.74	2.39	3.53	0.07	0.12	0.01	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	6.88	2.93	0.28	0.10	0.05	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	6.88	2.93	0.28	0.10	0.05	0.02
ERICSSON	RRUS-32 B30	1	29.9	9.5	13.3	77.0	2.42	3.31	3.23	4.17	0.10	0.14	0.02	0.02
ERICSSON	RADIO 4449 B5/B12	1	15.0	10.4	13.2	73.0	1.30	1.64	1.82	2.22	0.05	0.07	0.01	0.01
ERICSSON	RRUS 4415 B25	1	15.0	13.2	5.4	44.0	1.64	0.68	2.22	1.11	0.07	0.03	0.01	0.00

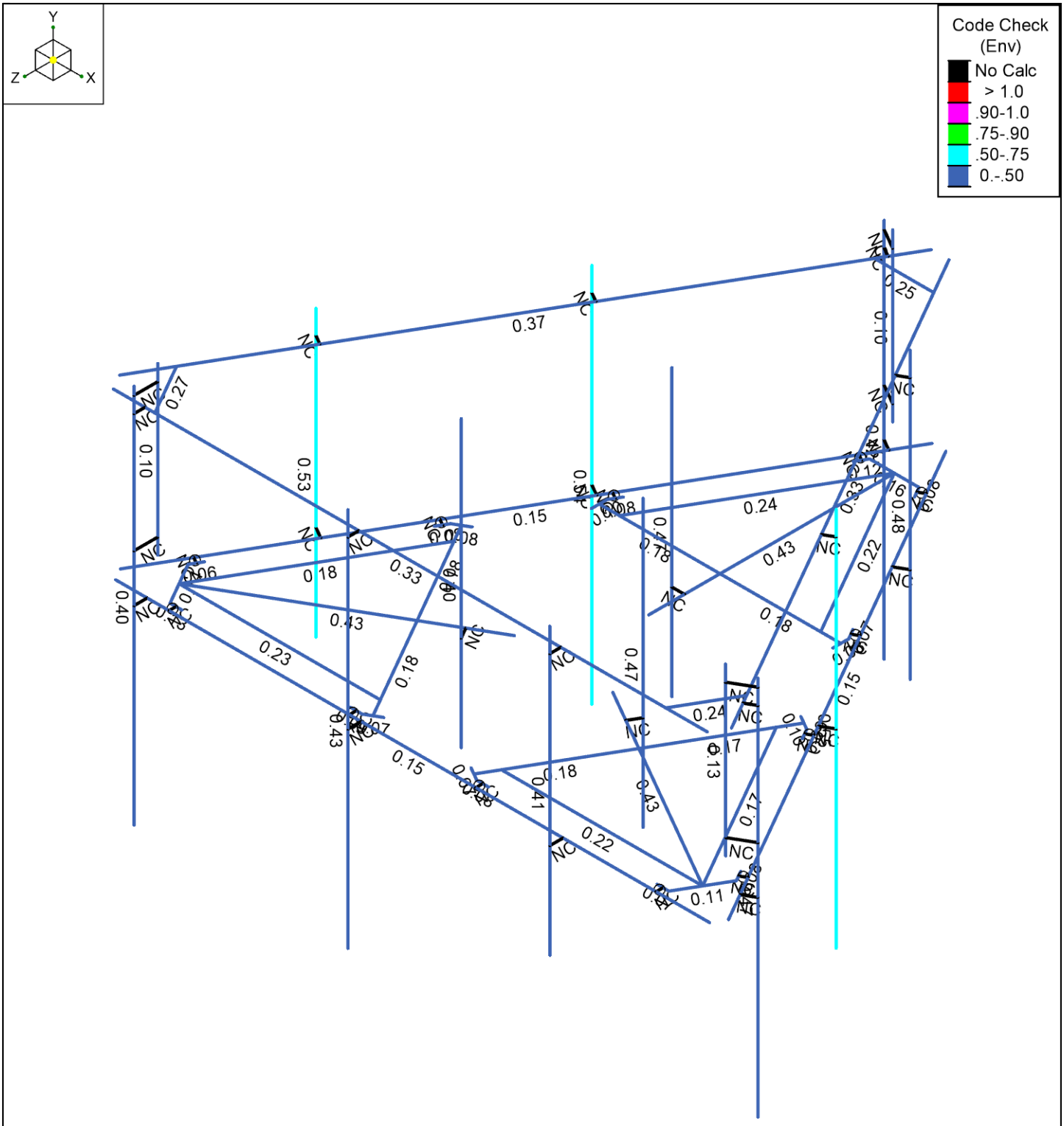
PROJECT	**84470.020.01.0002 - Cromwell / First**	**KSC**
SUBJECT	**Platform Mount Analysis**	
DATE	**09-17-22**	

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

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)
CCI ANTENNAS	HPA-65R-BUU-H6	0.5	72.0	14.8	9.0	47.9	4.61	2.33	5.40	3.05	0.21	0.10	0.04	0.02
CCI ANTENNAS	HPA-65R-BUU-H6	0.5					4.61	2.33	5.40	3.05	0.21	0.10	0.04	0.02
KATHREIN	80010798K	0.5	78.5	14.8	6.7	86.3	3.92	1.82	4.55	2.39	0.18	0.08	0.04	0.02
KATHREIN	80010798K	0.5					3.92	1.82	4.55	2.39	0.18	0.08	0.04	0.02
ERICSSON	RRUS 32 B66	1	27.2	7.0	12.1	53.0	1.67	2.74	2.39	3.53	0.07	0.12	0.01	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	6.88	2.93	0.28	0.10	0.05	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	6.88	2.93	0.28	0.10	0.05	0.02
ERICSSON	RRUS-32 B30	1	29.9	9.5	13.3	77.0	2.42	3.31	3.23	4.17	0.10	0.14	0.02	0.02
ERICSSON	RADIO 4449 B5/B12	1	15.0	10.4	13.2	73.0	1.30	1.64	1.82	2.22	0.05	0.07	0.01	0.01
ERICSSON	RRUS 4415 B25	1	15.0	13.2	5.4	44.0	1.64	0.68	2.22	1.11	0.07	0.03	0.01	0.00
RAYCAP	DC6-48-60-18-8F	1	22.3	11.0	11.0	18.9	0.85	0.85	1.13	1.13	0.03	0.03	0.01	0.01
RAYCAP	DC6-48-60-18-8F	1		11.0	11.0	18.9	0.85	0.85	1.13	1.13	0.03	0.03	0.01	0.01

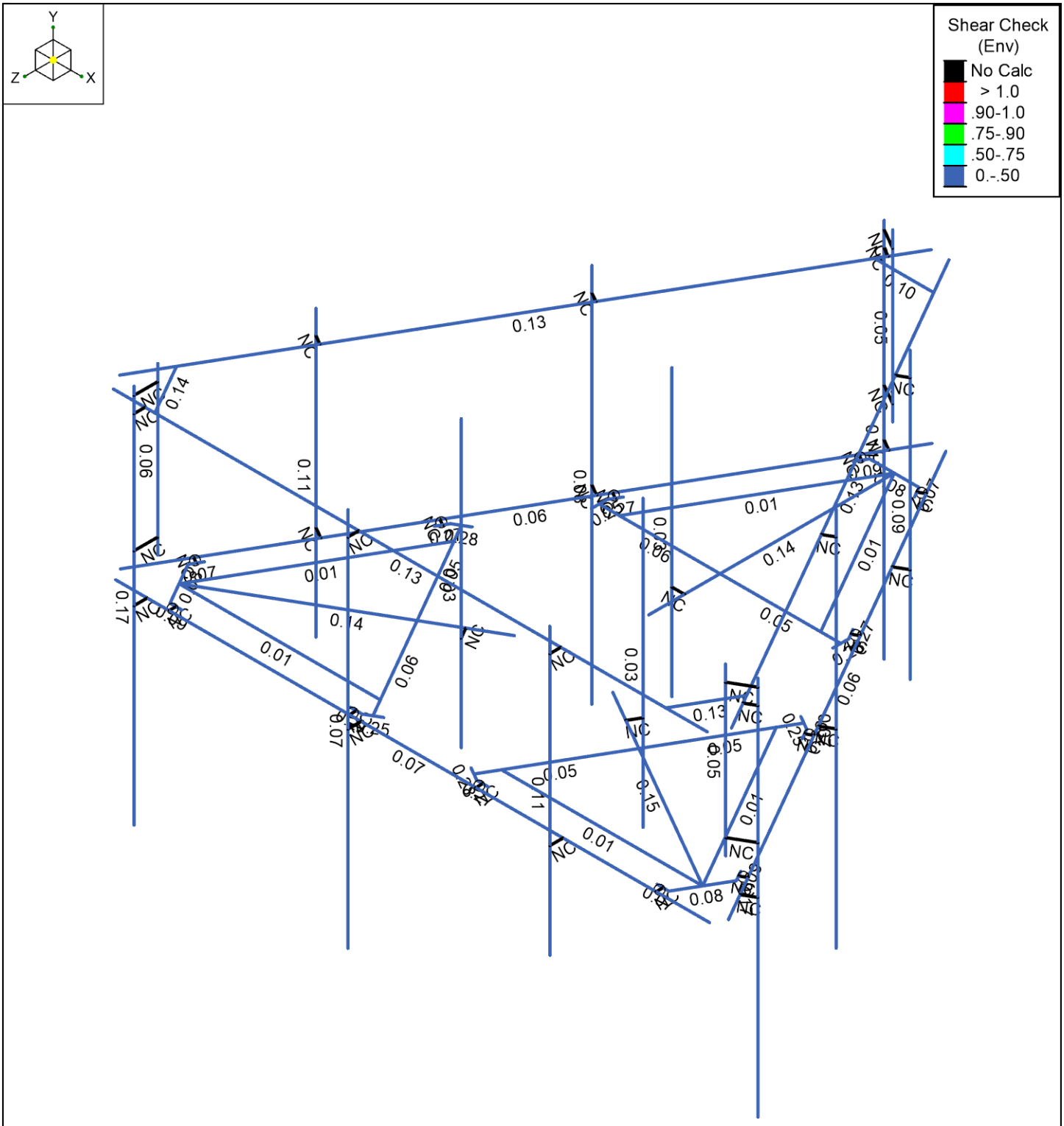
APPENDIX C

SOFTWARE ANALYSIS OUTPUT



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

MTS Engineering, P.L.L.C	876364 - Cromwell / First Line Emergenc	SK-5
NK		Sep 17, 2022
84470.020.01.0002		84470_020_01_0002_Cromwell-Fi…



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

MTS Engineering, P.L.L.C	876364 - Cromwell / First Line Emergenc	SK-6
NK		Sep 17, 2022
84470.020.01.0002		84470_020_01_0002_Cromwell-Fi…

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-6.24964	0	3.775809	
2	2	6.25036	0	3.775809	
3	3	0.70815	0	-6.325066	
4	4	0.581858	0	-6.252152	
5	5	0.644358	0	-6.143898	
6	6	0.519358	0	-6.360405	
7	7	-0.70815	0	-6.325066	
8	8	-0.581858	0	-6.252152	
9	9	-0.644358	0	-6.143898	
10	10	-0.519358	0	-6.360405	
11	11	0	0	-6.360405	
12	12	0	0	-1.193705	
13	13	0	0	-2.693705	
14	14	-2.54129	0	-2.693705	
15	15	2.54129	0	-2.693705	
16	16	-2.54129	0	-2.527005	
17	17	2.54129	0	-2.527005	
18	18	-2.11697	0	-2.693705	
19	19	2.11697	0	-2.693705	
20	20	2.54129	0	-2.858314	
21	21	-2.54129	0	-2.858314	
22	22	2.41629	0	-3.074821	
23	23	2.47879	0	-2.966567	
24	24	2.605083	0	-3.039482	
25	25	-2.41629	0	-3.074821	
26	26	-2.47879	0	-2.966567	
27	27	-2.605083	0	-3.039482	
28	28	0	0	0	
29	29	-5.831743	0	2.549257	
30	30	-5.705451	0	2.622172	
31	31	-5.642951	0	2.513919	
32	32	-5.767951	0	2.730426	
33	33	-5.123593	0	3.775809	
34	34	-5.123593	0	3.629979	
35	35	-4.998593	0	3.629979	
36	36	-5.248593	0	3.629979	
37	37	-5.508272	0	3.180202	
38	38	-1.033779	0	0.596852	
39	39	-2.332817	0	1.346852	
40	40	-1.062172	0	3.547674	
41	41	-3.603462	0	-0.85397	
42	42	-0.917805	0	3.464324	
43	43	-3.459096	0	-0.93732	
44	44	-1.274332	0	3.180202	
45	45	-3.391302	0	-0.486498	
46	46	-3.746018	0	-0.771665	
47	47	-1.204727	0	3.629979	
48	48	-3.871018	0	-0.555159	
49	49	-3.808518	0	-0.663412	
50	50	-3.93481	0	-0.736327	
51	51	-1.454727	0	3.629979	
52	52	-1.329727	0	3.629979	
53	53	-1.329727	0	3.775809	
54	54	5.123593	0	3.775809	
55	55	5.123593	0	3.629979	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	4.998593	0	3.629979	
57	57	5.248593	0	3.629979	
58	58	5.831743	0	2.549257	
59	59	5.705451	0	2.622172	
60	60	5.642951	0	2.513919	
61	61	5.767951	0	2.730426	
62	62	5.508272	0	3.180202	
63	63	1.033779	0	0.596852	
64	64	2.332817	0	1.346852	
65	65	3.603462	0	-0.85397	
66	66	1.062172	0	3.547674	
67	67	3.459096	0	-0.93732	
68	68	0.917805	0	3.464324	
69	69	3.391302	0	-0.486498	
70	70	1.274332	0	3.180202	
71	71	1.204727	0	3.629979	
72	72	3.746018	0	-0.771665	
73	73	1.454727	0	3.629979	
74	74	1.329727	0	3.629979	
75	75	1.329727	0	3.775809	
76	76	3.871018	0	-0.555159	
77	77	3.808518	0	-0.663412	
78	78	3.93481	0	-0.736327	
79	79	6.394767	0	3.524443	
80	80	0.144767	0	-7.300875	
81	81	-0.145126	0	-7.300252	
82	82	-6.395126	0	3.525066	
83	83	3.166669	0	3.775809	
84	84	3.166669	0	4.052411	
85	85	3.166669	4	4.052411	
86	86	3.166669	-2	4.052411	
87	87	-5.583335	0	3.775809	
88	88	-5.583335	0	4.052411	
89	89	-5.583335	4	4.052411	
90	90	-5.583335	-4	4.052411	
91	91	-1.083335	0	3.775809	
92	92	-1.083335	0	4.052411	
93	93	-1.083335	4	4.052411	
94	94	-1.083335	-4	4.052411	
95	95	-5.583335	3.833333	4.052411	
96	96	-5.583335	3.833333	3.552411	
97	97	-5.583335	4.166667	3.552411	
98	98	-5.583335	0.666667	3.552411	
99	99	-5.583335	1	3.552411	
100	100	-5.583335	1	4.052411	
101	101	6.250002	3.5	3.823211	
102	102	-6.250002	3.5	3.822007	
103	103	3.166669	3.5	4.052411	
104	104	3.166669	3.5	3.823211	
105	105	-1.083335	3.5	4.052411	
106	106	-1.083335	3.5	3.823211	
107	107	-5.583335	3.5	4.052411	
108	108	-5.583335	3.5	3.823211	
109	109	0.185997	3.5	-7.324266	
110	110	6.434956	3.5	3.501657	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	-6.435999	3.5	3.501055	
112	112	-0.184954	3.5	-7.323664	
113	113	-0.621875	3.5	-6.567062	
114	114	0.623071	3.5	-6.567062	
115	115	-5.375658	3.5	3.823211	
116	116	-5.998778	3.5	2.743935	
117	117	5.99818	3.5	2.744971	
118	118	5.375658	3.5	3.823211	
119	119	1.686612	0	-4.63032	
120	120	1.926157	0	-4.768621	
121	121	1.926157	4	-4.768621	
122	122	1.926157	-2	-4.768621	
123	123	6.061614	0	2.947406	
124	124	6.301159	0	2.809105	
125	125	6.301159	4	2.809105	
126	126	6.301159	-4	2.809105	
127	127	3.811614	0	-0.949709	
128	128	4.051159	0	-1.08801	
129	129	4.051159	4	-1.08801	
130	130	4.051159	-4	-1.08801	
131	131	6.301159	3.833333	2.809105	
132	132	5.868146	3.833333	3.059105	
133	133	5.868146	4.166667	3.059105	
134	134	5.868146	0.666667	3.059105	
135	135	5.868146	1	3.059105	
136	136	6.301159	1	2.809105	
137	137	1.926157	3.5	-4.768621	
138	138	1.727406	3.5	-4.653873	
139	139	4.051159	3.5	-1.08801	
140	140	3.852054	3.5	-0.973056	
141	141	6.301159	3.5	2.809105	
142	142	6.101678	3.5	2.924275	
143	143	-4.853281	0	0.854511	
144	144	-5.092825	0	0.71621	
145	145	-5.092825	4	0.71621	
146	146	-5.092825	-2	0.71621	
147	147	-0.478279	0	-6.723215	
148	148	-0.717823	0	-6.861516	
149	149	-0.717823	4	-6.861516	
150	150	-0.717823	-4	-6.861516	
151	151	-2.728279	0	-2.8261	
152	152	-2.967823	0	-2.964401	
153	153	-2.967823	4	-2.964401	
154	154	-2.967823	-4	-2.964401	
155	155	-0.717823	3.833333	-6.861516	
156	156	-0.284811	3.833333	-6.611516	
157	157	-0.284811	4.166667	-6.611516	
158	158	-0.284811	0.666667	-6.611516	
159	159	-0.284811	1	-6.611516	
160	160	-0.717823	1	-6.861516	
161	161	-5.092825	3.5	0.71621	
162	162	-4.894075	3.5	0.830959	
163	163	-2.967823	3.5	-2.964401	
164	164	-2.768718	3.5	-2.849448	
165	165	-0.717823	3.5	-6.861516	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
166	166	-0.518343	3.5	-6.746346	
167	167	0	0	-1.943705	
168	168	-0.265625	0	-1.943705	
169	169	-0.265625	4	-1.943705	
170	170	-0.265625	-2	-1.943705	
171	171	-1.683298	0	0.971852	
172	172	-1.550485	0	1.20189	
173	173	-1.550485	4	1.20189	
174	174	-1.550485	-2	1.20189	
175	175	1.683298	0	0.971852	
176	176	1.81611	0	0.741814	
177	177	1.81611	4	0.741814	
178	178	1.81611	-2	0.741814	

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	12	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	38	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	63	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	167						
5	168						
6	169						
7	170						
8	171						
9	172						
10	173						
11	174						
12	175						
13	176						
14	177						
15	178						

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	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 [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	MF-H1	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	SF-H1	HSS4X4X4	Beam	Tube	A53 Gr.B	Typical	3.37	7.8	7.8	12.8
3	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
4	MF-CP1	PL3/8"X6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
5	MF-CP2	PL1/2"X6	Beam	RECT	A36 Gr.36	Typical	3	0.062	9	0.237
6	SF-H2	L2X2X3	Beam	Single Angle	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
7	MF-SR1	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	MF-CA1	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical	1.19	0.692	0.692	0.026

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	2	1		MF-H1	Beam	Pipe	A53 Gr.B	Typical
2	2	3	4		RIGID	None	None	RIGID	Typical
3	3	5	6		MF-CP2	Beam	RECT	A36 Gr.36	Typical
4	4	7	8		RIGID	None	None	RIGID	Typical
5	5	9	10		MF-CP2	Beam	RECT	A36 Gr.36	Typical
6	6	10	6		MF-CP2	Beam	RECT	A36 Gr.36	Typical
7	7	12	11		SF-H1	Beam	Tube	A53 Gr.B	Typical
8	8	14	13		SF-H1	Beam	Tube	A53 Gr.B	Typical
9	9	13	15		SF-H1	Beam	Tube	A53 Gr.B	Typical
10	10	16	21		MF-CP1	Beam	RECT	A36 Gr.36	Typical
11	11	17	20		MF-CP1	Beam	RECT	A36 Gr.36	Typical
12	12	18	11		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
13	13	11	19		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
14	14	20	22		MF-CP1	Beam	RECT	A36 Gr.36	Typical
15	15	23	24		RIGID	None	None	RIGID	Typical
16	16	21	25		MF-CP1	Beam	RECT	A36 Gr.36	Typical
17	17	26	27		RIGID	None	None	RIGID	Typical
18	18	29	30		RIGID	None	None	RIGID	Typical
19	19	31	32		MF-CP2	Beam	RECT	A36 Gr.36	Typical
20	20	33	34		RIGID	None	None	RIGID	Typical
21	21	35	36		MF-CP2	Beam	RECT	A36 Gr.36	Typical
22	22	36	32		MF-CP2	Beam	RECT	A36 Gr.36	Typical
23	23	38	37		SF-H1	Beam	Tube	A53 Gr.B	Typical
24	24	40	39		SF-H1	Beam	Tube	A53 Gr.B	Typical
25	25	39	41		SF-H1	Beam	Tube	A53 Gr.B	Typical
26	26	42	47		MF-CP1	Beam	RECT	A36 Gr.36	Typical
27	27	43	46		MF-CP1	Beam	RECT	A36 Gr.36	Typical
28	28	44	37		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
29	29	37	45		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
30	30	46	48		MF-CP1	Beam	RECT	A36 Gr.36	Typical
31	31	49	50		RIGID	None	None	RIGID	Typical
32	32	47	51		MF-CP1	Beam	RECT	A36 Gr.36	Typical
33	33	52	53		RIGID	None	None	RIGID	Typical
34	34	54	55		RIGID	None	None	RIGID	Typical
35	35	56	57		MF-CP2	Beam	RECT	A36 Gr.36	Typical
36	36	58	59		RIGID	None	None	RIGID	Typical
37	37	60	61		MF-CP2	Beam	RECT	A36 Gr.36	Typical
38	38	61	57		MF-CP2	Beam	RECT	A36 Gr.36	Typical
39	39	63	62		SF-H1	Beam	Tube	A53 Gr.B	Typical
40	40	65	64		SF-H1	Beam	Tube	A53 Gr.B	Typical
41	41	64	66		SF-H1	Beam	Tube	A53 Gr.B	Typical
42	42	67	72		MF-CP1	Beam	RECT	A36 Gr.36	Typical
43	43	68	71		MF-CP1	Beam	RECT	A36 Gr.36	Typical
44	44	69	62		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
45	45	62	70		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
46	46	71	73		MF-CP1	Beam	RECT	A36 Gr.36	Typical
47	47	74	75		RIGID	None	None	RIGID	Typical
48	48	72	76		MF-CP1	Beam	RECT	A36 Gr.36	Typical
49	49	77	78		RIGID	None	None	RIGID	Typical
50	50	80	79		MF-H1	Beam	Pipe	A53 Gr.B	Typical
51	51	82	81		MF-H1	Beam	Pipe	A53 Gr.B	Typical
52	52	83	84		RIGID	None	None	RIGID	Typical
53	53	85	86		MF-P1	Column	Pipe	A53 Gr.B	Typical
54	54	87	88		RIGID	None	None	RIGID	Typical
55	55	89	90		MF-P1	Column	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
56	56	91	92		RIGID	None	None	RIGID	Typical
57	57	93	94		MF-P1	Column	Pipe	A53 Gr.B	Typical
58	58	95	96		RIGID	None	None	RIGID	Typical
59	59	97	98		MF-P1	Column	Pipe	A53 Gr.B	Typical
60	60	99	100		RIGID	None	None	RIGID	Typical
61	61	101	102		MF-SR1	Beam	Pipe	A53 Gr.B	Typical
62	62	103	104		RIGID	None	None	RIGID	Typical
63	63	105	106		RIGID	None	None	RIGID	Typical
64	64	107	108		RIGID	None	None	RIGID	Typical
65	65	109	110		MF-SR1	Beam	Pipe	A53 Gr.B	Typical
66	66	111	112		MF-SR1	Beam	Pipe	A53 Gr.B	Typical
67	67	113	114	180	MF-CA1	Beam	Single Angle	A36 Gr.36	Typical
68	68	115	116	180	MF-CA1	Beam	Single Angle	A36 Gr.36	Typical
69	69	117	118	180	MF-CA1	Beam	Single Angle	A36 Gr.36	Typical
70	70	119	120		RIGID	None	None	RIGID	Typical
71	71	121	122		MF-P1	Column	Pipe	A53 Gr.B	Typical
72	72	123	124		RIGID	None	None	RIGID	Typical
73	73	125	126		MF-P1	Column	Pipe	A53 Gr.B	Typical
74	74	127	128		RIGID	None	None	RIGID	Typical
75	75	129	130		MF-P1	Column	Pipe	A53 Gr.B	Typical
76	76	131	132		RIGID	None	None	RIGID	Typical
77	77	133	134		MF-P1	Column	Pipe	A53 Gr.B	Typical
78	78	135	136		RIGID	None	None	RIGID	Typical
79	79	137	138		RIGID	None	None	RIGID	Typical
80	80	139	140		RIGID	None	None	RIGID	Typical
81	81	141	142		RIGID	None	None	RIGID	Typical
82	82	143	144		RIGID	None	None	RIGID	Typical
83	83	145	146		MF-P1	Column	Pipe	A53 Gr.B	Typical
84	84	147	148		RIGID	None	None	RIGID	Typical
85	85	149	150		MF-P1	Column	Pipe	A53 Gr.B	Typical
86	86	151	152		RIGID	None	None	RIGID	Typical
87	87	153	154		MF-P1	Column	Pipe	A53 Gr.B	Typical
88	88	155	156		RIGID	None	None	RIGID	Typical
89	89	157	158		MF-P1	Column	Pipe	A53 Gr.B	Typical
90	90	159	160		RIGID	None	None	RIGID	Typical
91	91	161	162		RIGID	None	None	RIGID	Typical
92	92	163	164		RIGID	None	None	RIGID	Typical
93	93	165	166		RIGID	None	None	RIGID	Typical
94	94	167	168		RIGID	None	None	RIGID	Typical
95	95	169	170		MF-P1	Column	Pipe	A53 Gr.B	Typical
96	96	171	172		RIGID	None	None	RIGID	Typical
97	97	173	174		MF-P1	Column	Pipe	A53 Gr.B	Typical
98	98	175	176		RIGID	None	None	RIGID	Typical
99	99	177	178		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	OOOOOX		Yes	** NA **	None
3	3			Yes	N/A	None
4	4	OOOOOX		Yes	** NA **	None
5	5			Yes	N/A	None
6	6			Yes	N/A	None
7	7			Yes	N/A	None
8	8			Yes	N/A	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
9	9			Yes	N/A	None
10	10			Yes	Default	None
11	11			Yes	Default	None
12	12			Yes	N/A	None
13	13			Yes	N/A	None
14	14			Yes	N/A	None
15	15		OOOOOX	Yes	** NA **	None
16	16			Yes	N/A	None
17	17		OOOOOX	Yes	** NA **	None
18	18	OOOOOX		Yes	** NA **	None
19	19			Yes	N/A	None
20	20	OOOOOX		Yes	** NA **	None
21	21			Yes	N/A	None
22	22			Yes	N/A	None
23	23			Yes	N/A	None
24	24			Yes	N/A	None
25	25			Yes	N/A	None
26	26			Yes	Default	None
27	27			Yes	Default	None
28	28			Yes	N/A	None
29	29			Yes	N/A	None
30	30			Yes	N/A	None
31	31		OOOOOX	Yes	** NA **	None
32	32			Yes	N/A	None
33	33		OOOOOX	Yes	** NA **	None
34	34	OOOOOX		Yes	** NA **	None
35	35			Yes	N/A	None
36	36	OOOOOX		Yes	** NA **	None
37	37			Yes	N/A	None
38	38			Yes	N/A	None
39	39			Yes	N/A	None
40	40			Yes	N/A	None
41	41			Yes	N/A	None
42	42			Yes	Default	None
43	43			Yes	Default	None
44	44			Yes	N/A	None
45	45			Yes	N/A	None
46	46			Yes	N/A	None
47	47		OOOOOX	Yes	** NA **	None
48	48			Yes	N/A	None
49	49		OOOOOX	Yes	** NA **	None
50	50			Yes	N/A	None
51	51			Yes	N/A	None
52	52			Yes	** NA **	None
53	53			Yes	** NA **	None
54	54			Yes	** NA **	None
55	55			Yes	** NA **	None
56	56			Yes	** NA **	None
57	57			Yes	** NA **	None
58	58			Yes	** NA **	None
59	59			Yes	** NA **	None
60	60			Yes	** NA **	None
61	61			Yes	N/A	None
62	62			Yes	** NA **	None
63	63			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
64	64			Yes	** NA **	None
65	65			Yes	N/A	None
66	66			Yes	N/A	None
67	67			Yes	N/A	None
68	68			Yes	N/A	None
69	69			Yes	N/A	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

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	MF-H1	12.5	Lbyy	N/A	N/A	Lateral
2	3	MF-CP2	0.25	Lbyy	N/A	N/A	Lateral
3	5	MF-CP2	0.25	Lbyy	N/A	N/A	Lateral
4	6	MF-CP2	1.039	Lbyy	N/A	N/A	Lateral
5	7	SF-H1	5.167	Lbyy	N/A	N/A	Lateral
6	8	SF-H1	2.541	Lbyy	N/A	N/A	Lateral
7	9	SF-H1	2.541	Lbyy	N/A	N/A	Lateral
8	10	MF-CP1	0.331	Lbyy	N/A	N/A	Lateral
9	11	MF-CP1	0.331	Lbyy	N/A	N/A	Lateral
10	12	SF-H2	4.234	Lbyy	N/A	N/A	Lateral
11	13	SF-H2	4.234	Lbyy	N/A	N/A	Lateral
12	14	MF-CP1	0.25	Lbyy	N/A	N/A	Lateral
13	16	MF-CP1	0.25	Lbyy	N/A	N/A	Lateral
14	19	MF-CP2	0.25	Lbyy	N/A	N/A	Lateral
15	21	MF-CP2	0.25	Lbyy	N/A	N/A	Lateral
16	22	MF-CP2	1.039	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
17	23	SF-H1	5.167	Lbyy	N/A	N/A	Lateral
18	24	SF-H1	2.541	Lbyy	N/A	N/A	Lateral
19	25	SF-H1	2.541	Lbyy	N/A	N/A	Lateral
20	26	MF-CP1	0.331	Lbyy	N/A	N/A	Lateral
21	27	MF-CP1	0.331	Lbyy	N/A	N/A	Lateral
22	28	SF-H2	4.234	Lbyy	N/A	N/A	Lateral
23	29	SF-H2	4.234	Lbyy	N/A	N/A	Lateral
24	30	MF-CP1	0.25	Lbyy	N/A	N/A	Lateral
25	32	MF-CP1	0.25	Lbyy	N/A	N/A	Lateral
26	35	MF-CP2	0.25	Lbyy	N/A	N/A	Lateral
27	37	MF-CP2	0.25	Lbyy	N/A	N/A	Lateral
28	38	MF-CP2	1.039	Lbyy	N/A	N/A	Lateral
29	39	SF-H1	5.167	Lbyy	N/A	N/A	Lateral
30	40	SF-H1	2.541	Lbyy	N/A	N/A	Lateral
31	41	SF-H1	2.541	Lbyy	N/A	N/A	Lateral
32	42	MF-CP1	0.331	Lbyy	N/A	N/A	Lateral
33	43	MF-CP1	0.331	Lbyy	N/A	N/A	Lateral
34	44	SF-H2	4.234	Lbyy	N/A	N/A	Lateral
35	45	SF-H2	4.234	Lbyy	N/A	N/A	Lateral
36	46	MF-CP1	0.25	Lbyy	N/A	N/A	Lateral
37	48	MF-CP1	0.25	Lbyy	N/A	N/A	Lateral
38	50	MF-H1	12.5	Lbyy	N/A	N/A	Lateral
39	51	MF-H1	12.5	Lbyy	N/A	N/A	Lateral
40	53	MF-P1	6	Lbyy	N/A	N/A	Lateral
41	55	MF-P1	8	Lbyy	N/A	N/A	Lateral
42	57	MF-P1	8	Lbyy	N/A	N/A	Lateral
43	59	MF-P1	3.5	Lbyy	N/A	N/A	Lateral
44	61	MF-SR1	12.5	Lbyy	N/A	N/A	Lateral
45	65	MF-SR1	12.5	Lbyy	N/A	N/A	Lateral
46	66	MF-SR1	12.5	Lbyy	N/A	N/A	Lateral
47	67	MF-CA1	1.245	Lbyy	N/A	N/A	Lateral
48	68	MF-CA1	1.246	Lbyy	N/A	N/A	Lateral
49	69	MF-CA1	1.245	Lbyy	N/A	N/A	Lateral
50	71	MF-P1	6	Lbyy	N/A	N/A	Lateral
51	73	MF-P1	8	Lbyy	N/A	N/A	Lateral
52	75	MF-P1	8	Lbyy	N/A	N/A	Lateral
53	77	MF-P1	3.5	Lbyy	N/A	N/A	Lateral
54	83	MF-P1	6	Lbyy	N/A	N/A	Lateral
55	85	MF-P1	8	Lbyy	N/A	N/A	Lateral
56	87	MF-P1	8	Lbyy	N/A	N/A	Lateral
57	89	MF-P1	3.5	Lbyy	N/A	N/A	Lateral
58	95	MF-P1	6	Lbyy	N/A	N/A	Lateral
59	97	MF-P1	6	Lbyy	N/A	N/A	Lateral
60	99	MF-P1	6	Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	Y	-0.024	%5
2	53	Y	-0.024	%95
3	53	Y	0	0
4	53	Y	0	0
5	53	Y	0	0
6	57	Y	-0.043	%5
7	57	Y	-0.043	%90
8	57	Y	-0.053	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
9	57	Y	0	0
10	57	Y	0	0
11	55	Y	-0.032	%5
12	55	Y	-0.032	%75
13	55	Y	0	0
14	55	Y	0	0
15	55	Y	0	0
16	97	Y	-0.077	%15
17	97	Y	-0.073	%15
18	97	Y	-0.044	%50
19	97	Y	0	0
20	97	Y	0	0
21	83	Y	-0.024	%5
22	83	Y	-0.024	%95
23	83	Y	0	0
24	83	Y	0	0
25	83	Y	0	0
26	87	Y	-0.043	%5
27	87	Y	-0.043	%90
28	87	Y	-0.053	%20
29	87	Y	0	0
30	87	Y	0	0
31	85	Y	-0.032	%5
32	85	Y	-0.032	%75
33	85	Y	0	0
34	85	Y	0	0
35	85	Y	0	0
36	95	Y	-0.077	%15
37	95	Y	-0.073	%15
38	95	Y	-0.044	%50
39	95	Y	0	0
40	95	Y	0	0
41	71	Y	-0.024	%5
42	71	Y	-0.024	%95
43	71	Y	0	0
44	71	Y	0	0
45	71	Y	0	0
46	75	Y	-0.043	%5
47	75	Y	-0.043	%90
48	75	Y	-0.053	%20
49	75	Y	0	0
50	75	Y	0	0
51	73	Y	-0.032	%5
52	73	Y	-0.032	%75
53	73	Y	0	0
54	73	Y	0	0
55	73	Y	0	0
56	99	Y	-0.077	%15
57	99	Y	-0.073	%15
58	99	Y	-0.044	%50
59	99	Y	0	0
60	99	Y	0	0
61	99	Y	-0.019	%10
62	99	Y	0	0
63	99	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
64	99	Y	0	0
65	99	Y	0	0
66	95	Y	-0.019	%10
67	95	Y	0	0
68	95	Y	0	0
69	95	Y	0	0
70	95	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	Z	-0.208	%5
2	53	Z	-0.208	%95
3	53	Z	0	0
4	53	Z	0	0
5	53	Z	0	0
6	57	Z	-0.176	%5
7	57	Z	-0.176	%90
8	57	Z	-0.068	%20
9	57	Z	0	0
10	57	Z	0	0
11	55	Z	-0.275	%5
12	55	Z	-0.275	%75
13	55	Z	0	0
14	55	Z	0	0
15	55	Z	0	0
16	97	Z	-0.098	%15
17	97	Z	-0.053	%15
18	97	Z	-0.067	%50
19	97	Z	0	0
20	97	Z	0	0
21	83	Z	-0.208	%5
22	83	Z	-0.208	%95
23	83	Z	0	0
24	83	Z	0	0
25	83	Z	0	0
26	87	Z	-0.176	%5
27	87	Z	-0.176	%90
28	87	Z	-0.068	%20
29	87	Z	0	0
30	87	Z	0	0
31	85	Z	-0.275	%5
32	85	Z	-0.275	%75
33	85	Z	0	0
34	85	Z	0	0
35	85	Z	0	0
36	95	Z	-0.098	%15
37	95	Z	-0.053	%15
38	95	Z	-0.067	%50
39	95	Z	0	0
40	95	Z	0	0
41	71	Z	-0.208	%5
42	71	Z	-0.208	%95
43	71	Z	0	0
44	71	Z	0	0
45	71	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
46	75	Z	-0.176	%5
47	75	Z	-0.176	%90
48	75	Z	-0.068	%20
49	75	Z	0	0
50	75	Z	0	0
51	73	Z	-0.275	%5
52	73	Z	-0.275	%75
53	73	Z	0	0
54	73	Z	0	0
55	73	Z	0	0
56	99	Z	-0.098	%15
57	99	Z	-0.053	%15
58	99	Z	-0.067	%50
59	99	Z	0	0
60	99	Z	0	0
61	99	Z	-0.034	%10
62	99	Z	0	0
63	99	Z	0	0
64	99	Z	0	0
65	99	Z	0	0
66	95	Z	-0.034	%10
67	95	Z	0	0
68	95	Z	0	0
69	95	Z	0	0
70	95	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	X	-0.105	%5
2	53	X	-0.105	%95
3	53	X	0	0
4	53	X	0	0
5	53	X	0	0
6	57	X	-0.082	%5
7	57	X	-0.082	%90
8	57	X	-0.117	%20
9	57	X	0	0
10	57	X	0	0
11	55	X	-0.102	%5
12	55	X	-0.102	%75
13	55	X	0	0
14	55	X	0	0
15	55	X	0	0
16	97	X	-0.138	%15
17	97	X	-0.067	%15
18	97	X	-0.027	%50
19	97	X	0	0
20	97	X	0	0
21	83	X	-0.105	%5
22	83	X	-0.105	%95
23	83	X	0	0
24	83	X	0	0
25	83	X	0	0
26	87	X	-0.082	%5
27	87	X	-0.082	%90

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
28	87	X	-0.117	%20
29	87	X	0	0
30	87	X	0	0
31	85	X	-0.102	%5
32	85	X	-0.102	%75
33	85	X	0	0
34	85	X	0	0
35	85	X	0	0
36	95	X	-0.138	%15
37	95	X	-0.067	%15
38	95	X	-0.027	%50
39	95	X	0	0
40	95	X	0	0
41	71	X	-0.105	%5
42	71	X	-0.105	%95
43	71	X	0	0
44	71	X	0	0
45	71	X	0	0
46	75	X	-0.082	%5
47	75	X	-0.082	%90
48	75	X	-0.117	%20
49	75	X	0	0
50	75	X	0	0
51	73	X	-0.102	%5
52	73	X	-0.102	%75
53	73	X	0	0
54	73	X	0	0
55	73	X	0	0
56	99	X	-0.138	%15
57	99	X	-0.067	%15
58	99	X	-0.027	%50
59	99	X	0	0
60	99	X	0	0
61	99	X	-0.034	%10
62	99	X	0	0
63	99	X	0	0
64	99	X	0	0
65	99	X	0	0
66	95	X	-0.034	%10
67	95	X	0	0
68	95	X	0	0
69	95	X	0	0
70	95	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	Z	-0.043	%5
2	53	Z	-0.043	%95
3	53	Z	0	0
4	53	Z	0	0
5	53	Z	0	0
6	57	Z	-0.036	%5
7	57	Z	-0.036	%90
8	57	Z	-0.012	%20
9	57	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	57	Z	0	0
11	55	Z	-0.055	%5
12	55	Z	-0.055	%75
13	55	Z	0	0
14	55	Z	0	0
15	55	Z	0	0
16	97	Z	-0.017	%15
17	97	Z	-0.009	%15
18	97	Z	-0.012	%50
19	97	Z	0	0
20	97	Z	0	0
21	83	Z	-0.043	%5
22	83	Z	-0.043	%95
23	83	Z	0	0
24	83	Z	0	0
25	83	Z	0	0
26	87	Z	-0.036	%5
27	87	Z	-0.036	%90
28	87	Z	-0.012	%20
29	87	Z	0	0
30	87	Z	0	0
31	85	Z	-0.055	%5
32	85	Z	-0.055	%75
33	85	Z	0	0
34	85	Z	0	0
35	85	Z	0	0
36	95	Z	-0.017	%15
37	95	Z	-0.009	%15
38	95	Z	-0.012	%50
39	95	Z	0	0
40	95	Z	0	0
41	71	Z	-0.043	%5
42	71	Z	-0.043	%95
43	71	Z	0	0
44	71	Z	0	0
45	71	Z	0	0
46	75	Z	-0.036	%5
47	75	Z	-0.036	%90
48	75	Z	-0.012	%20
49	75	Z	0	0
50	75	Z	0	0
51	73	Z	-0.055	%5
52	73	Z	-0.055	%75
53	73	Z	0	0
54	73	Z	0	0
55	73	Z	0	0
56	99	Z	-0.017	%15
57	99	Z	-0.009	%15
58	99	Z	-0.012	%50
59	99	Z	0	0
60	99	Z	0	0
61	99	Z	-0.006	%10
62	99	Z	0	0
63	99	Z	0	0
64	99	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
65	99	Z	0	0
66	95	Z	-0.006	%10
67	95	Z	0	0
68	95	Z	0	0
69	95	Z	0	0
70	95	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	X	-0.024	%5
2	53	X	-0.024	%95
3	53	X	0	0
4	53	X	0	0
5	53	X	0	0
6	57	X	-0.019	%5
7	57	X	-0.019	%90
8	57	X	-0.021	%20
9	57	X	0	0
10	57	X	0	0
11	55	X	-0.023	%5
12	55	X	-0.023	%75
13	55	X	0	0
14	55	X	0	0
15	55	X	0	0
16	97	X	-0.024	%15
17	97	X	-0.012	%15
18	97	X	-0.005	%50
19	97	X	0	0
20	97	X	0	0
21	83	X	-0.024	%5
22	83	X	-0.024	%95
23	83	X	0	0
24	83	X	0	0
25	83	X	0	0
26	87	X	-0.019	%5
27	87	X	-0.019	%90
28	87	X	-0.021	%20
29	87	X	0	0
30	87	X	0	0
31	85	X	-0.023	%5
32	85	X	-0.023	%75
33	85	X	0	0
34	85	X	0	0
35	85	X	0	0
36	95	X	-0.024	%15
37	95	X	-0.012	%15
38	95	X	-0.005	%50
39	95	X	0	0
40	95	X	0	0
41	71	X	-0.024	%5
42	71	X	-0.024	%95
43	71	X	0	0
44	71	X	0	0
45	71	X	0	0
46	75	X	-0.019	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
47	75	X	-0.019	%90
48	75	X	-0.021	%20
49	75	X	0	0
50	75	X	0	0
51	73	X	-0.023	%5
52	73	X	-0.023	%75
53	73	X	0	0
54	73	X	0	0
55	73	X	0	0
56	99	X	-0.024	%15
57	99	X	-0.012	%15
58	99	X	-0.005	%50
59	99	X	0	0
60	99	X	0	0
61	99	X	-0.006	%10
62	99	X	0	0
63	99	X	0	0
64	99	X	0	0
65	99	X	0	0
66	95	X	-0.006	%10
67	95	X	0	0
68	95	X	0	0
69	95	X	0	0
70	95	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	Z	-0.013	%5
2	53	Z	-0.013	%95
3	53	Z	0	0
4	53	Z	0	0
5	53	Z	0	0
6	57	Z	-0.011	%5
7	57	Z	-0.011	%90
8	57	Z	-0.004	%20
9	57	Z	0	0
10	57	Z	0	0
11	55	Z	-0.018	%5
12	55	Z	-0.018	%75
13	55	Z	0	0
14	55	Z	0	0
15	55	Z	0	0
16	97	Z	-0.006	%15
17	97	Z	-0.003	%15
18	97	Z	-0.004	%50
19	97	Z	0	0
20	97	Z	0	0
21	83	Z	-0.013	%5
22	83	Z	-0.013	%95
23	83	Z	0	0
24	83	Z	0	0
25	83	Z	0	0
26	87	Z	-0.011	%5
27	87	Z	-0.011	%90
28	87	Z	-0.004	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
29	87	Z	0	0
30	87	Z	0	0
31	85	Z	-0.018	%5
32	85	Z	-0.018	%75
33	85	Z	0	0
34	85	Z	0	0
35	85	Z	0	0
36	95	Z	-0.006	%15
37	95	Z	-0.003	%15
38	95	Z	-0.004	%50
39	95	Z	0	0
40	95	Z	0	0
41	71	Z	-0.013	%5
42	71	Z	-0.013	%95
43	71	Z	0	0
44	71	Z	0	0
45	71	Z	0	0
46	75	Z	-0.011	%5
47	75	Z	-0.011	%90
48	75	Z	-0.004	%20
49	75	Z	0	0
50	75	Z	0	0
51	73	Z	-0.018	%5
52	73	Z	-0.018	%75
53	73	Z	0	0
54	73	Z	0	0
55	73	Z	0	0
56	99	Z	-0.006	%15
57	99	Z	-0.003	%15
58	99	Z	-0.004	%50
59	99	Z	0	0
60	99	Z	0	0
61	99	Z	-0.002	%10
62	99	Z	0	0
63	99	Z	0	0
64	99	Z	0	0
65	99	Z	0	0
66	95	Z	-0.002	%10
67	95	Z	0	0
68	95	Z	0	0
69	95	Z	0	0
70	95	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	X	-0.007	%5
2	53	X	-0.007	%95
3	53	X	0	0
4	53	X	0	0
5	53	X	0	0
6	57	X	-0.005	%5
7	57	X	-0.005	%90
8	57	X	-0.007	%20
9	57	X	0	0
10	57	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
11	55	X	-0.006	%5
12	55	X	-0.006	%75
13	55	X	0	0
14	55	X	0	0
15	55	X	0	0
16	97	X	-0.009	%15
17	97	X	-0.004	%15
18	97	X	-0.002	%50
19	97	X	0	0
20	97	X	0	0
21	83	X	-0.007	%5
22	83	X	-0.007	%95
23	83	X	0	0
24	83	X	0	0
25	83	X	0	0
26	87	X	-0.005	%5
27	87	X	-0.005	%90
28	87	X	-0.007	%20
29	87	X	0	0
30	87	X	0	0
31	85	X	-0.006	%5
32	85	X	-0.006	%75
33	85	X	0	0
34	85	X	0	0
35	85	X	0	0
36	95	X	-0.009	%15
37	95	X	-0.004	%15
38	95	X	-0.002	%50
39	95	X	0	0
40	95	X	0	0
41	71	X	-0.007	%5
42	71	X	-0.007	%95
43	71	X	0	0
44	71	X	0	0
45	71	X	0	0
46	75	X	-0.005	%5
47	75	X	-0.005	%90
48	75	X	-0.007	%20
49	75	X	0	0
50	75	X	0	0
51	73	X	-0.006	%5
52	73	X	-0.006	%75
53	73	X	0	0
54	73	X	0	0
55	73	X	0	0
56	99	X	-0.009	%15
57	99	X	-0.004	%15
58	99	X	-0.002	%50
59	99	X	0	0
60	99	X	0	0
61	99	X	-0.002	%10
62	99	X	0	0
63	99	X	0	0
64	99	X	0	0
65	99	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
66	95	X	-0.002	%10
67	95	X	0	0
68	95	X	0	0
69	95	X	0	0
70	95	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	Y	-0.084	%5
2	53	Y	-0.084	%95
3	53	Y	0	0
4	53	Y	0	0
5	53	Y	0	0
6	57	Y	-0.108	%5
7	57	Y	-0.108	%90
8	57	Y	-0.048	%20
9	57	Y	0	0
10	57	Y	0	0
11	55	Y	-0.11	%5
12	55	Y	-0.11	%75
13	55	Y	0	0
14	55	Y	0	0
15	55	Y	0	0
16	97	Y	-0.06	%15
17	97	Y	-0.031	%15
18	97	Y	-0.027	%50
19	97	Y	0	0
20	97	Y	0	0
21	83	Y	-0.084	%5
22	83	Y	-0.084	%95
23	83	Y	0	0
24	83	Y	0	0
25	83	Y	0	0
26	87	Y	-0.108	%5
27	87	Y	-0.108	%90
28	87	Y	-0.048	%20
29	87	Y	0	0
30	87	Y	0	0
31	85	Y	-0.11	%5
32	85	Y	-0.11	%75
33	85	Y	0	0
34	85	Y	0	0
35	85	Y	0	0
36	95	Y	-0.06	%15
37	95	Y	-0.031	%15
38	95	Y	-0.027	%50
39	95	Y	0	0
40	95	Y	0	0
41	71	Y	-0.084	%5
42	71	Y	-0.084	%95
43	71	Y	0	0
44	71	Y	0	0
45	71	Y	0	0
46	75	Y	-0.108	%5
47	75	Y	-0.108	%90

