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

April 11, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown #876314; ATT Site ID CT5183
214 Russian Village Road, Southbury, CT 06488
Latitude: 41° 27' 7.97"/ Longitude: -73° 15' 1.25"

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 130-foot level of the existing 132-foot monopole tower at 214 Russian Village Road in Southbury, CT. The property is owned by Mieke Crider and the tower is owned by Crown Castle USA Inc. ATT now intends to replace three (3) antennas, install three (3) new antennas and ancillary equipment at the 130-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:

(2) CCI- OPA65R-BU8DA Antennas
(2) CCI- DMP65R-BU8DA Antennas
(1) CCI- OPA65R-BU6DA Antennas
(1) CCI- DMP65R -BU6DA Antennas
(3) Ericsson- Radio 4478 B14 RRU
(3) Ericsson- Radio 4449 B5/B12 RRU
(3) Ericsson- Radio 8843 B5/B12 RRU
(1) DC6-48-60-18-8F SQUID
(2) 7/8" 6AWG DC Cables
(1) 3/8" 18-PAIR
(6) Y CABLES
(1) 2-3/8" O.D. (SCH 40) x 6'0" Long Galv. Pipe mount w/assoc. hardware
(3) 1"-0" sitepro1 – PMI Stand-Off Mounts

Remove:

(1) Andrew SBNH-1D6565C Antennas
(1) KMW – AM-X-CD-16-65-00T-RET Antennas
(1) Powerwave – P65-17-XLH-RR Antennas
(6) Powerwave – LGP21401 TMA

(3) Ericsson-RRUS-12 B2 RRUs.
(3) Ericsson-RRUS-11 B12 RRUs

Ground:

Install New:
(1) 6630 (+IDLe) from existing battery cabinet
(4) Rectifiers
(1) RMDC12

Remove:
(1) DUS41 from existing battery cabinet

This facility was approved by the by the Town of Southbury Zoning Board of Appeals on March 4, 1997. This approval was given without conditions.

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 First Selectman Jeff Manville, Mark D. Cody, Building Official and Crider Mieke – Property Owner. 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:

First Selectman Jeff Manville
501 Main Street South
Southbury CT 06488
203-262-0600

Mark D. Cody, Building Official
Building Department
501 Main Street South
Southbury CT 06488
203-262-0609

Crider Mieke
100 Russian Village Road
Southbury CT 06488
203-267-5610

Crown Castle, Tower Owner

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 776547782314: Your package has been delivered
Date: Tuesday, April 12, 2022 10:30:50 AM

Hi. Your package was delivered Tue, 04/12/2022 at 10:29am.

Delivered to 100 RUSSIAN VILLAGE RD, SOUTHBURY, CT 06488

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776547782314

FROM Domenica Tatasciore
1800 West Park Drive
Suite 200

	WESTBOROUGH, MA, US, 01581
TO	Crider Mieke 100 Russian Village Road SOUTHBURY, CT, US, 06488
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 4/11/2022 05:20 PM
DELIVERED TO	Residence
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	SOUTHBURY, CT, US, 06488
SPECIAL HANDLING	Deliver Weekday Residential Delivery
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 776547729883: Your package has been delivered
Date: Tuesday, April 12, 2022 9:56:11 AM

Hi. Your package was delivered Tue, 04/12/2022 at 9:54am.

Delivered to 501 MAIN ST S, SOUTHBURY, CT 06488
Received by B.ETSY

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776547729883

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	First Selectman Jeff Manville 501 Main Street South SOUTHBURY, CT, US, 06488
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 4/11/2022 05:20 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	SOUTHBURY, CT, US, 06488
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 776547761213: Your package has been delivered
Date: Tuesday, April 12, 2022 9:57:07 AM

Hi. Your package was delivered Tue, 04/12/2022 at 9:55am.

Delivered to 501 MAIN ST S, SOUTHBURY, CT 06488
Received by A.MY

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776547761213

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Mark D. Cody, Building Official 501 Main Street South SOUTHBURY, CT, US, 06488
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 4/11/2022 05:20 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	SOUTHBURY, CT, US, 06488
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

TOWN OF SOUTHBURY

ZONING BOARD OF APPEALS

501 Main Street South
Southbury, Connecticut 06488
(203) 264-0606 - ext. 257
FAX: (203) 264-9762

February 14, 1997

Thomas and Meike Crider
100 Russian Village Road
Southbury, CT 06488

Dear Crider Family:

On **TUESDAY, March 4, 1997,** at 7:30 p.m. in Room 205A of the Southbury Town Hall, the Southbury Zoning Board of Appeals will conduct the continuation of your public hearing to consider your appeal. **It is important that you, or someone representing you, be present to state your case.**

An On-Site Inspection of the property under appeal will be conducted by the Board members during the week before the public hearing. There may be more than one group of members inspecting the property. If at all possible, please stake out where the proposed construction will be located on the property.

The Public Notice will appear in Voices on Wednesday, February 19, and Wednesday, February 26, 1997.

The Zoning Board of Appeals has 65 days after the close of the hearing in which to make a decision. You will be notified within 15 days after such decision has been rendered.

Sincerely,

Barbara Browne
Clerk

cc: Christopher Cody
Sprint PCS

214 RUSSIAN VILLAGE ROAD

Location	214 RUSSIAN VILLAGE ROAD	**Mblu**	19C/ 92/ 45/ /
Acct#	00070700	**Owner**	CRIDER MIEKE
Assessment	$56,000	**Appraisal**	$80,000
PID	859	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$80,000	$80,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$56,000	$56,000

Owner of Record

Owner	CRIDER MIEKE
Co-Owner	AKA CRIDER MIEKE MAAS
Address	100 RUSSIAN VILLAGE ROAD SOUTHBURY, CT 06488

Sale Price	$0
Certificate	
Book & Page	0683/0875
Sale Date	10/23/2018
Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CRIDER MIEKE	$0		0683/0875	25	10/23/2018
CRIDER MIEKE & THOMAS S	$0		0311/1220	25	09/11/1996
AKA MAAS MIEKE	$0		0000/0000	25	

Building Information

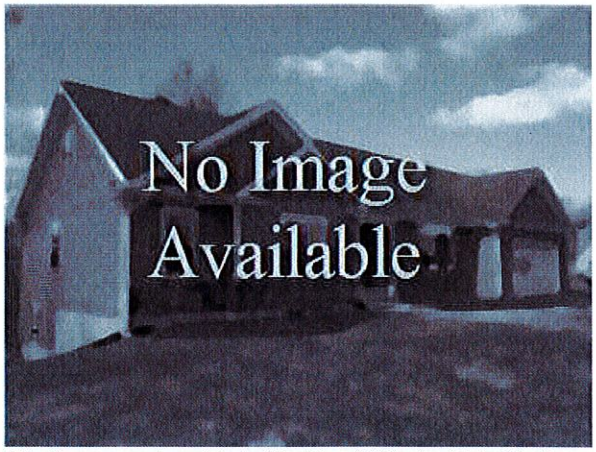
Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	$0
Building Percent Good:	

Replacement Cost
Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Vacant Land
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Percent	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Pln FPL:	
Det FPL:	
Gas Fireplace(s)	
% Attic Fin	
LF Dormer	
Foundation	
Bsmt Gar(s)	
Bsmt %	
SF FBM	
SF Rec Rm	
Fin Bsmt Qual	
Bsmt Access	
Fndtn Cndtn	

Building Photo



(http://images.vgsi.com/photos/SouthburyCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos/SouthburyCTPhotos//Sketches/859_859.jpg

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Basement	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	109
Description	Vacant W/ OB
Zone	R-60
Neighborhood	14W
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.04
Frontage	0
Depth	0
Assessed Value	$56,000
Appraised Value	$80,000

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

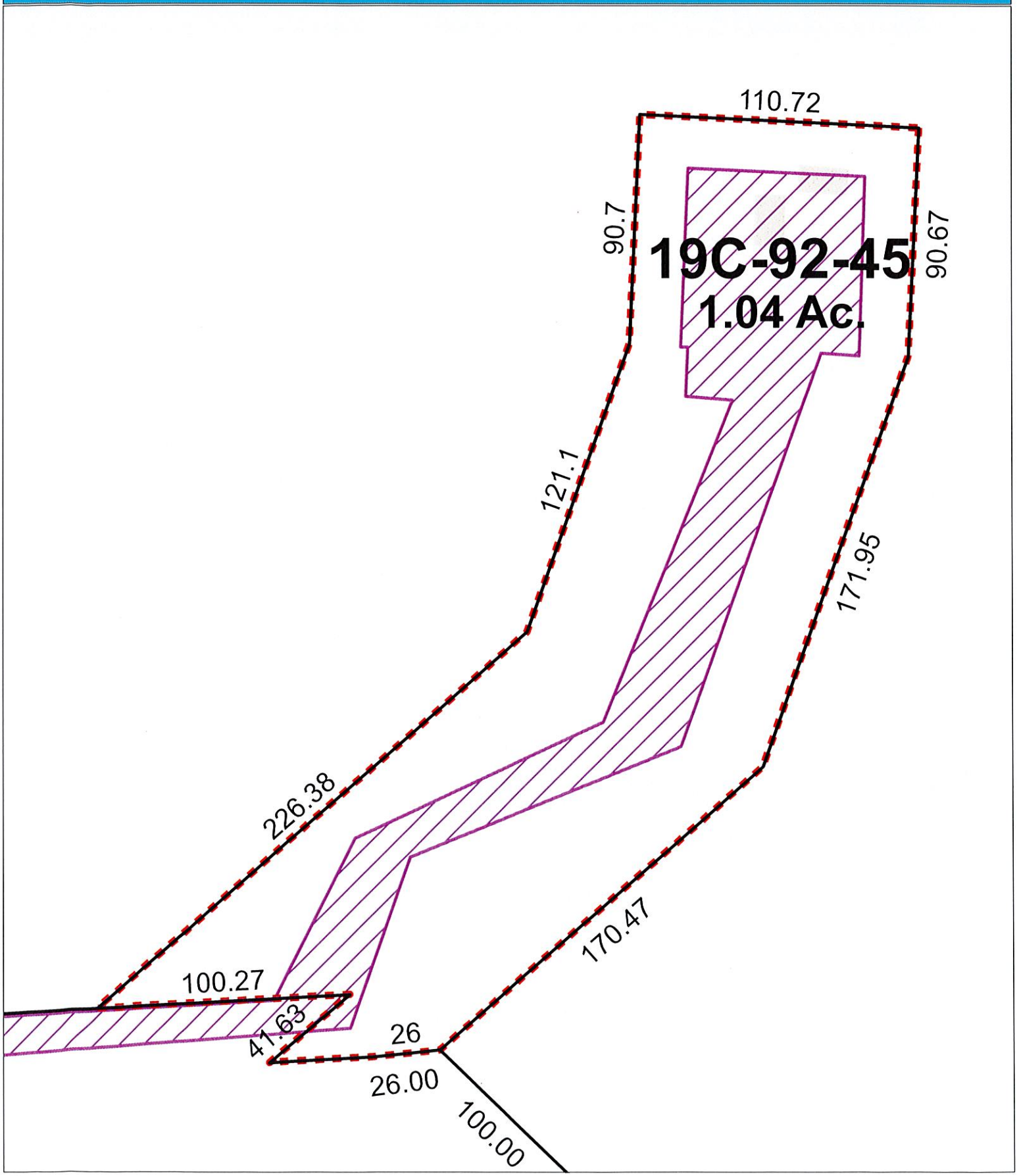
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$0	$80,000	$80,000
2017	$0	$576,975	$576,975
2016	$0	$567,373	$567,373

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$0	$56,000	$56,000
2017	$0	$146,540	$146,540
2016	$0	$133,170	$133,170

Town of Southbury Connecticut - Assessment Parcel Map

Parcel: 19C-92-45 **Location:** 214 RUSSIAN VILLAGE ROAD



N

Approximate Scale: 1 inch = 50 feet

0 10 20 30 40 Feet

Map Produced November 2021

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

Date: February 17, 2022

B+T Group
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:	CTL05183
	Carrier Site Name:	Horse Hill
	Carrier Site FA:	10071080
Crown Castle Designation:	**BU Number:**	876314
	Site Name:	Horse Hill
	JDE Job Number:	695654
	Order Number:	595493, Rev.0
Engineering Firm Designation:	**B+T Group Report Designation:**	136923.003.01
Site Data:	**214 Russian Village Rd, New Haven County, Southbury, CT 06488** **Latitude 41° 27' 7.97 " Longitude - 73° 15' 1.25"**	
Structure Information:	**Tower Height & Type:**	**130 ft. Monopole**
	Mount Elevation:	**130 ft.**
	Mount Type:	**12.417 ft. Platform Mount**

B+T Group is 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:

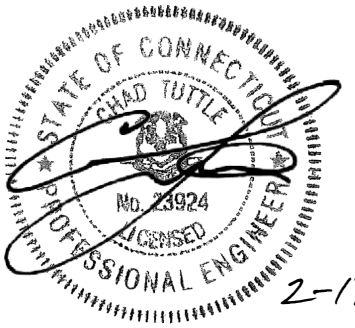
Platform Mount	**Sufficient**

*** 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 116 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Mallory Martinez

Respectfully submitted by: B&T Engineering, Inc.
COA - PEC.0001564 Expires: 02/01/2023



2-17-22

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 - sector 12.417' Platform Mount, designed by SitePro1 (Part# RMQP) and mapped by B+T Group.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	116 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.203
Seismic S_1:	0.055
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb.
Man Live Load at Mount Pipes:	500 lb.

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft.)	Antenna Centerline (ft.)	Qty.	Manufacturer	Model / Type	Mount / Modification Details
130	130	1	CCI Antennas	DMP65R-BU6D	12.417 ft. Platform Mount
		2	CCI Antennas	DMP65R-BU8D	
		1	CCI Antennas	OPA65R-BU6D	
		2	CCI Antennas	OPA65R-BU8D	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 4478 B14_CCIV2	
		3	Ericsson	RRUS 8843 B2/B66A_CCIV2	
		2	Raycap	DC6-48-60-18-8F	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 12/06/2021	Crown Castle
RFDS		Date: 09/24/2021	
Mount Mapping	B+T Group	Date: 11/30/2021	On File

3) ANALYSIS PROCEDURE

3.1) Analysis Method

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

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

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision D). In addition, this analysis is in accordance with *AT&T's Mount Technical Directive – R15.0*.

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
Proposed Mount Pipes	2" Std. Pipe	9'-0"	Position 1, Alpha and Gamma 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. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

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

4) ANALYSIS RESULTS

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

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1,2	Main Horizontals	130	49	17.0	Pass
	Support Tubes	130	38	44.5	Pass
	Mount Pipes	130	50	70.3	Pass
	Connection Plates	130	41	36.3	Pass
	Support Angles	130	12	18.6	Pass
	Support Rails	130	91A	39.0	Pass
	Connection Angles	130	79	40.9	Pass
3	Connection Bolts	130	-	37.5	Pass

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

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

4.1) Recommendations

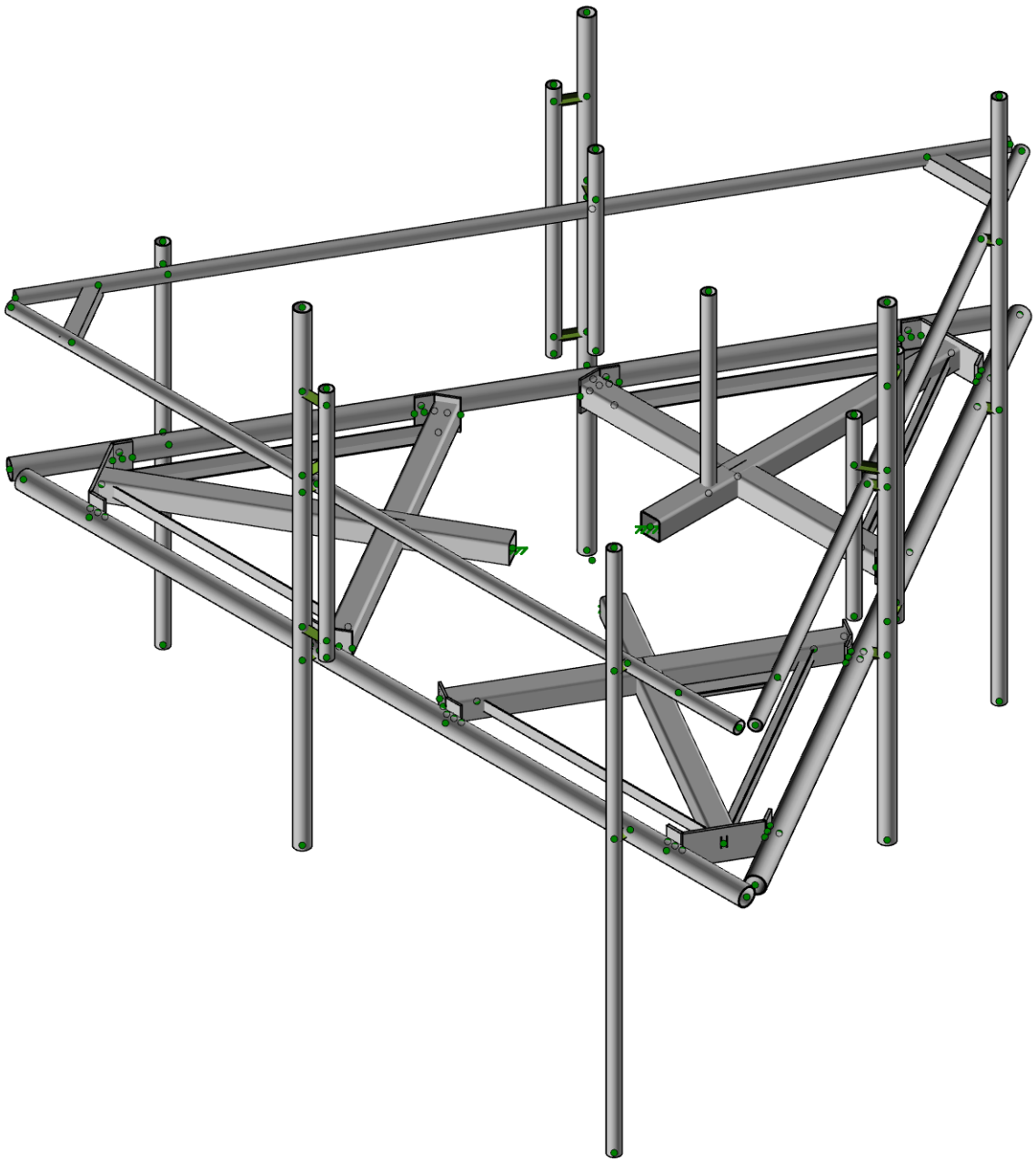
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the loading modification listed below must be completed.

1. Install new Support Rail Kit, 2’-6” above the main horizontals.

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

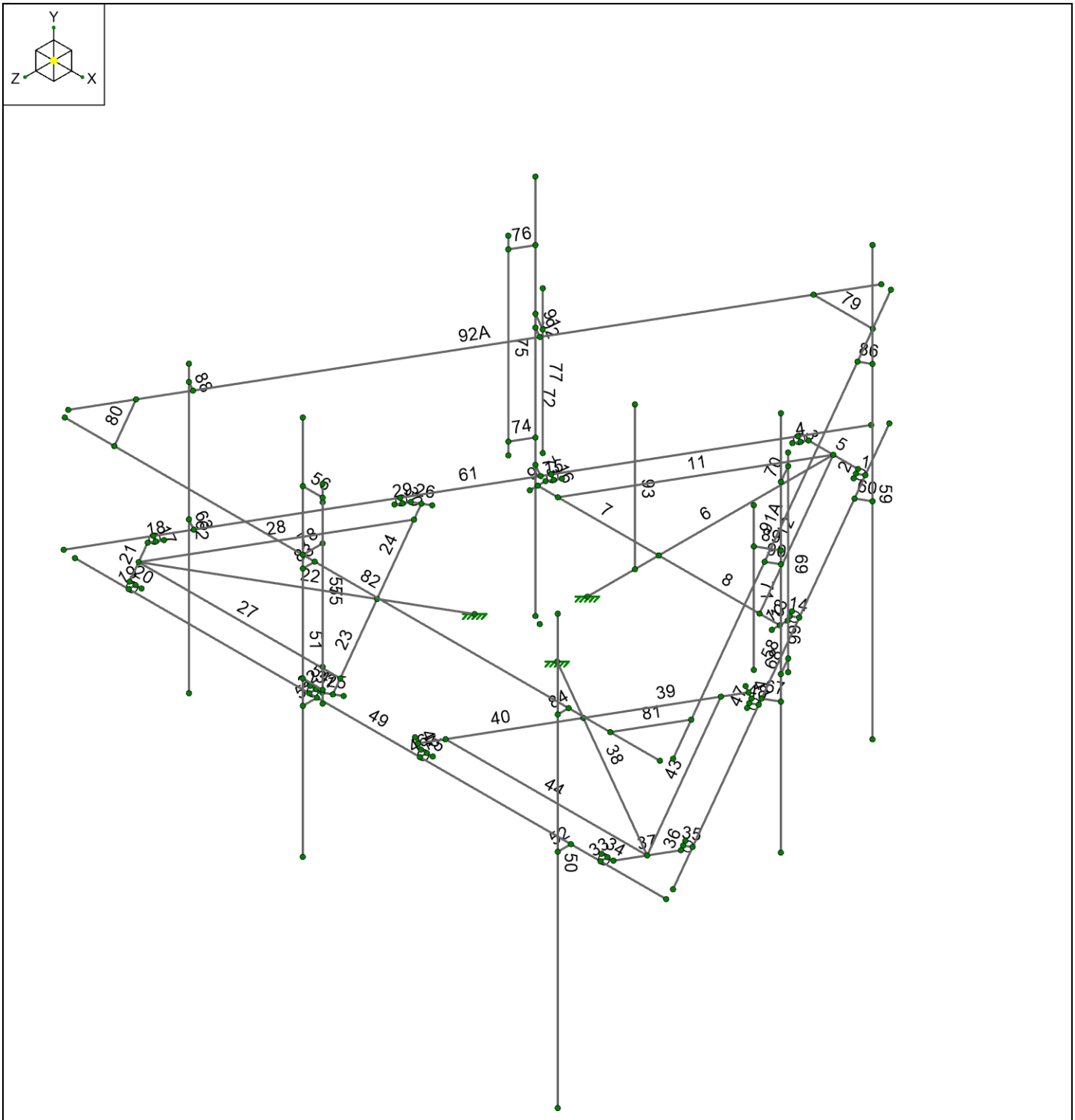
APPENDIX A

WIRE FRAME AND RENDERED MODELS



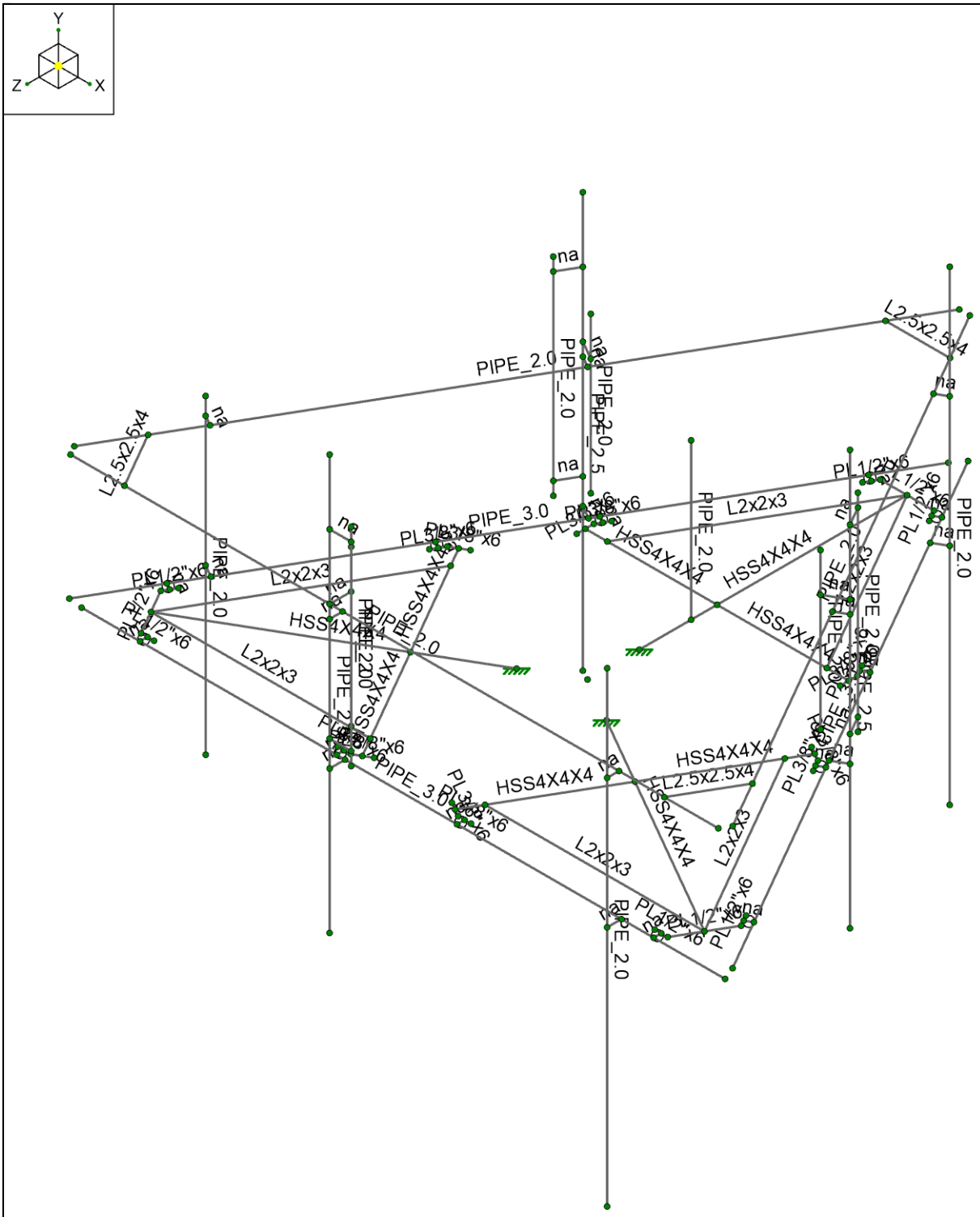
Envelope Only Solution

B+T Group	876314 - Horse Hill	GRG1
GRG		Feb 17, 2022
136923.003.01		136923_003_01_Horse Hill_CT.R3D



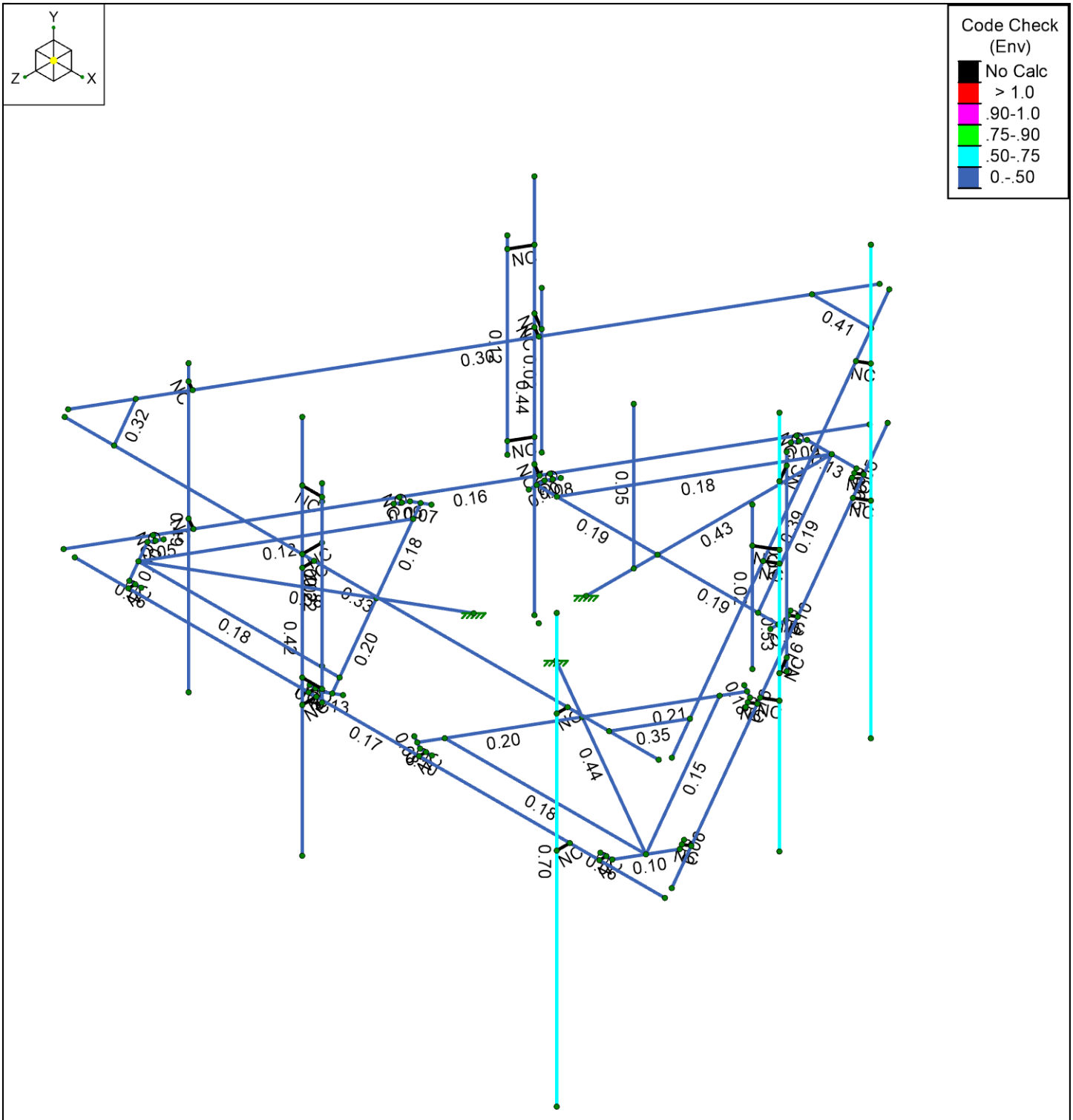
Envelope Only Solution

B+T Group	876314 - Horse Hill	GRG2
GRG		Feb 17, 2022
136923.003.01		136923_003_01_Horse Hill_CT.R3D



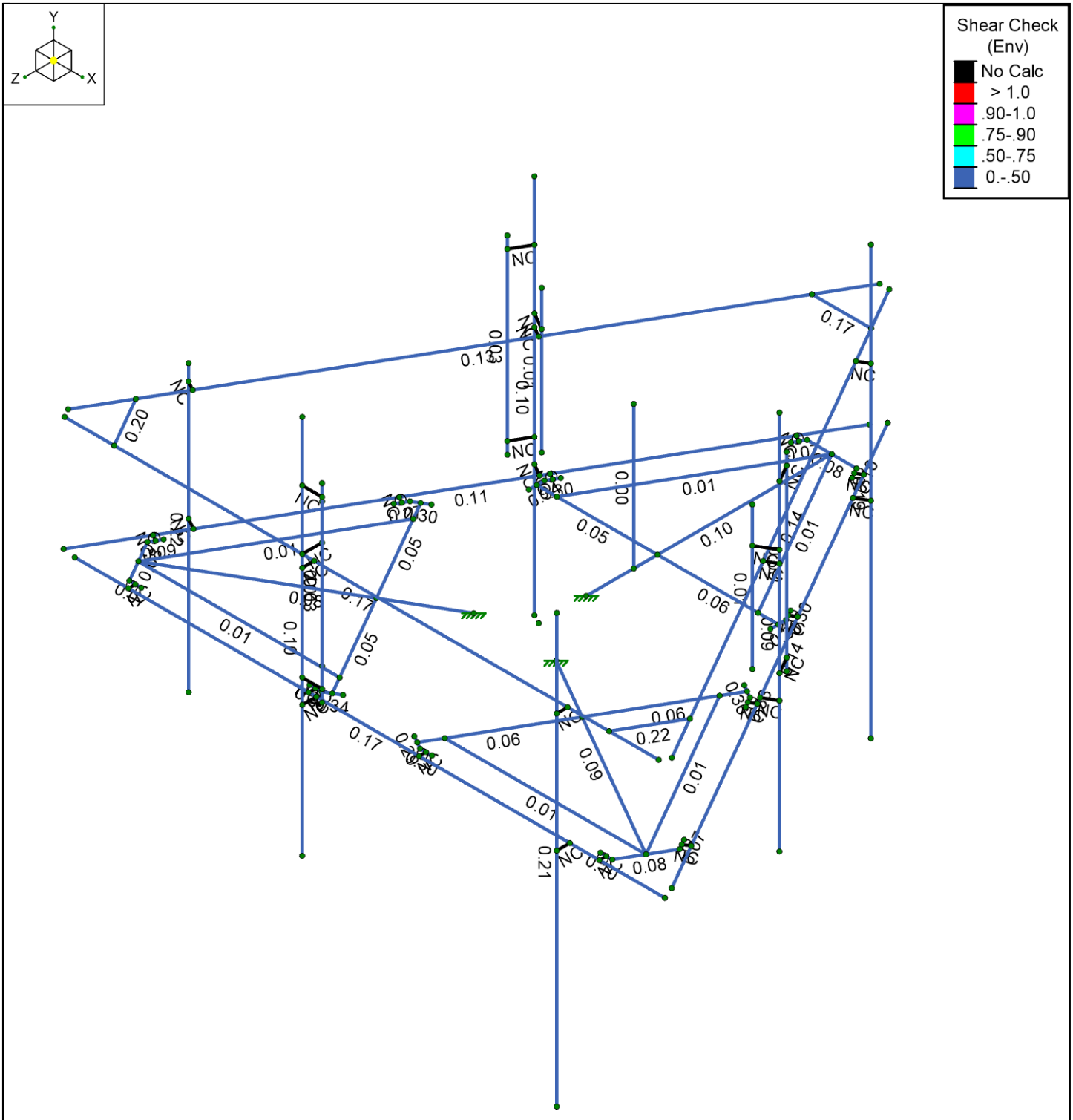
Envelope Only Solution

B+T Group	876314 - Horse Hill	GRG3
GRG		Feb 17, 2022
136923.003.01		136923_003_01_Horse Hill_CT.R3D



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	876314 - Horse Hill	GRG4
GRG		Feb 17, 2022
136923.003.01		136923_003_01_Horse Hill_CT.R3D



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	876314 - Horse Hill	GRG5
GRG		Feb 17, 2022
136923.003.01		136923_003_01_Horse Hill_CT.R3D

APPENDIX B

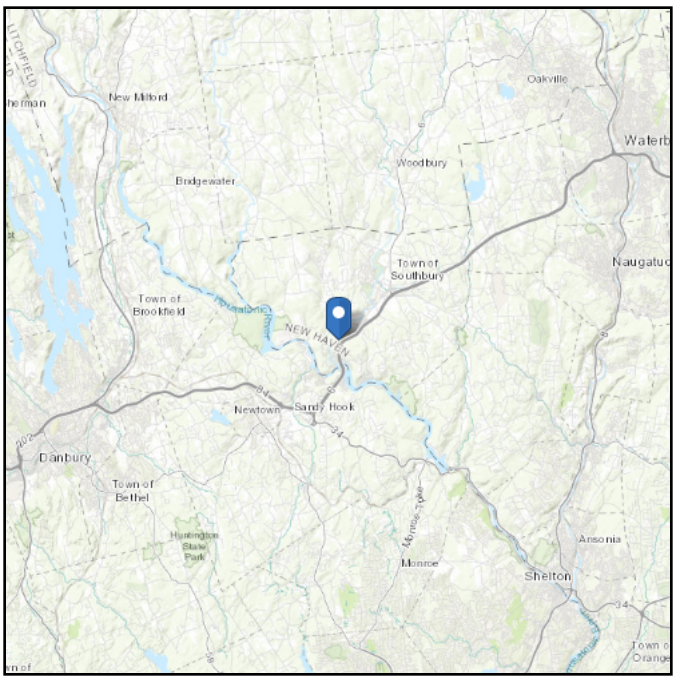
SOFTWARE INPUT CALCULATIONS

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: 445.14 ft (NAVD 88)
Latitude: 41.452214
Longitude: -73.250347



Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 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:	Tue Feb 15 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.

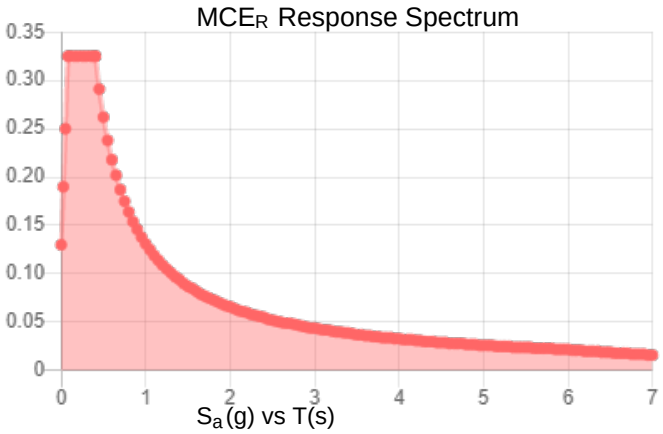
Seismic

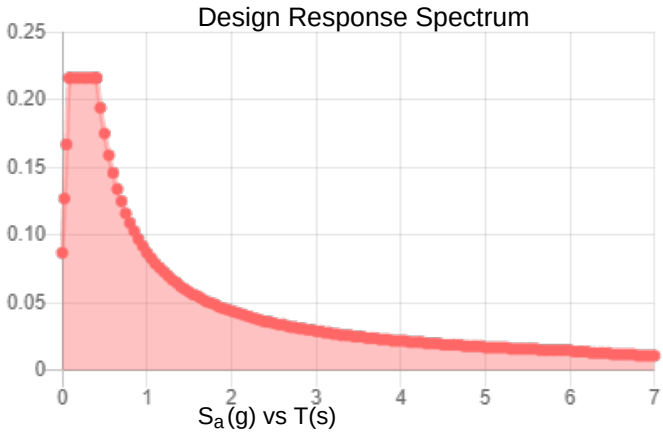
Site Soil Class: D - Default (see Section 11.4.3)

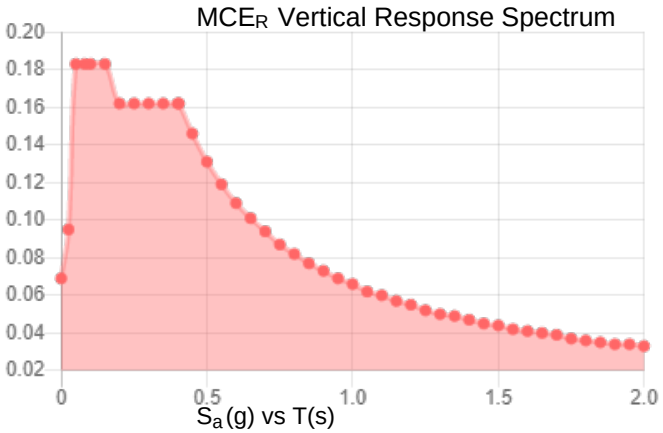
Results:

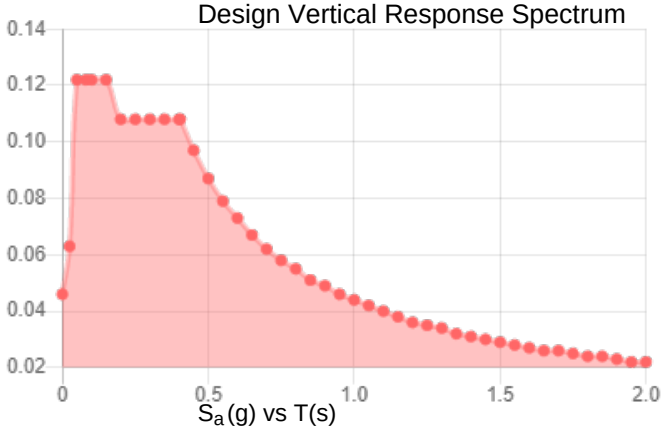
S_S :	0.203	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.114
F_v :	2.4	PGA_M :	0.179
S_{MS} :	0.325	F_{PGA} :	1.572
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.216	C_v :	0.706

Seismic Design Category B









Data Accessed: **Tue Feb 15 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:	Tue Feb 15 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	**136923.003.01 - Horse Hill, C**		**KSC**
SUBJECT	**Platform Mount Analysis**		
DATE	**02/17/22**	PAGE	OF

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	445	ft	[ASCE7 Hazard Tool]
Tower Height		:	130.00	ft	
Mount Elevation		:	130.00	ft	
Antenna Elevation		:	130.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	B		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	116	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.20		
	S_1	:	0.06		
	S_{DS}	:	0.22		
	S_{D1}	:	0.09		
Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.07		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.98		[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}	:	1.15	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.108		[Sec. 2.7.7.1]
Amplification	A_s	:	3		[Sec. 16.7]
	q_z	:	34.30	psf	

PROJECT	**136923.003.01 - Horse Hill, C**		**KSC**
SUBJECT	**Platform Mount Analysis**		
DATE	**02/17/22**	PAGE	OF

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

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
CCI Antennas	OPA65R-BU8D	0.5	4.57	1.29	8.71	3.24	9.74	4.15	0.30	0.11	0.06	0.03
CCI Antennas	OPA65R-BU8D	0.5	4.57	1.29	8.71	3.24	9.74	4.15	0.30	0.11	0.06	0.03
ERICSSON	RRUS 4478 B14_CCIV2	1	1.35	1.20	1.68	1.04	2.22	1.49	0.06	0.04	0.01	0.01
CCI Antennas	DMP65R-BU8D	0.5	4.64	1.30	7.93	2.97	8.88	3.82	0.27	0.10	0.06	0.02
CCI Antennas	DMP65R-BU8D	0.5	4.64	1.30	7.93	2.97	8.88	3.82	0.27	0.10	0.06	0.02
CCI Antennas	OPA65R-BU6D	0.5	3.39	1.24	6.11	2.27	6.88	2.93	0.21	0.08	0.04	0.02
CCI Antennas	OPA65R-BU6D	0.5	3.39	1.24	6.11	2.27	6.88	2.93	0.21	0.08	0.04	0.02
ERICSSON	RRUS 4478 B14_CCIV2	1	1.35	1.20	1.68	1.04	2.22	1.49	0.06	0.04	0.01	0.01
CCI Antennas	DMP65R-BU6D	0.5	3.44	1.24	5.97	2.24	6.72	2.89	0.20	0.08	0.04	0.02
CCI Antennas	DMP65R-BU6D	0.5	3.44	1.24	5.97	2.24	6.72	2.89	0.20	0.08	0.04	0.02
CCI Antennas	OPA65R-BU8D	0.5	4.57	1.29	8.71	3.24	9.74	4.15	0.30	0.11	0.06	0.03
CCI Antennas	OPA65R-BU8D	0.5	4.57	1.29	8.71	3.24	9.74	4.15	0.30	0.11	0.06	0.03
ERICSSON	RRUS 4478 B14_CCIV2	1	1.35	1.20	1.68	1.04	2.22	1.49	0.06	0.04	0.01	0.01
CCI Antennas	DMP65R-BU8D	0.5	4.64	1.30	7.93	2.97	8.88	3.82	0.27	0.10	0.06	0.02
CCI Antennas	DMP65R-BU8D	0.5	4.64	1.30	7.93	2.97	8.88	3.82	0.27	0.10	0.06	0.02