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
48	75	Y	-0.048	%20
49	75	Y	0	0
50	75	Y	0	0
51	73	Y	-0.11	%5
52	73	Y	-0.11	%75
53	73	Y	0	0
54	73	Y	0	0
55	73	Y	0	0
56	99	Y	-0.06	%15
57	99	Y	-0.031	%15
58	99	Y	-0.027	%50
59	99	Y	0	0
60	99	Y	0	0
61	99	Y	-0.031	%10
62	99	Y	0	0
63	99	Y	0	0
64	99	Y	0	0
65	99	Y	0	0
66	95	Y	-0.031	%10
67	95	Y	0	0
68	95	Y	0	0
69	95	Y	0	0
70	95	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	Z	-0.014	%5
2	53	Z	-0.014	%95
3	53	Z	0	0
4	53	Z	0	0
5	53	Z	0	0
6	57	Z	-0.026	%5
7	57	Z	-0.026	%90
8	57	Z	-0.016	%20
9	57	Z	0	0
10	57	Z	0	0
11	55	Z	-0.019	%5
12	55	Z	-0.019	%75
13	55	Z	0	0
14	55	Z	0	0
15	55	Z	0	0
16	97	Z	-0.023	%15
17	97	Z	-0.022	%15
18	97	Z	-0.013	%50
19	97	Z	0	0
20	97	Z	0	0
21	83	Z	-0.014	%5
22	83	Z	-0.014	%95
23	83	Z	0	0
24	83	Z	0	0
25	83	Z	0	0
26	87	Z	-0.026	%5
27	87	Z	-0.026	%90
28	87	Z	-0.016	%20
29	87	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
30	87	Z	0	0
31	85	Z	-0.019	%5
32	85	Z	-0.019	%75
33	85	Z	0	0
34	85	Z	0	0
35	85	Z	0	0
36	95	Z	-0.023	%15
37	95	Z	-0.022	%15
38	95	Z	-0.013	%50
39	95	Z	0	0
40	95	Z	0	0
41	71	Z	-0.014	%5
42	71	Z	-0.014	%95
43	71	Z	0	0
44	71	Z	0	0
45	71	Z	0	0
46	75	Z	-0.026	%5
47	75	Z	-0.026	%90
48	75	Z	-0.016	%20
49	75	Z	0	0
50	75	Z	0	0
51	73	Z	-0.019	%5
52	73	Z	-0.019	%75
53	73	Z	0	0
54	73	Z	0	0
55	73	Z	0	0
56	99	Z	-0.023	%15
57	99	Z	-0.022	%15
58	99	Z	-0.013	%50
59	99	Z	0	0
60	99	Z	0	0
61	99	Z	-0.006	%10
62	99	Z	0	0
63	99	Z	0	0
64	99	Z	0	0
65	99	Z	0	0
66	95	Z	-0.006	%10
67	95	Z	0	0
68	95	Z	0	0
69	95	Z	0	0
70	95	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	53	X	-0.014	%5
2	53	X	-0.014	%95
3	53	X	0	0
4	53	X	0	0
5	53	X	0	0
6	57	X	-0.026	%5
7	57	X	-0.026	%90
8	57	X	-0.016	%20
9	57	X	0	0
10	57	X	0	0
11	55	X	-0.019	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
12	55	X	-0.019	%75
13	55	X	0	0
14	55	X	0	0
15	55	X	0	0
16	97	X	-0.023	%15
17	97	X	-0.022	%15
18	97	X	-0.013	%50
19	97	X	0	0
20	97	X	0	0
21	83	X	-0.014	%5
22	83	X	-0.014	%95
23	83	X	0	0
24	83	X	0	0
25	83	X	0	0
26	87	X	-0.026	%5
27	87	X	-0.026	%90
28	87	X	-0.016	%20
29	87	X	0	0
30	87	X	0	0
31	85	X	-0.019	%5
32	85	X	-0.019	%75
33	85	X	0	0
34	85	X	0	0
35	85	X	0	0
36	95	X	-0.023	%15
37	95	X	-0.022	%15
38	95	X	-0.013	%50
39	95	X	0	0
40	95	X	0	0
41	71	X	-0.014	%5
42	71	X	-0.014	%95
43	71	X	0	0
44	71	X	0	0
45	71	X	0	0
46	75	X	-0.026	%5
47	75	X	-0.026	%90
48	75	X	-0.016	%20
49	75	X	0	0
50	75	X	0	0
51	73	X	-0.019	%5
52	73	X	-0.019	%75
53	73	X	0	0
54	73	X	0	0
55	73	X	0	0
56	99	X	-0.023	%15
57	99	X	-0.022	%15
58	99	X	-0.013	%50
59	99	X	0	0
60	99	X	0	0
61	99	X	-0.006	%10
62	99	X	0	0
63	99	X	0	0
64	99	X	0	0
65	99	X	0	0
66	95	X	-0.006	%10

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
67	95	X	0	0
68	95	X	0	0
69	95	X	0	0
70	95	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

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

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	61	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	65	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

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

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	61	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	65	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 13)

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

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	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 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	-0.014	-0.014	0	%100
2	3	Z	-0.024	-0.024	0	%100
3	5	Z	-0.024	-0.024	0	%100
4	6	Z	-0.024	-0.024	0	%100
5	7	Z	-0.022	-0.022	0	%100
6	8	Z	-0.019	-0.019	0	%100
7	9	Z	-0.019	-0.019	0	%100
8	10	Z	-0.024	-0.024	0	%100
9	11	Z	-0.024	-0.024	0	%100
10	12	Z	-0.013	-0.013	0	%100
11	13	Z	-0.013	-0.013	0	%100
12	14	Z	-0.024	-0.024	0	%100
13	16	Z	-0.024	-0.024	0	%100
14	19	Z	-0.024	-0.024	0	%100
15	21	Z	-0.024	-0.024	0	%100
16	22	Z	-0.024	-0.024	0	%100
17	23	Z	-0.022	-0.022	0	%100
18	24	Z	-0.019	-0.019	0	%100
19	25	Z	-0.019	-0.019	0	%100
20	26	Z	-0.024	-0.024	0	%100
21	27	Z	-0.024	-0.024	0	%100
22	28	Z	-0.013	-0.013	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, %)]
23	29	Z	-0.013	-0.013	0	%100
24	30	Z	-0.024	-0.024	0	%100
25	32	Z	-0.024	-0.024	0	%100
26	35	Z	-0.024	-0.024	0	%100
27	37	Z	-0.024	-0.024	0	%100
28	38	Z	-0.024	-0.024	0	%100
29	39	Z	-0.022	-0.022	0	%100
30	40	Z	-0.019	-0.019	0	%100
31	41	Z	-0.019	-0.019	0	%100
32	42	Z	-0.024	-0.024	0	%100
33	43	Z	-0.024	-0.024	0	%100
34	44	Z	-0.013	-0.013	0	%100
35	45	Z	-0.013	-0.013	0	%100
36	46	Z	-0.024	-0.024	0	%100
37	48	Z	-0.024	-0.024	0	%100
38	50	Z	-0.014	-0.014	0	%100
39	51	Z	-0.014	-0.014	0	%100
40	53	Z	-0.01	-0.01	0	%100
41	55	Z	-0.01	-0.01	0	%100
42	57	Z	-0.01	-0.01	0	%100
43	59	Z	-0.008	-0.008	0	%100
44	61	Z	-0.01	-0.01	0	%100
45	65	Z	-0.01	-0.01	0	%100
46	66	Z	-0.01	-0.01	0	%100
47	67	Z	-0.011	-0.011	0	%100
48	68	Z	-0.011	-0.011	0	%100
49	69	Z	-0.011	-0.011	0	%100
50	71	Z	-0.01	-0.01	0	%100
51	73	Z	-0.01	-0.01	0	%100
52	75	Z	-0.01	-0.01	0	%100
53	77	Z	-0.008	-0.008	0	%100
54	83	Z	-0.01	-0.01	0	%100
55	85	Z	-0.01	-0.01	0	%100
56	87	Z	-0.01	-0.01	0	%100
57	89	Z	-0.008	-0.008	0	%100
58	95	Z	-0.01	-0.01	0	%100
59	97	Z	-0.01	-0.01	0	%100
60	99	Z	-0.01	-0.01	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.014	-0.014	0	%100
2	3	X	-0.024	-0.024	0	%100
3	5	X	-0.024	-0.024	0	%100
4	6	X	-0.024	-0.024	0	%100
5	7	X	-0.022	-0.022	0	%100
6	8	X	-0.019	-0.019	0	%100
7	9	X	-0.019	-0.019	0	%100
8	10	X	-0.024	-0.024	0	%100
9	11	X	-0.024	-0.024	0	%100
10	12	X	-0.013	-0.013	0	%100
11	13	X	-0.013	-0.013	0	%100
12	14	X	-0.024	-0.024	0	%100
13	16	X	-0.024	-0.024	0	%100
14	19	X	-0.024	-0.024	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, %)]
15	21	X	-0.024	-0.024	0	%100
16	22	X	-0.024	-0.024	0	%100
17	23	X	-0.022	-0.022	0	%100
18	24	X	-0.019	-0.019	0	%100
19	25	X	-0.019	-0.019	0	%100
20	26	X	-0.024	-0.024	0	%100
21	27	X	-0.024	-0.024	0	%100
22	28	X	-0.013	-0.013	0	%100
23	29	X	-0.013	-0.013	0	%100
24	30	X	-0.024	-0.024	0	%100
25	32	X	-0.024	-0.024	0	%100
26	35	X	-0.024	-0.024	0	%100
27	37	X	-0.024	-0.024	0	%100
28	38	X	-0.024	-0.024	0	%100
29	39	X	-0.022	-0.022	0	%100
30	40	X	-0.019	-0.019	0	%100
31	41	X	-0.019	-0.019	0	%100
32	42	X	-0.024	-0.024	0	%100
33	43	X	-0.024	-0.024	0	%100
34	44	X	-0.013	-0.013	0	%100
35	45	X	-0.013	-0.013	0	%100
36	46	X	-0.024	-0.024	0	%100
37	48	X	-0.024	-0.024	0	%100
38	50	X	-0.014	-0.014	0	%100
39	51	X	-0.014	-0.014	0	%100
40	53	X	-0.01	-0.01	0	%100
41	55	X	-0.01	-0.01	0	%100
42	57	X	-0.01	-0.01	0	%100
43	59	X	-0.008	-0.008	0	%100
44	61	X	-0.01	-0.01	0	%100
45	65	X	-0.01	-0.01	0	%100
46	66	X	-0.01	-0.01	0	%100
47	67	X	-0.011	-0.011	0	%100
48	68	X	-0.011	-0.011	0	%100
49	69	X	-0.011	-0.011	0	%100
50	71	X	-0.01	-0.01	0	%100
51	73	X	-0.01	-0.01	0	%100
52	75	X	-0.01	-0.01	0	%100
53	77	X	-0.008	-0.008	0	%100
54	83	X	-0.01	-0.01	0	%100
55	85	X	-0.01	-0.01	0	%100
56	87	X	-0.01	-0.01	0	%100
57	89	X	-0.008	-0.008	0	%100
58	95	X	-0.01	-0.01	0	%100
59	97	X	-0.01	-0.01	0	%100
60	99	X	-0.01	-0.01	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	3	Z	-0.01	-0.01	0	%100
3	5	Z	-0.01	-0.01	0	%100
4	6	Z	-0.007	-0.007	0	%100
5	7	Z	-0.006	-0.006	0	%100
6	8	Z	-0.005	-0.005	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
7	9	Z	-0.005	-0.005	0	%100
8	10	Z	-0.009	-0.009	0	%100
9	11	Z	-0.009	-0.009	0	%100
10	12	Z	-0.005	-0.005	0	%100
11	13	Z	-0.005	-0.005	0	%100
12	14	Z	-0.01	-0.01	0	%100
13	16	Z	-0.01	-0.01	0	%100
14	19	Z	-0.01	-0.01	0	%100
15	21	Z	-0.01	-0.01	0	%100
16	22	Z	-0.007	-0.007	0	%100
17	23	Z	-0.006	-0.006	0	%100
18	24	Z	-0.005	-0.005	0	%100
19	25	Z	-0.005	-0.005	0	%100
20	26	Z	-0.009	-0.009	0	%100
21	27	Z	-0.009	-0.009	0	%100
22	28	Z	-0.005	-0.005	0	%100
23	29	Z	-0.005	-0.005	0	%100
24	30	Z	-0.01	-0.01	0	%100
25	32	Z	-0.01	-0.01	0	%100
26	35	Z	-0.01	-0.01	0	%100
27	37	Z	-0.01	-0.01	0	%100
28	38	Z	-0.007	-0.007	0	%100
29	39	Z	-0.006	-0.006	0	%100
30	40	Z	-0.005	-0.005	0	%100
31	41	Z	-0.005	-0.005	0	%100
32	42	Z	-0.009	-0.009	0	%100
33	43	Z	-0.009	-0.009	0	%100
34	44	Z	-0.005	-0.005	0	%100
35	45	Z	-0.005	-0.005	0	%100
36	46	Z	-0.01	-0.01	0	%100
37	48	Z	-0.01	-0.01	0	%100
38	50	Z	-0.002	-0.002	0	%100
39	51	Z	-0.002	-0.002	0	%100
40	53	Z	-0.002	-0.002	0	%100
41	55	Z	-0.002	-0.002	0	%100
42	57	Z	-0.002	-0.002	0	%100
43	59	Z	-0.002	-0.002	0	%100
44	61	Z	-0.002	-0.002	0	%100
45	65	Z	-0.002	-0.002	0	%100
46	66	Z	-0.002	-0.002	0	%100
47	67	Z	-0.004	-0.004	0	%100
48	68	Z	-0.004	-0.004	0	%100
49	69	Z	-0.004	-0.004	0	%100
50	71	Z	-0.002	-0.002	0	%100
51	73	Z	-0.002	-0.002	0	%100
52	75	Z	-0.002	-0.002	0	%100
53	77	Z	-0.002	-0.002	0	%100
54	83	Z	-0.002	-0.002	0	%100
55	85	Z	-0.002	-0.002	0	%100
56	87	Z	-0.002	-0.002	0	%100
57	89	Z	-0.002	-0.002	0	%100
58	95	Z	-0.002	-0.002	0	%100
59	97	Z	-0.002	-0.002	0	%100
60	99	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	-0.002	-0.002	0	%100
2	3	X	-0.01	-0.01	0	%100
3	5	X	-0.01	-0.01	0	%100
4	6	X	-0.007	-0.007	0	%100
5	7	X	-0.006	-0.006	0	%100
6	8	X	-0.005	-0.005	0	%100
7	9	X	-0.005	-0.005	0	%100
8	10	X	-0.009	-0.009	0	%100
9	11	X	-0.009	-0.009	0	%100
10	12	X	-0.005	-0.005	0	%100
11	13	X	-0.005	-0.005	0	%100
12	14	X	-0.01	-0.01	0	%100
13	16	X	-0.01	-0.01	0	%100
14	19	X	-0.01	-0.01	0	%100
15	21	X	-0.01	-0.01	0	%100
16	22	X	-0.007	-0.007	0	%100
17	23	X	-0.006	-0.006	0	%100
18	24	X	-0.005	-0.005	0	%100
19	25	X	-0.005	-0.005	0	%100
20	26	X	-0.009	-0.009	0	%100
21	27	X	-0.009	-0.009	0	%100
22	28	X	-0.005	-0.005	0	%100
23	29	X	-0.005	-0.005	0	%100
24	30	X	-0.01	-0.01	0	%100
25	32	X	-0.01	-0.01	0	%100
26	35	X	-0.01	-0.01	0	%100
27	37	X	-0.01	-0.01	0	%100
28	38	X	-0.007	-0.007	0	%100
29	39	X	-0.006	-0.006	0	%100
30	40	X	-0.005	-0.005	0	%100
31	41	X	-0.005	-0.005	0	%100
32	42	X	-0.009	-0.009	0	%100
33	43	X	-0.009	-0.009	0	%100
34	44	X	-0.005	-0.005	0	%100
35	45	X	-0.005	-0.005	0	%100
36	46	X	-0.01	-0.01	0	%100
37	48	X	-0.01	-0.01	0	%100
38	50	X	-0.002	-0.002	0	%100
39	51	X	-0.002	-0.002	0	%100
40	53	X	-0.002	-0.002	0	%100
41	55	X	-0.002	-0.002	0	%100
42	57	X	-0.002	-0.002	0	%100
43	59	X	-0.002	-0.002	0	%100
44	61	X	-0.002	-0.002	0	%100
45	65	X	-0.002	-0.002	0	%100
46	66	X	-0.002	-0.002	0	%100
47	67	X	-0.004	-0.004	0	%100
48	68	X	-0.004	-0.004	0	%100
49	69	X	-0.004	-0.004	0	%100
50	71	X	-0.002	-0.002	0	%100
51	73	X	-0.002	-0.002	0	%100
52	75	X	-0.002	-0.002	0	%100
53	77	X	-0.002	-0.002	0	%100
54	83	X	-0.002	-0.002	0	%100
55	85	X	-0.002	-0.002	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, %)]
56	87	X	-0.002	-0.002	0	%100
57	89	X	-0.002	-0.002	0	%100
58	95	X	-0.002	-0.002	0	%100
59	97	X	-0.002	-0.002	0	%100
60	99	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	-0.0005	-0.0005	0	%100
2	3	Z	-0.002	-0.002	0	%100
3	5	Z	-0.002	-0.002	0	%100
4	6	Z	-0.002	-0.002	0	%100
5	7	Z	-0.001	-0.001	0	%100
6	8	Z	-0.001	-0.001	0	%100
7	9	Z	-0.001	-0.001	0	%100
8	10	Z	-0.002	-0.002	0	%100
9	11	Z	-0.002	-0.002	0	%100
10	12	Z	-0.0009	-0.0009	0	%100
11	13	Z	-0.0009	-0.0009	0	%100
12	14	Z	-0.002	-0.002	0	%100
13	16	Z	-0.002	-0.002	0	%100
14	19	Z	-0.002	-0.002	0	%100
15	21	Z	-0.002	-0.002	0	%100
16	22	Z	-0.002	-0.002	0	%100
17	23	Z	-0.001	-0.001	0	%100
18	24	Z	-0.001	-0.001	0	%100
19	25	Z	-0.001	-0.001	0	%100
20	26	Z	-0.002	-0.002	0	%100
21	27	Z	-0.002	-0.002	0	%100
22	28	Z	-0.0009	-0.0009	0	%100
23	29	Z	-0.0009	-0.0009	0	%100
24	30	Z	-0.002	-0.002	0	%100
25	32	Z	-0.002	-0.002	0	%100
26	35	Z	-0.002	-0.002	0	%100
27	37	Z	-0.002	-0.002	0	%100
28	38	Z	-0.002	-0.002	0	%100
29	39	Z	-0.001	-0.001	0	%100
30	40	Z	-0.001	-0.001	0	%100
31	41	Z	-0.001	-0.001	0	%100
32	42	Z	-0.002	-0.002	0	%100
33	43	Z	-0.002	-0.002	0	%100
34	44	Z	-0.0009	-0.0009	0	%100
35	45	Z	-0.0009	-0.0009	0	%100
36	46	Z	-0.002	-0.002	0	%100
37	48	Z	-0.002	-0.002	0	%100
38	50	Z	-0.0005	-0.0005	0	%100
39	51	Z	-0.0005	-0.0005	0	%100
40	53	Z	-0.0003	-0.0003	0	%100
41	55	Z	-0.0003	-0.0003	0	%100
42	57	Z	-0.0003	-0.0003	0	%100
43	59	Z	-0.0003	-0.0003	0	%100
44	61	Z	-0.0003	-0.0003	0	%100
45	65	Z	-0.0003	-0.0003	0	%100
46	66	Z	-0.0003	-0.0003	0	%100
47	67	Z	-0.0007	-0.0007	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, %)]
48	68	Z	-0.0007	-0.0007	0	%100
49	69	Z	-0.0007	-0.0007	0	%100
50	71	Z	-0.0003	-0.0003	0	%100
51	73	Z	-0.0003	-0.0003	0	%100
52	75	Z	-0.0003	-0.0003	0	%100
53	77	Z	-0.0003	-0.0003	0	%100
54	83	Z	-0.0003	-0.0003	0	%100
55	85	Z	-0.0003	-0.0003	0	%100
56	87	Z	-0.0003	-0.0003	0	%100
57	89	Z	-0.0003	-0.0003	0	%100
58	95	Z	-0.0003	-0.0003	0	%100
59	97	Z	-0.0003	-0.0003	0	%100
60	99	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	-0.0005	-0.0005	0	%100
2	3	X	-0.002	-0.002	0	%100
3	5	X	-0.002	-0.002	0	%100
4	6	X	-0.002	-0.002	0	%100
5	7	X	-0.001	-0.001	0	%100
6	8	X	-0.001	-0.001	0	%100
7	9	X	-0.001	-0.001	0	%100
8	10	X	-0.002	-0.002	0	%100
9	11	X	-0.002	-0.002	0	%100
10	12	X	-0.0009	-0.0009	0	%100
11	13	X	-0.0009	-0.0009	0	%100
12	14	X	-0.002	-0.002	0	%100
13	16	X	-0.002	-0.002	0	%100
14	19	X	-0.002	-0.002	0	%100
15	21	X	-0.002	-0.002	0	%100
16	22	X	-0.002	-0.002	0	%100
17	23	X	-0.001	-0.001	0	%100
18	24	X	-0.001	-0.001	0	%100
19	25	X	-0.001	-0.001	0	%100
20	26	X	-0.002	-0.002	0	%100
21	27	X	-0.002	-0.002	0	%100
22	28	X	-0.0009	-0.0009	0	%100
23	29	X	-0.0009	-0.0009	0	%100
24	30	X	-0.002	-0.002	0	%100
25	32	X	-0.002	-0.002	0	%100
26	35	X	-0.002	-0.002	0	%100
27	37	X	-0.002	-0.002	0	%100
28	38	X	-0.002	-0.002	0	%100
29	39	X	-0.001	-0.001	0	%100
30	40	X	-0.001	-0.001	0	%100
31	41	X	-0.001	-0.001	0	%100
32	42	X	-0.002	-0.002	0	%100
33	43	X	-0.002	-0.002	0	%100
34	44	X	-0.0009	-0.0009	0	%100
35	45	X	-0.0009	-0.0009	0	%100
36	46	X	-0.002	-0.002	0	%100
37	48	X	-0.002	-0.002	0	%100
38	50	X	-0.0005	-0.0005	0	%100
39	51	X	-0.0005	-0.0005	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, %)]
40	53	X	-0.0003	-0.0003	0	%100
41	55	X	-0.0003	-0.0003	0	%100
42	57	X	-0.0003	-0.0003	0	%100
43	59	X	-0.0003	-0.0003	0	%100
44	61	X	-0.0003	-0.0003	0	%100
45	65	X	-0.0003	-0.0003	0	%100
46	66	X	-0.0003	-0.0003	0	%100
47	67	X	-0.0007	-0.0007	0	%100
48	68	X	-0.0007	-0.0007	0	%100
49	69	X	-0.0007	-0.0007	0	%100
50	71	X	-0.0003	-0.0003	0	%100
51	73	X	-0.0003	-0.0003	0	%100
52	75	X	-0.0003	-0.0003	0	%100
53	77	X	-0.0003	-0.0003	0	%100
54	83	X	-0.0003	-0.0003	0	%100
55	85	X	-0.0003	-0.0003	0	%100
56	87	X	-0.0003	-0.0003	0	%100
57	89	X	-0.0003	-0.0003	0	%100
58	95	X	-0.0003	-0.0003	0	%100
59	97	X	-0.0003	-0.0003	0	%100
60	99	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	-0.006	-0.006	0	%100
2	3	Y	-0.01	-0.01	0	%100
3	5	Y	-0.01	-0.01	0	%100
4	6	Y	-0.01	-0.01	0	%100
5	7	Y	-0.009	-0.009	0	%100
6	8	Y	-0.009	-0.009	0	%100
7	9	Y	-0.009	-0.009	0	%100
8	10	Y	-0.01	-0.01	0	%100
9	11	Y	-0.01	-0.01	0	%100
10	12	Y	-0.005	-0.005	0	%100
11	13	Y	-0.005	-0.005	0	%100
12	14	Y	-0.01	-0.01	0	%100
13	16	Y	-0.01	-0.01	0	%100
14	19	Y	-0.01	-0.01	0	%100
15	21	Y	-0.01	-0.01	0	%100
16	22	Y	-0.01	-0.01	0	%100
17	23	Y	-0.009	-0.009	0	%100
18	24	Y	-0.009	-0.009	0	%100
19	25	Y	-0.009	-0.009	0	%100
20	26	Y	-0.01	-0.01	0	%100
21	27	Y	-0.01	-0.01	0	%100
22	28	Y	-0.005	-0.005	0	%100
23	29	Y	-0.005	-0.005	0	%100
24	30	Y	-0.01	-0.01	0	%100
25	32	Y	-0.01	-0.01	0	%100
26	35	Y	-0.01	-0.01	0	%100
27	37	Y	-0.01	-0.01	0	%100
28	38	Y	-0.01	-0.01	0	%100
29	39	Y	-0.009	-0.009	0	%100
30	40	Y	-0.009	-0.009	0	%100
31	41	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, %)]
32	42	Y	-0.01	-0.01	0	%100
33	43	Y	-0.01	-0.01	0	%100
34	44	Y	-0.005	-0.005	0	%100
35	45	Y	-0.005	-0.005	0	%100
36	46	Y	-0.01	-0.01	0	%100
37	48	Y	-0.01	-0.01	0	%100
38	50	Y	-0.006	-0.006	0	%100
39	51	Y	-0.006	-0.006	0	%100
40	53	Y	-0.005	-0.005	0	%100
41	55	Y	-0.005	-0.005	0	%100
42	57	Y	-0.005	-0.005	0	%100
43	59	Y	-0.005	-0.005	0	%100
44	61	Y	-0.005	-0.005	0	%100
45	65	Y	-0.005	-0.005	0	%100
46	66	Y	-0.005	-0.005	0	%100
47	67	Y	-0.006	-0.006	0	%100
48	68	Y	-0.006	-0.006	0	%100
49	69	Y	-0.006	-0.006	0	%100
50	71	Y	-0.005	-0.005	0	%100
51	73	Y	-0.005	-0.005	0	%100
52	75	Y	-0.005	-0.005	0	%100
53	77	Y	-0.005	-0.005	0	%100
54	83	Y	-0.005	-0.005	0	%100
55	85	Y	-0.005	-0.005	0	%100
56	87	Y	-0.005	-0.005	0	%100
57	89	Y	-0.005	-0.005	0	%100
58	95	Y	-0.005	-0.005	0	%100
59	97	Y	-0.005	-0.005	0	%100
60	99	Y	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	3	Z	-0.003	-0.003	0	%100
3	5	Z	-0.003	-0.003	0	%100
4	6	Z	-0.003	-0.003	0	%100
5	7	Z	-0.004	-0.004	0	%100
6	8	Z	-0.004	-0.004	0	%100
7	9	Z	-0.004	-0.004	0	%100
8	10	Z	-0.002	-0.002	0	%100
9	11	Z	-0.002	-0.002	0	%100
10	12	Z	-0.0007	-0.0007	0	%100
11	13	Z	-0.0007	-0.0007	0	%100
12	14	Z	-0.002	-0.002	0	%100
13	16	Z	-0.002	-0.002	0	%100
14	19	Z	-0.003	-0.003	0	%100
15	21	Z	-0.003	-0.003	0	%100
16	22	Z	-0.003	-0.003	0	%100
17	23	Z	-0.004	-0.004	0	%100
18	24	Z	-0.004	-0.004	0	%100
19	25	Z	-0.004	-0.004	0	%100
20	26	Z	-0.002	-0.002	0	%100
21	27	Z	-0.002	-0.002	0	%100
22	28	Z	-0.0007	-0.0007	0	%100
23	29	Z	-0.0007	-0.0007	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, %)]
24	30	Z	-0.002	-0.002	0	%100
25	32	Z	-0.002	-0.002	0	%100
26	35	Z	-0.003	-0.003	0	%100
27	37	Z	-0.003	-0.003	0	%100
28	38	Z	-0.003	-0.003	0	%100
29	39	Z	-0.004	-0.004	0	%100
30	40	Z	-0.004	-0.004	0	%100
31	41	Z	-0.004	-0.004	0	%100
32	42	Z	-0.002	-0.002	0	%100
33	43	Z	-0.002	-0.002	0	%100
34	44	Z	-0.0007	-0.0007	0	%100
35	45	Z	-0.0007	-0.0007	0	%100
36	46	Z	-0.002	-0.002	0	%100
37	48	Z	-0.002	-0.002	0	%100
38	50	Z	-0.002	-0.002	0	%100
39	51	Z	-0.002	-0.002	0	%100
40	53	Z	-0.001	-0.001	0	%100
41	55	Z	-0.001	-0.001	0	%100
42	57	Z	-0.001	-0.001	0	%100
43	59	Z	-0.001	-0.001	0	%100
44	61	Z	-0.001	-0.001	0	%100
45	65	Z	-0.001	-0.001	0	%100
46	66	Z	-0.001	-0.001	0	%100
47	67	Z	-0.001	-0.001	0	%100
48	68	Z	-0.001	-0.001	0	%100
49	69	Z	-0.001	-0.001	0	%100
50	71	Z	-0.001	-0.001	0	%100
51	73	Z	-0.001	-0.001	0	%100
52	75	Z	-0.001	-0.001	0	%100
53	77	Z	-0.001	-0.001	0	%100
54	83	Z	-0.001	-0.001	0	%100
55	85	Z	-0.001	-0.001	0	%100
56	87	Z	-0.001	-0.001	0	%100
57	89	Z	-0.001	-0.001	0	%100
58	95	Z	-0.001	-0.001	0	%100
59	97	Z	-0.001	-0.001	0	%100
60	99	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	3	X	-0.003	-0.003	0	%100
3	5	X	-0.003	-0.003	0	%100
4	6	X	-0.003	-0.003	0	%100
5	7	X	-0.004	-0.004	0	%100
6	8	X	-0.004	-0.004	0	%100
7	9	X	-0.004	-0.004	0	%100
8	10	X	-0.002	-0.002	0	%100
9	11	X	-0.002	-0.002	0	%100
10	12	X	-0.0007	-0.0007	0	%100
11	13	X	-0.0007	-0.0007	0	%100
12	14	X	-0.002	-0.002	0	%100
13	16	X	-0.002	-0.002	0	%100
14	19	X	-0.003	-0.003	0	%100
15	21	X	-0.003	-0.003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	22	X	-0.003	-0.003	0	%100
17	23	X	-0.004	-0.004	0	%100
18	24	X	-0.004	-0.004	0	%100
19	25	X	-0.004	-0.004	0	%100
20	26	X	-0.002	-0.002	0	%100
21	27	X	-0.002	-0.002	0	%100
22	28	X	-0.0007	-0.0007	0	%100
23	29	X	-0.0007	-0.0007	0	%100
24	30	X	-0.002	-0.002	0	%100
25	32	X	-0.002	-0.002	0	%100
26	35	X	-0.003	-0.003	0	%100
27	37	X	-0.003	-0.003	0	%100
28	38	X	-0.003	-0.003	0	%100
29	39	X	-0.004	-0.004	0	%100
30	40	X	-0.004	-0.004	0	%100
31	41	X	-0.004	-0.004	0	%100
32	42	X	-0.002	-0.002	0	%100
33	43	X	-0.002	-0.002	0	%100
34	44	X	-0.0007	-0.0007	0	%100
35	45	X	-0.0007	-0.0007	0	%100
36	46	X	-0.002	-0.002	0	%100
37	48	X	-0.002	-0.002	0	%100
38	50	X	-0.002	-0.002	0	%100
39	51	X	-0.002	-0.002	0	%100
40	53	X	-0.001	-0.001	0	%100
41	55	X	-0.001	-0.001	0	%100
42	57	X	-0.001	-0.001	0	%100
43	59	X	-0.001	-0.001	0	%100
44	61	X	-0.001	-0.001	0	%100
45	65	X	-0.001	-0.001	0	%100
46	66	X	-0.001	-0.001	0	%100
47	67	X	-0.001	-0.001	0	%100
48	68	X	-0.001	-0.001	0	%100
49	69	X	-0.001	-0.001	0	%100
50	71	X	-0.001	-0.001	0	%100
51	73	X	-0.001	-0.001	0	%100
52	75	X	-0.001	-0.001	0	%100
53	77	X	-0.001	-0.001	0	%100
54	83	X	-0.001	-0.001	0	%100
55	85	X	-0.001	-0.001	0	%100
56	87	X	-0.001	-0.001	0	%100
57	89	X	-0.001	-0.001	0	%100
58	95	X	-0.001	-0.001	0	%100
59	97	X	-0.001	-0.001	0	%100
60	99	X	-0.001	-0.001	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	44	Y	-0.005	-0.001	2.117	4.234
2	45	Y	-0.001	-0.005	0	2.117
3	45	Y	-0.005	-0.008	2.117	4.234
4	23	Y	-0.011	-0.011	2.424	4.115
5	24	Y	-0.009	-0.009	1.573	2.541
6	25	Y	-0.009	-0.009	0	0.969
7	28	Y	-0.009	-0.005	0	2.117

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
8	28	Y	-0.005	-0.001	2.117	4.234
9	29	Y	-0.001	-0.005	0	2.117
10	29	Y	-0.005	-0.008	2.117	4.234
11	7	Y	-0.011	-0.011	2.426	4.111
12	8	Y	-0.009	-0.009	1.573	2.541
13	9	Y	-0.009	-0.009	0	0.969
14	12	Y	-0.008	-0.005	0	2.117
15	12	Y	-0.005	-0.001	2.117	4.234
16	13	Y	-0.001	-0.005	0	2.117
17	13	Y	-0.005	-0.008	2.117	4.234
18	39	Y	-0.011	-0.011	2.426	4.111
19	40	Y	-0.009	-0.009	1.573	2.541
20	41	Y	-0.009	-0.009	0	0.969
21	44	Y	-0.008	-0.005	0	2.117

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	23	Y	-0.006	-0.006	2.426	4.111
2	24	Y	-0.005	-0.005	1.573	2.541
3	25	Y	-0.005	-0.005	0	0.969
4	28	Y	-0.005	-0.003	0	2.117
5	28	Y	-0.003	-0.000785	2.117	4.234
6	29	Y	-0.000785	-0.003	0	2.117
7	29	Y	-0.003	-0.005	2.117	4.234
8	7	Y	-0.006	-0.006	2.424	4.115
9	8	Y	-0.004	-0.004	1.573	2.541
10	9	Y	-0.004	-0.004	0	0.969
11	12	Y	-0.004	-0.002	0	2.117
12	12	Y	-0.002	-0.000698	2.117	4.234
13	13	Y	-0.000728	-0.002	0	2.117
14	13	Y	-0.002	-0.004	2.117	4.234
15	39	Y	-0.006	-0.006	2.424	4.115
16	40	Y	-0.004	-0.004	1.573	2.541
17	41	Y	-0.004	-0.004	0	0.968
18	44	Y	-0.004	-0.002	0	2.117
19	44	Y	-0.002	-0.000728	2.117	4.234
20	45	Y	-0.000698	-0.002	0	2.117
21	45	Y	-0.002	-0.004	2.117	4.234

Member Area Loads (BLC 1 : Dead)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	37	45	44	37	Y	Two Way	-0.01
2	18	11	19	18	Y	Two Way	-0.01
3	70	62	69	70	Y	Two Way	-0.01

Member Area Loads (BLC 8 : Ice)

	Node A	Node B	Node C	Direction	Load Direction	Magnitude [ksf]
1	37	45	44	Y	Two Way	-0.005
2	18	11	19	Y	Two Way	-0.005
3	70	62	69	Y	Two Way	-0.005

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	87	L	Y	-0.5
2	123	L	Y	-0.5
3	147	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	91	L	Y	-0.5
2	127	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	83	L	Y	-0.5
2	119	L	Y	-0.5
3	143	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		70		3
2	0 Wind - No Ice	WLZ			70	60	
3	90 Wind - No Ice	WLX			70	60	
4	0 Wind - Ice	WLZ			70	60	
5	90 Wind - Ice	WLX			70	60	
6	0 Wind - Service	WLZ			70	60	
7	90 Wind - Service	WLX			70	60	
8	Ice	OL1			70	60	3
9	0 Seismic	ELZ			70	60	
10	90 Seismic	ELX			70	60	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL					
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					
31	Maint LL 17	LL					
32	Maint LL 18	LL					
33	Maint LL 19	LL					

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
34	Maint LL 20	LL					
35	Maint LL 21	LL					
36	Maint LL 22	LL					
37	Maint LL 23	LL					
38	Maint LL 24	LL					
39	BLC 1 Transient Area Loads	None				21	
40	BLC 8 Transient Area Loads	None				21	

Load Combinations

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

Load Combinations (Continued)

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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5
104	1.2 D + 1.5 LL Maint (19)	Yes	Y	1	1.2					33	1.5
105	1.2 D + 1.5 LL Maint (20)	Yes	Y	1	1.2					34	1.5
106	1.2 D + 1.5 LL Maint (21)	Yes	Y	1	1.2					35	1.5
107	1.2 D + 1.5 LL Maint (22)	Yes	Y	1	1.2					36	1.5
108	1.2 D + 1.5 LL Maint (23)	Yes	Y	1	1.2					37	1.5
109	1.2 D + 1.5 LL Maint (24)	Yes	Y	1	1.2					38	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	12	max	1.25	5	2.586	14	3.701	2	5.101	14	1.073	11	0.856	11
2		min	-1.244	11	0.432	8	-3.733	8	-1.048	8	-1.067	5	-1.026	5
3	38	max	2.399	6	2.514	18	2.161	13	0.554	13	1.306	3	0.641	12
4		min	-2.429	12	0.518	12	-2.15	7	-2.682	19	-1.301	9	-4.254	18
5	63	max	2.511	4	2.565	22	2.067	3	0.672	3	1.309	7	4.451	22
6		min	-2.485	10	0.535	4	-2.045	9	-2.467	9	-1.304	13	-0.606	4
7	Totals:	max	5.836	5	7.282	14	7.869	2						
8		min	-5.836	11	3.398	8	-7.869	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	75	PIPE_2.0	0.555	4	2	0.07	4		4	14.916	32.13	1.872	1.872	1	H1-1b
2	87	PIPE_2.0	0.538	4	7	0.079	4		8	14.916	32.13	1.872	1.872	1	H1-1b
3	83	PIPE_2.0	0.528	4	2	0.11	4		3	20.867	32.13	1.872	1.872	1	H1-1b
4	71	PIPE_2.0	0.484	4	9	0.092	4		11	20.867	32.13	1.872	1.872	1	H1-1b
5	73	PIPE_2.0	0.469	4	2	0.173	4		13	14.916	32.13	1.872	1.872	1	H1-1b
6	99	PIPE_2.0	0.466	4	11	0.032	4		11	20.867	32.13	1.872	1.872	1	H1-1b
7	95	PIPE_2.0	0.466	4	5	0.032	4		5	20.867	32.13	1.872	1.872	1	H1-1b
8	57	PIPE_2.0	0.433	4	10	0.067	4		12	14.916	32.13	1.872	1.872	1	H1-1b
9	7	HSS4X4X4	0.43	0	3	0.142	0	z	5	97.504	106.155	12.311	12.311	2.69	H1-1b
10	23	HSS4X4X4	0.428	0	7	0.142	0	z	9	97.504	106.155	12.311	12.311	2.67	H1-1b
11	39	HSS4X4X4	0.426	0	9	0.147	0	z	13	97.504	106.155	12.311	12.311	2.853	H1-1b
12	85	PIPE_2.0	0.422	4	7	0.145	4		5	14.916	32.13	1.872	1.872	1	H1-1b
13	53	PIPE_2.0	0.409	4	6	0.105	4		7	20.867	32.13	1.872	1.872	1	H1-1b
14	97	PIPE_2.0	0.402	4	5	0.028	4		5	20.867	32.13	1.872	1.872	1	H1-1b
15	55	PIPE_2.0	0.401	4	9	0.17	4		9	14.916	32.13	1.872	1.872	1	H1-1b
16	66	PIPE_2.0	0.365	2.995	2	0.128	11.719		45	6.295	32.13	1.872	1.872	1	H1-1b
17	61	PIPE_2.0	0.33	2.995	7	0.129	11.719		38	6.295	32.13	1.872	1.872	1	H1-1b
18	65	PIPE_2.0	0.325	11.719	2	0.127	11.719		42	6.295	32.13	1.872	1.872	1	H1-1b
19	68	L2.5X2.5X4	0.265	0	13	0.137	1.246	y	3	36.651	38.556	1.114	2.537	1.5	H2-1
20	67	L2.5X2.5X4	0.254	0	9	0.105	1.245	y	11	36.655	38.556	1.114	2.537	1.5	H2-1
21	69	L2.5X2.5X4	0.238	0	2	0.13	1.245	y	7	36.654	38.556	1.114	2.537	1.5	H2-1
22	12	L2X2X3	0.236	0	3	0.008	0	y	21	9.529	23.393	0.558	1.132	1.469	H2-1
23	28	L2X2X3	0.228	0	7	0.008	0	y	25	9.529	23.393	0.558	1.128	1.446	H2-1
24	45	L2X2X3	0.224	0	9	0.008	0	y	20	9.529	23.393	0.558	1.136	1.5	H2-1
25	13	L2X2X3	0.222	0	13	0.008	0	y	24	9.529	23.393	0.558	1.136	1.5	H2-1
26	41	HSS4X4X4	0.181	0	21	0.053	2.118	z	9	103.994	106.155	12.311	12.311	1.654	H1-1b
27	9	HSS4X4X4	0.18	0	25	0.053	0	y	74	103.994	106.155	12.311	12.311	1.654	H1-1b
28	25	HSS4X4X4	0.178	0	17	0.053	0	y	77	103.994	106.155	12.311	12.311	1.654	H1-1b
29	29	L2X2X3	0.177	0	5	0.008	0	y	16	9.529	23.393	0.558	1.136	1.5	H2-1
30	24	HSS4X4X4	0.176	2.541	19	0.056	0.424	z	7	103.994	106.155	12.311	12.311	1.664	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
31	8	HSS4X4X4	0.176	2.541	15	0.058	0.424	z	2	103.994	106.155	12.311	12.311	1.664	H1-1b
32	44	L2X2X3	0.174	0	11	0.008	0	y	17	9.529	23.393	0.558	1.109	1.333	H2-1
33	40	HSS4X4X4	0.174	2.541	23	0.051	2.541	y	22	103.994	106.155	12.311	12.311	1.664	H1-1b
34	6	PL1/2"X6	0.16	0.519	8	0.082	0.519	y	88	65.639	97.2	1.012	12.15	1.386	H1-1b
35	50	PIPE_3.0	0.149	4.948	25	0.059	7.552		12	28.251	65.205	5.749	5.749	1	H1-1b
36	1	PIPE_3.0	0.148	4.948	21	0.069	11.458		8	28.251	65.205	5.749	5.749	1	H1-1b
37	51	PIPE_3.0	0.146	4.948	17	0.06	11.458		3	28.251	65.205	5.749	5.749	1	H1-1b
38	22	PL1/2"X6	0.143	0.519	13	0.082	0.519	y	90	65.639	97.2	1.012	12.15	1.371	H1-1b
39	21	PL1/2"X6	0.135	0.125	13	0.094	0.25	y	43	95.014	97.2	1.012	12.15	1.46	H1-1b
40	77	PIPE_2.0	0.128	0.365	2	0.054	3.135		13	27.741	32.13	1.872	1.872	1	H1-1b
41	5	PL1/2"X6	0.116	0.125	9	0.094	0.25	y	38	95.014	97.2	1.012	12.15	1.485	H1-1b
42	38	PL1/2"X6	0.113	0.519	9	0.082	0.519	y	86	65.639	97.2	1.012	12.15	1.381	H1-1b
43	10	PL3/8"X6	0.104	0.169	13	0.251	0.169	y	77	67.903	72.9	0.57	9.113	2.572	H1-1b
44	89	PIPE_2.0	0.102	0.365	6	0.048	3.135		5	27.741	32.13	1.872	1.872	1	H1-1b
45	59	PIPE_2.0	0.1	0.365	10	0.057	3.135		9	27.741	32.13	1.872	1.872	1	H1-1b
46	42	PL3/8"X6	0.097	0.169	8	0.251	0.169	y	85	67.903	72.9	0.57	9.113	2.572	H1-1b
47	48	PL3/8"X6	0.093	0.125	13	0.265	0	y	22	70.011	72.9	0.57	9.113	1.449	H1-1b
48	32	PL3/8"X6	0.086	0.125	9	0.265	0	y	18	70.011	72.9	0.57	9.113	1.501	H1-1b
49	30	PL3/8"X6	0.084	0.125	8	0.271	0	y	17	70.011	72.9	0.57	9.113	1.468	H1-1b
50	46	PL3/8"X6	0.083	0.125	13	0.274	0	y	21	70.011	72.9	0.57	9.113	1.398	H1-1b
51	27	PL3/8"X6	0.081	0.169	7	0.278	0.169	y	55	67.903	72.9	0.57	9.113	2.811	H1-1b
52	11	PL3/8"X6	0.077	0.169	3	0.278	0.169	y	51	67.903	72.9	0.57	9.113	2.764	H1-1b
53	16	PL3/8"X6	0.076	0	2	0.267	0	y	14	70.011	72.9	0.57	9.113	2.694	H1-1b
54	3	PL1/2"X6	0.076	0.25	2	0.07	0.25	y	88	95.014	97.2	1.012	12.15	1.402	H1-1b
55	37	PL1/2"X6	0.075	0.125	5	0.093	0.25	y	46	95.014	97.2	1.012	12.15	1.429	H1-1b
56	26	PL3/8"X6	0.074	0.169	5	0.251	0.169	y	81	67.903	72.9	0.57	9.113	2.584	H1-1b
57	14	PL3/8"X6	0.072	0	8	0.274	0	y	14	70.011	72.9	0.57	9.113	1.351	H1-1b
58	43	PL3/8"X6	0.07	0.331	9	0.278	0.169	y	59	67.903	72.9	0.57	9.113	2.68	H1-1b
59	35	PL1/2"X6	0.066	0.125	9	0.07	0.25	y	86	95.014	97.2	1.012	12.15	1.36	H1-1b
60	19	PL1/2"X6	0.06	0.25	6	0.07	0.25	y	90	95.014	97.2	1.012	12.15	1.401	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**84470.020.01.0002 - Cromwell / First SR**				
SUBJECT	**Platform Mount Analysis**				
DATE	**09/19/22**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	3.733	k
Vertical Shear	:	2.586	k
Horizontal Shear	:	1.25	k
Torsion	:	1.026	k.ft
Moment from Horizontal Forces	:	1.073	k.ft
Moment from Vertical Forces	:	5.101	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	2.87	k
Force from Horz. Moment	:	1.94	k
Force from Vert. Moment	:	9.24	k
Shear Load / Bolt	:	0.72	k
Tension Load / Bolt	:	0.93	k
Resultant from Moments / Bolt	:	4.72	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**27.28%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**14.94%**		**OKAY**
Unity Check, Combined	:	**42.23%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**2.07%**		**OKAY**

Date: **August 01, 2022**

MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(770) 379-8500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CT5272
	Site Name:	Cromwell SE
	FA Number:	10070985
Crown Castle Designation:	**BU Number:**	876364
	Site Name:	Cromwell / First Line Emergenc
	JDE Job Number:	715661
	Work Order Number:	2140019
	Order Number:	614870 Rev. 0
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN8-786R1 / 2200039	
Site Data:	**201 Main St., Cromwell, Middlesex County, CT 06416**	
	Latitude *41° 35' 0.11"*, Longitude *-72° 38' 59.14"*	
	125 Foot – EEI 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 – 93.7%**

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

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

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 125 ft monopole tower designed by Engineered Endeavors, Inc.

The tower was modified multiple times in the past to accommodate additional loading. All the modifications are considered in this analysis per their respective post modification inspection reports.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
115.0	117.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 4 2 1	1-1/4 13/16 3/8 2C
		3	cci antennas	OPA65R-BU6D w/ Mount Pipe		
		3	kathrein	80010798K w/ Mount Pipe		
		3	ericsson	RADIO 4449 B5/B12		
		3	ericsson	RADIO 4478 B14		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS 4415 B25		
		3	ericsson	RRUS-32 B30		
		2	raycap	DC6-48-60-18-8F		
	115.0	3	-	6' Mount Pipe [#P2.0 STD]		
		1	Site Pro 1	Support Rail Kit [#HRK-12]		
		1	-	Platform Mount [LP 303-1]		

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)
125.0	129.0	3	argus technologies	LLPX310R-V1 w/ Mount Pipe	3 3 3 2 1 2	1-1/4 5/16 1/4 1/2 3/4 2C
	127.0	3	rfs/celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs/celwave	APXVTM14-C-120 w/ Mount Pipe		
		3	alcatel lucent	TD-RRH8x20-25		
	125.0	2	dragonwave	HORIZON COMPACT		
		3	samsung telecommunications	WIMAX DAP HEAD		
		1	-	Platform Mount [LP 714-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
125.0	124.0	1	andrew	VHLP2-11	-	-
		1	andrew	VHLP2-18		
123.0	123.0	3	alcatel lucent	TME-800MHZ 2X50W RRH W/FILTER	-	-
		3	alcatel lucent	TME-PCS 1900MHz 4x45W-65MHz		
		1	-	Side Arm Mount [SO 102-3]		
105.0	105.0	3	andrew	LNX-6514DS-A1M w/ Mount Pipe	11 1	1-5/8 2
		6	commscope	JAHH-45B-R3B w/ Mount Pipe		
		3	vzw	Sub6 Antenna - VZS01 w/ Mount Pipe		
		1	raycap	RVZDC-6627-PF-48		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		3	commscope	CBC78T-DS-43-2X		
		1	-	Platform Mount [LP 1201-1]		
94.0	97.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-3/8
	94.0	3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	-	Commscope MC-K6MHDX-9-96 (3)		
84.0	84.0	3	ericsson	AIR 6419 B41_TMO w/ Mount Pipe	3	1-5/8
		3	rfs/celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		1	-	T-Arm Mount [TA 602-3_KCKR]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1532312	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1613909	CCISITES
4-TOWER MANUFACTURER DRAWINGS	2068958	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2296089	CCISITES
4-POST-MODIFICATION INSPECTION	2182292	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3373019	CCISITES
4-POST-MODIFICATION INSPECTION	3394680	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2055765	CCISITES
4-POST-MODIFICATION INSPECTION	1956332	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3669962	CCISITES
4-POST-MODIFICATION INSPECTION	4009982	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5685167	CCISITES
4-POST-MODIFICATION INSPECTION	5947318	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 (version 8.1.1.0), 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 included 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	125 - 120	Pole	TP19.575x18.5x0.1875	Pole	10.3	Pass
L2	120 - 115	Pole	TP20.65x19.575x0.1875	Pole	18.1	Pass
L3	115 - 110	Pole	TP21.724x20.65x0.1875	Pole	33.9	Pass
L4	110 - 105	Pole	TP22.799x21.724x0.1875	Pole	45.3	Pass
L5	105 - 100	Pole	TP23.874x22.799x0.1875	Pole	60.3	Pass
L6	100 - 99.38	Pole	TP24.008x23.874x0.1875	Pole	62.0	Pass
L7	99.38 - 99.13	Pole + Reinf.	TP24.062x24.008x0.425	Reinf. 8 Tension Rupture	56.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L8	99.13 - 94.46	Pole + Reinf.	TP25.065x24.062x0.4125	Reinf. 8 Tension Rupture	67.4	Pass
L9	94.46 - 94.21	Pole + Reinf.	TP25.119x25.065x0.6	Reinf. 8 Tension Rupture	47.7	Pass
L10	94.21 - 89.21	Pole + Reinf.	TP26.194x25.119x0.575	Reinf. 8 Tension Rupture	57.6	Pass
L11	89.21 - 89	Pole + Reinf.	TP26.239x26.194x0.575	Reinf. 8 Tension Rupture	58.0	Pass
L12	89 - 88.96	Pole + Reinf.	TP27.09x26.239x0.6625	Reinf. 8 Tension Rupture	50.5	Pass
L13	88.96 - 84.04	Pole + Reinf.	TP26.918x25.873x0.5	Reinf. 4 Tension Rupture	57.7	Pass
L14	84.04 - 79.04	Pole + Reinf.	TP27.981x26.918x0.4875	Reinf. 4 Tension Rupture	66.7	Pass
L15	79.04 - 74.04	Pole + Reinf.	TP29.043x27.981x0.475	Reinf. 4 Tension Rupture	74.9	Pass
L16	74.04 - 73.58	Pole + Reinf.	TP29.14x29.043x0.475	Reinf. 4 Tension Rupture	75.6	Pass
L17	73.58 - 73.33	Pole + Reinf.	TP29.193x29.14x0.6125	Reinf. 4 Tension Rupture	59.9	Pass
L18	73.33 - 73	Pole + Reinf.	TP29.264x29.193x0.6125	Reinf. 4 Tension Rupture	60.3	Pass
L19	73 - 72.75	Pole + Reinf.	TP29.317x29.264x0.375	Reinf. 3 Tension Rupture	74.1	Pass
L20	72.75 - 67.75	Pole + Reinf.	TP30.38x29.317x0.375	Reinf. 3 Tension Rupture	80.7	Pass
L21	67.75 - 63	Pole + Reinf.	TP31.389x30.38x0.3688	Reinf. 3 Tension Rupture	86.4	Pass
L22	63 - 62.75	Pole + Reinf.	TP31.442x31.389x0.575	Reinf. 7 Tension Rupture	71.8	Pass
L23	62.75 - 57.75	Pole + Reinf.	TP32.505x31.442x0.5625	Reinf. 7 Tension Rupture	77.0	Pass
L24	57.75 - 57.23	Pole + Reinf.	TP32.615x32.505x0.45	Reinf. 2 Tension Rupture	75.6	Pass
L25	57.23 - 56.98	Pole + Reinf.	TP32.668x32.615x0.45	Reinf. 2 Tension Rupture	75.8	Pass
L26	56.98 - 51.98	Pole + Reinf.	TP33.731x32.668x0.4438	Reinf. 2 Tension Rupture	80.2	Pass
L27	51.98 - 46.98	Pole + Reinf.	TP34.793x33.731x0.4375	Reinf. 2 Tension Rupture	84.3	Pass
L28	46.98 - 45.54	Pole + Reinf.	TP36.18x34.793x0.4375	Reinf. 2 Tension Rupture	85.4	Pass
L29	45.54 - 39.46	Pole + Reinf.	TP35.889x34.6x0.5	Reinf. 2 Tension Rupture	80.5	Pass
L30	39.46 - 37.83	Pole + Reinf.	TP36.233x35.889x0.4938	Reinf. 2 Tension Rupture	81.4	Pass
L31	37.83 - 37.58	Pole + Reinf.	TP36.286x36.233x0.4938	Reinf. 1 Tension Rupture	81.6	Pass
L32	37.58 - 32.58	Pole + Reinf.	TP37.345x36.286x0.4875	Reinf. 1 Tension Rupture	84.4	Pass
L33	32.58 - 27.58	Pole + Reinf.	TP38.405x37.345x0.4813	Reinf. 1 Tension Rupture	87.0	Pass
L34	27.58 - 22.58	Pole + Reinf.	TP39.465x38.405x0.475	Reinf. 1 Tension Rupture	89.4	Pass
L35	22.58 - 17.58	Pole + Reinf.	TP40.524x39.465x0.475	Reinf. 1 Tension Rupture	91.6	Pass
L36	17.58 - 12.58	Pole + Reinf.	TP41.584x40.524x0.4625	Reinf. 1 Tension Rupture	93.6	Pass
L37	12.58 - 12.25	Pole + Reinf.	TP41.654x41.584x0.4625	Reinf. 1 Tension Rupture	93.7	Pass
L38	12.25 - 12	Pole + Reinf.	TP41.707x41.654x0.6	Reinf. 6 Tension Rupture	79.9	Pass
L39	12 - 7	Pole + Reinf.	TP42.767x41.707x0.5875	Reinf. 6 Tension Rupture	81.9	Pass
L40	7 - 2	Pole + Reinf.	TP43.826x42.767x0.5875	Reinf. 6 Tension Rupture	83.8	Pass
L41	2 - 0	Pole + Reinf.	TP44.25x43.826x0.575	Reinf. 6 Tension Rupture	84.5	Pass
L42					Summary	
				Pole	82.4	Pass
				Reinforcement	93.7	Pass
				Overall	93.7	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	84.9	Pass
1	Base Plate		83.0	Pass
1	Base Foundation (Structure)	0	48.5	Pass
1	Base Foundation (Soil Interaction)		81.1	Pass

Structure Rating (max from all components) =	93.7%*

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.

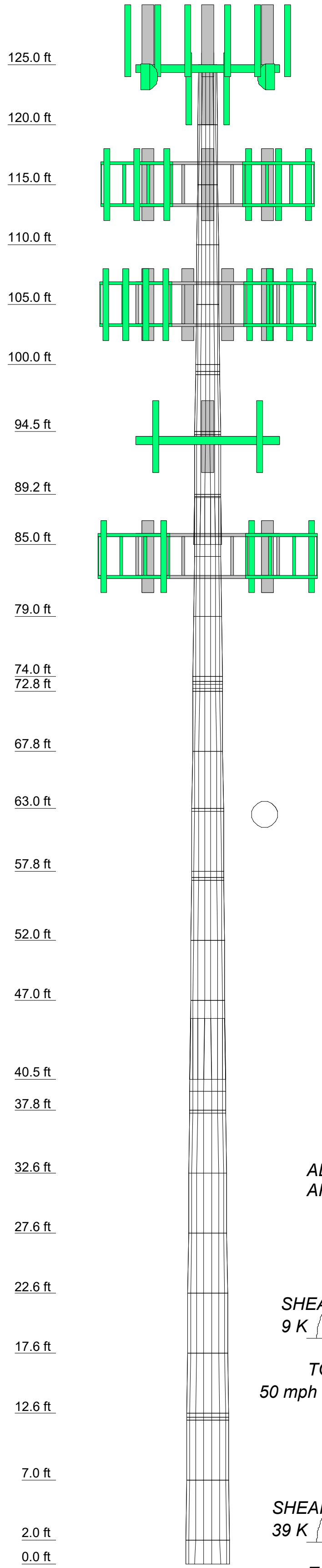
4.1) Recommendations

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	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.1875		18.5000	19.5748		0.2
2	5.00	18	0.1875		19.5748	20.6496		0.2
3	5.00	18	0.1875		20.6496	21.7245		0.2
4	5.00	18	0.1875		21.7245	22.7993		0.2
5	5.00	18	0.1875		22.7993	23.8741		0.2
6	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
7	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
8	4.67	18	[illegible]		[illegible]	[illegible]		0.5
9	0.25	18	[illegible]		[illegible]	[illegible]		0.0
10	5.00	18	0.5750		[illegible]	[illegible]		0.7
11	0.21	18	[illegible]		[illegible]	[illegible]		0.0
12	[illegible]	18	[illegible]	3.92	[illegible]	[illegible]		0.7
13	[illegible]	18	[illegible]		[illegible]	[illegible]		0.6
14	5.00	18	0.4875		[illegible]	[illegible]		0.7
15	5.00	18	[illegible]		[illegible]	[illegible]		0.7
16	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
17	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
18	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
19	[illegible]	18	[illegible]		[illegible]	[illegible]		0.1
20	5.00	18	0.3750		[illegible]	[illegible]		0.6
21	4.75	18	[illegible]		[illegible]	[illegible]		0.6
22	0.25	18	[illegible]		[illegible]	[illegible]		0.0
23	5.00	18	0.5625		[illegible]	[illegible]	A572-65	0.9
24	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
25	[illegible]	18	[illegible]		[illegible]	[illegible]		0.1
26	5.00	18	[illegible]		[illegible]	[illegible]		0.8
27	5.00	18	0.4375		33.7305	34.7931		0.8
28	[illegible]	18	0.4375	5.08	34.7931	36.1800		1.0
29	[illegible]	18	[illegible]		[illegible]	[illegible]		1.1
30	[illegible]	18	[illegible]		[illegible]	[illegible]		0.3
31	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
32	5.00	18	[illegible]		[illegible]	[illegible]		0.9
33	5.00	18	0.4813		37.3455	38.4050		0.9
34	5.00	18	0.4750		38.4050	39.4645		1.0
35	5.00	18	0.4750		39.4645	40.5240		1.0
36	5.00	18	0.4625		40.5240	41.5836		1.0
37	[illegible]	18	[illegible]		[illegible]	[illegible]		0.1
38	[illegible]	18	[illegible]		[illegible]	[illegible]		0.1
39	5.00	18	[illegible]		[illegible]	[illegible]		1.4
40	5.00	18	0.5875		42.7667	43.8262		1.4
41	2.00	18	0.5750		43.8262	44.2500		0.6
								19.8



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. CCIPOLE RATING: 93.7%

ALL REACTIONS ARE FACTORED

AXIAL 75 K
SHEAR 9 K
MOMENT 829 kip-ft
TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 49 K
SHEAR 39 K
MOMENT 3479 kip-ft
TORQUE 2 kip-ft
REACTIONS - 119 mph WIND

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Consulting Engineers

Job: **CN8-786R1 / 2200039**			
Project: **876364 / Cromwell / First Line Emergenc**			
Client: Crown Castle USA	Drawn by: ANS	App'd:	
Code: TIA-222-H	Date: 08/01/22	Scale: NTS	
Path: \\egnytedrive\mh cloud\reference\telecom\us tower projects\crown analyses-8\cn8-786 - 876364 - cromwell_first line emergenc\cn8-786r1 sa\analysis\CN8-786R1 BU_876364 WO_2140019.eri		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 Middlesex County, Connecticut.
Tower base elevation above sea level: 8.00 ft.
Basic wind speed of 119 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 1.0000 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

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	125.00-120.00	5.00	0.00	18	18.5000	19.5748	0.1875	0.7500	A572-65 (65 ksi)
L2	120.00-115.00	5.00	0.00	18	19.5748	20.6496	0.1875	0.7500	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	115.00-110.00	5.00	0.00	18	20.6496	21.7245	0.1875	0.7500	(65 ksi) A572-65 (65 ksi)
L4	110.00-105.00	5.00	0.00	18	21.7245	22.7993	0.1875	0.7500	A572-65 (65 ksi)
L5	105.00-100.00	5.00	0.00	18	22.7993	23.8741	0.1875	0.7500	A572-65 (65 ksi)
L6	100.00-99.38	0.63	0.00	18	23.8741	24.0085	0.1875	0.7500	A572-65 (65 ksi)
L7	99.38-99.13	0.25	0.00	18	24.0085	24.0622	0.4250	1.7000	A572-65 (65 ksi)
L8	99.13-94.46	4.67	0.00	18	24.0622	25.0655	0.4125	1.6500	A572-65 (65 ksi)
L9	94.46-94.21	0.25	0.00	18	25.0655	25.1192	0.6000	2.4000	A572-65 (65 ksi)
L10	94.21-89.21	5.00	0.00	18	25.1192	26.1940	0.5750	2.3000	A572-65 (65 ksi)
L11	89.21-89.00	0.21	0.00	18	26.1940	26.2387	0.5750	2.3000	A572-65 (65 ksi)
L12	89.00-85.04	3.96	3.92	18	26.2387	27.0900	0.6625	2.6500	A572-65 (65 ksi)
L13	85.04-84.04	4.92	0.00	18	25.8730	26.9179	0.5000	2.0000	A572-65 (65 ksi)
L14	84.04-79.04	5.00	0.00	18	26.9179	27.9805	0.4875	1.9500	A572-65 (65 ksi)
L15	79.04-74.04	5.00	0.00	18	27.9805	29.0431	0.4750	1.9000	A572-65 (65 ksi)
L16	74.04-73.58	0.46	0.00	18	29.0431	29.1402	0.4750	1.9000	A572-65 (65 ksi)
L17	73.58-73.33	0.25	0.00	18	29.1402	29.1933	0.6125	2.4500	A572-65 (65 ksi)
L18	73.33-73.00	0.33	0.00	18	29.1933	29.2641	0.6125	2.4500	A572-65 (65 ksi)
L19	73.00-72.75	0.25	0.00	18	29.2641	29.3172	0.3750	1.5000	A572-65 (65 ksi)
L20	72.75-67.75	5.00	0.00	18	29.3172	30.3798	0.3750	1.5000	A572-65 (65 ksi)
L21	67.75-63.00	4.75	0.00	18	30.3798	31.3893	0.3688	1.4750	A572-65 (65 ksi)
L22	63.00-62.75	0.25	0.00	18	31.3893	31.4424	0.5750	2.3000	A572-65 (65 ksi)
L23	62.75-57.75	5.00	0.00	18	31.4424	32.5050	0.5625	2.2500	A572-65 (65 ksi)
L24	57.75-57.23	0.52	0.00	18	32.5050	32.6148	0.4500	1.8000	A572-65 (65 ksi)
L25	57.23-56.98	0.25	0.00	18	32.6148	32.6680	0.4500	1.8000	A572-65 (65 ksi)
L26	56.98-51.98	5.00	0.00	18	32.6680	33.7305	0.4437	1.7750	A572-65 (65 ksi)
L27	51.98-46.98	5.00	0.00	18	33.7305	34.7931	0.4375	1.7500	A572-65 (65 ksi)
L28	46.98-40.46	6.53	5.08	18	34.7931	36.1800	0.4375	1.7500	A572-65 (65 ksi)
L29	40.46-39.46	6.08	0.00	18	34.5998	35.8888	0.5000	2.0000	A572-65 (65 ksi)
L30	39.46-37.83	1.62	0.00	18	35.8888	36.2329	0.4938	1.9750	A572-65 (65 ksi)
L31	37.83-37.58	0.25	0.00	18	36.2329	36.2859	0.4938	1.9750	A572-65 (65 ksi)
L32	37.58-32.58	5.00	0.00	18	36.2859	37.3455	0.4875	1.9500	A572-65 (65 ksi)
L33	32.58-27.58	5.00	0.00	18	37.3455	38.4050	0.4813	1.9250	A572-65 (65 ksi)
L34	27.58-22.58	5.00	0.00	18	38.4050	39.4645	0.4750	1.9000	A572-65 (65 ksi)
L35	22.58-17.58	5.00	0.00	18	39.4645	40.5240	0.4750	1.9000	A572-65 (65 ksi)
L36	17.58-12.58	5.00	0.00	18	40.5240	41.5836	0.4625	1.8500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L37	12.58-12.25	0.33	0.00	18	41.5836	41.6541	0.4625	1.8500	A572-65 (65 ksi)
L38	12.25-12.00	0.25	0.00	18	41.6541	41.7071	0.6000	2.4000	A572-65 (65 ksi)
L39	12.00-7.00	5.00	0.00	18	41.7071	42.7667	0.5875	2.3500	A572-65 (65 ksi)
L40	7.00-2.00	5.00	0.00	18	42.7667	43.8262	0.5875	2.3500	A572-65 (65 ksi)
L41	2.00-0.00	2.00		18	43.8262	44.2500	0.5750	2.3000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	18.7565	10.8982	461.7305	6.5009	9.3980	49.1307	924.0685	5.4501	2.9260	15.605
	19.8479	11.5379	547.8975	6.8825	9.9440	55.0982	1096.5159	5.7700	3.1152	16.614
L2	19.8479	11.5379	547.8975	6.8825	9.9440	55.0982	1096.5159	5.7700	3.1152	16.614
	20.9393	12.1775	644.1684	7.2641	10.4900	61.4077	1289.1844	6.0899	3.3043	17.623
L3	20.9393	12.1775	644.1684	7.2641	10.4900	61.4077	1289.1844	6.0899	3.3043	17.623
	22.0307	12.8172	751.1034	7.6456	11.0360	68.0592	1503.1951	6.4098	3.4935	18.632
L4	22.0307	12.8172	751.1034	7.6456	11.0360	68.0592	1503.1951	6.4098	3.4935	18.632
	23.1221	13.4568	869.2626	8.0272	11.5820	75.0526	1739.6691	6.7297	3.6827	19.641
L5	23.1221	13.4568	869.2626	8.0272	11.5820	75.0526	1739.6691	6.7297	3.6827	19.641
	24.2135	14.0965	999.2063	8.4088	12.1281	82.3880	1999.7273	7.0496	3.8718	20.65
L6	24.2135	14.0965	999.2063	8.4088	12.1281	82.3880	1999.7273	7.0496	3.8718	20.65
	24.3499	14.1765	1016.3057	8.4564	12.1963	83.3290	2033.9487	7.0896	3.8955	20.776
L7	24.3133	31.8129	2235.4081	8.3721	12.1963	183.2857	4473.7576	15.9095	3.4775	8.182
	24.3679	31.8854	2250.7249	8.3912	12.2236	184.1294	4504.4113	15.9457	3.4870	8.205
L8	24.3698	30.9640	2187.9946	8.3957	12.2236	178.9975	4378.8683	15.4849	3.5090	8.507
	25.3885	32.2775	2478.4236	8.7518	12.7333	194.6418	4960.1084	16.1418	3.6855	8.935
L9	25.3596	46.5920	3523.3499	8.6852	12.7333	276.7046	7051.3360	23.3004	3.3555	5.593
	25.4141	46.6944	3546.6193	8.7043	12.7606	277.9362	7097.9054	23.3516	3.3650	5.608
L10	25.4180	44.7944	3409.2506	8.7132	12.7606	267.1710	6822.9872	22.4015	3.4090	5.929
	26.5094	46.7560	3877.0380	9.0948	13.3066	291.3628	7759.1776	23.3824	3.5981	6.258
L11	26.5094	46.7560	3877.0380	9.0948	13.3066	291.3628	7759.1776	23.3824	3.5981	6.258
	26.5548	46.8376	3897.3732	9.1106	13.3293	292.3919	7799.8746	23.4233	3.6060	6.271
L12	26.5413	53.7811	4444.6778	9.0796	13.3293	333.4522	8895.2041	26.8956	3.4520	5.211
	27.4057	55.5711	4903.4133	9.3818	13.7617	356.3082	9813.2786	27.7908	3.6018	5.437
L13	27.0402	40.2669	3275.1329	9.0074	13.1435	249.1832	6554.5752	20.1373	3.6736	7.347
	27.2560	41.9252	3696.6673	9.3784	13.6743	270.3368	7398.1988	20.9666	3.8576	7.715
L14	27.2580	40.8965	3609.3692	9.3828	13.6743	263.9527	7223.4878	20.4521	3.8796	7.958
	28.3369	42.5406	4062.4261	9.7600	14.2141	285.8027	8130.1976	21.2743	4.0666	8.342
L15	28.3389	41.4687	3963.6628	9.7645	14.2141	278.8544	7932.5410	20.7383	4.0886	8.608
	29.4178	43.0707	4441.0042	10.1417	14.7539	301.0057	8887.8520	21.5394	4.2756	9.001
L16	29.4178	43.0707	4441.0042	10.1417	14.7539	301.0057	8887.8520	21.5394	4.2756	9.001
	29.5165	43.2171	4486.4511	10.1761	14.8032	303.0726	8978.8056	21.6127	4.2927	9.037
L17	29.4952	55.4600	5702.3093	10.1273	14.8032	385.2073	11412.1218	27.7353	4.0507	6.613
	29.5492	55.5633	5734.2280	10.1462	14.8302	386.6585	11476.0012	27.7869	4.0600	6.629
L18	29.5492	55.5633	5734.2280	10.1462	14.8302	386.6585	11476.0012	27.7869	4.0600	6.629
	29.6211	55.7009	5776.9284	10.1713	14.8662	388.5958	11561.4582	27.8557	4.0725	6.649
L19	29.6577	34.3852	3625.5805	10.2556	14.8662	243.8814	7255.9317	17.1959	4.4905	11.975
	29.7116	34.4485	3645.6204	10.2745	14.8932	244.7850	7296.0378	17.2275	4.4998	12
L20	29.7116	34.4485	3645.6204	10.2745	14.8932	244.7850	7296.0378	17.2275	4.4998	12
	30.7906	35.7132	4062.0764	10.6517	15.4329	263.2082	8129.4978	17.8600	4.6868	12.498
L21	30.7916	35.1253	3996.8717	10.6539	15.4329	258.9831	7999.0026	17.5660	4.6978	12.74
	31.8166	36.3068	4413.9054	11.0123	15.9457	276.8078	8833.6187	18.1568	4.8755	13.222
L22	31.7848	56.2376	6746.3250	10.9391	15.9457	423.0800	13501.5270	28.1241	4.5125	7.848
	31.8387	56.3345	6781.2806	10.9579	15.9727	424.5536	13571.4842	28.1726	4.5219	7.864

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L23	31.8407	55.1322	6641.9241	10.9624	15.9727	415.8289	13292.5877	27.5713	4.5439	8.078
	32.9196	57.0293	7351.4352	11.3396	16.5125	445.2037	14712.5435	28.5201	4.7309	8.41
L24	32.9370	45.7841	5943.5067	11.3795	16.5125	359.9394	11894.8340	22.8964	4.9289	10.953
	33.0486	45.9410	6004.8318	11.4185	16.5683	362.4282	12017.5649	22.9749	4.9482	10.996
L25	33.0486	45.9410	6004.8318	11.4185	16.5683	362.4282	12017.5649	22.9749	4.9482	10.996
	33.1025	46.0169	6034.6368	11.4374	16.5953	363.6347	12077.2141	23.0128	4.9576	11.017
L26	33.1035	45.3866	5954.2863	11.4396	16.5953	358.7930	11916.4074	22.6976	4.9686	11.197
	34.1824	46.8832	6562.9423	11.8168	17.1351	383.0113	13134.5203	23.4461	5.1556	11.618
L27	34.1834	46.2316	6474.1519	11.8190	17.1351	377.8295	12956.8227	23.1202	5.1666	11.809
	35.2624	47.7071	7114.0328	12.1962	17.6749	402.4934	14237.4265	23.8581	5.3536	12.237
L28	35.2624	47.7071	7114.0328	12.1962	17.6749	402.4934	14237.4265	23.8581	5.3536	12.237
	36.6706	49.6329	8010.8243	12.6886	18.3794	435.8579	16032.1895	24.8212	5.5977	12.795
L29	36.1501	54.1164	7950.0377	12.1054	17.5767	452.3058	15910.5362	27.0633	5.2096	10.419
	36.3653	56.1620	8886.1207	12.5630	18.2315	487.4044	17783.9340	28.0864	5.4364	10.873
L30	36.3663	55.4698	8779.6943	12.5652	18.2315	481.5669	17570.9411	27.7402	5.4474	11.033
	36.7157	56.0091	9038.2796	12.6874	18.4063	491.0418	18088.4519	28.0099	5.5080	11.155
L31	36.7157	56.0091	9038.2796	12.6874	18.4063	491.0418	18088.4519	28.0099	5.5080	11.155
	36.7695	56.0921	9078.5318	12.7062	18.4332	492.5085	18169.0094	28.0514	5.5173	11.174
L32	36.7705	55.3918	8968.3101	12.7084	18.4332	486.5290	17948.4210	27.7012	5.5283	11.34
	37.8464	57.0312	9788.4211	13.0846	18.9715	515.9542	19589.7220	28.5210	5.7148	11.723
L33	37.8473	56.3096	9667.8449	13.0868	18.9715	509.5986	19348.4111	28.1602	5.7258	11.898
	38.9232	57.9280	10525.6383	13.4629	19.5097	539.5070	21065.1264	28.9695	5.9123	12.285
L34	38.9242	57.1851	10394.0789	13.4651	19.5097	532.7638	20801.8347	28.5980	5.9233	12.47
	40.0000	58.7825	11289.6783	13.8413	20.0480	563.1331	22594.2118	29.3969	6.1098	12.863
L35	40.0000	58.7825	11289.6783	13.8413	20.0480	563.1331	22594.2118	29.3969	6.1098	12.863
	41.0759	60.3799	12235.3001	14.2174	20.5862	594.3443	24486.6996	30.1957	6.2962	13.255
L36	41.0779	58.8094	11924.4770	14.2219	20.5862	579.2457	23864.6446	29.4103	6.3182	13.661
	42.1537	60.3647	12895.8419	14.5980	21.1245	610.4697	25808.6524	30.1881	6.5047	14.064
L37	42.1537	60.3647	12895.8419	14.5980	21.1245	610.4697	25808.6524	30.1881	6.5047	14.064
	42.2254	60.4683	12962.3446	14.6230	21.1603	612.5783	25941.7454	30.2399	6.5171	14.091
L38	42.2042	78.1835	16648.1778	14.5742	21.1603	786.7645	33318.2617	39.0992	6.2751	10.459
	42.2580	78.2844	16712.7098	14.5930	21.1872	788.8109	33447.4106	39.1496	6.2845	10.474
L39	42.2599	76.6768	16379.4615	14.5975	21.1872	773.0822	32780.4754	38.3457	6.3065	10.734
	43.3358	78.6525	17678.5187	14.9736	21.7255	813.7235	35380.2993	39.3337	6.4929	11.052
L40	43.3358	78.6525	17678.5187	14.9736	21.7255	813.7235	35380.2993	39.3337	6.4929	11.052

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	44.4116	80.6283	19044.5073	15.3497	22.2637	855.4061	38114.0739	40.3218	6.6794	11.369
L41	44.4136	78.9356	18655.4752	15.3542	22.2637	837.9323	37335.4977	39.4753	6.7014	11.655
	44.8439	79.7091	19209.2743	15.5046	22.4790	854.5431	38443.8247	39.8621	6.7760	11.784

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 125.00-120.00				1	1	1			
L2 120.00-115.00				1	1	1			
L3 115.00-110.00				1	1	1			
L4 110.00-105.00				1	1	1			
L5 105.00-100.00				1	1	1			
L6 100.00-99.38				1	1	1			
L7 99.38-99.13				1	1	0.955265			
L8 99.13-94.46				1	1	0.962159			
L9 94.46-94.21				1	1	0.922777			
L10 94.21-89.21				1	1	0.935241			
L11 89.21-89.00				1	1	0.93418			
L12 89.00-85.04				1	1	0.924907			
L13 85.04-84.04				1	1	0.934083			
L14 84.04-79.04				1	1	0.940391			
L15 79.04-74.04				1	1	0.948394			
L16 74.04-73.58				1	1	0.946964			
L17 73.58-73.33				1	1	0.929662			
L18 73.33-73.00				1	1	0.928374			
L19 73.00-72.75				1	1	0.979803			
L20 72.75-67.75				1	1	0.968714			
L21 67.75-63.00				1	1	0.974938			
L22 63.00-62.75				1	1	0.948614			
L23 62.75-57.75				1	1	0.951842			
L24 57.75-57.23				1	1	0.956953			
L25 57.23-56.98				1	1	0.956291			
L26 56.98-51.98				1	1	0.956605			
L27 51.98-46.98				1	1	0.957759			
L28 46.98-40.46				1	1	0.954341			

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
L29 40.46-39.46				1	1	0.953832			
L30 39.46-37.83				1	1	0.962531			
L31 37.83-37.58				1	1	0.962043			
L32 37.58-32.58				1	1	0.964629			
L33 32.58-27.58				1	1	0.967837			
L34 27.58-22.58				1	1	0.971646			
L35 22.58-17.58				1	1	0.963345			
L36 17.58-12.58				1	1	0.980998			
L37 12.58-12.25				1	1	0.980475			
L38 12.25-12.00				1	1	1.06938			
L39 12.00-7.00				1	1	1.07774			
L40 7.00-2.00				1	1	1.06437			
L41 2.00-0.00				1	1	1.08191			

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
*****										
Safety Line 3/8"	B	No	Surface Ar (CaAa)	125.00 - 10.00	1	1	-0.450 -0.450	0.3750		0.22
Climbing Pegs	B	No	Surface Ar (CaAa)	125.00 - 10.00	1	1	-0.500 -0.400	0.7050		1.80
CONDUIT (2)	B	No	Surface Ar (CaAa)	125.00 - 8.00	2	2	0.000 0.000	2.0000		2.80
*****										
LDF6-50A(1-1/4)	C	No	Surface Ar (CaAa)	115.00 - 8.00	8	8	-0.380 0.000	1.5500		0.60
CONDUIT (2)	C	No	Surface Ar (CaAa)	115.00 - 8.00	1	1	-0.480 -0.480	2.0000		2.80
***										
PWRT-608-S(13/16)	C	No	Surface Ar (CaAa)	115.00 - 0.00	4	4	-0.480 -0.380	0.8200		0.62
FB-L98B-034-XXX(3/8)	C	No	Surface Ar (CaAa)	115.00 - 0.00	1	1	-0.380 -0.380	0.3937		0.06
*****										
LDF7-50A(1-5/8)	C	No	Surface Ar (CaAa)	105.00 - 3.00	11	6	0.100 0.500	1.9800		0.82
***										
MLCH 12/24 LOW INDUCTION(2)	C	No	Surface Ar (CaAa)	105.00 - 3.00	1	1	0.500 0.500	2.0160		3.04
*****										
CU12PSM9P8XXX(1-3/8)	C	No	Surface Ar (CaAa)	94.00 - 0.00	1	1	0.100 0.100	1.4110		1.66
******										
MP4-06	A	No	Surface Af (CaAa)	60.50 - 0.50	1	1	0.000 0.050	4.8750	12.2500	0.00
MP4-06	B	No	Surface Af (CaAa)	60.50 - 0.50	1	1	0.000 0.050	4.8750	12.2500	0.00
MP4-06	C	No	Surface Af (CaAa)	60.50 - 0.50	1	1	0.000 0.050	4.8750	12.2500	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
MP4-04	A	No	Surface Af (CaAa)	75.50 - 90.50	1	1	0.000 0.050	4.7500	11.0000	0.00
MP4-04	B	No	Surface Af (CaAa)	75.50 - 90.50	1	1	0.000 0.050	4.7500	11.0000	0.00
MP4-04	C	No	Surface Af (CaAa)	75.50 - 90.50	1	1	0.000 0.050	4.7500	11.0000	0.00
*****										
CCI(6"x1")	A	No	Surface Af (CaAa)	96.50 - 71.00	1	1	0.200 0.250	6.0000	14.0000	0.00
CCI(6"x1")	B	No	Surface Af (CaAa)	96.50 - 71.00	1	1	0.200 0.250	6.0000	14.0000	0.00
CCI(6"x1")	C	No	Surface Af (CaAa)	96.50 - 71.00	1	1	0.200 0.250	6.0000	14.0000	0.00
*****										
CCI(6.5"x1.25")	A	No	Surface Af (CaAa)	15.00 - 0.00	1	1	0.100 0.150	6.5000	15.5000	0.00
CCI(6.5"x1.25")	B	No	Surface Af (CaAa)	15.00 - 0.00	1	1	0.100 0.150	6.5000	15.5000	0.00
CCI(6.5"x1.25")	C	No	Surface Af (CaAa)	15.00 - 0.00	1	1	0.100 0.150	6.5000	15.5000	0.00
****										
CCI(6"x1")	A	No	Surface Af (CaAa)	65.00 - 55.00	1	1	0.100 0.150	6.0000	14.0000	0.00
CCI(6"x1")	B	No	Surface Af (CaAa)	65.00 - 55.00	1	1	0.100 0.150	6.0000	14.0000	0.00
CCI(6"x1")	C	No	Surface Af (CaAa)	65.00 - 55.00	1	1	0.100 0.150	6.0000	14.0000	0.00
****										
CCI (3.25"x1.25")	A	No	Surface Af (CaAa)	102.50 - 87.50	1	1	0.100 0.150	3.2500	9.0000	0.00
CCI (3.25"x1.25")	B	No	Surface Af (CaAa)	102.50 - 87.50	1	1	0.100 0.150	3.2500	9.0000	0.00
CCI (3.25"x1.25")	C	No	Surface Af (CaAa)	102.50 - 87.50	1	1	0.100 0.150	3.2500	9.0000	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
******									
ATCB-B01-005(5/16)	B	No	No	Inside Pole	125.00 - 8.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.08 0.08 0.08
FSJ4-50B(1/2)	B	No	No	Inside Pole	125.00 - 8.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.14 0.14 0.14
LDF1-50A(1/4)	B	No	No	Inside Pole	125.00 - 8.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.06 0.06 0.06
HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	125.00 - 8.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.08 1.08 1.08
HB114-21U3M12-XXXF(1-1/4)	C	No	No	Inside Pole	125.00 - 8.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.22 1.22 1.22
RLSS 8AWG DC(3/4)	C	No	No	Inside Pole	125.00 - 8.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.49 0.49 0.49
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	115.00 - 8.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.06 0.06 0.06
LDF6-50A(1-1/4)	C	No	No	Inside Pole	115.00 - 8.00	4	No Ice	0.00	0.60

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
******									
******									
HCS 6X12 4AWG(1-5/8)	B	No	No	Inside Pole	84.00 - 0.00	1	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
HB158-21U6S24-xxM_TMO(1-5/8)	B	No	No	Inside Pole	84.00 - 0.00	2	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
*****									

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	125.00-120.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.540	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.02
L2	120.00-115.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.540	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.02
L3	115.00-110.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.540	0.000	0.04
		C	0.000	0.000	9.037	0.000	0.08
L4	110.00-105.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.540	0.000	0.04
		C	0.000	0.000	9.037	0.000	0.08
L5	105.00-100.00	A	0.000	0.000	1.354	0.000	0.00
		B	0.000	0.000	3.894	0.000	0.04
		C	0.000	0.000	17.339	0.000	0.14
L6	100.00-99.38	A	0.000	0.000	0.339	0.000	0.00
		B	0.000	0.000	0.656	0.000	0.01
		C	0.000	0.000	2.337	0.000	0.02
L7	99.38-99.13	A	0.000	0.000	0.135	0.000	0.00
		B	0.000	0.000	0.262	0.000	0.00
		C	0.000	0.000	0.935	0.000	0.01
L8	99.13-94.46	A	0.000	0.000	4.570	0.000	0.00
		B	0.000	0.000	6.941	0.000	0.04
		C	0.000	0.000	19.490	0.000	0.13
L9	94.46-94.21	A	0.000	0.000	0.385	0.000	0.00
		B	0.000	0.000	0.512	0.000	0.00
		C	0.000	0.000	1.185	0.000	0.01
L10	94.21-89.21	A	0.000	0.000	8.731	0.000	0.00
		B	0.000	0.000	11.271	0.000	0.04
		C	0.000	0.000	25.392	0.000	0.15
L11	89.21-89.00	A	0.000	0.000	0.485	0.000	0.00
		B	0.000	0.000	0.591	0.000	0.00
		C	0.000	0.000	1.180	0.000	0.01
L12	89.00-85.04	A	0.000	0.000	7.907	0.000	0.00
		B	0.000	0.000	9.919	0.000	0.03
		C	0.000	0.000	21.126	0.000	0.12
L13	85.04-84.04	A	0.000	0.000	1.792	0.000	0.00
		B	0.000	0.000	2.300	0.000	0.01
		C	0.000	0.000	5.130	0.000	0.03
L14	84.04-79.04	A	0.000	0.000	8.958	0.000	0.00
		B	0.000	0.000	11.498	0.000	0.08
		C	0.000	0.000	25.649	0.000	0.15
L15	79.04-74.04	A	0.000	0.000	7.803	0.000	0.00
		B	0.000	0.000	10.342	0.000	0.08
		C	0.000	0.000	24.493	0.000	0.15
L16	74.04-73.58	A	0.000	0.000	0.457	0.000	0.00
		B	0.000	0.000	0.689	0.000	0.01
		C	0.000	0.000	1.982	0.000	0.01

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
L17	73.58-73.33	A	0.000	0.000	0.250	0.000	0.00
		B	0.000	0.000	0.377	0.000	0.00
		C	0.000	0.000	1.085	0.000	0.01
L18	73.33-73.00	A	0.000	0.000	0.333	0.000	0.00
		B	0.000	0.000	0.502	0.000	0.01
		C	0.000	0.000	1.445	0.000	0.01
L19	73.00-72.75	A	0.000	0.000	0.250	0.000	0.00
		B	0.000	0.000	0.377	0.000	0.00
		C	0.000	0.000	1.085	0.000	0.01
L20	72.75-67.75	A	0.000	0.000	1.750	0.000	0.00
		B	0.000	0.000	4.290	0.000	0.08
		C	0.000	0.000	18.440	0.000	0.15
L21	67.75-63.00	A	0.000	0.000	1.824	0.000	0.00
		B	0.000	0.000	4.237	0.000	0.07
		C	0.000	0.000	17.680	0.000	0.14
L22	63.00-62.75	A	0.000	0.000	0.228	0.000	0.00
		B	0.000	0.000	0.355	0.000	0.00
		C	0.000	0.000	1.063	0.000	0.01
L23	62.75-57.75	A	0.000	0.000	6.795	0.000	0.00
		B	0.000	0.000	9.335	0.000	0.08
		C	0.000	0.000	23.485	0.000	0.15
L24	57.75-57.23	A	0.000	0.000	0.892	0.000	0.00
		B	0.000	0.000	1.154	0.000	0.01
		C	0.000	0.000	2.617	0.000	0.02
L25	57.23-56.98	A	0.000	0.000	0.431	0.000	0.00
		B	0.000	0.000	0.558	0.000	0.00
		C	0.000	0.000	1.266	0.000	0.01
L26	56.98-51.98	A	0.000	0.000	5.871	0.000	0.00
		B	0.000	0.000	8.411	0.000	0.08
		C	0.000	0.000	22.562	0.000	0.15
L27	51.98-46.98	A	0.000	0.000	4.063	0.000	0.00
		B	0.000	0.000	6.603	0.000	0.08
		C	0.000	0.000	20.753	0.000	0.15
L28	46.98-40.46	A	0.000	0.000	5.302	0.000	0.00
		B	0.000	0.000	8.618	0.000	0.10
		C	0.000	0.000	27.087	0.000	0.20
L29	40.46-39.46	A	0.000	0.000	0.813	0.000	0.00
		B	0.000	0.000	1.321	0.000	0.02
		C	0.000	0.000	4.151	0.000	0.03
L30	39.46-37.83	A	0.000	0.000	1.319	0.000	0.00
		B	0.000	0.000	2.144	0.000	0.03
		C	0.000	0.000	6.741	0.000	0.05
L31	37.83-37.58	A	0.000	0.000	0.203	0.000	0.00
		B	0.000	0.000	0.330	0.000	0.00
		C	0.000	0.000	1.038	0.000	0.01
L32	37.58-32.58	A	0.000	0.000	4.063	0.000	0.00
		B	0.000	0.000	6.603	0.000	0.08
		C	0.000	0.000	20.753	0.000	0.15
L33	32.58-27.58	A	0.000	0.000	4.063	0.000	0.00
		B	0.000	0.000	6.603	0.000	0.08
		C	0.000	0.000	20.753	0.000	0.15
L34	27.58-22.58	A	0.000	0.000	4.063	0.000	0.00
		B	0.000	0.000	6.603	0.000	0.08
		C	0.000	0.000	20.753	0.000	0.15
L35	22.58-17.58	A	0.000	0.000	4.063	0.000	0.00
		B	0.000	0.000	6.603	0.000	0.08
		C	0.000	0.000	20.753	0.000	0.15
L36	17.58-12.58	A	0.000	0.000	6.681	0.000	0.00
		B	0.000	0.000	9.221	0.000	0.08
		C	0.000	0.000	23.371	0.000	0.15
L37	12.58-12.25	A	0.000	0.000	0.631	0.000	0.00
		B	0.000	0.000	0.800	0.000	0.01
		C	0.000	0.000	1.743	0.000	0.01
L38	12.25-12.00	A	0.000	0.000	0.474	0.000	0.00
		B	0.000	0.000	0.601	0.000	0.00
		C	0.000	0.000	1.308	0.000	0.01
L39	12.00-7.00	A	0.000	0.000	9.479	0.000	0.00
		B	0.000	0.000	11.295	0.000	0.07
		C	0.000	0.000	24.730	0.000	0.14

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
L40	7.00-2.00	A	0.000	0.000	9.479	0.000	0.00
		B	0.000	0.000	9.479	0.000	0.04
		C	0.000	0.000	17.580	0.000	0.07
L41	2.00-0.00	A	0.000	0.000	3.385	0.000	0.00
		B	0.000	0.000	3.385	0.000	0.01
		C	0.000	0.000	4.402	0.000	0.01