PROJECT	136923.003.01 - Horse Hill, C	KSC
SUBJECT	Platform Mount Analysis	
DATE	02/17/22	PAGE 3 OF

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

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.65	2.17	0.04	0.06	0.01	0.01
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.65	2.17	0.04	0.06	0.01	0.01
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.65	2.17	0.04	0.06	0.01	0.01
RAYCAP	DC6-48-60-18-8F	1	2.02	0.50	1.70	1.70	2.27	2.27	0.03	0.03	0.00	0.00
RAYCAP	DC6-48-60-18-8F	1	2.02	0.50	1.70	1.70	2.27	2.27	0.03	0.03	0.00	0.00
ERICSSON	RRUS 8843 B2/B66A_CCIV2	1	1.59	1.20	1.41	1.65	1.92	2.18	0.05	0.06	0.01	0.01

PROJECT	**136923.003.01 - Horse Hill, C**		**KSC**
SUBJECT	**Platform Mount Analysis**		
DATE	**02/17/22**	PAGE 4	OF

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

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
ERICSSON	RRUS 8843 B2/B66A_CCIV2	1	1.59	1.20	1.41	1.65	1.92	2.18	0.05	0.06	0.01	0.01
ERICSSON	RRUS 8843 B2/B66A_CCIV2	1	1.59	1.20	1.41	1.65	1.92	2.18	0.05	0.06	0.01	0.01

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0.708153	0	-6.131364	
2	2	0.581858	0	-6.058447	
3	3	0.644358	0	-5.950194	
4	4	0.519358	0	-6.1667	
5	5	-0.708153	0	-6.131364	
6	6	-0.581858	0	-6.058447	
7	7	-0.644358	0	-5.950194	
8	8	-0.519358	0	-6.1667	
9	9	0	0	-6.1667	
10	10	0	0	-1.	
11	11	0	0	-2.5	
12	12	-2.54129	0	-2.5	
13	13	2.54129	0	-2.5	
14	14	-2.54129	0	-2.3333	
15	15	2.54129	0	-2.3333	
16	16	-2.11697	0	-2.5	
17	17	2.11697	0	-2.5	
18	18	2.54129	0	-2.66461	
19	19	-2.54129	0	-2.66461	
20	20	2.41629	0	-2.881116	
21	21	2.47879	0	-2.772863	
22	22	2.605086	0	-2.84578	
23	23	-2.41629	0	-2.881116	
24	24	-2.47879	0	-2.772863	
25	25	-2.605086	0	-2.84578	
26	26	0	0	0	
27	27	-5.663993	0	2.452404	
28	28	-5.537698	0	2.52532	
29	29	-5.475198	0	2.417067	
30	30	-5.600198	0	2.633573	
31	31	-4.95584	0	3.67896	
32	32	-4.95584	0	3.533127	
33	33	-4.83084	0	3.533127	
34	34	-5.08084	0	3.533127	
35	35	-5.340519	0	3.08335	
36	36	-0.866026	0	0.5	
37	37	-2.165064	0	1.25	
38	38	-0.894419	0	3.450822	
39	39	-3.435709	0	-0.950822	
40	40	-0.750052	0	3.367472	
41	41	-3.291343	0	-1.034172	
42	42	-1.106579	0	3.08335	
43	43	-3.223549	0	-0.58335	
44	44	-3.578265	0	-0.868517	
45	45	-1.036975	0	3.533127	
46	46	-3.703265	0	-0.652011	
47	47	-3.640765	0	-0.760264	
48	48	-3.76706	0	-0.83318	
49	49	-1.286975	0	3.533127	
50	50	-1.161975	0	3.533127	
51	51	-1.161975	0	3.67896	
52	52	4.95584	0	3.67896	
53	53	4.95584	0	3.533127	
54	54	4.83084	0	3.533127	
55	55	5.08084	0	3.533127	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	5.663993	0	2.452404	
57	57	5.537698	0	2.52532	
58	58	5.475198	0	2.417067	
59	59	5.600198	0	2.633573	
60	60	5.340519	0	3.08335	
61	61	0.866026	0	0.5	
62	62	2.165064	0	1.25	
63	63	3.435709	0	-0.950822	
64	64	0.894419	0	3.450822	
65	65	3.291343	0	-1.034172	
66	66	0.750052	0	3.367472	
67	67	3.223549	0	-0.58335	
68	68	1.106579	0	3.08335	
69	69	1.036975	0	3.533127	
70	70	3.578265	0	-0.868517	
71	71	1.286975	0	3.533127	
72	72	1.161975	0	3.533127	
73	73	1.161975	0	3.67896	
74	74	3.703265	0	-0.652011	
75	75	3.640765	0	-0.760264	
76	76	3.76706	0	-0.83318	
77	77	6.333693	0	3.67896	
78	78	-6.082973	0	3.67896	
79	79	4.333693	4.333333	3.95521	
80	80	4.333693	-4.666667	3.95521	
81	81	-0.99964	5.25	3.976043	
82	82	-0.99964	-2.75	3.976043	
83	83	4.333693	0	3.67896	
84	84	4.333693	0	3.95521	
85	85	-0.99964	0	3.67896	
86	86	-0.99964	0	3.976043	
87	87	-0.99964	0.5	3.976043	
88	88	-0.582973	0.5	3.976043	
89	89	-0.582973	4.25	3.976043	
90	90	-0.582973	0.25	3.976043	
91	91	-0.99964	4	3.976043	
92	92	-0.582973	4	3.976043	
93	93	-0.99964	3.5	3.559377	
94	94	-0.99964	0.5	3.559377	
95	95	0.019226	0	-7.324619	
96	96	6.227559	0	3.428529	
97	97	1.258466	4.66667	-5.730694	
98	98	1.258466	-4.33333	-5.730694	
99	99	1.019226	0	-5.592569	
100	100	1.258466	0	-5.730694	
101	101	-6.352919	0	3.645659	
102	102	-0.144586	0	-7.107489	
103	103	-5.592159	2.833333	1.775484	
104	104	-5.592159	-3.166667	1.775484	
105	105	-5.352919	0	1.913609	
106	106	-5.592159	0	1.775484	
107	111	3.943175	5.25	-1.122308	
108	112	3.943175	-2.75	-1.122308	
109	113	3.685893	0	-0.973766	
110	114	3.943175	0	-1.122308	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	115	3.943175	0.5	-1.122308	
112	116	3.734841	0.5	-1.483152	
113	117	3.734841	4.25	-1.483152	
114	118	3.734841	0.25	-1.483152	
115	119	3.943175	4	-1.122308	
116	120	3.734841	4	-1.483152	
117	121	3.582331	3.5	-0.913975	
118	122	3.582331	0.5	-0.913975	
119	123	-2.943535	5.25	-2.853735	
120	124	-2.943535	-2.75	-2.853735	
121	125	-2.686253	0	-2.705194	
122	126	-2.943535	0	-2.853735	
123	127	-2.943535	0.5	-2.853735	
124	128	-3.151868	0.5	-2.492891	
125	129	-3.151868	4.25	-2.492891	
126	130	-3.151868	0.25	-2.492891	
127	131	-2.943535	4	-2.853735	
128	132	-3.151868	4	-2.492891	
129	133	-2.582691	3.5	-2.645402	
130	134	-2.582691	0.5	-2.645402	
131	135	-0.99964	2.75	3.976043	
132	136	-0.99964	2.75	3.559377	
133	137	-0.6225	2.5	-6.373052	
134	138	0.6225	2.5	-6.373052	
135	139	-5.207974	2.5	3.725627	
136	140	-5.830475	2.5	2.647425	
137	141	5.830475	2.5	2.647425	
138	142	5.207974	2.5	3.725627	
139	145	-0.99964	2.5	3.725627	
140	146	-0.99964	2.5	3.976043	
141	147	4.333693	2.5	3.95521	
142	148	4.333693	2.5	3.725627	
143	151	1.258466	2.5	-5.730694	
144	152	1.059641	2.5	-5.615902	
145	155	-5.592159	2.5	1.775484	
146	156	-5.393334	2.5	1.890275	
147	157	3.943175	2.75	-1.122308	
148	158	3.582331	2.75	-0.913975	
149	159	3.726308	2.5	-0.9971	
150	160	3.943175	2.5	-1.122308	
151	161	-2.943535	2.75	-2.853735	
152	162	-2.582691	2.75	-2.645402	
153	163	-2.726668	2.5	-2.728527	
154	164	-2.943535	2.5	-2.853735	
155	166	6.25	2.5	3.725627	
156	167	-6.25	2.5	3.725627	
157	161A	0.101488	2.5	-7.275472	
158	162A	6.351488	2.5	3.549845	
159	163A	-6.351488	2.5	3.549845	
160	164A	-0.101488	2.5	-7.275472	
161	167A	0	3	-2	
162	168	0	0	-2	

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	10	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	36	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	61	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

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	0.063	9	0.237
6	SF-H2	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
7	MF-P2	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	MF-P3	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
9	Support Rail	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
10	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	1	2		RIGID	None	None	RIGID	Typical
2	2	3	4		MF-CP2	Beam	RECT	A36 Gr.36	Typical
3	3	5	6		RIGID	None	None	RIGID	Typical
4	4	7	8		MF-CP2	Beam	RECT	A36 Gr.36	Typical
5	5	8	4		MF-CP2	Beam	RECT	A36 Gr.36	Typical
6	6	10	9		SF-H1	Beam	Tube	A53 Gr.B	Typical
7	7	12	11		SF-H1	Beam	Tube	A53 Gr.B	Typical
8	8	11	13		SF-H1	Beam	Tube	A53 Gr.B	Typical
9	9	14	19		MF-CP1	Beam	RECT	A36 Gr.36	Typical
10	10	15	18		MF-CP1	Beam	RECT	A36 Gr.36	Typical
11	11	16	9		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
12	12	9	17		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
13	13	18	20		MF-CP1	Beam	RECT	A36 Gr.36	Typical
14	14	21	22		RIGID	None	None	RIGID	Typical
15	15	19	23		MF-CP1	Beam	RECT	A36 Gr.36	Typical
16	16	24	25		RIGID	None	None	RIGID	Typical
17	17	27	28		RIGID	None	None	RIGID	Typical
18	18	29	30		MF-CP2	Beam	RECT	A36 Gr.36	Typical
19	19	31	32		RIGID	None	None	RIGID	Typical
20	20	33	34		MF-CP2	Beam	RECT	A36 Gr.36	Typical
21	21	34	30		MF-CP2	Beam	RECT	A36 Gr.36	Typical
22	22	36	35		SF-H1	Beam	Tube	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
23	23	38	37		SF-H1	Beam	Tube	A53 Gr.B	Typical
24	24	37	39		SF-H1	Beam	Tube	A53 Gr.B	Typical
25	25	40	45		MF-CP1	Beam	RECT	A36 Gr.36	Typical
26	26	41	44		MF-CP1	Beam	RECT	A36 Gr.36	Typical
27	27	42	35		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
28	28	35	43		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
29	29	44	46		MF-CP1	Beam	RECT	A36 Gr.36	Typical
30	30	47	48		RIGID	None	None	RIGID	Typical
31	31	45	49		MF-CP1	Beam	RECT	A36 Gr.36	Typical
32	32	50	51		RIGID	None	None	RIGID	Typical
33	33	52	53		RIGID	None	None	RIGID	Typical
34	34	54	55		MF-CP2	Beam	RECT	A36 Gr.36	Typical
35	35	56	57		RIGID	None	None	RIGID	Typical
36	36	58	59		MF-CP2	Beam	RECT	A36 Gr.36	Typical
37	37	59	55		MF-CP2	Beam	RECT	A36 Gr.36	Typical
38	38	61	60		SF-H1	Beam	Tube	A53 Gr.B	Typical
39	39	63	62		SF-H1	Beam	Tube	A53 Gr.B	Typical
40	40	62	64		SF-H1	Beam	Tube	A53 Gr.B	Typical
41	41	65	70		MF-CP1	Beam	RECT	A36 Gr.36	Typical
42	42	66	69		MF-CP1	Beam	RECT	A36 Gr.36	Typical
43	43	67	60		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
44	44	60	68		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
45	45	69	71		MF-CP1	Beam	RECT	A36 Gr.36	Typical
46	46	72	73		RIGID	None	None	RIGID	Typical
47	47	70	74		MF-CP1	Beam	RECT	A36 Gr.36	Typical
48	48	75	76		RIGID	None	None	RIGID	Typical
49	49	77	78		MF-H1	Beam	Pipe	A53 Gr.B	Typical
50	50	79	80		MF-P1	Column	Pipe	A53 Gr.B	Typical
51	51	81	82		MF-P2	Column	Pipe	A53 Gr.B	Typical
52	52	83	84		RIGID	None	None	RIGID	Typical
53	53	85	86		RIGID	None	None	RIGID	Typical
54	54	87	88		RIGID	None	None	RIGID	Typical
55	55	89	90		MF-P3	Column	Pipe	A53 Gr.B	Typical
56	56	91	92		RIGID	None	None	RIGID	Typical
57	57	93	94		MF-P3	Column	Pipe	A53 Gr.B	Typical
58	58	95	96		MF-H1	Beam	Pipe	A53 Gr.B	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-H1	Beam	Pipe	A53 Gr.B	Typical
62	62	103	104		MF-P1	Column	Pipe	A53 Gr.B	Typical
63	63	105	106		RIGID	None	None	RIGID	Typical
64	66	111	112		MF-P2	Column	Pipe	A53 Gr.B	Typical
65	67	113	114		RIGID	None	None	RIGID	Typical
66	68	115	116		RIGID	None	None	RIGID	Typical
67	69	117	118		MF-P3	Column	Pipe	A53 Gr.B	Typical
68	70	119	120		RIGID	None	None	RIGID	Typical
69	71	121	122		MF-P3	Column	Pipe	A53 Gr.B	Typical
70	72	123	124		MF-P2	Column	Pipe	A53 Gr.B	Typical
71	73	125	126		RIGID	None	None	RIGID	Typical
72	74	127	128		RIGID	None	None	RIGID	Typical
73	75	129	130		MF-P3	Column	Pipe	A53 Gr.B	Typical
74	76	131	132		RIGID	None	None	RIGID	Typical
75	77	133	134		MF-P3	Column	Pipe	A53 Gr.B	Typical
76	78	135	136		RIGID	None	None	RIGID	Typical
77	79	137	138	180	MF-CA1	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
78	80	139	140	180	MF-CA1	Beam	Single Angle	A36 Gr.36	Typical
79	81	141	142	180	MF-CA1	Beam	Single Angle	A36 Gr.36	Typical
80	82	166	167		Support Rail	Beam	Pipe	A53 Gr.B	Typical
81	83	145	146		RIGID	None	None	RIGID	Typical
82	84	147	148	180	RIGID	None	None	RIGID	Typical
83	86	151	152	180	RIGID	None	None	RIGID	Typical
84	88	155	156	180	RIGID	None	None	RIGID	Typical
85	89	157	158		RIGID	None	None	RIGID	Typical
86	90	159	160		RIGID	None	None	RIGID	Typical
87	91	161	162		RIGID	None	None	RIGID	Typical
88	92	163	164		RIGID	None	None	RIGID	Typical
89	91A	161A	162A		Support Rail	Beam	Pipe	A53 Gr.B	Typical
90	92A	163A	164A		Support Rail	Beam	Pipe	A53 Gr.B	Typical
91	93	167A	168		MF-P1	Column	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	1	OOOOOX		Yes	** NA **	None
2	2			Yes	N/A	None
3	3	OOOOOX		Yes	** NA **	None
4	4			Yes	N/A	None
5	5			Yes	N/A	None
6	6			Yes	N/A	None
7	7			Yes	N/A	None
8	8			Yes	N/A	None
9	9			Yes	Default	None
10	10			Yes	Default	None
11	11			Yes	N/A	None
12	12			Yes	N/A	None
13	13			Yes	N/A	None
14	14		OOOOOX	Yes	** NA **	None
15	15			Yes	N/A	None
16	16		OOOOOX	Yes	** NA **	None
17	17	OOOOOX		Yes	** NA **	None
18	18			Yes	N/A	None
19	19	OOOOOX		Yes	** NA **	None
20	20			Yes	N/A	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	Default	None
26	26			Yes	Default	None
27	27			Yes	N/A	None
28	28			Yes	N/A	None
29	29			Yes	N/A	None
30	30		OOOOOX	Yes	** NA **	None
31	31			Yes	N/A	None
32	32		OOOOOX	Yes	** NA **	None
33	33	OOOOOX		Yes	** NA **	None
34	34			Yes	N/A	None
35	35	OOOOOX		Yes	** NA **	None
36	36			Yes	N/A	None
37	37			Yes	N/A	None
38	38			Yes	N/A	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
39	39			Yes	N/A	None
40	40			Yes	N/A	None
41	41			Yes	Default	None
42	42			Yes	Default	None
43	43			Yes	N/A	None
44	44			Yes	N/A	None
45	45			Yes	N/A	None
46	46		OOOOOX	Yes	** NA **	None
47	47			Yes	N/A	None
48	48		OOOOOX	Yes	** NA **	None
49	49			Yes	N/A	None
50	50			Yes	** NA **	None
51	51			Yes	** NA **	None
52	52			Yes	** NA **	None
53	53			Yes	** NA **	None
54	54			Yes	** NA **	None
55	55			Yes	** NA **	None
56	56			Yes	** NA **	None
57	57			Yes	** NA **	None
58	58			Yes	N/A	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
64	66			Yes	** NA **	None
65	67			Yes	** NA **	None
66	68			Yes	** NA **	None
67	69			Yes	** NA **	None
68	70			Yes	** NA **	None
69	71			Yes	** NA **	None
70	72			Yes	** NA **	None
71	73			Yes	** NA **	None
72	74			Yes	** NA **	None
73	75			Yes	** NA **	None
74	76			Yes	** NA **	None
75	77			Yes	** NA **	None
76	78			Yes	** NA **	None
77	79			Yes	N/A	None
78	80			Yes	N/A	None
79	81			Yes	N/A	None
80	82			Yes	N/A	None
81	83			Yes	** NA **	None
82	84			Yes	** NA **	None
83	86			Yes	** NA **	None
84	88			Yes	** NA **	None
85	89			Yes	** NA **	None
86	90			Yes	** NA **	None
87	91			Yes	** NA **	None
88	92			Yes	** NA **	None
89	91A			Yes	N/A	None
90	92A			Yes	N/A	None
91	93			Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	2	MF-CP2	0.25	Lbyy	Lateral
2	4	MF-CP2	0.25	Lbyy	Lateral
3	5	MF-CP2	1.039	Lbyy	Lateral
4	6	SF-H1	5.167	Lbyy	Lateral
5	7	SF-H1	2.541	Lbyy	Lateral
6	8	SF-H1	2.541	Lbyy	Lateral
7	9	MF-CP1	0.331	Lbyy	Lateral
8	10	MF-CP1	0.331	Lbyy	Lateral
9	11	SF-H2	4.234	Lbyy	Lateral
10	12	SF-H2	4.234	Lbyy	Lateral
11	13	MF-CP1	0.25	Lbyy	Lateral
12	15	MF-CP1	0.25	Lbyy	Lateral
13	18	MF-CP2	0.25	Lbyy	Lateral
14	20	MF-CP2	0.25	Lbyy	Lateral
15	21	MF-CP2	1.039	Lbyy	Lateral
16	22	SF-H1	5.167	Lbyy	Lateral
17	23	SF-H1	2.541	Lbyy	Lateral
18	24	SF-H1	2.541	Lbyy	Lateral
19	25	MF-CP1	0.331	Lbyy	Lateral
20	26	MF-CP1	0.331	Lbyy	Lateral
21	27	SF-H2	4.234	Lbyy	Lateral
22	28	SF-H2	4.234	Lbyy	Lateral
23	29	MF-CP1	0.25	Lbyy	Lateral
24	31	MF-CP1	0.25	Lbyy	Lateral
25	34	MF-CP2	0.25	Lbyy	Lateral
26	36	MF-CP2	0.25	Lbyy	Lateral
27	37	MF-CP2	1.039	Lbyy	Lateral
28	38	SF-H1	5.167	Lbyy	Lateral
29	39	SF-H1	2.541	Lbyy	Lateral
30	40	SF-H1	2.541	Lbyy	Lateral
31	41	MF-CP1	0.331	Lbyy	Lateral
32	42	MF-CP1	0.331	Lbyy	Lateral
33	43	SF-H2	4.234	Lbyy	Lateral
34	44	SF-H2	4.234	Lbyy	Lateral
35	45	MF-CP1	0.25	Lbyy	Lateral
36	47	MF-CP1	0.25	Lbyy	Lateral
37	49	MF-H1	12.417	Lbyy	Lateral
38	50	MF-P1	9	Lbyy	Lateral
39	51	MF-P2	8	Lbyy	Lateral
40	55	MF-P3	4	Lbyy	Lateral
41	57	MF-P3	3	Lbyy	Lateral
42	58	MF-H1	12.417	Lbyy	Lateral
43	59	MF-P1	9	Lbyy	Lateral
44	61	MF-H1	12.417	Lbyy	Lateral
45	62	MF-P1	6	Lbyy	Lateral
46	66	MF-P2	8	Lbyy	Lateral
47	69	MF-P3	4	Lbyy	Lateral
48	71	MF-P3	3	Lbyy	Lateral
49	72	MF-P2	8	Lbyy	Lateral
50	75	MF-P3	4	Lbyy	Lateral
51	77	MF-P3	3	Lbyy	Lateral
52	79	MF-CA1	1.245	Lbyy	Lateral
53	80	MF-CA1	1.245	Lbyy	Lateral
54	81	MF-CA1	1.245	Lbyy	Lateral
55	82	Support Rail	12.5	Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
56	91A	Support Rail	12.5	Lbyy	Lateral
57	92A	Support Rail	12.5	Lbyy	Lateral
58	93	MF-P1	3	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.038	%5
2	50	Y	-0.038	%95
3	50	Y	-0.059	%40
4	50	Y	0	0
5	50	Y	0	0
6	51	Y	-0.053	%5
7	51	Y	-0.053	%95
8	51	Y	0	0
9	51	Y	0	0
10	51	Y	0	0
11	62	Y	-0.032	%5
12	62	Y	-0.032	%95
13	62	Y	-0.059	%30
14	62	Y	0	0
15	62	Y	0	0
16	72	Y	-0.045	%5
17	72	Y	-0.045	%75
18	72	Y	0	0
19	72	Y	0	0
20	72	Y	0	0
21	59	Y	-0.038	%5
22	59	Y	-0.038	%95
23	59	Y	-0.059	%40
24	59	Y	0	0
25	59	Y	0	0
26	66	Y	-0.053	%5
27	66	Y	-0.053	%95
28	66	Y	0	0
29	66	Y	0	0
30	66	Y	0	0
31	55	Y	-0.071	%30
32	55	Y	0	0
33	55	Y	0	0
34	55	Y	0	0
35	55	Y	0	0
36	75	Y	-0.071	%30
37	75	Y	0	0
38	75	Y	0	0
39	75	Y	0	0
40	75	Y	0	0
41	69	Y	-0.071	%30
42	69	Y	0	0
43	69	Y	0	0
44	69	Y	0	0
45	69	Y	0	0
46	93	Y	-0.019	%15
47	93	Y	0	0
48	93	Y	0	0
49	93	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
50	93	Y	0	0
51	38	Y	-0.019	%15
52	38	Y	0	0
53	38	Y	0	0
54	38	Y	0	0
55	38	Y	0	0
56	57	Y	-0.075	%30
57	57	Y	0	0
58	57	Y	0	0
59	57	Y	0	0
60	57	Y	0	0
61	77	Y	-0.075	%30
62	77	Y	0	0
63	77	Y	0	0
64	77	Y	0	0
65	77	Y	0	0
66	71	Y	-0.075	%30
67	71	Y	0	0
68	71	Y	0	0
69	71	Y	0	0
70	71	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Z	-0.299	%5
2	50	Z	-0.299	%95
3	50	Z	-0.062	%40
4	50	Z	0	0
5	50	Z	0	0
6	51	Z	-0.272	%5
7	51	Z	-0.272	%95
8	51	Z	0	0
9	51	Z	0	0
10	51	Z	0	0
11	62	Z	-0.21	%5
12	62	Z	-0.21	%95
13	62	Z	-0.062	%30
14	62	Z	0	0
15	62	Z	0	0
16	72	Z	-0.205	%5
17	72	Z	-0.205	%75
18	72	Z	0	0
19	72	Z	0	0
20	72	Z	0	0
21	59	Z	-0.299	%5
22	59	Z	-0.299	%95
23	59	Z	-0.062	%40
24	59	Z	0	0
25	59	Z	0	0
26	66	Z	-0.272	%5
27	66	Z	-0.272	%95
28	66	Z	0	0
29	66	Z	0	0
30	66	Z	0	0
31	55	Z	-0.044	%30

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
32	55	Z	0	0
33	55	Z	0	0
34	55	Z	0	0
35	55	Z	0	0
36	75	Z	-0.044	%30
37	75	Z	0	0
38	75	Z	0	0
39	75	Z	0	0
40	75	Z	0	0
41	69	Z	-0.044	%30
42	69	Z	0	0
43	69	Z	0	0
44	69	Z	0	0
45	69	Z	0	0
46	93	Z	-0.026	%15
47	93	Z	0	0
48	93	Z	0	0
49	93	Z	0	0
50	93	Z	0	0
51	38	Z	-0.026	%15
52	38	Z	0	0
53	38	Z	0	0
54	38	Z	0	0
55	38	Z	0	0
56	57	Z	-0.052	%30
57	57	Z	0	0
58	57	Z	0	0
59	57	Z	0	0
60	57	Z	0	0
61	77	Z	-0.052	%30
62	77	Z	0	0
63	77	Z	0	0
64	77	Z	0	0
65	77	Z	0	0
66	71	Z	-0.052	%30
67	71	Z	0	0
68	71	Z	0	0
69	71	Z	0	0
70	71	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	X	-0.111	%5
2	50	X	-0.111	%95
3	50	X	-0.039	%40
4	50	X	0	0
5	50	X	0	0
6	51	X	-0.102	%5
7	51	X	-0.102	%95
8	51	X	0	0
9	51	X	0	0
10	51	X	0	0
11	62	X	-0.078	%5
12	62	X	-0.078	%95
13	62	X	-0.039	%30

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
14	62	X	0	0
15	62	X	0	0
16	72	X	-0.077	%5
17	72	X	-0.077	%75
18	72	X	0	0
19	72	X	0	0
20	72	X	0	0
21	59	X	-0.111	%5
22	59	X	-0.111	%95
23	59	X	-0.039	%40
24	59	X	0	0
25	59	X	0	0
26	66	X	-0.102	%5
27	66	X	-0.102	%95
28	66	X	0	0
29	66	X	0	0
30	66	X	0	0
31	55	X	-0.061	%30
32	55	X	0	0
33	55	X	0	0
34	55	X	0	0
35	55	X	0	0
36	75	X	-0.061	%30
37	75	X	0	0
38	75	X	0	0
39	75	X	0	0
40	75	X	0	0
41	69	X	-0.061	%30
42	69	X	0	0
43	69	X	0	0
44	69	X	0	0
45	69	X	0	0
46	93	X	-0.026	%15
47	93	X	0	0
48	93	X	0	0
49	93	X	0	0
50	93	X	0	0
51	38	X	-0.026	%15
52	38	X	0	0
53	38	X	0	0
54	38	X	0	0
55	38	X	0	0
56	57	X	-0.061	%30
57	57	X	0	0
58	57	X	0	0
59	57	X	0	0
60	57	X	0	0
61	77	X	-0.061	%30
62	77	X	0	0
63	77	X	0	0
64	77	X	0	0
65	77	X	0	0
66	71	X	-0.061	%30
67	71	X	0	0
68	71	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
69	71	X	0	0
70	71	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Z	-0.062	%5
2	50	Z	-0.062	%95
3	50	Z	-0.012	%40
4	50	Z	0	0
5	50	Z	0	0
6	51	Z	-0.057	%5
7	51	Z	-0.057	%95
8	51	Z	0	0
9	51	Z	0	0
10	51	Z	0	0
11	62	Z	-0.044	%5
12	62	Z	-0.044	%95
13	62	Z	-0.012	%30
14	62	Z	0	0
15	62	Z	0	0
16	72	Z	-0.043	%5
17	72	Z	-0.043	%75
18	72	Z	0	0
19	72	Z	0	0
20	72	Z	0	0
21	59	Z	-0.062	%5
22	59	Z	-0.062	%95
23	59	Z	-0.012	%40
24	59	Z	0	0
25	59	Z	0	0
26	66	Z	-0.057	%5
27	66	Z	-0.057	%95
28	66	Z	0	0
29	66	Z	0	0
30	66	Z	0	0
31	55	Z	-0.008	%30
32	55	Z	0	0
33	55	Z	0	0
34	55	Z	0	0
35	55	Z	0	0
36	75	Z	-0.008	%30
37	75	Z	0	0
38	75	Z	0	0
39	75	Z	0	0
40	75	Z	0	0
41	69	Z	-0.008	%30
42	69	Z	0	0
43	69	Z	0	0
44	69	Z	0	0
45	69	Z	0	0
46	93	Z	-0.005	%15
47	93	Z	0	0
48	93	Z	0	0
49	93	Z	0	0
50	93	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
51	38	Z	-0.005	%15
52	38	Z	0	0
53	38	Z	0	0
54	38	Z	0	0
55	38	Z	0	0
56	57	Z	-0.01	%30
57	57	Z	0	0
58	57	Z	0	0
59	57	Z	0	0
60	57	Z	0	0
61	77	Z	-0.01	%30
62	77	Z	0	0
63	77	Z	0	0
64	77	Z	0	0
65	77	Z	0	0
66	71	Z	-0.01	%30
67	71	Z	0	0
68	71	Z	0	0
69	71	Z	0	0
70	71	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	X	-0.026	%5
2	50	X	-0.026	%95
3	50	X	-0.007	%40
4	50	X	0	0
5	50	X	0	0
6	51	X	-0.024	%5
7	51	X	-0.024	%95
8	51	X	0	0
9	51	X	0	0
10	51	X	0	0
11	62	X	-0.019	%5
12	62	X	-0.019	%95
13	62	X	-0.007	%30
14	62	X	0	0
15	62	X	0	0
16	72	X	-0.018	%5
17	72	X	-0.018	%75
18	72	X	0	0
19	72	X	0	0
20	72	X	0	0
21	59	X	-0.026	%5
22	59	X	-0.026	%95
23	59	X	-0.007	%40
24	59	X	0	0
25	59	X	0	0
26	66	X	-0.024	%5
27	66	X	-0.024	%95
28	66	X	0	0
29	66	X	0	0
30	66	X	0	0
31	55	X	-0.011	%30
32	55	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
33	55	X	0	0
34	55	X	0	0
35	55	X	0	0
36	75	X	-0.011	%30
37	75	X	0	0
38	75	X	0	0
39	75	X	0	0
40	75	X	0	0
41	69	X	-0.011	%30
42	69	X	0	0
43	69	X	0	0
44	69	X	0	0
45	69	X	0	0
46	93	X	-0.005	%15
47	93	X	0	0
48	93	X	0	0
49	93	X	0	0
50	93	X	0	0
51	38	X	-0.005	%15
52	38	X	0	0
53	38	X	0	0
54	38	X	0	0
55	38	X	0	0
56	57	X	-0.011	%30
57	57	X	0	0
58	57	X	0	0
59	57	X	0	0
60	57	X	0	0
61	77	X	-0.011	%30
62	77	X	0	0
63	77	X	0	0
64	77	X	0	0
65	77	X	0	0
66	71	X	-0.011	%30
67	71	X	0	0
68	71	X	0	0
69	71	X	0	0
70	71	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Z	-0.02	%5
2	50	Z	-0.02	%95
3	50	Z	-0.004	%40
4	50	Z	0	0
5	50	Z	0	0
6	51	Z	-0.018	%5
7	51	Z	-0.018	%95
8	51	Z	0	0
9	51	Z	0	0
10	51	Z	0	0
11	62	Z	-0.014	%5
12	62	Z	-0.014	%95
13	62	Z	-0.004	%30
14	62	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
15	62	Z	0	0
16	72	Z	-0.014	%5
17	72	Z	-0.014	%75
18	72	Z	0	0
19	72	Z	0	0
20	72	Z	0	0
21	59	Z	-0.02	%5
22	59	Z	-0.02	%95
23	59	Z	-0.004	%40
24	59	Z	0	0
25	59	Z	0	0
26	66	Z	-0.018	%5
27	66	Z	-0.018	%95
28	66	Z	0	0
29	66	Z	0	0
30	66	Z	0	0
31	55	Z	-0.003	%30
32	55	Z	0	0
33	55	Z	0	0
34	55	Z	0	0
35	55	Z	0	0
36	75	Z	-0.003	%30
37	75	Z	0	0
38	75	Z	0	0
39	75	Z	0	0
40	75	Z	0	0
41	69	Z	-0.003	%30
42	69	Z	0	0
43	69	Z	0	0
44	69	Z	0	0
45	69	Z	0	0
46	93	Z	-0.002	%15
47	93	Z	0	0
48	93	Z	0	0
49	93	Z	0	0
50	93	Z	0	0
51	38	Z	-0.002	%15
52	38	Z	0	0
53	38	Z	0	0
54	38	Z	0	0
55	38	Z	0	0
56	57	Z	-0.004	%30
57	57	Z	0	0
58	57	Z	0	0
59	57	Z	0	0
60	57	Z	0	0
61	77	Z	-0.004	%30
62	77	Z	0	0
63	77	Z	0	0
64	77	Z	0	0
65	77	Z	0	0
66	71	Z	-0.004	%30
67	71	Z	0	0
68	71	Z	0	0
69	71	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
70	71	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	X	-0.007	%5
2	50	X	-0.007	%95
3	50	X	-0.003	%40
4	50	X	0	0
5	50	X	0	0
6	51	X	-0.007	%5
7	51	X	-0.007	%95
8	51	X	0	0
9	51	X	0	0
10	51	X	0	0
11	62	X	-0.005	%5
12	62	X	-0.005	%95
13	62	X	-0.003	%30
14	62	X	0	0
15	62	X	0	0
16	72	X	-0.005	%5
17	72	X	-0.005	%75
18	72	X	0	0
19	72	X	0	0
20	72	X	0	0
21	59	X	-0.007	%5
22	59	X	-0.007	%95
23	59	X	-0.003	%40
24	59	X	0	0
25	59	X	0	0
26	66	X	-0.007	%5
27	66	X	-0.007	%95
28	66	X	0	0
29	66	X	0	0
30	66	X	0	0
31	55	X	-0.004	%30
32	55	X	0	0
33	55	X	0	0
34	55	X	0	0
35	55	X	0	0
36	75	X	-0.004	%30
37	75	X	0	0
38	75	X	0	0
39	75	X	0	0
40	75	X	0	0
41	69	X	-0.004	%30
42	69	X	0	0
43	69	X	0	0
44	69	X	0	0
45	69	X	0	0
46	93	X	-0.002	%15
47	93	X	0	0
48	93	X	0	0
49	93	X	0	0
50	93	X	0	0
51	38	X	-0.002	%15

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
52	38	X	0	0
53	38	X	0	0
54	38	X	0	0
55	38	X	0	0
56	57	X	-0.004	%30
57	57	X	0	0
58	57	X	0	0
59	57	X	0	0
60	57	X	0	0
61	77	X	-0.004	%30
62	77	X	0	0
63	77	X	0	0
64	77	X	0	0
65	77	X	0	0
66	71	X	-0.004	%30
67	71	X	0	0
68	71	X	0	0
69	71	X	0	0
70	71	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.141	%5
2	50	Y	-0.141	%95
3	50	Y	-0.036	%40
4	50	Y	0	0
5	50	Y	0	0
6	51	Y	-0.155	%5
7	51	Y	-0.155	%95
8	51	Y	0	0
9	51	Y	0	0
10	51	Y	0	0
11	62	Y	-0.11	%5
12	62	Y	-0.11	%95
13	62	Y	-0.036	%30
14	62	Y	0	0
15	62	Y	0	0
16	72	Y	-0.122	%5
17	72	Y	-0.122	%75
18	72	Y	0	0
19	72	Y	0	0
20	72	Y	0	0
21	59	Y	-0.141	%5
22	59	Y	-0.141	%95
23	59	Y	-0.036	%40
24	59	Y	0	0
25	59	Y	0	0
26	66	Y	-0.155	%5
27	66	Y	-0.155	%95
28	66	Y	0	0
29	66	Y	0	0
30	66	Y	0	0
31	55	Y	-0.036	%30
32	55	Y	0	0
33	55	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
34	55	Y	0	0
35	55	Y	0	0
36	75	Y	-0.036	%30
37	75	Y	0	0
38	75	Y	0	0
39	75	Y	0	0
40	75	Y	0	0
41	69	Y	-0.036	%30
42	69	Y	0	0
43	69	Y	0	0
44	69	Y	0	0
45	69	Y	0	0
46	93	Y	-0.032	%15
47	93	Y	0	0
48	93	Y	0	0
49	93	Y	0	0
50	93	Y	0	0
51	38	Y	-0.032	%15
52	38	Y	0	0
53	38	Y	0	0
54	38	Y	0	0
55	38	Y	0	0
56	57	Y	-0.039	%30
57	57	Y	0	0
58	57	Y	0	0
59	57	Y	0	0
60	57	Y	0	0
61	77	Y	-0.039	%30
62	77	Y	0	0
63	77	Y	0	0
64	77	Y	0	0
65	77	Y	0	0
66	71	Y	-0.039	%30
67	71	Y	0	0
68	71	Y	0	0
69	71	Y	0	0
70	71	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Z	-0.025	%5
2	50	Z	-0.025	%95
3	50	Z	-0.019	%40
4	50	Z	0	0
5	50	Z	0	0
6	51	Z	-0.034	%5
7	51	Z	-0.034	%95
8	51	Z	0	0
9	51	Z	0	0
10	51	Z	0	0
11	62	Z	-0.021	%5
12	62	Z	-0.021	%95
13	62	Z	-0.019	%30
14	62	Z	0	0
15	62	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
16	72	Z	-0.029	%5
17	72	Z	-0.029	%75
18	72	Z	0	0
19	72	Z	0	0
20	72	Z	0	0
21	59	Z	-0.025	%5
22	59	Z	-0.025	%95
23	59	Z	-0.019	%40
24	59	Z	0	0
25	59	Z	0	0
26	66	Z	-0.034	%5
27	66	Z	-0.034	%95
28	66	Z	0	0
29	66	Z	0	0
30	66	Z	0	0
31	55	Z	-0.023	%30
32	55	Z	0	0
33	55	Z	0	0
34	55	Z	0	0
35	55	Z	0	0
36	75	Z	-0.023	%30
37	75	Z	0	0
38	75	Z	0	0
39	75	Z	0	0
40	75	Z	0	0
41	69	Z	-0.023	%30
42	69	Z	0	0
43	69	Z	0	0
44	69	Z	0	0
45	69	Z	0	0
46	93	Z	-0.006	%15
47	93	Z	0	0
48	93	Z	0	0
49	93	Z	0	0
50	93	Z	0	0
51	38	Z	-0.006	%15
52	38	Z	0	0
53	38	Z	0	0
54	38	Z	0	0
55	38	Z	0	0
56	57	Z	-0.024	%30
57	57	Z	0	0
58	57	Z	0	0
59	57	Z	0	0
60	57	Z	0	0
61	77	Z	-0.024	%30
62	77	Z	0	0
63	77	Z	0	0
64	77	Z	0	0
65	77	Z	0	0
66	71	Z	-0.024	%30
67	71	Z	0	0
68	71	Z	0	0
69	71	Z	0	0
70	71	Z	0	0

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

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	X	-0.025	%5
2	50	X	-0.025	%95
3	50	X	-0.019	%40
4	50	X	0	0
5	50	X	0	0
6	51	X	-0.034	%5
7	51	X	-0.034	%95
8	51	X	0	0
9	51	X	0	0
10	51	X	0	0
11	62	X	-0.021	%5
12	62	X	-0.021	%95
13	62	X	-0.019	%30
14	62	X	0	0
15	62	X	0	0
16	72	X	-0.029	%5
17	72	X	-0.029	%75
18	72	X	0	0
19	72	X	0	0
20	72	X	0	0
21	59	X	-0.025	%5
22	59	X	-0.025	%95
23	59	X	-0.019	%40
24	59	X	0	0
25	59	X	0	0
26	66	X	-0.034	%5
27	66	X	-0.034	%95
28	66	X	0	0
29	66	X	0	0
30	66	X	0	0
31	55	X	-0.023	%30
32	55	X	0	0
33	55	X	0	0
34	55	X	0	0
35	55	X	0	0
36	75	X	-0.023	%30
37	75	X	0	0
38	75	X	0	0
39	75	X	0	0
40	75	X	0	0
41	69	X	-0.023	%30
42	69	X	0	0
43	69	X	0	0
44	69	X	0	0
45	69	X	0	0
46	93	X	-0.006	%15
47	93	X	0	0
48	93	X	0	0
49	93	X	0	0
50	93	X	0	0
51	38	X	-0.006	%15
52	38	X	0	0
53	38	X	0	0
54	38	X	0	0
55	38	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
56	57	X	-0.024	%30
57	57	X	0	0
58	57	X	0	0
59	57	X	0	0
60	57	X	0	0
61	77	X	-0.024	%30
62	77	X	0	0
63	77	X	0	0
64	77	X	0	0
65	77	X	0	0
66	71	X	-0.024	%30
67	71	X	0	0
68	71	X	0	0
69	71	X	0	0
70	71	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	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	58	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	Y	-0.25	%95

Member Point Loads (BLC 19 : Maint LL 5)

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

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	58	Y	-0.25	%95

Member Point Loads (BLC 21 : Maint LL 7)

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

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	38	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	82	Y	-0.25	%5
2	91A	Y	-0.25	%5
3	92A	Y	-0.25	%5