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	125.00-120.00	A	0.969	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.190	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.02
L2	120.00-115.00	A	0.965	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.177	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.02
L3	115.00-110.00	A	0.961	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.163	0.000	0.09
		C		0.000	0.000	15.321	0.000	0.19
L4	110.00-105.00	A	0.957	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.149	0.000	0.09
		C		0.000	0.000	15.301	0.000	0.19
L5	105.00-100.00	A	0.952	0.000	0.000	1.830	0.000	0.01
		B		0.000	0.000	7.964	0.000	0.10
		C		0.000	0.000	27.686	0.000	0.35
L6	100.00-99.38	A	0.949	0.000	0.000	0.457	0.000	0.00
		B		0.000	0.000	1.223	0.000	0.01
		C		0.000	0.000	3.687	0.000	0.05
L7	99.38-99.13	A	0.949	0.000	0.000	0.183	0.000	0.00
		B		0.000	0.000	0.489	0.000	0.01
		C		0.000	0.000	1.475	0.000	0.02
L8	99.13-94.46	A	0.947	0.000	0.000	5.840	0.000	0.03
		B		0.000	0.000	11.549	0.000	0.11
		C		0.000	0.000	29.940	0.000	0.35
L9	94.46-94.21	A	0.944	0.000	0.000	0.480	0.000	0.00
		B		0.000	0.000	0.785	0.000	0.01
		C		0.000	0.000	1.770	0.000	0.02
L10	94.21-89.21	A	0.941	0.000	0.000	10.857	0.000	0.06
		B		0.000	0.000	16.957	0.000	0.15
		C		0.000	0.000	38.220	0.000	0.42
L11	89.21-89.00	A	0.939	0.000	0.000	0.602	0.000	0.00
		B		0.000	0.000	0.856	0.000	0.01
		C		0.000	0.000	1.743	0.000	0.02
L12	89.00-85.04	A	0.937	0.000	0.000	9.672	0.000	0.05
		B		0.000	0.000	14.490	0.000	0.12
		C		0.000	0.000	31.368	0.000	0.34
L13	85.04-84.04	A	0.934	0.000	0.000	2.166	0.000	0.01
		B		0.000	0.000	3.383	0.000	0.03
		C		0.000	0.000	7.645	0.000	0.08
L14	84.04-79.04	A	0.930	0.000	0.000	10.819	0.000	0.06
		B		0.000	0.000	16.883	0.000	0.18
		C		0.000	0.000	38.166	0.000	0.42
L15	79.04-74.04	A	0.925	0.000	0.000	9.382	0.000	0.05
		B		0.000	0.000	15.427	0.000	0.17
		C		0.000	0.000	36.683	0.000	0.41
L16	74.04-73.58	A	0.921	0.000	0.000	0.541	0.000	0.00
		B		0.000	0.000	1.093	0.000	0.01
		C		0.000	0.000	3.034	0.000	0.04
L17	73.58-73.33	A	0.921	0.000	0.000	0.296	0.000	0.00
		B		0.000	0.000	0.598	0.000	0.01
		C		0.000	0.000	1.660	0.000	0.02
L18	73.33-73.00	A	0.920	0.000	0.000	0.394	0.000	0.00
		B		0.000	0.000	0.796	0.000	0.01
		C		0.000	0.000	2.210	0.000	0.03

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
L19	73.00-72.75	A	0.920	0.000	0.000	0.296	0.000	0.00
		B		0.000	0.000	0.598	0.000	0.01
		C		0.000	0.000	1.659	0.000	0.02
L20	72.75-67.75	A	0.917	0.000	0.000	2.071	0.000	0.01
		B		0.000	0.000	8.090	0.000	0.13
		C		0.000	0.000	29.311	0.000	0.37
L21	67.75-63.00	A	0.910	0.000	0.000	2.020	0.000	0.01
		B		0.000	0.000	7.718	0.000	0.13
		C		0.000	0.000	27.849	0.000	0.35
L22	63.00-62.75	A	0.907	0.000	0.000	0.252	0.000	0.00
		B		0.000	0.000	0.552	0.000	0.01
		C		0.000	0.000	1.610	0.000	0.02
L23	62.75-57.75	A	0.903	0.000	0.000	7.777	0.000	0.05
		B		0.000	0.000	13.750	0.000	0.16
		C		0.000	0.000	34.908	0.000	0.40
L24	57.75-57.23	A	0.899	0.000	0.000	1.034	0.000	0.01
		B		0.000	0.000	1.651	0.000	0.02
		C		0.000	0.000	3.837	0.000	0.04
L25	57.23-56.98	A	0.898	0.000	0.000	0.500	0.000	0.00
		B		0.000	0.000	0.798	0.000	0.01
		C		0.000	0.000	1.855	0.000	0.02
L26	56.98-51.98	A	0.894	0.000	0.000	6.955	0.000	0.04
		B		0.000	0.000	12.900	0.000	0.16
		C		0.000	0.000	34.017	0.000	0.39
L27	51.98-46.98	A	0.885	0.000	0.000	4.948	0.000	0.03
		B		0.000	0.000	10.864	0.000	0.15
		C		0.000	0.000	31.943	0.000	0.38
L28	46.98-40.46	A	0.874	0.000	0.000	6.443	0.000	0.03
		B		0.000	0.000	14.119	0.000	0.19
		C		0.000	0.000	41.567	0.000	0.49
L29	40.46-39.46	A	0.866	0.000	0.000	0.987	0.000	0.01
		B		0.000	0.000	2.164	0.000	0.03
		C		0.000	0.000	6.369	0.000	0.07
L30	39.46-37.83	A	0.864	0.000	0.000	1.600	0.000	0.01
		B		0.000	0.000	3.499	0.000	0.05
		C		0.000	0.000	10.314	0.000	0.12
L31	37.83-37.58	A	0.861	0.000	0.000	0.246	0.000	0.00
		B		0.000	0.000	0.538	0.000	0.01
		C		0.000	0.000	1.587	0.000	0.02
L32	37.58-32.58	A	0.855	0.000	0.000	4.918	0.000	0.03
		B		0.000	0.000	10.737	0.000	0.14
		C		0.000	0.000	31.681	0.000	0.37
L33	32.58-27.58	A	0.842	0.000	0.000	4.905	0.000	0.03
		B		0.000	0.000	10.682	0.000	0.14
		C		0.000	0.000	31.567	0.000	0.36
L34	27.58-22.58	A	0.827	0.000	0.000	4.889	0.000	0.02
		B		0.000	0.000	10.617	0.000	0.14
		C		0.000	0.000	31.434	0.000	0.36
L35	22.58-17.58	A	0.809	0.000	0.000	4.871	0.000	0.02
		B		0.000	0.000	10.540	0.000	0.14
		C		0.000	0.000	31.275	0.000	0.36
L36	17.58-12.58	A	0.786	0.000	0.000	7.766	0.000	0.04
		B		0.000	0.000	13.361	0.000	0.15
		C		0.000	0.000	33.993	0.000	0.36
L37	12.58-12.25	A	0.771	0.000	0.000	0.723	0.000	0.00
		B		0.000	0.000	1.093	0.000	0.01
		C		0.000	0.000	2.462	0.000	0.02
L38	12.25-12.00	A	0.769	0.000	0.000	0.543	0.000	0.00
		B		0.000	0.000	0.820	0.000	0.01
		C		0.000	0.000	1.848	0.000	0.02
L39	12.00-7.00	A	0.750	0.000	0.000	10.831	0.000	0.05
		B		0.000	0.000	14.397	0.000	0.14
		C		0.000	0.000	34.694	0.000	0.34
L40	7.00-2.00	A	0.696	0.000	0.000	10.749	0.000	0.04
		B		0.000	0.000	10.749	0.000	0.08
		C		0.000	0.000	23.964	0.000	0.20
L41	2.00-0.00	A	0.599	0.000	0.000	3.774	0.000	0.01
		B		0.000	0.000	3.774	0.000	0.03
		C		0.000	0.000	5.734	0.000	0.03

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	125.00-120.00	2.2319	-1.8772	1.8860	-2.2655
L2	120.00-115.00	2.2571	-1.9004	1.9276	-2.3173
L3	115.00-110.00	4.0558	3.6685	3.4297	2.2491
L4	110.00-105.00	4.1711	3.7735	3.5427	2.3259
L5	105.00-100.00	0.7280	4.8590	0.9713	3.4713
L6	100.00-99.38	0.6557	4.3516	0.9078	3.2357
L7	99.38-99.13	0.6583	4.3648	0.9111	3.2459
L8	99.13-94.46	0.5620	3.7091	0.8282	2.9442
L9	94.46-94.21	0.4712	3.0953	0.7414	2.6306
L10	94.21-89.21	0.4129	3.0980	0.6597	2.7494
L11	89.21-89.00	0.3614	2.7148	0.5964	2.4978
L12	89.00-85.04	0.4028	3.0149	0.6495	2.7162
L13	85.04-84.04	0.4278	3.1988	0.6831	2.8541
L14	84.04-79.04	0.4377	3.2565	0.6963	2.9070
L15	79.04-74.04	0.4845	3.5780	0.7550	3.1432
L16	74.04-73.58	0.5899	4.3392	0.8734	3.6312
L17	73.58-73.33	0.5914	4.3479	0.8753	3.6386
L18	73.33-73.00	0.5925	4.3545	0.8768	3.6443
L19	73.00-72.75	0.5935	4.3599	0.8781	3.6492
L20	72.75-67.75	0.7784	5.6980	1.0519	4.3668
L21	67.75-63.00	0.7890	5.7389	1.0763	4.4609
L22	63.00-62.75	0.6515	4.7248	0.9604	3.9778
L23	62.75-57.75	0.5720	4.1349	0.8761	3.6264
L24	57.75-57.23	0.5235	3.7727	0.8214	3.3986
L25	57.23-56.98	0.5247	3.7798	0.8231	3.4050
L26	56.98-51.98	0.6263	4.4991	0.9290	3.8423
L27	51.98-46.98	0.7271	5.1957	1.0277	4.2496
L28	46.98-40.46	0.7488	5.3209	1.0537	4.3590
L29	40.46-39.46	0.7540	5.3512	1.0609	4.3849
L30	39.46-37.83	0.7589	5.3792	1.0639	4.4122
L31	37.83-37.58	0.7623	5.3991	1.0678	4.4298
L32	37.58-32.58	0.7719	5.4546	1.0787	4.4789
L33	32.58-27.58	0.7901	5.5591	1.0986	4.5720
L34	27.58-22.58	0.8079	5.6619	1.1172	4.6647
L35	22.58-17.58	0.8255	5.7633	1.1339	4.7574
L36	17.58-12.58	0.7153	4.9763	1.0294	4.3489
L37	12.58-12.25	0.6231	4.3269	0.9321	3.9576
L38	12.25-12.00	0.6239	4.3320	0.9327	3.9626
L39	12.00-7.00	0.2639	4.2580	0.5651	4.1564
L40	7.00-2.00	-1.0723	2.8196	-0.8535	3.1800
L41	2.00-0.00	0.6895	1.0020	0.9702	1.4006

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	2	Safety Line 3/8"	120.00 - 125.00	1.0000	1.0000
L1	3	Climbing Pegs	120.00 - 125.00	1.0000	1.0000
L1	11	CONDUIT (2)	120.00 - 125.00	1.0000	1.0000
L2	2	Safety Line 3/8"	115.00 - 120.00	1.0000	1.0000
L2	3	Climbing Pegs	115.00 - 120.00	1.0000	1.0000
L2	11	CONDUIT (2)	115.00 - 120.00	1.0000	1.0000
L3	2	Safety Line 3/8"	110.00 - 115.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L3	3	Climbing Pegs	110.00 - 115.00	1.0000	1.0000
L3	11	CONDUIT (2)	110.00 - 115.00	1.0000	1.0000
L3	13	LDF6-50A(1-1/4)	110.00 - 115.00	1.0000	1.0000
L3	17	CONDUIT (2)	110.00 - 115.00	1.0000	1.0000
L3	19	PWRT-608-S(13/16)	110.00 - 115.00	1.0000	1.0000
L3	20	FB-L98B-034-XXX(3/8)	110.00 - 115.00	1.0000	1.0000
L4	2	Safety Line 3/8"	105.00 - 110.00	1.0000	1.0000
L4	3	Climbing Pegs	105.00 - 110.00	1.0000	1.0000
L4	11	CONDUIT (2)	105.00 - 110.00	1.0000	1.0000
L4	13	LDF6-50A(1-1/4)	105.00 - 110.00	1.0000	1.0000
L4	17	CONDUIT (2)	105.00 - 110.00	1.0000	1.0000
L4	19	PWRT-608-S(13/16)	105.00 - 110.00	1.0000	1.0000
L4	20	FB-L98B-034-XXX(3/8)	105.00 - 110.00	1.0000	1.0000
L5	2	Safety Line 3/8"	100.00 - 105.00	1.0000	1.0000
L5	3	Climbing Pegs	100.00 - 105.00	1.0000	1.0000
L5	11	CONDUIT (2)	100.00 - 105.00	1.0000	1.0000
L5	13	LDF6-50A(1-1/4)	100.00 - 105.00	1.0000	1.0000
L5	17	CONDUIT (2)	100.00 - 105.00	1.0000	1.0000
L5	19	PWRT-608-S(13/16)	100.00 - 105.00	1.0000	1.0000
L5	20	FB-L98B-034-XXX(3/8)	100.00 - 105.00	1.0000	1.0000
L5	22	LDF7-50A(1-5/8)	100.00 - 105.00	1.0000	1.0000
L5	25	MLCH 12/24 LOW INDUCTION(2)	100.00 - 105.00	1.0000	1.0000
L5	55	CCI (3.25"x1.25")	100.00 - 102.50	1.0000	1.0000
L5	56	CCI (3.25"x1.25")	100.00 - 102.50	1.0000	1.0000
L5	57	CCI (3.25"x1.25")	100.00 - 102.50	1.0000	1.0000
L6	2	Safety Line 3/8"	99.38 - 100.00	1.0000	1.0000
L6	3	Climbing Pegs	99.38 - 100.00	1.0000	1.0000
L6	11	CONDUIT (2)	99.38 - 100.00	1.0000	1.0000
L6	13	LDF6-50A(1-1/4)	99.38 - 100.00	1.0000	1.0000
L6	17	CONDUIT (2)	99.38 - 100.00	1.0000	1.0000
L6	19	PWRT-608-S(13/16)	99.38 - 100.00	1.0000	1.0000
L6	20	FB-L98B-034-XXX(3/8)	99.38 - 100.00	1.0000	1.0000
L6	22	LDF7-50A(1-5/8)	99.38 - 100.00	1.0000	1.0000
L6	25	MLCH 12/24 LOW INDUCTION(2)	99.38 - 100.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L6	55	CCI (3.25"x1.25")	99.38 - 100.00	1.0000	1.0000
L6	56	CCI (3.25"x1.25")	99.38 - 100.00	1.0000	1.0000
L6	57	CCI (3.25"x1.25")	99.38 - 100.00	1.0000	1.0000
L7	2	Safety Line 3/8"	99.13 - 99.38	1.0000	1.0000
L7	3	Climbing Pegs	99.13 - 99.38	1.0000	1.0000
L7	11	CONDUIT (2)	99.13 - 99.38	1.0000	1.0000
L7	13	LDF6-50A(1-1/4)	99.13 - 99.38	1.0000	1.0000
L7	17	CONDUIT (2)	99.13 - 99.38	1.0000	1.0000
L7	19	PWRT-608-S(13/16)	99.13 - 99.38	1.0000	1.0000
L7	20	FB-L98B-034-XXX(3/8)	99.13 - 99.38	1.0000	1.0000
L7	22	LDF7-50A(1-5/8)	99.13 - 99.38	1.0000	1.0000
L7	25	MLCH 12/24 LOW INDUCTION(2)	99.13 - 99.38	1.0000	1.0000
L7	55	CCI (3.25"x1.25")	99.13 - 99.38	1.0000	1.0000
L7	56	CCI (3.25"x1.25")	99.13 - 99.38	1.0000	1.0000
L7	57	CCI (3.25"x1.25")	99.13 - 99.38	1.0000	1.0000
L8	2	Safety Line 3/8"	94.46 - 99.13	1.0000	1.0000
L8	3	Climbing Pegs	94.46 - 99.13	1.0000	1.0000
L8	11	CONDUIT (2)	94.46 - 99.13	1.0000	1.0000
L8	13	LDF6-50A(1-1/4)	94.46 - 99.13	1.0000	1.0000
L8	17	CONDUIT (2)	94.46 - 99.13	1.0000	1.0000
L8	19	PWRT-608-S(13/16)	94.46 - 99.13	1.0000	1.0000
L8	20	FB-L98B-034-XXX(3/8)	94.46 - 99.13	1.0000	1.0000
L8	22	LDF7-50A(1-5/8)	94.46 - 99.13	1.0000	1.0000
L8	25	MLCH 12/24 LOW INDUCTION(2)	94.46 - 99.13	1.0000	1.0000
L8	43	CCI(6"x1")	94.46 - 96.50	1.0000	1.0000
L8	44	CCI(6"x1")	94.46 - 96.50	1.0000	1.0000
L8	45	CCI(6"x1")	94.46 - 96.50	1.0000	1.0000
L8	55	CCI (3.25"x1.25")	94.46 - 99.13	1.0000	1.0000
L8	56	CCI (3.25"x1.25")	94.46 - 99.13	1.0000	1.0000
L8	57	CCI (3.25"x1.25")	94.46 - 99.13	1.0000	1.0000
L9	2	Safety Line 3/8"	94.21 - 94.46	1.0000	1.0000
L9	3	Climbing Pegs	94.21 - 94.46	1.0000	1.0000
L9	11	CONDUIT (2)	94.21 - 94.46	1.0000	1.0000
L9	13	LDF6-50A(1-1/4)	94.21 - 94.46	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L9	17	CONDUIT (2)	94.21 - 94.46	1.0000	1.0000
L9	19	PWRT-608-S(13/16)	94.21 - 94.46	1.0000	1.0000
L9	20	FB-L98B-034-XXX(3/8)	94.21 - 94.46	1.0000	1.0000
L9	22	LDF7-50A(1-5/8)	94.21 - 94.46	1.0000	1.0000
L9	25	MLCH 12/24 LOW INDUCTION(2)	94.21 - 94.46	1.0000	1.0000
L9	43	CCI(6"x1")	94.21 - 94.46	1.0000	1.0000
L9	44	CCI(6"x1")	94.21 - 94.46	1.0000	1.0000
L9	45	CCI(6"x1")	94.21 - 94.46	1.0000	1.0000
L9	55	CCI (3.25"x1.25")	94.21 - 94.46	1.0000	1.0000
L9	56	CCI (3.25"x1.25")	94.21 - 94.46	1.0000	1.0000
L9	57	CCI (3.25"x1.25")	94.21 - 94.46	1.0000	1.0000
L10	2	Safety Line 3/8"	89.21 - 94.21	1.0000	1.0000
L10	3	Climbing Pegs	89.21 - 94.21	1.0000	1.0000
L10	11	CONDUIT (2)	89.21 - 94.21	1.0000	1.0000
L10	13	LDF6-50A(1-1/4)	89.21 - 94.21	1.0000	1.0000
L10	17	CONDUIT (2)	89.21 - 94.21	1.0000	1.0000
L10	19	PWRT-608-S(13/16)	89.21 - 94.21	1.0000	1.0000
L10	20	FB-L98B-034-XXX(3/8)	89.21 - 94.21	1.0000	1.0000
L10	22	LDF7-50A(1-5/8)	89.21 - 94.21	1.0000	1.0000
L10	25	MLCH 12/24 LOW INDUCTION(2)	89.21 - 94.21	1.0000	1.0000
L10	27	CU12PSM9P8XXX(1-3/8)	89.21 - 94.00	1.0000	1.0000
L10	39	MP4-04	89.21 - 90.50	1.0000	1.0000
L10	40	MP4-04	89.21 - 90.50	1.0000	1.0000
L10	41	MP4-04	89.21 - 90.50	1.0000	1.0000
L10	43	CCI(6"x1")	89.21 - 94.21	1.0000	1.0000
L10	44	CCI(6"x1")	89.21 - 94.21	1.0000	1.0000
L10	45	CCI(6"x1")	89.21 - 94.21	1.0000	1.0000
L10	55	CCI (3.25"x1.25")	89.21 - 94.21	1.0000	1.0000
L10	56	CCI (3.25"x1.25")	89.21 - 94.21	1.0000	1.0000
L10	57	CCI (3.25"x1.25")	89.21 - 94.21	1.0000	1.0000
L11	2	Safety Line 3/8"	89.00 - 89.21	1.0000	1.0000
L11	3	Climbing Pegs	89.00 - 89.21	1.0000	1.0000
L11	11	CONDUIT (2)	89.00 - 89.21	1.0000	1.0000
L11	13	LDF6-50A(1-1/4)	89.00 - 89.21	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L11	17	CONDUIT (2)	89.00 - 89.21	1.0000	1.0000
L11	19	PWRT-608-S(13/16)	89.00 - 89.21	1.0000	1.0000
L11	20	FB-L98B-034-XXX(3/8)	89.00 - 89.21	1.0000	1.0000
L11	22	LDF7-50A(1-5/8)	89.00 - 89.21	1.0000	1.0000
L11	25	MLCH 12/24 LOW INDUCTION(2)	89.00 - 89.21	1.0000	1.0000
L11	27	CU12PSM9P8XXX(1-3/8)	89.00 - 89.21	1.0000	1.0000
L11	39	MP4-04	89.00 - 89.21	1.0000	1.0000
L11	40	MP4-04	89.00 - 89.21	1.0000	1.0000
L11	41	MP4-04	89.00 - 89.21	1.0000	1.0000
L11	43	CCI(6"x1")	89.00 - 89.21	1.0000	1.0000
L11	44	CCI(6"x1")	89.00 - 89.21	1.0000	1.0000
L11	45	CCI(6"x1")	89.00 - 89.21	1.0000	1.0000
L11	55	CCI (3.25"x1.25")	89.00 - 89.21	1.0000	1.0000
L11	56	CCI (3.25"x1.25")	89.00 - 89.21	1.0000	1.0000
L11	57	CCI (3.25"x1.25")	89.00 - 89.21	1.0000	1.0000
L12	2	Safety Line 3/8"	85.04 - 89.00	1.0000	1.0000
L12	3	Climbing Pegs	85.04 - 89.00	1.0000	1.0000
L12	11	CONDUIT (2)	85.04 - 89.00	1.0000	1.0000
L12	13	LDF6-50A(1-1/4)	85.04 - 89.00	1.0000	1.0000
L12	17	CONDUIT (2)	85.04 - 89.00	1.0000	1.0000
L12	19	PWRT-608-S(13/16)	85.04 - 89.00	1.0000	1.0000
L12	20	FB-L98B-034-XXX(3/8)	85.04 - 89.00	1.0000	1.0000
L12	22	LDF7-50A(1-5/8)	85.04 - 89.00	1.0000	1.0000
L12	25	MLCH 12/24 LOW INDUCTION(2)	85.04 - 89.00	1.0000	1.0000
L12	27	CU12PSM9P8XXX(1-3/8)	85.04 - 89.00	1.0000	1.0000
L12	39	MP4-04	85.04 - 89.00	1.0000	1.0000
L12	40	MP4-04	85.04 - 89.00	1.0000	1.0000
L12	41	MP4-04	85.04 - 89.00	1.0000	1.0000
L12	43	CCI(6"x1")	85.04 - 89.00	1.0000	1.0000
L12	44	CCI(6"x1")	85.04 - 89.00	1.0000	1.0000
L12	45	CCI(6"x1")	85.04 - 89.00	1.0000	1.0000
L12	55	CCI (3.25"x1.25")	87.50 - 89.00	1.0000	1.0000
L12	56	CCI (3.25"x1.25")	87.50 - 89.00	1.0000	1.0000
L12	57	CCI (3.25"x1.25")	87.50 - 89.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L13	2	Safety Line 3/8"	84.04 - 85.04	1.0000	1.0000
L13	3	Climbing Pegs	84.04 - 85.04	1.0000	1.0000
L13	11	CONDUIT (2)	84.04 - 85.04	1.0000	1.0000
L13	13	LDF6-50A(1-1/4)	84.04 - 85.04	1.0000	1.0000
L13	17	CONDUIT (2)	84.04 - 85.04	1.0000	1.0000
L13	19	PWRT-608-S(13/16)	84.04 - 85.04	1.0000	1.0000
L13	20	FB-L98B-034-XXX(3/8)	84.04 - 85.04	1.0000	1.0000
L13	22	LDF7-50A(1-5/8)	84.04 - 85.04	1.0000	1.0000
L13	25	MLCH 12/24 LOW INDUCTION(2)	84.04 - 85.04	1.0000	1.0000
L13	27	CU12PSM9P8XXX(1-3/8)	84.04 - 85.04	1.0000	1.0000
L13	39	MP4-04	84.04 - 85.04	1.0000	1.0000
L13	40	MP4-04	84.04 - 85.04	1.0000	1.0000
L13	41	MP4-04	84.04 - 85.04	1.0000	1.0000
L13	43	CCI(6"x1")	84.04 - 85.04	1.0000	1.0000
L13	44	CCI(6"x1")	84.04 - 85.04	1.0000	1.0000
L13	45	CCI(6"x1")	84.04 - 85.04	1.0000	1.0000
L14	2	Safety Line 3/8"	79.04 - 84.04	1.0000	1.0000
L14	3	Climbing Pegs	79.04 - 84.04	1.0000	1.0000
L14	11	CONDUIT (2)	79.04 - 84.04	1.0000	1.0000
L14	13	LDF6-50A(1-1/4)	79.04 - 84.04	1.0000	1.0000
L14	17	CONDUIT (2)	79.04 - 84.04	1.0000	1.0000
L14	19	PWRT-608-S(13/16)	79.04 - 84.04	1.0000	1.0000
L14	20	FB-L98B-034-XXX(3/8)	79.04 - 84.04	1.0000	1.0000
L14	22	LDF7-50A(1-5/8)	79.04 - 84.04	1.0000	1.0000
L14	25	MLCH 12/24 LOW INDUCTION(2)	79.04 - 84.04	1.0000	1.0000
L14	27	CU12PSM9P8XXX(1-3/8)	79.04 - 84.04	1.0000	1.0000
L14	39	MP4-04	79.04 - 84.04	1.0000	1.0000
L14	40	MP4-04	79.04 - 84.04	1.0000	1.0000
L14	41	MP4-04	79.04 - 84.04	1.0000	1.0000
L14	43	CCI(6"x1")	79.04 - 84.04	1.0000	1.0000
L14	44	CCI(6"x1")	79.04 - 84.04	1.0000	1.0000
L14	45	CCI(6"x1")	79.04 - 84.04	1.0000	1.0000
L15	2	Safety Line 3/8"	74.04 - 79.04	1.0000	1.0000
L15	3	Climbing Pegs	74.04 - 79.04	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	11	CONDUIT (2)	74.04 - 79.04	1.0000	1.0000
L15	13	LDF6-50A(1-1/4)	74.04 - 79.04	1.0000	1.0000
L15	17	CONDUIT (2)	74.04 - 79.04	1.0000	1.0000
L15	19	PWRT-608-S(13/16)	74.04 - 79.04	1.0000	1.0000
L15	20	FB-L98B-034-XXX(3/8)	74.04 - 79.04	1.0000	1.0000
L15	22	LDF7-50A(1-5/8)	74.04 - 79.04	1.0000	1.0000
L15	25	MLCH 12/24 LOW INDUCTION(2)	74.04 - 79.04	1.0000	1.0000
L15	27	CU12PSM9P8XXX(1-3/8)	74.04 - 79.04	1.0000	1.0000
L15	39	MP4-04	75.50 - 79.04	1.0000	1.0000
L15	40	MP4-04	75.50 - 79.04	1.0000	1.0000
L15	41	MP4-04	75.50 - 79.04	1.0000	1.0000
L15	43	CCI(6"x1")	74.04 - 79.04	1.0000	1.0000
L15	44	CCI(6"x1")	74.04 - 79.04	1.0000	1.0000
L15	45	CCI(6"x1")	74.04 - 79.04	1.0000	1.0000
L16	2	Safety Line 3/8"	73.58 - 74.04	1.0000	1.0000
L16	3	Climbing Pegs	73.58 - 74.04	1.0000	1.0000
L16	11	CONDUIT (2)	73.58 - 74.04	1.0000	1.0000
L16	13	LDF6-50A(1-1/4)	73.58 - 74.04	1.0000	1.0000
L16	17	CONDUIT (2)	73.58 - 74.04	1.0000	1.0000
L16	19	PWRT-608-S(13/16)	73.58 - 74.04	1.0000	1.0000
L16	20	FB-L98B-034-XXX(3/8)	73.58 - 74.04	1.0000	1.0000
L16	22	LDF7-50A(1-5/8)	73.58 - 74.04	1.0000	1.0000
L16	25	MLCH 12/24 LOW INDUCTION(2)	73.58 - 74.04	1.0000	1.0000
L16	27	CU12PSM9P8XXX(1-3/8)	73.58 - 74.04	1.0000	1.0000
L16	43	CCI(6"x1")	73.58 - 74.04	1.0000	1.0000
L16	44	CCI(6"x1")	73.58 - 74.04	1.0000	1.0000
L16	45	CCI(6"x1")	73.58 - 74.04	1.0000	1.0000
L17	2	Safety Line 3/8"	73.33 - 73.58	1.0000	1.0000
L17	3	Climbing Pegs	73.33 - 73.58	1.0000	1.0000
L17	11	CONDUIT (2)	73.33 - 73.58	1.0000	1.0000
L17	13	LDF6-50A(1-1/4)	73.33 - 73.58	1.0000	1.0000
L17	17	CONDUIT (2)	73.33 - 73.58	1.0000	1.0000
L17	19	PWRT-608-S(13/16)	73.33 - 73.58	1.0000	1.0000
L17	20	FB-L98B-034-XXX(3/8)	73.33 - 73.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	22	LDF7-50A(1-5/8)	73.33 - 73.58	1.0000	1.0000
L17	25	MLCH 12/24 LOW INDUCTION(2)	73.33 - 73.58	1.0000	1.0000
L17	27	CU12PSM9P8XXX(1-3/8)	73.33 - 73.58	1.0000	1.0000
L17	43	CCI(6"x1")	73.33 - 73.58	1.0000	1.0000
L17	44	CCI(6"x1")	73.33 - 73.58	1.0000	1.0000
L17	45	CCI(6"x1")	73.33 - 73.58	1.0000	1.0000
L18	2	Safety Line 3/8"	73.00 - 73.33	1.0000	1.0000
L18	3	Climbing Pegs	73.00 - 73.33	1.0000	1.0000
L18	11	CONDUIT (2)	73.00 - 73.33	1.0000	1.0000
L18	13	LDF6-50A(1-1/4)	73.00 - 73.33	1.0000	1.0000
L18	17	CONDUIT (2)	73.00 - 73.33	1.0000	1.0000
L18	19	PWRT-608-S(13/16)	73.00 - 73.33	1.0000	1.0000
L18	20	FB-L98B-034-XXX(3/8)	73.00 - 73.33	1.0000	1.0000
L18	22	LDF7-50A(1-5/8)	73.00 - 73.33	1.0000	1.0000
L18	25	MLCH 12/24 LOW INDUCTION(2)	73.00 - 73.33	1.0000	1.0000
L18	27	CU12PSM9P8XXX(1-3/8)	73.00 - 73.33	1.0000	1.0000
L18	43	CCI(6"x1")	73.00 - 73.33	1.0000	1.0000
L18	44	CCI(6"x1")	73.00 - 73.33	1.0000	1.0000
L18	45	CCI(6"x1")	73.00 - 73.33	1.0000	1.0000
L19	2	Safety Line 3/8"	72.75 - 73.00	1.0000	1.0000
L19	3	Climbing Pegs	72.75 - 73.00	1.0000	1.0000
L19	11	CONDUIT (2)	72.75 - 73.00	1.0000	1.0000
L19	13	LDF6-50A(1-1/4)	72.75 - 73.00	1.0000	1.0000
L19	17	CONDUIT (2)	72.75 - 73.00	1.0000	1.0000
L19	19	PWRT-608-S(13/16)	72.75 - 73.00	1.0000	1.0000
L19	20	FB-L98B-034-XXX(3/8)	72.75 - 73.00	1.0000	1.0000
L19	22	LDF7-50A(1-5/8)	72.75 - 73.00	1.0000	1.0000
L19	25	MLCH 12/24 LOW INDUCTION(2)	72.75 - 73.00	1.0000	1.0000
L19	27	CU12PSM9P8XXX(1-3/8)	72.75 - 73.00	1.0000	1.0000
L19	43	CCI(6"x1")	72.75 - 73.00	1.0000	1.0000
L19	44	CCI(6"x1")	72.75 - 73.00	1.0000	1.0000
L19	45	CCI(6"x1")	72.75 - 73.00	1.0000	1.0000
L20	2	Safety Line 3/8"	67.75 - 72.75	1.0000	1.0000
L20	3	Climbing Pegs	67.75 - 72.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	11	CONDUIT (2)	67.75 - 72.75	1.0000	1.0000
L20	13	LDF6-50A(1-1/4)	67.75 - 72.75	1.0000	1.0000
L20	17	CONDUIT (2)	67.75 - 72.75	1.0000	1.0000
L20	19	PWRT-608-S(13/16)	67.75 - 72.75	1.0000	1.0000
L20	20	FB-L98B-034-XXX(3/8)	67.75 - 72.75	1.0000	1.0000
L20	22	LDF7-50A(1-5/8)	67.75 - 72.75	1.0000	1.0000
L20	25	MLCH 12/24 LOW INDUCTION(2)	67.75 - 72.75	1.0000	1.0000
L20	27	CU12PSM9P8XXX(1-3/8)	67.75 - 72.75	1.0000	1.0000
L20	43	CCI(6"x1")	71.00 - 72.75	1.0000	1.0000
L20	44	CCI(6"x1")	71.00 - 72.75	1.0000	1.0000
L20	45	CCI(6"x1")	71.00 - 72.75	1.0000	1.0000
L21	2	Safety Line 3/8"	63.00 - 67.75	1.0000	1.0000
L21	3	Climbing Pegs	63.00 - 67.75	1.0000	1.0000
L21	11	CONDUIT (2)	63.00 - 67.75	1.0000	1.0000
L21	13	LDF6-50A(1-1/4)	63.00 - 67.75	1.0000	1.0000
L21	17	CONDUIT (2)	63.00 - 67.75	1.0000	1.0000
L21	19	PWRT-608-S(13/16)	63.00 - 67.75	1.0000	1.0000
L21	20	FB-L98B-034-XXX(3/8)	63.00 - 67.75	1.0000	1.0000
L21	22	LDF7-50A(1-5/8)	63.00 - 67.75	1.0000	1.0000
L21	25	MLCH 12/24 LOW INDUCTION(2)	63.00 - 67.75	1.0000	1.0000
L21	27	CU12PSM9P8XXX(1-3/8)	63.00 - 67.75	1.0000	1.0000
L21	51	CCI(6"x1")	63.00 - 65.00	1.0000	1.0000
L21	52	CCI(6"x1")	63.00 - 65.00	1.0000	1.0000
L21	53	CCI(6"x1")	63.00 - 65.00	1.0000	1.0000
L22	2	Safety Line 3/8"	62.75 - 63.00	1.0000	1.0000
L22	3	Climbing Pegs	62.75 - 63.00	1.0000	1.0000
L22	11	CONDUIT (2)	62.75 - 63.00	1.0000	1.0000
L22	13	LDF6-50A(1-1/4)	62.75 - 63.00	1.0000	1.0000
L22	17	CONDUIT (2)	62.75 - 63.00	1.0000	1.0000
L22	19	PWRT-608-S(13/16)	62.75 - 63.00	1.0000	1.0000
L22	20	FB-L98B-034-XXX(3/8)	62.75 - 63.00	1.0000	1.0000
L22	22	LDF7-50A(1-5/8)	62.75 - 63.00	1.0000	1.0000
L22	25	MLCH 12/24 LOW INDUCTION(2)	62.75 - 63.00	1.0000	1.0000
L22	27	CU12PSM9P8XXX(1-3/8)	62.75 - 63.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	51	CCI(6"x1")	62.75 - 63.00	1.0000	1.0000
L22	52	CCI(6"x1")	62.75 - 63.00	1.0000	1.0000
L22	53	CCI(6"x1")	62.75 - 63.00	1.0000	1.0000
L23	2	Safety Line 3/8"	57.75 - 62.75	1.0000	1.0000
L23	3	Climbing Pegs	57.75 - 62.75	1.0000	1.0000
L23	11	CONDUIT (2)	57.75 - 62.75	1.0000	1.0000
L23	13	LDF6-50A(1-1/4)	57.75 - 62.75	1.0000	1.0000
L23	17	CONDUIT (2)	57.75 - 62.75	1.0000	1.0000
L23	19	PWRT-608-S(13/16)	57.75 - 62.75	1.0000	1.0000
L23	20	FB-L98B-034-XXX(3/8)	57.75 - 62.75	1.0000	1.0000
L23	22	LDF7-50A(1-5/8)	57.75 - 62.75	1.0000	1.0000
L23	25	MLCH 12/24 LOW INDUCTION(2)	57.75 - 62.75	1.0000	1.0000
L23	27	CU12PSM9P8XXX(1-3/8)	57.75 - 62.75	1.0000	1.0000
L23	35	MP4-06	57.75 - 60.50	1.0000	1.0000
L23	36	MP4-06	57.75 - 60.50	1.0000	1.0000
L23	37	MP4-06	57.75 - 60.50	1.0000	1.0000
L23	51	CCI(6"x1")	57.75 - 62.75	1.0000	1.0000
L23	52	CCI(6"x1")	57.75 - 62.75	1.0000	1.0000
L23	53	CCI(6"x1")	57.75 - 62.75	1.0000	1.0000
L24	2	Safety Line 3/8"	57.23 - 57.75	1.0000	1.0000
L24	3	Climbing Pegs	57.23 - 57.75	1.0000	1.0000
L24	11	CONDUIT (2)	57.23 - 57.75	1.0000	1.0000
L24	13	LDF6-50A(1-1/4)	57.23 - 57.75	1.0000	1.0000
L24	17	CONDUIT (2)	57.23 - 57.75	1.0000	1.0000
L24	19	PWRT-608-S(13/16)	57.23 - 57.75	1.0000	1.0000
L24	20	FB-L98B-034-XXX(3/8)	57.23 - 57.75	1.0000	1.0000
L24	22	LDF7-50A(1-5/8)	57.23 - 57.75	1.0000	1.0000
L24	25	MLCH 12/24 LOW INDUCTION(2)	57.23 - 57.75	1.0000	1.0000
L24	27	CU12PSM9P8XXX(1-3/8)	57.23 - 57.75	1.0000	1.0000
L24	35	MP4-06	57.23 - 57.75	1.0000	1.0000
L24	36	MP4-06	57.23 - 57.75	1.0000	1.0000
L24	37	MP4-06	57.23 - 57.75	1.0000	1.0000
L24	51	CCI(6"x1")	57.23 - 57.75	1.0000	1.0000
L24	52	CCI(6"x1")	57.23 - 57.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	53	CCI(6"x1")	57.23 - 57.75	1.0000	1.0000
L25	2	Safety Line 3/8"	56.98 - 57.23	1.0000	1.0000
L25	3	Climbing Pegs	56.98 - 57.23	1.0000	1.0000
L25	11	CONDUIT (2)	56.98 - 57.23	1.0000	1.0000
L25	13	LDF6-50A(1-1/4)	56.98 - 57.23	1.0000	1.0000
L25	17	CONDUIT (2)	56.98 - 57.23	1.0000	1.0000
L25	19	PWRT-608-S(13/16)	56.98 - 57.23	1.0000	1.0000
L25	20	FB-L98B-034-XXX(3/8)	56.98 - 57.23	1.0000	1.0000
L25	22	LDF7-50A(1-5/8)	56.98 - 57.23	1.0000	1.0000
L25	25	MLCH 12/24 LOW INDUCTION(2)	56.98 - 57.23	1.0000	1.0000
L25	27	CU12PSM9P8XXX(1-3/8)	56.98 - 57.23	1.0000	1.0000
L25	35	MP4-06	56.98 - 57.23	1.0000	1.0000
L25	36	MP4-06	56.98 - 57.23	1.0000	1.0000
L25	37	MP4-06	56.98 - 57.23	1.0000	1.0000
L25	51	CCI(6"x1")	56.98 - 57.23	1.0000	1.0000
L25	52	CCI(6"x1")	56.98 - 57.23	1.0000	1.0000
L25	53	CCI(6"x1")	56.98 - 57.23	1.0000	1.0000
L26	2	Safety Line 3/8"	51.98 - 56.98	1.0000	1.0000
L26	3	Climbing Pegs	51.98 - 56.98	1.0000	1.0000
L26	11	CONDUIT (2)	51.98 - 56.98	1.0000	1.0000
L26	13	LDF6-50A(1-1/4)	51.98 - 56.98	1.0000	1.0000
L26	17	CONDUIT (2)	51.98 - 56.98	1.0000	1.0000
L26	19	PWRT-608-S(13/16)	51.98 - 56.98	1.0000	1.0000
L26	20	FB-L98B-034-XXX(3/8)	51.98 - 56.98	1.0000	1.0000
L26	22	LDF7-50A(1-5/8)	51.98 - 56.98	1.0000	1.0000
L26	25	MLCH 12/24 LOW INDUCTION(2)	51.98 - 56.98	1.0000	1.0000
L26	27	CU12PSM9P8XXX(1-3/8)	51.98 - 56.98	1.0000	1.0000
L26	35	MP4-06	51.98 - 56.98	1.0000	1.0000
L26	36	MP4-06	51.98 - 56.98	1.0000	1.0000
L26	37	MP4-06	51.98 - 56.98	1.0000	1.0000
L26	51	CCI(6"x1")	55.00 - 56.98	1.0000	1.0000
L26	52	CCI(6"x1")	55.00 - 56.98	1.0000	1.0000
L26	53	CCI(6"x1")	55.00 - 56.98	1.0000	1.0000
L27	2	Safety Line 3/8"	46.98 - 51.98	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	3	Climbing Pegs	46.98 - 51.98	1.0000	1.0000
L27	11	CONDUIT (2)	46.98 - 51.98	1.0000	1.0000
L27	13	LDF6-50A(1-1/4)	46.98 - 51.98	1.0000	1.0000
L27	17	CONDUIT (2)	46.98 - 51.98	1.0000	1.0000
L27	19	PWRT-608-S(13/16)	46.98 - 51.98	1.0000	1.0000
L27	20	FB-L98B-034-XXX(3/8)	46.98 - 51.98	1.0000	1.0000
L27	22	LDF7-50A(1-5/8)	46.98 - 51.98	1.0000	1.0000
L27	25	MLCH 12/24 LOW INDUCTION(2)	46.98 - 51.98	1.0000	1.0000
L27	27	CU12PSM9P8XXX(1-3/8)	46.98 - 51.98	1.0000	1.0000
L27	35	MP4-06	46.98 - 51.98	1.0000	1.0000
L27	36	MP4-06	46.98 - 51.98	1.0000	1.0000
L27	37	MP4-06	46.98 - 51.98	1.0000	1.0000
L28	2	Safety Line 3/8"	40.46 - 46.98	1.0000	1.0000
L28	3	Climbing Pegs	40.46 - 46.98	1.0000	1.0000
L28	11	CONDUIT (2)	40.46 - 46.98	1.0000	1.0000
L28	13	LDF6-50A(1-1/4)	40.46 - 46.98	1.0000	1.0000
L28	17	CONDUIT (2)	40.46 - 46.98	1.0000	1.0000
L28	19	PWRT-608-S(13/16)	40.46 - 46.98	1.0000	1.0000
L28	20	FB-L98B-034-XXX(3/8)	40.46 - 46.98	1.0000	1.0000
L28	22	LDF7-50A(1-5/8)	40.46 - 46.98	1.0000	1.0000
L28	25	MLCH 12/24 LOW INDUCTION(2)	40.46 - 46.98	1.0000	1.0000
L28	27	CU12PSM9P8XXX(1-3/8)	40.46 - 46.98	1.0000	1.0000
L28	35	MP4-06	40.46 - 46.98	1.0000	1.0000
L28	36	MP4-06	40.46 - 46.98	1.0000	1.0000
L28	37	MP4-06	40.46 - 46.98	1.0000	1.0000
L29	2	Safety Line 3/8"	39.46 - 40.46	1.0000	1.0000
L29	3	Climbing Pegs	39.46 - 40.46	1.0000	1.0000
L29	11	CONDUIT (2)	39.46 - 40.46	1.0000	1.0000
L29	13	LDF6-50A(1-1/4)	39.46 - 40.46	1.0000	1.0000
L29	17	CONDUIT (2)	39.46 - 40.46	1.0000	1.0000
L29	19	PWRT-608-S(13/16)	39.46 - 40.46	1.0000	1.0000
L29	20	FB-L98B-034-XXX(3/8)	39.46 - 40.46	1.0000	1.0000
L29	22	LDF7-50A(1-5/8)	39.46 - 40.46	1.0000	1.0000
L29	25	MLCH 12/24 LOW INDUCTION(2)	39.46 - 40.46	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L29	27	CU12PSM9P8XXX(1-3/8)	39.46 - 40.46	1.0000	1.0000
L29	35	MP4-06	39.46 - 40.46	1.0000	1.0000
L29	36	MP4-06	39.46 - 40.46	1.0000	1.0000
L29	37	MP4-06	39.46 - 40.46	1.0000	1.0000
L30	2	Safety Line 3/8"	37.83 - 39.46	1.0000	1.0000
L30	3	Climbing Pegs	37.83 - 39.46	1.0000	1.0000
L30	11	CONDUIT (2)	37.83 - 39.46	1.0000	1.0000
L30	13	LDF6-50A(1-1/4)	37.83 - 39.46	1.0000	1.0000
L30	17	CONDUIT (2)	37.83 - 39.46	1.0000	1.0000
L30	19	PWRT-608-S(13/16)	37.83 - 39.46	1.0000	1.0000
L30	20	FB-L98B-034-XXX(3/8)	37.83 - 39.46	1.0000	1.0000
L30	22	LDF7-50A(1-5/8)	37.83 - 39.46	1.0000	1.0000
L30	25	MLCH 12/24 LOW INDUCTION(2)	37.83 - 39.46	1.0000	1.0000
L30	27	CU12PSM9P8XXX(1-3/8)	37.83 - 39.46	1.0000	1.0000
L30	35	MP4-06	37.83 - 39.46	1.0000	1.0000
L30	36	MP4-06	37.83 - 39.46	1.0000	1.0000
L30	37	MP4-06	37.83 - 39.46	1.0000	1.0000
L31	2	Safety Line 3/8"	37.58 - 37.83	1.0000	1.0000
L31	3	Climbing Pegs	37.58 - 37.83	1.0000	1.0000
L31	11	CONDUIT (2)	37.58 - 37.83	1.0000	1.0000
L31	13	LDF6-50A(1-1/4)	37.58 - 37.83	1.0000	1.0000
L31	17	CONDUIT (2)	37.58 - 37.83	1.0000	1.0000
L31	19	PWRT-608-S(13/16)	37.58 - 37.83	1.0000	1.0000
L31	20	FB-L98B-034-XXX(3/8)	37.58 - 37.83	1.0000	1.0000
L31	22	LDF7-50A(1-5/8)	37.58 - 37.83	1.0000	1.0000
L31	25	MLCH 12/24 LOW INDUCTION(2)	37.58 - 37.83	1.0000	1.0000
L31	27	CU12PSM9P8XXX(1-3/8)	37.58 - 37.83	1.0000	1.0000
L31	35	MP4-06	37.58 - 37.83	1.0000	1.0000
L31	36	MP4-06	37.58 - 37.83	1.0000	1.0000
L31	37	MP4-06	37.58 - 37.83	1.0000	1.0000
L32	2	Safety Line 3/8"	32.58 - 37.58	1.0000	1.0000
L32	3	Climbing Pegs	32.58 - 37.58	1.0000	1.0000
L32	11	CONDUIT (2)	32.58 - 37.58	1.0000	1.0000
L32	13	LDF6-50A(1-1/4)	32.58 - 37.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	17	CONDUIT (2)	32.58 - 37.58	1.0000	1.0000
L32	19	PWRT-608-S(13/16)	32.58 - 37.58	1.0000	1.0000
L32	20	FB-L98B-034-XXX(3/8)	32.58 - 37.58	1.0000	1.0000
L32	22	LDF7-50A(1-5/8)	32.58 - 37.58	1.0000	1.0000
L32	25	MLCH 12/24 LOW INDUCTION(2)	32.58 - 37.58	1.0000	1.0000
L32	27	CU12PSM9P8XXX(1-3/8)	32.58 - 37.58	1.0000	1.0000
L32	35	MP4-06	32.58 - 37.58	1.0000	1.0000
L32	36	MP4-06	32.58 - 37.58	1.0000	1.0000
L32	37	MP4-06	32.58 - 37.58	1.0000	1.0000
L33	2	Safety Line 3/8"	27.58 - 32.58	1.0000	1.0000
L33	3	Climbing Pegs	27.58 - 32.58	1.0000	1.0000
L33	11	CONDUIT (2)	27.58 - 32.58	1.0000	1.0000
L33	13	LDF6-50A(1-1/4)	27.58 - 32.58	1.0000	1.0000
L33	17	CONDUIT (2)	27.58 - 32.58	1.0000	1.0000
L33	19	PWRT-608-S(13/16)	27.58 - 32.58	1.0000	1.0000
L33	20	FB-L98B-034-XXX(3/8)	27.58 - 32.58	1.0000	1.0000
L33	22	LDF7-50A(1-5/8)	27.58 - 32.58	1.0000	1.0000
L33	25	MLCH 12/24 LOW INDUCTION(2)	27.58 - 32.58	1.0000	1.0000
L33	27	CU12PSM9P8XXX(1-3/8)	27.58 - 32.58	1.0000	1.0000
L33	35	MP4-06	27.58 - 32.58	1.0000	1.0000
L33	36	MP4-06	27.58 - 32.58	1.0000	1.0000
L33	37	MP4-06	27.58 - 32.58	1.0000	1.0000
L34	2	Safety Line 3/8"	22.58 - 27.58	1.0000	1.0000
L34	3	Climbing Pegs	22.58 - 27.58	1.0000	1.0000
L34	11	CONDUIT (2)	22.58 - 27.58	1.0000	1.0000
L34	13	LDF6-50A(1-1/4)	22.58 - 27.58	1.0000	1.0000
L34	17	CONDUIT (2)	22.58 - 27.58	1.0000	1.0000
L34	19	PWRT-608-S(13/16)	22.58 - 27.58	1.0000	1.0000
L34	20	FB-L98B-034-XXX(3/8)	22.58 - 27.58	1.0000	1.0000
L34	22	LDF7-50A(1-5/8)	22.58 - 27.58	1.0000	1.0000
L34	25	MLCH 12/24 LOW INDUCTION(2)	22.58 - 27.58	1.0000	1.0000
L34	27	CU12PSM9P8XXX(1-3/8)	22.58 - 27.58	1.0000	1.0000
L34	35	MP4-06	22.58 - 27.58	1.0000	1.0000
L34	36	MP4-06	22.58 - 27.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L34	37	MP4-06	22.58 - 27.58	1.0000	1.0000
L35	2	Safety Line 3/8"	17.58 - 22.58	1.0000	1.0000
L35	3	Climbing Pegs	17.58 - 22.58	1.0000	1.0000
L35	11	CONDUIT (2)	17.58 - 22.58	1.0000	1.0000
L35	13	LDF6-50A(1-1/4)	17.58 - 22.58	1.0000	1.0000
L35	17	CONDUIT (2)	17.58 - 22.58	1.0000	1.0000
L35	19	PWRT-608-S(13/16)	17.58 - 22.58	1.0000	1.0000
L35	20	FB-L98B-034-XXX(3/8)	17.58 - 22.58	1.0000	1.0000
L35	22	LDF7-50A(1-5/8)	17.58 - 22.58	1.0000	1.0000
L35	25	MLCH 12/24 LOW INDUCTION(2)	17.58 - 22.58	1.0000	1.0000
L35	27	CU12PSM9P8XXX(1-3/8)	17.58 - 22.58	1.0000	1.0000
L35	35	MP4-06	17.58 - 22.58	1.0000	1.0000
L35	36	MP4-06	17.58 - 22.58	1.0000	1.0000
L35	37	MP4-06	17.58 - 22.58	1.0000	1.0000
L36	2	Safety Line 3/8"	12.58 - 17.58	1.0000	1.0000
L36	3	Climbing Pegs	12.58 - 17.58	1.0000	1.0000
L36	11	CONDUIT (2)	12.58 - 17.58	1.0000	1.0000
L36	13	LDF6-50A(1-1/4)	12.58 - 17.58	1.0000	1.0000
L36	17	CONDUIT (2)	12.58 - 17.58	1.0000	1.0000
L36	19	PWRT-608-S(13/16)	12.58 - 17.58	1.0000	1.0000
L36	20	FB-L98B-034-XXX(3/8)	12.58 - 17.58	1.0000	1.0000
L36	22	LDF7-50A(1-5/8)	12.58 - 17.58	1.0000	1.0000
L36	25	MLCH 12/24 LOW INDUCTION(2)	12.58 - 17.58	1.0000	1.0000
L36	27	CU12PSM9P8XXX(1-3/8)	12.58 - 17.58	1.0000	1.0000
L36	35	MP4-06	12.58 - 17.58	1.0000	1.0000
L36	36	MP4-06	12.58 - 17.58	1.0000	1.0000
L36	37	MP4-06	12.58 - 17.58	1.0000	1.0000
L36	47	CCI(6.5"x1.25")	12.58 - 15.00	1.0000	1.0000
L36	48	CCI(6.5"x1.25")	12.58 - 15.00	1.0000	1.0000
L36	49	CCI(6.5"x1.25")	12.58 - 15.00	1.0000	1.0000
L37	2	Safety Line 3/8"	12.25 - 12.58	1.0000	1.0000
L37	3	Climbing Pegs	12.25 - 12.58	1.0000	1.0000
L37	11	CONDUIT (2)	12.25 - 12.58	1.0000	1.0000
L37	13	LDF6-50A(1-1/4)	12.25 - 12.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L37	17	CONDUIT (2)	12.25 - 12.58	1.0000	1.0000
L37	19	PWRT-608-S(13/16)	12.25 - 12.58	1.0000	1.0000
L37	20	FB-L98B-034-XXX(3/8)	12.25 - 12.58	1.0000	1.0000
L37	22	LDF7-50A(1-5/8)	12.25 - 12.58	1.0000	1.0000
L37	25	MLCH 12/24 LOW INDUCTION(2)	12.25 - 12.58	1.0000	1.0000
L37	27	CU12PSM9P8XXX(1-3/8)	12.25 - 12.58	1.0000	1.0000
L37	35	MP4-06	12.25 - 12.58	1.0000	1.0000
L37	36	MP4-06	12.25 - 12.58	1.0000	1.0000
L37	37	MP4-06	12.25 - 12.58	1.0000	1.0000
L37	47	CCI(6.5"x1.25")	12.25 - 12.58	1.0000	1.0000
L37	48	CCI(6.5"x1.25")	12.25 - 12.58	1.0000	1.0000
L37	49	CCI(6.5"x1.25")	12.25 - 12.58	1.0000	1.0000
L38	2	Safety Line 3/8"	12.00 - 12.25	1.0000	1.0000
L38	3	Climbing Pegs	12.00 - 12.25	1.0000	1.0000
L38	11	CONDUIT (2)	12.00 - 12.25	1.0000	1.0000
L38	13	LDF6-50A(1-1/4)	12.00 - 12.25	1.0000	1.0000
L38	17	CONDUIT (2)	12.00 - 12.25	1.0000	1.0000
L38	19	PWRT-608-S(13/16)	12.00 - 12.25	1.0000	1.0000
L38	20	FB-L98B-034-XXX(3/8)	12.00 - 12.25	1.0000	1.0000
L38	22	LDF7-50A(1-5/8)	12.00 - 12.25	1.0000	1.0000
L38	25	MLCH 12/24 LOW INDUCTION(2)	12.00 - 12.25	1.0000	1.0000
L38	27	CU12PSM9P8XXX(1-3/8)	12.00 - 12.25	1.0000	1.0000
L38	35	MP4-06	12.00 - 12.25	1.0000	1.0000
L38	36	MP4-06	12.00 - 12.25	1.0000	1.0000
L38	37	MP4-06	12.00 - 12.25	1.0000	1.0000
L38	47	CCI(6.5"x1.25")	12.00 - 12.25	1.0000	1.0000
L38	48	CCI(6.5"x1.25")	12.00 - 12.25	1.0000	1.0000
L38	49	CCI(6.5"x1.25")	12.00 - 12.25	1.0000	1.0000
L39	2	Safety Line 3/8"	10.00 - 12.00	1.0000	1.0000
L39	3	Climbing Pegs	10.00 - 12.00	1.0000	1.0000
L39	11	CONDUIT (2)	8.00 - 12.00	1.0000	1.0000
L39	13	LDF6-50A(1-1/4)	8.00 - 12.00	1.0000	1.0000
L39	17	CONDUIT (2)	8.00 - 12.00	1.0000	1.0000
L39	19	PWRT-608-S(13/16)	7.00 - 12.00	1.0000	1.0000
L39	20	FB-L98B-034-XXX(3/8)	7.00 - 12.00	1.0000	1.0000
L39	22	LDF7-50A(1-5/8)	7.00 - 12.00	1.0000	1.0000
L39	25	MLCH 12/24 LOW INDUCTION(2)	7.00 - 12.00	1.0000	1.0000
L39	27	CU12PSM9P8XXX(1-3/8)	7.00 - 12.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	35	MP4-06	7.00 - 12.00	1.0000	1.0000
L39	36	MP4-06	7.00 - 12.00	1.0000	1.0000
L39	37	MP4-06	7.00 - 12.00	1.0000	1.0000
L39	47	CCI(6.5"x1.25")	7.00 - 12.00	1.0000	1.0000
L39	48	CCI(6.5"x1.25")	7.00 - 12.00	1.0000	1.0000
L39	49	CCI(6.5"x1.25")	7.00 - 12.00	1.0000	1.0000
L40	19	PWRT-608-S(13/16)	2.00 - 7.00	1.0000	1.0000
L40	20	FB-L98B-034-XXX(3/8)	2.00 - 7.00	1.0000	1.0000
L40	22	LDF7-50A(1-5/8)	3.00 - 7.00	1.0000	1.0000
L40	25	MLCH 12/24 LOW INDUCTION(2)	3.00 - 7.00	1.0000	1.0000
L40	27	CU12PSM9P8XXX(1-3/8)	2.00 - 7.00	1.0000	1.0000
L40	35	MP4-06	2.00 - 7.00	1.0000	1.0000
L40	36	MP4-06	2.00 - 7.00	1.0000	1.0000
L40	37	MP4-06	2.00 - 7.00	1.0000	1.0000
L40	47	CCI(6.5"x1.25")	2.00 - 7.00	1.0000	1.0000
L40	48	CCI(6.5"x1.25")	2.00 - 7.00	1.0000	1.0000
L40	49	CCI(6.5"x1.25")	2.00 - 7.00	1.0000	1.0000
L41	19	PWRT-608-S(13/16)	0.00 - 2.00	1.0000	1.0000
L41	20	FB-L98B-034-XXX(3/8)	0.00 - 2.00	1.0000	1.0000
L41	27	CU12PSM9P8XXX(1-3/8)	0.00 - 2.00	1.0000	1.0000
L41	35	MP4-06	0.50 - 2.00	1.0000	1.0000
L41	36	MP4-06	0.50 - 2.00	1.0000	1.0000
L41	37	MP4-06	0.50 - 2.00	1.0000	1.0000
L41	47	CCI(6.5"x1.25")	0.00 - 2.00	1.0000	1.0000
L41	48	CCI(6.5"x1.25")	0.00 - 2.00	1.0000	1.0000
L41	49	CCI(6.5"x1.25")	0.00 - 2.00	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
L5	55	CCI (3.25"x1.25")	100.00 - 102.50	Auto	0.0000
L5	56	CCI (3.25"x1.25")	100.00 - 102.50	Auto	0.0000
L5	57	CCI (3.25"x1.25")	100.00 - 102.50	Auto	0.0000
L6	55	CCI (3.25"x1.25")	99.38 - 100.00	Auto	0.0000
L6	56	CCI (3.25"x1.25")	99.38 - 100.00	Auto	0.0000
L6	57	CCI (3.25"x1.25")	99.38 - 100.00	Auto	0.0000
L7	55	CCI (3.25"x1.25")	99.13 - 99.38	Auto	0.0000
L7	56	CCI (3.25"x1.25")	99.13 - 99.38	Auto	0.0000
L7	57	CCI (3.25"x1.25")	99.13 - 99.38	Auto	0.0000
L8	43	CCI(6"x1")	94.46 - 96.50	Auto	0.3922
L8	44	CCI(6"x1")	94.46 - 96.50	Auto	0.3922
L8	45	CCI(6"x1")	94.46 - 96.50	Auto	0.3922
L8	55	CCI (3.25"x1.25")	94.46 - 99.13	Auto	0.0000
L8	56	CCI (3.25"x1.25")	94.46 - 99.13	Auto	0.0000
L8	57	CCI (3.25"x1.25")	94.46 - 99.13	Auto	0.0000
L9	43	CCI(6"x1")	94.21 - 94.46	Auto	0.4400