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	82	Y	-0.25	%95
2	91A	Y	-0.25	%95
3	92A	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	2	Z	-0.019	-0.019	0	%100
2	4	Z	-0.019	-0.019	0	%100
3	5	Z	-0.019	-0.019	0	%100
4	6	Z	-0.017	-0.017	0	%100
5	7	Z	-0.014	-0.014	0	%100
6	8	Z	-0.014	-0.014	0	%100
7	9	Z	-0.019	-0.019	0	%100
8	10	Z	-0.019	-0.019	0	%100
9	11	Z	-0.01	-0.01	0	%100
10	12	Z	-0.01	-0.01	0	%100
11	13	Z	-0.019	-0.019	0	%100
12	15	Z	-0.019	-0.019	0	%100
13	18	Z	-0.019	-0.019	0	%100
14	20	Z	-0.019	-0.019	0	%100
15	21	Z	-0.019	-0.019	0	%100
16	22	Z	-0.017	-0.017	0	%100
17	23	Z	-0.014	-0.014	0	%100
18	24	Z	-0.014	-0.014	0	%100
19	25	Z	-0.019	-0.019	0	%100
20	26	Z	-0.019	-0.019	0	%100
21	27	Z	-0.01	-0.01	0	%100
22	28	Z	-0.01	-0.01	0	%100
23	29	Z	-0.019	-0.019	0	%100
24	31	Z	-0.019	-0.019	0	%100
25	34	Z	-0.019	-0.019	0	%100
26	36	Z	-0.019	-0.019	0	%100
27	37	Z	-0.019	-0.019	0	%100
28	38	Z	-0.017	-0.017	0	%100
29	39	Z	-0.014	-0.014	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, %)]
30	40	Z	-0.014	-0.014	0	%100
31	41	Z	-0.019	-0.019	0	%100
32	42	Z	-0.019	-0.019	0	%100
33	43	Z	-0.01	-0.01	0	%100
34	44	Z	-0.01	-0.01	0	%100
35	45	Z	-0.019	-0.019	0	%100
36	47	Z	-0.019	-0.019	0	%100
37	49	Z	-0.011	-0.011	0	%100
38	50	Z	-0.007	-0.007	0	%100
39	51	Z	-0.009	-0.009	0	%100
40	55	Z	-0.007	-0.007	0	%100
41	57	Z	-0.006	-0.006	0	%100
42	58	Z	-0.011	-0.011	0	%100
43	59	Z	-0.007	-0.007	0	%100
44	61	Z	-0.011	-0.011	0	%100
45	62	Z	-0.007	-0.007	0	%100
46	66	Z	-0.009	-0.009	0	%100
47	69	Z	-0.007	-0.007	0	%100
48	71	Z	-0.006	-0.006	0	%100
49	72	Z	-0.009	-0.009	0	%100
50	75	Z	-0.007	-0.007	0	%100
51	77	Z	-0.006	-0.006	0	%100
52	79	Z	-0.009	-0.009	0	%100
53	80	Z	-0.009	-0.009	0	%100
54	81	Z	-0.009	-0.009	0	%100
55	82	Z	-0.007	-0.007	0	%100
56	91A	Z	-0.007	-0.007	0	%100
57	92A	Z	-0.007	-0.007	0	%100
58	93	Z	-0.006	-0.006	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	2	X	-0.019	-0.019	0	%100
2	4	X	-0.019	-0.019	0	%100
3	5	X	-0.019	-0.019	0	%100
4	6	X	-0.017	-0.017	0	%100
5	7	X	-0.014	-0.014	0	%100
6	8	X	-0.014	-0.014	0	%100
7	9	X	-0.019	-0.019	0	%100
8	10	X	-0.019	-0.019	0	%100
9	11	X	-0.01	-0.01	0	%100
10	12	X	-0.01	-0.01	0	%100
11	13	X	-0.019	-0.019	0	%100
12	15	X	-0.019	-0.019	0	%100
13	18	X	-0.019	-0.019	0	%100
14	20	X	-0.019	-0.019	0	%100
15	21	X	-0.019	-0.019	0	%100
16	22	X	-0.017	-0.017	0	%100
17	23	X	-0.014	-0.014	0	%100
18	24	X	-0.014	-0.014	0	%100
19	25	X	-0.019	-0.019	0	%100
20	26	X	-0.019	-0.019	0	%100
21	27	X	-0.01	-0.01	0	%100
22	28	X	-0.01	-0.01	0	%100
23	29	X	-0.019	-0.019	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, %)]
24	31	X	-0.019	-0.019	0	%100
25	34	X	-0.019	-0.019	0	%100
26	36	X	-0.019	-0.019	0	%100
27	37	X	-0.019	-0.019	0	%100
28	38	X	-0.017	-0.017	0	%100
29	39	X	-0.014	-0.014	0	%100
30	40	X	-0.014	-0.014	0	%100
31	41	X	-0.019	-0.019	0	%100
32	42	X	-0.019	-0.019	0	%100
33	43	X	-0.01	-0.01	0	%100
34	44	X	-0.01	-0.01	0	%100
35	45	X	-0.019	-0.019	0	%100
36	47	X	-0.019	-0.019	0	%100
37	49	X	-0.011	-0.011	0	%100
38	50	X	-0.007	-0.007	0	%100
39	51	X	-0.009	-0.009	0	%100
40	55	X	-0.007	-0.007	0	%100
41	57	X	-0.006	-0.006	0	%100
42	58	X	-0.011	-0.011	0	%100
43	59	X	-0.007	-0.007	0	%100
44	61	X	-0.011	-0.011	0	%100
45	62	X	-0.007	-0.007	0	%100
46	66	X	-0.009	-0.009	0	%100
47	69	X	-0.007	-0.007	0	%100
48	71	X	-0.006	-0.006	0	%100
49	72	X	-0.009	-0.009	0	%100
50	75	X	-0.007	-0.007	0	%100
51	77	X	-0.006	-0.006	0	%100
52	79	X	-0.009	-0.009	0	%100
53	80	X	-0.009	-0.009	0	%100
54	81	X	-0.009	-0.009	0	%100
55	82	X	-0.007	-0.007	0	%100
56	91A	X	-0.007	-0.007	0	%100
57	92A	X	-0.007	-0.007	0	%100
58	93	X	-0.006	-0.006	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	2	Z	-0.008	-0.008	0	%100
2	4	Z	-0.008	-0.008	0	%100
3	5	Z	-0.006	-0.006	0	%100
4	6	Z	-0.005	-0.005	0	%100
5	7	Z	-0.005	-0.005	0	%100
6	8	Z	-0.005	-0.005	0	%100
7	9	Z	-0.008	-0.008	0	%100
8	10	Z	-0.008	-0.008	0	%100
9	11	Z	-0.004	-0.004	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.008	-0.008	0	%100
12	15	Z	-0.008	-0.008	0	%100
13	18	Z	-0.008	-0.008	0	%100
14	20	Z	-0.008	-0.008	0	%100
15	21	Z	-0.006	-0.006	0	%100
16	22	Z	-0.005	-0.005	0	%100
17	23	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, %)]
18	24	Z	-0.005	-0.005	0	%100
19	25	Z	-0.008	-0.008	0	%100
20	26	Z	-0.008	-0.008	0	%100
21	27	Z	-0.004	-0.004	0	%100
22	28	Z	-0.004	-0.004	0	%100
23	29	Z	-0.008	-0.008	0	%100
24	31	Z	-0.008	-0.008	0	%100
25	34	Z	-0.008	-0.008	0	%100
26	36	Z	-0.008	-0.008	0	%100
27	37	Z	-0.006	-0.006	0	%100
28	38	Z	-0.005	-0.005	0	%100
29	39	Z	-0.005	-0.005	0	%100
30	40	Z	-0.005	-0.005	0	%100
31	41	Z	-0.008	-0.008	0	%100
32	42	Z	-0.008	-0.008	0	%100
33	43	Z	-0.004	-0.004	0	%100
34	44	Z	-0.004	-0.004	0	%100
35	45	Z	-0.008	-0.008	0	%100
36	47	Z	-0.008	-0.008	0	%100
37	49	Z	-0.002	-0.002	0	%100
38	50	Z	-0.001	-0.001	0	%100
39	51	Z	-0.002	-0.002	0	%100
40	55	Z	-0.001	-0.001	0	%100
41	57	Z	-0.001	-0.001	0	%100
42	58	Z	-0.002	-0.002	0	%100
43	59	Z	-0.001	-0.001	0	%100
44	61	Z	-0.002	-0.002	0	%100
45	62	Z	-0.001	-0.001	0	%100
46	66	Z	-0.002	-0.002	0	%100
47	69	Z	-0.001	-0.001	0	%100
48	71	Z	-0.001	-0.001	0	%100
49	72	Z	-0.002	-0.002	0	%100
50	75	Z	-0.001	-0.001	0	%100
51	77	Z	-0.001	-0.001	0	%100
52	79	Z	-0.004	-0.004	0	%100
53	80	Z	-0.004	-0.004	0	%100
54	81	Z	-0.004	-0.004	0	%100
55	82	Z	-0.001	-0.001	0	%100
56	91A	Z	-0.001	-0.001	0	%100
57	92A	Z	-0.001	-0.001	0	%100
58	93	Z	-0.001	-0.001	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	2	X	-0.008	-0.008	0	%100
2	4	X	-0.008	-0.008	0	%100
3	5	X	-0.006	-0.006	0	%100
4	6	X	-0.005	-0.005	0	%100
5	7	X	-0.005	-0.005	0	%100
6	8	X	-0.005	-0.005	0	%100
7	9	X	-0.008	-0.008	0	%100
8	10	X	-0.008	-0.008	0	%100
9	11	X	-0.004	-0.004	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.008	-0.008	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, %)]
12	15	X	-0.008	-0.008	0	%100
13	18	X	-0.008	-0.008	0	%100
14	20	X	-0.008	-0.008	0	%100
15	21	X	-0.006	-0.006	0	%100
16	22	X	-0.005	-0.005	0	%100
17	23	X	-0.005	-0.005	0	%100
18	24	X	-0.005	-0.005	0	%100
19	25	X	-0.008	-0.008	0	%100
20	26	X	-0.008	-0.008	0	%100
21	27	X	-0.004	-0.004	0	%100
22	28	X	-0.004	-0.004	0	%100
23	29	X	-0.008	-0.008	0	%100
24	31	X	-0.008	-0.008	0	%100
25	34	X	-0.008	-0.008	0	%100
26	36	X	-0.008	-0.008	0	%100
27	37	X	-0.006	-0.006	0	%100
28	38	X	-0.005	-0.005	0	%100
29	39	X	-0.005	-0.005	0	%100
30	40	X	-0.005	-0.005	0	%100
31	41	X	-0.008	-0.008	0	%100
32	42	X	-0.008	-0.008	0	%100
33	43	X	-0.004	-0.004	0	%100
34	44	X	-0.004	-0.004	0	%100
35	45	X	-0.008	-0.008	0	%100
36	47	X	-0.008	-0.008	0	%100
37	49	X	-0.002	-0.002	0	%100
38	50	X	-0.001	-0.001	0	%100
39	51	X	-0.002	-0.002	0	%100
40	55	X	-0.001	-0.001	0	%100
41	57	X	-0.001	-0.001	0	%100
42	58	X	-0.002	-0.002	0	%100
43	59	X	-0.001	-0.001	0	%100
44	61	X	-0.002	-0.002	0	%100
45	62	X	-0.001	-0.001	0	%100
46	66	X	-0.002	-0.002	0	%100
47	69	X	-0.001	-0.001	0	%100
48	71	X	-0.001	-0.001	0	%100
49	72	X	-0.002	-0.002	0	%100
50	75	X	-0.001	-0.001	0	%100
51	77	X	-0.001	-0.001	0	%100
52	79	X	-0.004	-0.004	0	%100
53	80	X	-0.004	-0.004	0	%100
54	81	X	-0.004	-0.004	0	%100
55	82	X	-0.001	-0.001	0	%100
56	91A	X	-0.001	-0.001	0	%100
57	92A	X	-0.001	-0.001	0	%100
58	93	X	-0.001	-0.001	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	2	Z	-0.001	-0.001	0	%100
2	4	Z	-0.001	-0.001	0	%100
3	5	Z	-0.001	-0.001	0	%100
4	6	Z	-0.001	-0.001	0	%100
5	7	Z	-0.001	-0.001	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, %)]
6	8	Z	-0.001	-0.001	0	%100
7	9	Z	-0.001	-0.001	0	%100
8	10	Z	-0.001	-0.001	0	%100
9	11	Z	-0.0007	-0.0007	0	%100
10	12	Z	-0.0007	-0.0007	0	%100
11	13	Z	-0.001	-0.001	0	%100
12	15	Z	-0.001	-0.001	0	%100
13	18	Z	-0.001	-0.001	0	%100
14	20	Z	-0.001	-0.001	0	%100
15	21	Z	-0.001	-0.001	0	%100
16	22	Z	-0.001	-0.001	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	-0.001	-0.001	0	%100
21	27	Z	-0.0007	-0.0007	0	%100
22	28	Z	-0.0007	-0.0007	0	%100
23	29	Z	-0.001	-0.001	0	%100
24	31	Z	-0.001	-0.001	0	%100
25	34	Z	-0.001	-0.001	0	%100
26	36	Z	-0.001	-0.001	0	%100
27	37	Z	-0.001	-0.001	0	%100
28	38	Z	-0.001	-0.001	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	-0.001	-0.001	0	%100
33	43	Z	-0.0007	-0.0007	0	%100
34	44	Z	-0.0007	-0.0007	0	%100
35	45	Z	-0.001	-0.001	0	%100
36	47	Z	-0.001	-0.001	0	%100
37	49	Z	-0.0004	-0.0004	0	%100
38	50	Z	-0.0002	-0.0002	0	%100
39	51	Z	-0.0003	-0.0003	0	%100
40	55	Z	-0.0002	-0.0002	0	%100
41	57	Z	-0.0002	-0.0002	0	%100
42	58	Z	-0.0004	-0.0004	0	%100
43	59	Z	-0.0002	-0.0002	0	%100
44	61	Z	-0.0004	-0.0004	0	%100
45	62	Z	-0.0002	-0.0002	0	%100
46	66	Z	-0.0003	-0.0003	0	%100
47	69	Z	-0.0002	-0.0002	0	%100
48	71	Z	-0.0002	-0.0002	0	%100
49	72	Z	-0.0003	-0.0003	0	%100
50	75	Z	-0.0002	-0.0002	0	%100
51	77	Z	-0.0002	-0.0002	0	%100
52	79	Z	-0.0006	-0.0006	0	%100
53	80	Z	-0.0006	-0.0006	0	%100
54	81	Z	-0.0006	-0.0006	0	%100
55	82	Z	-0.0002	-0.0002	0	%100
56	91A	Z	-0.0002	-0.0002	0	%100
57	92A	Z	-0.0002	-0.0002	0	%100
58	93	Z	-0.0002	-0.0002	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	2	X	-0.001	-0.001	0	%100
2	4	X	-0.001	-0.001	0	%100
3	5	X	-0.001	-0.001	0	%100
4	6	X	-0.001	-0.001	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	-0.001	-0.001	0	%100
9	11	X	-0.0007	-0.0007	0	%100
10	12	X	-0.0007	-0.0007	0	%100
11	13	X	-0.001	-0.001	0	%100
12	15	X	-0.001	-0.001	0	%100
13	18	X	-0.001	-0.001	0	%100
14	20	X	-0.001	-0.001	0	%100
15	21	X	-0.001	-0.001	0	%100
16	22	X	-0.001	-0.001	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	-0.001	-0.001	0	%100
21	27	X	-0.0007	-0.0007	0	%100
22	28	X	-0.0007	-0.0007	0	%100
23	29	X	-0.001	-0.001	0	%100
24	31	X	-0.001	-0.001	0	%100
25	34	X	-0.001	-0.001	0	%100
26	36	X	-0.001	-0.001	0	%100
27	37	X	-0.001	-0.001	0	%100
28	38	X	-0.001	-0.001	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	-0.001	-0.001	0	%100
33	43	X	-0.0007	-0.0007	0	%100
34	44	X	-0.0007	-0.0007	0	%100
35	45	X	-0.001	-0.001	0	%100
36	47	X	-0.001	-0.001	0	%100
37	49	X	-0.0004	-0.0004	0	%100
38	50	X	-0.0002	-0.0002	0	%100
39	51	X	-0.0003	-0.0003	0	%100
40	55	X	-0.0002	-0.0002	0	%100
41	57	X	-0.0002	-0.0002	0	%100
42	58	X	-0.0004	-0.0004	0	%100
43	59	X	-0.0002	-0.0002	0	%100
44	61	X	-0.0004	-0.0004	0	%100
45	62	X	-0.0002	-0.0002	0	%100
46	66	X	-0.0003	-0.0003	0	%100
47	69	X	-0.0002	-0.0002	0	%100
48	71	X	-0.0002	-0.0002	0	%100
49	72	X	-0.0003	-0.0003	0	%100
50	75	X	-0.0002	-0.0002	0	%100
51	77	X	-0.0002	-0.0002	0	%100
52	79	X	-0.0006	-0.0006	0	%100
53	80	X	-0.0006	-0.0006	0	%100
54	81	X	-0.0006	-0.0006	0	%100
55	82	X	-0.0002	-0.0002	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, %)]
56	91A	X	-0.0002	-0.0002	0	%100
57	92A	X	-0.0002	-0.0002	0	%100
58	93	X	-0.0002	-0.0002	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	2	Y	-0.01	-0.01	0	%100
2	4	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	-0.01	-0.01	0	%100
6	8	Y	-0.01	-0.01	0	%100
7	9	Y	-0.01	-0.01	0	%100
8	10	Y	-0.01	-0.01	0	%100
9	11	Y	-0.006	-0.006	0	%100
10	12	Y	-0.006	-0.006	0	%100
11	13	Y	-0.01	-0.01	0	%100
12	15	Y	-0.01	-0.01	0	%100
13	18	Y	-0.01	-0.01	0	%100
14	20	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	-0.01	-0.01	0	%100
18	24	Y	-0.01	-0.01	0	%100
19	25	Y	-0.01	-0.01	0	%100
20	26	Y	-0.01	-0.01	0	%100
21	27	Y	-0.006	-0.006	0	%100
22	28	Y	-0.006	-0.006	0	%100
23	29	Y	-0.01	-0.01	0	%100
24	31	Y	-0.01	-0.01	0	%100
25	34	Y	-0.01	-0.01	0	%100
26	36	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	-0.01	-0.01	0	%100
30	40	Y	-0.01	-0.01	0	%100
31	41	Y	-0.01	-0.01	0	%100
32	42	Y	-0.01	-0.01	0	%100
33	43	Y	-0.006	-0.006	0	%100
34	44	Y	-0.006	-0.006	0	%100
35	45	Y	-0.01	-0.01	0	%100
36	47	Y	-0.01	-0.01	0	%100
37	49	Y	-0.007	-0.007	0	%100
38	50	Y	-0.005	-0.005	0	%100
39	51	Y	-0.006	-0.006	0	%100
40	55	Y	-0.005	-0.005	0	%100
41	57	Y	-0.005	-0.005	0	%100
42	58	Y	-0.007	-0.007	0	%100
43	59	Y	-0.005	-0.005	0	%100
44	61	Y	-0.007	-0.007	0	%100
45	62	Y	-0.005	-0.005	0	%100
46	66	Y	-0.006	-0.006	0	%100
47	69	Y	-0.005	-0.005	0	%100
48	71	Y	-0.005	-0.005	0	%100
49	72	Y	-0.006	-0.006	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, %)]
50	75	Y	-0.005	-0.005	0	%100
51	77	Y	-0.005	-0.005	0	%100
52	79	Y	-0.007	-0.007	0	%100
53	80	Y	-0.007	-0.007	0	%100
54	81	Y	-0.007	-0.007	0	%100
55	82	Y	-0.005	-0.005	0	%100
56	91A	Y	-0.005	-0.005	0	%100
57	92A	Y	-0.005	-0.005	0	%100
58	93	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	2	Z	-0.003	-0.003	0	%100
2	4	Z	-0.003	-0.003	0	%100
3	5	Z	-0.003	-0.003	0	%100
4	6	Z	-0.004	-0.004	0	%100
5	7	Z	-0.004	-0.004	0	%100
6	8	Z	-0.004	-0.004	0	%100
7	9	Z	-0.002	-0.002	0	%100
8	10	Z	-0.002	-0.002	0	%100
9	11	Z	-0.0008	-0.0008	0	%100
10	12	Z	-0.0008	-0.0008	0	%100
11	13	Z	-0.002	-0.002	0	%100
12	15	Z	-0.002	-0.002	0	%100
13	18	Z	-0.003	-0.003	0	%100
14	20	Z	-0.003	-0.003	0	%100
15	21	Z	-0.003	-0.003	0	%100
16	22	Z	-0.004	-0.004	0	%100
17	23	Z	-0.004	-0.004	0	%100
18	24	Z	-0.004	-0.004	0	%100
19	25	Z	-0.002	-0.002	0	%100
20	26	Z	-0.002	-0.002	0	%100
21	27	Z	-0.0008	-0.0008	0	%100
22	28	Z	-0.0008	-0.0008	0	%100
23	29	Z	-0.002	-0.002	0	%100
24	31	Z	-0.002	-0.002	0	%100
25	34	Z	-0.003	-0.003	0	%100
26	36	Z	-0.003	-0.003	0	%100
27	37	Z	-0.003	-0.003	0	%100
28	38	Z	-0.004	-0.004	0	%100
29	39	Z	-0.004	-0.004	0	%100
30	40	Z	-0.004	-0.004	0	%100
31	41	Z	-0.002	-0.002	0	%100
32	42	Z	-0.002	-0.002	0	%100
33	43	Z	-0.0008	-0.0008	0	%100
34	44	Z	-0.0008	-0.0008	0	%100
35	45	Z	-0.002	-0.002	0	%100
36	47	Z	-0.002	-0.002	0	%100
37	49	Z	-0.003	-0.003	0	%100
38	50	Z	-0.001	-0.001	0	%100
39	51	Z	-0.002	-0.002	0	%100
40	55	Z	-0.001	-0.001	0	%100
41	57	Z	-0.001	-0.001	0	%100
42	58	Z	-0.003	-0.003	0	%100
43	59	Z	-0.001	-0.001	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, %)]
44	61	Z	-0.003	-0.003	0	%100
45	62	Z	-0.001	-0.001	0	%100
46	66	Z	-0.002	-0.002	0	%100
47	69	Z	-0.001	-0.001	0	%100
48	71	Z	-0.001	-0.001	0	%100
49	72	Z	-0.002	-0.002	0	%100
50	75	Z	-0.001	-0.001	0	%100
51	77	Z	-0.001	-0.001	0	%100
52	79	Z	-0.001	-0.001	0	%100
53	80	Z	-0.001	-0.001	0	%100
54	81	Z	-0.001	-0.001	0	%100
55	82	Z	-0.001	-0.001	0	%100
56	91A	Z	-0.001	-0.001	0	%100
57	92A	Z	-0.001	-0.001	0	%100
58	93	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	2	X	-0.003	-0.003	0	%100
2	4	X	-0.003	-0.003	0	%100
3	5	X	-0.003	-0.003	0	%100
4	6	X	-0.004	-0.004	0	%100
5	7	X	-0.004	-0.004	0	%100
6	8	X	-0.004	-0.004	0	%100
7	9	X	-0.002	-0.002	0	%100
8	10	X	-0.002	-0.002	0	%100
9	11	X	-0.0008	-0.0008	0	%100
10	12	X	-0.0008	-0.0008	0	%100
11	13	X	-0.002	-0.002	0	%100
12	15	X	-0.002	-0.002	0	%100
13	18	X	-0.003	-0.003	0	%100
14	20	X	-0.003	-0.003	0	%100
15	21	X	-0.003	-0.003	0	%100
16	22	X	-0.004	-0.004	0	%100
17	23	X	-0.004	-0.004	0	%100
18	24	X	-0.004	-0.004	0	%100
19	25	X	-0.002	-0.002	0	%100
20	26	X	-0.002	-0.002	0	%100
21	27	X	-0.0008	-0.0008	0	%100
22	28	X	-0.0008	-0.0008	0	%100
23	29	X	-0.002	-0.002	0	%100
24	31	X	-0.002	-0.002	0	%100
25	34	X	-0.003	-0.003	0	%100
26	36	X	-0.003	-0.003	0	%100
27	37	X	-0.003	-0.003	0	%100
28	38	X	-0.004	-0.004	0	%100
29	39	X	-0.004	-0.004	0	%100
30	40	X	-0.004	-0.004	0	%100
31	41	X	-0.002	-0.002	0	%100
32	42	X	-0.002	-0.002	0	%100
33	43	X	-0.0008	-0.0008	0	%100
34	44	X	-0.0008	-0.0008	0	%100
35	45	X	-0.002	-0.002	0	%100
36	47	X	-0.002	-0.002	0	%100
37	49	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, %)]
38	50	X	-0.001	-0.001	0	%100
39	51	X	-0.002	-0.002	0	%100
40	55	X	-0.001	-0.001	0	%100
41	57	X	-0.001	-0.001	0	%100
42	58	X	-0.003	-0.003	0	%100
43	59	X	-0.001	-0.001	0	%100
44	61	X	-0.003	-0.003	0	%100
45	62	X	-0.001	-0.001	0	%100
46	66	X	-0.002	-0.002	0	%100
47	69	X	-0.001	-0.001	0	%100
48	71	X	-0.001	-0.001	0	%100
49	72	X	-0.002	-0.002	0	%100
50	75	X	-0.001	-0.001	0	%100
51	77	X	-0.001	-0.001	0	%100
52	79	X	-0.001	-0.001	0	%100
53	80	X	-0.001	-0.001	0	%100
54	81	X	-0.001	-0.001	0	%100
55	82	X	-0.001	-0.001	0	%100
56	91A	X	-0.001	-0.001	0	%100
57	92A	X	-0.001	-0.001	0	%100
58	93	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 30 : 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	6	Y	-0.011	-0.011	2.424	4.115
2	7	Y	-0.009	-0.009	1.573	2.541
3	8	Y	-0.009	-0.009	0	0.969
4	11	Y	-0.009	-0.005	0	2.117
5	11	Y	-0.005	-0.001	2.117	4.234
6	12	Y	-0.001	-0.005	0	2.117
7	12	Y	-0.005	-0.008	2.117	4.234
8	22	Y	-0.011	-0.011	2.424	4.115
9	23	Y	-0.009	-0.009	1.573	2.541
10	24	Y	-0.009	-0.009	0	0.969
11	27	Y	-0.009	-0.005	0	2.117
12	27	Y	-0.005	-0.001	2.117	4.234
13	28	Y	-0.001	-0.005	0	2.117
14	28	Y	-0.005	-0.008	2.117	4.234
15	38	Y	-0.011	-0.011	2.424	4.115
16	39	Y	-0.009	-0.009	1.573	2.541
17	40	Y	-0.009	-0.009	0	0.969
18	43	Y	-0.009	-0.005	0	2.117
19	43	Y	-0.005	-0.001	2.117	4.234
20	44	Y	-0.001	-0.005	0	2.117
21	44	Y	-0.005	-0.008	2.117	4.234

Member Distributed Loads (BLC 31 : 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	22	Y	-0.006	-0.006	2.426	4.111
2	23	Y	-0.005	-0.005	1.573	2.541
3	24	Y	-0.005	-0.005	0	0.969
4	27	Y	-0.005	-0.003	0	2.117
5	27	Y	-0.003	-0.0007984	2.117	4.234

Member Distributed Loads (BLC 31 : BLC 8 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
6	28	Y	-0.0007984	-0.003	0	2.117
7	28	Y	-0.003	-0.005	2.117	4.234
8	38	Y	-0.006	-0.006	2.426	4.111
9	39	Y	-0.004	-0.004	1.573	2.541
10	40	Y	-0.004	-0.004	0	0.969
11	43	Y	-0.004	-0.002	0	2.117
12	43	Y	-0.002	-0.0007283	2.117	4.234
13	44	Y	-0.0007283	-0.002	0	2.117
14	44	Y	-0.002	-0.004	2.117	4.234
15	6	Y	-0.006	-0.006	2.426	4.111
16	7	Y	-0.004	-0.004	1.573	2.541
17	8	Y	-0.004	-0.004	0	0.969
18	11	Y	-0.004	-0.002	0	2.117
19	11	Y	-0.002	-0.0007283	2.117	4.234
20	12	Y	-0.0007283	-0.002	0	2.117
21	12	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	35	43	42	35	Y	Two Way	-0.01
2	60	68	67	60	Y	Two Way	-0.01
3	9	17	16	9	Y	Two Way	-0.01

Member Area Loads (BLC 8 : Ice)

	Node A	Node B	Node C	Direction	Load Direction	Magnitude [ksf]
1	35	43	42	Y	Two Way	-0.005
2	60	68	67	Y	Two Way	-0.005
3	9	17	16	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	85	L	Y	-0.5
2	113	L	Y	-0.5
3	125	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	83	L	Y	-0.5
2	105	L	Y	-0.5
3	99	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	58	
3	90 Wind - No Ice	WLX			70	58	
4	0 Wind - Ice	WLZ			70	58	
5	90 Wind - Ice	WLX			70	58	
6	0 Wind - Service	WLZ			70	58	

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
7	90 Wind - Service	WLX			70	58	
8	Ice	OL1			70	58	3
9	0 Seismic	ELZ			70	58	
10	90 Seismic	ELX			70	58	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL					
14	Live Load d	LL					
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			3		
25	Maint LL 11	LL					
26	Maint LL 12	LL					
27	Maint LL 13	LL			3		
28	Maint LL 14	LL					
29	Maint LL 15	LL					
30	BLC 1 Transient Area Loads	None				21	
31	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		

Load Combinations (Continued)

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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
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

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	10	max	0.811	5	2.396	14	2.617	2	5.133	14	0.794	10	0.268	61
2		min	-0.811	11	0.337	8	-2.65	8	-0.126	8	-0.794	4	-0.172	7
3	36	max	1.602	6	2.207	18	1.408	13	-0.198	12	0.72	3	-0.132	12
4		min	-1.63	12	0.429	12	-1.388	7	-2.38	18	-0.72	9	-3.985	18
5	61	max	1.626	4	2.465	22	1.79	2	-0.051	3	1.337	7	4.543	22
6		min	-1.596	10	0.496	4	-1.776	8	-2.653	21	-1.337	13	0.315	4
7	Totals:	max	3.837	5	6.682	23	5.781	2						
8		min	-3.837	11	3.119	5	-5.781	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	50	PIPE_2.0	0.703	4.406	8	0.21	4.312		7	12.144	32.13	1.872	1.872	2.982	H1-1b
2	59	PIPE_2.0	0.653	4.688	2	0.193	2.25		12	12.144	32.13	1.872	1.872	1.541	H1-1b
3	66	PIPE_2.5	0.532	5.25	2	0.095	5.25		10	30.038	50.715	3.596	3.596	2.757	H1-1b
4	62	PIPE_2.0	0.491	2.812	2	0.223	2.812		3	20.867	32.13	1.872	1.872	3	H1-1b
5	38	HSS4X4X4	0.445	0	21	0.087	0	y	21	97.504	106.155	12.311	12.311	2.864	H1-1b
6	72	PIPE_2.5	0.443	5.25	7	0.104	5.25		2	30.038	50.715	3.596	3.596	3	H1-1b
7	6	HSS4X4X4	0.425	0	15	0.098	0	y	14	97.504	106.155	12.311	12.311	2.883	H1-1b
8	51	PIPE_2.5	0.422	5.25	2	0.097	5.25		8	30.038	50.715	3.596	3.596	2.571	H1-1b
9	79	L2.5x2.5x4	0.409	0	13	0.17	1.245	z	5	36.654	38.556	1.114	2.537	1.5	H2-1
10	91A	PIPE_2.0	0.39	1.953	9	0.138	1.172		7	6.295	32.13	1.872	1.872	1.753	H1-1b
11	22	HSS4X4X4	0.383	0	19	0.082	0	y	18	97.504	106.155	12.311	12.311	2.956	H1-1b
12	81	L2.5x2.5x4	0.347	0	9	0.223	1.245	z	13	36.654	38.556	1.114	2.537	1.5	H2-1
13	82	PIPE_2.0	0.335	7.292	9	0.168	1.172		2	6.295	32.13	1.872	1.872	2.584	H1-1b
14	80	L2.5x2.5x4	0.324	0	5	0.195	1.115	z	9	36.654	38.556	1.114	2.537	1.5	H2-1
15	92A	PIPE_2.0	0.296	7.292	5	0.127	7.292		98	6.295	32.13	1.872	1.872	2.901	H1-1b
16	55	PIPE_2.0	0.216	3.75	2	0.029	3.75		7	26.521	32.13	1.872	1.872	2.087	H1-1b
17	39	HSS4X4X4	0.209	2.541	23	0.059	2.541	y	21	103.994	106.155	12.311	12.311	1.646	H1-1b
18	23	HSS4X4X4	0.198	2.541	19	0.054	2.541	y	17	103.994	106.155	12.311	12.311	1.647	H1-1b
19	40	HSS4X4X4	0.197	0	21	0.058	0	y	22	103.994	106.155	12.311	12.311	1.661	H1-1b
20	7	HSS4X4X4	0.193	2.541	15	0.055	0.424	z	2	103.994	106.155	12.311	12.311	1.649	H1-1b
21	8	HSS4X4X4	0.192	0	14	0.059	2.118	z	2	103.994	106.155	12.311	12.311	1.665	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
22	12	L2x2x3	0.186	0	2	0.008	4.234	y	20	9.529	23.393	0.558	1.136	1.5	H2-1
23	27	L2x2x3	0.182	4.234	7	0.009	4.234	y	20	9.529	23.393	0.558	1.136	1.5	H2-1
24	41	PL3/8"x6	0.18	0.169	8	0.363	0.169	y	2	67.903	72.9	0.57	9.113	2.437	H1-1b
25	44	L2x2x3	0.18	0	9	0.008	4.234	y	15	9.529	23.393	0.558	1.136	1.5	H2-1
26	24	HSS4X4X4	0.178	0	17	0.051	0	y	19	103.994	106.155	12.311	12.311	1.658	H1-1b
27	11	L2x2x3	0.176	4.234	3	0.009	4.234	y	15	9.529	23.393	0.558	1.136	1.5	H2-1
28	49	PIPE_3.0	0.166	5.174	20	0.17	5.044		8	28.566	65.205	5.749	5.749	2.194	H1-1b
29	58	PIPE_3.0	0.163	5.174	23	0.138	5.044		13	28.566	65.205	5.749	5.749	2.083	H1-1b
30	47	PL3/8"x6	0.162	0.125	2	0.326	0	y	22	70.011	72.9	0.57	9.113	1.343	H1-1b
31	61	PIPE_3.0	0.159	7.372	55	0.107	5.044		4	28.566	65.205	5.749	5.749	1.818	H1-1b
32	69	PIPE_2.0	0.156	3.75	7	0.026	3.75		11	26.521	32.13	1.872	1.872	1.58	H1-1b
33	43	L2x2x3	0.15	4.234	11	0.01	4.234	y	23	9.529	23.393	0.558	1.136	1.5	H2-1
34	25	PL3/8"x6	0.129	0.169	4	0.34	0.169	y	58	67.903	72.9	0.57	9.113	2.45	H1-1b
35	5	PL1/2"x6	0.126	0.519	2	0.082	0.53	y	2	65.639	97.2	1.012	12.15	1.295	H1-1b
36	28	L2x2x3	0.124	0	5	0.008	4.234	y	25	9.529	23.393	0.558	1.127	1.437	H2-1
37	10	PL3/8"x6	0.123	0.169	3	0.295	0.169	y	45	67.903	72.9	0.57	9.113	2.514	H1-1b
38	31	PL3/8"x6	0.122	0.125	9	0.303	0	y	18	70.011	72.9	0.57	9.113	1.372	H1-1b
39	75	PIPE_2.0	0.118	3.75	9	0.028	3.75		3	26.521	32.13	1.872	1.872	1.232	H1-1b
40	9	PL3/8"x6	0.105	0.169	12	0.339	0.169	y	55	67.903	72.9	0.57	9.113	2.457	H1-1b
41	13	PL3/8"x6	0.101	0.125	9	0.297	0	y	14	70.011	72.9	0.57	9.113	1.33	H1-1b
42	21	PL1/2"x6	0.101	0.519	6	0.075	0.519	y	89	65.639	97.2	1.012	12.15	1.359	H1-1b
43	45	PL3/8"x6	0.099	0.125	7	0.303	0	y	22	70.011	72.9	0.57	9.113	1.458	H1-1b
44	37	PL1/2"x6	0.095	0.519	10	0.076	0.519	y	91	65.639	97.2	1.012	12.15	1.323	H1-1b
45	4	PL1/2"x6	0.086	0.25	2	0.069	0.25	y	90	95.014	97.2	1.012	12.15	1.424	H1-1b
46	42	PL3/8"x6	0.084	0.169	12	0.294	0.169	y	41	67.903	72.9	0.57	9.113	2.577	H1-1b
47	15	PL3/8"x6	0.08	0.125	5	0.299	0	y	14	70.011	72.9	0.57	9.113	1.375	H1-1b
48	26	PL3/8"x6	0.071	0.169	7	0.296	0.169	y	38	67.903	72.9	0.57	9.113	2.567	H1-1b
49	20	PL1/2"x6	0.065	0.25	6	0.069	0.25	y	89	95.014	97.2	1.012	12.15	1.368	H1-1b
50	36	PL1/2"x6	0.062	0.25	10	0.069	0.25	y	91	95.014	97.2	1.012	12.15	1.406	H1-1b
51	29	PL3/8"x6	0.057	0.125	2	0.273	0	y	18	70.011	72.9	0.57	9.113	1.36	H1-1b
52	34	PL1/2"x6	0.056	0.125	3	0.098	0.25	y	58	95.014	97.2	1.012	12.15	1.862	H1-1b
53	2	PL1/2"x6	0.054	0.25	2	0.098	0.25	y	51	95.014	97.2	1.012	12.15	1.56	H1-1b
54	93	PIPE_2.0	0.051	3	2	0.005	3		2	28.843	32.13	1.872	1.872	1	H1-1b
55	18	PL1/2"x6	0.048	0.25	7	0.095	0.25	y	55	95.014	97.2	1.012	12.15	2.23	H1-1b
56	77	PIPE_2.0	0.016	0.75	4	0.008	0.75		5	28.843	32.13	1.872	1.872	1.779	H1-1b
57	71	PIPE_2.0	0.016	0.75	12	0.008	0.75		11	28.843	32.13	1.872	1.872	1.778	H1-1b
58	57	PIPE_2.0	0.015	0.75	8	0.008	0.75		11	28.843	32.13	1.872	1.872	1.364	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**136923.003.01 - Horse Hill, CT**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**02/17/22**	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	:	2.617	k
Vertical Shear	:	2.396	k
Horizontal Shear	:	0.811	k
Torsion	:	0.268	k.ft
Moment from Horizontal Forces	:	0.794	k.ft
Moment from Vertical Forces	:	5.133	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	:	2.53	k
Force from Horz. Moment	:	1.44	k
Force from Vert. Moment	:	9.30	k
Shear Load / Bolt	:	0.63	k
Tension Load / Bolt	:	0.65	k
Resultant from Moments / Bolt	:	4.70	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	:	**25.86%**		**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	:	**11.64%**		**OKAY**
Unity Check, Combined	:	**37.50%**		**OKAY**
Available Bearing Strength, ΦR_n	:	52.00	k/bolt	
Unity Check, Bolt Bearing	:	**1.22%**		**OKAY**

PROJECT	**136923.003.01 - Horse Hill, CT**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**02/17/22**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Connecting Member Parameters

Plate Yield Strength, F_y	:	36.00	ksi	[AISC Table 2-5]
Plate Tensile Strength, F_u	:	58.00	ksi	[AISC Table 2-5]
Plate Height	:	10.00	in	
Plate Width	:	10.00	in	
Plate Thickness	:	0.75	in	
Edge Distance	:	1.06	in	
Gross Tension Area, A_{gt}	:	7.50	in^2	
Gross Shear Area, A_{gv}	:	1.125	in^2	
Net Area for tension, A_{nv}	:	6.98	in^2	
Net Area for shear, A_{nt}	:	6.00	in^2	

Plate Check

Available Tensile Yield	:	243.00	k	[Eq. J4-1]
Available Tensile Rupture	:	303.82	k	[Eq. J4-2]
Unity Check, Plate Tension	:	**2.21%**		**OKAY**
Available Shear Yield	:	24.30	k	[Eq. J4-3]
Available Shear Rupture	:	208.80	k	[Eq. J4-4]
Unity Check, Plate Shear	:	**10.41%**		**OKAY**
Available Block Shear, ΦRn	:	148.73	k	[Eq. J4-5]
Unity Check, Block Shear	:	**1.70%**		**OKAY**

Date: **February 22, 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:	CTL05183
	Site Name:	Horse Hill
	FA Number:	10071080
Crown Castle Designation:	**BU Number:**	876314
	Site Name:	Horse Hill
	JDE Job Number:	695654
	Work Order Number:	2054348
	Order Number:	595493 Rev. 0
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN9-948R1 / 2200039	
Site Data:	**214 Russian Village Rd, Southbury, New Haven County, CT 06488**	
	Latitude *41° 27' 7.97"*, Longitude *-73° 15' 1.25"*	
	130 Foot - Summit 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 – 76.1%**

This analysis utilizes an ultimate 3-second gust wind speed of 116 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 – Analysis Criteria.

Respectfully submitted by:

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

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 130 ft Monopole tower designed by Summit Manufacturing, Inc.

The tower was modified per reinforcement drawings prepared by Tower Engineering Professionals in April of 2013. Reinforcement consists of installing flat plate reinforcement from 0 ft to 115 ft. Per the post modification inspection completed by Tower Engineering Professionals, Inc., in April of 2013, these modifications have been properly installed and were considered in this analysis.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130.0	130.0	2	cci antennas	DMP65R-BU8D w/ Mount Pipe	6 2 2 2	1-5/8 3/8 7/8 13/16
		1	cci antennas	DMP65R-BU6D w/ Mount Pipe		
		2	cci antennas	OPA65R-BU8D w/ Mount Pipe		
		1	cci antennas	OPA65R-BU6D w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS 8843 B2/B66A_CCIV2		
		2	raycap	DC6-48-60-18-8F		
		3	-	Support Rail Kit		
		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)
120.0	120.0	3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe	4	1-1/4
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
		3	alcatel lucent	TD-RRH8X20-25		
		9	rfs celwave	ACU-A20-N		
		1	-	Platform Mount [LP 1201-1]		
118.0	119.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	-	-
		3	alcatel lucent	800MHZ RRH		
	118.0	1	-	Side Arm Mount [SO 102-3]		
	117.0	3	alcatel lucent	1900MHZ RRH (65MHZ)		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110.0	110.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		
100.0	103.0	3	ericsson	RADIO 4449 B71/B85A	4	1-5/8
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
	101.0	3	commscope	VV-65A-R1_TMO w/ Mount Pipe		
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	100.0	1	-	Platform Mount [LP 1201-1_KCKR-HR-1]		
90.0	90.0	-	-	-	6	1-5/8
80.0	80.0	1	gps	GPS_A	1	1/2
		1	-	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1529735	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1611741	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1529812	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3797841	CCISITES
4-POST-MODIFICATION INSPECTION	3797830	CCISITES

3.1) Analysis Method

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

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are 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	130 - 125	Pole	TP16x16x0.375	Pole	6.9	Pass
L2	125 - 120	Pole	TP16x16x0.375	Pole	13.6	Pass
L3	120 - 114.9	Pole + Reinf.	TP17.249x16x0.5125	Reinf. 7 Tension Rupture	17.7	Pass
L4	114.9 - 114.67	Pole + Reinf.	TP17.305x17.249x0.5125	Reinf. 7 Tension Rupture	18.0	Pass
L5	114.67 - 109.67	Pole + Reinf.	TP18.53x17.305x0.4813	Reinf. 7 Tension Rupture	24.2	Pass
L6	109.67 - 109.42	Pole + Reinf.	TP18.591x18.53x0.4813	Reinf. 7 Tension Rupture	24.6	Pass
L7	109.42 - 109.17	Pole + Reinf.	TP18.652x18.591x0.425	Reinf. 7 Tension Rupture	26.0	Pass
L8	109.17 - 104.17	Pole + Reinf.	TP19.877x18.652x0.4125	Reinf. 7 Tension Rupture	33.5	Pass
L9	104.17 - 103.92	Pole + Reinf.	TP19.938x19.877x0.4063	Reinf. 7 Tension Rupture	33.8	Pass
L10	103.92 - 103.67	Pole + Reinf.	TP19.999x19.938x0.45	Reinf. 7 Tension Rupture	33.0	Pass
L11	103.67 - 98.67	Pole + Reinf.	TP21.224x19.999x0.4375	Reinf. 7 Tension Rupture	43.4	Pass
L12	98.67 - 96.42	Pole + Reinf.	TP21.775x21.224x0.425	Reinf. 7 Tension Rupture	47.1	Pass
L13	96.42 - 96.17	Pole + Reinf.	TP21.836x21.775x0.3875	Reinf. 7 Tension Rupture	49.0	Pass
L14	96.17 - 94.5	Pole + Reinf.	TP22.98x21.836x0.3813	Reinf. 7 Tension Rupture	51.6	Pass
L15	94.5 - 89.5	Pole + Reinf.	TP23.095x21.87x0.4375	Reinf. 7 Tension Rupture	51.5	Pass
L16	89.5 - 88.92	Pole + Reinf.	TP23.237x23.095x0.4375	Reinf. 7 Tension Rupture	52.1	Pass
L17	88.92 - 88.67	Pole + Reinf.	TP23.299x23.237x0.325	Reinf. 7 Tension Rupture	60.5	Pass
L18	88.67 - 88.25	Pole + Reinf.	TP23.401x23.299x0.325	Reinf. 7 Tension Rupture	60.9	Pass
L19	88.25 - 88	Pole + Reinf.	TP23.463x23.401x0.4	Reinf. 7 Tension Rupture	55.6	Pass
L20	88 - 87.42	Pole + Reinf.	TP23.605x23.463x0.4	Reinf. 7 Tension Rupture	56.2	Pass
L21	87.42 - 87.17	Pole	TP23.666x23.605x0.25	Pole	63.2	Pass
L22	87.17 - 86.92	Pole	TP23.727x23.666x0.25	Pole	63.4	Pass
L23	86.92 - 86.67	Pole + Reinf.	TP23.789x23.727x0.4313	Reinf. 4 Tension Rupture	54.5	Pass
L24	86.67 - 81.67	Pole + Reinf.	TP25.014x23.789x0.4188	Reinf. 4 Tension Rupture	59.1	Pass
L25	81.67 - 80.75	Pole + Reinf.	TP25.239x25.014x0.4188	Reinf. 4 Tension Rupture	59.8	Pass
L26	80.75 - 80.5	Pole + Reinf.	TP25.3x25.239x0.3188	Reinf. 4 Tension Rupture	68.5	Pass
L27	80.5 - 75.5	Pole + Reinf.	TP26.525x25.3x0.3188	Reinf. 4 Tension Rupture	73.1	Pass
L28	75.5 - 71.83	Pole + Reinf.	TP27.424x26.525x0.3125	Reinf. 4 Tension Rupture	76.1	Pass
L29	71.83 - 71.58	Pole + Reinf.	TP27.485x27.424x0.4	Reinf. 4 Tension Rupture	67.5	Pass
L30	71.58 - 68.83	Pole + Reinf.	TP28.159x27.485x0.4	Reinf. 4 Tension Rupture	69.4	Pass
L31	68.83 - 68.58	Pole + Reinf.	TP28.22x28.159x0.4625	Reinf. 3 Tension Rupture	60.1	Pass
L32	68.58 - 68.25	Pole + Reinf.	TP29.22x28.22x0.4625	Reinf. 3 Tension Rupture	60.3	Pass
L33	68.25 - 63.25	Pole + Reinf.	TP29.026x27.801x0.5188	Reinf. 3 Tension Rupture	57.2	Pass
L34	63.25 - 58.25	Pole + Reinf.	TP30.251x29.026x0.5125	Reinf. 3 Tension Rupture	59.5	Pass
L35	58.25 - 53.25	Pole + Reinf.	TP31.476x30.251x0.5	Reinf. 3 Tension Rupture	61.5	Pass
L36	53.25 - 48.25	Pole + Reinf.	TP32.701x31.476x0.4875	Reinf. 3 Tension Rupture	63.3	Pass
L37	48.25 - 46.75	Pole + Reinf.	TP34.11x32.701x0.4875	Reinf. 3 Tension Rupture	63.8	Pass
L38	46.75 - 41.83	Pole + Reinf.	TP33.648x32.444x0.5188	Reinf. 3 Tension Rupture	63.4	Pass
L39	41.83 - 41.58	Pole	TP33.709x33.648x0.3438	Pole	67.2	Pass
L40	41.58 - 41.17	Pole	TP33.81x33.709x0.3438	Pole	67.4	Pass
L41	41.17 - 40.92	Pole + Reinf.	TP33.871x33.81x0.5188	Reinf. 2 Tension Rupture	63.6	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L42	40.92 - 35.92	Pole + Reinf.	TP35.095x33.871x0.5063	Reinf. 2 Tension Rupture	64.8	Pass
L43	35.92 - 30.92	Pole + Reinf.	TP36.318x35.095x0.5063	Reinf. 2 Tension Rupture	65.9	Pass
L44	30.92 - 25.92	Pole + Reinf.	TP37.542x36.318x0.4938	Reinf. 2 Tension Rupture	66.8	Pass
L45	25.92 - 25.25	Pole + Reinf.	TP38.93x37.542x0.4938	Reinf. 2 Tension Rupture	66.9	Pass
L46	25.25 - 19.25	Pole + Reinf.	TP38.49x37.019x0.525	Reinf. 2 Tension Rupture	65.9	Pass
L47	19.25 - 14.15	Pole + Reinf.	TP39.74x38.49x0.5188	Reinf. 1 Tension Rupture	66.5	Pass
L48	14.15 - 13.92	Pole + Reinf.	TP39.797x39.74x0.5188	Reinf. 1 Tension Rupture	66.5	Pass
L49	13.92 - 8.92	Pole + Reinf.	TP41.023x39.797x0.5125	Reinf. 1 Tension Rupture	67.0	Pass
L50	8.92 - 3.92	Pole + Reinf.	TP42.249x41.023x0.5125	Reinf. 1 Tension Rupture	67.3	Pass
L51	3.92 - 0	Pole + Reinf.	TP43.21x42.249x0.5063	Reinf. 1 Tension Rupture	67.6	Pass
					Summary	
				Pole	67.4	Pass
				Reinforcement	76.1	Pass
				Overall	76.1	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	120	38.7	Pass
1	Anchor Rods	0	45.5	Pass
1	Base Plate		57.0	Pass
1	Base Foundation (Structure)	0	42.8	Pass
1	Base Foundation (Soil Interaction)		58.1	Pass

Structure Rating (max from all components) =	76.1%*

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

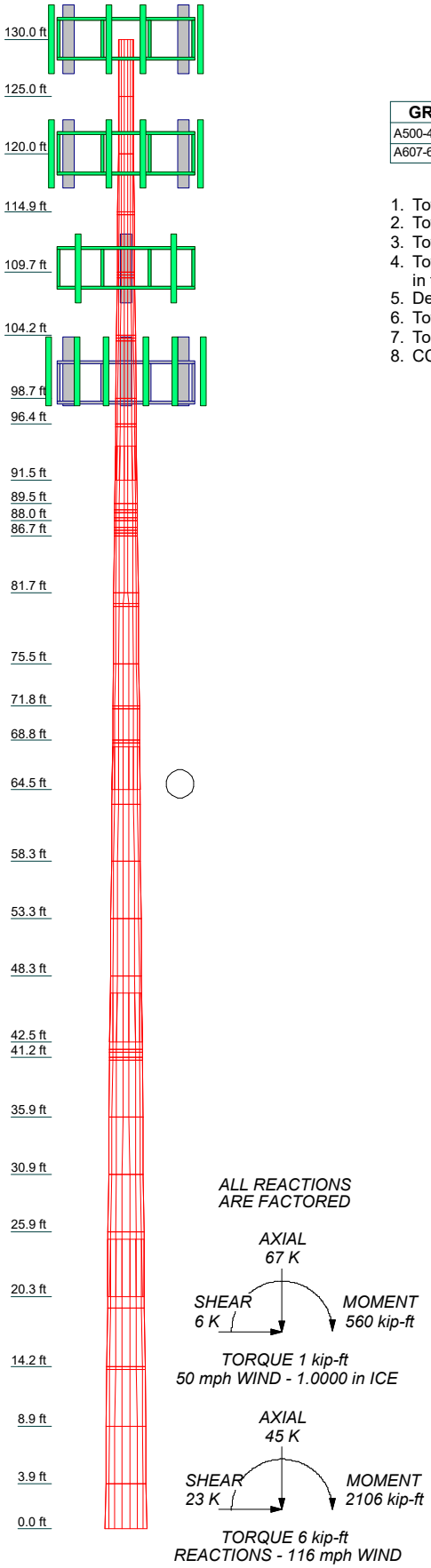
4.1) Recommendations

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Length (ft)	5.00	5.00	5.10	5.23	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	4.67	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	3.67	2.76	2.76	5.00	0.25	5.00	5.00	5.00	5.00	4.75	0.25	5.00	0.25	5.00	5.00	5.00	5.00	6.67	0.25	5.10	0.23	5.00	5.00	3.92
Number of Sides	0	0	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Thickness (in)	0.3750	0.3750	0.5125	0.5125	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.3750	0.3750	0.3750	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.3125	0.5125	0.5125	0.5000	0.4875	0.4875	0.4875	0.4875	0.4875	0.4875	0.5063	0.5063	0.4938	0.4938	0.5250	0.5188	0.5125	0.5125	0.5125	0.5062
Socket Length (ft)																																																				
Top Dia (in)	16.0000	16.0000	16.0000	16.0000	15.3054	15.3054	14.6108	14.6108	13.9162	13.9162	13.2216	13.2216	12.5270	11.8324	11.8324	11.1378	10.4432	10.4432	9.7486	9.7486	9.0540	9.0540	8.3594	8.3594	7.6648	7.6648	6.9702	6.2756	5.8608	5.4460	5.0312	4.6164	4.2016	3.7868	3.3720	2.9572	2.5424	2.1276	1.7128	1.2980	0.8832	0.4684	0.0536	-0.3612	-0.7760	-1.1908	-1.6056	-2.0204	-2.4352	-2.8500	-3.2648	-3.6796
Bot Dia (in)	16.0000	16.0000	15.2491	15.3054	14.6108	14.6108	13.9162	13.9162	13.2216	13.2216	12.5270	11.8324	11.8324	11.1378	10.4432	10.4432	9.7486	9.7486	9.0540	9.0540	8.3594	8.3594	7.6648	7.6648	6.9702	6.2756	5.8608	5.4460	5.0312	4.6164	4.2016	3.7868	3.3720	2.9572	2.5424	2.1276	1.7128	1.2980	0.8832	0.4684	0.0536	-0.3612	-0.7760	-1.1908	-1.6056	-2.0204	-2.4352	-2.8500	-3.2648	-3.6796	-4.0944
Grade	A500-42																																A607-65																		A607-60				
Weight (K)	0.3	0.3	0.4	0.0	0.4	0.0	0.4	0.0	0.4	0.0	0.5	0.2	0.0	0.4	0.5	0.0	0.5	0.0	0.4	0.0	0.5	0.0	0.5	0.0	0.5	0.0	0.5	0.4	0.3	0.0	0.6	0.0	0.8	0.8	0.8	0.8	1.0	0.0	0.9	0.0	0.9	0.9	1.0	1.1	1.3	0.1	1.1	0.1	1.1	1.1	0.9	20.9



ALL REACTIONS ARE FACTORED

TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE

TORQUE 6 kip-ft
REACTIONS - 116 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-42	42 ksi	58 ksi	A607-60	60 ksi	75 ksi
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. CCIPOLE RATING: 76.1%

Morrison Hershfield
Consulting Engineers
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
Phone: (770) 379-8500
FAX: (770) 379-8501

Job:	***CN9-948R1 / 2200039***		
Project:	***876314 / Horse Hill***		
Client: Crown Castle USA		Drawn by: NT	App'd:
Code: TIA-222-H		Date: 02/22/22	Scale: NTS
Path:			Dwg No. E-1

Tower Input Data

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

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 445.00 ft.
Basic wind speed of 116 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 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	130.00-125.00	5.00	0.00	Round	16.0000	16.0000	0.3750		A500-42 (42 ksi)
L2	125.00-120.00	5.00	0.00	Round	16.0000	16.0000	0.3750		A500-42

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
									(42 ksi)
L3	120.00-114.90	5.10	0.00	12	16.0000	17.2491	0.5125	2.0500	A607-65 (65 ksi)
L4	114.90-114.67	0.23	0.00	12	17.2491	17.3054	0.5125	2.0500	A607-65 (65 ksi)
L5	114.67-109.67	5.00	0.00	12	17.3054	18.5299	0.4813	1.9250	A607-65 (65 ksi)
L6	109.67-109.42	0.25	0.00	12	18.5299	18.5912	0.4813	1.9250	A607-65 (65 ksi)
L7	109.42-109.17	0.25	0.00	12	18.5912	18.6524	0.4250	1.7000	A607-65 (65 ksi)
L8	109.17-104.17	5.00	0.00	12	18.6524	19.8770	0.4125	1.6500	A607-65 (65 ksi)
L9	104.17-103.92	0.25	0.00	12	19.8770	19.9382	0.4063	1.6250	A607-65 (65 ksi)
L10	103.92-103.67	0.25	0.00	12	19.9382	19.9994	0.4500	1.8000	A607-65 (65 ksi)
L11	103.67-98.67	5.00	0.00	12	19.9994	21.2240	0.4375	1.7500	A607-65 (65 ksi)
L12	98.67-96.42	2.25	0.00	12	21.2240	21.7750	0.4250	1.7000	A607-65 (65 ksi)
L13	96.42-96.17	0.25	0.00	12	21.7750	21.8363	0.3875	1.5500	A607-65 (65 ksi)
L14	96.17-91.50	4.67	3.00	12	21.8363	22.9800	0.3812	1.5250	A607-65 (65 ksi)
L15	91.50-89.50	5.00	0.00	12	21.8703	23.0952	0.4375	1.7500	A607-65 (65 ksi)
L16	89.50-88.92	0.58	0.00	12	23.0952	23.2373	0.4375	1.7500	A607-65 (65 ksi)
L17	88.92-88.67	0.25	0.00	12	23.2373	23.2986	0.3250	1.3000	A607-65 (65 ksi)
L18	88.67-88.25	0.42	0.00	12	23.2986	23.4015	0.3250	1.3000	A607-65 (65 ksi)
L19	88.25-88.00	0.25	0.00	12	23.4015	23.4627	0.4000	1.6000	A607-65 (65 ksi)
L20	88.00-87.42	0.58	0.00	12	23.4627	23.6048	0.4000	1.6000	A607-65 (65 ksi)
L21	87.42-87.17	0.25	0.00	12	23.6048	23.6660	0.2500	1.0000	A607-65 (65 ksi)
L22	87.17-86.92	0.25	0.00	12	23.6660	23.7273	0.2500	1.0000	A607-65 (65 ksi)
L23	86.92-86.67	0.25	0.00	12	23.7273	23.7885	0.4313	1.7250	A607-65 (65 ksi)
L24	86.67-81.67	5.00	0.00	12	23.7885	25.0135	0.4188	1.6750	A607-65 (65 ksi)
L25	81.67-80.75	0.92	0.00	12	25.0135	25.2389	0.4188	1.6750	A607-65 (65 ksi)
L26	80.75-80.50	0.25	0.00	12	25.2389	25.3001	0.3187	1.2750	A607-65 (65 ksi)
L27	80.50-75.50	5.00	0.00	12	25.3001	26.5251	0.3187	1.2750	A607-65 (65 ksi)
L28	75.50-71.83	3.67	0.00	12	26.5251	27.4242	0.3125	1.2500	A607-65 (65 ksi)
L29	71.83-71.58	0.25	0.00	12	27.4242	27.4855	0.4000	1.6000	A607-65 (65 ksi)
L30	71.58-68.83	2.75	0.00	12	27.4855	28.1592	0.4000	1.6000	A607-65 (65 ksi)
L31	68.83-68.58	0.25	0.00	12	28.1592	28.2204	0.4625	1.8500	A607-65 (65 ksi)
L32	68.58-64.50	4.08	3.75	12	28.2204	29.2200	0.4625	1.8500	A607-65 (65 ksi)
L33	64.50-63.25	5.00	0.00	12	27.8013	29.0263	0.5188	2.0750	A607-65 (65 ksi)
L34	63.25-58.25	5.00	0.00	12	29.0263	30.2513	0.5125	2.0500	A607-65 (65 ksi)
L35	58.25-53.25	5.00	0.00	12	30.2513	31.4763	0.5000	2.0000	A607-65 (65 ksi)
L36	53.25-48.25	5.00	0.00	12	31.4763	32.7013	0.4875	1.9500	A607-65 (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	48.25-42.50	5.75	4.25	12	32.7013	34.1100	0.4875	1.9500	A607-65 (65 ksi)
L38	42.50-41.83	4.92	0.00	12	32.4438	33.6480	0.5188	2.0752	A607-65 (65 ksi)
L39	41.83-41.58	0.25	0.00	12	33.6480	33.7092	0.3438	1.3752	A607-65 (65 ksi)
L40	41.58-41.17	0.41	0.00	12	33.7092	33.8095	0.3438	1.3752	A607-65 (65 ksi)
L41	41.17-40.92	0.25	0.00	12	33.8095	33.8707	0.5188	2.0752	A607-65 (65 ksi)
L42	40.92-35.92	5.00	0.00	12	33.8707	35.0945	0.5063	2.0252	A607-65 (65 ksi)
L43	35.92-30.92	5.00	0.00	12	35.0945	36.3184	0.5063	2.0252	A607-65 (65 ksi)
L44	30.92-25.92	5.00	0.00	12	36.3184	37.5422	0.4938	1.9752	A607-65 (65 ksi)
L45	25.92-20.25	5.67	5.00	12	37.5422	38.9300	0.4938	1.9752	A607-65 (65 ksi)
L46	20.25-19.25	6.00	0.00	12	37.0186	38.4898	0.5250	2.1000	A607-60 (60 ksi)
L47	19.25-14.15	5.10	0.00	12	38.4898	39.7404	0.5188	2.0750	A607-60 (60 ksi)
L48	14.15-13.92	0.23	0.00	12	39.7404	39.7967	0.5188	2.0750	A607-60 (60 ksi)
L49	13.92-8.92	5.00	0.00	12	39.7967	41.0228	0.5125	2.0500	A607-60 (60 ksi)
L50	8.92-3.92	5.00	0.00	12	41.0228	42.2488	0.5125	2.0500	A607-60 (60 ksi)
L51	3.92-0.00	3.92		12	42.2488	43.2100	0.5062	2.0250	A607-60 (60 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	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
L2	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
L3	16.3836	25.5582	782.4915	5.5445	8.2880	94.4126	1585.5400	12.5790	2.9145	5.687
	17.6767	27.6195	987.4923	5.9917	8.9350	110.5194	2000.9271	13.5935	3.2492	6.34
L4	17.6767	27.6195	987.4923	5.9917	8.9350	110.5194	2000.9271	13.5935	3.2492	6.34
	17.7351	27.7125	997.4966	6.0119	8.9642	111.2757	2021.1986	13.6392	3.2643	6.369
L5	17.7461	26.0711	941.9126	6.0230	8.9642	105.0751	1908.5703	12.8314	3.3481	6.957
	19.0138	27.9687	1162.9202	6.4614	9.5985	121.1563	2356.3915	13.7653	3.6763	7.639
L6	19.0138	27.9687	1162.9202	6.4614	9.5985	121.1563	2356.3915	13.7653	3.6763	7.639
	19.0772	28.0636	1174.7956	6.4834	9.6302	121.9904	2380.4543	13.8120	3.6927	7.673
L7	19.0971	24.8604	1047.1792	6.5035	9.6302	108.7388	2121.8690	12.2355	3.8434	9.043
	19.1605	24.9442	1057.8033	6.5254	9.6619	109.4814	2143.3963	12.2768	3.8598	9.082
L8	19.1649	24.2271	1028.8052	6.5299	9.6619	106.4801	2084.6382	11.9239	3.8933	9.438
	20.4326	25.8537	1250.2387	6.9683	10.2963	121.4264	2533.3226	12.7244	4.2215	10.234
L9	20.4348	25.4701	1232.4822	6.9705	10.2963	119.7019	2497.3431	12.5356	4.2383	10.433
	20.4982	25.5502	1244.1459	6.9924	10.3280	120.4636	2520.9769	12.5750	4.2547	10.473
L10	20.4828	28.2384	1368.8908	6.9768	10.3280	132.5419	2773.7440	13.8981	4.1374	9.194
	20.5462	28.3271	1381.8338	6.9987	10.3597	133.3855	2799.9699	13.9417	4.1538	9.231
L11	20.5506	27.5579	1346.0282	7.0032	10.3597	129.9293	2727.4180	13.5631	4.1873	9.571
	21.8183	29.2830	1614.9633	7.4416	10.9940	146.8947	3272.3536	14.4122	4.5155	10.321
L12	21.8228	28.4634	1571.6535	7.4460	10.9940	142.9553	3184.5960	14.0088	4.5490	10.704
	22.3932	29.2175	1699.9115	7.6433	11.2795	150.7085	3444.4816	14.3800	4.6967	11.051
L13	22.4065	26.6863	1558.1007	7.6567	11.2795	138.1360	3157.1344	13.1342	4.7972	12.38
	22.4699	26.7627	1571.5206	7.6787	11.3112	138.9351	3184.3268	13.1718	4.8136	12.422
L14	22.4721	26.3387	1547.5255	7.6809	11.3112	136.8138	3135.7062	12.9631	4.8304	12.67
	23.6562	27.7428	1808.4434	8.0904	11.9036	151.9236	3664.3967	13.6542	5.1369	13.474
L15	23.2483	30.1934	1770.3306	7.6729	11.3288	156.2682	3587.1697	14.8603	4.6887	10.717
	23.7556	31.9191	2091.5510	8.1115	11.9633	174.8303	4238.0493	15.7096	5.0170	11.467
L16	23.7556	31.9191	2091.5510	8.1115	11.9633	174.8303	4238.0493	15.7096	5.0170	11.467

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
	23.9027	32.1192	2131.1489	8.1623	12.0369	177.0509	4318.2855	15.8081	5.0551	11.555
L17	23.9424	23.9777	1606.6899	8.2026	12.0369	133.4801	3255.5892	11.8011	5.3566	16.482
	24.0058	24.0418	1619.6090	8.2245	12.0687	134.1996	3281.7670	11.8327	5.3730	16.532
L18	24.0058	24.0418	1619.6090	8.2245	12.0687	134.1996	3281.7670	11.8327	5.3730	16.532
	24.1123	24.1495	1641.4689	8.2614	12.1220	135.4129	3326.0610	11.8857	5.4006	16.617
L19	24.0859	29.6259	2000.6353	8.2345	12.1220	165.0423	4053.8295	14.5810	5.1996	12.999
	24.1493	29.7048	2016.6597	8.2564	12.1537	165.9299	4086.2992	14.6198	5.2160	13.04
L20	24.1493	29.7048	2016.6597	8.2564	12.1537	165.9299	4086.2992	14.6198	5.2160	13.04
	24.2964	29.8878	2054.1652	8.3073	12.2273	167.9984	4162.2955	14.7099	5.2541	13.135
L21	24.3493	18.8006	1308.9117	8.3610	12.2273	107.0484	2652.2100	9.2531	5.6561	22.624
	24.4127	18.8499	1319.2366	8.3829	12.2590	107.6136	2673.1309	9.2774	5.6725	22.69
L22	24.4127	18.8499	1319.2366	8.3829	12.2590	107.6136	2673.1309	9.2774	5.6725	22.69
	24.4761	18.8992	1329.6156	8.4049	12.2907	108.1803	2694.1616	9.3016	5.6889	22.756
L23	24.4122	32.3495	2240.8749	8.3400	12.2907	182.3222	4540.6201	15.9214	5.2032	12.065
	24.4756	32.4345	2258.5959	8.3619	12.3225	183.2909	4576.5277	15.9633	5.2196	12.103
L24	24.4800	31.5112	2196.6523	8.3664	12.3225	178.2640	4451.0131	15.5089	5.2531	12.545
	25.7482	33.1629	2560.4949	8.8049	12.9570	197.6149	5188.2568	16.3218	5.5814	13.329
L25	25.7482	33.1629	2560.4949	8.8049	12.9570	197.6149	5188.2568	16.3218	5.5814	13.329
	25.9815	33.4669	2631.5369	8.8856	13.0737	201.2841	5332.2071	16.4714	5.6418	13.473
L26	26.0168	25.5774	2027.4193	8.9214	13.0737	155.0756	4108.1012	12.5884	5.9098	18.54
	26.0802	25.6403	2042.4048	8.9433	13.1055	155.8437	4138.4659	12.6194	5.9262	18.592
L27	26.0802	25.6403	2042.4048	8.9433	13.1055	155.8437	4138.4659	12.6194	5.9262	18.592
	27.3484	26.8975	2357.8244	9.3819	13.7400	171.6029	4777.5914	13.2382	6.2545	19.622
L28	27.3506	26.3764	2313.2468	9.3841	13.7400	168.3586	4687.2652	12.9817	6.2712	20.068
	28.2814	27.2812	2559.5451	9.7060	14.2057	180.1768	5186.3322	13.4270	6.5122	20.839
L29	28.2505	34.8072	3244.5991	9.6747	14.2057	228.4005	6574.4374	17.1310	6.2777	15.694
	28.3139	34.8861	3266.7098	9.6966	14.2375	229.4446	6619.2398	17.1699	6.2941	15.735
L30	28.3139	34.8861	3266.7098	9.6966	14.2375	229.4446	6619.2398	17.1699	6.2941	15.735
	29.0114	35.7538	3516.5928	9.9378	14.5865	241.0861	7125.5705	17.5969	6.4747	16.187
L31	28.9894	41.2473	4038.6580	9.9154	14.5865	276.8772	8183.4160	20.3007	6.3072	13.637
	29.0528	41.3385	4065.5102	9.9373	14.6182	278.1132	8237.8260	20.3456	6.3236	13.673
L32	29.0528	41.3385	4065.5102	9.9373	14.6182	278.1132	8237.8260	20.3456	6.3236	13.673
	30.0876	42.8271	4520.7131	10.2952	15.1360	298.6737	9160.1903	21.0782	6.5915	14.252
L33	29.5502	45.5721	4329.6620	9.7671	14.4011	300.6487	8773.0690	22.4292	6.0605	11.683
	29.8672	47.6183	4939.4494	10.2057	15.0356	328.5167	10008.663 7	23.4363	6.3888	12.316
L34	29.8694	47.0549	4883.1483	10.2079	15.0356	324.7722	9894.5824	23.1590	6.4055	12.499
	31.1376	49.0764	5539.9354	10.6465	15.6702	353.5341	11225.411 1	24.1539	6.7338	13.139
L35	31.1420	47.8995	5411.6333	10.6510	15.6702	345.3464	10965.436 2	23.5747	6.7673	13.535
	32.4102	49.8718	6107.9986	11.0895	16.3047	374.6157	12376.461 0	24.5454	7.0956	14.191
L36	32.4147	48.6446	5962.5110	11.0940	16.3047	365.6927	12081.663 8	23.9414	7.1291	14.624
	33.6829	50.5675	6697.9298	11.5325	16.9393	395.4088	13571.821 7	24.8878	7.4574	15.297
L37	33.6829	50.5675	6697.9298	11.5325	16.9393	395.4088	13571.821 7	24.8878	7.4574	15.297
	35.1413	52.7789	7615.6407	12.0369	17.6690	431.0176	15431.352 9	25.9762	7.8350	16.072
L38	34.4822	53.3318	6937.9743	11.4291	16.8059	412.8305	14058.217 0	26.2483	7.3045	14.08
	34.6520	55.3435	7753.0824	11.8603	17.4297	444.8212	15709.847 0	27.2384	7.6273	14.702
L39	34.7137	36.8689	5219.6872	11.9229	17.4297	299.4715	10576.501 4	18.1458	8.0963	23.549
	34.7770	36.9367	5248.5111	11.9448	17.4614	300.5786	10634.906 4	18.1791	8.1127	23.597
L40	34.7770	36.9367	5248.5111	11.9448	17.4614	300.5786	10634.906 4	18.1791	8.1127	23.597
	34.8809	37.0478	5296.0116	11.9807	17.5133	302.3987	10731.155 2	18.2338	8.1396	23.675
L41	34.8192	55.6134	7867.0528	11.9181	17.5133	449.2034	15940.781 9	27.3712	7.6706	14.785
	34.8825	55.7156	7910.5134	11.9400	17.5450	450.8690	16028.844 8	27.4215	7.6870	14.817
L42	34.8870	54.3936	7728.6003	11.9445	17.5450	440.5006	15660.239 6	26.7709	7.7205	15.249
	36.1539	56.3887	8610.6409	12.3826	18.1790	473.6593	17447.492	27.7528	8.0485	15.897

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
							9			
L43	36.1539	56.3887	8610.6409	12.3826	18.1790	473.6593	17447.492	27.7528	8.0485	15.897
							9			
	37.4209	58.3839	9557.3607	12.8207	18.8129	508.0213	19365.803	28.7348	8.3764	16.544
							9			
L44	37.4253	56.9624	9331.1639	12.8252	18.8129	495.9978	18907.467	28.0351	8.4099	17.031
							9			
	38.6923	58.9083	10320.503	13.2633	19.4469	530.7030	20912.137	28.9929	8.7379	17.695
			2				4			
L45	38.6923	58.9083	10320.503	13.2633	19.4469	530.7030	20912.137	28.9929	8.7379	17.695
			2				4			
	40.1291	61.1149	11524.291	13.7602	20.1657	571.4787	23351.339	30.0789	9.1099	18.448
			7				3			
L46	39.4085	61.6924	10486.982	13.0647	19.1756	546.8913	21249.469	30.3631	8.5140	16.217
			5				7			
	39.6624	64.1795	11807.141	13.5914	19.9377	592.2012	23924.470	31.5872	8.9083	16.968
			7				1			
L47	39.6646	63.4259	11672.343	13.5936	19.9377	585.4402	23651.332	31.2163	8.9250	17.205
			3				0			
	40.9592	65.5148	12863.997	14.0413	20.5855	624.9057	26065.946	32.2444	9.2602	17.851
			5				5			
L48	40.9592	65.5148	12863.997	14.0413	20.5855	624.9057	26065.946	32.2444	9.2602	17.851
			5				5			
	41.0176	65.6090	12919.569	14.0615	20.6147	626.7158	26178.549	32.2907	9.2753	17.88
			1				6			
L49	41.0198	64.8288	12770.005	14.0638	20.6147	619.4606	25875.493	31.9068	9.2920	18.131
			7				6			
	42.2891	66.8521	14003.326	14.5027	21.2498	658.9864	28374.536	32.9026	9.6206	18.772
			8				6			
L50	42.2891	66.8521	14003.326	14.5027	21.2498	658.9864	28374.536	32.9026	9.6206	18.772
			8				6			
	43.5584	68.8753	15313.605	14.9416	21.8849	699.7346	31029.515	33.8983	9.9492	19.413
			2				9			
L51	43.5606	68.0456	15133.650	14.9438	21.8849	691.5118	30664.879	33.4900	9.9659	19.686
			7				2			
	44.5557	69.6125	16203.353	15.2879	22.3828	723.9205	32832.386	34.2611	10.2235	20.195
			2				6			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 130.00-125.00				1	1	1			
L2 125.00-120.00				1	1	1			
L3 120.00-114.90				1	1	0.902328			
L4 114.90-114.67				1	1	0.900528			
L5 114.67-109.67				1	1	0.918712			
L6 109.67-109.42				1	1	0.916923			
L7 109.42-109.17				1	1	0.915841			
L8 109.17-104.17				1	1	0.912221			
L9 104.17-103.92				1	1	0.924502			
L10 103.92-103.67				1	1	0.938408			
L11 103.67-98.67				1	1	0.933024			
L12 98.67-96.42				1	1	0.946501			
L13 96.42-96.17				1	1	0.925437			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
L14 96.17-91.50				1	1	0.931944			
L15 91.50-89.50				1	1	0.942607			
L16 89.50-88.92				1	1	0.940294			
L17 88.92-88.67				1	1	1.13663			
L18 88.67-88.25				1	1	1.13499			
L19 88.25-88.00				1	1	1.02283			
L20 88.00-87.42				1	1	1.0204			
L21 87.42-87.17				1	1	1			
L22 87.17-86.92				1	1	1			
L23 86.92-86.67				1	1	0.944835			
L24 86.67-81.67				1	1	0.953816			
L25 81.67-80.75				1	1	0.950576			
L26 80.75-80.50				1	1	1.12861			
L27 80.50-75.50				1	1	1.11252			
L28 75.50-71.83				1	1	1.12341			
L29 71.83-71.58				1	1	0.963745			
L30 71.58-68.83				1	1	0.955524			
L31 68.83-68.58				1	1	0.944879			
L32 68.58-64.50				1	1	0.943705			
L33 64.50-63.25				1	1	0.954191			
L34 63.25-58.25				1	1	0.950957			
L35 58.25-53.25				1	1	0.960507			
L36 53.25-48.25				1	1	0.971668			
L37 48.25-42.50				1	1	0.967939			
L38 42.50-41.83				1	1	0.965111			
L39 41.83-41.58				1	1	1			
L40 41.58-41.17				1	1	1			
L41 41.17-40.92				1	1	0.963091			
L42 40.92-35.92				1	1	0.975621			
L43 35.92-30.92				1	1	0.965486			
L44 30.92-25.92				1	1	0.97989			
L45 25.92-20.25				1	1	0.97864			
L46 20.25-19.25				1	1	0.97488			
L47 19.25-				1	1	0.978059			

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
14.15									
L48 14.15-13.92				1	1	0.977693			
L49 13.92-8.92				1	1	0.981658			
L50 8.92-3.92				1	1	0.974315			
L51 3.92-0.00				1	1	0.980671			

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	C	No	Surface Ar (CaAa)	130.00 - 8.00	1	1	0.100 0.100	0.3750		0.22
Climbing Pegs	C	No	Surface Ar (CaAa)	130.00 - 8.00	1	1	0.050 0.150	0.7050		1.80
******										
HB114-1-0813U4-M5J(1-1/4)	C	No	Surface Ar (CaAa)	120.00 - 8.00	4	4	0.100 0.230	1.5400		1.20
******										
LCF158-50JL(1-5/8)	C	No	Surface Ar (CaAa)	90.00 - 8.00	6	6	-0.400 -0.050	1.9800		0.52
******										
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	15.50 - 0.50	1	1	-0.250 -0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	15.50 - 0.50	1	1	0.500 0.500	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	B	No	Surface Af (CaAa)	15.50 - 0.50	1	1	0.250 0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	C	No	Surface Af (CaAa)	15.50 - 0.50	1	1	0.000 0.000	4.7800	12.7800	0.00
******										
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	15.50 - 12.67	1	1	-0.250 -0.250	4.7800	9.5600	0.00
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	15.50 - 12.67	1	1	0.500 0.500	4.7800	9.5600	0.00
(Area) Aero MP3-04 (H)	B	No	Surface Af (CaAa)	15.50 - 12.67	1	1	0.250 0.250	4.7800	9.5600	0.00
(Area) Aero MP3-04 (H)	C	No	Surface Af (CaAa)	15.50 - 12.67	1	1	0.000 0.000	4.7800	9.5600	0.00
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	42.67 - 15.50	1	1	-0.250 -0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	42.67 - 15.50	1	1	0.500 0.500	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	B	No	Surface Af (CaAa)	42.67 - 15.50	1	1	0.250 0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	C	No	Surface Af (CaAa)	42.67 - 15.50	1	1	0.000 0.000	4.7800	12.7800	0.00
******										
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	42.67 - 40.33	1	1	-0.250 -0.250	4.7800	9.5600	0.00
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	42.67 - 40.33	1	1	0.500 0.500	4.7800	9.5600	0.00
(Area) Aero MP3-04 (H)	B	No	Surface Af (CaAa)	42.67 - 40.33	1	1	0.250 0.250	4.7800	9.5600	0.00
(Area) Aero MP3-04 (H)	C	No	Surface Af (CaAa)	42.67 - 40.33	1	1	0.000 0.000	4.7800	9.5600	0.00
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	70.33 - 42.67	1	1	-0.250 -0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	70.33 - 42.67	1	1	0.500 0.500	4.7800	12.7800	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
(Area) Aero MP3-04 (H)	B	No	Surface Af (CaAa)	70.33 - 42.67	1	1	0.250 0.250	4.7800	12.7800	0.00
(Area) Aero MP3-04 (H)	C	No	Surface Af (CaAa)	70.33 - 42.67	1	1	0.000 0.000	4.7800	12.7800	0.00
******										
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	70.33 - 68.17	1	1	-0.250 -0.250	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	70.33 - 68.17	1	1	0.500 0.500	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	B	No	Surface Af (CaAa)	70.33 - 68.17	1	1	0.250 0.250	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	70.33 - 68.17	1	1	0.000 0.000	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	88.17 - 70.33	1	1	-0.250 -0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	88.17 - 70.33	1	1	0.500 0.500	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	B	No	Surface Af (CaAa)	88.17 - 70.33	1	1	0.250 0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	73.08 - 70.33	1	1	0.000 0.000	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	89.50 - 79.50	1	1	0.000 0.000	4.0600	11.2600	0.00
******										
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	89.50 - 86.17	1	1	0.000 0.000	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	116.17 - 89.50	1	1	0.000 0.000	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	88.17 - 86.17	1	1	0.500 0.500	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	B	No	Surface Af (CaAa)	88.17 - 86.17	1	1	0.250 0.250	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	116.17 - 88.17	1	1	0.500 0.500	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	B	No	Surface Af (CaAa)	116.17 - 88.17	1	1	0.250 0.250	4.0600	11.2600	0.00
******										
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	88.17 - 87.67	1	1	-0.250 -0.250	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	97.67 - 88.17	1	1	-0.250 -0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	103.92 - 95.17	1	1	0.000 0.000	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	97.67 - 95.17	1	1	-0.250 -0.250	4.0600	8.1200	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	103.92 - 97.67	1	1	-0.250 -0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	109.42 - 103.92	1	1	-0.250 -0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	116.17 - 109.42	1	1	-0.250 -0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	116.17 - 109.42	1	1	0.000 0.000	4.0600	8.1200	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
******									
******									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	130.00 - 0.00	6	No Ice 1/2" Ice	0.00 0.00	0.82 0.82

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" Ice	0.00	0.82
PWRT-606-S(7/8)	A	No	No	Inside Pole	130.00 - 0.00	2	No Ice	0.00	0.89
							1/2" Ice	0.00	0.89
							1" Ice	0.00	0.89
PWRT-608-S(13/16)	A	No	No	Inside Pole	130.00 - 0.00	2	No Ice	0.00	0.62
							1/2" Ice	0.00	0.62
							1" Ice	0.00	0.62
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	130.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
******									
CU12PSM9P6XXX (1-1/2)	B	No	No	Inside Pole	110.00 - 8.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
******									
***									
HCS 6X12 4AWG(1-5/8)	B	No	No	Inside Pole	100.00 - 8.00	2	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	100.00 - 8.00	2	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
******									
LDF4-50A(1/2)	C	No	No	Inside Pole	80.00 - 8.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
******									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-125.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.540	0.000	0.01
L2	125.00-120.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.540	0.000	0.01
L3	120.00-114.90	A	0.000	0.000	1.627	0.000	0.04
		B	0.000	0.000	0.859	0.000	0.00
		C	0.000	0.000	5.339	0.000	0.04
L4	114.90-114.67	A	0.000	0.000	0.295	0.000	0.00
		B	0.000	0.000	0.156	0.000	0.00
		C	0.000	0.000	0.465	0.000	0.00
L5	114.67-109.67	A	0.000	0.000	6.406	0.000	0.04
		B	0.000	0.000	3.383	0.000	0.00
		C	0.000	0.000	10.102	0.000	0.03
L6	109.67-109.42	A	0.000	0.000	0.320	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.505	0.000	0.00
L7	109.42-109.17	A	0.000	0.000	0.311	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.350	0.000	0.00
L8	109.17-104.17	A	0.000	0.000	6.212	0.000	0.04
		B	0.000	0.000	3.383	0.000	0.01
		C	0.000	0.000	7.003	0.000	0.03
L9	104.17-103.92	A	0.000	0.000	0.311	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.350	0.000	0.00
L10	103.92-103.67	A	0.000	0.000	0.316	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.519	0.000	0.00
L11	103.67-98.67	A	0.000	0.000	6.328	0.000	0.04
		B	0.000	0.000	3.383	0.000	0.02