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L9	44	CCI(6"x1")	94.21 - 94.46	Auto	0.4400
L9	45	CCI(6"x1")	94.21 - 94.46	Auto	0.4400
L9	55	CCI (3.25"x1.25")	94.21 - 94.46	Auto	0.0000
L9	56	CCI (3.25"x1.25")	94.21 - 94.46	Auto	0.0000
L9	57	CCI (3.25"x1.25")	94.21 - 94.46	Auto	0.0000
L10	39	MP4-04	89.21 - 90.50	Auto	0.2476
L10	40	MP4-04	89.21 - 90.50	Auto	0.2476
L10	41	MP4-04	89.21 - 90.50	Auto	0.2476
L10	43	CCI(6"x1")	89.21 - 94.21	Auto	0.4161
L10	44	CCI(6"x1")	89.21 - 94.21	Auto	0.4161
L10	45	CCI(6"x1")	89.21 - 94.21	Auto	0.4161
L10	55	CCI (3.25"x1.25")	89.21 - 94.21	Auto	0.0000
L10	56	CCI (3.25"x1.25")	89.21 - 94.21	Auto	0.0000
L10	57	CCI (3.25"x1.25")	89.21 - 94.21	Auto	0.0000
L11	39	MP4-04	89.00 - 89.21	Auto	0.2417
L11	40	MP4-04	89.00 - 89.21	Auto	0.2417
L11	41	MP4-04	89.00 - 89.21	Auto	0.2417
L11	43	CCI(6"x1")	89.00 - 89.21	Auto	0.3997
L11	44	CCI(6"x1")	89.00 - 89.21	Auto	0.3997
L11	45	CCI(6"x1")	89.00 - 89.21	Auto	0.3997
L11	55	CCI (3.25"x1.25")	89.00 - 89.21	Auto	0.0000
L11	56	CCI (3.25"x1.25")	89.00 - 89.21	Auto	0.0000
L11	57	CCI (3.25"x1.25")	89.00 - 89.21	Auto	0.0000
L12	39	MP4-04	85.04 - 89.00	Auto	0.2575
L12	40	MP4-04	85.04 - 89.00	Auto	0.2575
L12	41	MP4-04	85.04 - 89.00	Auto	0.2575
L12	43	CCI(6"x1")	85.04 - 89.00	Auto	0.4122
L12	44	CCI(6"x1")	85.04 - 89.00	Auto	0.4122
L12	45	CCI(6"x1")	85.04 - 89.00	Auto	0.4122
L12	55	CCI (3.25"x1.25")	87.50 - 89.00	Auto	0.0000
L12	56	CCI (3.25"x1.25")	87.50 - 89.00	Auto	0.0000
L12	57	CCI (3.25"x1.25")	87.50 - 89.00	Auto	0.0000
L13	39	MP4-04	84.04 - 85.04	Auto	0.1918
L13	40	MP4-04	84.04 - 85.04	Auto	0.1918

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L13	41	MP4-04	84.04 - 85.04	Auto	0.1918
L13	43	CCI(6"x1")	84.04 - 85.04	Auto	0.3602
L13	44	CCI(6"x1")	84.04 - 85.04	Auto	0.3602
L13	45	CCI(6"x1")	84.04 - 85.04	Auto	0.3602
L14	39	MP4-04	79.04 - 84.04	Auto	0.1636
L14	40	MP4-04	79.04 - 84.04	Auto	0.1636
L14	41	MP4-04	79.04 - 84.04	Auto	0.1636
L14	43	CCI(6"x1")	79.04 - 84.04	Auto	0.3378
L14	44	CCI(6"x1")	79.04 - 84.04	Auto	0.3378
L14	45	CCI(6"x1")	79.04 - 84.04	Auto	0.3378
L15	39	MP4-04	75.50 - 79.04	Auto	0.1253
L15	40	MP4-04	75.50 - 79.04	Auto	0.1253
L15	41	MP4-04	75.50 - 79.04	Auto	0.1253
L15	43	CCI(6"x1")	74.04 - 79.04	Auto	0.3030
L15	44	CCI(6"x1")	74.04 - 79.04	Auto	0.3030
L15	45	CCI(6"x1")	74.04 - 79.04	Auto	0.3030
L16	43	CCI(6"x1")	73.58 - 74.04	Auto	0.2860
L16	44	CCI(6"x1")	73.58 - 74.04	Auto	0.2860
L16	45	CCI(6"x1")	73.58 - 74.04	Auto	0.2860
L17	43	CCI(6"x1")	73.33 - 73.58	Auto	0.3241
L17	44	CCI(6"x1")	73.33 - 73.58	Auto	0.3241
L17	45	CCI(6"x1")	73.33 - 73.58	Auto	0.3241
L18	43	CCI(6"x1")	73.00 - 73.33	Auto	0.3223
L18	44	CCI(6"x1")	73.00 - 73.33	Auto	0.3223
L18	45	CCI(6"x1")	73.00 - 73.33	Auto	0.3223
L19	43	CCI(6"x1")	72.75 - 73.00	Auto	0.2508
L19	44	CCI(6"x1")	72.75 - 73.00	Auto	0.2508
L19	45	CCI(6"x1")	72.75 - 73.00	Auto	0.2508
L20	43	CCI(6"x1")	71.00 - 72.75	Auto	0.2446
L20	44	CCI(6"x1")	71.00 - 72.75	Auto	0.2446
L20	45	CCI(6"x1")	71.00 - 72.75	Auto	0.2446
L21	51	CCI(6"x1")	63.00 - 65.00	Auto	0.1936
L21	52	CCI(6"x1")	63.00 - 65.00	Auto	0.1936
L21	53	CCI(6"x1")	63.00 - 65.00	Auto	0.1936

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L22	51	CCI(6"x1")	62.75 - 63.00	Auto	0.2471
L22	52	CCI(6"x1")	62.75 - 63.00	Auto	0.2471
L22	53	CCI(6"x1")	62.75 - 63.00	Auto	0.2471
L23	35	MP4-06	57.75 - 60.50	Auto	0.0401
L23	36	MP4-06	57.75 - 60.50	Auto	0.0401
L23	37	MP4-06	57.75 - 60.50	Auto	0.0401
L23	51	CCI(6"x1")	57.75 - 62.75	Auto	0.2271
L23	52	CCI(6"x1")	57.75 - 62.75	Auto	0.2271
L23	53	CCI(6"x1")	57.75 - 62.75	Auto	0.2271
L24	35	MP4-06	57.23 - 57.75	Auto	0.0000
L24	36	MP4-06	57.23 - 57.75	Auto	0.0000
L24	37	MP4-06	57.23 - 57.75	Auto	0.0000
L24	51	CCI(6"x1")	57.23 - 57.75	Auto	0.1769
L24	52	CCI(6"x1")	57.23 - 57.75	Auto	0.1769
L24	53	CCI(6"x1")	57.23 - 57.75	Auto	0.1769
L25	35	MP4-06	56.98 - 57.23	Auto	0.0000
L25	36	MP4-06	56.98 - 57.23	Auto	0.0000
L25	37	MP4-06	56.98 - 57.23	Auto	0.0000
L25	51	CCI(6"x1")	56.98 - 57.23	Auto	0.1745
L25	52	CCI(6"x1")	56.98 - 57.23	Auto	0.1745
L25	53	CCI(6"x1")	56.98 - 57.23	Auto	0.1745
L26	35	MP4-06	51.98 - 56.98	Auto	0.0000
L26	36	MP4-06	51.98 - 56.98	Auto	0.0000
L26	37	MP4-06	51.98 - 56.98	Auto	0.0000
L26	51	CCI(6"x1")	55.00 - 56.98	Auto	0.1657
L26	52	CCI(6"x1")	55.00 - 56.98	Auto	0.1657
L26	53	CCI(6"x1")	55.00 - 56.98	Auto	0.1657
L27	35	MP4-06	46.98 - 51.98	Auto	0.0000
L27	36	MP4-06	46.98 - 51.98	Auto	0.0000
L27	37	MP4-06	46.98 - 51.98	Auto	0.0000
L28	35	MP4-06	40.46 - 46.98	Auto	0.0000
L28	36	MP4-06	40.46 - 46.98	Auto	0.0000
L28	37	MP4-06	40.46 - 46.98	Auto	0.0000
L29	35	MP4-06	39.46 - 40.46	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L29	36	MP4-06	39.46 - 40.46	Auto	0.0000
L29	37	MP4-06	39.46 - 40.46	Auto	0.0000
L30	35	MP4-06	37.83 - 39.46	Auto	0.0000
L30	36	MP4-06	37.83 - 39.46	Auto	0.0000
L30	37	MP4-06	37.83 - 39.46	Auto	0.0000
L31	35	MP4-06	37.58 - 37.83	Auto	0.0000
L31	36	MP4-06	37.58 - 37.83	Auto	0.0000
L31	37	MP4-06	37.58 - 37.83	Auto	0.0000
L32	35	MP4-06	32.58 - 37.58	Auto	0.0000
L32	36	MP4-06	32.58 - 37.58	Auto	0.0000
L32	37	MP4-06	32.58 - 37.58	Auto	0.0000
L33	35	MP4-06	27.58 - 32.58	Auto	0.0000
L33	36	MP4-06	27.58 - 32.58	Auto	0.0000
L33	37	MP4-06	27.58 - 32.58	Auto	0.0000
L34	35	MP4-06	22.58 - 27.58	Auto	0.0000
L34	36	MP4-06	22.58 - 27.58	Auto	0.0000
L34	37	MP4-06	22.58 - 27.58	Auto	0.0000
L35	35	MP4-06	17.58 - 22.58	Auto	0.0000
L35	36	MP4-06	17.58 - 22.58	Auto	0.0000
L35	37	MP4-06	17.58 - 22.58	Auto	0.0000
L36	35	MP4-06	12.58 - 17.58	Auto	0.0000
L36	36	MP4-06	12.58 - 17.58	Auto	0.0000
L36	37	MP4-06	12.58 - 17.58	Auto	0.0000
L36	47	CCI(6.5"x1.25")	12.58 - 15.00	Auto	0.0062
L36	48	CCI(6.5"x1.25")	12.58 - 15.00	Auto	0.0062
L36	49	CCI(6.5"x1.25")	12.58 - 15.00	Auto	0.0062
L37	35	MP4-06	12.25 - 12.58	Auto	0.0000
L37	36	MP4-06	12.25 - 12.58	Auto	0.0000
L37	37	MP4-06	12.25 - 12.58	Auto	0.0000
L37	47	CCI(6.5"x1.25")	12.25 - 12.58	Auto	0.0000
L37	48	CCI(6.5"x1.25")	12.25 - 12.58	Auto	0.0000
L37	49	CCI(6.5"x1.25")	12.25 - 12.58	Auto	0.0000
L38	35	MP4-06	12.00 - 12.25	Auto	0.0000
L38	36	MP4-06	12.00 - 12.25	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L38	37	MP4-06	12.00 - 12.25	Auto	0.0000
L38	47	CCI(6.5"x1.25")	12.00 - 12.25	Auto	0.0339
L38	48	CCI(6.5"x1.25")	12.00 - 12.25	Auto	0.0339
L38	49	CCI(6.5"x1.25")	12.00 - 12.25	Auto	0.0339
L39	35	MP4-06	7.00 - 12.00	Auto	0.0000
L39	36	MP4-06	7.00 - 12.00	Auto	0.0000
L39	37	MP4-06	7.00 - 12.00	Auto	0.0000
L39	47	CCI(6.5"x1.25")	7.00 - 12.00	Auto	0.0154
L39	48	CCI(6.5"x1.25")	7.00 - 12.00	Auto	0.0154
L39	49	CCI(6.5"x1.25")	7.00 - 12.00	Auto	0.0154
L40	35	MP4-06	2.00 - 7.00	Auto	0.0000
L40	36	MP4-06	2.00 - 7.00	Auto	0.0000
L40	37	MP4-06	2.00 - 7.00	Auto	0.0000
L40	47	CCI(6.5"x1.25")	2.00 - 7.00	Auto	0.0000
L40	48	CCI(6.5"x1.25")	2.00 - 7.00	Auto	0.0000
L40	49	CCI(6.5"x1.25")	2.00 - 7.00	Auto	0.0000
L41	35	MP4-06	0.50 - 2.00	Auto	0.0000
L41	36	MP4-06	0.50 - 2.00	Auto	0.0000
L41	37	MP4-06	0.50 - 2.00	Auto	0.0000
L41	47	CCI(6.5"x1.25")	0.00 - 2.00	Auto	0.0000
L41	48	CCI(6.5"x1.25")	0.00 - 2.00	Auto	0.0000
L41	49	CCI(6.5"x1.25")	0.00 - 2.00	Auto	0.0000

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
******									
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
TD-RRH8x20-25	A	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13

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
TD-RRH8x20-25	B	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
TD-RRH8x20-25	C	From Leg	4.00 0.00 2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
(2) 6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(2) 6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(2) 6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Climbing Ladder (Flat)	A	From Leg	3.00 0.00 -2.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	5.84 10.30 14.76	5.84 10.30 14.76	0.05 0.07 0.09
Platform Mount [LP 714-1]	C	None		0.0000	125.00	No Ice 1/2" Ice 1" Ice	37.51 41.70 45.89	37.51 41.70 45.89	1.60 2.50 3.46
*****									
LLPX310R-V1 w/ Mount Pipe	A	From Leg	4.00 0.00 4.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	3.88 4.29 4.72	2.36 2.73 3.12	0.06 0.09 0.13
LLPX310R-V1 w/ Mount Pipe	B	From Leg	4.00 0.00 4.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	3.88 4.29 4.72	2.36 2.73 3.12	0.06 0.09 0.13
LLPX310R-V1 w/ Mount Pipe	C	From Leg	4.00 0.00 4.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	3.88 4.29 4.72	2.36 2.73 3.12	0.06 0.09 0.13
WIMAX DAP HEAD	A	From Leg	4.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
WIMAX DAP HEAD	B	From Leg	4.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
WIMAX DAP HEAD	C	From Leg	4.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
HORIZON COMPACT	B	From Leg	4.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
HORIZON COMPACT	C	From Leg	4.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
*****									
TME-PCS 1900MHz 4x45W-65MHz	A	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11

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			
TME-PCS 1900MHz 4x45W-65MHz	B	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
TME-PCS 1900MHz 4x45W-65MHz	C	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
TME-800MHZ 2X50W RRH W/FILTER	A	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
TME-800MHZ 2X50W RRH W/FILTER	B	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
TME-800MHZ 2X50W RRH W/FILTER	C	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
6' x 2" Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	B	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	C	From Leg	1.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Side Arm Mount [SO 102-3]	C	None		0.0000	123.00	No Ice 1/2" Ice 1" Ice	3.60 4.18 4.75	3.60 4.18 4.75	0.07 0.11 0.14
*****									
DC6-48-60-18-8F	A	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.02 0.04 0.06
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
4' x 2" Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	0.79 1.03 1.28	0.79 1.03 1.28	0.03 0.04 0.04
4' x 2" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	0.79 1.03 1.28	0.79 1.03 1.28	0.03 0.04 0.04
4' x 2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	0.79 1.03 1.28	0.79 1.03 1.28	0.03 0.04 0.04
5' x 2" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
Platform Mount [LP 303-1]	C	None		0.0000	115.00	No Ice 1/2" Ice	14.69 18.01 21.34	14.69 18.01 21.34	1.25 1.57 1.94

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			
***									
OPA65R-BU6D w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	12.25 13.00 13.76	6.05 6.71 7.39	0.09 0.18 0.27
OPA65R-BU6D w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	12.25 13.00 13.76	6.05 6.71 7.39	0.09 0.18 0.27
OPA65R-BU6D w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	12.25 13.00 13.76	6.05 6.71 7.39	0.09 0.18 0.27
80010798K w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	7.79 8.40 9.02	4.90 5.47 6.06	0.11 0.19 0.27
80010798K w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	7.79 8.40 9.02	4.90 5.47 6.06	0.11 0.19 0.27
80010798K w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	7.79 8.40 9.02	4.90 5.47 6.06	0.11 0.19 0.27
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	9.22 9.98 10.76	6.25 6.96 7.70	0.07 0.14 0.22
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	9.22 9.98 10.76	6.25 6.96 7.70	0.07 0.14 0.22
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	9.22 9.98 10.76	6.25 6.96 7.70	0.07 0.14 0.22
RADIO 4478 B14	A	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	2.02 2.20 2.39	1.25 1.40 1.55	0.06 0.08 0.10
RADIO 4478 B14	B	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	2.02 2.20 2.39	1.25 1.40 1.55	0.06 0.08 0.10
RADIO 4478 B14	C	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	2.02 2.20 2.39	1.25 1.40 1.55	0.06 0.08 0.10
RADIO 4449 B5/B12	A	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.30 1.45 1.60	0.07 0.09 0.11
RADIO 4449 B5/B12	B	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.30 1.45 1.60	0.07 0.09 0.11
RADIO 4449 B5/B12	C	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.30 1.45 1.60	0.07 0.09 0.11
RRUS-32 B30	A	From Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice	3.31 3.56 3.81	2.42 2.64 2.86	0.08 0.10 0.14

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			
RRUS-32 B30	B	From Leg	4.00	0.0000	115.00	No Ice	3.31	2.42	0.08
			0.00			1/2"	3.56	2.64	0.10
			2.00			Ice	3.81	2.86	0.14
						1" Ice			
RRUS-32 B30	C	From Leg	4.00	0.0000	115.00	No Ice	3.31	2.42	0.08
			0.00			1/2"	3.56	2.64	0.10
			2.00			Ice	3.81	2.86	0.14
						1" Ice			
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	115.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			2.00			Ice	1.64	1.64	0.06
						1" Ice			
RRUS 32 B66	A	From Leg	4.00	0.0000	115.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
						1" Ice			
RRUS 32 B66	B	From Leg	4.00	0.0000	115.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
						1" Ice			
RRUS 32 B66	C	From Leg	4.00	0.0000	115.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
						1" Ice			
RRUS 4415 B25	A	From Leg	4.00	0.0000	115.00	No Ice	1.64	0.68	0.04
			0.00			1/2"	1.80	0.79	0.06
			2.00			Ice	1.97	0.91	0.07
						1" Ice			
RRUS 4415 B25	B	From Leg	4.00	0.0000	115.00	No Ice	1.64	0.68	0.04
			0.00			1/2"	1.80	0.79	0.06
			2.00			Ice	1.97	0.91	0.07
						1" Ice			
RRUS 4415 B25	C	From Leg	4.00	0.0000	115.00	No Ice	1.64	0.68	0.04
			0.00			1/2"	1.80	0.79	0.06
			2.00			Ice	1.97	0.91	0.07
						1" Ice			
Support Rail Kit [#HRK-12]	C	None		0.0000	115.00	No Ice	4.56	4.56	0.25
						1/2"	6.39	6.39	0.31
						Ice	8.18	8.18	0.40
						1" Ice			
6' Mount Pipe [#P2.0 STD]	A	From Leg	2.00	0.0000	115.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
6' Mount Pipe [#P2.0 STD]	B	From Leg	2.00	0.0000	115.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
6' Mount Pipe [#P2.0 STD]	C	From Leg	2.00	0.0000	115.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice			
***									
LNX-6514DS-A1M w/ Mount Pipe	A	From Leg	4.00	0.0000	105.00	No Ice	4.09	3.30	0.06
			0.00			1/2"	4.49	3.68	0.13
			0.00			Ice	4.89	4.06	0.20
						1" Ice			
LNX-6514DS-A1M w/ Mount Pipe	B	From Leg	4.00	0.0000	105.00	No Ice	4.09	3.30	0.06
			0.00			1/2"	4.49	3.68	0.13
			0.00			Ice	4.89	4.06	0.20
						1" Ice			
LNX-6514DS-A1M w/ Mount Pipe	C	From Leg	4.00	0.0000	105.00	No Ice	4.09	3.30	0.06
			0.00			1/2"	4.49	3.68	0.13
			0.00			Ice	4.89	4.06	0.20

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			
Platform Mount [LP 1201-1]	C	None		0.0000	105.00	No Ice	18.38	18.38	2.10
						1/2" Ice	22.11	22.11	2.65
						1" Ice	25.87	25.87	3.26
***									
(2) JAHH-45B-R3B w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	8.26	4.39	0.12
						1/2" Ice	8.83	4.91	0.20
						1" Ice	9.41	5.43	0.29
(2) JAHH-45B-R3B w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	8.26	4.39	0.12
						1/2" Ice	8.83	4.91	0.20
						1" Ice	9.41	5.43	0.29
(2) JAHH-45B-R3B w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	8.26	4.39	0.12
						1/2" Ice	8.83	4.91	0.20
						1" Ice	9.41	5.43	0.29
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	4.92	2.69	0.10
						1/2" Ice	5.26	3.15	0.14
						1" Ice	5.62	3.63	0.19
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	4.92	2.69	0.10
						1/2" Ice	5.26	3.15	0.14
						1" Ice	5.62	3.63	0.19
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	4.92	2.69	0.10
						1/2" Ice	5.26	3.15	0.14
						1" Ice	5.62	3.63	0.19
CBC78T-DS-43-2X	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	0.37	0.51	0.02
						1/2" Ice	0.45	0.60	0.03
						1" Ice	0.53	0.70	0.04
CBC78T-DS-43-2X	B	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	0.37	0.51	0.02
						1/2" Ice	0.45	0.60	0.03
						1" Ice	0.53	0.70	0.04
CBC78T-DS-43-2X	C	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	0.37	0.51	0.02
						1/2" Ice	0.45	0.60	0.03
						1" Ice	0.53	0.70	0.04
RVZDC-6627-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	3.79	2.51	0.03
						1/2" Ice	4.04	2.73	0.06
						1" Ice	4.30	2.95	0.10
RFV01U-D1A	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	1.88	1.25	0.08
						1/2" Ice	2.05	1.39	0.10
						1" Ice	2.22	1.54	0.12
RFV01U-D1A	B	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	1.88	1.25	0.08
						1/2" Ice	2.05	1.39	0.10
						1" Ice	2.22	1.54	0.12
RFV01U-D1A	C	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	1.88	1.25	0.08
						1/2" Ice	2.05	1.39	0.10
						1" Ice	2.22	1.54	0.12
RFV01U-D2A	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	1.88	1.01	0.07
						1/2" Ice	2.05	1.14	0.09
						1" Ice	2.22	1.28	0.11
RFV01U-D2A	B	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	1.88	1.01	0.07
						1/2" Ice	2.05	1.14	0.09
						Ice	2.22	1.28	0.11

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			
RFV01U-D2A	C	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	0.07 0.09 0.11
******									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	2.01 2.19 2.37	1.17 1.31 1.46	0.02 0.04 0.06
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
Commscope MC-K6MHDX-9-96 (3)	C	None		0.0000	94.00	No Ice 1/2" Ice 1" Ice	15.30 20.48 25.66	15.30 20.48 25.66	1.19 1.71 2.22
****									
12' horizontal x 2" Pipe Mount	A	From Leg	4.00 0.00	0.0000	84.00	No Ice	2.28 3.50	0.01 0.04	0.03 0.05

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			1/2" Ice	4.75	0.09	0.08
						1" Ice			
12' horizontal x 2" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	2.28 3.50 4.75	0.01 0.04 0.09	0.03 0.05 0.08
12' horizontal x 2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	2.28 3.50 4.75	0.01 0.04 0.09	0.03 0.05 0.08
Stabilizer Kit	A	None		0.0000	84.00	No Ice 1/2" Ice 1" Ice	11.84 16.96 22.08	11.84 16.96 22.08	0.28 0.30 0.32
Miscellaneous [NA 507-1]	C	None		0.0000	84.00	No Ice 1/2" Ice 1" Ice	4.56 6.39 8.18	4.56 6.39 8.18	0.25 0.31 0.40
T-Arm Mount [TA 602-3_KCKR]	C	None		0.0000	84.00	No Ice 1/2" Ice 1" Ice	23.41 28.72 34.48	23.41 28.72 34.48	1.05 1.42 1.90
***									
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	6.58 7.06 7.57	3.50 3.90 4.32	0.11 0.16 0.22
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	6.58 7.06 7.57	3.50 3.90 4.32	0.11 0.16 0.22
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	6.58 7.06 7.57	3.50 3.90 4.32	0.11 0.16 0.22
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16

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
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
10' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	2.38 3.40 4.45	2.38 3.40 4.45	0.04 0.05 0.08
10' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	2.38 3.40 4.45	2.38 3.40 4.45	0.04 0.05 0.08
10' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	2.38 3.40 4.45	2.38 3.40 4.45	0.04 0.05 0.08
*****									

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	B	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 -1.00	62.0000		125.00	2.17	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.03 0.05 0.07
VHLP2-11	C	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 -1.00	90.0000		125.00	2.17	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.03 0.05 0.07
****											

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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	125 - 120	Pole	Max Tension	26	0.00	0.00	0.00
			Max. Compression	26	-8.21	-0.07	-0.07
			Max. Mx	8	-3.59	-33.46	-0.47
			Max. My	2	-3.62	0.19	33.78
			Max. Vy	8	6.38	-33.46	-0.47
			Max. Vx	14	6.47	-0.34	-33.76
			Max. Torque	8			0.88
L2	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-8.69	-0.15	-0.03
			Max. Mx	8	-3.88	-66.19	-1.08
			Max. My	2	-3.92	0.43	66.95
			Max. Vy	8	6.70	-66.19	-1.08
			Max. Vx	14	6.79	-0.73	-66.89
			Max. Torque	23			-0.47
L3	115 - 110	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.63	-0.42	0.56
			Max. Mx	8	-7.84	-135.45	-1.53
			Max. My	2	-7.93	0.59	136.59
			Max. Vy	8	12.49	-135.45	-1.53
			Max. Vx	14	12.53	-1.22	-136.02
			Max. Torque	22			-1.08
L4	110 - 105	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.33	-0.50	0.43
			Max. Mx	8	-8.28	-198.75	-2.20
			Max. My	2	-8.37	0.82	199.98
			Max. Vy	8	12.82	-198.75	-2.20
			Max. Vx	14	12.85	-1.62	-199.49
			Max. Torque	22			-1.08

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L5	105 - 100	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.94	-0.60	0.60
			Max. Mx	8	-13.06	-284.65	-2.84
			Max. My	2	-13.23	1.06	285.10
			Max. Vy	8	17.53	-284.65	-2.84
			Max. Vx	14	17.17	-2.03	-284.50
			Max. Torque	22			-1.49
L6	100 - 99.375	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.06	-0.61	0.55
			Max. Mx	8	-13.14	-295.63	-2.94
			Max. My	2	-13.31	1.09	295.82
			Max. Vy	8	17.61	-295.63	-2.94
			Max. Vx	14	17.20	-2.08	-295.25
			Max. Torque	22			-1.48
L7	99.375 - 99.125	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.13	-0.62	0.54
			Max. Mx	8	-13.19	-300.04	-2.98
			Max. My	2	-13.36	1.10	300.12
			Max. Vy	8	17.65	-300.04	-2.98
			Max. Vx	14	17.21	-2.10	-299.56
			Max. Torque	22			-1.48
L8	99.125 - 94.458	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.38	-0.71	0.21
			Max. Mx	8	-13.95	-384.15	-3.70
			Max. My	2	-14.16	1.32	381.13
			Max. Vy	8	18.39	-384.15	-3.70
			Max. Vx	14	17.56	-2.49	-380.81
			Max. Torque	22			-1.48
L9	94.458 - 94.208	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.46	-0.71	0.19
			Max. Mx	8	-14.02	-388.76	-3.74
			Max. My	2	-14.22	1.34	385.51
			Max. Vy	8	18.43	-388.76	-3.74
			Max. Vx	14	17.58	-2.51	-385.21
			Max. Torque	22			-1.43
L10	94.208 - 89.208	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.65	-0.82	0.11
			Max. Mx	8	-17.45	-496.34	-4.44
			Max. My	2	-17.72	1.57	487.77
			Max. Vy	8	21.65	-496.34	-4.44
			Max. Vx	14	20.37	-2.93	-487.51
			Max. Torque	22			-1.61
L11	89.208 - 89	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.72	-0.82	0.09
			Max. Mx	8	-17.50	-500.85	-4.47
			Max. My	2	-17.77	1.58	492.00
			Max. Vy	8	21.68	-500.85	-4.47
			Max. Vx	14	20.39	-2.95	-491.76
			Max. Torque	22			-1.57
L12	89 - 85.04	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.74	-0.82	0.09
			Max. Mx	8	-17.52	-501.78	-4.48
			Max. My	2	-17.78	1.59	492.87
			Max. Vy	8	21.69	-501.78	-4.48
			Max. Vx	14	20.39	-2.95	-492.64
			Max. Torque	22			-1.57
L13	85.04 - 84.04	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.27	-0.93	-0.31
			Max. Mx	8	-19.28	-610.78	-5.27
			Max. My	14	-19.59	-3.37	-594.22
			Max. Vy	8	22.62	-610.78	-5.27
			Max. Vx	14	20.86	-3.37	-594.22
			Max. Torque	22			-1.54

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L14	84.04 - 79.04	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.30	-1.04	-0.73
			Max. Mx	8	-23.87	-748.19	-6.10
			Max. My	14	-24.24	-3.80	-721.68
			Max. Vy	8	27.92	-748.19	-6.10
			Max. Vx	14	25.68	-3.80	-721.68
			Max. Torque	22			-1.53
L15	79.04 - 74.04	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.96	-1.15	-1.17
			Max. Mx	8	-25.03	-889.77	-6.93
			Max. My	14	-25.42	-4.23	-851.06
			Max. Vy	8	28.72	-889.77	-6.93
			Max. Vx	14	26.03	-4.23	-851.06
			Max. Torque	22			-1.53
L16	74.04 - 73.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.10	-1.16	-1.21
			Max. Mx	8	-25.14	-902.91	-7.00
			Max. My	14	-25.54	-4.27	-862.97
			Max. Vy	8	28.78	-902.91	-7.00
			Max. Vx	14	26.05	-4.27	-862.97
			Max. Torque	22			-1.53
L17	73.583 - 73.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.20	-1.17	-1.23
			Max. Mx	8	-25.22	-910.12	-7.04
			Max. My	14	-25.61	-4.29	-869.49
			Max. Vy	8	28.82	-910.12	-7.04
			Max. Vx	14	26.07	-4.29	-869.49
			Max. Torque	22			-1.53
L18	73.333 - 73	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.32	-1.18	-1.26
			Max. Mx	8	-25.31	-919.73	-7.10
			Max. My	14	-25.70	-4.32	-878.18
			Max. Vy	8	28.88	-919.73	-7.10
			Max. Vx	14	26.09	-4.32	-878.18
			Max. Torque	22			-1.53
L19	73 - 72.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.39	-1.18	-1.28
			Max. Mx	8	-25.36	-926.95	-7.14
			Max. My	14	-25.76	-4.34	-884.72
			Max. Vy	8	28.91	-926.95	-7.14
			Max. Vx	14	26.11	-4.34	-884.72
			Max. Torque	22			-1.53
L20	72.75 - 67.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.82	-1.30	-1.73
			Max. Mx	8	-26.44	-1073.37	-7.97
			Max. My	14	-26.85	-4.77	-1016.14
			Max. Vy	8	29.66	-1073.37	-7.97
			Max. Vx	14	26.41	-4.77	-1016.14
			Max. Torque	22			-1.53
L21	67.75 - 63	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.19	-1.41	-2.17
			Max. Mx	8	-27.51	-1215.83	-8.76
			Max. My	14	-27.91	-5.18	-1142.33
			Max. Vy	8	30.35	-1215.83	-8.76
			Max. Vx	24	-26.73	610.01	1068.75
			Max. Torque	22			-1.53
L22	63 - 62.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.29	-1.42	-2.19
			Max. Mx	8	-27.60	-1223.42	-8.80
			Max. My	14	-28.01	-5.20	-1149.00
			Max. Vy	8	30.37	-1223.42	-8.80
			Max. Vx	24	-26.75	613.83	1075.42
			Max. Torque	22			-1.53

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L23	62.75 - 57.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.22	-1.54	-2.66
			Max. Mx	8	-29.04	-1377.38	-9.64
			Max. My	14	-29.45	-5.63	-1283.48
			Max. Vy	8	31.21	-1377.38	-9.64
			Max. Vx	24	-27.50	691.41	1210.83
			Max. Torque	22			-1.53
L24	57.75 - 57.233	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.40	-1.55	-2.71
			Max. Mx	8	-29.18	-1393.53	-9.73
			Max. My	14	-29.59	-5.68	-1297.49
			Max. Vy	8	31.29	-1393.53	-9.73
			Max. Vx	24	-27.57	699.55	1225.04
			Max. Torque	22			-1.53
L25	57.233 - 56.983	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.49	-1.55	-2.73
			Max. Mx	8	-29.25	-1401.36	-9.77
			Max. My	14	-29.66	-5.70	-1304.27
			Max. Vy	8	31.32	-1401.36	-9.77
			Max. Vx	24	-27.60	703.50	1231.92
			Max. Torque	22			-1.53
L26	56.983 - 51.983	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.21	-1.68	-3.22
			Max. Mx	8	-30.54	-1559.95	-10.61
			Max. My	14	-30.95	-6.13	-1440.63
			Max. Vy	8	32.11	-1559.95	-10.61
			Max. Vx	24	-28.30	783.45	1371.44
			Max. Torque	22			-1.53
L27	51.983 - 46.983	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.91	-1.80	-3.70
			Max. Mx	8	-31.89	-1722.38	-11.45
			Max. My	14	-32.28	-6.56	-1578.50
			Max. Vy	8	32.87	-1722.38	-11.45
			Max. Vx	24	-28.98	865.38	1514.37
			Max. Torque	22			-1.53
L28	46.983 - 40.457	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.41	-1.84	-3.85
			Max. Mx	8	-32.27	-1769.96	-11.70
			Max. My	14	-32.66	-6.68	-1618.56
			Max. Vy	8	33.09	-1769.96	-11.70
			Max. Vx	24	-29.17	889.39	1556.24
			Max. Torque	22			-1.52
L29	40.457 - 39.457	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.84	-1.99	-4.46
			Max. Mx	8	-34.98	-1974.47	-12.72
			Max. My	14	-35.36	-7.21	-1789.23
			Max. Vy	8	34.14	-1974.47	-12.72
			Max. Vx	24	-30.10	992.60	1736.24
			Max. Torque	22			-1.52
L30	39.457 - 37.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.45	-2.03	-4.62
			Max. Mx	8	-35.46	-2030.10	-13.00
			Max. My	14	-35.83	-7.34	-1835.25
			Max. Vy	8	34.39	-2030.10	-13.00
			Max. Vx	24	-30.33	1020.69	1785.21
			Max. Torque	22			-1.52
L31	37.833 - 37.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.54	-2.03	-4.65
			Max. Mx	8	-35.56	-2038.70	-13.04
			Max. My	14	-35.93	-7.37	-1842.34