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
		C	0.000	0.000	10.387	0.000	0.03
L12	98.67-96.42	A	0.000	0.000	3.555	0.000	0.02
		B	0.000	0.000	1.523	0.000	0.03
		C	0.000	0.000	4.674	0.000	0.02
L13	96.42-96.17	A	0.000	0.000	0.458	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.519	0.000	0.00
L14	96.17-91.50	A	0.000	0.000	6.798	0.000	0.04
		B	0.000	0.000	3.160	0.000	0.06
		C	0.000	0.000	7.218	0.000	0.03
L15	91.50-89.50	A	0.000	0.000	2.707	0.000	0.02
		B	0.000	0.000	1.353	0.000	0.02
		C	0.000	0.000	3.395	0.000	0.02
L16	89.50-88.92	A	0.000	0.000	0.785	0.000	0.00
		B	0.000	0.000	0.392	0.000	0.01
		C	0.000	0.000	1.795	0.000	0.01
L17	88.92-88.67	A	0.000	0.000	0.338	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.774	0.000	0.00
L18	88.67-88.25	A	0.000	0.000	0.568	0.000	0.00
		B	0.000	0.000	0.284	0.000	0.01
		C	0.000	0.000	1.300	0.000	0.00
L19	88.25-88.00	A	0.000	0.000	0.485	0.000	0.00
		B	0.000	0.000	0.247	0.000	0.00
		C	0.000	0.000	0.774	0.000	0.00
L20	88.00-87.42	A	0.000	0.000	1.184	0.000	0.00
		B	0.000	0.000	0.658	0.000	0.01
		C	0.000	0.000	1.795	0.000	0.01
L21	87.42-87.17	A	0.000	0.000	0.453	0.000	0.00
		B	0.000	0.000	0.283	0.000	0.00
		C	0.000	0.000	0.774	0.000	0.00
L22	87.17-86.92	A	0.000	0.000	0.453	0.000	0.00
		B	0.000	0.000	0.283	0.000	0.00
		C	0.000	0.000	0.774	0.000	0.00
L23	86.92-86.67	A	0.000	0.000	0.453	0.000	0.00
		B	0.000	0.000	0.283	0.000	0.00
		C	0.000	0.000	0.774	0.000	0.00
L24	86.67-81.67	A	0.000	0.000	6.995	0.000	0.04
		B	0.000	0.000	3.612	0.000	0.06
		C	0.000	0.000	13.196	0.000	0.05
L25	81.67-80.75	A	0.000	0.000	1.245	0.000	0.01
		B	0.000	0.000	0.623	0.000	0.01
		C	0.000	0.000	2.382	0.000	0.01
L26	80.75-80.50	A	0.000	0.000	0.338	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.647	0.000	0.00
L27	80.50-75.50	A	0.000	0.000	6.767	0.000	0.04
		B	0.000	0.000	3.383	0.000	0.06
		C	0.000	0.000	10.237	0.000	0.05
L28	75.50-71.83	A	0.000	0.000	4.967	0.000	0.03
		B	0.000	0.000	2.483	0.000	0.04
		C	0.000	0.000	7.617	0.000	0.04
L29	71.83-71.58	A	0.000	0.000	0.338	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.598	0.000	0.00
L30	71.58-68.83	A	0.000	0.000	5.475	0.000	0.02
		B	0.000	0.000	2.737	0.000	0.03
		C	0.000	0.000	7.750	0.000	0.03
L31	68.83-68.58	A	0.000	0.000	0.631	0.000	0.00
		B	0.000	0.000	0.315	0.000	0.00
		C	0.000	0.000	0.793	0.000	0.00
L32	68.58-64.50	A	0.000	0.000	6.882	0.000	0.03
		B	0.000	0.000	3.441	0.000	0.05
		C	0.000	0.000	11.242	0.000	0.04
L33	64.50-63.25	A	0.000	0.000	1.992	0.000	0.01
		B	0.000	0.000	0.996	0.000	0.02
		C	0.000	0.000	3.386	0.000	0.01
L34	63.25-58.25	A	0.000	0.000	7.967	0.000	0.04
		B	0.000	0.000	3.983	0.000	0.06

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
		C	0.000	0.000	13.543	0.000	0.05
L35	58.25-53.25	A	0.000	0.000	7.967	0.000	0.04
		B	0.000	0.000	3.983	0.000	0.06
		C	0.000	0.000	13.543	0.000	0.05
L36	53.25-48.25	A	0.000	0.000	7.967	0.000	0.04
		B	0.000	0.000	3.983	0.000	0.06
		C	0.000	0.000	13.543	0.000	0.05
L37	48.25-42.50	A	0.000	0.000	9.344	0.000	0.05
		B	0.000	0.000	4.672	0.000	0.07
		C	0.000	0.000	15.666	0.000	0.06
L38	42.50-41.83	A	0.000	0.000	1.788	0.000	0.01
		B	0.000	0.000	0.894	0.000	0.01
		C	0.000	0.000	2.175	0.000	0.01
L39	41.83-41.58	A	0.000	0.000	0.667	0.000	0.00
		B	0.000	0.000	0.334	0.000	0.00
		C	0.000	0.000	0.812	0.000	0.00
L40	41.58-41.17	A	0.000	0.000	1.094	0.000	0.00
		B	0.000	0.000	0.547	0.000	0.00
		C	0.000	0.000	1.331	0.000	0.00
L41	41.17-40.92	A	0.000	0.000	0.667	0.000	0.00
		B	0.000	0.000	0.334	0.000	0.00
		C	0.000	0.000	0.812	0.000	0.00
L42	40.92-35.92	A	0.000	0.000	8.601	0.000	0.04
		B	0.000	0.000	4.301	0.000	0.06
		C	0.000	0.000	13.861	0.000	0.05
L43	35.92-30.92	A	0.000	0.000	7.967	0.000	0.04
		B	0.000	0.000	3.983	0.000	0.06
		C	0.000	0.000	13.543	0.000	0.05
L44	30.92-25.92	A	0.000	0.000	7.967	0.000	0.04
		B	0.000	0.000	3.983	0.000	0.06
		C	0.000	0.000	13.543	0.000	0.05
L45	25.92-20.25	A	0.000	0.000	9.034	0.000	0.05
		B	0.000	0.000	4.517	0.000	0.07
		C	0.000	0.000	15.358	0.000	0.06
L46	20.25-19.25	A	0.000	0.000	1.593	0.000	0.01
		B	0.000	0.000	0.797	0.000	0.01
		C	0.000	0.000	2.709	0.000	0.01
L47	19.25-14.15	A	0.000	0.000	9.635	0.000	0.04
		B	0.000	0.000	4.818	0.000	0.06
		C	0.000	0.000	14.569	0.000	0.05
L48	14.15-13.92	A	0.000	0.000	0.624	0.000	0.00
		B	0.000	0.000	0.312	0.000	0.00
		C	0.000	0.000	0.752	0.000	0.00
L49	13.92-8.92	A	0.000	0.000	9.364	0.000	0.04
		B	0.000	0.000	4.682	0.000	0.06
		C	0.000	0.000	14.242	0.000	0.05
L50	8.92-3.92	A	0.000	0.000	7.967	0.000	0.04
		B	0.000	0.000	3.983	0.000	0.01
		C	0.000	0.000	5.742	0.000	0.01
L51	3.92-0.00	A	0.000	0.000	5.449	0.000	0.03
		B	0.000	0.000	2.725	0.000	0.00
		C	0.000	0.000	2.725	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-125.00	A	0.973	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.486	0.000	0.03
L2	125.00-120.00	A	0.969	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.478	0.000	0.03
L3	120.00-114.90	A	0.965	0.000	0.000	2.006	0.000	0.05
		B		0.000	0.000	1.104	0.000	0.01

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	9.698	0.000	0.10
L4	114.90-114.67	A	0.963	0.000	0.000	0.363	0.000	0.00
		B		0.000	0.000	0.200	0.000	0.00
		C		0.000	0.000	0.712	0.000	0.01
L5	114.67-109.67	A	0.961	0.000	0.000	7.892	0.000	0.10
		B		0.000	0.000	4.344	0.000	0.03
		C		0.000	0.000	15.461	0.000	0.14
L6	109.67-109.42	A	0.958	0.000	0.000	0.394	0.000	0.00
		B		0.000	0.000	0.217	0.000	0.00
		C		0.000	0.000	0.773	0.000	0.01
L7	109.42-109.17	A	0.958	0.000	0.000	0.385	0.000	0.00
		B		0.000	0.000	0.217	0.000	0.00
		C		0.000	0.000	0.592	0.000	0.01
L8	109.17-104.17	A	0.956	0.000	0.000	7.692	0.000	0.10
		B		0.000	0.000	4.339	0.000	0.04
		C		0.000	0.000	11.835	0.000	0.11
L9	104.17-103.92	A	0.953	0.000	0.000	0.384	0.000	0.00
		B		0.000	0.000	0.217	0.000	0.00
		C		0.000	0.000	0.591	0.000	0.01
L10	103.92-103.67	A	0.953	0.000	0.000	0.390	0.000	0.00
		B		0.000	0.000	0.217	0.000	0.00
		C		0.000	0.000	0.788	0.000	0.01
L11	103.67-98.67	A	0.951	0.000	0.000	7.800	0.000	0.09
		B		0.000	0.000	4.334	0.000	0.05
		C		0.000	0.000	15.739	0.000	0.14
L12	98.67-96.42	A	0.947	0.000	0.000	4.354	0.000	0.05
		B		0.000	0.000	1.949	0.000	0.04
		C		0.000	0.000	7.075	0.000	0.06
L13	96.42-96.17	A	0.946	0.000	0.000	0.559	0.000	0.01
		B		0.000	0.000	0.216	0.000	0.00
		C		0.000	0.000	0.786	0.000	0.01
L14	96.17-91.50	A	0.944	0.000	0.000	8.320	0.000	0.09
		B		0.000	0.000	4.041	0.000	0.08
		C		0.000	0.000	11.790	0.000	0.11
L15	91.50-89.50	A	0.940	0.000	0.000	3.317	0.000	0.04
		B		0.000	0.000	1.731	0.000	0.04
		C		0.000	0.000	5.574	0.000	0.05
L16	89.50-88.92	A	0.939	0.000	0.000	0.961	0.000	0.01
		B		0.000	0.000	0.501	0.000	0.01
		C		0.000	0.000	2.681	0.000	0.02
L17	88.92-88.67	A	0.938	0.000	0.000	0.414	0.000	0.00
		B		0.000	0.000	0.216	0.000	0.00
		C		0.000	0.000	1.156	0.000	0.01
L18	88.67-88.25	A	0.938	0.000	0.000	0.696	0.000	0.01
		B		0.000	0.000	0.363	0.000	0.01
		C		0.000	0.000	1.941	0.000	0.02
L19	88.25-88.00	A	0.938	0.000	0.000	0.608	0.000	0.01
		B		0.000	0.000	0.311	0.000	0.01
		C		0.000	0.000	1.155	0.000	0.01
L20	88.00-87.42	A	0.937	0.000	0.000	1.495	0.000	0.01
		B		0.000	0.000	0.824	0.000	0.01
		C		0.000	0.000	2.680	0.000	0.02
L21	87.42-87.17	A	0.937	0.000	0.000	0.571	0.000	0.01
		B		0.000	0.000	0.355	0.000	0.01
		C		0.000	0.000	1.155	0.000	0.01
L22	87.17-86.92	A	0.937	0.000	0.000	0.571	0.000	0.01
		B		0.000	0.000	0.355	0.000	0.01
		C		0.000	0.000	1.155	0.000	0.01
L23	86.92-86.67	A	0.936	0.000	0.000	0.571	0.000	0.01
		B		0.000	0.000	0.355	0.000	0.01
		C		0.000	0.000	1.155	0.000	0.01
L24	86.67-81.67	A	0.933	0.000	0.000	8.911	0.000	0.10
		B		0.000	0.000	4.594	0.000	0.09
		C		0.000	0.000	20.354	0.000	0.19
L25	81.67-80.75	A	0.930	0.000	0.000	1.587	0.000	0.02
		B		0.000	0.000	0.794	0.000	0.02
		C		0.000	0.000	3.686	0.000	0.03
L26	80.75-80.50	A	0.929	0.000	0.000	0.431	0.000	0.00
		B		0.000	0.000	0.216	0.000	0.00

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
		C		0.000	0.000	1.002	0.000	0.01
L27	80.50-75.50	A	0.926	0.000	0.000	8.619	0.000	0.09
		B		0.000	0.000	4.310	0.000	0.09
		C		0.000	0.000	16.790	0.000	0.17
L28	75.50-71.83	A	0.921	0.000	0.000	6.319	0.000	0.07
		B		0.000	0.000	3.159	0.000	0.06
		C		0.000	0.000	12.438	0.000	0.12
L29	71.83-71.58	A	0.919	0.000	0.000	0.430	0.000	0.00
		B		0.000	0.000	0.215	0.000	0.00
		C		0.000	0.000	0.942	0.000	0.01
L30	71.58-68.83	A	0.917	0.000	0.000	6.770	0.000	0.06
		B		0.000	0.000	3.385	0.000	0.05
		C		0.000	0.000	11.800	0.000	0.11
L31	68.83-68.58	A	0.915	0.000	0.000	0.770	0.000	0.01
		B		0.000	0.000	0.385	0.000	0.01
		C		0.000	0.000	1.181	0.000	0.01
L32	68.58-64.50	A	0.912	0.000	0.000	8.448	0.000	0.08
		B		0.000	0.000	4.224	0.000	0.07
		C		0.000	0.000	17.213	0.000	0.16
L33	64.50-63.25	A	0.908	0.000	0.000	2.448	0.000	0.02
		B		0.000	0.000	1.224	0.000	0.02
		C		0.000	0.000	5.203	0.000	0.05
L34	63.25-58.25	A	0.903	0.000	0.000	9.774	0.000	0.10
		B		0.000	0.000	4.887	0.000	0.09
		C		0.000	0.000	20.767	0.000	0.19
L35	58.25-53.25	A	0.896	0.000	0.000	9.758	0.000	0.10
		B		0.000	0.000	4.879	0.000	0.09
		C		0.000	0.000	20.725	0.000	0.19
L36	53.25-48.25	A	0.887	0.000	0.000	9.741	0.000	0.10
		B		0.000	0.000	4.871	0.000	0.09
		C		0.000	0.000	20.679	0.000	0.18
L37	48.25-42.50	A	0.877	0.000	0.000	11.394	0.000	0.11
		B		0.000	0.000	5.697	0.000	0.10
		C		0.000	0.000	23.825	0.000	0.21
L38	42.50-41.83	A	0.871	0.000	0.000	2.147	0.000	0.02
		B		0.000	0.000	1.073	0.000	0.01
		C		0.000	0.000	3.186	0.000	0.03
L39	41.83-41.58	A	0.870	0.000	0.000	0.800	0.000	0.01
		B		0.000	0.000	0.400	0.000	0.01
		C		0.000	0.000	1.186	0.000	0.01
L40	41.58-41.17	A	0.869	0.000	0.000	1.312	0.000	0.01
		B		0.000	0.000	0.656	0.000	0.01
		C		0.000	0.000	1.945	0.000	0.02
L41	41.17-40.92	A	0.869	0.000	0.000	0.800	0.000	0.01
		B		0.000	0.000	0.400	0.000	0.01
		C		0.000	0.000	1.186	0.000	0.01
L42	40.92-35.92	A	0.863	0.000	0.000	10.434	0.000	0.10
		B		0.000	0.000	5.217	0.000	0.09
		C		0.000	0.000	20.916	0.000	0.18
L43	35.92-30.92	A	0.851	0.000	0.000	9.669	0.000	0.09
		B		0.000	0.000	4.834	0.000	0.09
		C		0.000	0.000	20.479	0.000	0.18
L44	30.92-25.92	A	0.837	0.000	0.000	9.641	0.000	0.09
		B		0.000	0.000	4.821	0.000	0.09
		C		0.000	0.000	20.404	0.000	0.18
L45	25.92-20.25	A	0.820	0.000	0.000	10.894	0.000	0.10
		B		0.000	0.000	5.447	0.000	0.10
		C		0.000	0.000	23.030	0.000	0.20
L46	20.25-19.25	A	0.807	0.000	0.000	1.921	0.000	0.02
		B		0.000	0.000	0.961	0.000	0.02
		C		0.000	0.000	4.062	0.000	0.03
L47	19.25-14.15	A	0.794	0.000	0.000	11.478	0.000	0.10
		B		0.000	0.000	5.739	0.000	0.09
		C		0.000	0.000	21.435	0.000	0.18
L48	14.15-13.92	A	0.780	0.000	0.000	0.733	0.000	0.01
		B		0.000	0.000	0.366	0.000	0.00
		C		0.000	0.000	1.071	0.000	0.01
L49	13.92-8.92	A	0.764	0.000	0.000	11.092	0.000	0.10
		B		0.000	0.000	5.546	0.000	0.09

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
		C		0.000	0.000	20.800	0.000	0.17
L50	8.92-3.92	A	0.722	0.000	0.000	9.410	0.000	0.08
		B		0.000	0.000	4.705	0.000	0.03
		C		0.000	0.000	7.476	0.000	0.05
L51	3.92-0.00	A	0.641	0.000	0.000	6.326	0.000	0.06
		B		0.000	0.000	3.163	0.000	0.01
		C		0.000	0.000	3.163	0.000	0.01

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-125.00	-0.2051	0.9651	-0.3733	1.7561
L2	125.00-120.00	-0.2051	0.9651	-0.3725	1.7524
L3	120.00-114.90	-0.1668	3.0721	-0.3659	3.3066
L4	114.90-114.67	0.7644	3.0296	0.6141	3.3125
L5	114.67-109.67	0.7883	3.1184	0.6323	3.4019
L6	109.67-109.42	0.8120	3.2067	0.6504	3.4905
L7	109.42-109.17	0.9953	2.4664	0.7728	2.9191
L8	109.17-104.17	1.0228	2.5300	0.7930	2.9876
L9	104.17-103.92	1.0499	2.5927	0.8128	3.0549
L10	103.92-103.67	0.8853	3.4552	0.7048	3.7261
L11	103.67-98.67	0.9086	3.5416	0.7223	3.8111
L12	98.67-96.42	0.3485	3.7462	0.2453	3.9897
L13	96.42-96.17	-0.0794	3.8496	-0.1218	4.0754
L14	96.17-91.50	0.6490	3.1374	0.4908	3.5322
L15	91.50-89.50	1.1443	3.3496	0.9382	3.7348
L16	89.50-88.92	1.6375	4.9257	1.4426	4.9397
L17	88.92-88.67	1.6426	4.9409	1.4468	4.9536
L18	88.67-88.25	1.6472	4.9543	1.4506	4.9663
L19	88.25-88.00	1.9691	4.3930	1.6628	4.5036
L20	88.00-87.42	2.3933	4.1425	2.0008	4.2956
L21	87.42-87.17	2.8042	4.1057	2.3482	4.2682
L22	87.17-86.92	2.8101	4.1141	2.3530	4.2765
L23	86.92-86.67	2.8173	4.1243	2.3590	4.2870
L24	86.67-81.67	1.9532	4.5499	1.5892	4.6748
L25	81.67-80.75	1.8741	4.6976	1.5183	4.8125
L26	80.75-80.50	1.8817	4.7161	1.5241	4.8299
L27	80.50-75.50	2.0825	4.0316	1.6553	4.3241
L28	75.50-71.83	2.1353	4.2034	1.6965	4.4851
L29	71.83-71.58	2.0618	4.7363	1.6543	4.9073
L30	71.58-68.83	2.2735	4.7062	1.8757	4.8970
L31	68.83-68.58	2.4102	4.7032	2.0253	4.9045
L32	68.58-64.50	2.1971	5.0288	1.7815	5.2162
L33	64.50-63.25	2.1728	5.0867	1.7531	5.2708
L34	63.25-58.25	2.2162	5.1858	1.7872	5.3640
L35	58.25-53.25	2.2844	5.3419	1.8398	5.5120
L36	53.25-48.25	2.3453	5.4808	1.8915	5.6561
L37	48.25-42.50	2.4209	5.6081	1.9610	5.7971
L38	42.50-41.83	2.7974	5.3259	2.3545	5.5346
L39	41.83-41.58	2.8027	5.3358	2.3603	5.5429
L40	41.58-41.17	2.8074	5.3447	2.3646	5.5523
L41	41.17-40.92	2.8136	5.3561	2.3699	5.5641
L42	40.92-35.92	2.5100	5.6834	2.0473	5.8833
L43	35.92-30.92	2.5081	5.8519	2.0405	6.0575
L44	30.92-25.92	2.5603	5.9710	2.0890	6.1852
L45	25.92-20.25	2.6148	6.0950	2.1403	6.3167
L46	20.25-19.25	2.6204	6.1079	2.1457	6.3324
L47	19.25-14.15	2.8039	6.0952	2.3265	6.3184
L48	14.15-13.92	3.1620	5.9695	2.6913	6.1948
L49	13.92-8.92	2.8455	6.2137	2.3686	6.4366
L50	8.92-3.92	2.5688	3.3827	2.3599	3.4232
L51	3.92-0.00	2.3657	2.3657	2.2178	2.2178

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	125.00 - 130.00	1.0000	1.0000
L1	3	Climbing Pegs	125.00 - 130.00	1.0000	1.0000
L2	2	Safety Line 3/8	120.00 - 125.00	1.0000	1.0000
L2	3	Climbing Pegs	120.00 - 125.00	1.0000	1.0000
L3	2	Safety Line 3/8	114.90 - 120.00	1.0000	1.0000
L3	3	Climbing Pegs	114.90 - 120.00	1.0000	1.0000
L3	15	HB114-1-0813U4-M5J(1-1/4)	114.90 - 120.00	1.0000	1.0000
L3	63	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L3	66	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L3	67	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L3	75	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L3	76	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L4	2	Safety Line 3/8	114.67 - 114.90	1.0000	1.0000
L4	3	Climbing Pegs	114.67 - 114.90	1.0000	1.0000
L4	15	HB114-1-0813U4-M5J(1-1/4)	114.67 - 114.90	1.0000	1.0000
L4	63	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L4	66	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L4	67	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L4	75	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L4	76	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L5	2	Safety Line 3/8	109.67 - 114.67	1.0000	1.0000
L5	3	Climbing Pegs	109.67 - 114.67	1.0000	1.0000
L5	15	HB114-1-0813U4-M5J(1-1/4)	109.67 - 114.67	1.0000	1.0000
L5	63	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L5	66	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L5	67	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L5	75	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L5	76	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L6	2	Safety Line 3/8	109.42 - 109.67	1.0000	1.0000
L6	3	Climbing Pegs	109.42 - 109.67	1.0000	1.0000
L6	15	HB114-1-0813U4-M5J(1-1/4)	109.42 - 109.67	1.0000	1.0000
L6	63	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L6	66	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L6	67	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L6	75	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L6	76	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L7	2	Safety Line 3/8	109.17 - 109.42	1.0000	1.0000
L7	3	Climbing Pegs	109.17 - 109.42	1.0000	1.0000
L7	15	HB114-1-0813U4-M5J(1-1/4)	109.17 - 109.42	1.0000	1.0000
L7	63	(Area) Aero MP3-03 (H)	109.17 - 109.42	1.0000	1.0000
L7	66	(Area) Aero MP3-03 (H)	109.17 - 109.42	1.0000	1.0000
L7	67	(Area) Aero MP3-03 (H)	109.17 - 109.42	1.0000	1.0000
L7	74	(Area) Aero MP3-03 (H)	109.17 - 109.42	1.0000	1.0000
L8	2	Safety Line 3/8	104.17 - 109.17	1.0000	1.0000
L8	3	Climbing Pegs	104.17 - 109.17	1.0000	1.0000
L8	15	HB114-1-0813U4-M5J(1-1/4)	104.17 - 109.17	1.0000	1.0000
L8	63	(Area) Aero MP3-03 (H)	104.17 - 109.17	1.0000	1.0000
L8	66	(Area) Aero MP3-03 (H)	104.17 - 109.17	1.0000	1.0000
L8	67	(Area) Aero MP3-03 (H)	104.17 - 109.17	1.0000	1.0000
L8	74	(Area) Aero MP3-03 (H)	104.17 - 109.17	1.0000	1.0000
L9	2	Safety Line 3/8	103.92 - 104.17	1.0000	1.0000
L9	3	Climbing Pegs	103.92 - 104.17	1.0000	1.0000
L9	15	HB114-1-0813U4-M5J(1-1/4)	103.92 - 104.17	1.0000	1.0000
L9	63	(Area) Aero MP3-03 (H)	103.92 - 104.17	1.0000	1.0000
L9	66	(Area) Aero MP3-03 (H)	103.92 - 104.17	1.0000	1.0000
L9	67	(Area) Aero MP3-03 (H)	103.92 - 104.17	1.0000	1.0000
L9	74	(Area) Aero MP3-03 (H)	103.92 - 104.17	1.0000	1.0000
L10	2	Safety Line 3/8	103.67 - 103.92	1.0000	1.0000
L10	3	Climbing Pegs	103.67 - 103.92	1.0000	1.0000
L10	15	HB114-1-0813U4-M5J(1-1/4)	103.67 - 103.92	1.0000	1.0000
L10	63	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L10	66	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L10	67	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L10	71	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L10	73	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L11	2	Safety Line 3/8	98.67 - 103.67	1.0000	1.0000
L11	3	Climbing Pegs	98.67 - 103.67	1.0000	1.0000
L11	15	HB114-1-0813U4-M5J(1-	98.67 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		1/4)	103.67		
L11	63	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L11	66	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L11	67	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L11	71	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L11	73	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L12	2	Safety Line 3/8	96.42 - 98.67	1.0000	1.0000
L12	3	Climbing Pegs	96.42 - 98.67	1.0000	1.0000
L12	15	HB114-1-0813U4-M5J(1-1/4)	96.42 - 98.67	1.0000	1.0000
L12	63	(Area) Aero MP3-03 (H)	96.42 - 98.67	1.0000	1.0000
L12	66	(Area) Aero MP3-03 (H)	96.42 - 98.67	1.0000	1.0000
L12	67	(Area) Aero MP3-03 (H)	96.42 - 98.67	1.0000	1.0000
L12	70	(Area) Aero MP3-03 (H)	96.42 - 97.67	1.0000	1.0000
L12	71	(Area) Aero MP3-03 (H)	96.42 - 98.67	1.0000	1.0000
L12	72	(Area) Aero MP3-03 (H)	96.42 - 97.67	1.0000	1.0000
L12	73	(Area) Aero MP3-03 (H)	97.67 - 98.67	1.0000	1.0000
L13	2	Safety Line 3/8	96.17 - 96.42	1.0000	1.0000
L13	3	Climbing Pegs	96.17 - 96.42	1.0000	1.0000
L13	15	HB114-1-0813U4-M5J(1-1/4)	96.17 - 96.42	1.0000	1.0000
L13	63	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	66	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	67	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	70	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	71	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	72	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L14	2	Safety Line 3/8	91.50 - 96.17	1.0000	1.0000
L14	3	Climbing Pegs	91.50 - 96.17	1.0000	1.0000
L14	15	HB114-1-0813U4-M5J(1-1/4)	91.50 - 96.17	1.0000	1.0000
L14	63	(Area) Aero MP3-03 (H)	91.50 - 96.17	1.0000	1.0000
L14	66	(Area) Aero MP3-03 (H)	91.50 - 96.17	1.0000	1.0000
L14	67	(Area) Aero MP3-03 (H)	91.50 - 96.17	1.0000	1.0000
L14	70	(Area) Aero MP3-03 (H)	91.50 - 96.17	1.0000	1.0000
L14	71	(Area) Aero MP3-03 (H)	95.17 - 96.17	1.0000	1.0000
L14	72	(Area) Aero MP3-03 (H)	95.17 - 96.17	1.0000	1.0000
L15	2	Safety Line 3/8	89.50 - 91.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	3	Climbing Pegs	89.50 - 91.50	1.0000	1.0000
L15	15	HB114-1-0813U4-M5J(1-1/4)	89.50 - 91.50	1.0000	1.0000
L15	25	LCF158-50JL(1-5/8)	89.50 - 90.00	1.0000	1.0000
L15	63	(Area) Aero MP3-03 (H)	89.50 - 91.50	1.0000	1.0000
L15	66	(Area) Aero MP3-03 (H)	89.50 - 91.50	1.0000	1.0000
L15	67	(Area) Aero MP3-03 (H)	89.50 - 91.50	1.0000	1.0000
L15	70	(Area) Aero MP3-03 (H)	89.50 - 91.50	1.0000	1.0000
L16	2	Safety Line 3/8	88.92 - 89.50	1.0000	1.0000
L16	3	Climbing Pegs	88.92 - 89.50	1.0000	1.0000
L16	15	HB114-1-0813U4-M5J(1-1/4)	88.92 - 89.50	1.0000	1.0000
L16	25	LCF158-50JL(1-5/8)	88.92 - 89.50	1.0000	1.0000
L16	60	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L16	62	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L16	66	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L16	67	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L16	70	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L17	2	Safety Line 3/8	88.67 - 88.92	1.0000	1.0000
L17	3	Climbing Pegs	88.67 - 88.92	1.0000	1.0000
L17	15	HB114-1-0813U4-M5J(1-1/4)	88.67 - 88.92	1.0000	1.0000
L17	25	LCF158-50JL(1-5/8)	88.67 - 88.92	1.0000	1.0000
L17	60	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L17	62	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L17	66	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L17	67	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L17	70	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L18	2	Safety Line 3/8	88.25 - 88.67	1.0000	1.0000
L18	3	Climbing Pegs	88.25 - 88.67	1.0000	1.0000
L18	15	HB114-1-0813U4-M5J(1-1/4)	88.25 - 88.67	1.0000	1.0000
L18	25	LCF158-50JL(1-5/8)	88.25 - 88.67	1.0000	1.0000
L18	60	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L18	62	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L18	66	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L18	67	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L18	70	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L19	2	Safety Line 3/8	88.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L19	3	Climbing Pegs	88.25 88.00 - 88.25	1.0000	1.0000
L19	15	HB114-1-0813U4-M5J(1-1/4)	88.00 - 88.25	1.0000	1.0000
L19	25	LCF158-50JL(1-5/8)	88.00 - 88.25	1.0000	1.0000
L19	56	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	57	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	58	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	60	(Area) Aero MP3-03 (H)	88.00 - 88.25	1.0000	1.0000
L19	62	(Area) Aero MP3-03 (H)	88.00 - 88.25	1.0000	1.0000
L19	64	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	65	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	66	(Area) Aero MP3-03 (H)	88.17 - 88.25	1.0000	1.0000
L19	67	(Area) Aero MP3-03 (H)	88.17 - 88.25	1.0000	1.0000
L19	69	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	70	(Area) Aero MP3-03 (H)	88.17 - 88.25	1.0000	1.0000
L20	2	Safety Line 3/8	87.42 - 88.00	1.0000	1.0000
L20	3	Climbing Pegs	87.42 - 88.00	1.0000	1.0000
L20	15	HB114-1-0813U4-M5J(1-1/4)	87.42 - 88.00	1.0000	1.0000
L20	25	LCF158-50JL(1-5/8)	87.42 - 88.00	1.0000	1.0000
L20	56	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	57	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	58	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	60	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	62	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	64	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	65	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	69	(Area) Aero MP3-03 (H)	87.67 - 88.00	1.0000	1.0000
L21	2	Safety Line 3/8	87.17 - 87.42	1.0000	1.0000
L21	3	Climbing Pegs	87.17 - 87.42	1.0000	1.0000
L21	15	HB114-1-0813U4-M5J(1-1/4)	87.17 - 87.42	1.0000	1.0000
L21	25	LCF158-50JL(1-5/8)	87.17 - 87.42	1.0000	1.0000
L21	56	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	57	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	58	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	60	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L21	62	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	64	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	65	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L22	2	Safety Line 3/8	86.92 - 87.17	1.0000	1.0000
L22	3	Climbing Pegs	86.92 - 87.17	1.0000	1.0000
L22	15	HB114-1-0813U4-M5J(1-1/4)	86.92 - 87.17	1.0000	1.0000
L22	25	LCF158-50JL(1-5/8)	86.92 - 87.17	1.0000	1.0000
L22	56	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	57	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	58	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	60	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	62	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	64	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	65	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L23	2	Safety Line 3/8	86.67 - 86.92	1.0000	1.0000
L23	3	Climbing Pegs	86.67 - 86.92	1.0000	1.0000
L23	15	HB114-1-0813U4-M5J(1-1/4)	86.67 - 86.92	1.0000	1.0000
L23	25	LCF158-50JL(1-5/8)	86.67 - 86.92	1.0000	1.0000
L23	56	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	57	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	58	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	60	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	62	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	64	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	65	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L24	2	Safety Line 3/8	81.67 - 86.67	1.0000	1.0000
L24	3	Climbing Pegs	81.67 - 86.67	1.0000	1.0000
L24	15	HB114-1-0813U4-M5J(1-1/4)	81.67 - 86.67	1.0000	1.0000
L24	25	LCF158-50JL(1-5/8)	81.67 - 86.67	1.0000	1.0000
L24	56	(Area) Aero MP3-03 (H)	81.67 - 86.67	1.0000	1.0000
L24	57	(Area) Aero MP3-03 (H)	81.67 - 86.67	1.0000	1.0000
L24	58	(Area) Aero MP3-03 (H)	81.67 - 86.67	1.0000	1.0000
L24	60	(Area) Aero MP3-03 (H)	81.67 - 86.67	1.0000	1.0000
L24	62	(Area) Aero MP3-03 (H)	86.17 - 86.67	1.0000	1.0000
L24	64	(Area) Aero MP3-03 (H)	86.17 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			86.67		
L24	65	(Area) Aero MP3-03 (H)	86.17 - 86.67	1.0000	1.0000
L25	2	Safety Line 3/8	80.75 - 81.67	1.0000	1.0000
L25	3	Climbing Pegs	80.75 - 81.67	1.0000	1.0000
L25	15	HB114-1-0813U4-M5J(1-1/4)	80.75 - 81.67	1.0000	1.0000
L25	25	LCF158-50JL(1-5/8)	80.75 - 81.67	1.0000	1.0000
L25	56	(Area) Aero MP3-03 (H)	80.75 - 81.67	1.0000	1.0000
L25	57	(Area) Aero MP3-03 (H)	80.75 - 81.67	1.0000	1.0000
L25	58	(Area) Aero MP3-03 (H)	80.75 - 81.67	1.0000	1.0000
L25	60	(Area) Aero MP3-03 (H)	80.75 - 81.67	1.0000	1.0000
L26	2	Safety Line 3/8	80.50 - 80.75	1.0000	1.0000
L26	3	Climbing Pegs	80.50 - 80.75	1.0000	1.0000
L26	15	HB114-1-0813U4-M5J(1-1/4)	80.50 - 80.75	1.0000	1.0000
L26	25	LCF158-50JL(1-5/8)	80.50 - 80.75	1.0000	1.0000
L26	56	(Area) Aero MP3-03 (H)	80.50 - 80.75	1.0000	1.0000
L26	57	(Area) Aero MP3-03 (H)	80.50 - 80.75	1.0000	1.0000
L26	58	(Area) Aero MP3-03 (H)	80.50 - 80.75	1.0000	1.0000
L26	60	(Area) Aero MP3-03 (H)	80.50 - 80.75	1.0000	1.0000
L27	2	Safety Line 3/8	75.50 - 80.50	1.0000	1.0000
L27	3	Climbing Pegs	75.50 - 80.50	1.0000	1.0000
L27	15	HB114-1-0813U4-M5J(1-1/4)	75.50 - 80.50	1.0000	1.0000
L27	25	LCF158-50JL(1-5/8)	75.50 - 80.50	1.0000	1.0000
L27	56	(Area) Aero MP3-03 (H)	75.50 - 80.50	1.0000	1.0000
L27	57	(Area) Aero MP3-03 (H)	75.50 - 80.50	1.0000	1.0000
L27	58	(Area) Aero MP3-03 (H)	75.50 - 80.50	1.0000	1.0000
L27	60	(Area) Aero MP3-03 (H)	79.50 - 80.50	1.0000	1.0000
L28	2	Safety Line 3/8	71.83 - 75.50	1.0000	1.0000
L28	3	Climbing Pegs	71.83 - 75.50	1.0000	1.0000
L28	15	HB114-1-0813U4-M5J(1-1/4)	71.83 - 75.50	1.0000	1.0000
L28	25	LCF158-50JL(1-5/8)	71.83 - 75.50	1.0000	1.0000
L28	56	(Area) Aero MP3-03 (H)	71.83 - 75.50	1.0000	1.0000
L28	57	(Area) Aero MP3-03 (H)	71.83 - 75.50	1.0000	1.0000
L28	58	(Area) Aero MP3-03 (H)	71.83 - 75.50	1.0000	1.0000
L28	59	(Area) Aero MP3-03 (H)	71.83 - 73.08	1.0000	1.0000
L29	2	Safety Line 3/8	71.58 - 71.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L29	3	Climbing Pegs	71.58 - 71.83	1.0000	1.0000
L29	15	HB114-1-0813U4-M5J(1-1/4)	71.58 - 71.83	1.0000	1.0000
L29	25	LCF158-50JL(1-5/8)	71.58 - 71.83	1.0000	1.0000
L29	56	(Area) Aero MP3-03 (H)	71.58 - 71.83	1.0000	1.0000
L29	57	(Area) Aero MP3-03 (H)	71.58 - 71.83	1.0000	1.0000
L29	58	(Area) Aero MP3-03 (H)	71.58 - 71.83	1.0000	1.0000
L29	59	(Area) Aero MP3-03 (H)	71.58 - 71.83	1.0000	1.0000
L30	2	Safety Line 3/8	68.83 - 71.58	1.0000	1.0000
L30	3	Climbing Pegs	68.83 - 71.58	1.0000	1.0000
L30	15	HB114-1-0813U4-M5J(1-1/4)	68.83 - 71.58	1.0000	1.0000
L30	25	LCF158-50JL(1-5/8)	68.83 - 71.58	1.0000	1.0000
L30	47	(Area) Aero MP3-04 (H)	68.83 - 70.33	1.0000	1.0000
L30	48	(Area) Aero MP3-04 (H)	68.83 - 70.33	1.0000	1.0000
L30	49	(Area) Aero MP3-04 (H)	68.83 - 70.33	1.0000	1.0000
L30	50	(Area) Aero MP3-04 (H)	68.83 - 70.33	1.0000	1.0000
L30	52	(Area) Aero MP3-03 (H)	68.83 - 70.33	1.0000	1.0000
L30	53	(Area) Aero MP3-03 (H)	68.83 - 70.33	1.0000	1.0000
L30	54	(Area) Aero MP3-03 (H)	68.83 - 70.33	1.0000	1.0000
L30	55	(Area) Aero MP3-03 (H)	68.83 - 70.33	1.0000	1.0000
L30	56	(Area) Aero MP3-03 (H)	70.33 - 71.58	1.0000	1.0000
L30	57	(Area) Aero MP3-03 (H)	70.33 - 71.58	1.0000	1.0000
L30	58	(Area) Aero MP3-03 (H)	70.33 - 71.58	1.0000	1.0000
L30	59	(Area) Aero MP3-03 (H)	70.33 - 71.58	1.0000	1.0000
L31	2	Safety Line 3/8	68.58 - 68.83	1.0000	1.0000
L31	3	Climbing Pegs	68.58 - 68.83	1.0000	1.0000
L31	15	HB114-1-0813U4-M5J(1-1/4)	68.58 - 68.83	1.0000	1.0000
L31	25	LCF158-50JL(1-5/8)	68.58 - 68.83	1.0000	1.0000
L31	47	(Area) Aero MP3-04 (H)	68.58 - 68.83	1.0000	1.0000
L31	48	(Area) Aero MP3-04 (H)	68.58 - 68.83	1.0000	1.0000
L31	49	(Area) Aero MP3-04 (H)	68.58 - 68.83	1.0000	1.0000
L31	50	(Area) Aero MP3-04 (H)	68.58 - 68.83	1.0000	1.0000
L31	52	(Area) Aero MP3-03 (H)	68.58 - 68.83	1.0000	1.0000
L31	53	(Area) Aero MP3-03 (H)	68.58 - 68.83	1.0000	1.0000
L31	54	(Area) Aero MP3-03 (H)	68.58 - 68.83	1.0000	1.0000
L31	55	(Area) Aero MP3-03 (H)	68.58 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	2	Safety Line 3/8	68.83 64.50 - 68.58	1.0000	1.0000
L32	3	Climbing Pegs	64.50 - 68.58	1.0000	1.0000
L32	15	HB114-1-0813U4-M5J(1-1/4)	64.50 - 68.58	1.0000	1.0000
L32	25	LCF158-50JL(1-5/8)	64.50 - 68.58	1.0000	1.0000
L32	47	(Area) Aero MP3-04 (H)	64.50 - 68.58	1.0000	1.0000
L32	48	(Area) Aero MP3-04 (H)	64.50 - 68.58	1.0000	1.0000
L32	49	(Area) Aero MP3-04 (H)	64.50 - 68.58	1.0000	1.0000
L32	50	(Area) Aero MP3-04 (H)	64.50 - 68.58	1.0000	1.0000
L32	52	(Area) Aero MP3-03 (H)	68.17 - 68.58	1.0000	1.0000
L32	53	(Area) Aero MP3-03 (H)	68.17 - 68.58	1.0000	1.0000
L32	54	(Area) Aero MP3-03 (H)	68.17 - 68.58	1.0000	1.0000
L32	55	(Area) Aero MP3-03 (H)	68.17 - 68.58	1.0000	1.0000
L33	2	Safety Line 3/8	63.25 - 64.50	1.0000	1.0000
L33	3	Climbing Pegs	63.25 - 64.50	1.0000	1.0000
L33	15	HB114-1-0813U4-M5J(1-1/4)	63.25 - 64.50	1.0000	1.0000
L33	25	LCF158-50JL(1-5/8)	63.25 - 64.50	1.0000	1.0000
L33	47	(Area) Aero MP3-04 (H)	63.25 - 64.50	1.0000	1.0000
L33	48	(Area) Aero MP3-04 (H)	63.25 - 64.50	1.0000	1.0000
L33	49	(Area) Aero MP3-04 (H)	63.25 - 64.50	1.0000	1.0000
L33	50	(Area) Aero MP3-04 (H)	63.25 - 64.50	1.0000	1.0000
L34	2	Safety Line 3/8	58.25 - 63.25	1.0000	1.0000
L34	3	Climbing Pegs	58.25 - 63.25	1.0000	1.0000
L34	15	HB114-1-0813U4-M5J(1-1/4)	58.25 - 63.25	1.0000	1.0000
L34	25	LCF158-50JL(1-5/8)	58.25 - 63.25	1.0000	1.0000
L34	47	(Area) Aero MP3-04 (H)	58.25 - 63.25	1.0000	1.0000
L34	48	(Area) Aero MP3-04 (H)	58.25 - 63.25	1.0000	1.0000
L34	49	(Area) Aero MP3-04 (H)	58.25 - 63.25	1.0000	1.0000
L34	50	(Area) Aero MP3-04 (H)	58.25 - 63.25	1.0000	1.0000
L35	2	Safety Line 3/8	53.25 - 58.25	1.0000	1.0000
L35	3	Climbing Pegs	53.25 - 58.25	1.0000	1.0000
L35	15	HB114-1-0813U4-M5J(1-1/4)	53.25 - 58.25	1.0000	1.0000
L35	25	LCF158-50JL(1-5/8)	53.25 - 58.25	1.0000	1.0000
L35	47	(Area) Aero MP3-04 (H)	53.25 - 58.25	1.0000	1.0000
L35	48	(Area) Aero MP3-04 (H)	53.25 - 58.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L35	49	(Area) Aero MP3-04 (H)	53.25 - 58.25	1.0000	1.0000
L35	50	(Area) Aero MP3-04 (H)	53.25 - 58.25	1.0000	1.0000
L36	2	Safety Line 3/8	48.25 - 53.25	1.0000	1.0000
L36	3	Climbing Pegs	48.25 - 53.25	1.0000	1.0000
L36	15	HB114-1-0813U4-M5J(1-1/4)	48.25 - 53.25	1.0000	1.0000
L36	25	LCF158-50JL(1-5/8)	48.25 - 53.25	1.0000	1.0000
L36	47	(Area) Aero MP3-04 (H)	48.25 - 53.25	1.0000	1.0000
L36	48	(Area) Aero MP3-04 (H)	48.25 - 53.25	1.0000	1.0000
L36	49	(Area) Aero MP3-04 (H)	48.25 - 53.25	1.0000	1.0000
L36	50	(Area) Aero MP3-04 (H)	48.25 - 53.25	1.0000	1.0000
L37	2	Safety Line 3/8	42.50 - 48.25	1.0000	1.0000
L37	3	Climbing Pegs	42.50 - 48.25	1.0000	1.0000
L37	15	HB114-1-0813U4-M5J(1-1/4)	42.50 - 48.25	1.0000	1.0000
L37	25	LCF158-50JL(1-5/8)	42.50 - 48.25	1.0000	1.0000
L37	38	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	39	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	40	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	41	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	43	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	44	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	45	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	46	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	47	(Area) Aero MP3-04 (H)	42.67 - 48.25	1.0000	1.0000
L37	48	(Area) Aero MP3-04 (H)	42.67 - 48.25	1.0000	1.0000
L37	49	(Area) Aero MP3-04 (H)	42.67 - 48.25	1.0000	1.0000
L37	50	(Area) Aero MP3-04 (H)	42.67 - 48.25	1.0000	1.0000
L38	2	Safety Line 3/8	41.83 - 42.50	1.0000	1.0000
L38	3	Climbing Pegs	41.83 - 42.50	1.0000	1.0000
L38	15	HB114-1-0813U4-M5J(1-1/4)	41.83 - 42.50	1.0000	1.0000
L38	25	LCF158-50JL(1-5/8)	41.83 - 42.50	1.0000	1.0000
L38	38	(Area) Aero MP3-04 (H)	41.83 - 42.50	1.0000	1.0000
L38	39	(Area) Aero MP3-04 (H)	41.83 - 42.50	1.0000	1.0000
L38	40	(Area) Aero MP3-04 (H)	41.83 - 42.50	1.0000	1.0000
L38	41	(Area) Aero MP3-04 (H)	41.83 - 42.50	1.0000	1.0000
L38	43	(Area) Aero MP3-04 (H)	41.83 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L38	44	(Area) Aero MP3-04 (H)	42.50 41.83 - 42.50	1.0000	1.0000
L38	45	(Area) Aero MP3-04 (H)	41.83 - 42.50	1.0000	1.0000
L38	46	(Area) Aero MP3-04 (H)	41.83 - 42.50	1.0000	1.0000
L39	2	Safety Line 3/8	41.58 - 41.83	1.0000	1.0000
L39	3	Climbing Pegs	41.58 - 41.83	1.0000	1.0000
L39	15	HB114-1-0813U4-M5J(1-1/4)	41.58 - 41.83	1.0000	1.0000
L39	25	LCF158-50JL(1-5/8)	41.58 - 41.83	1.0000	1.0000
L39	38	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	39	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	40	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	41	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	43	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	44	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	45	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	46	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L40	2	Safety Line 3/8	41.17 - 41.58	1.0000	1.0000
L40	3	Climbing Pegs	41.17 - 41.58	1.0000	1.0000
L40	15	HB114-1-0813U4-M5J(1-1/4)	41.17 - 41.58	1.0000	1.0000
L40	25	LCF158-50JL(1-5/8)	41.17 - 41.58	1.0000	1.0000
L40	38	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	39	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	40	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	41	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	43	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	44	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	45	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	46	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L41	2	Safety Line 3/8	40.92 - 41.17	1.0000	1.0000
L41	3	Climbing Pegs	40.92 - 41.17	1.0000	1.0000
L41	15	HB114-1-0813U4-M5J(1-1/4)	40.92 - 41.17	1.0000	1.0000
L41	25	LCF158-50JL(1-5/8)	40.92 - 41.17	1.0000	1.0000
L41	38	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	39	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	40	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L41	41	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	43	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	44	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	45	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	46	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L42	2	Safety Line 3/8	35.92 - 40.92	1.0000	1.0000
L42	3	Climbing Pegs	35.92 - 40.92	1.0000	1.0000
L42	15	HB114-1-0813U4-M5J(1-1/4)	35.92 - 40.92	1.0000	1.0000
L42	25	LCF158-50JL(1-5/8)	35.92 - 40.92	1.0000	1.0000
L42	38	(Area) Aero MP3-04 (H)	35.92 - 40.92	1.0000	1.0000
L42	39	(Area) Aero MP3-04 (H)	35.92 - 40.92	1.0000	1.0000
L42	40	(Area) Aero MP3-04 (H)	35.92 - 40.92	1.0000	1.0000
L42	41	(Area) Aero MP3-04 (H)	35.92 - 40.92	1.0000	1.0000
L42	43	(Area) Aero MP3-04 (H)	40.33 - 40.92	1.0000	1.0000
L42	44	(Area) Aero MP3-04 (H)	40.33 - 40.92	1.0000	1.0000
L42	45	(Area) Aero MP3-04 (H)	40.33 - 40.92	1.0000	1.0000
L42	46	(Area) Aero MP3-04 (H)	40.33 - 40.92	1.0000	1.0000
L43	2	Safety Line 3/8	30.92 - 35.92	1.0000	1.0000
L43	3	Climbing Pegs	30.92 - 35.92	1.0000	1.0000
L43	15	HB114-1-0813U4-M5J(1-1/4)	30.92 - 35.92	1.0000	1.0000
L43	25	LCF158-50JL(1-5/8)	30.92 - 35.92	1.0000	1.0000
L43	38	(Area) Aero MP3-04 (H)	30.92 - 35.92	1.0000	1.0000
L43	39	(Area) Aero MP3-04 (H)	30.92 - 35.92	1.0000	1.0000
L43	40	(Area) Aero MP3-04 (H)	30.92 - 35.92	1.0000	1.0000
L43	41	(Area) Aero MP3-04 (H)	30.92 - 35.92	1.0000	1.0000
L44	2	Safety Line 3/8	25.92 - 30.92	1.0000	1.0000
L44	3	Climbing Pegs	25.92 - 30.92	1.0000	1.0000
L44	15	HB114-1-0813U4-M5J(1-1/4)	25.92 - 30.92	1.0000	1.0000
L44	25	LCF158-50JL(1-5/8)	25.92 - 30.92	1.0000	1.0000
L44	38	(Area) Aero MP3-04 (H)	25.92 - 30.92	1.0000	1.0000
L44	39	(Area) Aero MP3-04 (H)	25.92 - 30.92	1.0000	1.0000
L44	40	(Area) Aero MP3-04 (H)	25.92 - 30.92	1.0000	1.0000
L44	41	(Area) Aero MP3-04 (H)	25.92 - 30.92	1.0000	1.0000
L45	2	Safety Line 3/8	20.25 - 25.92	1.0000	1.0000
L45	3	Climbing Pegs	20.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			25.92		
L45	15	HB114-1-0813U4-M5J(1-1/4)	20.25 - 25.92	1.0000	1.0000
L45	25	LCF158-50JL(1-5/8)	20.25 - 25.92	1.0000	1.0000
L45	38	(Area) Aero MP3-04 (H)	20.25 - 25.92	1.0000	1.0000
L45	39	(Area) Aero MP3-04 (H)	20.25 - 25.92	1.0000	1.0000
L45	40	(Area) Aero MP3-04 (H)	20.25 - 25.92	1.0000	1.0000
L45	41	(Area) Aero MP3-04 (H)	20.25 - 25.92	1.0000	1.0000
L46	2	Safety Line 3/8	19.25 - 20.25	1.0000	1.0000
L46	3	Climbing Pegs	19.25 - 20.25	1.0000	1.0000
L46	15	HB114-1-0813U4-M5J(1-1/4)	19.25 - 20.25	1.0000	1.0000
L46	25	LCF158-50JL(1-5/8)	19.25 - 20.25	1.0000	1.0000
L46	38	(Area) Aero MP3-04 (H)	19.25 - 20.25	1.0000	1.0000
L46	39	(Area) Aero MP3-04 (H)	19.25 - 20.25	1.0000	1.0000
L46	40	(Area) Aero MP3-04 (H)	19.25 - 20.25	1.0000	1.0000
L46	41	(Area) Aero MP3-04 (H)	19.25 - 20.25	1.0000	1.0000
L47	2	Safety Line 3/8	14.15 - 19.25	1.0000	1.0000
L47	3	Climbing Pegs	14.15 - 19.25	1.0000	1.0000
L47	15	HB114-1-0813U4-M5J(1-1/4)	14.15 - 19.25	1.0000	1.0000
L47	25	LCF158-50JL(1-5/8)	14.15 - 19.25	1.0000	1.0000
L47	29	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	30	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	31	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	32	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	34	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	35	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	36	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	37	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	38	(Area) Aero MP3-04 (H)	15.50 - 19.25	1.0000	1.0000
L47	39	(Area) Aero MP3-04 (H)	15.50 - 19.25	1.0000	1.0000
L47	40	(Area) Aero MP3-04 (H)	15.50 - 19.25	1.0000	1.0000
L47	41	(Area) Aero MP3-04 (H)	15.50 - 19.25	1.0000	1.0000
L48	2	Safety Line 3/8	13.92 - 14.15	1.0000	1.0000
L48	3	Climbing Pegs	13.92 - 14.15	1.0000	1.0000
L48	15	HB114-1-0813U4-M5J(1-1/4)	13.92 - 14.15	1.0000	1.0000
L48	25	LCF158-50JL(1-5/8)	13.92 - 14.15	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L48	29	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	30	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	31	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	32	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	34	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	35	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	36	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	37	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L49	2	Safety Line 3/8	8.92 - 13.92	1.0000	1.0000
L49	3	Climbing Pegs	8.92 - 13.92	1.0000	1.0000
L49	15	HB114-1-0813U4-M5J(1-1/4)	8.92 - 13.92	1.0000	1.0000
L49	25	LCF158-50JL(1-5/8)	8.92 - 13.92	1.0000	1.0000
L49	29	(Area) Aero MP3-04 (H)	8.92 - 13.92	1.0000	1.0000
L49	30	(Area) Aero MP3-04 (H)	8.92 - 13.92	1.0000	1.0000
L49	31	(Area) Aero MP3-04 (H)	8.92 - 13.92	1.0000	1.0000
L49	32	(Area) Aero MP3-04 (H)	8.92 - 13.92	1.0000	1.0000
L49	34	(Area) Aero MP3-04 (H)	12.67 - 13.92	1.0000	1.0000
L49	35	(Area) Aero MP3-04 (H)	12.67 - 13.92	1.0000	1.0000
L49	36	(Area) Aero MP3-04 (H)	12.67 - 13.92	1.0000	1.0000
L49	37	(Area) Aero MP3-04 (H)	12.67 - 13.92	1.0000	1.0000
L50	2	Safety Line 3/8	8.00 - 8.92	1.0000	1.0000
L50	3	Climbing Pegs	8.00 - 8.92	1.0000	1.0000
L50	15	HB114-1-0813U4-M5J(1-1/4)	8.00 - 8.92	1.0000	1.0000
L50	25	LCF158-50JL(1-5/8)	8.00 - 8.92	1.0000	1.0000
L50	29	(Area) Aero MP3-04 (H)	3.92 - 8.92	1.0000	1.0000
L50	30	(Area) Aero MP3-04 (H)	3.92 - 8.92	1.0000	1.0000
L50	31	(Area) Aero MP3-04 (H)	3.92 - 8.92	1.0000	1.0000
L50	32	(Area) Aero MP3-04 (H)	3.92 - 8.92	1.0000	1.0000
L51	29	(Area) Aero MP3-04 (H)	0.50 - 3.92	1.0000	1.0000
L51	30	(Area) Aero MP3-04 (H)	0.50 - 3.92	1.0000	1.0000
L51	31	(Area) Aero MP3-04 (H)	0.50 - 3.92	1.0000	1.0000
L51	32	(Area) Aero MP3-04 (H)	0.50 - 3.92	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
L3	63	(Area) Aero MP3-03 (H)	114.90 - 116.17	Auto	0.2100
L3	66	(Area) Aero MP3-03 (H)	114.90 - 116.17	Auto	0.2100
L3	67	(Area) Aero MP3-03 (H)	114.90 - 116.17	Auto	0.2100
L3	75	(Area) Aero MP3-03 (H)	114.90 - 116.17	Auto	0.2100
L3	76	(Area) Aero MP3-03 (H)	114.90 - 116.17	Auto	0.2100
L4	63	(Area) Aero MP3-03 (H)	114.67 - 114.90	Auto	0.1978
L4	66	(Area) Aero MP3-03 (H)	114.67 -	Auto	0.1978