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	34.40	-2038.70	-13.04
			Max. Vx	24	-30.34	1025.03	1792.78
			Max. Torque	22			-1.52
L32	37.583 - 32.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.43	-2.15	-5.12
			Max. Mx	8	-37.09	-2212.54	-13.89
			Max. My	14	-37.43	-7.79	-1985.01
			Max. Vy	8	35.14	-2212.54	-13.89
			Max. Vx	24	-30.99	1112.82	1945.83
			Max. Torque	22			-1.52
L33	32.583 - 27.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.34	-2.27	-5.61
			Max. Mx	8	-38.67	-2389.90	-14.73
			Max. My	14	-38.97	-8.22	-2129.00
			Max. Vy	8	35.83	-2389.90	-14.73
			Max. Vx	24	-31.60	1202.41	2102.00
			Max. Torque	22			-1.52
L34	27.583 - 22.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.26	-2.39	-6.11
			Max. Mx	8	-40.28	-2570.64	-15.58
			Max. My	14	-40.53	-8.65	-2274.25
			Max. Vy	8	36.49	-2570.64	-15.58
			Max. Vx	24	-32.19	1293.74	2261.17
			Max. Torque	22			-1.52
L35	22.583 - 17.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.20	-2.51	-6.61
			Max. Mx	8	-41.91	-2754.59	-16.43
			Max. My	12	-41.89	-1390.77	-2427.55
			Max. Vy	8	37.11	-2754.59	-16.43
			Max. Vx	24	-32.74	1386.72	2423.18
			Max. Torque	22			-1.52
L36	17.583 - 12.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.19	-2.63	-7.12
			Max. Mx	8	-43.58	-2941.55	-17.27
			Max. My	12	-43.57	-1485.51	-2592.63
			Max. Vy	8	37.69	-2941.55	-17.27
			Max. Vx	24	-33.26	1481.24	2587.86
			Max. Torque	22			-1.52
L37	12.583 - 12.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.33	-2.64	-7.15
			Max. Mx	8	-43.71	-2954.11	-17.33
			Max. My	12	-43.70	-1491.87	-2603.72
			Max. Vy	8	37.72	-2954.11	-17.33
			Max. Vx	24	-33.28	1487.59	2598.91
			Max. Torque	22			-1.52
L38	12.25 - 12	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.45	-2.65	-7.17
			Max. Mx	8	-43.82	-2963.54	-17.37
			Max. My	12	-43.81	-1496.65	-2612.05
			Max. Vy	8	37.74	-2963.54	-17.37
			Max. Vx	24	-33.30	1492.36	2607.22
			Max. Torque	22			-1.52
L39	12 - 7	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.93	-2.73	-7.66
			Max. Mx	8	-45.93	-3153.10	-18.21
			Max. My	12	-45.92	-1593.11	-2780.14
			Max. Vy	8	38.08	-3153.10	-18.21
			Max. Vx	24	-33.88	1588.65	2774.91
			Max. Torque	22			-1.52
L40	7 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.19	-2.73	-7.98
			Max. Mx	8	-47.95	-3344.03	-18.99
			Max. My	12	-47.95	-1690.67	-2950.18

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	38.33	-3344.03	-18.99
			Max. Vx	24	-34.12	1686.14	2944.65
			Max. Torque	22			-1.52
L41	2 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.04	-2.73	-8.02
			Max. Mx	8	-48.75	-3420.73	-19.25
			Max. My	12	-48.75	-1729.88	-3018.45
			Max. Vy	8	38.41	-3420.73	-19.25
			Max. Vx	24	-34.19	1725.32	3012.90
			Max. Torque	22			-1.52

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	32	75.04	-4.37	-7.60
	Max. H_x	20	48.76	38.38	0.05
	Max. H_z	25	36.57	19.61	34.17
	Max. M_x	24	3012.90	19.61	34.17
	Max. M_z	8	3420.73	-38.39	-0.12
	Max. Torsion	10	1.07	-27.65	-16.16
	Min. Vert	7	36.57	-25.91	15.14
	Min. H_x	8	48.76	-38.39	-0.12
	Min. H_z	13	36.57	-19.62	-34.16
	Min. M_x	12	-3018.45	-19.62	-34.16
	Min. M_z	20	-3416.85	38.38	0.05
	Min. Torsion	22	-1.52	27.61	16.16

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	40.64	0.00	0.00	2.57	-1.12	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	48.76	-0.05	-30.13	-2937.51	5.61	0.30
0.9 Dead+1.0 Wind 0 deg - No Ice	36.57	-0.05	-30.13	-2899.69	5.87	0.30
1.2 Dead+1.0 Wind 30 deg - No Ice	48.76	15.49	-27.16	-2622.78	-1493.69	-0.55
0.9 Dead+1.0 Wind 30 deg - No Ice	36.57	15.49	-27.16	-2589.28	-1473.85	-0.55
1.2 Dead+1.0 Wind 60 deg - No Ice	48.76	25.91	-15.14	-1476.57	-2524.35	-1.01
0.9 Dead+1.0 Wind 60 deg - No Ice	36.57	25.91	-15.14	-1457.94	-2490.87	-1.00
1.2 Dead+1.0 Wind 90 deg - No Ice	48.76	38.39	0.12	19.25	-3420.73	0.74
0.9 Dead+1.0 Wind 90 deg - No Ice	36.57	38.39	0.12	18.18	-3377.49	0.76
1.2 Dead+1.0 Wind 120 deg - No Ice	48.76	27.65	16.16	1569.92	-2673.09	-1.07
0.9 Dead+1.0 Wind 120 deg - No Ice	36.57	27.65	16.16	1548.65	-2637.94	-1.05
1.2 Dead+1.0 Wind 150 deg - No Ice	48.76	19.62	34.16	3018.45	-1729.88	0.03
0.9 Dead+1.0 Wind 150 deg - No Ice	36.57	19.62	34.16	2979.88	-1707.89	0.04
1.2 Dead+1.0 Wind 180 deg - No Ice	48.76	0.07	30.13	2943.89	-10.43	0.07

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
0.9 Dead+1.0 Wind 180 deg - No Ice	36.57	0.07	30.13	2904.42	-9.92	0.07
1.2 Dead+1.0 Wind 210 deg - No Ice	48.76	-15.45	27.15	2627.14	1485.26	0.90
0.9 Dead+1.0 Wind 210 deg - No Ice	36.57	-15.45	27.15	2592.02	1466.25	0.89
1.2 Dead+1.0 Wind 240 deg - No Ice	48.76	-25.94	15.07	1473.13	2525.21	0.95
0.9 Dead+1.0 Wind 240 deg - No Ice	36.57	-25.94	15.07	1452.99	2492.41	0.94
1.2 Dead+1.0 Wind 270 deg - No Ice	48.76	-38.38	-0.05	-2.90	3416.85	-0.66
0.9 Dead+1.0 Wind 270 deg - No Ice	36.57	-38.38	-0.05	-3.63	3374.36	-0.67
1.2 Dead+1.0 Wind 300 deg - No Ice	48.76	-27.61	-16.16	-1563.99	2664.43	1.52
0.9 Dead+1.0 Wind 300 deg - No Ice	36.57	-27.61	-16.16	-1544.37	2630.10	1.51
1.2 Dead+1.0 Wind 330 deg - No Ice	48.76	-19.61	-34.17	-3012.90	1725.32	0.36
0.9 Dead+1.0 Wind 330 deg - No Ice	36.57	-19.61	-34.17	-2975.97	1704.10	0.36
1.2 Dead+1.0 Ice+1.0 Temp	75.04	0.00	0.00	8.02	-2.73	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	75.04	-0.01	-7.69	-744.58	-1.27	0.08
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	75.04	3.81	-6.67	-644.72	-374.68	-0.25
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	75.04	6.61	-3.85	-369.60	-648.61	-0.46
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	75.04	8.73	0.02	11.55	-820.72	-0.08
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	75.04	6.77	3.95	395.43	-664.77	-0.48
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	75.04	4.37	7.60	720.01	-411.20	-0.19
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	75.04	0.01	7.69	760.84	-4.69	-0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	75.04	-3.80	6.66	660.54	367.95	0.32
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	75.04	-6.62	3.84	383.77	643.85	0.45
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	75.04	-8.73	-0.01	6.83	814.95	0.10
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	75.04	-6.76	-3.95	-379.26	657.98	0.58
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	75.04	-4.37	-7.60	-703.93	405.29	0.28
Dead+Wind 0 deg - Service	40.64	-0.01	-7.22	-696.59	0.49	0.07
Dead+Wind 30 deg - Service	40.64	3.71	-6.51	-621.81	-356.04	-0.14
Dead+Wind 60 deg - Service	40.64	6.21	-3.63	-349.20	-601.08	-0.26
Dead+Wind 90 deg - Service	40.64	9.19	0.03	6.47	-814.67	0.17
Dead+Wind 120 deg - Service	40.64	6.62	3.87	375.25	-636.56	-0.26
Dead+Wind 150 deg - Service	40.64	4.70	8.18	720.06	-412.42	0.00
Dead+Wind 180 deg - Service	40.64	0.02	7.22	701.90	-3.31	0.02
Dead+Wind 210 deg - Service	40.64	-3.70	6.50	626.63	352.37	0.22
Dead+Wind 240 deg - Service	40.64	-6.21	3.61	352.17	599.61	0.24
Dead+Wind 270 deg - Service	40.64	-9.19	-0.01	1.21	812.06	-0.15
Dead+Wind 300 deg - Service	40.64	-6.61	-3.87	-370.05	632.82	0.38
Dead+Wind 330 deg - Service	40.64	-4.70	-8.18	-714.95	409.66	0.10

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-40.64	0.00	0.00	40.64	0.00	0.000%
2	-0.05	-48.76	-30.13	0.05	48.76	30.13	0.000%
3	-0.05	-36.57	-30.13	0.05	36.57	30.13	0.000%
4	15.49	-48.76	-27.16	-15.49	48.76	27.16	0.000%
5	15.49	-36.57	-27.16	-15.49	36.57	27.16	0.000%
6	25.91	-48.76	-15.14	-25.91	48.76	15.14	0.000%
7	25.91	-36.57	-15.14	-25.91	36.57	15.14	0.000%
8	38.39	-48.76	0.12	-38.39	48.76	-0.12	0.000%
9	38.39	-36.57	0.12	-38.39	36.57	-0.12	0.000%
10	27.65	-48.76	16.16	-27.65	48.76	-16.16	0.000%
11	27.65	-36.57	16.16	-27.65	36.57	-16.16	0.000%
12	19.62	-48.76	34.16	-19.62	48.76	-34.16	0.000%
13	19.62	-36.57	34.16	-19.62	36.57	-34.16	0.000%
14	0.07	-48.76	30.13	-0.07	48.76	-30.13	0.000%
15	0.07	-36.57	30.13	-0.07	36.57	-30.13	0.000%
16	-15.45	-48.76	27.15	15.45	48.76	-27.15	0.000%
17	-15.45	-36.57	27.15	15.45	36.57	-27.15	0.000%
18	-25.94	-48.76	15.07	25.94	48.76	-15.07	0.000%
19	-25.94	-36.57	15.07	25.94	36.57	-15.07	0.000%
20	-38.38	-48.76	-0.05	38.38	48.76	0.05	0.000%
21	-38.38	-36.57	-0.05	38.38	36.57	0.05	0.000%
22	-27.61	-48.76	-16.16	27.61	48.76	16.16	0.000%
23	-27.61	-36.57	-16.16	27.61	36.57	16.16	0.000%
24	-19.61	-48.76	-34.17	19.61	48.76	34.17	0.000%
25	-19.61	-36.57	-34.17	19.61	36.57	34.17	0.000%
26	0.00	-75.04	0.00	-0.00	75.04	-0.00	0.000%
27	-0.01	-75.04	-7.69	0.01	75.04	7.69	0.000%
28	3.81	-75.04	-6.67	-3.81	75.04	6.67	0.000%
29	6.61	-75.04	-3.85	-6.61	75.04	3.85	0.000%
30	8.73	-75.04	0.02	-8.73	75.04	-0.02	0.000%
31	6.77	-75.04	3.95	-6.77	75.04	-3.95	0.000%
32	4.37	-75.04	7.60	-4.37	75.04	-7.60	0.000%
33	0.01	-75.04	7.69	-0.01	75.04	-7.69	0.000%
34	-3.80	-75.04	6.66	3.80	75.04	-6.66	0.000%
35	-6.62	-75.04	3.84	6.62	75.04	-3.84	0.000%
36	-8.73	-75.04	-0.01	8.73	75.04	0.01	0.000%
37	-6.76	-75.04	-3.95	6.76	75.04	3.95	0.000%
38	-4.37	-75.04	-7.60	4.37	75.04	7.60	0.000%
39	-0.01	-40.64	-7.22	0.01	40.64	7.22	0.000%
40	3.71	-40.64	-6.51	-3.71	40.64	6.51	0.000%
41	6.21	-40.64	-3.63	-6.21	40.64	3.63	0.000%
42	9.19	-40.64	0.03	-9.19	40.64	-0.03	0.000%
43	6.62	-40.64	3.87	-6.62	40.64	-3.87	0.000%
44	4.70	-40.64	8.18	-4.70	40.64	-8.18	0.000%
45	0.02	-40.64	7.22	-0.02	40.64	-7.22	0.000%
46	-3.70	-40.64	6.50	3.70	40.64	-6.50	0.000%
47	-6.21	-40.64	3.61	6.21	40.64	-3.61	0.000%
48	-9.19	-40.64	-0.01	9.19	40.64	0.01	0.000%
49	-6.61	-40.64	-3.87	6.61	40.64	3.87	0.000%
50	-4.70	-40.64	-8.18	4.70	40.64	8.18	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	6	0.00000001	0.00021651
3	Yes	6	0.00000001	0.00006151
4	Yes	8	0.00000001	0.00013492
5	Yes	7	0.00000001	0.00053527
6	Yes	8	0.00000001	0.00013466
7	Yes	7	0.00000001	0.00054148
8	Yes	6	0.00000001	0.00052373
9	Yes	6	0.00000001	0.00015981
10	Yes	8	0.00000001	0.00013931
11	Yes	7	0.00000001	0.00054801
12	Yes	8	0.00000001	0.00015149
13	Yes	7	0.00000001	0.00058395
14	Yes	6	0.00000001	0.00036277
15	Yes	6	0.00000001	0.00010988
16	Yes	8	0.00000001	0.00013771
17	Yes	7	0.00000001	0.00054995
18	Yes	8	0.00000001	0.00012986
19	Yes	7	0.00000001	0.00051949
20	Yes	6	0.00000001	0.00050875
21	Yes	6	0.00000001	0.00016780
22	Yes	8	0.00000001	0.00014499
23	Yes	7	0.00000001	0.00057442
24	Yes	8	0.00000001	0.00014794
25	Yes	7	0.00000001	0.00057023
26	Yes	5	0.00000001	0.00091239
27	Yes	8	0.00000001	0.00012679
28	Yes	8	0.00000001	0.00018751
29	Yes	8	0.00000001	0.00019086
30	Yes	8	0.00000001	0.00013512
31	Yes	8	0.00000001	0.00019796
32	Yes	8	0.00000001	0.00021482
33	Yes	8	0.00000001	0.00012863
34	Yes	8	0.00000001	0.00019109
35	Yes	8	0.00000001	0.00018809
36	Yes	8	0.00000001	0.00013420
37	Yes	8	0.00000001	0.00019665
38	Yes	8	0.00000001	0.00020463
39	Yes	5	0.00000001	0.00068094
40	Yes	6	0.00000001	0.00056473
41	Yes	6	0.00000001	0.00058108
42	Yes	5	0.00000001	0.00066751
43	Yes	6	0.00000001	0.00060556
44	Yes	6	0.00000001	0.00076439
45	Yes	5	0.00000001	0.00061105
46	Yes	6	0.00000001	0.00060770
47	Yes	6	0.00000001	0.00052328
48	Yes	5	0.00000001	0.00076301
49	Yes	6	0.00000001	0.00067035
50	Yes	6	0.00000001	0.00071100

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 120	22.854	44	1.6063	0.0050
L2	120 - 115	21.177	44	1.5943	0.0046
L3	115 - 110	19.521	44	1.5658	0.0042
L4	110 - 105	17.907	44	1.5149	0.0035
L5	105 - 100	16.356	44	1.4447	0.0029
L6	100 - 99.375	14.888	44	1.3568	0.0022
L7	99.375 - 99.125	14.711	44	1.3446	0.0022
L8	99.125 - 94.458	14.641	44	1.3424	0.0022

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L9	94.458 - 94.208	13.351	44	1.2957	0.0019
L10	94.208 - 89.208	13.283	44	1.2938	0.0019
L11	89.208 - 89	11.950	44	1.2523	0.0017
L12	89 - 85.04	11.895	44	1.2505	0.0017
L13	88.957 - 84.04	11.884	44	1.2502	0.0017
L14	84.04 - 79.04	10.609	44	1.2209	0.0016
L15	79.04 - 74.04	9.362	44	1.1603	0.0014
L16	74.04 - 73.583	8.181	44	1.0936	0.0012
L17	73.583 - 73.333	8.077	44	1.0874	0.0012
L18	73.333 - 73	8.020	44	1.0847	0.0012
L19	73 - 72.75	7.945	44	1.0811	0.0012
L20	72.75 - 67.75	7.888	44	1.0767	0.0012
L21	67.75 - 63	6.807	44	0.9878	0.0010
L22	63 - 62.75	5.868	44	0.8992	0.0009
L23	62.75 - 57.75	5.821	44	0.8961	0.0009
L24	57.75 - 57.233	4.916	44	0.8324	0.0008
L25	57.233 - 56.983	4.827	44	0.8242	0.0008
L26	56.983 - 51.983	4.783	44	0.8202	0.0008
L27	51.983 - 46.983	3.967	44	0.7390	0.0006
L28	46.983 - 40.457	3.237	44	0.6561	0.0005
L29	45.54 - 39.457	3.042	44	0.6321	0.0005
L30	39.457 - 37.833	2.268	44	0.5764	0.0005
L31	37.833 - 37.583	2.076	44	0.5517	0.0004
L32	37.583 - 32.583	2.047	44	0.5478	0.0004
L33	32.583 - 27.583	1.514	44	0.4699	0.0003
L34	27.583 - 22.583	1.063	44	0.3915	0.0003
L35	22.583 - 17.583	0.695	44	0.3128	0.0002
L36	17.583 - 12.583	0.408	44	0.2349	0.0002
L37	12.583 - 12.25	0.203	44	0.1558	0.0001
L38	12.25 - 12	0.193	44	0.1506	0.0001
L39	12 - 7	0.185	44	0.1476	0.0001
L40	7 - 2	0.063	44	0.0857	0.0001
L41	2 - 0	0.005	44	0.0247	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
125.00	APXVTM14-C-120 w/ Mount Pipe	44	22.854	1.6063	0.0050	13927
124.00	VHLP2-18	44	22.518	1.6045	0.0049	13927
123.00	TME-PCS 1900MHz 4x45W-65MHz	44	22.182	1.6026	0.0048	13927
115.00	DC6-48-60-18-8F	44	19.521	1.5658	0.0042	7305
105.00	LNX-6514DS-A1M w/ Mount Pipe	44	16.356	1.4447	0.0029	3621
94.00	MX08FRO665-21 w/ Mount Pipe	44	13.227	1.2923	0.0019	6391
84.00	12' horizontal x 2" Pipe Mount	44	10.599	1.2206	0.0016	6009

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 120	95.827	12	6.7547	0.0194
L2	120 - 115	88.802	12	6.7041	0.0175
L3	115 - 110	81.866	12	6.5842	0.0162
L4	110 - 105	75.100	12	6.3696	0.0136
L5	105 - 100	68.601	12	6.0738	0.0114
L6	100 - 99.375	62.447	12	5.7032	0.0087
L7	99.375 - 99.125	61.706	12	5.6519	0.0084

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L8	99.125 - 94.458	61.411	12	5.6424	0.0083
L9	94.458 - 94.208	56.004	12	5.4459	0.0073
L10	94.208 - 89.208	55.720	12	5.4380	0.0073
L11	89.208 - 89	50.129	12	5.2632	0.0066
L12	89 - 85.04	49.901	12	5.2555	0.0065
L13	88.957 - 84.04	49.854	12	5.2541	0.0065
L14	84.04 - 79.04	44.507	12	5.1311	0.0062
L15	79.04 - 74.04	39.277	12	4.8761	0.0055
L16	74.04 - 73.583	34.326	12	4.5953	0.0049
L17	73.583 - 73.333	33.888	12	4.5690	0.0048
L18	73.333 - 73	33.650	12	4.5576	0.0048
L19	73 - 72.75	33.333	12	4.5424	0.0048
L20	72.75 - 67.75	33.096	12	4.5241	0.0047
L21	67.75 - 63	28.560	12	4.1500	0.0040
L22	63 - 62.75	24.622	12	3.7771	0.0034
L23	62.75 - 57.75	24.425	12	3.7642	0.0034
L24	57.75 - 57.233	20.627	12	3.4961	0.0030
L25	57.233 - 56.983	20.251	12	3.4616	0.0030
L26	56.983 - 51.983	20.070	12	3.4449	0.0030
L27	51.983 - 46.983	16.644	12	3.1036	0.0025
L28	46.983 - 40.457	13.579	12	2.7549	0.0021
L29	45.54 - 39.457	12.762	12	2.6540	0.0020
L30	39.457 - 37.833	9.514	12	2.4197	0.0018
L31	37.833 - 37.583	8.709	12	2.3158	0.0017
L32	37.583 - 32.583	8.589	12	2.2996	0.0017
L33	32.583 - 27.583	6.353	12	1.9723	0.0014
L34	27.583 - 22.583	4.461	12	1.6430	0.0011
L35	22.583 - 17.583	2.914	12	1.3125	0.0009
L36	17.583 - 12.583	1.711	12	0.9853	0.0006
L37	12.583 - 12.25	0.853	12	0.6536	0.0004
L38	12.25 - 12	0.808	12	0.6317	0.0004
L39	12 - 7	0.776	12	0.6190	0.0004
L40	7 - 2	0.264	12	0.3593	0.0002
L41	2 - 0	0.022	12	0.1034	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
125.00	APXVTM14-C-120 w/ Mount Pipe	12	95.827	6.7547	0.0194	3403
124.00	VHLP2-18	12	94.419	6.7471	0.0189	3403
123.00	TME-PCS 1900MHz 4x45W-65MHz	12	93.012	6.7389	0.0185	3403
115.00	DC6-48-60-18-8F	12	81.866	6.5842	0.0162	1785
105.00	LNX-6514DS-A1M w/ Mount Pipe	12	68.601	6.0738	0.0114	882
94.00	MX08FRO665-21 w/ Mount Pipe	12	55.484	5.4315	0.0073	1548
84.00	12' horizontal x 2" Pipe Mount	12	44.464	5.1297	0.0061	1453

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	125 - 120 (1)	TP19.5748x18.5x0.1875	5.00	0.00	0.0	11.5379	-3.56	674.97	0.005

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L2	120 - 115 (2)	TP20.6496x19.5748x0.1875	5.00	0.00	0.0	12.1775	-3.86	712.39	0.005
L3	115 - 110 (3)	TP21.7245x20.6496x0.1875	5.00	0.00	0.0	12.8172	-7.81	749.81	0.010
L4	110 - 105 (4)	TP22.7993x21.7245x0.1875	5.00	0.00	0.0	13.4568	-8.25	787.23	0.010
L5	105 - 100 (5)	TP23.8741x22.7993x0.1875	5.00	0.00	0.0	14.0965	-13.02	824.64	0.016
L6	100 - 99.375 (6)	TP24.0085x23.8741x0.1875	0.63	0.00	0.0	14.1765	-13.10	829.32	0.016
L7	99.375 - 99.125 (7)	TP24.0622x24.0085x0.425	0.25	0.00	0.0	31.8854	-13.14	1865.30	0.007
L8	99.125 - 94.458 (8)	TP25.0655x24.0622x0.4125	4.67	0.00	0.0	32.2775	-13.91	1888.23	0.007
L9	94.458 - 94.208 (9)	TP25.1192x25.0655x0.6	0.25	0.00	0.0	46.6944	-13.97	2731.62	0.005
L10	94.208 - 89.208 (10)	TP26.194x25.1192x0.575	5.00	0.00	0.0	46.7560	-17.40	2735.23	0.006
L11	89.208 - 89 (11)	TP26.2387x26.194x0.575	0.21	0.00	0.0	46.8376	-17.45	2740.00	0.006
L12	89 - 85.04 (12)	TP27.09x26.2387x0.6625	3.96	0.00	0.0	53.8005	-17.46	3147.33	0.006
L13	85.04 - 84.04 (13)	TP26.9179x25.873x0.5	4.92	0.00	0.0	41.9252	-19.22	2452.63	0.008
L14	84.04 - 79.04 (14)	TP27.9805x26.9179x0.4875	5.00	0.00	0.0	42.5406	-23.80	2488.63	0.010
L15	79.04 - 74.04 (15)	TP29.0431x27.9805x0.475	5.00	0.00	0.0	43.0707	-24.96	2519.63	0.010
L16	74.04 - 73.583 (16)	TP29.1402x29.0431x0.475	0.46	0.00	0.0	43.2171	-25.08	2528.20	0.010
L17	73.583 - 73.333 (17)	TP29.1933x29.1402x0.6125	0.25	0.00	0.0	55.5633	-25.15	3250.45	0.008
L18	73.333 - 73 (18)	TP29.2641x29.1933x0.6125	0.33	0.00	0.0	55.7009	-25.24	3258.50	0.008
L19	73 - 72.75 (19)	TP29.3172x29.2641x0.375	0.25	0.00	0.0	34.4485	-25.30	2015.24	0.013
L20	72.75 - 67.75 (20)	TP30.3798x29.3172x0.375	5.00	0.00	0.0	35.7132	-26.38	2089.22	0.013
L21	67.75 - 63 (21)	TP31.3893x30.3798x0.3688	4.75	0.00	0.0	36.3068	-27.45	2123.95	0.013
L22	63 - 62.75 (22)	TP31.4424x31.3893x0.575	0.25	0.00	0.0	56.3345	-27.54	3295.57	0.008
L23	62.75 - 57.75 (23)	TP32.505x31.4424x0.5625	5.00	0.00	0.0	57.0293	-28.98	3336.21	0.009
L24	57.75 - 57.233 (24)	TP32.6148x32.505x0.45	0.52	0.00	0.0	45.9410	-29.12	2687.55	0.011
L25	57.233 - 56.983 (25)	TP32.668x32.6148x0.45	0.25	0.00	0.0	46.0169	-29.19	2691.99	0.011
L26	56.983 - 51.983 (26)	TP33.7305x32.668x0.4438	5.00	0.00	0.0	46.8832	-30.49	2742.67	0.011
L27	51.983 - 46.983 (27)	TP34.7931x33.7305x0.4375	5.00	0.00	0.0	47.7071	-31.84	2790.86	0.011
L28	46.983 - 40.457 (28)	TP36.18x34.7931x0.4375	6.53	0.00	0.0	48.1329	-32.22	2815.78	0.011
L29	40.457 - 39.457 (29)	TP35.8888x34.5998x0.5	6.08	0.00	0.0	56.1620	-34.93	3285.48	0.011
L30	39.457 - 37.833 (30)	TP36.2329x35.8888x0.4938	1.62	0.00	0.0	56.0091	-35.41	3276.53	0.011
L31	37.833 - 37.583 (31)	TP36.2859x36.2329x0.4938	0.25	0.00	0.0	56.0921	-35.52	3281.39	0.011
L32	37.583 - 32.583 (32)	TP37.3455x36.2859x0.4875	5.00	0.00	0.0	57.0312	-37.05	3336.33	0.011
L33	32.583 - 27.583 (33)	TP38.405x37.3455x0.4813	5.00	0.00	0.0	57.9280	-38.64	3388.79	0.011
L34	27.583 - 22.583 (34)	TP39.4645x38.405x0.475	5.00	0.00	0.0	58.7825	-40.25	3438.78	0.012
L35	22.583 - 17.583 (35)	TP40.524x39.4645x0.475	5.00	0.00	0.0	60.3800	-41.89	3532.23	0.012

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L36	17.583 - 12.583 (36)	TP41.5836x40.524x0.4625	5.00	0.00	0.0	60.3647	-43.57	3531.34	0.012
L37	12.583 - 12.25 (37)	TP41.6541x41.5836x0.4625	0.33	0.00	0.0	60.4683	-43.70	3537.40	0.012
L38	12.25 - 12 (38)	TP41.7071x41.6541x0.6	0.25	0.00	0.0	78.2844	-43.81	4579.64	0.010
L39	12 - 7 (39)	TP42.7667x41.7071x0.5875	5.00	0.00	0.0	78.6525	-45.92	4601.17	0.010
L40	7 - 2 (40)	TP43.8262x42.7667x0.5875	5.00	0.00	0.0	80.6283	-47.95	4716.75	0.010
L41	2 - 0 (41)	TP44.25x43.8262x0.575	2.00	0.00	0.0	79.7091	-48.75	4662.98	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	125 - 120 (1)	TP19.5748x18.5x0.1875	33.95	334.00	0.102	0.00	334.00	0.000
L2	120 - 115 (2)	TP20.6496x19.5748x0.1875	67.31	366.78	0.184	0.00	366.78	0.000
L3	115 - 110 (3)	TP21.7245x20.6496x0.1875	137.19	400.45	0.343	0.00	400.45	0.000
L4	110 - 105 (4)	TP22.7993x21.7245x0.1875	200.96	434.92	0.462	0.00	434.92	0.000
L5	105 - 100 (5)	TP23.8741x22.7993x0.1875	287.73	470.09	0.612	0.00	470.09	0.000
L6	100 - 99.375 (6)	TP24.0085x23.8741x0.1875	298.82	474.53	0.630	0.00	474.53	0.000
L7	99.375 - 99.125 (7)	TP24.0622x24.0085x0.425	303.27	1139.99	0.266	0.00	1139.99	0.000
L8	99.125 - 94.458 (8)	TP25.0655x24.0622x0.4125	388.44	1205.08	0.322	0.00	1205.08	0.000
L9	94.458 - 94.208 (9)	TP25.1192x25.0655x0.6	393.11	1720.78	0.228	0.00	1720.78	0.000
L10	94.208 - 89.208 (10)	TP26.194x25.1192x0.575	502.23	1803.90	0.278	0.00	1803.90	0.000
L11	89.208 - 89 (11)	TP26.2387x26.194x0.575	506.81	1810.28	0.280	0.00	1810.28	0.000
L12	89 - 85.04 (12)	TP27.09x26.2387x0.6625	507.76	2066.00	0.246	0.00	2066.00	0.000
L13	85.04 - 84.04 (13)	TP26.9179x25.873x0.5	618.52	1673.72	0.370	0.00	1673.72	0.000
L14	84.04 - 79.04 (14)	TP27.9805x26.9179x0.4875	757.87	1769.47	0.428	0.00	1769.47	0.000
L15	79.04 - 74.04 (15)	TP29.0431x27.9805x0.475	901.53	1863.60	0.484	0.00	1863.60	0.000
L16	74.04 - 73.583 (16)	TP29.1402x29.0431x0.475	914.87	1876.40	0.488	0.00	1876.40	0.000
L17	73.583 - 73.333 (17)	TP29.1933x29.1402x0.6125	922.17	2393.90	0.385	0.00	2393.90	0.000
L18	73.333 - 73 (18)	TP29.2641x29.1933x0.6125	931.93	2405.89	0.387	0.00	2405.89	0.000
L19	73 - 72.75 (19)	TP29.3172x29.2641x0.375	939.27	1515.53	0.620	0.00	1515.53	0.000
L20	72.75 - 67.75 (20)	TP30.3798x29.3172x0.375	1087.91	1629.59	0.668	0.00	1629.59	0.000
L21	67.75 - 63 (21)	TP31.3893x30.3798x0.3688	1232.61	1713.78	0.719	0.00	1713.78	0.000
L22	63 - 62.75 (22)	TP31.4424x31.3893x0.575	1240.32	2628.52	0.472	0.00	2628.52	0.000
L23	62.75 - 57.75 (23)	TP32.505x31.4424x0.5625	1396.74	2756.37	0.507	0.00	2756.37	0.000
L24	57.75 - 57.233 (24)	TP32.6148x32.505x0.45	1413.17	2243.88	0.630	0.00	2243.88	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 $\frac{M_{uy}}{\phi M_{ny}}$
L25	57.233 - 56.983 (25)	TP32.668x32.6148x0.45	1421.12	2251.35	0.631	0.00	2251.35	0.000
L26	56.983 - 51.983 (26)	TP33.7305x32.668x0.4438	1582.32	2371.32	0.667	0.00	2371.32	0.000
L27	51.983 - 46.983 (27)	TP34.7931x33.7305x0.4375	1747.46	2491.93	0.701	0.00	2491.93	0.000
L28	46.983 - 40.457 (28)	TP36.18x34.7931x0.4375	1795.84	2536.91	0.708	0.00	2536.91	0.000
L29	40.457 - 39.457 (29)	TP35.8888x34.5998x0.5	2003.84	3017.64	0.664	0.00	3017.64	0.000
L30	39.457 - 37.833 (30)	TP36.2329x35.8888x0.4938	2060.43	3040.16	0.678	0.00	3040.16	0.000
L31	37.833 - 37.583 (31)	TP36.2859x36.2329x0.4938	2069.18	3049.24	0.679	0.00	3049.24	0.000
L32	37.583 - 32.583 (32)	TP37.3455x36.2859x0.4875	2246.04	3194.40	0.703	0.00	3194.40	0.000
L33	32.583 - 27.583 (33)	TP38.405x37.3455x0.4813	2426.53	3340.22	0.726	0.00	3340.22	0.000
L34	27.583 - 22.583 (34)	TP39.4645x38.405x0.475	2610.47	3486.50	0.749	0.00	3486.50	0.000
L35	22.583 - 17.583 (35)	TP40.524x39.4645x0.475	2797.72	3679.73	0.760	0.00	3679.73	0.000
L36	17.583 - 12.583 (36)	TP41.5836x40.524x0.4625	2988.06	3779.57	0.791	0.00	3779.57	0.000
L37	12.583 - 12.25 (37)	TP41.6541x41.5836x0.4625	3000.83	3792.63	0.791	0.00	3792.63	0.000
L38	12.25 - 12 (38)	TP41.7071x41.6541x0.6	3010.44	4883.73	0.616	0.00	4883.73	0.000
L39	12 - 7 (39)	TP42.7667x41.7071x0.5875	3204.24	5037.97	0.636	0.00	5037.97	0.000
L40	7 - 2 (40)	TP43.8262x42.7667x0.5875	3400.28	5296.03	0.642	0.00	5296.03	0.000
L41	2 - 0 (41)	TP44.25x43.8262x0.575	3479.01	5290.69	0.658	0.00	5290.69	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	125 - 120 (1)	TP19.5748x18.5x0.1875	6.51	202.49	0.032	0.02	343.80	0.000
L2	120 - 115 (2)	TP20.6496x19.5748x0.1875	6.83	213.72	0.032	0.02	382.97	0.000
L3	115 - 110 (3)	TP21.7245x20.6496x0.1875	12.61	224.94	0.056	0.85	424.26	0.002
L4	110 - 105 (4)	TP22.7993x21.7245x0.1875	12.93	236.17	0.055	0.85	467.67	0.002
L5	105 - 100 (5)	TP23.8741x22.7993x0.1875	17.73	247.39	0.072	1.05	513.18	0.002
L6	100 - 99.375 (6)	TP24.0085x23.8741x0.1875	17.82	248.80	0.072	1.04	519.02	0.002
L7	99.375 - 99.125 (7)	TP24.0622x24.0085x0.425	17.86	559.59	0.032	1.04	1158.37	0.001
L8	99.125 - 94.458 (8)	TP25.0655x24.0622x0.4125	18.66	566.47	0.033	0.61	1223.00	0.000
L9	94.458 - 94.208 (9)	TP25.1192x25.0655x0.6	18.69	819.49	0.023	0.60	1759.66	0.000
L10	94.208 - 89.208 (10)	TP26.194x25.1192x0.575	21.97	820.57	0.027	0.68	1841.02	0.000
L11	89.208 - 89 (11)	TP26.2387x26.194x0.575	22.00	822.00	0.027	0.68	1847.45	0.000
L12	89 - 85.04 (12)	TP27.09x26.2387x0.6625	22.01	944.20	0.023	0.68	2115.62	0.000
L13	85.04 - 84.04 (13)	TP26.9179x25.873x0.5	22.97	735.79	0.031	0.65	1702.28	0.000

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 $\frac{T_u}{\phi T_n}$
L14	84.04 - 79.04 (14)	TP27.9805x26.9179x0.4875	28.30	746.59	0.038	0.62	1797.56	0.000
L15	79.04 - 74.04 (15)	TP29.0431x27.9805x0.475	29.12	755.89	0.039	0.59	1891.13	0.000
L16	74.04 - 73.583 (16)	TP29.1402x29.0431x0.475	29.19	758.46	0.038	0.59	1904.00	0.000
L17	73.583 - 73.333 (17)	TP29.1933x29.1402x0.6125	29.23	975.14	0.030	0.58	2440.73	0.000
L18	73.333 - 73 (18)	TP29.2641x29.1933x0.6125	29.29	977.55	0.030	0.58	2452.83	0.000
L19	73 - 72.75 (19)	TP29.3172x29.2641x0.375	29.32	604.57	0.049	0.58	1532.36	0.000
L20	72.75 - 67.75 (20)	TP30.3798x29.3172x0.375	30.09	626.77	0.048	0.53	1646.93	0.000
L21	67.75 - 63 (21)	TP31.3893x30.3798x0.3688	30.81	637.18	0.048	0.49	1730.98	0.000
L22	63 - 62.75 (22)	TP31.4424x31.3893x0.575	30.83	988.67	0.031	0.47	2672.58	0.000
L23	62.75 - 57.75 (23)	TP32.505x31.4424x0.5625	31.69	1000.86	0.032	0.44	2799.78	0.000
L24	57.75 - 57.233 (24)	TP32.6148x32.505x0.45	31.77	806.26	0.039	0.43	2271.12	0.000
L25	57.233 - 56.983 (25)	TP32.668x32.6148x0.45	31.81	807.60	0.039	0.43	2278.63	0.000
L26	56.983 - 51.983 (26)	TP33.7305x32.668x0.4438	32.62	822.80	0.040	0.39	2398.53	0.000
L27	51.983 - 46.983 (27)	TP34.7931x33.7305x0.4375	33.40	837.26	0.040	0.34	2519.06	0.000
L28	46.983 - 40.457 (28)	TP36.18x34.7931x0.4375	33.63	844.73	0.040	0.33	2564.22	0.000
L29	40.457 - 39.457 (29)	TP35.8888x34.5998x0.5	34.70	985.64	0.035	0.27	3054.68	0.000
L30	39.457 - 37.833 (30)	TP36.2329x35.8888x0.4938	34.96	982.96	0.036	0.26	3076.53	0.000
L31	37.833 - 37.583 (31)	TP36.2859x36.2329x0.4938	34.97	984.42	0.036	0.24	3085.66	0.000
L32	37.583 - 32.583 (32)	TP37.3455x36.2859x0.4875	35.72	1000.90	0.036	0.20	3230.73	0.000
L33	32.583 - 27.583 (33)	TP38.405x37.3455x0.4813	36.43	1016.64	0.036	0.15	3376.43	0.000
L34	27.583 - 22.583 (34)	TP39.4645x38.405x0.475	37.11	1031.63	0.036	0.10	3522.52	0.000
L35	22.583 - 17.583 (35)	TP40.524x39.4645x0.475	37.75	1059.67	0.036	0.06	3716.57	0.000
L36	17.583 - 12.583 (36)	TP41.5836x40.524x0.4625	38.34	1059.40	0.036	0.02	3815.09	0.000
L37	12.583 - 12.25 (37)	TP41.6541x41.5836x0.4625	38.37	1061.22	0.036	0.01	3828.19	0.000
L38	12.25 - 12 (38)	TP41.7071x41.6541x0.6	38.40	1373.89	0.028	0.01	4945.95	0.000
L39	12 - 7 (39)	TP42.7667x41.7071x0.5875	39.06	1380.35	0.028	0.03	5098.80	0.000
L40	7 - 2 (40)	TP43.8262x42.7667x0.5875	39.34	1415.03	0.028	0.03	5358.18	0.000
L41	2 - 0 (41)	TP44.25x43.8262x0.575	39.42	1398.89	0.028	0.03	5350.54	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	125 - 120 (1)	0.005	0.102	0.000	0.032	0.000	0.108	1.050	4.8.2
L2	120 - 115 (2)	0.005	0.184	0.000	0.032	0.000	0.190	1.050	4.8.2
L3	115 - 110 (3)	0.010	0.343	0.000	0.056	0.002	0.356	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
L4	110 - 105 (4)	0.010	0.462	0.000	0.055	0.002	0.476	1.050	4.8.2
L5	105 - 100 (5)	0.016	0.612	0.000	0.072	0.002	0.633	1.050	4.8.2
L6	100 - 99.375 (6)	0.016	0.630	0.000	0.072	0.002	0.651	1.050	4.8.2
L7	99.375 - 99.125 (7)	0.007	0.266	0.000	0.032	0.001	0.274	1.050	4.8.2
L8	99.125 - 94.458 (8)	0.007	0.322	0.000	0.033	0.000	0.331	1.050	4.8.2
L9	94.458 - 94.208 (9)	0.005	0.228	0.000	0.023	0.000	0.234	1.050	4.8.2
L10	94.208 - 89.208 (10)	0.006	0.278	0.000	0.027	0.000	0.286	1.050	4.8.2
L11	89.208 - 89 (11)	0.006	0.280	0.000	0.027	0.000	0.287	1.050	4.8.2
L12	89 - 85.04 (12)	0.006	0.246	0.000	0.023	0.000	0.252	1.050	4.8.2
L13	85.04 - 84.04 (13)	0.008	0.370	0.000	0.031	0.000	0.378	1.050	4.8.2
L14	84.04 - 79.04 (14)	0.010	0.428	0.000	0.038	0.000	0.439	1.050	4.8.2
L15	79.04 - 74.04 (15)	0.010	0.484	0.000	0.039	0.000	0.495	1.050	4.8.2
L16	74.04 - 73.583 (16)	0.010	0.488	0.000	0.038	0.000	0.499	1.050	4.8.2
L17	73.583 - 73.333 (17)	0.008	0.385	0.000	0.030	0.000	0.394	1.050	4.8.2
L18	73.333 - 73 (18)	0.008	0.387	0.000	0.030	0.000	0.396	1.050	4.8.2
L19	73 - 72.75 (19)	0.013	0.620	0.000	0.049	0.000	0.635	1.050	4.8.2
L20	72.75 - 67.75 (20)	0.013	0.668	0.000	0.048	0.000	0.683	1.050	4.8.2
L21	67.75 - 63 (21)	0.013	0.719	0.000	0.048	0.000	0.735	1.050	4.8.2
L22	63 - 62.75 (22)	0.008	0.472	0.000	0.031	0.000	0.481	1.050	4.8.2
L23	62.75 - 57.75 (23)	0.009	0.507	0.000	0.032	0.000	0.516	1.050	4.8.2
L24	57.75 - 57.233 (24)	0.011	0.630	0.000	0.039	0.000	0.642	1.050	4.8.2
L25	57.233 - 56.983 (25)	0.011	0.631	0.000	0.039	0.000	0.644	1.050	4.8.2
L26	56.983 - 51.983 (26)	0.011	0.667	0.000	0.040	0.000	0.680	1.050	4.8.2
L27	51.983 - 46.983 (27)	0.011	0.701	0.000	0.040	0.000	0.714	1.050	4.8.2
L28	46.983 - 40.457 (28)	0.011	0.708	0.000	0.040	0.000	0.721	1.050	4.8.2
L29	40.457 - 39.457 (29)	0.011	0.664	0.000	0.035	0.000	0.676	1.050	4.8.2
L30	39.457 - 37.833 (30)	0.011	0.678	0.000	0.036	0.000	0.690	1.050	4.8.2
L31	37.833 - 37.583 (31)	0.011	0.679	0.000	0.036	0.000	0.691	1.050	4.8.2
L32	37.583 - 32.583 (32)	0.011	0.703	0.000	0.036	0.000	0.716	1.050	4.8.2
L33	32.583 - 27.583 (33)	0.011	0.726	0.000	0.036	0.000	0.739	1.050	4.8.2
L34	27.583 - 22.583 (34)	0.012	0.749	0.000	0.036	0.000	0.762	1.050	4.8.2
L35	22.583 - 17.583 (35)	0.012	0.760	0.000	0.036	0.000	0.773	1.050	4.8.2
L36	17.583 - 12.583 (36)	0.012	0.791	0.000	0.036	0.000	0.804	1.050	4.8.2
L37	12.583 - 12.25 (37)	0.012	0.791	0.000	0.036	0.000	0.805	1.050	4.8.2
L38	12.25 - 12 (38)	0.010	0.616	0.000	0.028	0.000	0.627	1.050	4.8.2
L39	12 - 7 (39)	0.010	0.636	0.000	0.028	0.000	0.647	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
L40	7 - 2 (40)	0.010	0.642	0.000	0.028	0.000	0.653	1.050	4.8.2
L41	2 - 0 (41)	0.010	0.658	0.000	0.028	0.000	0.669	1.050	4.8.2