Tower Section	*Attachment Record No.*	*Description*	*Attachment Segment Elev.*	*Ratio Calculation Method*	*Effective Width Ratio*
L4	67	(Area) Aero MP3-03 (H)	114.90 114.67 -	Auto	0.1978
L4	75	(Area) Aero MP3-03 (H)	114.90 114.67 -	Auto	0.1978
L4	76	(Area) Aero MP3-03 (H)	114.90 114.67 -	Auto	0.1978
L5	63	(Area) Aero MP3-03 (H)	114.90 109.67 -	Auto	0.1349
L5	66	(Area) Aero MP3-03 (H)	114.67 109.67 -	Auto	0.1349
L5	67	(Area) Aero MP3-03 (H)	114.67 109.67 -	Auto	0.1349
L5	75	(Area) Aero MP3-03 (H)	114.67 109.67 -	Auto	0.1349
L5	76	(Area) Aero MP3-03 (H)	114.67 109.67 -	Auto	0.1349
L6	63	(Area) Aero MP3-03 (H)	114.67 109.42 -	Auto	0.0925
L6	66	(Area) Aero MP3-03 (H)	109.67 109.42 -	Auto	0.0925
L6	67	(Area) Aero MP3-03 (H)	109.67 109.42 -	Auto	0.0925
L6	75	(Area) Aero MP3-03 (H)	109.67 109.42 -	Auto	0.0925
L6	76	(Area) Aero MP3-03 (H)	109.67 109.42 -	Auto	0.0925
L7	63	(Area) Aero MP3-03 (H)	109.67 109.17 -	Auto	0.0513
L7	66	(Area) Aero MP3-03 (H)	109.42 109.17 -	Auto	0.0513
L7	67	(Area) Aero MP3-03 (H)	109.42 109.17 -	Auto	0.0513
L7	74	(Area) Aero MP3-03 (H)	109.42 109.17 -	Auto	0.0513
L8	63	(Area) Aero MP3-03 (H)	109.42 104.17 -	Auto	0.0104
L8	66	(Area) Aero MP3-03 (H)	109.17 104.17 -	Auto	0.0104
L8	67	(Area) Aero MP3-03 (H)	109.17 104.17 -	Auto	0.0104
L8	74	(Area) Aero MP3-03 (H)	109.17 104.17 -	Auto	0.0104
L9	63	(Area) Aero MP3-03 (H)	109.17 103.92 -	Auto	0.0000
L9	66	(Area) Aero MP3-03 (H)	104.17 103.92 -	Auto	0.0000
L9	67	(Area) Aero MP3-03 (H)	104.17 103.92 -	Auto	0.0000
L9	74	(Area) Aero MP3-03 (H)	104.17 103.92 -	Auto	0.0000
L10	63	(Area) Aero MP3-03 (H)	104.17 103.67 -	Auto	0.0000
L10	66	(Area) Aero MP3-03 (H)	103.92 103.67 -	Auto	0.0000
L10	67	(Area) Aero MP3-03 (H)	103.92 103.67 -	Auto	0.0000
L10	71	(Area) Aero MP3-03 (H)	103.92 103.67 -	Auto	0.0000
L10	73	(Area) Aero MP3-03 (H)	103.92 103.67 -	Auto	0.0000
L11	63	(Area) Aero MP3-03 (H)	103.92 98.67 -	Auto	0.0000
L11	66	(Area) Aero MP3-03 (H)	103.67 98.67 -	Auto	0.0000
L11	67	(Area) Aero MP3-03 (H)	103.67 98.67 -	Auto	0.0000
L11	71	(Area) Aero MP3-03 (H)	103.67 98.67 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L11	73	(Area) Aero MP3-03 (H)	103.67 98.67 -	Auto	0.0000
L12	63	(Area) Aero MP3-03 (H)	103.67 96.42 - 98.67	Auto	0.0000
L12	66	(Area) Aero MP3-03 (H)	96.42 - 98.67	Auto	0.0000
L12	67	(Area) Aero MP3-03 (H)	96.42 - 98.67	Auto	0.0000
L12	70	(Area) Aero MP3-03 (H)	96.42 - 97.67	Auto	0.0000
L12	71	(Area) Aero MP3-03 (H)	96.42 - 98.67	Auto	0.0000
L12	72	(Area) Aero MP3-03 (H)	96.42 - 97.67	Auto	0.0000
L12	73	(Area) Aero MP3-03 (H)	97.67 - 98.67	Auto	0.0000
L13	63	(Area) Aero MP3-03 (H)	96.17 - 96.42	Auto	0.0000
L13	66	(Area) Aero MP3-03 (H)	96.17 - 96.42	Auto	0.0000
L13	67	(Area) Aero MP3-03 (H)	96.17 - 96.42	Auto	0.0000
L13	70	(Area) Aero MP3-03 (H)	96.17 - 96.42	Auto	0.0000
L13	71	(Area) Aero MP3-03 (H)	96.17 - 96.42	Auto	0.0000
L13	72	(Area) Aero MP3-03 (H)	96.17 - 96.42	Auto	0.0000
L14	63	(Area) Aero MP3-03 (H)	91.50 - 96.17	Auto	0.0000
L14	66	(Area) Aero MP3-03 (H)	91.50 - 96.17	Auto	0.0000
L14	67	(Area) Aero MP3-03 (H)	91.50 - 96.17	Auto	0.0000
L14	70	(Area) Aero MP3-03 (H)	91.50 - 96.17	Auto	0.0000
L14	71	(Area) Aero MP3-03 (H)	95.17 - 96.17	Auto	0.0000
L14	72	(Area) Aero MP3-03 (H)	95.17 - 96.17	Auto	0.0000
L15	63	(Area) Aero MP3-03 (H)	89.50 - 91.50	Auto	0.0000
L15	66	(Area) Aero MP3-03 (H)	89.50 - 91.50	Auto	0.0000
L15	67	(Area) Aero MP3-03 (H)	89.50 - 91.50	Auto	0.0000
L15	70	(Area) Aero MP3-03 (H)	89.50 - 91.50	Auto	0.0000
L16	60	(Area) Aero MP3-03 (H)	88.92 - 89.50	Auto	0.0000
L16	62	(Area) Aero MP3-03 (H)	88.92 - 89.50	Auto	0.0000
L16	66	(Area) Aero MP3-03 (H)	88.92 - 89.50	Auto	0.0000
L16	67	(Area) Aero MP3-03 (H)	88.92 - 89.50	Auto	0.0000
L16	70	(Area) Aero MP3-03 (H)	88.92 - 89.50	Auto	0.0000
L17	60	(Area) Aero MP3-03 (H)	88.67 - 88.92	Auto	0.0000
L17	62	(Area) Aero MP3-03 (H)	88.67 - 88.92	Auto	0.0000
L17	66	(Area) Aero MP3-03 (H)	88.67 - 88.92	Auto	0.0000
L17	67	(Area) Aero MP3-03 (H)	88.67 - 88.92	Auto	0.0000
L17	70	(Area) Aero MP3-03 (H)	88.67 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L18	60	(Area) Aero MP3-03 (H)	88.92 88.25 - 88.67	Auto	0.0000
L18	62	(Area) Aero MP3-03 (H)	88.25 - 88.67	Auto	0.0000
L18	66	(Area) Aero MP3-03 (H)	88.25 - 88.67	Auto	0.0000
L18	67	(Area) Aero MP3-03 (H)	88.25 - 88.67	Auto	0.0000
L18	70	(Area) Aero MP3-03 (H)	88.25 - 88.67	Auto	0.0000
L19	56	(Area) Aero MP3-03 (H)	88.00 - 88.17	Auto	0.0000
L19	57	(Area) Aero MP3-03 (H)	88.00 - 88.17	Auto	0.0000
L19	58	(Area) Aero MP3-03 (H)	88.00 - 88.17	Auto	0.0000
L19	60	(Area) Aero MP3-03 (H)	88.00 - 88.25	Auto	0.0000
L19	62	(Area) Aero MP3-03 (H)	88.00 - 88.25	Auto	0.0000
L19	64	(Area) Aero MP3-03 (H)	88.00 - 88.17	Auto	0.0000
L19	65	(Area) Aero MP3-03 (H)	88.00 - 88.17	Auto	0.0000
L19	66	(Area) Aero MP3-03 (H)	88.17 - 88.25	Auto	0.0000
L19	67	(Area) Aero MP3-03 (H)	88.17 - 88.25	Auto	0.0000
L19	69	(Area) Aero MP3-03 (H)	88.00 - 88.17	Auto	0.0000
L19	70	(Area) Aero MP3-03 (H)	88.17 - 88.25	Auto	0.0000
L20	56	(Area) Aero MP3-03 (H)	87.42 - 88.00	Auto	0.0000
L20	57	(Area) Aero MP3-03 (H)	87.42 - 88.00	Auto	0.0000
L20	58	(Area) Aero MP3-03 (H)	87.42 - 88.00	Auto	0.0000
L20	60	(Area) Aero MP3-03 (H)	87.42 - 88.00	Auto	0.0000
L20	62	(Area) Aero MP3-03 (H)	87.42 - 88.00	Auto	0.0000
L20	64	(Area) Aero MP3-03 (H)	87.42 - 88.00	Auto	0.0000
L20	65	(Area) Aero MP3-03 (H)	87.42 - 88.00	Auto	0.0000
L20	69	(Area) Aero MP3-03 (H)	87.67 - 88.00	Auto	0.0000
L21	56	(Area) Aero MP3-03 (H)	87.17 - 87.42	Auto	0.0000
L21	57	(Area) Aero MP3-03 (H)	87.17 - 87.42	Auto	0.0000
L21	58	(Area) Aero MP3-03 (H)	87.17 - 87.42	Auto	0.0000
L21	60	(Area) Aero MP3-03 (H)	87.17 - 87.42	Auto	0.0000
L21	62	(Area) Aero MP3-03 (H)	87.17 - 87.42	Auto	0.0000
L21	64	(Area) Aero MP3-03 (H)	87.17 - 87.42	Auto	0.0000
L21	65	(Area) Aero MP3-03 (H)	87.17 - 87.42	Auto	0.0000
L22	56	(Area) Aero MP3-03 (H)	86.92 - 87.17	Auto	0.0000
L22	57	(Area) Aero MP3-03 (H)	86.92 - 87.17	Auto	0.0000
L22	58	(Area) Aero MP3-03 (H)	86.92 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L22	60	(Area) Aero MP3-03 (H)	87.17 86.92 -	Auto	0.0000
L22	62	(Area) Aero MP3-03 (H)	87.17 86.92 -	Auto	0.0000
L22	64	(Area) Aero MP3-03 (H)	87.17 86.92 -	Auto	0.0000
L22	65	(Area) Aero MP3-03 (H)	87.17 86.92 -	Auto	0.0000
L23	56	(Area) Aero MP3-03 (H)	87.17 86.67 -	Auto	0.0000
L23	57	(Area) Aero MP3-03 (H)	86.92 86.67 -	Auto	0.0000
L23	58	(Area) Aero MP3-03 (H)	86.92 86.67 -	Auto	0.0000
L23	60	(Area) Aero MP3-03 (H)	86.92 86.67 -	Auto	0.0000
L23	62	(Area) Aero MP3-03 (H)	86.92 86.67 -	Auto	0.0000
L23	64	(Area) Aero MP3-03 (H)	86.92 86.67 -	Auto	0.0000
L23	65	(Area) Aero MP3-03 (H)	86.92 86.67 -	Auto	0.0000
L24	56	(Area) Aero MP3-03 (H)	86.92 81.67 -	Auto	0.0000
L24	57	(Area) Aero MP3-03 (H)	86.67 81.67 -	Auto	0.0000
L24	58	(Area) Aero MP3-03 (H)	86.67 81.67 -	Auto	0.0000
L24	60	(Area) Aero MP3-03 (H)	86.67 81.67 -	Auto	0.0000
L24	62	(Area) Aero MP3-03 (H)	86.67 86.17 -	Auto	0.0000
L24	64	(Area) Aero MP3-03 (H)	86.67 86.17 -	Auto	0.0000
L24	65	(Area) Aero MP3-03 (H)	86.67 86.17 -	Auto	0.0000
L25	56	(Area) Aero MP3-03 (H)	86.67 80.75 -	Auto	0.0000
L25	57	(Area) Aero MP3-03 (H)	81.67 80.75 -	Auto	0.0000
L25	58	(Area) Aero MP3-03 (H)	81.67 80.75 -	Auto	0.0000
L25	60	(Area) Aero MP3-03 (H)	81.67 80.75 -	Auto	0.0000
L26	56	(Area) Aero MP3-03 (H)	81.67 80.50 -	Auto	0.0000
L26	57	(Area) Aero MP3-03 (H)	80.75 80.50 -	Auto	0.0000
L26	58	(Area) Aero MP3-03 (H)	80.75 80.50 -	Auto	0.0000
L26	60	(Area) Aero MP3-03 (H)	80.75 80.50 -	Auto	0.0000
L27	56	(Area) Aero MP3-03 (H)	80.75 75.50 -	Auto	0.0000
L27	57	(Area) Aero MP3-03 (H)	80.50 75.50 -	Auto	0.0000
L27	58	(Area) Aero MP3-03 (H)	80.50 75.50 -	Auto	0.0000
L27	60	(Area) Aero MP3-03 (H)	80.50 79.50 -	Auto	0.0000
L28	56	(Area) Aero MP3-03 (H)	80.50 71.83 -	Auto	0.0000
L28	57	(Area) Aero MP3-03 (H)	75.50 71.83 -	Auto	0.0000
L28	58	(Area) Aero MP3-03 (H)	75.50 71.83 -	Auto	0.0000
L28	59	(Area) Aero MP3-03 (H)	75.50 71.83 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L29	56	(Area) Aero MP3-03 (H)	73.08 71.58 - 71.83	Auto	0.0000
L29	57	(Area) Aero MP3-03 (H)	71.58 - 71.83	Auto	0.0000
L29	58	(Area) Aero MP3-03 (H)	71.58 - 71.83	Auto	0.0000
L29	59	(Area) Aero MP3-03 (H)	71.58 - 71.83	Auto	0.0000
L30	47	(Area) Aero MP3-04 (H)	68.83 - 70.33	Auto	0.0000
L30	48	(Area) Aero MP3-04 (H)	68.83 - 70.33	Auto	0.0000
L30	49	(Area) Aero MP3-04 (H)	68.83 - 70.33	Auto	0.0000
L30	50	(Area) Aero MP3-04 (H)	68.83 - 70.33	Auto	0.0000
L30	52	(Area) Aero MP3-03 (H)	68.83 - 70.33	Auto	0.0000
L30	53	(Area) Aero MP3-03 (H)	68.83 - 70.33	Auto	0.0000
L30	54	(Area) Aero MP3-03 (H)	68.83 - 70.33	Auto	0.0000
L30	55	(Area) Aero MP3-03 (H)	68.83 - 70.33	Auto	0.0000
L30	56	(Area) Aero MP3-03 (H)	70.33 - 71.58	Auto	0.0000
L30	57	(Area) Aero MP3-03 (H)	70.33 - 71.58	Auto	0.0000
L30	58	(Area) Aero MP3-03 (H)	70.33 - 71.58	Auto	0.0000
L30	59	(Area) Aero MP3-03 (H)	70.33 - 71.58	Auto	0.0000
L31	47	(Area) Aero MP3-04 (H)	68.58 - 68.83	Auto	0.0000
L31	48	(Area) Aero MP3-04 (H)	68.58 - 68.83	Auto	0.0000
L31	49	(Area) Aero MP3-04 (H)	68.58 - 68.83	Auto	0.0000
L31	50	(Area) Aero MP3-04 (H)	68.58 - 68.83	Auto	0.0000
L31	52	(Area) Aero MP3-03 (H)	68.58 - 68.83	Auto	0.0000
L31	53	(Area) Aero MP3-03 (H)	68.58 - 68.83	Auto	0.0000
L31	54	(Area) Aero MP3-03 (H)	68.58 - 68.83	Auto	0.0000
L31	55	(Area) Aero MP3-03 (H)	68.58 - 68.83	Auto	0.0000
L32	47	(Area) Aero MP3-04 (H)	64.50 - 68.58	Auto	0.0000
L32	48	(Area) Aero MP3-04 (H)	64.50 - 68.58	Auto	0.0000
L32	49	(Area) Aero MP3-04 (H)	64.50 - 68.58	Auto	0.0000
L32	50	(Area) Aero MP3-04 (H)	64.50 - 68.58	Auto	0.0000
L32	52	(Area) Aero MP3-03 (H)	68.17 - 68.58	Auto	0.0000
L32	53	(Area) Aero MP3-03 (H)	68.17 - 68.58	Auto	0.0000
L32	54	(Area) Aero MP3-03 (H)	68.17 - 68.58	Auto	0.0000
L32	55	(Area) Aero MP3-03 (H)	68.17 - 68.58	Auto	0.0000
L33	47	(Area) Aero MP3-04 (H)	63.25 - 64.50	Auto	0.0000
L33	48	(Area) Aero MP3-04 (H)	63.25 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L33	49	(Area) Aero MP3-04 (H)	64.50 63.25 -	Auto	0.0000
L33	50	(Area) Aero MP3-04 (H)	64.50 63.25 -	Auto	0.0000
L34	47	(Area) Aero MP3-04 (H)	64.50 58.25 -	Auto	0.0000
L34	48	(Area) Aero MP3-04 (H)	63.25 58.25 -	Auto	0.0000
L34	49	(Area) Aero MP3-04 (H)	63.25 58.25 -	Auto	0.0000
L34	50	(Area) Aero MP3-04 (H)	63.25 58.25 -	Auto	0.0000
L35	47	(Area) Aero MP3-04 (H)	63.25 53.25 -	Auto	0.0000
L35	48	(Area) Aero MP3-04 (H)	58.25 53.25 -	Auto	0.0000
L35	49	(Area) Aero MP3-04 (H)	58.25 53.25 -	Auto	0.0000
L35	50	(Area) Aero MP3-04 (H)	58.25 53.25 -	Auto	0.0000
L36	47	(Area) Aero MP3-04 (H)	58.25 48.25 -	Auto	0.0000
L36	48	(Area) Aero MP3-04 (H)	53.25 48.25 -	Auto	0.0000
L36	49	(Area) Aero MP3-04 (H)	53.25 48.25 -	Auto	0.0000
L36	50	(Area) Aero MP3-04 (H)	53.25 48.25 -	Auto	0.0000
L37	38	(Area) Aero MP3-04 (H)	53.25 42.50 -	Auto	0.0000
L37	39	(Area) Aero MP3-04 (H)	42.67 42.50 -	Auto	0.0000
L37	40	(Area) Aero MP3-04 (H)	42.67 42.50 -	Auto	0.0000
L37	41	(Area) Aero MP3-04 (H)	42.67 42.50 -	Auto	0.0000
L37	43	(Area) Aero MP3-04 (H)	42.67 42.50 -	Auto	0.0000
L37	44	(Area) Aero MP3-04 (H)	42.67 42.50 -	Auto	0.0000
L37	45	(Area) Aero MP3-04 (H)	42.67 42.50 -	Auto	0.0000
L37	46	(Area) Aero MP3-04 (H)	42.67 42.50 -	Auto	0.0000
L37	47	(Area) Aero MP3-04 (H)	42.67 42.67 -	Auto	0.0000
L37	48	(Area) Aero MP3-04 (H)	48.25 42.67 -	Auto	0.0000
L37	49	(Area) Aero MP3-04 (H)	48.25 42.67 -	Auto	0.0000
L37	50	(Area) Aero MP3-04 (H)	48.25 42.67 -	Auto	0.0000
L38	38	(Area) Aero MP3-04 (H)	48.25 41.83 -	Auto	0.0000
L38	39	(Area) Aero MP3-04 (H)	42.50 41.83 -	Auto	0.0000
L38	40	(Area) Aero MP3-04 (H)	42.50 41.83 -	Auto	0.0000
L38	41	(Area) Aero MP3-04 (H)	42.50 41.83 -	Auto	0.0000
L38	43	(Area) Aero MP3-04 (H)	42.50 41.83 -	Auto	0.0000
L38	44	(Area) Aero MP3-04 (H)	42.50 41.83 -	Auto	0.0000
L38	45	(Area) Aero MP3-04 (H)	42.50 41.83 -	Auto	0.0000
L38	46	(Area) Aero MP3-04 (H)	42.50 41.83 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L39	38	(Area) Aero MP3-04 (H)	42.50 41.58 - 41.83	Auto	0.0000
L39	39	(Area) Aero MP3-04 (H)	41.58 - 41.83	Auto	0.0000
L39	40	(Area) Aero MP3-04 (H)	41.58 - 41.83	Auto	0.0000
L39	41	(Area) Aero MP3-04 (H)	41.58 - 41.83	Auto	0.0000
L39	43	(Area) Aero MP3-04 (H)	41.58 - 41.83	Auto	0.0000
L39	44	(Area) Aero MP3-04 (H)	41.58 - 41.83	Auto	0.0000
L39	45	(Area) Aero MP3-04 (H)	41.58 - 41.83	Auto	0.0000
L39	46	(Area) Aero MP3-04 (H)	41.58 - 41.83	Auto	0.0000
L40	38	(Area) Aero MP3-04 (H)	41.17 - 41.58	Auto	0.0000
L40	39	(Area) Aero MP3-04 (H)	41.17 - 41.58	Auto	0.0000
L40	40	(Area) Aero MP3-04 (H)	41.17 - 41.58	Auto	0.0000
L40	41	(Area) Aero MP3-04 (H)	41.17 - 41.58	Auto	0.0000
L40	43	(Area) Aero MP3-04 (H)	41.17 - 41.58	Auto	0.0000
L40	44	(Area) Aero MP3-04 (H)	41.17 - 41.58	Auto	0.0000
L40	45	(Area) Aero MP3-04 (H)	41.17 - 41.58	Auto	0.0000
L40	46	(Area) Aero MP3-04 (H)	41.17 - 41.58	Auto	0.0000
L41	38	(Area) Aero MP3-04 (H)	40.92 - 41.17	Auto	0.0000
L41	39	(Area) Aero MP3-04 (H)	40.92 - 41.17	Auto	0.0000
L41	40	(Area) Aero MP3-04 (H)	40.92 - 41.17	Auto	0.0000
L41	41	(Area) Aero MP3-04 (H)	40.92 - 41.17	Auto	0.0000
L41	43	(Area) Aero MP3-04 (H)	40.92 - 41.17	Auto	0.0000
L41	44	(Area) Aero MP3-04 (H)	40.92 - 41.17	Auto	0.0000
L41	45	(Area) Aero MP3-04 (H)	40.92 - 41.17	Auto	0.0000
L41	46	(Area) Aero MP3-04 (H)	40.92 - 41.17	Auto	0.0000
L42	38	(Area) Aero MP3-04 (H)	35.92 - 40.92	Auto	0.0000
L42	39	(Area) Aero MP3-04 (H)	35.92 - 40.92	Auto	0.0000
L42	40	(Area) Aero MP3-04 (H)	35.92 - 40.92	Auto	0.0000
L42	41	(Area) Aero MP3-04 (H)	35.92 - 40.92	Auto	0.0000
L42	43	(Area) Aero MP3-04 (H)	40.33 - 40.92	Auto	0.0000
L42	44	(Area) Aero MP3-04 (H)	40.33 - 40.92	Auto	0.0000
L42	45	(Area) Aero MP3-04 (H)	40.33 - 40.92	Auto	0.0000
L42	46	(Area) Aero MP3-04 (H)	40.33 - 40.92	Auto	0.0000
L43	38	(Area) Aero MP3-04 (H)	30.92 - 35.92	Auto	0.0000
L43	39	(Area) Aero MP3-04 (H)	30.92 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L43	40	(Area) Aero MP3-04 (H)	35.92 30.92 - 35.92	Auto	0.0000
L43	41	(Area) Aero MP3-04 (H)	30.92 - 35.92	Auto	0.0000
L44	38	(Area) Aero MP3-04 (H)	25.92 - 30.92	Auto	0.0000
L44	39	(Area) Aero MP3-04 (H)	25.92 - 30.92	Auto	0.0000
L44	40	(Area) Aero MP3-04 (H)	25.92 - 30.92	Auto	0.0000
L44	41	(Area) Aero MP3-04 (H)	25.92 - 30.92	Auto	0.0000
L45	38	(Area) Aero MP3-04 (H)	20.25 - 25.92	Auto	0.0000
L45	39	(Area) Aero MP3-04 (H)	20.25 - 25.92	Auto	0.0000
L45	40	(Area) Aero MP3-04 (H)	20.25 - 25.92	Auto	0.0000
L45	41	(Area) Aero MP3-04 (H)	20.25 - 25.92	Auto	0.0000
L46	38	(Area) Aero MP3-04 (H)	19.25 - 20.25	Auto	0.0000
L46	39	(Area) Aero MP3-04 (H)	19.25 - 20.25	Auto	0.0000
L46	40	(Area) Aero MP3-04 (H)	19.25 - 20.25	Auto	0.0000
L46	41	(Area) Aero MP3-04 (H)	19.25 - 20.25	Auto	0.0000
L47	29	(Area) Aero MP3-04 (H)	14.15 - 15.50	Auto	0.0000
L47	30	(Area) Aero MP3-04 (H)	14.15 - 15.50	Auto	0.0000
L47	31	(Area) Aero MP3-04 (H)	14.15 - 15.50	Auto	0.0000
L47	32	(Area) Aero MP3-04 (H)	14.15 - 15.50	Auto	0.0000
L47	34	(Area) Aero MP3-04 (H)	14.15 - 15.50	Auto	0.0000
L47	35	(Area) Aero MP3-04 (H)	14.15 - 15.50	Auto	0.0000
L47	36	(Area) Aero MP3-04 (H)	14.15 - 15.50	Auto	0.0000
L47	37	(Area) Aero MP3-04 (H)	14.15 - 15.50	Auto	0.0000
L47	38	(Area) Aero MP3-04 (H)	15.50 - 19.25	Auto	0.0000
L47	39	(Area) Aero MP3-04 (H)	15.50 - 19.25	Auto	0.0000
L47	40	(Area) Aero MP3-04 (H)	15.50 - 19.25	Auto	0.0000
L47	41	(Area) Aero MP3-04 (H)	15.50 - 19.25	Auto	0.0000
L48	29	(Area) Aero MP3-04 (H)	13.92 - 14.15	Auto	0.0000
L48	30	(Area) Aero MP3-04 (H)	13.92 - 14.15	Auto	0.0000
L48	31	(Area) Aero MP3-04 (H)	13.92 - 14.15	Auto	0.0000
L48	32	(Area) Aero MP3-04 (H)	13.92 - 14.15	Auto	0.0000
L48	34	(Area) Aero MP3-04 (H)	13.92 - 14.15	Auto	0.0000
L48	35	(Area) Aero MP3-04 (H)	13.92 - 14.15	Auto	0.0000
L48	36	(Area) Aero MP3-04 (H)	13.92 - 14.15	Auto	0.0000
L48	37	(Area) Aero MP3-04 (H)	13.92 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
			14.15		
L49	29	(Area) Aero MP3-04 (H)	8.92 - 13.92	Auto	0.0000
L49	30	(Area) Aero MP3-04 (H)	8.92 - 13.92	Auto	0.0000
L49	31	(Area) Aero MP3-04 (H)	8.92 - 13.92	Auto	0.0000
L49	32	(Area) Aero MP3-04 (H)	8.92 - 13.92	Auto	0.0000
L49	34	(Area) Aero MP3-04 (H)	12.67 - 13.92	Auto	0.0000
L49	35	(Area) Aero MP3-04 (H)	12.67 - 13.92	Auto	0.0000
L49	36	(Area) Aero MP3-04 (H)	12.67 - 13.92	Auto	0.0000
L49	37	(Area) Aero MP3-04 (H)	12.67 - 13.92	Auto	0.0000
L50	29	(Area) Aero MP3-04 (H)	3.92 - 8.92	Auto	0.0000
L50	30	(Area) Aero MP3-04 (H)	3.92 - 8.92	Auto	0.0000
L50	31	(Area) Aero MP3-04 (H)	3.92 - 8.92	Auto	0.0000
L50	32	(Area) Aero MP3-04 (H)	3.92 - 8.92	Auto	0.0000
L51	29	(Area) Aero MP3-04 (H)	0.50 - 3.92	Auto	0.0000
L51	30	(Area) Aero MP3-04 (H)	0.50 - 3.92	Auto	0.0000
L51	31	(Area) Aero MP3-04 (H)	0.50 - 3.92	Auto	0.0000
L51	32	(Area) Aero MP3-04 (H)	0.50 - 3.92	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
******									
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.0000	130.00	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
Support Rail Kit	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	2.98 4.25 5.55	0.01 0.05 0.10	0.05 0.07 0.98
Support Rail Kit	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	2.98 4.25 5.55	0.01 0.05 0.10	0.05 0.07 0.98
Support Rail Kit	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	2.98 4.25 5.55	0.01 0.05 0.10	0.05 0.07 0.98
Platform Mount [LP 303-1]	C	None		0.0000	130.00	No Ice 1/2" Ice 1" Ice	14.69 18.01 21.34	14.69 18.01 21.34	1.25 1.57 1.94
***									
DMP65R-BU8D w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	15.89 16.81 17.76	7.89 8.74 9.60	0.14 0.25 0.38
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	11.96 12.70 13.46	5.97 6.63 7.30	0.11 0.20 0.30
DMP65R-BU8D w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	15.89 16.81 17.76	7.89 8.74 9.60	0.14 0.25 0.38

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
OPA65R-BU8D w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	17.46 18.46 19.48	8.58 9.49 10.42	0.11 0.22 0.35
OPA65R-BU6D w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	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-BU8D w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	17.46 18.46 19.48	8.58 9.49 10.42	0.11 0.22 0.35
RRUS 8843 B2/B66A_CCIV2	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.98 2.16 2.34	1.70 1.86 2.04	0.08 0.10 0.12
RRUS 8843 B2/B66A_CCIV2	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.98 2.16 2.34	1.70 1.86 2.04	0.08 0.10 0.12
RRUS 8843 B2/B66A_CCIV2	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.98 2.16 2.34	1.70 1.86 2.04	0.08 0.10 0.12
RRUS 4478 B14_CCIV2	A	From Leg	4.00 0.00 0.00	0.0000	130.00	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
RRUS 4478 B14_CCIV2	B	From Leg	4.00 0.00 0.00	0.0000	130.00	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
RRUS 4478 B14_CCIV2	C	From Leg	4.00 0.00 0.00	0.0000	130.00	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
RRUS 4449 B5/B12	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.0000	130.00	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
******									
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	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-ALU-I20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	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-ALU-I20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	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