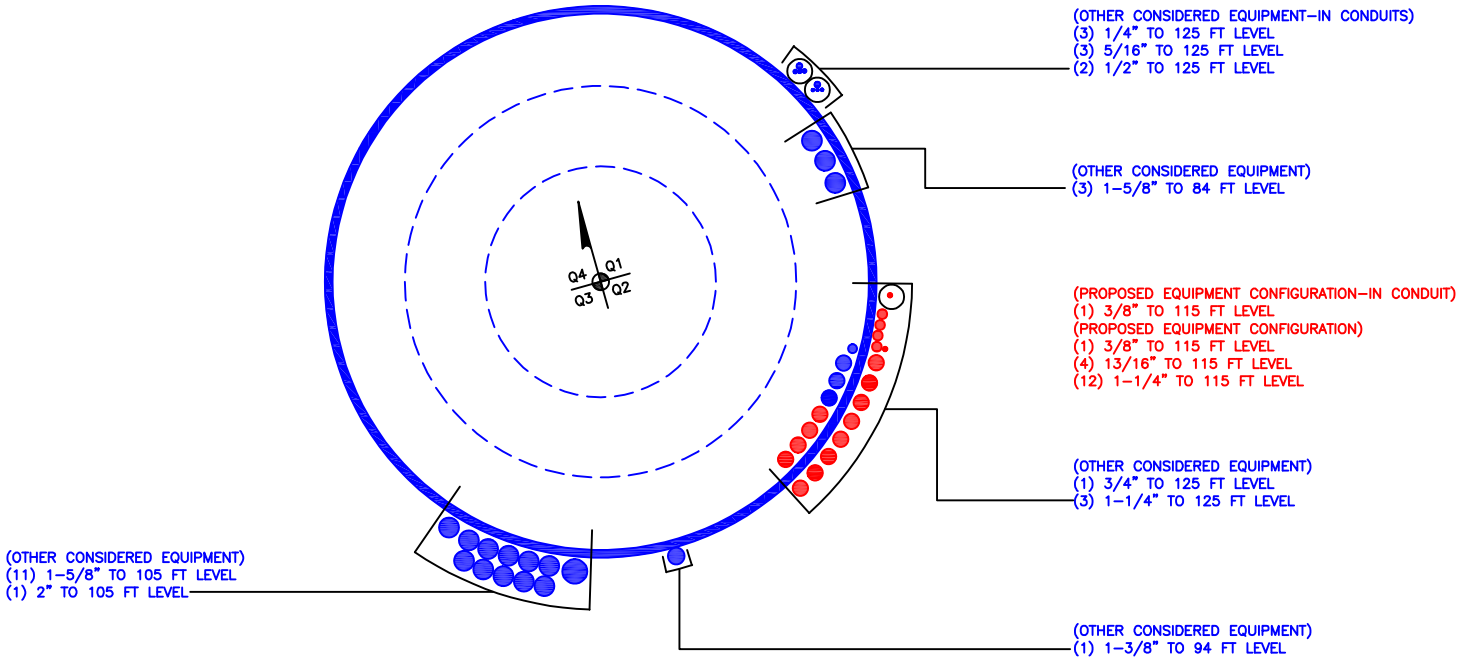
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	125 - 120	Pole	TP19.5748x18.5x0.1875	1	-3.56	708.71	10.3	Pass
L2	120 - 115	Pole	TP20.6496x19.5748x0.1875	2	-3.86	748.01	18.1	Pass
L3	115 - 110	Pole	TP21.7245x20.6496x0.1875	3	-7.81	787.30	33.9	Pass
L4	110 - 105	Pole	TP22.7993x21.7245x0.1875	4	-8.25	826.59	45.3	Pass
L5	105 - 100	Pole	TP23.8741x22.7993x0.1875	5	-13.02	865.88	60.3	Pass
L6	100 - 99.375	Pole	TP24.0085x23.8741x0.1875	6	-13.10	870.79	62.0	Pass
L7	99.375 - 99.125	Pole	TP24.0622x24.0085x0.425	7	-13.14	1958.56	26.1	Pass
L8	99.125 - 94.458	Pole	TP25.0655x24.0622x0.4125	8	-13.91	1982.64	31.5	Pass
L9	94.458 - 94.208	Pole	TP25.1192x25.0655x0.6	9	-13.97	2868.20	22.3	Pass
L10	94.208 - 89.208	Pole	TP26.194x25.1192x0.575	10	-17.40	2871.99	27.2	Pass
L11	89.208 - 89	Pole	TP26.2387x26.194x0.575	11	-17.45	2877.00	27.3	Pass
L12	89 - 85.04	Pole	TP27.09x26.2387x0.6625	12	-17.46	3304.70	24.0	Pass
L13	85.04 - 84.04	Pole	TP26.9179x25.873x0.5	13	-19.22	2575.26	36.0	Pass
L14	84.04 - 79.04	Pole	TP27.9805x26.9179x0.4875	14	-23.80	2613.06	41.8	Pass
L15	79.04 - 74.04	Pole	TP29.0431x27.9805x0.475	15	-24.96	2645.61	47.2	Pass
L16	74.04 - 73.583	Pole	TP29.1402x29.0431x0.475	16	-25.08	2654.61	47.5	Pass
L17	73.583 - 73.333	Pole	TP29.1933x29.1402x0.6125	17	-25.15	3412.97	37.5	Pass
L18	73.333 - 73	Pole	TP29.2641x29.1933x0.6125	18	-25.24	3421.42	37.7	Pass
L19	73 - 72.75	Pole	TP29.3172x29.2641x0.375	19	-25.30	2116.00	60.4	Pass
L20	72.75 - 67.75	Pole	TP30.3798x29.3172x0.375	20	-26.38	2193.68	65.0	Pass
L21	67.75 - 63	Pole	TP31.3893x30.3798x0.3688	21	-27.45	2230.15	70.0	Pass
L22	63 - 62.75	Pole	TP31.4424x31.3893x0.575	22	-27.54	3460.35	45.8	Pass
L23	62.75 - 57.75	Pole	TP32.505x31.4424x0.5625	23	-28.98	3503.02	49.2	Pass
L24	57.75 - 57.233	Pole	TP32.6148x32.505x0.45	24	-29.12	2821.93	61.2	Pass
L25	57.233 - 56.983	Pole	TP32.668x32.6148x0.45	25	-29.19	2826.59	61.3	Pass
L26	56.983 - 51.983	Pole	TP33.7305x32.668x0.4438	26	-30.49	2879.80	64.8	Pass
L27	51.983 - 46.983	Pole	TP34.7931x33.7305x0.4375	27	-31.84	2930.40	68.0	Pass
L28	46.983 - 40.457	Pole	TP36.18x34.7931x0.4375	28	-32.22	2956.57	68.7	Pass
L29	40.457 - 39.457	Pole	TP35.8888x34.5998x0.5	29	-34.93	3449.75	64.4	Pass
L30	39.457 - 37.833	Pole	TP36.2329x35.8888x0.4938	30	-35.41	3440.36	65.7	Pass
L31	37.833 - 37.583	Pole	TP36.2859x36.2329x0.4938	31	-35.52	3445.46	65.8	Pass
L32	37.583 - 32.583	Pole	TP37.3455x36.2859x0.4875	32	-37.05	3503.15	68.1	Pass
L33	32.583 - 27.583	Pole	TP38.405x37.3455x0.4813	33	-38.64	3558.23	70.4	Pass
L34	27.583 - 22.583	Pole	TP39.4645x38.405x0.475	34	-40.25	3610.72	72.5	Pass
L35	22.583 - 17.583	Pole	TP40.524x39.4645x0.475	35	-41.89	3708.84	73.7	Pass
L36	17.583 - 12.583	Pole	TP41.5836x40.524x0.4625	36	-43.57	3707.91	76.6	Pass
L37	12.583 - 12.25	Pole	TP41.6541x41.5836x0.4625	37	-43.70	3714.27	76.7	Pass
L38	12.25 - 12	Pole	TP41.7071x41.6541x0.6	38	-43.81	4808.62	59.7	Pass
L39	12 - 7	Pole	TP42.7667x41.7071x0.5875	39	-45.92	4831.23	61.6	Pass
L40	7 - 2	Pole	TP43.8262x42.7667x0.5875	40	-47.95	4952.59	62.2	Pass
L41	2 - 0	Pole	TP44.25x43.8262x0.575	41	-48.75	4896.13	63.7	Pass
							Summary	
						Pole (L37)	76.7	Pass
						RATING =	**76.7**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876364 TOWER ID:C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876364

Work Order: 2140019

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	125	39.96	3.917	18	18.5	27.09	0.1875	Auto	A572-65
2	88.957	48.5	5.083	18	25.87	36.18	0.25	Auto	A572-65
3	45.54	45.54	0	18	34.60	44.25	0.3125	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	37.833	plate	MS-406	3					M2						M2						M2	
2	37.833	57.333	plate	MS-406	3				M2						M2						M2		
3	57.333	73.583	plate	MS-404	3					M2						M2						M2	
4	73	89	plate	MS-600K	3	M4						M4						M4					
5	89	94.458	plate	MS-600 Notched (2")	3		M4						M4						M4				
6	0	12.25	plate	CCI-WSFP-065125	3	M5						M5			M5								
7	57.33	63	plate	CCI-SFP-060100	3	M5						M5						M5					
8	86.875	99.375	plate	CCI 3.25X1.25	4					M5					M5					M5			M5
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	4.875	1.25	6.09375	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	23.000	4.492	1.2188	A514-GR100
2	4.875	1.25	6.09375	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	23.000	4.492	1.2188	A514-GR100
3	4.75	0.75	3.5625	0.375	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	14.000	2.602	1.2188	A514-GR100
4	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.719	1.2188	A572-65
5	4	1	4	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	2.719	1.2188	A572-65
6	6.5	1.25	8.125	0.625	Welded	n/a	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	3.25	1.25	4.0625	0.625	PC 8.8 - M20 (100)	15	PC 8.8 - M20 (100)	15.000	24.000	2.461	1.2188	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)
MS-406	Top	11	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	11	N	3	3	-	-	-	-	-	-	-	-	-
MS-404	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
MS-600K	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
MS-600 Notched (2")	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
CCI 3.25X1.25	Top	5	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	5	N	3	3	-	-	-	-	-	-	-	-	-

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	125 - 120	5		18	18.500	19.575	0.1875	A572-65	1.000
2	120 - 115	5		18	19.575	20.650	0.1875	A572-65	1.000
3	115 - 110	5		18	20.650	21.724	0.1875	A572-65	1.000
4	110 - 105	5		18	21.724	22.799	0.1875	A572-65	1.000
5	105 - 100	5		18	22.799	23.874	0.1875	A572-65	1.000
6	100 - 99.375	0.625		18	23.874	24.008	0.1875	A572-65	1.000
7	99.375 - 99.125	0.25		18	24.008	24.062	0.425	A572-65	0.955
8	99.125 - 94.458	4.667		18	24.062	25.065	0.4125	A572-65	0.962
9	94.458 - 94.208	0.25		18	25.065	25.119	0.6	A572-65	0.923
10	94.208 - 89.208	5		18	25.119	26.194	0.575	A572-65	0.935
11	89.208 - 89	0.208		18	26.194	26.239	0.575	A572-65	0.934
12	89 - 88.957	3.96	3.917	18	26.239	27.090	0.6625	A572-65	0.925
13	88.957 - 84.04	4.917		18	25.873	26.918	0.5	A572-65	0.934
14	84.04 - 79.04	5		18	26.918	27.981	0.4875	A572-65	0.940
15	79.04 - 74.04	5		18	27.981	29.043	0.475	A572-65	0.948
16	74.04 - 73.583	0.457		18	29.043	29.140	0.475	A572-65	0.947
17	73.583 - 73.333	0.25		18	29.140	29.193	0.6125	A572-65	0.930
18	73.333 - 73	0.333		18	29.193	29.264	0.6125	A572-65	0.928
19	73 - 72.75	0.25		18	29.264	29.317	0.375	A572-65	0.980
20	72.75 - 67.75	5		18	29.317	30.380	0.375	A572-65	0.969
21	67.75 - 63	4.75		18	30.380	31.389	0.36875	A572-65	0.975
22	63 - 62.75	0.25		18	31.389	31.442	0.575	A572-65	0.949
23	62.75 - 57.75	5		18	31.442	32.505	0.5625	A572-65	0.952
24	57.75 - 57.233	0.517		18	32.505	32.615	0.45	A572-65	0.957
25	57.233 - 56.983	0.25		18	32.615	32.668	0.45	A572-65	0.956
26	56.983 - 51.983	5		18	32.668	33.731	0.44375	A572-65	0.957
27	51.983 - 46.983	5		18	33.731	34.793	0.4375	A572-65	0.958
28	46.983 - 45.54	6.526	5.083	18	34.793	36.180	0.4375	A572-65	0.954
29	45.54 - 39.457	6.083		18	34.600	35.889	0.5	A572-65	0.954
30	39.457 - 37.833	1.624		18	35.889	36.233	0.49375	A572-65	0.963
31	37.833 - 37.583	0.25		18	36.233	36.286	0.49375	A572-65	0.962
32	37.583 - 32.583	5		18	36.286	37.345	0.4875	A572-65	0.965
33	32.583 - 27.583	5		18	37.345	38.405	0.48125	A572-65	0.968
34	27.583 - 22.583	5		18	38.405	39.465	0.475	A572-65	0.972
35	22.583 - 17.583	5		18	39.465	40.524	0.475	A572-65	0.963
36	17.583 - 12.583	5		18	40.524	41.584	0.4625	A572-65	0.981
37	12.583 - 12.25	0.333		18	41.584	41.654	0.4625	A572-65	0.980
38	12.25 - 12	0.25		18	41.654	41.707	0.6	A572-65	1.069
39	12 - 7	5		18	41.707	42.767	0.5875	A572-65	1.078
40	7 - 2	5		18	42.767	43.826	0.5875	A572-65	1.064
41	2 - 0	2		18	43.826	44.250	0.575	A572-65	1.082

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	125 - 120	3.56	33.95	6.51
2	120 - 115	3.86	67.31	6.83
3	115 - 110	7.81	137.19	12.61
4	110 - 105	8.25	200.96	12.93
5	105 - 100	13.02	287.73	17.73
6	100 - 99.375	13.10	298.82	17.82
7	99.375 - 99.125	13.14	303.27	17.86
8	99.125 - 94.458	13.91	388.44	18.66
9	94.458 - 94.208	13.97	393.11	18.69
10	94.208 - 89.208	17.40	502.23	21.97
11	89.208 - 89	17.45	506.81	22.00
12	89 - 88.957	17.46	507.76	22.01
13	88.957 - 84.04	19.22	618.52	22.97
14	84.04 - 79.04	23.80	757.87	28.30
15	79.04 - 74.04	24.96	901.53	29.12
16	74.04 - 73.583	25.08	914.87	29.19
17	73.583 - 73.333	25.15	922.18	29.23
18	73.333 - 73	25.24	931.93	29.29
19	73 - 72.75	25.30	939.26	29.33
20	72.75 - 67.75	26.38	1087.91	30.09
21	67.75 - 63	27.45	1232.61	30.81
22	63 - 62.75	27.54	1240.32	30.83
23	62.75 - 57.75	28.98	1396.75	31.69
24	57.75 - 57.233	29.12	1413.16	31.77
25	57.233 - 56.983	29.19	1421.12	31.81
26	56.983 - 51.983	30.49	1582.31	32.62
27	51.983 - 46.983	31.84	1747.46	33.40
28	46.983 - 45.54	32.22	1795.84	33.63
29	45.54 - 39.457	34.93	2003.84	34.70
30	39.457 - 37.833	35.41	2060.43	34.96
31	37.833 - 37.583	35.52	2069.17	34.97
32	37.583 - 32.583	37.05	2246.04	35.72
33	32.583 - 27.583	38.64	2426.52	36.43
34	27.583 - 22.583	40.25	2610.47	37.11
35	22.583 - 17.583	41.89	2797.72	37.75
36	17.583 - 12.583	43.57	2988.05	38.34
37	12.583 - 12.25	43.70	3000.84	38.37
38	12.25 - 12	43.81	3010.44	38.40
39	12 - 7	45.92	3204.25	39.06
40	7 - 2	47.95	3400.28	39.34
41	2 - 0	48.75	3479.01	39.42

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
125 - 120	Pole	TP19.575x18.5x0.1875	Pole	10.3%	Pass
120 - 115	Pole	TP20.65x19.575x0.1875	Pole	18.1%	Pass
115 - 110	Pole	TP21.724x20.65x0.1875	Pole	33.9%	Pass
110 - 105	Pole	TP22.799x21.724x0.1875	Pole	45.3%	Pass
105 - 100	Pole	TP23.874x22.799x0.1875	Pole	60.3%	Pass
100 - 99.38	Pole	TP24.008x23.874x0.1875	Pole	62.0%	Pass
99.38 - 99.13	Pole + Reinf.	TP24.062x24.008x0.425	Reinf. 8 Tension Rupture	56.0%	Pass
99.13 - 94.46	Pole + Reinf.	TP25.065x24.062x0.4125	Reinf. 8 Tension Rupture	67.4%	Pass
94.46 - 94.21	Pole + Reinf.	TP25.119x25.065x0.6	Reinf. 8 Tension Rupture	47.7%	Pass
94.21 - 89.21	Pole + Reinf.	TP26.194x25.119x0.575	Reinf. 8 Tension Rupture	57.6%	Pass
89.21 - 89	Pole + Reinf.	TP26.239x26.194x0.575	Reinf. 8 Tension Rupture	58.0%	Pass
89 - 88.96	Pole + Reinf.	TP27.09x26.239x0.6625	Reinf. 8 Tension Rupture	50.5%	Pass
88.96 - 84.04	Pole + Reinf.	TP26.918x25.873x0.5	Reinf. 4 Tension Rupture	57.7%	Pass
84.04 - 79.04	Pole + Reinf.	TP27.981x26.918x0.4875	Reinf. 4 Tension Rupture	66.7%	Pass
79.04 - 74.04	Pole + Reinf.	TP29.043x27.981x0.475	Reinf. 4 Tension Rupture	74.9%	Pass
74.04 - 73.58	Pole + Reinf.	TP29.14x29.043x0.475	Reinf. 4 Tension Rupture	75.6%	Pass
73.58 - 73.33	Pole + Reinf.	TP29.193x29.14x0.6125	Reinf. 4 Tension Rupture	59.9%	Pass
73.33 - 73	Pole + Reinf.	TP29.264x29.193x0.6125	Reinf. 4 Tension Rupture	60.3%	Pass
73 - 72.75	Pole + Reinf.	TP29.317x29.264x0.375	Reinf. 3 Tension Rupture	74.1%	Pass
72.75 - 67.75	Pole + Reinf.	TP30.38x29.317x0.375	Reinf. 3 Tension Rupture	80.7%	Pass
67.75 - 63	Pole + Reinf.	TP31.389x30.38x0.3688	Reinf. 3 Tension Rupture	86.4%	Pass
63 - 62.75	Pole + Reinf.	TP31.442x31.389x0.575	Reinf. 7 Tension Rupture	71.8%	Pass
62.75 - 57.75	Pole + Reinf.	TP32.505x31.442x0.5625	Reinf. 7 Tension Rupture	77.0%	Pass
57.75 - 57.23	Pole + Reinf.	TP32.615x32.505x0.45	Reinf. 2 Tension Rupture	75.6%	Pass
57.23 - 56.98	Pole + Reinf.	TP32.668x32.615x0.45	Reinf. 2 Tension Rupture	75.8%	Pass
56.98 - 51.98	Pole + Reinf.	TP33.731x32.668x0.4438	Reinf. 2 Tension Rupture	80.2%	Pass
51.98 - 46.98	Pole + Reinf.	TP34.793x33.731x0.4375	Reinf. 2 Tension Rupture	84.3%	Pass
46.98 - 45.54	Pole + Reinf.	TP36.18x34.793x0.4375	Reinf. 2 Tension Rupture	85.4%	Pass
45.54 - 39.46	Pole + Reinf.	TP35.889x34.6x0.5	Reinf. 2 Tension Rupture	80.5%	Pass
39.46 - 37.83	Pole + Reinf.	TP36.233x35.889x0.4938	Reinf. 2 Tension Rupture	81.4%	Pass
37.83 - 37.58	Pole + Reinf.	TP36.286x36.233x0.4938	Reinf. 1 Tension Rupture	81.6%	Pass
37.58 - 32.58	Pole + Reinf.	TP37.345x36.286x0.4875	Reinf. 1 Tension Rupture	84.4%	Pass
32.58 - 27.58	Pole + Reinf.	TP38.405x37.345x0.4813	Reinf. 1 Tension Rupture	87.0%	Pass
27.58 - 22.58	Pole + Reinf.	TP39.465x38.405x0.475	Reinf. 1 Tension Rupture	89.4%	Pass
22.58 - 17.58	Pole + Reinf.	TP40.524x39.465x0.475	Reinf. 1 Tension Rupture	91.6%	Pass
17.58 - 12.58	Pole + Reinf.	TP41.584x40.524x0.4625	Reinf. 1 Tension Rupture	93.6%	Pass
12.58 - 12.25	Pole + Reinf.	TP41.654x41.584x0.4625	Reinf. 1 Tension Rupture	93.7%	Pass
12.25 - 12	Pole + Reinf.	TP41.707x41.654x0.6	Reinf. 6 Tension Rupture	79.9%	Pass
12 - 7	Pole + Reinf.	TP42.767x41.707x0.5875	Reinf. 6 Tension Rupture	81.9%	Pass
7 - 2	Pole + Reinf.	TP43.826x42.767x0.5875	Reinf. 6 Tension Rupture	83.8%	Pass
2 - 0	Pole + Reinf.	TP44.25x43.826x0.575	Reinf. 6 Tension Rupture	84.5%	Pass
				Summary	
			Pole	82.4%	Pass
			Reinforcement	93.7%	Pass
			Overall	93.7%	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
125 - 120	548	n/a	548	11.54	n/a	11.54	10.3%								
120 - 115	644	n/a	644	12.18	n/a	12.18	18.1%								
115 - 110	751	n/a	751	12.82	n/a	12.82	33.9%								
110 - 105	869	n/a	869	13.46	n/a	13.46	45.3%								
105 - 100	999	n/a	999	14.10	n/a	14.10	60.3%								
100 - 99.38	1016	n/a	1016	14.18	n/a	14.18	62.0%								
99.38 - 99.13	1025	1229	2254	14.21	16.25	30.46	29.3%								56.0%
99.13 - 94.46	1160	1328	2488	14.80	16.25	31.05	35.7%								67.4%
94.46 - 94.21	1166	2368	3534	14.84	28.25	43.09	25.3%					42.1%			47.7%
94.21 - 89.21	1324	2565	3888	15.48	28.25	43.73	31.1%					50.9%			57.6%
89.21 - 89	1330	2573	3903	15.50	28.25	43.75	31.3%					51.3%			58.0%
89 - 88.96	1332	3152	4483	15.51	34.25	49.76	27.3%				38.6%				50.5%
88.96 - 84.04	1901	1781	3682	21.16	18.00	39.16	36.8%				57.7%				
84.04 - 79.04	2137	1917	4054	22.00	18.00	40.00	43.1%				66.7%				
79.04 - 74.04	2392	2059	4451	22.85	18.00	40.85	48.8%				74.9%				
74.04 - 73.58	2416	2072	4488	22.92	18.00	40.92	49.4%				75.6%				
73.58 - 73.33	2430	3287	5717	22.97	28.69	51.65	39.1%			46.7%	59.9%				
73.33 - 73	2448	3302	5750	23.02	28.69	51.71	39.4%			47.0%	60.3%				
73 - 72.75	2461	1218	3679	23.06	10.69	33.75	62.1%			74.1%					
72.75 - 67.75	2741	1305	4046	23.91	10.69	34.59	68.5%			80.7%					
67.75 - 63	3026	1390	4416	24.71	10.69	35.40	74.2%			86.4%					
63 - 62.75	3041	3791	6832	24.75	28.69	53.44	48.4%			56.4%				71.8%	
62.75 - 57.75	3363	4041	7404	25.59	28.69	54.28	52.5%			60.5%				77.0%	
57.75 - 57.23	3397	2640	6037	25.68	18.28	43.96	65.4%		75.6%						
57.23 - 56.98	3414	2648	6062	25.72	18.28	44.00	65.7%		75.8%						
56.98 - 51.98	3761	2815	6577	26.57	18.28	44.85	70.4%		80.2%						
51.98 - 46.98	4131	2988	7119	27.41	18.28	45.69	74.9%		84.3%						
46.98 - 45.54	4242	3039	7280	27.65	18.28	45.93	76.2%		85.4%						
45.54 - 39.46	5641	3171	8812	35.29	18.28	53.57	67.0%		80.5%						
39.46 - 37.83	5806	3230	9036	35.63	18.28	53.91	68.0%		81.4%						
37.83 - 37.58	5832	3239	9071	35.68	18.28	53.96	68.2%	81.6%							
37.58 - 32.58	6362	3423	9785	36.73	18.28	55.01	71.2%	84.4%							
32.58 - 27.58	6924	3613	10537	37.78	18.28	56.06	74.1%	87.0%							
27.58 - 22.58	7518	3807	11325	38.83	18.28	57.11	76.9%	89.4%							
22.58 - 17.58	8145	4007	12152	39.88	18.28	58.16	79.6%	91.6%							
17.58 - 12.58	8806	4212	13018	40.93	18.28	59.22	82.2%	93.6%							
12.58 - 12.25	8851	4226	13077	41.00	18.28	59.29	82.4%	93.7%							
12.25 - 12	9052	7786	16838	41.06	42.66	83.71	71.1%	74.2%					79.9%		
12 - 7	9760	8175	17935	42.11	42.66	84.76	73.4%	75.9%					81.9%		
7 - 2	10504	8575	19079	43.16	42.66	85.81	75.7%	77.6%					83.8%		
2 - 0	10812	8737	19549	43.58	42.66	86.24	76.6%	78.2%					84.5%		

Note: Section capacity checked using 5 degree increments.

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

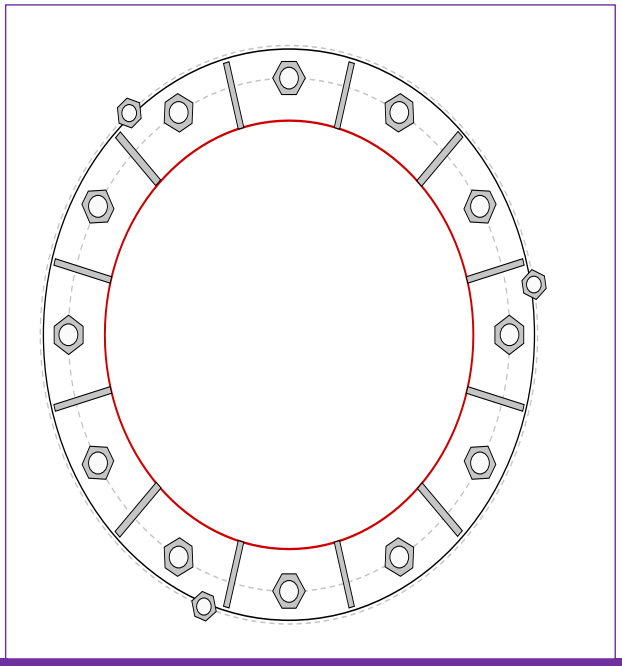
Monopole Base Plate Connection

Site Info	
BU #	876364
Site Name	nwell / First Line Emer
Order #	614870 Rev. 0

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

Applied Loads	
Moment (kip-ft)	3479.01
Axial Force (kips)	48.75
Shear Force (kips)	39.42

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 53" BC
GROUP 2: (3) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 59.75" BC

Base Plate Data

59" OD x 1.75" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

(12) 22"H x 7"W x 0.75"T, Notch: 0.75"
plate: Fy= 50 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.625" fillet
vert. weld: 0.375" fillet

Pole Data

44.25" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_t = 217.22	ϕPn_t = 243.75	**Stress Rating**
Vu = 3.28	ϕVn = 149.1	**84.9%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 145.84	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**78.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	44.2	(Roark's Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**78.0%**	**Pass**

Stiffener Summary

Horizontal Weld:	**83.0%**	**Pass**
Vertical Weld:	**44.2%**	**Pass**
Plate Flexure+Shear:	**18.9%**	**Pass**
Plate Tension+Shear:	**73.4%**	**Pass**
Plate Compression:	**72.9%**	**Pass**

Pole Summary

Punching Shear:	**13.8%**	**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	Yes	No	
2	No	No	No	Yes	No	

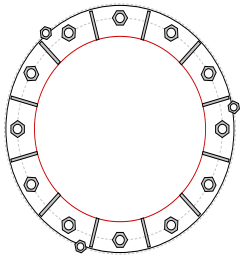
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{sr} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	2.25	A615-75	53	0.55	0	N-Included		No
2	1	30	2.25	A615-75	53	0.55	0	N-Included		No
3	1	60	2.25	A615-75	53	0.55	0	N-Included		No
4	1	90	2.25	A615-75	53	0.55	0	N-Included		No
5	1	120	2.25	A615-75	53	0.55	0	N-Included		No
6	1	150	2.25	A615-75	53	0.55	0	N-Included		No
7	1	180	2.25	A615-75	53	0.55	0	N-Included		No
8	1	210	2.25	A615-75	53	0.55	0	N-Included		No
9	1	240	2.25	A615-75	53	0.55	0	N-Included		No
10	1	270	2.25	A615-75	53	0.55	0	N-Included		No
11	1	300	2.25	A615-75	53	0.55	0	N-Included		No
12	1	330	2.25	A615-75	53	0.55	0	N-Included		No
13	2	130	1.75	A193 Gr. B7	59.75	0.55	0	N-Included		No
14	2	250	1.75	A193 Gr. B7	59.75	0.55	0	N-Included		No
15	2	10	1.75	A193 Gr. B7	59.75	0.55	0	N-Included		No

Custom Stiffener Connection

Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	15	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
2	1	45	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
3	1	75	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
4	1	105	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
5	1	135	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
6	1	165	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
7	1	195	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
8	1	225	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
9	1	255	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
10	1	285	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
11	1	315	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70
12	1	345	7	22	0.75	0.75	0.75	50	Fillet			0.625	0.375	70

Plot Graphic



Pier and Pad Foundation

BU # :	876364
Site Name:	Cromwell / First Line Emergenc
App. Number:	614870 Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	48.76	kips
Base Shear, Vu_comp:	39.39	kips
Moment, M_u:	3479.01	ft-kips
Tower Height, **H**:	125	ft
BP Dist. Above Fdn, bp_{dist}:	2.5	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	14	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	24	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	5	ft
Pad Width, W_1:	24	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	24	
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	30	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	8.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.6	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	236.62	39.39	**15.9%**	**Pass**
Bearing Pressure (ksf)	6.00	2.98	**49.7%**	**Pass**
*Overturning (kip*ft)*	4564.43	3703.86	**81.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	7025.44	3577.49	**48.5%**	**Pass**
Pier Compression (kip)	80196.48	136.96	**0.2%**	**Pass**
*Pad Flexure (kip*ft)*	3256.22	715.26	**20.9%**	**Pass**
Pad Shear - 1-way (kips)	745.34	146.23	**18.7%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	5561.26	2146.49	**36.8%**	**Pass**

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

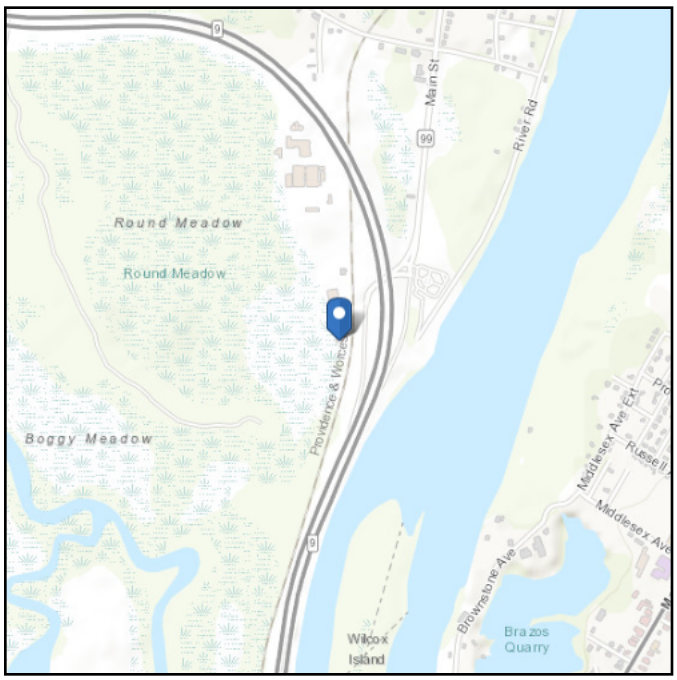
Structural Rating*:	**48.5%**
Soil Rating*:	**81.1%**

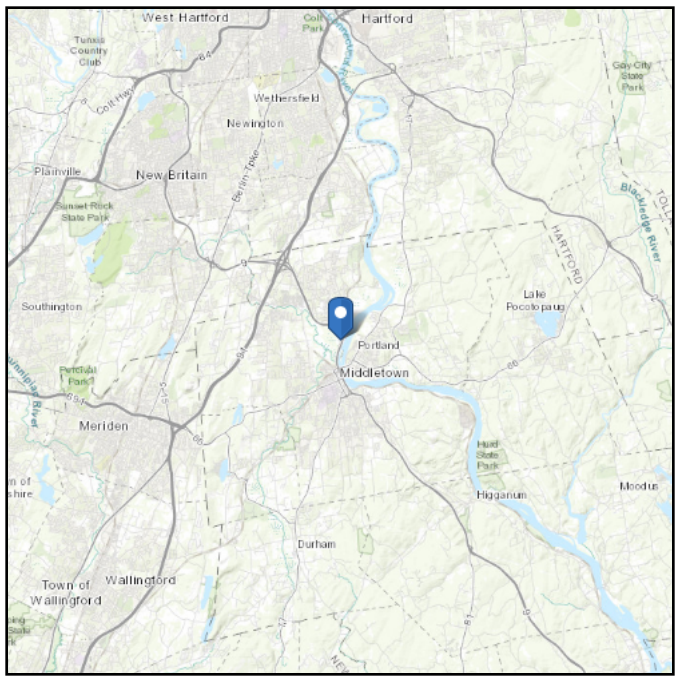
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 8.26 ft (NAVD 88)
Latitude: 41.583364
Longitude: -72.649761





Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Fri Jul 29 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.

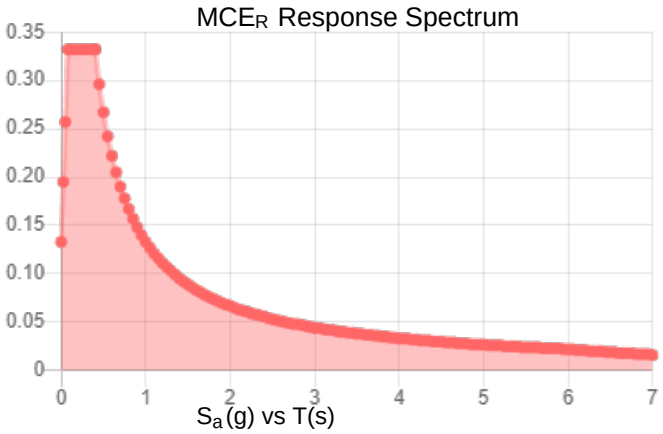
Seismic

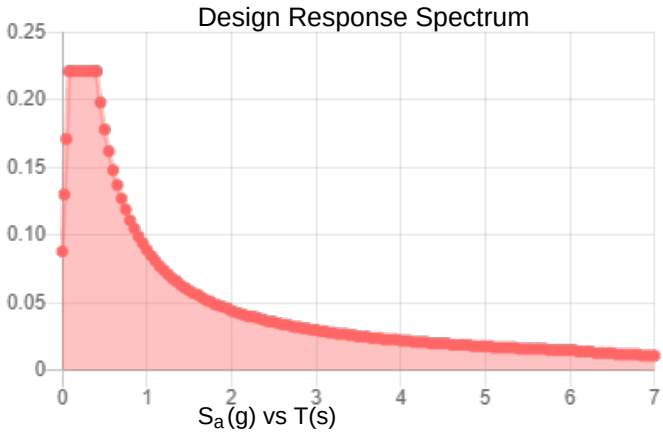
Site Soil Class: D - Stiff Soil

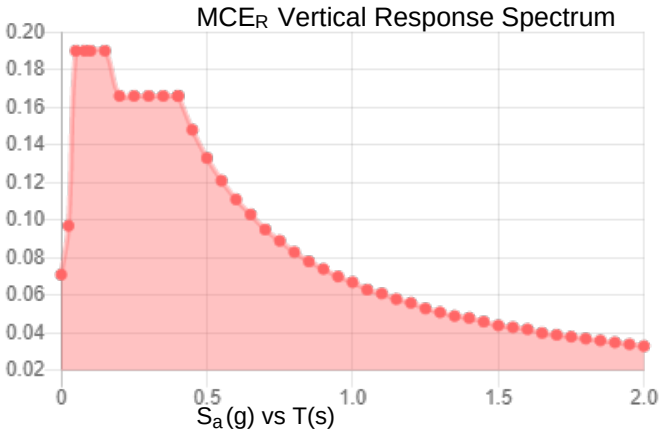
Results:

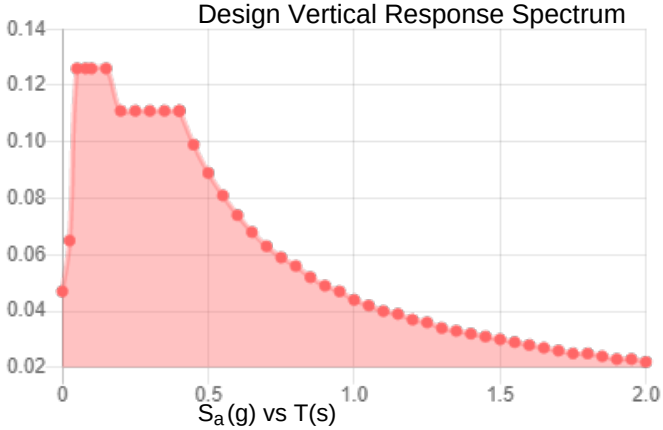
S_S :	0.207	S_{D1} :	0.089
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.115
F_v :	2.4	PGA_M :	0.181
S_{MS} :	0.332	F_{PGA} :	1.57
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.221	C_v :	0.715

Seismic Design Category B









Data Accessed: **Fri Jul 29 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Jul 29 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.

AT&T

AT&T SITE NUMBER:	**CTL05272**
AT&T SITE NAME:	**CROMWELL SE**
AT&T FA CODE:	**10070985**
AT&T PACE NUMBER:	**MRCTB062292, MRCTB062370, MRCTB062381**
AT&T PROJECT:	**BWE TOWER TOP RRH SWAP, 5G NR 1DR-1, 4TX4RX SOFTWARE RETROFIT**
BUSINESS UNIT #:	**876364**
SITE ADDRESS:	**201 MAIN ST. CROMWELL, CT 06416**
COUNTY:	**MIDDLESEX**
SITE TYPE:	**MONOPOLE**
TOWER HEIGHT:	**125'-0"**

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	CROMWELL / FIRST LINE EMERGENC
SITE ADDRESS:	201 MAIN ST. CROMWELL, CT 06416
COUNTY:	MIDDLESEX
MAP/PARCEL #:	00015800
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 35' 0.11"
LONGITUDE:	-72° 38' 59.14"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	18'
CURRENT ZONING:	IND - INDUSTRIAL
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:	S & S PARTNERS INC PO BOX 652 OLD LYME, CT 06371-0000
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	NORTH EAST UTILITIES
TELCO PROVIDER:	LIGHTOWER (978) 264-6000

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277
	VERONICA CHAPMAN - PROJECT MANAGER VERONICA.CHAPMAN@CROWNCASTLE.COM
	JASON D'AMICO - CONSTRUCTION MANAGER JASON.D'AMICO@CROWNCASTLE.COM
	HEATHER MILLER - AES HEATHER.MILLER@CROWNCASTLE.COM

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

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EQUIPMENT PLANS
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	ANTENNA SCHEDULE
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT SPECS.
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM
ATTACHED	HRK12

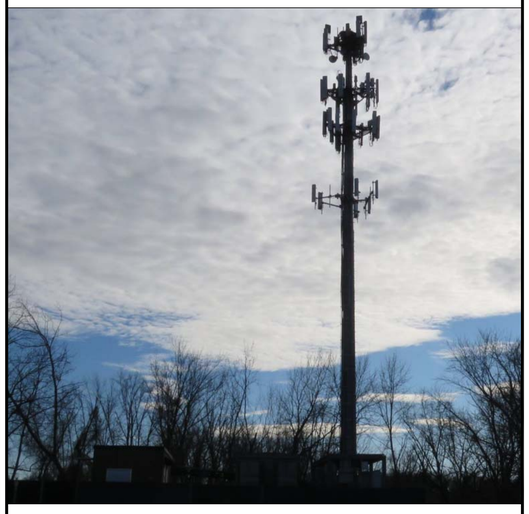
ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

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

LOCATION MAP

NO SCALE

SITE PHOTO



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 (3) KMW - AM-X-CD-16-65-00T-RET ANTENNAS
- REMOVE (3) ERICSSON - RRUS-11 B12 RRH
- REMOVE (3) ERICSSON - RRUS-32 B2 RRH
- REMOVE (3) POWERWAVE TECH - TT19-08BP111-001 TMA
- REMOVE (6) CCI - DTMABP7819VG12A DIPLEXERS
- RELOCATE (3) CCI - HPA-65R-BUU-H6 ANTENNAS
- RELOCATE (3) ERICSSON - RRUS-32 B30 RRH
- INSTALL MOUNT MODIFICATION REQUIRED PER MOUNT ANALYSIS-CONDITIONAL PASSING REPORT BY B+T GROUP DATED JULY 27, 2022
- INSTALL (3) DUAL RADIO MOUNTS
- INSTALL (3) CCI - OPA65R-BU6DA ANTENNAS
- INSTALL (3) ERICSSON - 4415 B25 RRH
- INSTALL (3) ERICSSON - 4449 B5/B12 RRH
- INSTALL (3) 2" GALVANIZED PIPE W/ (#P2.0 STD) CROSSOVER HARDWARE
- INSTALL (3) Y CABLES FOR DUAL BAND RADIOS

GROUND SCOPE OF WORK:
- DECOM UMTS CABINET
- INSTALL 6630 WITH IDLE CABLE

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

APPLICABLE CODES & REFERENCE DOCUMENTS

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

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

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	MORRISON HERSHFIELD
DATED:	9/21/22
MOUNT ANALYSIS:	B+T GROUP
DATED:	7/27/22
RFDS REVISION:	PRELIMINARY
DATED:	7/1/22
ORDER ID:	614870
REVISION:	0
AC ELECTRICAL POWER DESIGN:	BY OTHERS
DATED:	

575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

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

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

AT&T SITE NUMBER: **CTL05272**

BU #: **876364**
CROMWELL / FIRST LINE EMERGENC

201 MAIN ST.
CROMWELL, CT 06416

EXISTING
125'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	8/16/22	JTS	PRELIMINARY REVIEW	MTJ
0	9/15/22	JTS	CONSTRUCTION	MTJ
1	9/27/22	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
9/27/22

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: AT&T
   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 "AT&T".
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

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

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

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

AT&T SITE NUMBER: **CTL05272**

BU #: **876364**
CROMWELL / FIRST LINE EMERGENC

201 MAIN ST.
CROMWELL, CT 06416

EXISTING
125'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	8/16/22	JTS	PRELIMINARY REVIEW	MTJ
0	9/15/22	JTS	CONSTRUCTION	MTJ
1	9/27/22	JTS	CONSTRUCTION	MTJ

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

SHEET NUMBER: T-2
REVISION: 1

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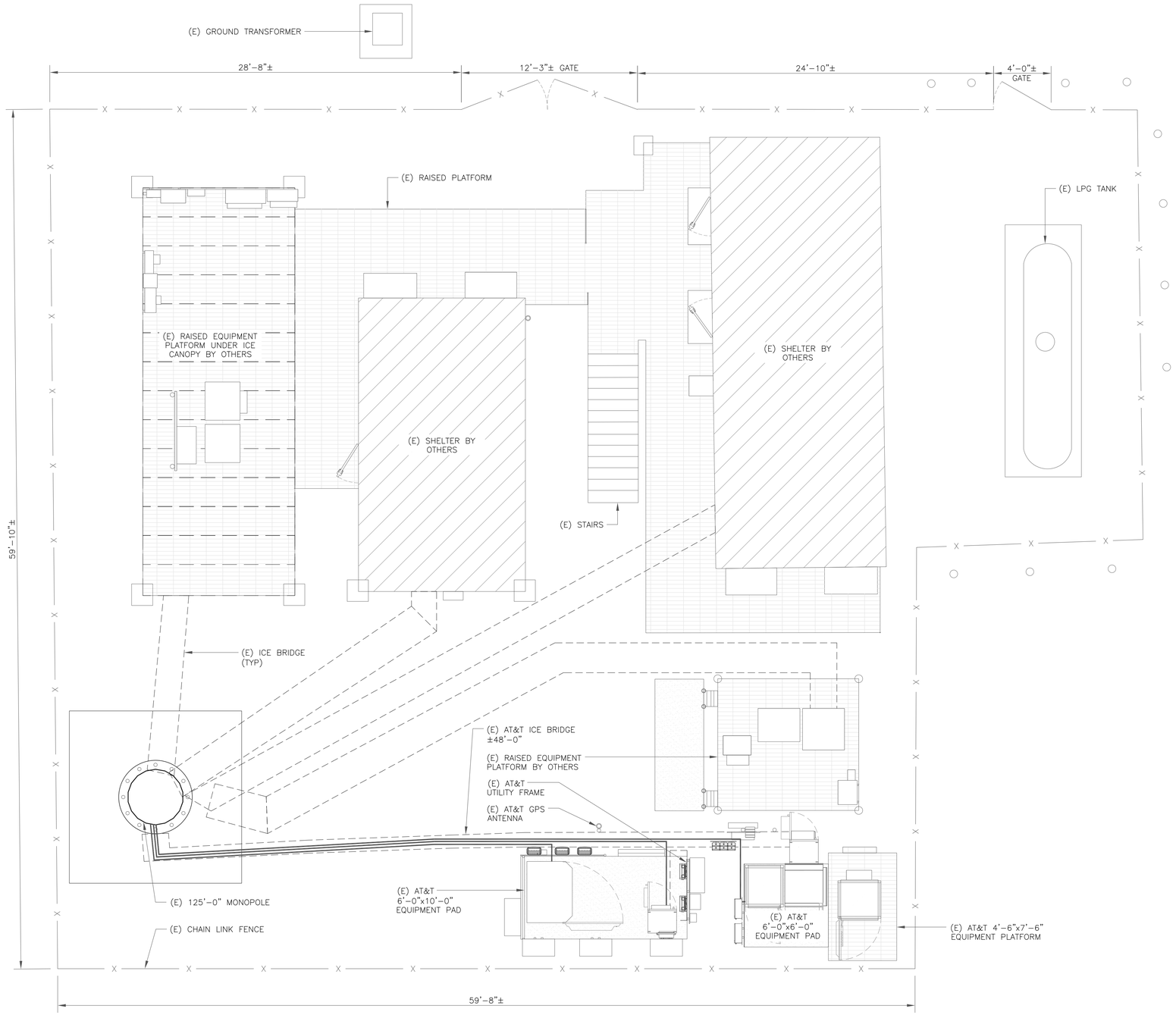

1 SITE PLAN

SCALE: 4' 3' 2' 1' 0 4'

1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)

N

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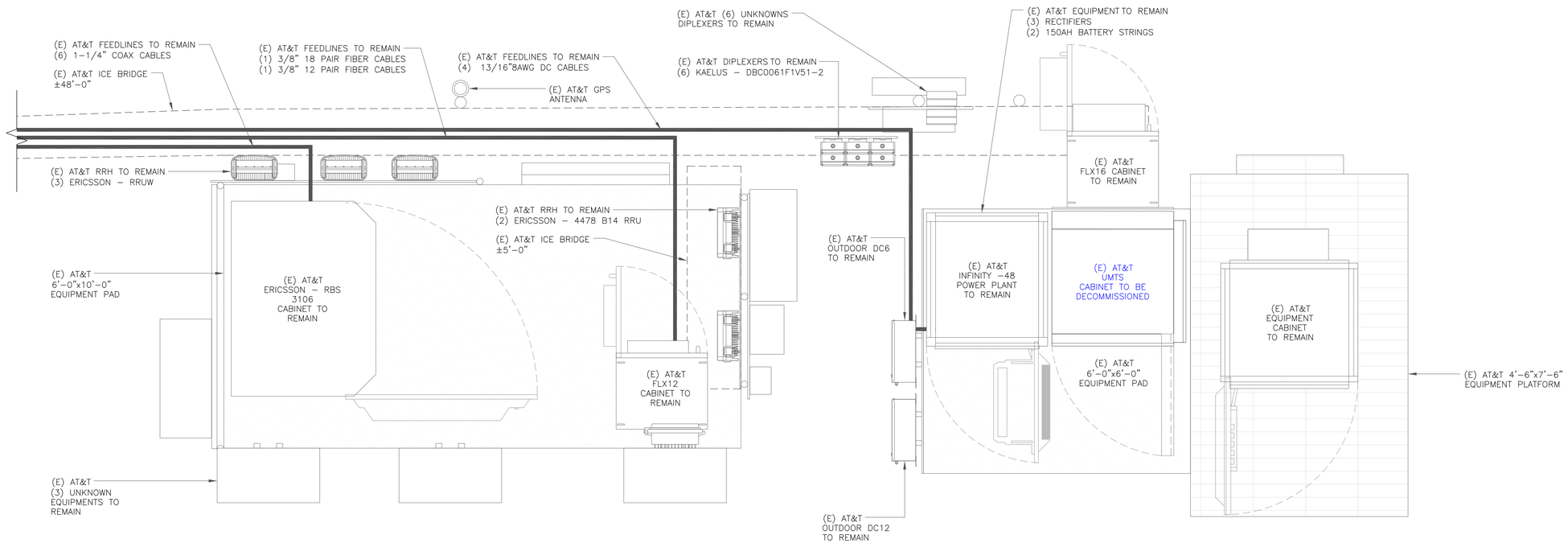
STATE OF CONNECTICUT
MARK T. JEZIORSKI
No. 23924
LICENSED PROFESSIONAL ENGINEER
9/27/22