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
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	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 0.00	0.0000	120.00	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 0.00	0.0000	120.00	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 0.00	0.0000	120.00	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	B	From Leg	4.00 0.00 0.00	0.0000	120.00	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 0.00	0.0000	120.00	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
(3) ACU-A20-N	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
(3) ACU-A20-N	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
(3) ACU-A20-N	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	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	4.00 0.00 0.00	0.0000	120.00	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	4.00 0.00 0.00	0.0000	120.00	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
Platform Mount [LP 1201-1]	C	None		0.0000	120.00	No Ice 1/2" Ice 1" Ice	18.38 22.11 25.87	18.38 22.11 25.87	2.10 2.65 3.26
******									
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00 0.00 1.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
(2) 800 EXTERNAL NOTCH FILTER	C	From Leg	4.00 0.00 1.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800MHZ RRH	A	From Leg	4.00 0.00 1.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 800MHZ RRH	B	From Leg	4.00 0.00 1.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
1900MHZ RRH (65MHZ)	A	From Leg	4.00 0.00 -1.00	0.0000	118.00	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
1900MHZ RRH (65MHZ)	B	From Leg	4.00 0.00 -1.00	0.0000	118.00	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
1900MHZ RRH (65MHZ)	C	From Leg	4.00 0.00 -1.00	0.0000	118.00	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
Side Arm Mount [SO 102-3]	C	None		0.0000	118.00	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
******									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	110.00	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 0.00	0.0000	110.00	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 0.00	0.0000	110.00	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	110.00	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	110.00	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	110.00	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	110.00	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	110.00	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	110.00	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	110.00	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	110.00	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

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	110.00	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	110.00	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-PK8-DSH	C	None		0.0000	110.00	No Ice 1/2" Ice 1" Ice	34.24 62.95 91.66	34.24 62.95 91.66	1.75 2.10 2.45
******									
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
RADIO 4449 B71/B85A	A	From Leg	4.00 0.00 3.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.31 1.46 1.61	0.07 0.09 0.11
RADIO 4449 B71/B85A	B	From Leg	4.00 0.00 3.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.31 1.46 1.61	0.07 0.09 0.11
RADIO 4449 B71/B85A	C	From Leg	4.00 0.00 3.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.31 1.46 1.61	0.07 0.09 0.11
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	100.00	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	4.00 0.00 0.00	0.0000	100.00	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	4.00 0.00 0.00	0.0000	100.00	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
Platform Mount [LP 1201-1_KCKR-HR-1]	A	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	37.61 45.62 53.59	37.61 45.62 53.59	2.63 3.48 4.46
****									
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment ° t	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice			
VV-65A-R1_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	4.46 4.91 5.36	2.69 3.10 3.52	0.05 0.10 0.15
VV-65A-R1_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	4.46 4.91 5.36	2.69 3.10 3.52	0.05 0.10 0.15
VV-65A-R1_TMO w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	100.00	No Ice 1/2" Ice 1" Ice	4.46 4.91 5.36	2.69 3.10 3.52	0.05 0.10 0.15
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00 0.00 3.00	0.0000	100.00	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	B	From Leg	4.00 0.00 3.00	0.0000	100.00	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 3.00	0.0000	100.00	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
******									
GPS_A	A	From Leg	4.00 0.00 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice	0.26 0.32 0.39	0.26 0.32 0.39	0.00 0.00 0.01
Side Arm Mount [SO 701-1]	A	None		0.0000	80.00	No Ice 1/2" Ice 1" Ice	0.85 1.14 1.43	1.67 2.34 3.01	0.07 0.08 0.09
******									

Load Combinations

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

Comb. No.	Description
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	130 - 125	Pole	Max Tension	26	0.00	0	0
			Max. Compression	26	-8.92	1	1
			Max. Mx	20	-3.42	19	0
			Max. My	2	-3.42	0	19
			Max. Vy	8	3.84	-19	1
			Max. Vx	2	-3.91	0	19
			Max. Torque	6			1
L2	125 - 120	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-9.48	1	1
			Max. Mx	20	-3.85	39	0
			Max. My	2	-3.85	-1	39
			Max. Vy	8	4.02	-38	1
			Max. Vx	2	-4.08	-1	39
			Max. Torque	6			1
L3	120 - 114.9	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-16.76	0	1
			Max. Mx	8	-8.21	-72	1
			Max. My	2	-8.23	-1	73
			Max. Vy	8	6.87	-72	1
			Max. Vx	2	-6.88	-1	73
			Max. Torque	6			1
L4	114.9 - 114.67	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-16.80	0	1
			Max. Mx	8	-8.24	-73	1
			Max. My	2	-8.26	-1	74
			Max. Vy	8	6.89	-73	1
			Max. Vx	2	-6.90	-1	74
			Max. Torque	18			-1
L5	114.67 - 109.67	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-22.57	0	2
			Max. Mx	8	-11.85	-110	2

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-11.88	-2	110
			Max. Vy	8	9.87	-110	2
			Max. Vx	2	-9.77	-2	110
			Max. Torque	18			-1
L6	109.67 - 109.42	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-22.61	0	2
			Max. Mx	8	-11.88	-112	2
			Max. My	2	-11.91	-2	113
			Max. Vy	8	9.89	-112	2
			Max. Vx	2	-9.78	-2	113
			Max. Torque	18			-1
L7	109.42 - 109.17	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-22.66	0	2
			Max. Mx	8	-11.91	-115	2
			Max. My	2	-11.94	-2	115
			Max. Vy	8	9.91	-115	2
			Max. Vx	2	-9.80	-2	115
			Max. Torque	18			-1
L8	109.17 - 104.17	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-23.51	0	2
			Max. Mx	8	-12.47	-165	3
			Max. My	2	-12.51	-2	165
			Max. Vy	8	10.36	-165	3
			Max. Vx	2	-10.12	-2	165
			Max. Torque	18			-1
L9	104.17 - 103.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-23.55	0	2
			Max. Mx	8	-12.50	-168	3
			Max. My	2	-12.54	-2	168
			Max. Vy	8	10.38	-168	3
			Max. Vx	2	-10.14	-2	168
			Max. Torque	18			-1
L10	103.92 - 103.67	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-23.60	0	2
			Max. Mx	8	-12.53	-170	3
			Max. My	2	-12.58	-2	170
			Max. Vy	8	10.41	-170	3
			Max. Vx	2	-10.15	-2	170
			Max. Torque	18			-1
L11	103.67 - 98.67	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-33.16	0	26
			Max. Mx	8	-18.14	-231	18
			Max. My	2	-18.20	-2	244
			Max. Vy	8	14.36	-231	18
			Max. Vx	2	-13.96	-2	244
			Max. Torque	21			-6
L12	98.67 - 96.42	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-33.63	0	26
			Max. Mx	8	-18.47	-263	18
			Max. My	2	-18.54	-3	275
			Max. Vy	8	14.57	-263	18
			Max. Vx	2	-14.09	-3	275
			Max. Torque	21			-6
L13	96.42 - 96.17	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-33.68	0	26
			Max. Mx	8	-18.50	-267	18
			Max. My	2	-18.58	-3	279
			Max. Vy	8	14.59	-267	18
			Max. Vx	2	-14.11	-3	279
			Max. Torque	9			6
L14	96.17 - 91.5	Pole	Max Tension	1	0.00	0	0

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-34.01	0	27
			Max. Mx	8	-18.73	-291	18
			Max. My	2	-18.80	-3	303
			Max. Vy	8	14.74	-291	18
			Max. Vx	2	-14.21	-3	303
			Max. Torque	21			-6
L15	91.5 - 89.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-35.48	0	27
			Max. Mx	8	-19.81	-366	19
			Max. My	2	-19.90	-3	374
			Max. Vy	8	15.24	-366	19
			Max. Vx	2	-14.55	-3	374
			Max. Torque	9			6
L16	89.5 - 88.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-35.61	0	27
			Max. Mx	8	-19.91	-375	19
			Max. My	2	-20.00	-3	383
			Max. Vy	8	15.29	-375	19
			Max. Vx	2	-14.58	-3	383
			Max. Torque	9			6
L17	88.92 - 88.67	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-35.67	0	27
			Max. Mx	8	-19.95	-379	19
			Max. My	2	-20.04	-3	386
			Max. Vy	8	15.32	-379	19
			Max. Vx	2	-14.59	-3	386
			Max. Torque	9			6
L18	88.67 - 88.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-35.76	0	27
			Max. Mx	8	-20.02	-385	19
			Max. My	2	-20.11	-3	393
			Max. Vy	8	15.36	-385	19
			Max. Vx	2	-14.62	-3	393
			Max. Torque	9			6
L19	88.25 - 88	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-35.83	0	27
			Max. Mx	8	-20.06	-389	19
			Max. My	2	-20.15	-3	396
			Max. Vy	8	15.38	-389	19
			Max. Vx	2	-14.63	-3	396
			Max. Torque	9			6
L20	88 - 87.42	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-35.97	0	27
			Max. Mx	8	-20.16	-398	19
			Max. My	2	-20.25	-3	405
			Max. Vy	8	15.44	-398	19
			Max. Vx	2	-14.66	-3	405
			Max. Torque	9			6
L21	87.42 - 87.17	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-36.02	0	27
			Max. Mx	8	-20.19	-402	19
			Max. My	2	-20.28	-3	408
			Max. Vy	8	15.46	-402	19
			Max. Vx	2	-14.68	-3	408
			Max. Torque	9			6
L22	87.17 - 86.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-36.07	0	27
			Max. Mx	8	-20.22	-406	19
			Max. My	2	-20.32	-3	412
			Max. Vy	8	15.48	-406	19
			Max. Vx	2	-14.69	-3	412
			Max. Torque	9			6
L23	86.92 - 86.67	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-36.13	0	27

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-20.26	-410	19
			Max. My	2	-20.36	-3	416
			Max. Vy	8	15.50	-410	19
			Max. Vx	2	-14.70	-3	416
			Max. Torque	9			6
L24	86.67 - 81.67	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-37.31	0	27
			Max. Mx	8	-21.11	-488	20
			Max. My	2	-21.21	-4	490
			Max. Vy	8	16.00	-488	20
			Max. Vx	2	-14.99	-4	490
			Max. Torque	9			6
L25	81.67 - 80.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-37.53	0	27
			Max. Mx	8	-21.27	-503	20
			Max. My	2	-21.37	-4	504
			Max. Vy	8	16.08	-503	20
			Max. Vx	2	-15.05	-4	504
			Max. Torque	9			6
L26	80.75 - 80.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-37.59	0	27
			Max. Mx	8	-21.31	-507	20
			Max. My	2	-21.42	-4	507
			Max. Vy	8	16.10	-507	20
			Max. Vx	2	-15.06	-4	507
			Max. Torque	9			6
L27	80.5 - 75.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-38.83	0	27
			Max. Mx	8	-22.23	-589	20
			Max. My	2	-22.34	-4	583
			Max. Vy	8	16.61	-589	20
			Max. Vx	2	-15.38	-4	583
			Max. Torque	9			6
L28	75.5 - 71.83	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-39.68	0	27
			Max. Mx	8	-22.87	-650	20
			Max. My	2	-22.98	-4	640
			Max. Vy	8	16.93	-650	20
			Max. Vx	2	-15.56	-4	640
			Max. Torque	9			6
L29	71.83 - 71.58	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-39.74	0	27
			Max. Mx	8	-22.93	-655	20
			Max. My	2	-23.04	-4	644
			Max. Vy	8	16.94	-655	20
			Max. Vx	2	-15.57	-4	644
			Max. Torque	9			6
L30	71.58 - 68.83	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-40.46	0	27
			Max. Mx	8	-23.43	-702	21
			Max. My	2	-23.54	-5	687
			Max. Vy	8	17.22	-702	21
			Max. Vx	2	-15.73	-5	687
			Max. Torque	9			6
L31	68.83 - 68.58	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-40.53	0	27
			Max. Mx	8	-23.49	-706	21
			Max. My	2	-23.60	-5	691
			Max. Vy	8	17.23	-706	21
			Max. Vx	2	-15.73	-5	691
			Max. Torque	9			6
L32	68.58 - 64.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-40.62	0	27
			Max. Mx	8	-23.55	-712	21

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-23.67	-5	696
			Max. Vy	8	17.27	-712	21
			Max. Vx	2	-15.75	-5	696
			Max. Torque	9			6
L33	64.5 - 63.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-42.85	0	27
			Max. Mx	8	-25.26	-799	21
			Max. My	2	-25.38	-5	776
			Max. Vy	8	17.86	-799	21
			Max. Vx	2	-16.12	-5	776
			Max. Torque	9			6
L34	63.25 - 58.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-44.36	0	27
			Max. Mx	8	-26.43	-890	21
			Max. My	2	-26.55	-5	857
			Max. Vy	8	18.36	-890	21
			Max. Vx	2	-16.42	-5	857
			Max. Torque	9			6
L35	58.25 - 53.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-45.90	0	27
			Max. Mx	8	-27.62	-983	22
			Max. My	2	-27.74	-6	940
			Max. Vy	8	18.87	-983	22
			Max. Vx	2	-16.71	-6	940
			Max. Torque	9			6
L36	53.25 - 48.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-47.46	0	27
			Max. Mx	8	-28.85	-1078	22
			Max. My	2	-28.96	-6	1024
			Max. Vy	8	19.36	-1078	22
			Max. Vx	2	-16.99	-6	1024
			Max. Torque	9			6
L37	48.25 - 42.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-47.94	0	27
			Max. Mx	8	-29.21	-1108	22
			Max. My	2	-29.33	-6	1049
			Max. Vy	8	19.51	-1108	22
			Max. Vx	2	-17.08	-6	1049
			Max. Torque	19			-6
L38	42.5 - 41.83	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-50.61	0	27
			Max. Mx	8	-31.35	-1205	23
			Max. My	2	-31.46	-6	1134
			Max. Vy	8	20.06	-1205	23
			Max. Vx	2	-17.43	-6	1134
			Max. Torque	19			-6
L39	41.83 - 41.58	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-50.68	0	27
			Max. Mx	8	-31.41	-1210	23
			Max. My	2	-31.52	-6	1138
			Max. Vy	8	20.08	-1210	23
			Max. Vx	2	-17.44	-6	1138
			Max. Torque	19			-6
L40	41.58 - 41.17	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-50.80	0	27
			Max. Mx	8	-31.49	-1218	23
			Max. My	2	-31.60	-6	1146
			Max. Vy	8	20.12	-1218	23
			Max. Vx	2	-17.45	-6	1146
			Max. Torque	19			-6
L41	41.17 - 40.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-50.89	0	27
			Max. Mx	8	-31.56	-1223	23

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-31.67	-6	1150
			Max. Vy	8	20.14	-1223	23
			Max. Vx	2	-17.47	-6	1150
			Max. Torque	19			-6
L42	40.92 - 35.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-52.59	0	27
			Max. Mx	8	-32.91	-1325	23
			Max. My	2	-33.00	-7	1238
			Max. Vy	8	20.50	-1325	23
			Max. Vx	2	-17.74	-7	1238
			Max. Torque	19			-6
L43	35.92 - 30.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-54.30	0	27
			Max. Mx	8	-34.29	-1428	23
			Max. My	2	-34.37	-7	1327
			Max. Vy	8	20.85	-1428	23
			Max. Vx	2	-18.00	-7	1327
			Max. Torque	19			-6
L44	30.92 - 25.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-56.04	0	27
			Max. Mx	8	-35.70	-1533	23
			Max. My	2	-35.77	-8	1417
			Max. Vy	8	21.19	-1533	23
			Max. Vx	2	-18.26	-8	1417
			Max. Torque	19			-6
L45	25.92 - 20.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-56.28	0	27
			Max. Mx	8	-35.89	-1547	23
			Max. My	2	-35.96	-8	1430
			Max. Vy	8	21.23	-1547	23
			Max. Vx	2	-18.29	-8	1430
			Max. Torque	19			-6
L46	20.25 - 19.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-59.88	0	27
			Max. Mx	8	-38.86	-1676	24
			Max. My	2	-38.92	-8	1540
			Max. Vy	8	21.73	-1676	24
			Max. Vx	2	-18.69	-8	1540
			Max. Torque	19			-6
L47	19.25 - 14.15	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-61.79	0	26
			Max. Mx	8	-40.43	-1788	24
			Max. My	2	-40.48	-8	1636
			Max. Vy	8	22.07	-1788	24
			Max. Vx	2	-18.96	-8	1636
			Max. Torque	19			-6
L48	14.15 - 13.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-61.88	0	26
			Max. Mx	8	-40.51	-1793	24
			Max. My	2	-40.55	-8	1641
			Max. Vy	8	22.08	-1793	24
			Max. Vx	2	-18.96	-8	1641
			Max. Torque	19			-6
L49	13.92 - 8.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-63.78	0	26
			Max. Mx	8	-42.08	-1904	24
			Max. My	2	-42.11	-9	1736
			Max. Vy	8	22.42	-1904	24
			Max. Vx	2	-19.24	-9	1736
			Max. Torque	19			-6
L50	8.92 - 3.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-65.50	0	26

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-43.57	-2017	25
			Max. My	2	-43.59	-9	1833
			Max. Vy	8	22.69	-2017	25
			Max. Vx	2	-19.51	-9	1833
			Max. Torque	19			-6
L51	3.92 - 0	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-66.81	0	26
			Max. Mx	8	-44.75	-2106	25
			Max. My	2	-44.75	-9	1910
			Max. Vy	8	22.90	-2106	25
			Max. Vx	2	-19.74	-9	1910
			Max. Torque	19			-6

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	66.81	5.62	-0.01
	Max. H_x	20	44.76	22.88	-0.06
	Max. H_z	2	44.76	-0.06	19.72
	Max. M_x	2	1910	-0.06	19.72
	Max. M_z	8	2106	-22.88	0.06
	Max. Torsion	7	6	-16.76	9.76
	Min. Vert	23	33.57	16.70	9.66
	Min. H_x	8	44.76	-22.88	0.06
	Min. H_z	15	33.57	0.06	-19.72
	Min. M_x	14	-1878	0.06	-19.72
	Min. M_z	20	-2106	22.88	-0.06
	Min. Torsion	19	-6	16.76	-9.76

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	37.30	0.00	-0.00	-13	0	0
1.2 Dead+1.0 Wind 0 deg - No Ice	44.76	0.06	-19.72	-1910	-9	0
0.9 Dead+1.0 Wind 0 deg - No Ice	33.57	0.06	-19.72	-1878	-9	0
1.2 Dead+1.0 Wind 30 deg - No Ice	44.76	9.71	-16.84	-1634	-933	-3
0.9 Dead+1.0 Wind 30 deg - No Ice	33.57	9.71	-16.84	-1606	-919	-4
1.2 Dead+1.0 Wind 60 deg - No Ice	44.76	16.76	-9.76	-955	-1607	-6
0.9 Dead+1.0 Wind 60 deg - No Ice	33.57	16.76	-9.76	-937	-1583	-6
1.2 Dead+1.0 Wind 90 deg - No Ice	44.76	22.88	-0.06	-25	-2106	-6
0.9 Dead+1.0 Wind 90 deg - No Ice	33.57	22.88	-0.06	-20	-2076	-6
1.2 Dead+1.0 Wind 120 deg - No Ice	44.76	16.70	9.66	909	-1599	-6
0.9 Dead+1.0 Wind 120 deg - No Ice	33.57	16.70	9.66	899	-1576	-6
1.2 Dead+1.0 Wind 150 deg - No Ice	44.76	9.60	16.78	1593	-917	-3
0.9 Dead+1.0 Wind 150 deg - No Ice	33.57	9.60	16.78	1574	-904	-3

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 180 deg - No Ice	44.76	-0.06	19.72	1878	9	0
0.9 Dead+1.0 Wind 180 deg - No Ice	33.57	-0.06	19.72	1855	9	0
1.2 Dead+1.0 Wind 210 deg - No Ice	44.76	-9.71	16.84	1602	932	3
0.9 Dead+1.0 Wind 210 deg - No Ice	33.57	-9.71	16.84	1583	919	4
1.2 Dead+1.0 Wind 240 deg - No Ice	44.76	-16.76	9.76	923	1606	6
0.9 Dead+1.0 Wind 240 deg - No Ice	33.57	-16.76	9.76	914	1583	6
1.2 Dead+1.0 Wind 270 deg - No Ice	44.76	-22.88	0.06	-7	2106	6
0.9 Dead+1.0 Wind 270 deg - No Ice	33.57	-22.88	0.06	-3	2076	6
1.2 Dead+1.0 Wind 300 deg - No Ice	44.76	-16.70	-9.66	-940	1598	6
0.9 Dead+1.0 Wind 300 deg - No Ice	33.57	-16.70	-9.66	-923	1575	6
1.2 Dead+1.0 Wind 330 deg - No Ice	44.76	-9.60	-16.78	-1625	917	3
0.9 Dead+1.0 Wind 330 deg - No Ice	33.57	-9.60	-16.78	-1597	904	3
1.2 Dead+1.0 Ice+1.0 Temp	66.81	-0.00	-0.00	-26	0	0
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	66.81	0.01	-5.03	-536	-1	0
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	66.81	2.52	-4.37	-469	-255	-1
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	66.81	4.35	-2.53	-283	-440	-1
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	66.81	5.62	-0.01	-28	-559	-1
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	66.81	4.34	2.51	227	-438	-1
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	66.81	2.50	4.35	415	-252	-1
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	66.81	-0.01	5.03	484	2	0
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	66.81	-2.52	4.37	417	256	1
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	66.81	-4.35	2.53	231	441	1
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	66.81	-5.62	0.01	-24	559	1
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	66.81	-4.34	-2.51	-280	439	1
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	66.81	-2.50	-4.35	-467	253	1
Dead+Wind 0 deg - Service	37.30	0.02	-4.97	-486	-2	0
Dead+Wind 30 deg - Service	37.30	2.45	-4.25	-417	-233	-1
Dead+Wind 60 deg - Service	37.30	4.23	-2.46	-248	-402	-1
Dead+Wind 90 deg - Service	37.30	5.77	-0.02	-15	-527	-1
Dead+Wind 120 deg - Service	37.30	4.21	2.43	218	-400	-1
Dead+Wind 150 deg - Service	37.30	2.42	4.23	389	-229	-1
Dead+Wind 180 deg - Service	37.30	-0.02	4.97	460	2	0
Dead+Wind 210 deg - Service	37.30	-2.45	4.25	391	233	1
Dead+Wind 240 deg - Service	37.30	-4.23	2.46	222	401	1
Dead+Wind 270 deg - Service	37.30	-5.77	0.02	-11	526	1
Dead+Wind 300 deg - Service	37.30	-4.21	-2.43	-244	399	1
Dead+Wind 330 deg - Service	37.30	-2.42	-4.23	-415	229	1

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	-37.30	0.00	0.00	37.30	0.00	0.000%
2	0.06	-44.76	-19.72	-0.06	44.76	19.72	0.000%
3	0.06	-33.57	-19.72	-0.06	33.57	19.72	0.000%
4	9.71	-44.76	-16.84	-9.71	44.76	16.84	0.000%
5	9.71	-33.57	-16.84	-9.71	33.57	16.84	0.000%
6	16.76	-44.76	-9.76	-16.76	44.76	9.76	0.000%
7	16.76	-33.57	-9.76	-16.76	33.57	9.76	0.000%
8	22.88	-44.76	-0.06	-22.88	44.76	0.06	0.000%
9	22.88	-33.57	-0.06	-22.88	33.57	0.06	0.000%
10	16.70	-44.76	9.66	-16.70	44.76	-9.66	0.000%
11	16.70	-33.57	9.66	-16.70	33.57	-9.66	0.000%
12	9.60	-44.76	16.78	-9.60	44.76	-16.78	0.000%
13	9.60	-33.57	16.78	-9.60	33.57	-16.78	0.000%
14	-0.06	-44.76	19.72	0.06	44.76	-19.72	0.000%
15	-0.06	-33.57	19.72	0.06	33.57	-19.72	0.000%
16	-9.71	-44.76	16.84	9.71	44.76	-16.84	0.000%
17	-9.71	-33.57	16.84	9.71	33.57	-16.84	0.000%
18	-16.76	-44.76	9.76	16.76	44.76	-9.76	0.000%
19	-16.76	-33.57	9.76	16.76	33.57	-9.76	0.000%
20	-22.88	-44.76	0.06	22.88	44.76	-0.06	0.000%
21	-22.88	-33.57	0.06	22.88	33.57	-0.06	0.000%
22	-16.70	-44.76	-9.66	16.70	44.76	9.66	0.000%
23	-16.70	-33.57	-9.66	16.70	33.57	9.66	0.000%
24	-9.60	-44.76	-16.78	9.60	44.76	16.78	0.000%
25	-9.60	-33.57	-16.78	9.60	33.57	16.78	0.000%
26	0.00	-66.81	0.00	0.00	66.81	0.00	0.000%
27	0.01	-66.81	-5.03	-0.01	66.81	5.03	0.000%
28	2.52	-66.81	-4.37	-2.52	66.81	4.37	0.000%
29	4.35	-66.81	-2.53	-4.35	66.81	2.53	0.000%
30	5.62	-66.81	-0.01	-5.62	66.81	0.01	0.000%
31	4.34	-66.81	2.51	-4.34	66.81	-2.51	0.000%
32	2.50	-66.81	4.35	-2.50	66.81	-4.35	0.000%
33	-0.01	-66.81	5.03	0.01	66.81	-5.03	0.000%
34	-2.52	-66.81	4.37	2.52	66.81	-4.37	0.000%
35	-4.35	-66.81	2.53	4.35	66.81	-2.53	0.000%
36	-5.62	-66.81	0.01	5.62	66.81	-0.01	0.000%
37	-4.34	-66.81	-2.51	4.34	66.81	2.51	0.000%
38	-2.50	-66.81	-4.35	2.50	66.81	4.35	0.000%
39	0.02	-37.30	-4.97	-0.02	37.30	4.97	0.000%
40	2.45	-37.30	-4.25	-2.45	37.30	4.25	0.000%
41	4.23	-37.30	-2.46	-4.23	37.30	2.46	0.000%
42	5.77	-37.30	-0.02	-5.77	37.30	0.02	0.000%
43	4.21	-37.30	2.43	-4.21	37.30	-2.43	0.000%
44	2.42	-37.30	4.23	-2.42	37.30	-4.23	0.000%
45	-0.02	-37.30	4.97	0.02	37.30	-4.97	0.000%
46	-2.45	-37.30	4.25	2.45	37.30	-4.25	0.000%
47	-4.23	-37.30	2.46	4.23	37.30	-2.46	0.000%
48	-5.77	-37.30	0.02	5.77	37.30	-0.02	0.000%
49	-4.21	-37.30	-2.43	4.21	37.30	2.43	0.000%
50	-2.42	-37.30	-4.23	2.42	37.30	4.23	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00009005
2	Yes	5	0.00000001	0.00048641
3	Yes	5	0.00000001	0.00019112
4	Yes	7	0.00000001	0.00015916
5	Yes	6	0.00000001	0.00076953
6	Yes	7	0.00000001	0.00021373
7	Yes	7	0.00000001	0.00005732
8	Yes	6	0.00000001	0.00099708

9	Yes	6	0.00000001	0.00036758
10	Yes	7	0.00000001	0.00013691
11	Yes	6	0.00000001	0.00067792
12	Yes	7	0.00000001	0.00017862
13	Yes	6	0.00000001	0.00089057
14	Yes	6	0.00000001	0.00007714
15	Yes	5	0.00000001	0.00050758
16	Yes	7	0.00000001	0.00018650
17	Yes	6	0.00000001	0.00092993
18	Yes	7	0.00000001	0.00014140
19	Yes	6	0.00000001	0.00070008
20	Yes	6	0.00000001	0.00092662
21	Yes	6	0.00000001	0.00034241
22	Yes	7	0.00000001	0.00020721
23	Yes	7	0.00000001	0.00005570
24	Yes	7	0.00000001	0.00015547
25	Yes	6	0.00000001	0.00075233
26	Yes	5	0.00000001	0.00091126
27	Yes	7	0.00000001	0.00016079
28	Yes	7	0.00000001	0.00020493
29	Yes	7	0.00000001	0.00022334
30	Yes	7	0.00000001	0.00017272
31	Yes	7	0.00000001	0.00015992
32	Yes	7	0.00000001	0.00016491
33	Yes	6	0.00000001	0.00092737
34	Yes	7	0.00000001	0.00016848
35	Yes	7	0.00000001	0.00016260
36	Yes	7	0.00000001	0.00017205
37	Yes	7	0.00000001	0.00022010
38	Yes	7	0.00000001	0.00020288
39	Yes	5	0.00000001	0.00009526
40	Yes	5	0.00000001	0.00050534
41	Yes	5	0.00000001	0.00098027
42	Yes	5	0.00000001	0.00075001
43	Yes	5	0.00000001	0.00048327
44	Yes	5	0.00000001	0.00060258
45	Yes	5	0.00000001	0.00008750
46	Yes	5	0.00000001	0.00065204
47	Yes	5	0.00000001	0.00051402
48	Yes	5	0.00000001	0.00073533
49	Yes	5	0.00000001	0.00093708
50	Yes	5	0.00000001	0.00047543

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 125	18.276	42	1.2854	0.0143
L2	125 - 120	16.953	42	1.2786	0.0137
L3	120 - 114.9	15.642	42	1.2595	0.0131
L4	114.9 - 114.67	14.327	42	1.2365	0.0127
L5	114.67 - 109.67	14.268	42	1.2353	0.0127
L6	109.67 - 109.42	13.008	42	1.2041	0.0124
L7	109.42 - 109.17	12.946	42	1.2024	0.0124
L8	109.17 - 104.17	12.884	42	1.2004	0.0123
L9	104.17 - 103.92	11.666	42	1.1565	0.0120
L10	103.92 - 103.67	11.607	42	1.1541	0.0120
L11	103.67 - 98.67	11.547	42	1.1519	0.0119
L12	98.67 - 96.42	10.382	42	1.1014	0.0113
L13	96.42 - 96.17	9.875	42	1.0724	0.0105
L14	96.17 - 91.5	9.819	42	1.0689	0.0104
L15	94.5 - 89.5	9.452	42	1.0445	0.0099
L16	89.5 - 88.92	8.381	42	0.9968	0.0089
L17	88.92 - 88.67	8.261	42	0.9896	0.0087
L18	88.67 - 88.25	8.209	42	0.9855	0.0086
L19	88.25 - 88	8.123	42	0.9785	0.0085
L20	88 - 87.42	8.072	42	0.9751	0.0084
L21	87.42 - 87.17	7.954	42	0.9671	0.0083

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L22	87.17 - 86.92	7.903	42	0.9617	0.0082
L23	86.92 - 86.67	7.853	42	0.9563	0.0081
L24	86.67 - 81.67	7.803	42	0.9531	0.0080
L25	81.67 - 80.75	6.840	42	0.8859	0.0068
L26	80.75 - 80.5	6.671	42	0.8735	0.0067
L27	80.5 - 75.5	6.625	42	0.8691	0.0066
L28	75.5 - 71.83	5.761	42	0.7805	0.0053
L29	71.83 - 71.58	5.187	42	0.7142	0.0046
L30	71.58 - 68.83	5.150	42	0.7106	0.0045
L31	68.83 - 68.58	4.752	42	0.6716	0.0041
L32	68.58 - 64.5	4.717	42	0.6685	0.0041
L33	68.25 - 63.25	4.670	42	0.6644	0.0040
L34	63.25 - 58.25	3.991	42	0.6277	0.0037
L35	58.25 - 53.25	3.364	42	0.5701	0.0031
L36	53.25 - 48.25	2.797	42	0.5124	0.0027
L37	48.25 - 42.5	2.291	42	0.4545	0.0023
L38	46.75 - 41.83	2.151	42	0.4375	0.0021
L39	41.83 - 41.58	1.715	42	0.4062	0.0019
L40	41.58 - 41.17	1.693	42	0.4022	0.0019
L41	41.17 - 40.92	1.659	42	0.3955	0.0019
L42	40.92 - 35.92	1.639	42	0.3927	0.0019
L43	35.92 - 30.92	1.256	42	0.3373	0.0015
L44	30.92 - 25.92	0.932	42	0.2835	0.0012
L45	25.92 - 20.25	0.663	42	0.2299	0.0010
L46	25.25 - 19.25	0.631	42	0.2229	0.0009
L47	19.25 - 14.15	0.371	42	0.1869	0.0008
L48	14.15 - 13.92	0.199	42	0.1357	0.0005
L49	13.92 - 8.92	0.192	42	0.1334	0.0005
L50	8.92 - 3.92	0.078	42	0.0843	0.0003
L51	3.92 - 0	0.015	42	0.0367	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	DC6-48-60-18-8F	42	18.276	1.2854	0.0143	22264
120.00	APXVTM14-ALU-I20 w/ Mount Pipe	42	15.642	1.2595	0.0131	13545
118.00	800 EXTERNAL NOTCH FILTER	42	15.124	1.2510	0.0129	12306
110.00	MX08FRO665-21 w/ Mount Pipe	42	13.090	1.2063	0.0124	7929
100.00	APXVAARR24_43-U-NA20 w/ Mount Pipe	42	10.687	1.1165	0.0116	5156
80.00	GPS_A	42	6.535	0.8602	0.0065	3316

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 125	73.119	8	5.0654	0.0561
L2	125 - 120	67.830	8	5.0424	0.0540
L3	120 - 114.9	62.589	8	4.9707	0.0518
L4	114.9 - 114.67	57.331	8	4.8817	0.0503
L5	114.67 - 109.67	57.096	8	4.8770	0.0503
L6	109.67 - 109.42	52.057	8	4.7542	0.0490
L7	109.42 - 109.17	51.809	8	4.7475	0.0489
L8	109.17 - 104.17	51.561	8	4.7399	0.0489
L9	104.17 - 103.92	46.691	8	4.5656	0.0475
L10	103.92 - 103.67	46.453	8	4.5560	0.0474
L11	103.67 - 98.67	46.215	8	4.5473	0.0473
L12	98.67 - 96.42	41.555	8	4.3569	0.0447

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L13	96.42 - 96.17	39.527	8	4.2602	0.0417
L14	96.17 - 91.5	39.304	8	4.2482	0.0414
L15	94.5 - 89.5	37.834	8	4.1649	0.0391
L16	89.5 - 88.92	33.551	8	3.9915	0.0351
L17	88.92 - 88.67	33.069	8	3.9627	0.0345
L18	88.67 - 88.25	32.862	8	3.9462	0.0342
L19	88.25 - 88	32.516	8	3.9183	0.0336
L20	88 - 87.42	32.311	8	3.9047	0.0333
L21	87.42 - 87.17	31.839	8	3.8730	0.0327
L22	87.17 - 86.92	31.637	8	3.8515	0.0323
L23	86.92 - 86.67	31.436	8	3.8298	0.0319
L24	86.67 - 81.67	31.236	8	3.8170	0.0317
L25	81.67 - 80.75	27.382	8	3.5481	0.0271
L26	80.75 - 80.5	26.704	8	3.4988	0.0263
L27	80.5 - 75.5	26.521	8	3.4812	0.0260
L28	75.5 - 71.83	23.063	8	3.1264	0.0211
L29	71.83 - 71.58	20.763	8	2.8607	0.0180
L30	71.58 - 68.83	20.614	8	2.8464	0.0178
L31	68.83 - 68.58	19.020	8	2.6899	0.0161
L32	68.58 - 64.5	18.879	8	2.6776	0.0160
L33	68.25 - 63.25	18.695	8	2.6613	0.0158
L34	63.25 - 58.25	15.975	8	2.5140	0.0144
L35	58.25 - 53.25	13.464	8	2.2832	0.0124
L36	53.25 - 48.25	11.195	8	2.0517	0.0106
L37	48.25 - 42.5	9.169	8	1.8199	0.0089
L38	46.75 - 41.83	8.608	8	1.7514	0.0084
L39	41.83 - 41.58	6.861	8	1.6263	0.0076
L40	41.58 - 41.17	6.776	8	1.6099	0.0075
L41	41.17 - 40.92	6.639	8	1.5832	0.0074
L42	40.92 - 35.92	6.556	8	1.5722	0.0073
L43	35.92 - 30.92	5.027	8	1.3502	0.0060
L44	30.92 - 25.92	3.726	8	1.1345	0.0049
L45	25.92 - 20.25	2.651	8	0.9200	0.0038
L46	25.25 - 19.25	2.524	8	0.8917	0.0036
L47	19.25 - 14.15	1.483	8	0.7478	0.0030
L48	14.15 - 13.92	0.794	8	0.5428	0.0021
L49	13.92 - 8.92	0.768	8	0.5337	0.0021
L50	8.92 - 3.92	0.313	8	0.3372	0.0013
L51	3.92 - 0	0.060	8	0.1468	0.0005

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	DC6-48-60-18-8F	8	73.119	5.0654	0.0561	5886
120.00	APXVTM14-ALU-I20 w/ Mount Pipe	8	62.589	4.9707	0.0518	3495
118.00	800 EXTERNAL NOTCH FILTER	8	60.516	4.9381	0.0511	3163
110.00	MX08FRO665-21 w/ Mount Pipe	8	52.386	4.7628	0.0491	2024
100.00	APXVAARR24_43-U-NA20 w/ Mount Pipe	8	42.775	4.4104	0.0459	1411
80.00	GPS_A	8	26.159	3.4455	0.0255	890

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
L1	130 - 125 (1)	TP16x16x0.375	5.00	0.00	0.0	18.4078	-3.42	695.81	0.005
L2	125 - 120 (2)	TP16x16x0.375	5.00	0.00	0.0	18.4078	-3.85	695.81	0.006
L3	120 - 114.9 (3)	TP17.2491x16x0.5125	5.10	0.00	0.0	27.6195	-8.23	1615.74	0.005
L4	114.9 - 114.67 (4)	TP17.3054x17.2491x0.5125	0.23	0.00	0.0	27.7125	-8.26	1621.18	0.005
L5	114.67 - 109.67 (5)	TP18.5299x17.3054x0.4813	5.00	0.00	0.0	27.9687	-11.89	1636.17	0.007
L6	109.67 - 109.42 (6)	TP18.5912x18.5299x0.4813	0.25	0.00	0.0	28.0636	-11.92	1641.72	0.007
L7	109.42 - 109.17 (7)	TP18.6524x18.5912x0.425	0.25	0.00	0.0	24.9442	-11.95	1459.24	0.008
L8	109.17 - 104.17 (8)	TP19.877x18.6524x0.4125	5.00	0.00	0.0	25.8537	-12.53	1512.44	0.008
L9	104.17 - 103.92 (9)	TP19.9382x19.877x0.4063	0.25	0.00	0.0	25.5502	-12.50	1494.69	0.008
L10	103.92 - 103.67 (10)	TP19.9994x19.9382x0.45	0.25	0.00	0.0	28.3271	-12.53	1657.14	0.008
L11	103.67 - 98.67 (11)	TP21.224x19.9994x0.4375	5.00	0.00	0.0	29.2830	-18.20	1713.05	0.011
L12	98.67 - 96.42 (12)	TP21.775x21.224x0.425	2.25	0.00	0.0	29.2175	-18.54	1709.22	0.011
L13	96.42 - 96.17 (13)	TP21.8363x21.775x0.3875	0.25	0.00	0.0	26.7627	-18.58	1565.62	0.012
L14	96.17 - 91.5 (14)	TP22.98x21.8363x0.3813	4.67	0.00	0.0	26.8408	-18.80	1570.19	0.012
L15	91.5 - 89.5 (15)	TP23.0952x21.8703x0.4375	5.00	0.00	0.0	31.9191	-19.90	1867.27	0.011
L16	89.5 - 88.92 (16)	TP23.2373x23.0952x0.4375	0.58	0.00	0.0	32.1192	-20.00	1878.98	0.011
L17	88.92 - 88.67 (17)	TP23.2986x23.2373x0.325	0.25	0.00	0.0	24.0418	-20.04	1406.45	0.014
L18	88.67 - 88.25 (18)	TP23.4015x23.2986x0.325	0.42	0.00	0.0	24.1495	-20.11	1412.75	0.014
L19	88.25 - 88 (19)	TP23.4627x23.4015x0.4	0.25	0.00	0.0	29.7048	-20.15	1737.73	0.012
L20	88 - 87.42 (20)	TP23.6048x23.4627x0.4	0.58	0.00	0.0	29.8878	-20.25	1748.44	0.012
L21	87.42 - 87.17 (21)	TP23.666x23.6048x0.25	0.25	0.00	0.0	18.8499	-20.28	1102.72	0.018
L22	87.17 - 86.92 (22)	TP23.7273x23.666x0.25	0.25	0.00	0.0	18.8992	-20.32	1105.60	0.018
L23	86.92 - 86.67 (23)	TP23.7885x23.7273x0.4313	0.25	0.00	0.0	32.4345	-20.36	1897.42	0.011
L24	86.67 - 81.67 (24)	TP25.0135x23.7885x0.4188	5.00	0.00	0.0	33.1629	-21.21	1940.03	0.011
L25	81.67 - 80.75 (25)	TP25.2389x25.0135x0.4188	0.92	0.00	0.0	33.4669	-21.27	1957.81	0.011
L26	80.75 - 80.5 (26)	TP25.3001x25.2389x0.3188	0.25	0.00	0.0	25.6403	-21.31	1499.96	0.014
L27	80.5 - 75.5 (27)	TP26.5251x25.3001x0.3188	5.00	0.00	0.0	26.8975	-22.23	1573.51	0.014
L28	75.5 - 71.83 (28)	TP27.4242x26.5251x0.3125	3.67	0.00	0.0	27.2812	-22.87	1595.95	0.014
L29	71.83 - 71.58 (29)	TP27.4855x27.4242x0.4	0.25	0.00	0.0	34.8861	-22.93	2040.84	0.011
L30	71.58 - 68.83 (30)	TP28.1592x27.4855x0.4	2.75	0.00	0.0	35.7538	-23.43	2091.60	0.011
L31	68.83 - 68.58 (31)	TP28.2204x28.1592x0.4625	0.25	0.00	0.0	41.3385	-23.49	2418.30	0.010