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

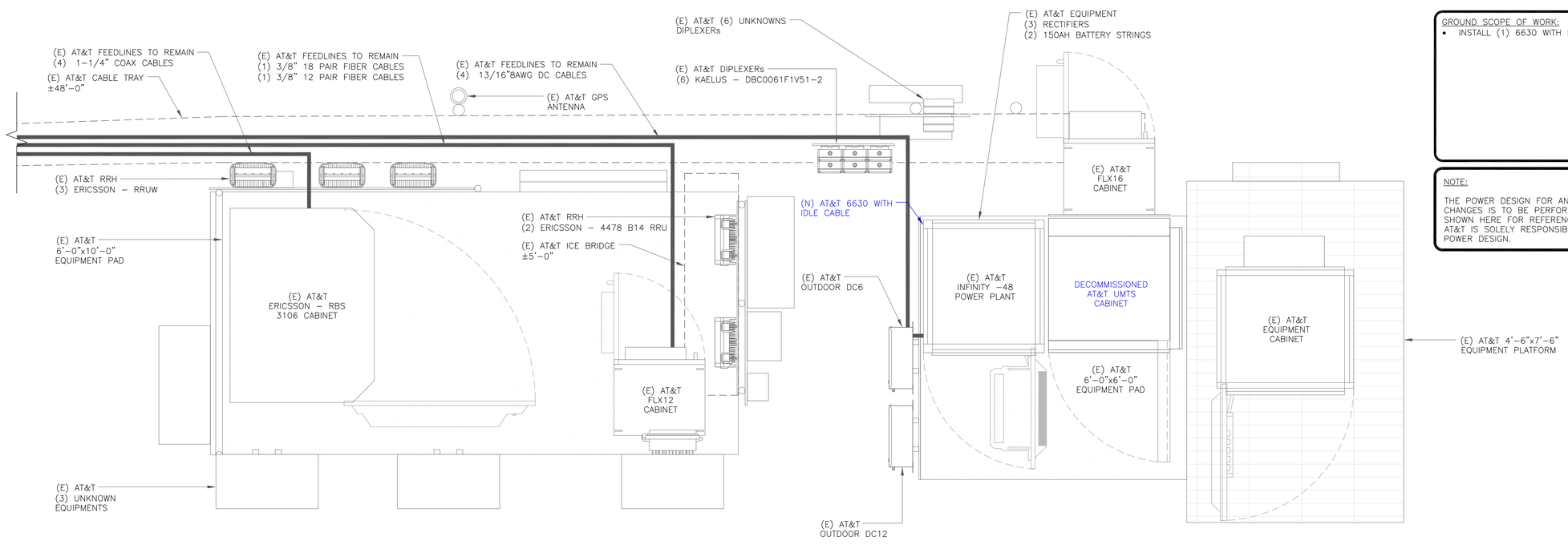
SHEET NUMBER: C-1.1

REVISION: 1



1 EXISTING EQUIPMENT PLAN

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



2 FINAL EQUIPMENT PLAN

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

GROUND SCOPE OF WORK:

- INSTALL (1) 6630 WITH IDLE CABLE

NOTE:

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

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

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
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B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER: **CTL05272**

BU #: **876364**
CROMWELL / FIRST LINE EMERGENC

201 MAIN ST.
CROMWELL, CT 06416

EXISTING
125'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	8/16/22	JTS	PRELIMINARY REVIEW	MTJ
0	9/15/22	JTS	CONSTRUCTION	MTJ
1	9/27/22	JTS	CONSTRUCTION	MTJ

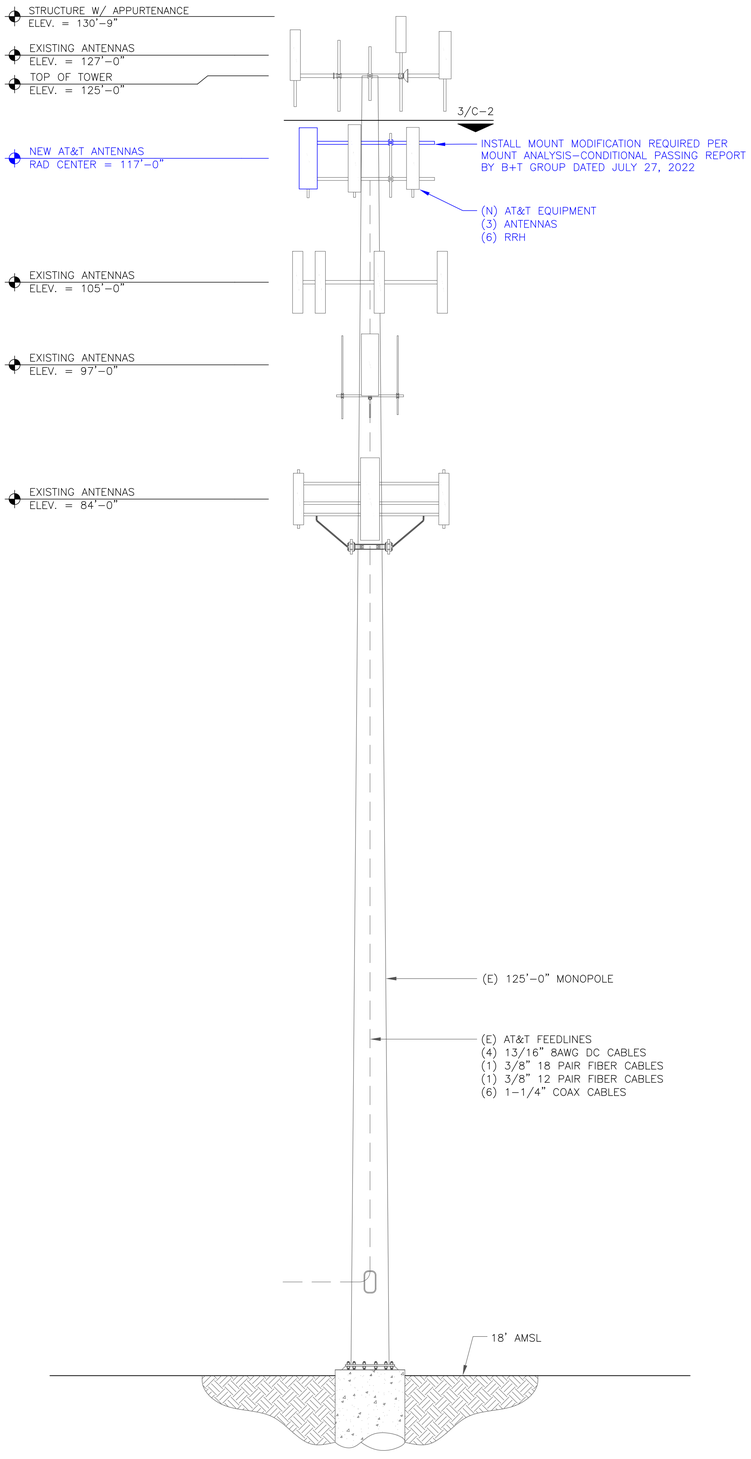
9/27/22

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

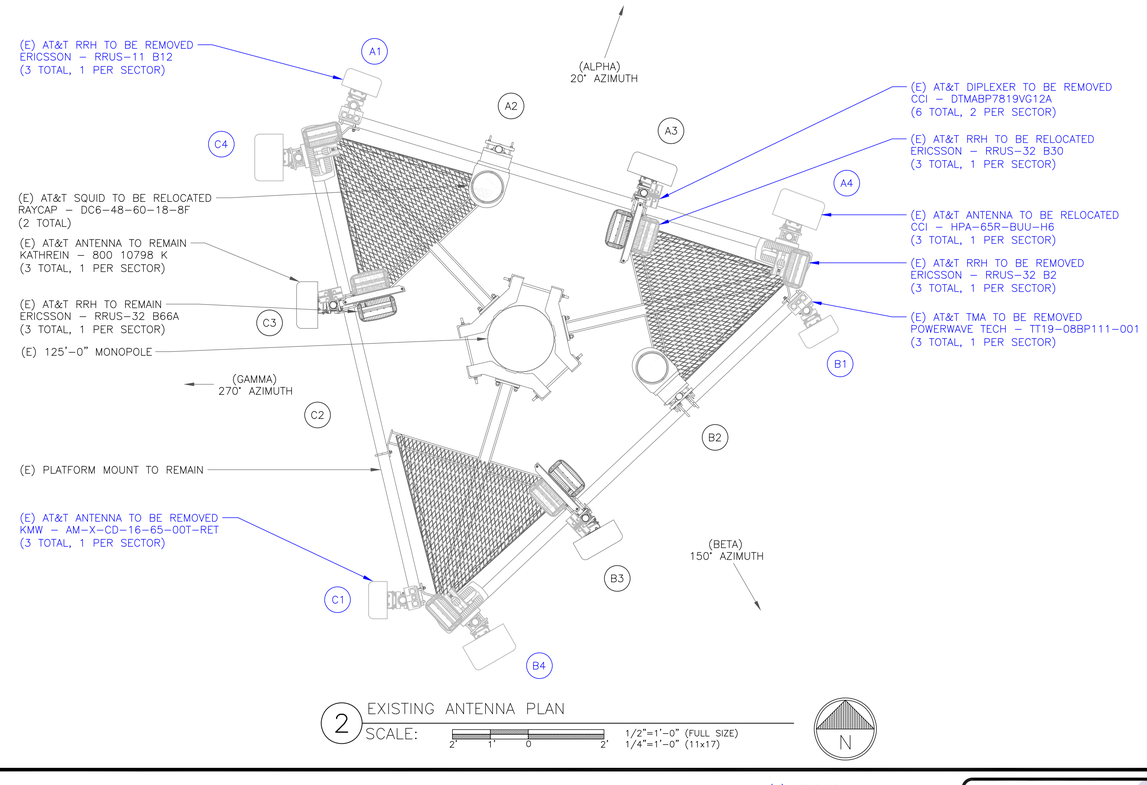
SHEET NUMBER: C-1.2

REVISION: 1

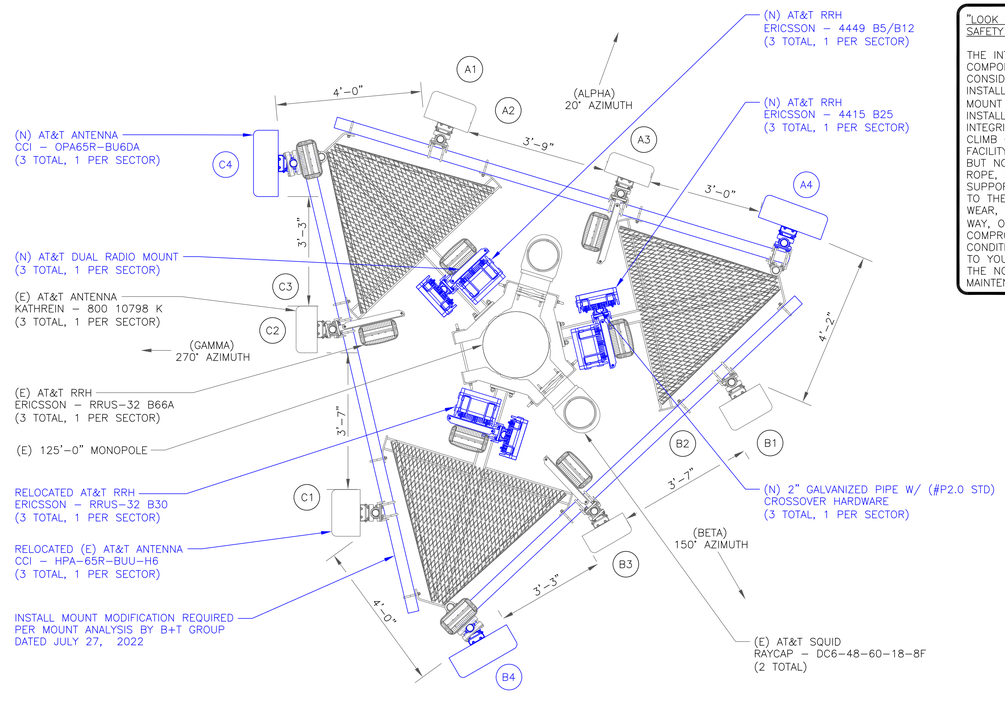
84470.021.01_876364_CROMWELL-FIRST LINE EMERGENC.dwg - Sheet:C-1.2 - User: mjones - Sep 28, 2022 - 7:49am



1 FINAL ELEVATION
SCALE: NOT TO SCALE



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



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

"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.

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EXISTING
125'-0" MONOPOLE

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

SHEET NUMBER: C-2
REVISION: 1

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA			SURGE PROTECTION		CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MANUFACTURER MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
ALPHA																		
A1	–	(E) CCI – HPA-65R-BUU-H6	20°	117'-0"	–	–	–	–	–	–	–	–	–	–	–	–	–	–
															–	–	–	–
A3	LTE 700/LTE WCS/LTE AWS/LTE 1900	(E) KATHREIN – 800 10798 K	20°	117'-0"	1 1	(N) 4415 B25 (E) 4478 B14	TOWER GROUND	–	–	–	–	–	1	(E) DC6-48-60-18-8F	2	(E) DC	13/16"	167'-0"
					1	(E) RRUS-32 B66A	TOWER								1	(E) FIBER	3/8"	167'-0"
A4	LTE 700/5G 850/LTE WCS	(N) CCI – OPA65R-BU6DA	20°	117'-0"	1	(N) 4449 B5/B12	TOWER	–	–	–	–	–	–	–	1	Y CABLE	–	–
					1	(E) RRUS-32 B30	TOWER								2	(E) COAX	1-1/4"	167'-0"
					–	–	–											
BETA																		
B1	–	(E) CCI – HPA-65R-BUU-H6	150°	117'-0"	–	–		–	–	–	–	–	–	–	–	–	–	–
															–	–	–	–
B3	LTE 700/LTE WCS/LTE AWS/LTE 1900	(E) KATHREIN – 800 10798 K	150°	117'-0"	1 1	(N) 4415 B25 (E) 4478 B14	TOWER GROUND	–	–	–	–	–	1	(E) DC6-48-60-18-8F	2	(E) DC	13/16"	167'-0"
					1	(E) RRUS-32 B66A	TOWER								1	(E) FIBER	3/8"	167'-0"
B4	LTE 700/5G 850/LTE WCS	(N) CCI – OPA65R-BU6DA	150°	117'-0"	1	(N) 4449 B5/B12	TOWER	–	–	–	–	–	–	–	1	Y CABLE	–	–
					1	(E) RRUS-32 B30	TOWER								2	(E) COAX	1-1/4"	167'-0"
						–	–											
GAMMA																		
C1	–	(E) CCI – HPA-65R-BUU-H6	270°	117'-0"	–	–		–	–	–	–	–	–	–	–	–	–	–
															–	–	–	–
C3	LTE 700/LTE WCS/LTE AWS/LTE 1900	(E) KATHREIN – 800 10798 K	270°	117'-0"	1 1	(N) 4415 B25	TOWER GROUND	–	–	–	–	–	–	–	–	–	–	–
					1	(E) RRUS-32 B66A	TOWER								–	–	–	–
C4	LTE 700/5G 850/LTE WCS	(N) CCI – OPA65R-BU6DA	270°	117'-0"	1	(N) 4449 B5/B12	TOWER	–	–	–	–	–	–	–	1	Y CABLE	–	–
					1	(E) RRUS-32 B30	TOWER								2	(E) COAX	1-1/4"	167'-0"
						–	–											

NOTE: BOLD DENOTES NEW EQUIPMENT

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

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AT&T SITE NUMBER: **CTL05272**

BU #: **876364**
CROMWELL / FIRST LINE EMERGENC

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CROMWELL, CT 06416

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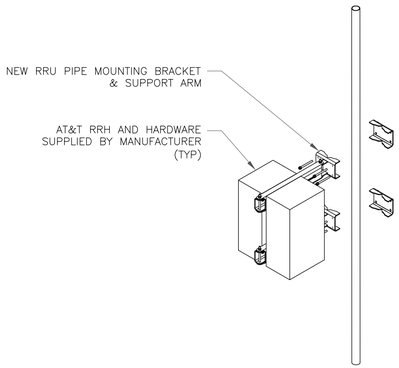
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-3

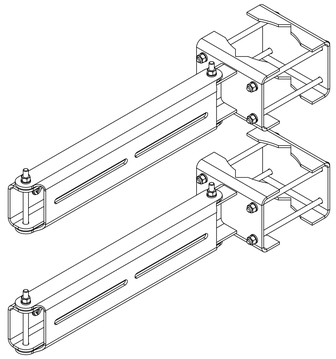
REVISION: 1

INSTALLER NOTES:

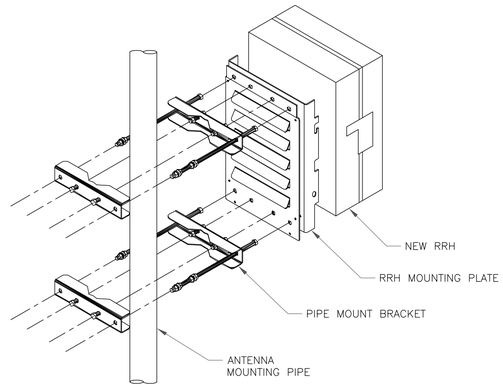
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



1 DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



2 DUAL RADIO MOUNT
SCALE: NOT TO SCALE



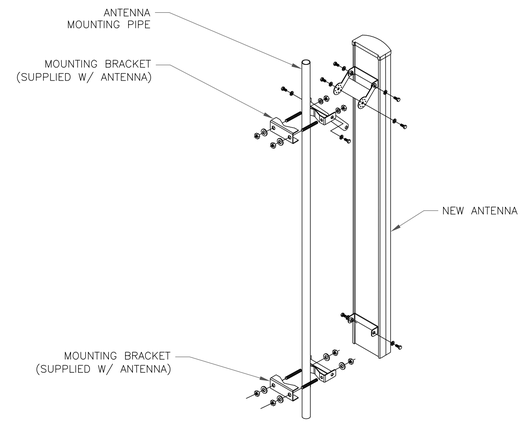
NOTE:
ANTENNA NOT SHOWN FOR CLARITY

3 SINGLE RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

4 NOT USED
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.
4. RRHs SHALL NOT BE INSTALLED CLOSER THAN 8" TO ANTENNAS.



5 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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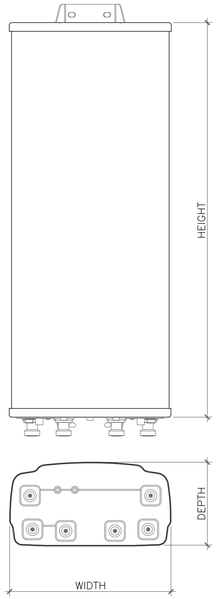
9/27/22

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

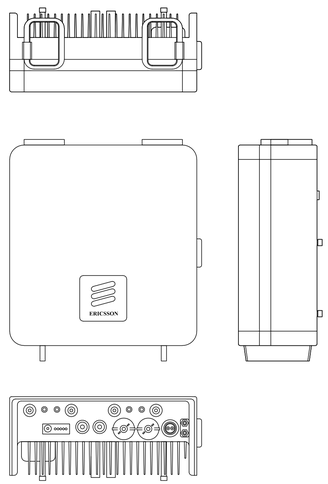
SHEET NUMBER: C-4

REVISION: 1



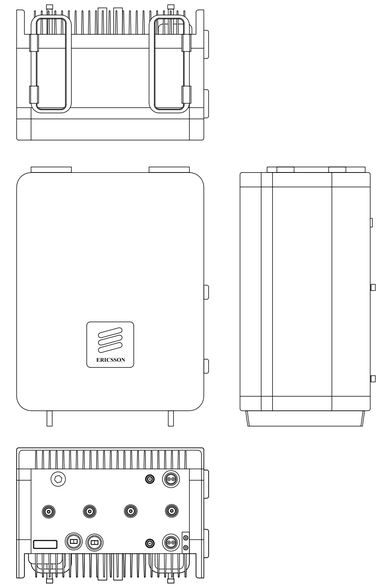
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
OPA65R-BU6D	71.20"	21.00"	7.80"	63.50 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



ERICSSON – RADIO 4415 B25
WEIGHT: 44.00 LBS
SIZE (HxWxD): 14.96x13.19x5.39 IN.

2 ERICSSON – RADIO 4415 B25
SCALE: NOT TO SCALE



ERICSSON – RADIO 4449 B5/B12
WEIGHT: 73.00 LBS
SIZE (HxWxD): 14.96x13.19x10.43 IN.

3 ERICSSON – RADIO 4449 B5/B12
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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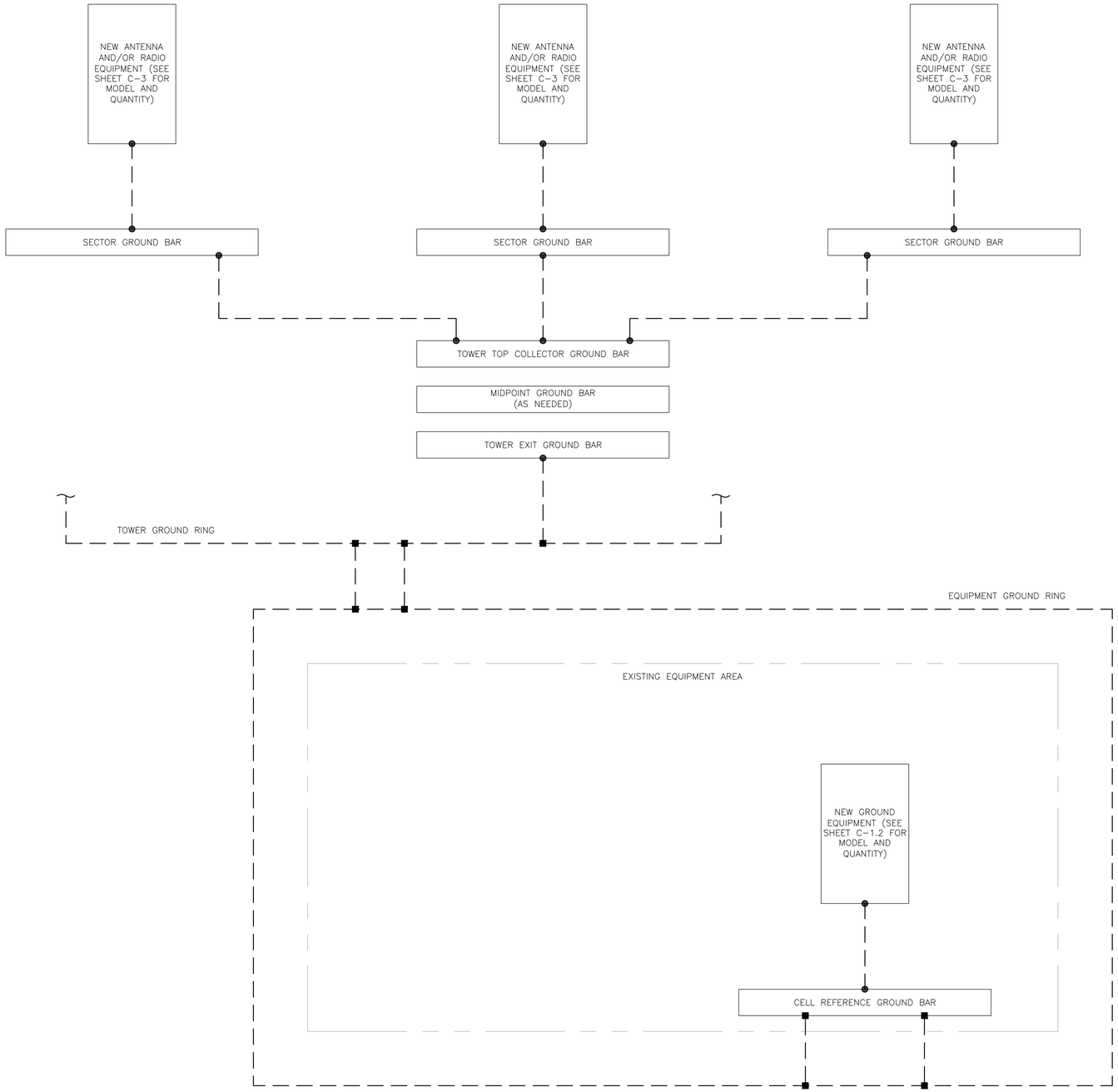
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-5
REVISION: 1



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

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

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

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

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

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

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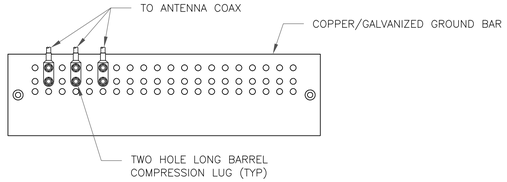
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-1

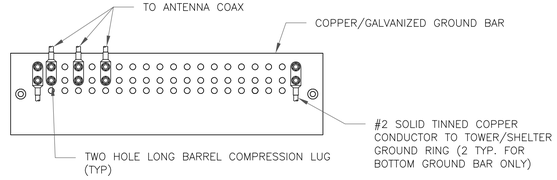
REVISION: 1



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

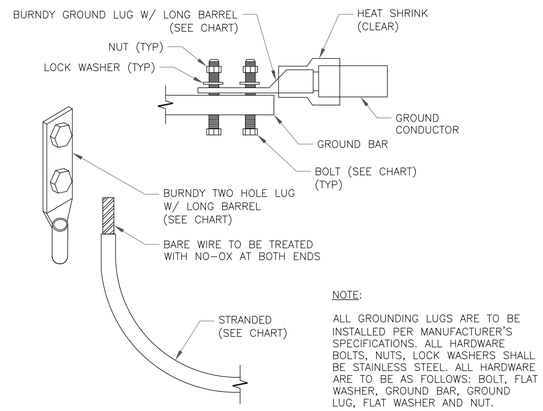


NOTES:

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

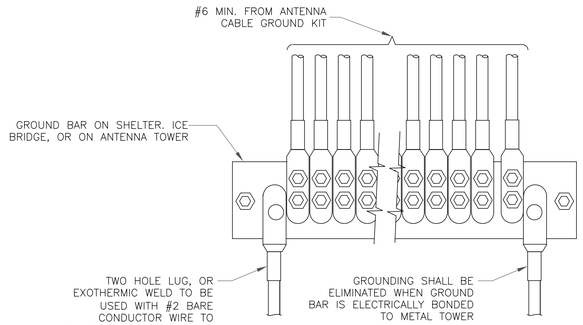
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



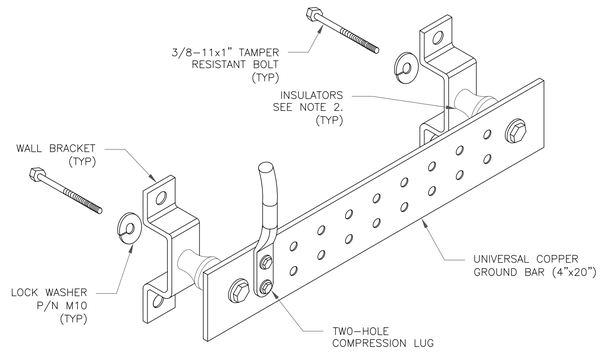
NOTE:

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

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

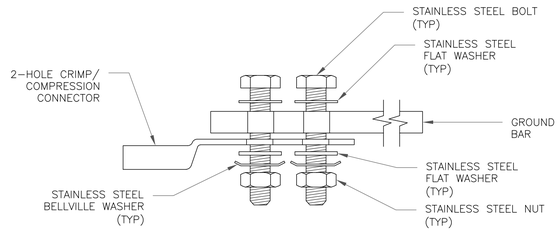


NOTES:

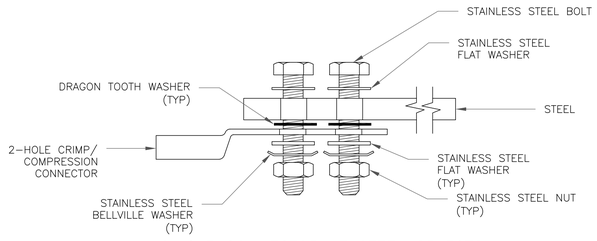
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

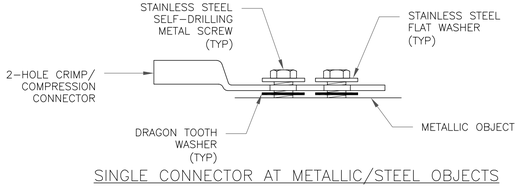
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

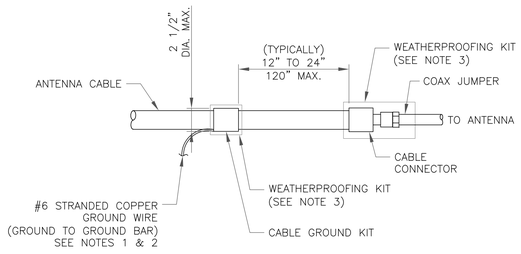


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

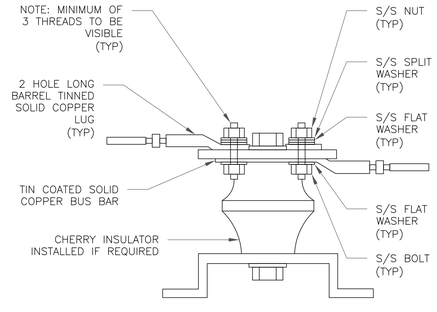
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

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

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

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

AT&T SITE NUMBER: **CTL05272**

BU #: **876364**
CROMWELL / FIRST LINE EMERGENC

201 MAIN ST.
CROMWELL, CT 06416

EXISTING
125'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	8/16/22	JTS	PRELIMINARY REVIEW	MTJ
0	9/15/22	JTS	CONSTRUCTION	MTJ
1	9/27/22	JTS	CONSTRUCTION	MTJ

9/27/22

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

SHEET NUMBER: G-2

REVISION: 1

Diagram - Sector	A	Diagram File Name - CT5272_ABC 700BC850.vsd					
Atoll Site Name -	CT5272	Location Name -	CROMWELL SE	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ radio Port connections Field Notice (RF-HW-2016-265)

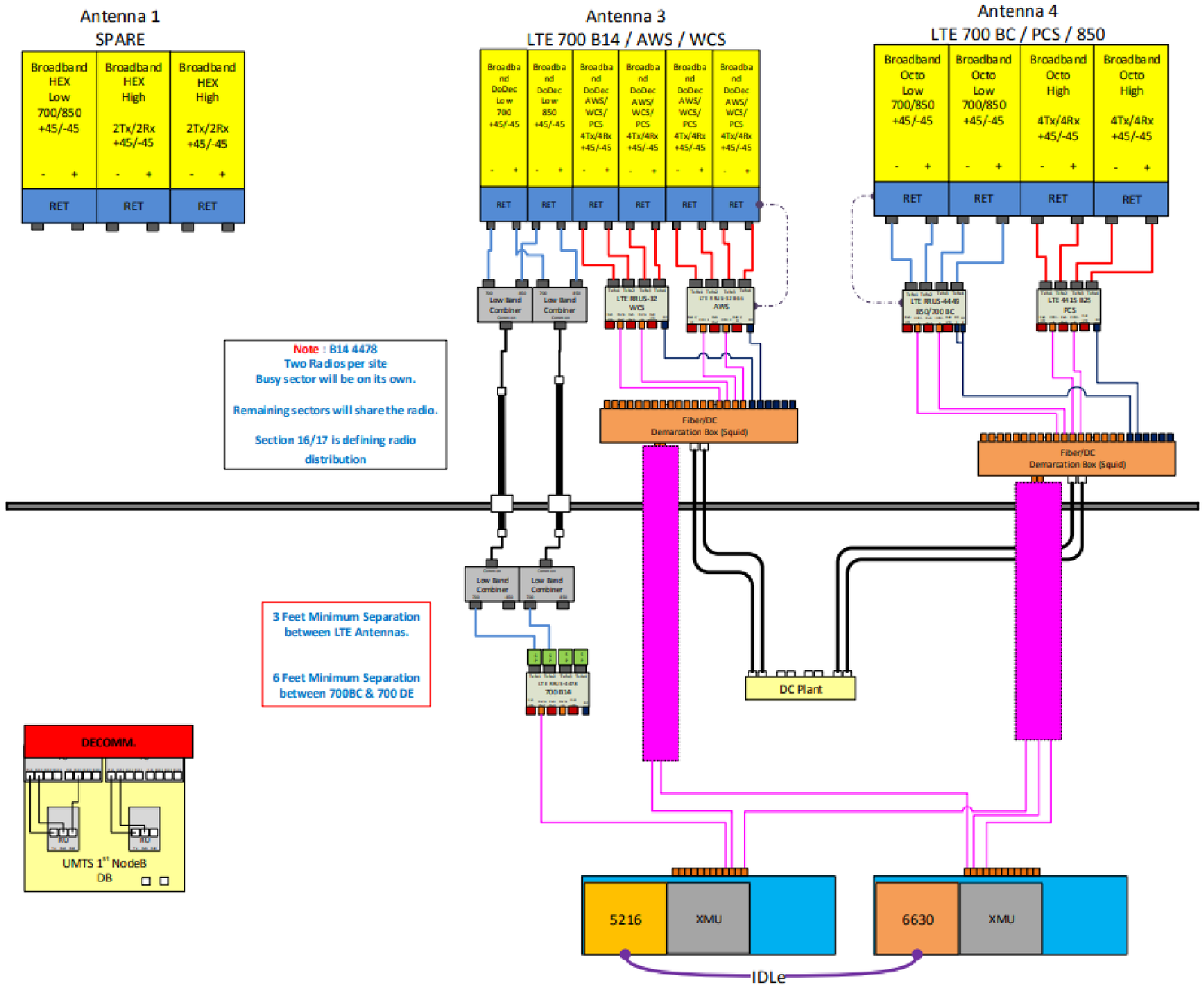


Diagram - Sector	B	Diagram File Name - CT5272_ABC 700BC850.vsd					
Atoll Site Name -	CT5272	Location Name -	CROMWELL SE	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ radio Port connections Field Notice (RF-HW-2016-265)

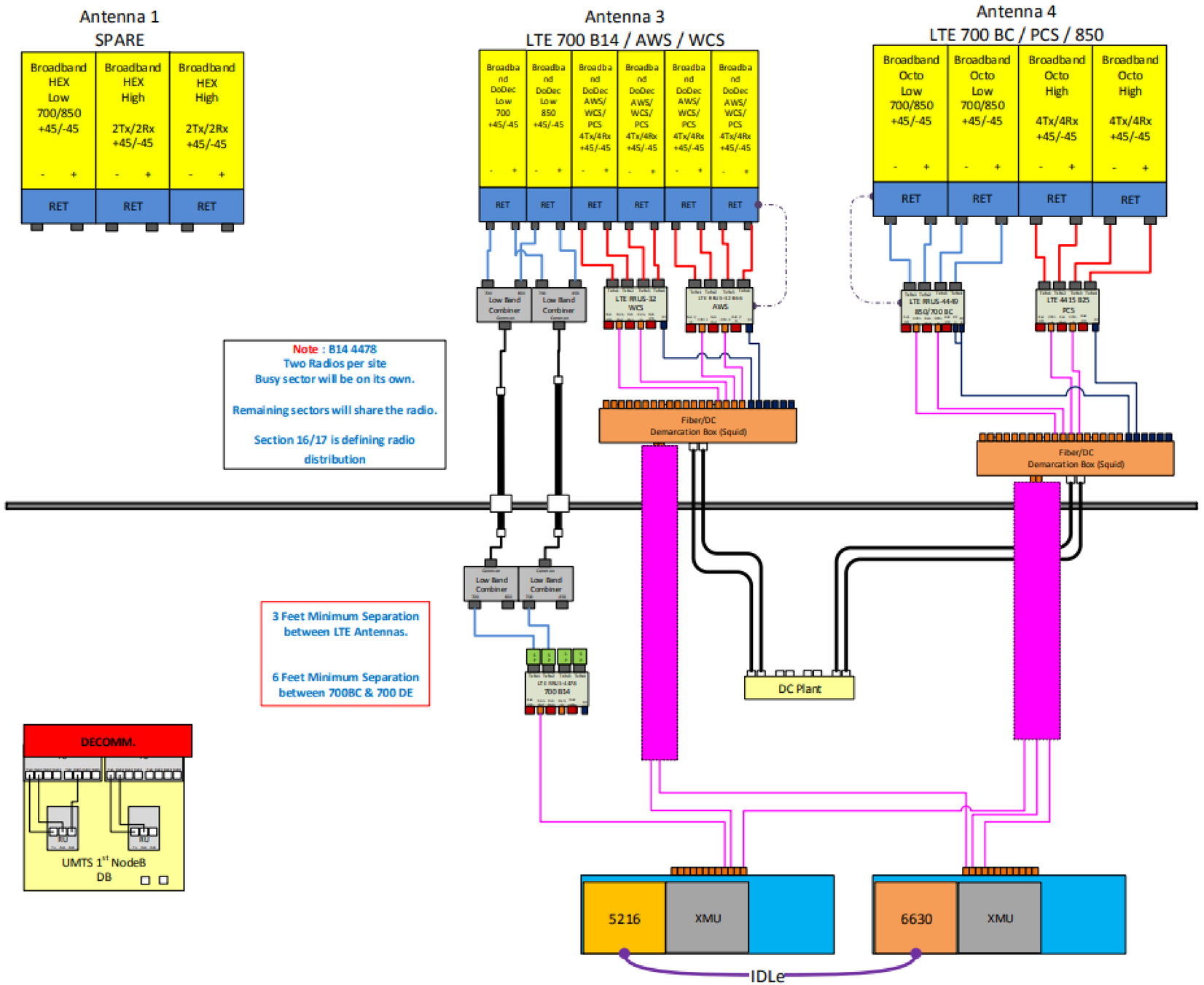
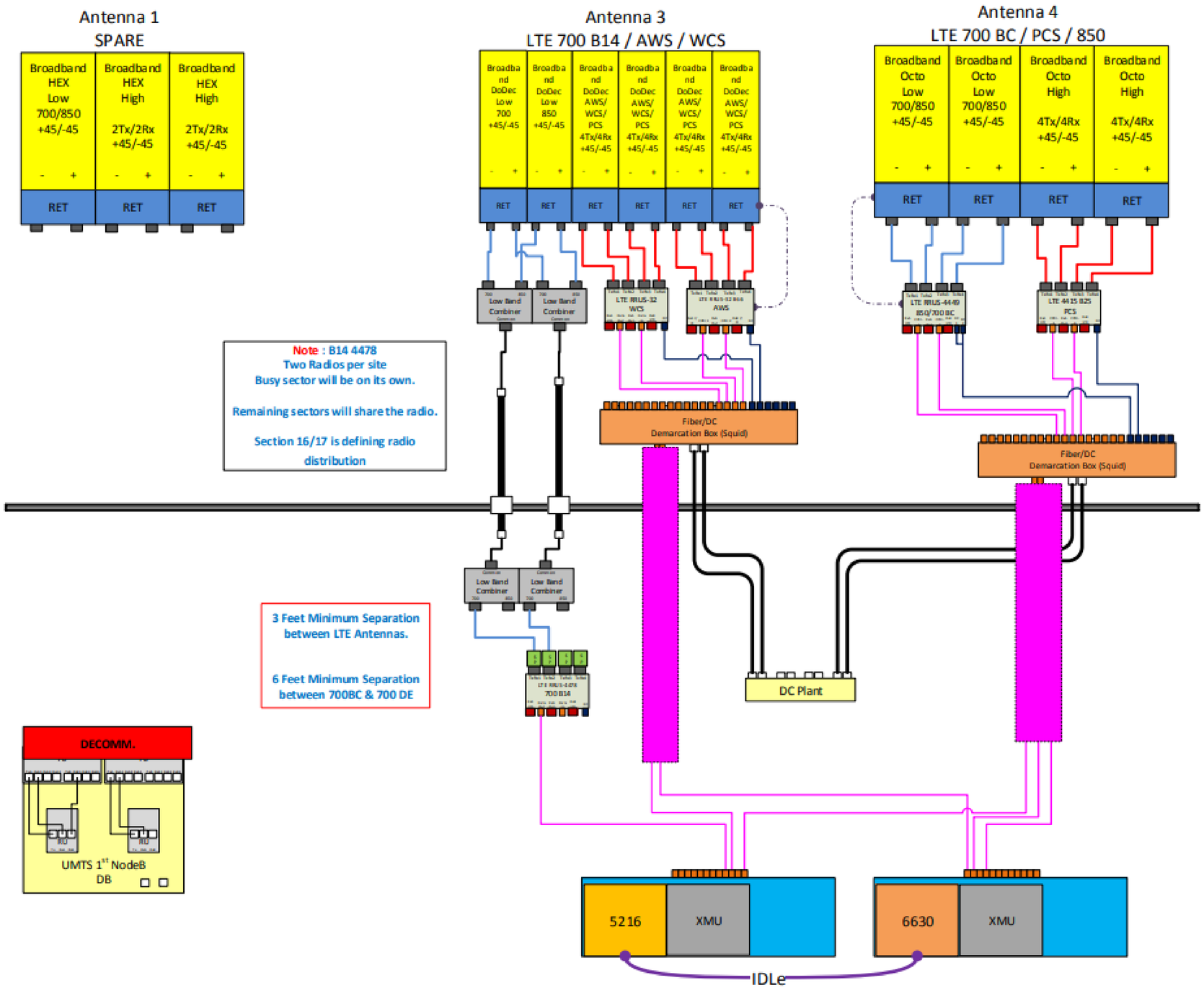
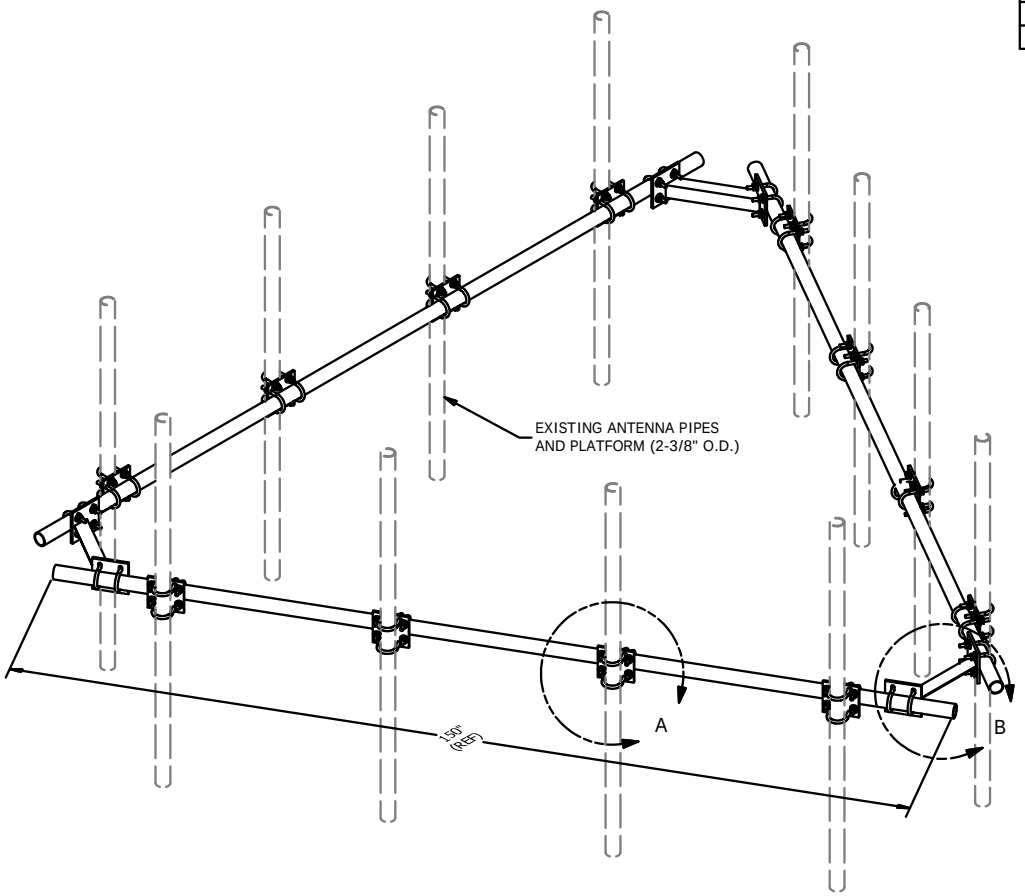


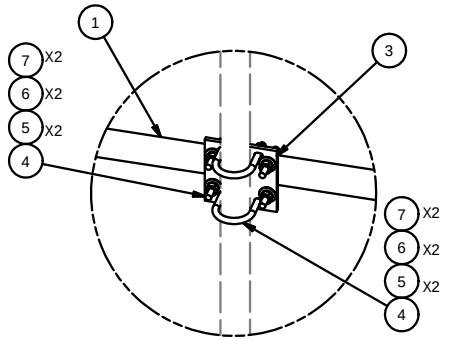
Diagram - Sector	C	Diagram File Name - CT5272_ABC 700BC850.vsd					
Atoll Site Name -	CT5272	Location Name -	CROMWELL SE	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ radio Port connections Field Notice (RF-HW-2016-265)

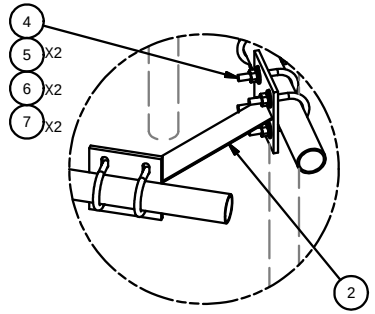


PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	48.06	144.17
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"		3.71	44.50
4	120	G12FW	1/2" HDG USS FLATWASHER		0.03	4.08
5	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	43.90
6	120	G12LW	1/2" HDG LOCKWASHER		0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.58
					TOTAL WT. #	261.72





DETAIL A



DETAIL B

TOLERANCE NOTES

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

REVISION HISTORY				
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP		CEK	7/10/2014

DESCRIPTION: HANDRAIL KIT FOR 12'-6" FACE			
CPD NO.	DRAWN BY: KC8 5/30/2012	ENG. APPROVAL	PART NO.: HRK12
CLASS: 81 / SUB: 01	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 7/14/2014	DWG. NO.: HRK12

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