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L32	68.58 - 64.5 (32)	TP29.22x28.2204x0.4625	4.08	0.00	0.0	41.4589	-23.55	2425.35	0.010
L33	64.5 - 63.25 (33)	TP29.0263x27.8013x0.5188	5.00	0.00	0.0	47.6183	-25.26	2785.67	0.009
L34	63.25 - 58.25 (34)	TP30.2513x29.0263x0.5125	5.00	0.00	0.0	49.0764	-26.43	2870.97	0.009
L35	58.25 - 53.25 (35)	TP31.4763x30.2513x0.5	5.00	0.00	0.0	49.8718	-27.62	2917.50	0.009
L36	53.25 - 48.25 (36)	TP32.7013x31.4763x0.4875	5.00	0.00	0.0	50.5675	-28.85	2958.20	0.010
L37	48.25 - 42.5 (37)	TP34.11x32.7013x0.4875	5.75	0.00	0.0	51.1444	-29.22	2991.95	0.010
L38	42.5 - 41.83 (38)	TP33.648x32.4438x0.5188	4.92	0.00	0.0	55.3435	-31.35	3237.60	0.010
L39	41.83 - 41.58 (39)	TP33.7092x33.648x0.3438	0.25	0.00	0.0	36.9367	-31.41	2160.80	0.015
L40	41.58 - 41.17 (40)	TP33.8095x33.7092x0.3438	0.41	0.00	0.0	37.0478	-31.49	2167.30	0.015
L41	41.17 - 40.92 (41)	TP33.8707x33.8095x0.5188	0.25	0.00	0.0	55.7156	-31.56	3259.36	0.010
L42	40.92 - 35.92 (42)	TP35.0945x33.8707x0.5063	5.00	0.00	0.0	56.3887	-32.91	3298.74	0.010
L43	35.92 - 30.92 (43)	TP36.3184x35.0945x0.5063	5.00	0.00	0.0	58.3839	-34.29	3415.46	0.010
L44	30.92 - 25.92 (44)	TP37.5422x36.3184x0.4938	5.00	0.00	0.0	58.9083	-35.70	3446.13	0.010
L45	25.92 - 20.25 (45)	TP38.93x37.5422x0.4938	5.67	0.00	0.0	59.1690	-35.89	3461.39	0.010
L46	20.25 - 19.25 (46)	TP38.4898x37.0186x0.525	6.00	0.00	0.0	63.7650	-38.57	3443.31	0.011
L47	19.25 - 14.15 (47)	TP39.7404x38.4898x0.5188	5.10	0.00	0.0	63.4259	-38.87	3425.00	0.011
L48	14.15 - 13.92 (48)	TP39.7967x39.7404x0.5188	0.23	0.00	0.0	65.5148	-40.44	3537.80	0.011
L49	13.92 - 8.92 (49)	TP41.0228x39.7967x0.5125	5.00	0.00	0.0	64.8288	-40.52	3500.76	0.012
L50	8.92 - 3.92 (50)	TP42.2488x41.0228x0.5125	5.00	0.00	0.0	66.8521	-42.09	3610.01	0.012
L51	3.92 - 0 (51)	TP43.21x42.2488x0.5063	3.92	0.00	0.0	68.0456	-44.75	3674.46	0.012

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	130 - 125 (1)	TP16x16x0.375	19	288	0.067	0	288	0.000
L2	125 - 120 (2)	TP16x16x0.375	40	288	0.137	0	288	0.000
L3	120 - 114.9 (3)	TP17.2491x16x0.5125	73	679	0.108	0	679	0.000
L4	114.9 - 114.67 (4)	TP17.3054x17.2491x0.5125	75	684	0.109	0	684	0.000
L5	114.67 - 109.67 (5)	TP18.5299x17.3054x0.4813	111	744	0.149	0	744	0.000
L6	109.67 - 109.42 (6)	TP18.5912x18.5299x0.4813	113	749	0.151	0	749	0.000
L7	109.42 - 109.17 (7)	TP18.6524x18.5912x0.425	116	672	0.172	0	672	0.000
L8	109.17 - 104.17 (8)	TP19.877x18.6524x0.4125	165	746	0.222	0	746	0.000
L9	104.17 - 103.92 (9)	TP19.9382x19.877x0.4063	168	740	0.227	0	740	0.000
L10	103.92 - 103.67 (10)	TP19.9994x19.9382x0.45	170	819	0.208	0	819	0.000
L11	103.67 -	TP21.224x19.9994x0.437	244	902	0.270	0	902	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 $\frac{M_{uy}}{\phi M_{ny}}$
	98.67 (11)	5						
L12	98.67 - 96.42 (12)	TP21.775x21.224x0.425	275	926	0.297	0	926	0.000
L13	96.42 - 96.17 (13)	TP21.8363x21.775x0.3875	279	853	0.327	0	853	0.000
L14	96.17 - 91.5 (14)	TP22.98x21.8363x0.3813	303	873	0.347	0	873	0.000
L15	91.5 - 89.5 (15)	TP23.0952x21.8703x0.4375	374	1074	0.349	0	1074	0.000
L16	89.5 - 88.92 (16)	TP23.2373x23.0952x0.4375	383	1088	0.352	0	1088	0.000
L17	88.92 - 88.67 (17)	TP23.2986x23.2373x0.325	386	824	0.469	0	824	0.000
L18	88.67 - 88.25 (18)	TP23.4015x23.2986x0.325	393	832	0.472	0	832	0.000
L19	88.25 - 88 (19)	TP23.4627x23.4015x0.4	396	1019	0.389	0	1019	0.000
L20	88 - 87.42 (20)	TP23.6048x23.4627x0.4	405	1032	0.392	0	1032	0.000
L21	87.42 - 87.17 (21)	TP23.666x23.6048x0.25	408	634	0.645	0	634	0.000
L22	87.17 - 86.92 (22)	TP23.7273x23.666x0.25	412	636	0.647	0	636	0.000
L23	86.92 - 86.67 (23)	TP23.7885x23.7273x0.4313	416	1126	0.369	0	1126	0.000
L24	86.67 - 81.67 (24)	TP25.0135x23.7885x0.4188	490	1214	0.404	0	1214	0.000
L25	81.67 - 80.75 (25)	TP25.2389x25.0135x0.4188	503	1236	0.407	0	1236	0.000
L26	80.75 - 80.5 (26)	TP25.3001x25.2389x0.3188	507	957	0.530	0	957	0.000
L27	80.5 - 75.5 (27)	TP26.5251x25.3001x0.3188	589	1053	0.559	0	1053	0.000
L28	75.5 - 71.83 (28)	TP27.4242x26.5251x0.3125	651	1088	0.598	0	1088	0.000
L29	71.83 - 71.58 (29)	TP27.4855x27.4242x0.4	655	1409	0.465	0	1409	0.000
L30	71.58 - 68.83 (30)	TP28.1592x27.4855x0.4	702	1481	0.474	0	1481	0.000
L31	68.83 - 68.58 (31)	TP28.2204x28.1592x0.4625	706	1708	0.413	0	1708	0.000
L32	68.58 - 64.5 (32)	TP29.22x28.2204x0.4625	712	1718	0.414	0	1718	0.000
L33	64.5 - 63.25 (33)	TP29.0263x27.8013x0.5188	800	2018	0.396	0	2018	0.000
L34	63.25 - 58.25 (34)	TP30.2513x29.0263x0.5125	890	2172	0.410	0	2172	0.000
L35	58.25 - 53.25 (35)	TP31.4763x30.2513x0.5	983	2301	0.427	0	2301	0.000
L36	53.25 - 48.25 (36)	TP32.7013x31.4763x0.4875	1079	2429	0.444	0	2429	0.000
L37	48.25 - 42.5 (37)	TP34.11x32.7013x0.4875	1108	2485	0.446	0	2485	0.000
L38	42.5 - 41.83 (38)	TP33.648x32.4438x0.5188	1205	2732	0.441	0	2732	0.000
L39	41.83 - 41.58 (39)	TP33.7092x33.648x0.3438	1210	1748	0.692	0	1748	0.000
L40	41.58 - 41.17 (40)	TP33.8095x33.7092x0.3438	1218	1756	0.694	0	1756	0.000
L41	41.17 - 40.92 (41)	TP33.8707x33.8095x0.5188	1223	2769	0.442	0	2769	0.000
L42	40.92 - 35.92 (42)	TP35.0945x33.8707x0.5063	1325	2909	0.455	0	2909	0.000
L43	35.92 - 30.92 (43)	TP36.3184x35.0945x0.5063	1428	3121	0.458	0	3121	0.000
L44	30.92 - 25.92 (44)	TP37.5422x36.3184x0.4938	1533	3260	0.470	0	3260	0.000
L45	25.92 - 20.25 (45)	TP38.93x37.5422x0.4938	1547	3289	0.471	0	3289	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 $\frac{M_{uy}}{\phi M_{ny}}$
L46	20.25 - 19.25 (46)	TP38.4898x37.0186x0.525	1655	3314	0.499	0	3314	0.000
L47	19.25 - 14.15 (47)	TP39.7404x38.4898x0.5188	1676	3319	0.505	0	3319	0.000
L48	14.15 - 13.92 (48)	TP39.7967x39.7404x0.5188	1788	3543	0.505	0	3543	0.000
L49	13.92 - 8.92 (49)	TP41.0228x39.7967x0.5125	1793	3512	0.510	0	3512	0.000
L50	8.92 - 3.92 (50)	TP42.2488x41.0228x0.5125	1904	3736	0.510	0	3736	0.000
L51	3.92 - 0 (51)	TP43.21x42.2488x0.5063	2106	3921	0.514	0	3921	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	130 - 125 (1)	TP16x16x0.375	3.94	208.74	0.019	1	287	0.003
L2	125 - 120 (2)	TP16x16x0.375	4.12	208.74	0.020	1	287	0.003
L3	120 - 114.9 (3)	TP17.2491x16x0.5125	6.91	484.72	0.014	1	714	0.001
L4	114.9 - 114.67 (4)	TP17.3054x17.2491x0.5125	6.92	486.35	0.014	1	718	0.001
L5	114.67 - 109.67 (5)	TP18.5299x17.3054x0.4813	9.73	490.85	0.020	1	779	0.001
L6	109.67 - 109.42 (6)	TP18.5912x18.5299x0.4813	9.75	492.52	0.020	1	785	0.001
L7	109.42 - 109.17 (7)	TP18.6524x18.5912x0.425	9.76	437.77	0.022	1	702	0.001
L8	109.17 - 104.17 (8)	TP19.877x18.6524x0.4125	10.03	453.73	0.022	1	777	0.001
L9	104.17 - 103.92 (9)	TP19.9382x19.877x0.4063	10.38	448.41	0.023	1	770	0.001
L10	103.92 - 103.67 (10)	TP19.9994x19.9382x0.45	10.41	497.14	0.021	1	855	0.001
L11	103.67 - 98.67 (11)	TP21.224x19.9994x0.4375	13.96	513.92	0.027	0	940	0.000
L12	98.67 - 96.42 (12)	TP21.775x21.224x0.425	14.09	512.77	0.027	0	963	0.000
L13	96.42 - 96.17 (13)	TP21.8363x21.775x0.3875	14.11	469.69	0.030	0	886	0.000
L14	96.17 - 91.5 (14)	TP22.98x21.8363x0.3813	14.21	471.06	0.030	0	906	0.000
L15	91.5 - 89.5 (15)	TP23.0952x21.8703x0.4375	14.55	560.18	0.026	0	1116	0.000
L16	89.5 - 88.92 (16)	TP23.2373x23.0952x0.4375	14.58	563.69	0.026	0	1131	0.000
L17	88.92 - 88.67 (17)	TP23.2986x23.2373x0.325	14.59	421.93	0.035	0	853	0.000
L18	88.67 - 88.25 (18)	TP23.4015x23.2986x0.325	14.62	423.82	0.034	0	860	0.000
L19	88.25 - 88 (19)	TP23.4627x23.4015x0.4	14.63	521.32	0.028	0	1058	0.000
L20	88 - 87.42 (20)	TP23.6048x23.4627x0.4	14.66	524.53	0.028	0	1071	0.000
L21	87.42 - 87.17 (21)	TP23.666x23.6048x0.25	14.68	330.82	0.044	0	681	0.000
L22	87.17 - 86.92 (22)	TP23.7273x23.666x0.25	14.69	331.68	0.044	0	685	0.000
L23	86.92 - 86.67 (23)	TP23.7885x23.7273x0.4313	14.70	569.23	0.026	0	1170	0.000
L24	86.67 - 81.67 (24)	TP25.0135x23.7885x0.4188	14.99	582.01	0.026	0	1259	0.000
L25	81.67 - 80.75 (25)	TP25.2389x25.0135x0.4188	16.08	587.34	0.027	6	1282	0.005

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 $\frac{T_u}{\phi T_n}$
L26	80.75 - 80.5 (26)	TP25.3001x25.2389x0.3188	16.10	449.99	0.036	6	989	0.006
L27	80.5 - 75.5 (27)	TP26.5251x25.3001x0.3188	16.61	472.05	0.035	6	1088	0.006
L28	75.5 - 71.83 (28)	TP27.4242x26.5251x0.3125	16.93	478.78	0.035	6	1142	0.005
L29	71.83 - 71.58 (29)	TP27.4855x27.4242x0.4	16.94	612.25	0.028	6	1459	0.004
L30	71.58 - 68.83 (30)	TP28.1592x27.4855x0.4	17.22	627.48	0.027	6	1532	0.004
L31	68.83 - 68.58 (31)	TP28.2204x28.1592x0.4625	17.23	725.49	0.024	6	1771	0.003
L32	68.58 - 64.5 (32)	TP29.22x28.2204x0.4625	17.27	727.60	0.024	6	1782	0.003
L33	64.5 - 63.25 (33)	TP29.0263x27.8013x0.5188	17.86	835.70	0.021	6	2096	0.003
L34	63.25 - 58.25 (34)	TP30.2513x29.0263x0.5125	18.36	861.29	0.021	6	2253	0.003
L35	58.25 - 53.25 (35)	TP31.4763x30.2513x0.5	18.87	875.25	0.022	6	2385	0.002
L36	53.25 - 48.25 (36)	TP32.7013x31.4763x0.4875	19.36	887.46	0.022	6	2515	0.002
L37	48.25 - 42.5 (37)	TP34.11x32.7013x0.4875	19.51	897.59	0.022	6	2572	0.002
L38	42.5 - 41.83 (38)	TP33.648x32.4438x0.5188	20.07	971.28	0.021	6	2830	0.002
L39	41.83 - 41.58 (39)	TP33.7092x33.648x0.3438	20.08	648.24	0.031	6	1903	0.003
L40	41.58 - 41.17 (40)	TP33.8095x33.7092x0.3438	20.12	650.19	0.031	6	1914	0.003
L41	41.17 - 40.92 (41)	TP33.8707x33.8095x0.5188	20.14	977.81	0.021	6	2869	0.002
L42	40.92 - 35.92 (42)	TP35.0945x33.8707x0.5063	20.50	989.62	0.021	6	3011	0.002
L43	35.92 - 30.92 (43)	TP36.3184x35.0945x0.5063	20.85	1024.64	0.020	6	3228	0.002
L44	30.92 - 25.92 (44)	TP37.5422x36.3184x0.4938	21.19	1033.84	0.020	6	3369	0.002
L45	25.92 - 20.25 (45)	TP38.93x37.5422x0.4938	21.23	1038.42	0.020	6	3399	0.002
L46	20.25 - 19.25 (46)	TP38.4898x37.0186x0.525	21.73	1039.71	0.021	6	3427	0.002
L47	19.25 - 14.15 (47)	TP39.7404x38.4898x0.5188	21.80	1034.27	0.021	6	3432	0.002
L48	14.15 - 13.92 (48)	TP39.7967x39.7404x0.5188	22.08	1062.87	0.021	6	3662	0.002
L49	13.92 - 8.92 (49)	TP41.0228x39.7967x0.5125	22.15	1056.78	0.021	6	3629	0.002
L50	8.92 - 3.92 (50)	TP42.2488x41.0228x0.5125	22.48	1089.56	0.021	6	3859	0.001
L51	3.92 - 0 (51)	TP43.21x42.2488x0.5063	22.76	1110.80	0.020	6	4048	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 125 (1)	0.005	0.067	0.000	0.019	0.003	0.073	1.050	4.8.2
L2	125 - 120 (2)	0.006	0.137	0.000	0.020	0.003	0.143	1.050	4.8.2
L3	120 - 114.9 (3)	0.005	0.108	0.000	0.014	0.001	0.113	1.050	4.8.2
L4	114.9 - 114.67 (4)	0.005	0.109	0.000	0.014	0.001	0.115	1.050	4.8.2
L5	114.67 -	0.007	0.149	0.000	0.020	0.001	0.157	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	109.67 (5)								
L6	109.67 - 109.42 (6)	0.007	0.151	0.000	0.020	0.001	0.159	1.050	4.8.2
L7	109.42 - 109.17 (7)	0.008	0.172	0.000	0.022	0.001	0.181	1.050	4.8.2
L8	109.17 - 104.17 (8)	0.008	0.222	0.000	0.022	0.001	0.230	1.050	4.8.2
L9	104.17 - 103.92 (9)	0.008	0.227	0.000	0.023	0.001	0.236	1.050	4.8.2
L10	103.92 - 103.67 (10)	0.008	0.208	0.000	0.021	0.001	0.216	1.050	4.8.2
L11	103.67 - 98.67 (11)	0.011	0.270	0.000	0.027	0.000	0.282	1.050	4.8.2
L12	98.67 - 96.42 (12)	0.011	0.297	0.000	0.027	0.000	0.309	1.050	4.8.2
L13	96.42 - 96.17 (13)	0.012	0.327	0.000	0.030	0.000	0.340	1.050	4.8.2
L14	96.17 - 91.5 (14)	0.012	0.347	0.000	0.030	0.000	0.359	1.050	4.8.2
L15	91.5 - 89.5 (15)	0.011	0.349	0.000	0.026	0.000	0.360	1.050	4.8.2
L16	89.5 - 88.92 (16)	0.011	0.352	0.000	0.026	0.000	0.363	1.050	4.8.2
L17	88.92 - 88.67 (17)	0.014	0.469	0.000	0.035	0.000	0.484	1.050	4.8.2
L18	88.67 - 88.25 (18)	0.014	0.472	0.000	0.034	0.000	0.487	1.050	4.8.2
L19	88.25 - 88 (19)	0.012	0.389	0.000	0.028	0.000	0.401	1.050	4.8.2
L20	88 - 87.42 (20)	0.012	0.392	0.000	0.028	0.000	0.405	1.050	4.8.2
L21	87.42 - 87.17 (21)	0.018	0.645	0.000	0.044	0.000	0.665	1.050	4.8.2
L22	87.17 - 86.92 (22)	0.018	0.647	0.000	0.044	0.000	0.668	1.050	4.8.2
L23	86.92 - 86.67 (23)	0.011	0.369	0.000	0.026	0.000	0.381	1.050	4.8.2
L24	86.67 - 81.67 (24)	0.011	0.404	0.000	0.026	0.000	0.415	1.050	4.8.2
L25	81.67 - 80.75 (25)	0.011	0.407	0.000	0.027	0.005	0.419	1.050	4.8.2
L26	80.75 - 80.5 (26)	0.014	0.530	0.000	0.036	0.006	0.546	1.050	4.8.2
L27	80.5 - 75.5 (27)	0.014	0.559	0.000	0.035	0.006	0.575	1.050	4.8.2
L28	75.5 - 71.83 (28)	0.014	0.598	0.000	0.035	0.005	0.614	1.050	4.8.2
L29	71.83 - 71.58 (29)	0.011	0.465	0.000	0.028	0.004	0.477	1.050	4.8.2
L30	71.58 - 68.83 (30)	0.011	0.474	0.000	0.027	0.004	0.486	1.050	4.8.2
L31	68.83 - 68.58 (31)	0.010	0.413	0.000	0.024	0.003	0.424	1.050	4.8.2
L32	68.58 - 64.5 (32)	0.010	0.414	0.000	0.024	0.003	0.425	1.050	4.8.2
L33	64.5 - 63.25 (33)	0.009	0.396	0.000	0.021	0.003	0.406	1.050	4.8.2
L34	63.25 - 58.25 (34)	0.009	0.410	0.000	0.021	0.003	0.420	1.050	4.8.2
L35	58.25 - 53.25 (35)	0.009	0.427	0.000	0.022	0.002	0.437	1.050	4.8.2
L36	53.25 - 48.25 (36)	0.010	0.444	0.000	0.022	0.002	0.454	1.050	4.8.2
L37	48.25 - 42.5 (37)	0.010	0.446	0.000	0.022	0.002	0.456	1.050	4.8.2
L38	42.5 - 41.83 (38)	0.010	0.441	0.000	0.021	0.002	0.451	1.050	4.8.2
L39	41.83 - 41.58 (39)	0.015	0.692	0.000	0.031	0.003	0.708	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L40	41.58 - 41.17 (40)	0.015	0.694	0.000	0.031	0.003	0.709	1.050	4.8.2
L41	41.17 - 40.92 (41)	0.010	0.442	0.000	0.021	0.002	0.452	1.050	4.8.2
L42	40.92 - 35.92 (42)	0.010	0.455	0.000	0.021	0.002	0.466	1.050	4.8.2
L43	35.92 - 30.92 (43)	0.010	0.458	0.000	0.020	0.002	0.468	1.050	4.8.2
L44	30.92 - 25.92 (44)	0.010	0.470	0.000	0.020	0.002	0.481	1.050	4.8.2
L45	25.92 - 20.25 (45)	0.010	0.471	0.000	0.020	0.002	0.481	1.050	4.8.2
L46	20.25 - 19.25 (46)	0.011	0.499	0.000	0.021	0.002	0.511	1.050	4.8.2
L47	19.25 - 14.15 (47)	0.011	0.505	0.000	0.021	0.002	0.517	1.050	4.8.2
L48	14.15 - 13.92 (48)	0.011	0.505	0.000	0.021	0.002	0.517	1.050	4.8.2
L49	13.92 - 8.92 (49)	0.012	0.510	0.000	0.021	0.002	0.523	1.050	4.8.2
L50	8.92 - 3.92 (50)	0.012	0.510	0.000	0.021	0.001	0.522	1.050	4.8.2
L51	3.92 - 0 (51)	0.012	0.514	0.000	0.020	0.001	0.527	1.050	4.8.2

Section Capacity Table

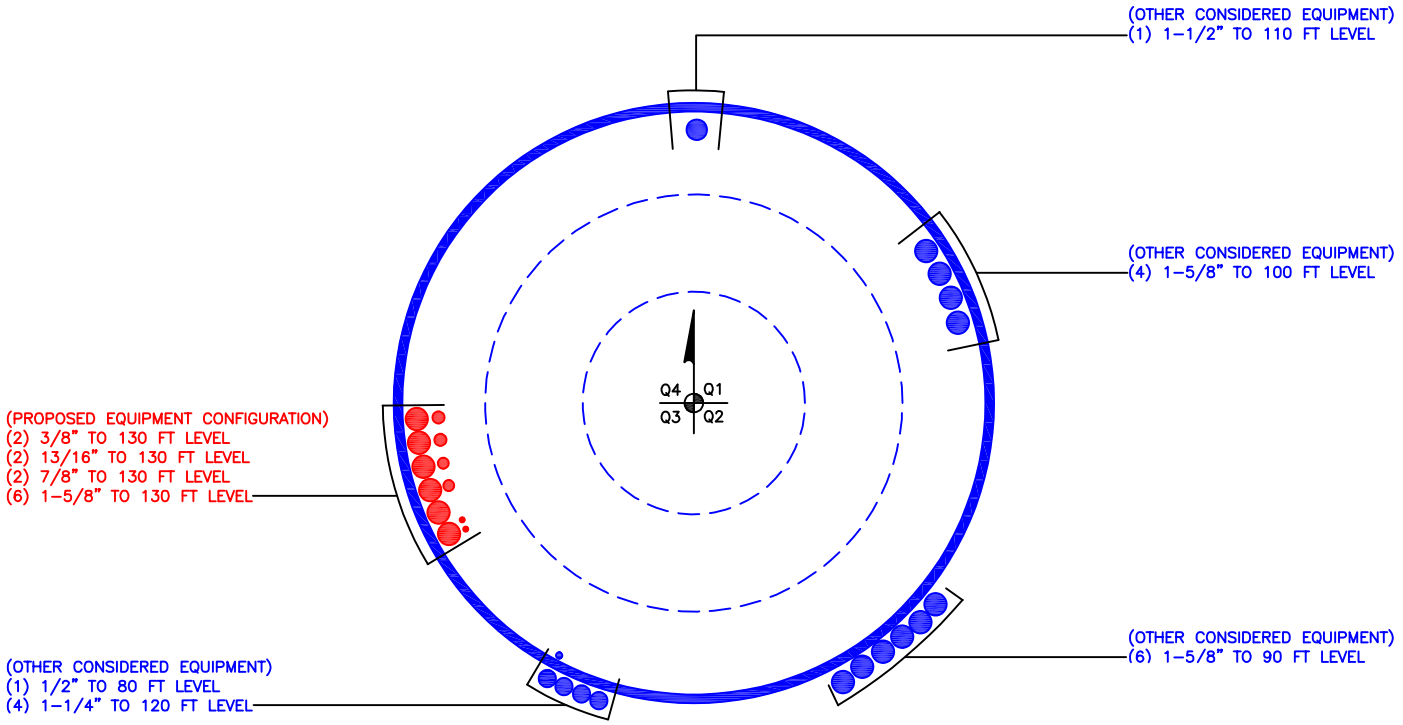
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	130 - 125	Pole	TP16x16x0.375	1	-3.42	730.60	6.9	Pass
L2	125 - 120	Pole	TP16x16x0.375	2	-3.85	730.60	13.6	Pass
L3	120 - 114.9	Pole	TP17.2491x16x0.5125	3	-8.23	1696.53	10.8	Pass
L4	114.9 - 114.67	Pole	TP17.3054x17.2491x0.5125	4	-8.26	1702.24	10.9	Pass
L5	114.67 - 109.67	Pole	TP18.5299x17.3054x0.4813	5	-11.89	1717.98	14.9	Pass
L6	109.67 - 109.42	Pole	TP18.5912x18.5299x0.4813	6	-11.92	1723.81	15.1	Pass
L7	109.42 - 109.17	Pole	TP18.6524x18.5912x0.425	7	-11.95	1532.20	17.2	Pass
L8	109.17 - 104.17	Pole	TP19.877x18.6524x0.4125	8	-12.53	1588.06	21.9	Pass
L9	104.17 - 103.92	Pole	TP19.9382x19.877x0.4063	9	-12.50	1569.42	22.5	Pass
L10	103.92 - 103.67	Pole	TP19.9994x19.9382x0.45	10	-12.53	1740.00	20.6	Pass
L11	103.67 - 98.67	Pole	TP21.224x19.9994x0.4375	11	-18.20	1798.70	26.8	Pass
L12	98.67 - 96.42	Pole	TP21.775x21.224x0.425	12	-18.54	1794.68	29.4	Pass
L13	96.42 - 96.17	Pole	TP21.8363x21.775x0.3875	13	-18.58	1643.90	32.3	Pass
L14	96.17 - 91.5	Pole	TP22.98x21.8363x0.3813	14	-18.80	1648.70	34.2	Pass
L15	91.5 - 89.5	Pole	TP23.0952x21.8703x0.4375	15	-19.90	1960.63	34.3	Pass
L16	89.5 - 88.92	Pole	TP23.2373x23.0952x0.4375	16	-20.00	1972.93	34.6	Pass
L17	88.92 - 88.67	Pole	TP23.2986x23.2373x0.325	17	-20.04	1476.77	46.1	Pass
L18	88.67 - 88.25	Pole	TP23.4015x23.2986x0.325	18	-20.11	1483.39	46.4	Pass
L19	88.25 - 88	Pole	TP23.4627x23.4015x0.4	19	-20.15	1824.62	38.2	Pass
L20	88 - 87.42	Pole	TP23.6048x23.4627x0.4	20	-20.25	1835.86	38.5	Pass
L21	87.42 - 87.17	Pole	TP23.666x23.6048x0.25	21	-20.28	1157.86	63.3	Pass
L22	87.17 - 86.92	Pole	TP23.7273x23.666x0.25	22	-20.32	1160.88	63.6	Pass
L23	86.92 - 86.67	Pole	TP23.7885x23.7273x0.4313	23	-20.36	1992.29	36.3	Pass
L24	86.67 - 81.67	Pole	TP25.0135x23.7885x0.4188	24	-21.21	2037.03	39.5	Pass
L25	81.67 - 80.75	Pole	TP25.2389x25.0135x0.4188	25	-21.27	2055.70	39.9	Pass
L26	80.75 - 80.5	Pole	TP25.3001x25.2389x0.3188	26	-21.31	1574.96	52.0	Pass
L27	80.5 - 75.5	Pole	TP26.5251x25.3001x0.3188	27	-22.23	1652.19	54.8	Pass
L28	75.5 - 71.83	Pole	TP27.4242x26.5251x0.3125	28	-22.87	1675.75	58.5	Pass
L29	71.83 - 71.58	Pole	TP27.4855x27.4242x0.4	29	-22.93	2142.88	45.4	Pass
L30	71.58 - 68.83	Pole	TP28.1592x27.4855x0.4	30	-23.43	2196.18	46.3	Pass
L31	68.83 - 68.58	Pole	TP28.2204x28.1592x0.4625	31	-23.49	2539.21	40.4	Pass
L32	68.58 - 64.5	Pole	TP29.22x28.2204x0.4625	32	-23.55	2546.62	40.5	Pass
L33	64.5 - 63.25	Pole	TP29.0263x27.8013x0.5188	33	-25.26	2924.95	38.7	Pass
L34	63.25 - 58.25	Pole	TP30.2513x29.0263x0.5125	34	-26.43	3014.52	40.0	Pass
L35	58.25 - 53.25	Pole	TP31.4763x30.2513x0.5	35	-27.62	3063.37	41.6	Pass
L36	53.25 - 48.25	Pole	TP32.7013x31.4763x0.4875	36	-28.85	3106.11	43.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L37	48.25 - 42.5	Pole	TP34.11x32.7013x0.4875	37	-29.22	3141.55	43.4	Pass
L38	42.5 - 41.83	Pole	TP33.648x32.4438x0.5188	38	-31.35	3399.48	43.0	Pass
L39	41.83 - 41.58	Pole	TP33.7092x33.648x0.3438	39	-31.41	2268.84	67.4	Pass
L40	41.58 - 41.17	Pole	TP33.8095x33.7092x0.3438	40	-31.49	2275.66	67.6	Pass
L41	41.17 - 40.92	Pole	TP33.8707x33.8095x0.5188	41	-31.56	3422.33	43.0	Pass
L42	40.92 - 35.92	Pole	TP35.0945x33.8707x0.5063	42	-32.91	3463.68	44.4	Pass
L43	35.92 - 30.92	Pole	TP36.3184x35.0945x0.5063	43	-34.29	3586.23	44.6	Pass
L44	30.92 - 25.92	Pole	TP37.5422x36.3184x0.4938	44	-35.70	3618.44	45.8	Pass
L45	25.92 - 20.25	Pole	TP38.93x37.5422x0.4938	45	-35.89	3634.46	45.8	Pass
L46	20.25 - 19.25	Pole	TP38.4898x37.0186x0.525	46	-38.57	3615.48	48.7	Pass
L47	19.25 - 14.15	Pole	TP39.7404x38.4898x0.5188	47	-38.87	3596.25	49.2	Pass
L48	14.15 - 13.92	Pole	TP39.7967x39.7404x0.5188	48	-40.44	3714.69	49.2	Pass
L49	13.92 - 8.92	Pole	TP41.0228x39.7967x0.5125	49	-40.52	3675.80	49.8	Pass
L50	8.92 - 3.92	Pole	TP42.2488x41.0228x0.5125	50	-42.09	3790.51	49.7	Pass
L51	3.92 - 0	Pole	TP43.21x42.2488x0.5063	51	-43.59	3858.18	50.2	Pass
							Summary	
						Pole (L40)	67.6	Pass
						RATING =	**67.6**	**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: 876314 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876314

Work Order: 2054348

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	130	10	0	0	16	16	0.375		A500-42
2	120	28.5	3	12	16.00	22.98	0.1875	Auto	A607-65
3	94.5	30	3.75	12	21.87	29.22	0.25	Auto	A607-65
4	68.25	25.75	4.25	12	27.80	34.11	0.3125	Auto	A607-65
5	46.75	26.5	5	12	32.44	38.93	0.3438	Auto	A607-65
6	25.25	25.25	0	12	37.02	43.21	0.375	Auto	A607-60

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	14.17	channel	MP3-04 (1.25in)	4			E			E			E			E
2	14.17	41.17	channel	MP3-04 (1.25in)	4	E			E			E			E		
3	41.83	68.83	channel	MP3-04 (1.25in)	4			E			E			E			E
4	68.83	86.92	channel	MP3-03 (1.25in)	3	E			E						E		
5	68.83	71.83	channel	MP3-03 (1.25in)	1							E					
6	80.75	88.25	channel	MP3-03 (1.25in)	1							E					
7	87.42	114.92	channel	MP3-03 (1.25in)	3			E						E			E
8	88.92	96.42	channel	MP3-03 (1.25in)	1						E						
9	96.42	103.92	channel	MP3-03 (1.25in)	2					E		E					
10	103.92	109.42	channel	MP3-03 (1.25in)	1						E						
11	109.42	114.92	channel	MP3-03 (1.25in)	2					E		E					
12																	

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	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.566	1.2500	A572-65
2	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.566	1.2500	A572-65
3	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.566	1.2500	A572-65
4	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
5	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
6	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
7	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
8	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
9	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
10	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65
11	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	130 - 125	5		0	16.000	16.000	0.375	A500-42	1.000
2	125 - 120	5	0	0	16.000	16.000	0.375	A500-42	1.000
3	120 - 114.9	5.1		12	16.000	17.249	0.5125	A607-65	0.902
4	114.9 - 114.67	0.23		12	17.249	17.305	0.5125	A607-65	0.901
5	114.67 - 109.67	5		12	17.305	18.530	0.48125	A607-65	0.919
6	109.67 - 109.42	0.25		12	18.530	18.591	0.48125	A607-65	0.917
7	109.42 - 109.17	0.25		12	18.591	18.652	0.425	A607-65	0.916
8	109.17 - 104.17	5		12	18.652	19.877	0.4125	A607-65	0.912
9	104.17 - 103.92	0.25		12	19.877	19.938	0.40625	A607-65	0.925
10	103.92 - 103.67	0.25		12	19.938	19.999	0.45	A607-65	0.938
11	103.67 - 98.67	5		12	19.999	21.224	0.4375	A607-65	0.933
12	98.67 - 96.42	2.25		12	21.224	21.775	0.425	A607-65	0.947
13	96.42 - 96.17	0.25		12	21.775	21.836	0.3875	A607-65	0.925
14	96.17 - 94.5	4.67	3	12	21.836	22.980	0.38125	A607-65	0.932
15	94.5 - 89.5	5		12	21.870	23.095	0.4375	A607-65	0.943
16	89.5 - 88.92	0.58		12	23.095	23.237	0.4375	A607-65	0.940
17	88.92 - 88.67	0.25		12	23.237	23.299	0.325	A607-65	1.137
18	88.67 - 88.25	0.42		12	23.299	23.401	0.325	A607-65	1.135
19	88.25 - 88	0.25		12	23.401	23.463	0.4	A607-65	1.023
20	88 - 87.42	0.58		12	23.463	23.605	0.4	A607-65	1.020
21	87.42 - 87.17	0.25		12	23.605	23.666	0.25	A607-65	1.000
22	87.17 - 86.92	0.25		12	23.666	23.727	0.25	A607-65	1.000
23	86.92 - 86.67	0.25		12	23.727	23.789	0.43125	A607-65	0.945
24	86.67 - 81.67	5		12	23.789	25.014	0.41875	A607-65	0.954
25	81.67 - 80.75	0.92		12	25.014	25.239	0.41875	A607-65	0.951
26	80.75 - 80.5	0.25		12	25.239	25.300	0.31875	A607-65	1.129
27	80.5 - 75.5	5		12	25.300	26.525	0.31875	A607-65	1.113
28	75.5 - 71.83	3.67		12	26.525	27.424	0.3125	A607-65	1.123
29	71.83 - 71.58	0.25		12	27.424	27.485	0.4	A607-65	0.964
30	71.58 - 68.83	2.75		12	27.485	28.159	0.4	A607-65	0.956
31	68.83 - 68.58	0.25		12	28.159	28.220	0.4625	A607-65	0.945
32	68.58 - 68.25	4.08	3.75	12	28.220	29.220	0.4625	A607-65	0.944
33	68.25 - 63.25	5		12	27.801	29.026	0.51875	A607-65	0.954
34	63.25 - 58.25	5		12	29.026	30.251	0.5125	A607-65	0.951
35	58.25 - 53.25	5		12	30.251	31.476	0.5	A607-65	0.961
36	53.25 - 48.25	5		12	31.476	32.701	0.4875	A607-65	0.972
37	48.25 - 46.75	5.75	4.25	12	32.701	34.110	0.4875	A607-65	0.968
38	46.75 - 41.83	4.92		12	32.444	33.648	0.5188	A607-65	0.965
39	41.83 - 41.58	0.25		12	33.648	33.709	0.3438	A607-65	1.000
40	41.58 - 41.17	0.41		12	33.709	33.810	0.3438	A607-65	1.000
41	41.17 - 40.92	0.25		12	33.810	33.871	0.5188	A607-65	0.963
42	40.92 - 35.92	5		12	33.871	35.095	0.5063	A607-65	0.976
43	35.92 - 30.92	5		12	35.095	36.318	0.5063	A607-65	0.965
44	30.92 - 25.92	5		12	36.318	37.542	0.4938	A607-65	0.980
45	25.92 - 25.25	5.67	5	12	37.542	38.930	0.4938	A607-65	0.979
46	25.25 - 19.25	6		12	37.019	38.490	0.525	A607-60	0.975
47	19.25 - 14.15	5.1		12	38.490	39.740	0.51875	A607-60	0.978
48	14.15 - 13.92	0.23		12	39.740	39.797	0.51875	A607-60	0.978
49	13.92 - 8.92	5		12	39.797	41.023	0.5125	A607-60	0.982
50	8.92 - 3.92	5		12	41.023	42.249	0.5125	A607-60	0.974
51	3.92 - 0	3.92		12	42.249	43.210	0.50625	A607-60	0.981

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	130 - 125	3.42	19.46	3.94
2	125 - 120	3.85	39.59	4.12
3	120 - 114.9	8.23	73.18	6.91
4	114.9 - 114.67	8.26	74.77	6.92
5	114.67 - 109.67	11.89	110.97	9.73
6	109.67 - 109.42	11.92	113.41	9.75
7	109.42 - 109.17	11.95	115.84	9.76
8	109.17 - 104.17	12.53	165.27	10.03
9	104.17 - 103.92	12.50	167.86	10.38
10	103.92 - 103.67	12.53	170.46	10.41
11	103.67 - 98.67	18.20	243.88	13.96
12	98.67 - 96.42	18.54	275.40	14.09
13	96.42 - 96.17	18.58	278.92	14.11
14	96.17 - 94.5	18.80	302.53	14.21
15	94.5 - 89.5	19.90	374.38	14.55
16	89.5 - 88.92	20.00	382.82	14.58
17	88.92 - 88.67	20.04	386.46	14.59
18	88.67 - 88.25	20.11	392.59	14.62
19	88.25 - 88	20.15	396.24	14.63
20	88 - 87.42	20.25	404.72	14.66
21	87.42 - 87.17	20.28	408.38	14.68
22	87.17 - 86.92	20.32	412.05	14.69
23	86.92 - 86.67	20.36	415.72	14.70
24	86.67 - 81.67	21.21	489.84	14.99
25	81.67 - 80.75	21.37	503.64	15.05
26	80.75 - 80.5	21.31	507.47	16.10
27	80.5 - 75.5	22.23	589.29	16.61
28	75.5 - 71.83	22.87	650.75	16.93
29	71.83 - 71.58	22.93	654.98	16.94
30	71.58 - 68.83	23.43	701.91	17.22
31	68.83 - 68.58	23.49	706.21	17.23
32	68.58 - 68.25	23.55	711.90	17.27
33	68.25 - 63.25	25.26	799.69	17.86
34	63.25 - 58.25	26.43	890.15	18.36
35	58.25 - 53.25	27.62	983.14	18.87
36	53.25 - 48.25	28.85	1078.63	19.36
37	48.25 - 46.75	29.21	1107.77	19.51
38	46.75 - 41.83	31.35	1205.08	20.07
39	41.83 - 41.58	31.41	1210.10	20.08
40	41.58 - 41.17	31.49	1218.34	20.12
41	41.17 - 40.92	31.56	1223.37	20.14
42	40.92 - 35.92	32.91	1324.92	20.50
43	35.92 - 30.92	34.29	1428.24	20.85
44	30.92 - 25.92	35.70	1533.27	21.19
45	25.92 - 25.25	35.89	1547.47	21.23
46	25.25 - 19.25	38.86	1676.32	21.73
47	19.25 - 14.15	40.43	1787.92	22.07
48	14.15 - 13.92	40.51	1792.99	22.08
49	13.92 - 8.92	42.08	1904.18	22.42
50	8.92 - 3.92	43.57	2016.88	22.69
51	3.92 - 0	44.75	2106.16	22.90

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
130 - 125	Pole	TP16x16x0.375	Pole	6.9%	Pass
125 - 120	Pole	TP16x16x0.375	Pole	13.6%	Pass
120 - 114.9	Pole + Reinf.	TP17.249x16x0.5125	Reinf. 7 Tension Rupture	17.7%	Pass
114.9 - 114.67	Pole + Reinf.	TP17.305x17.249x0.5125	Reinf. 7 Tension Rupture	18.0%	Pass
114.67 - 109.67	Pole + Reinf.	TP18.53x17.305x0.4813	Reinf. 7 Tension Rupture	24.2%	Pass
109.67 - 109.42	Pole + Reinf.	TP18.591x18.53x0.4813	Reinf. 7 Tension Rupture	24.6%	Pass
109.42 - 109.17	Pole + Reinf.	TP18.652x18.591x0.425	Reinf. 7 Tension Rupture	26.0%	Pass
109.17 - 104.17	Pole + Reinf.	TP19.877x18.652x0.4125	Reinf. 7 Tension Rupture	33.5%	Pass
104.17 - 103.92	Pole + Reinf.	TP19.938x19.877x0.4063	Reinf. 7 Tension Rupture	33.8%	Pass
103.92 - 103.67	Pole + Reinf.	TP19.999x19.938x0.45	Reinf. 7 Tension Rupture	33.0%	Pass
103.67 - 98.67	Pole + Reinf.	TP21.224x19.999x0.4375	Reinf. 7 Tension Rupture	43.4%	Pass
98.67 - 96.42	Pole + Reinf.	TP21.775x21.224x0.425	Reinf. 7 Tension Rupture	47.1%	Pass
96.42 - 96.17	Pole + Reinf.	TP21.836x21.775x0.3875	Reinf. 7 Tension Rupture	49.0%	Pass
96.17 - 94.5	Pole + Reinf.	TP22.98x21.836x0.3813	Reinf. 7 Tension Rupture	51.6%	Pass
94.5 - 89.5	Pole + Reinf.	TP23.095x21.87x0.4375	Reinf. 7 Tension Rupture	51.5%	Pass
89.5 - 88.92	Pole + Reinf.	TP23.237x23.095x0.4375	Reinf. 7 Tension Rupture	52.1%	Pass
88.92 - 88.67	Pole + Reinf.	TP23.299x23.237x0.325	Reinf. 7 Tension Rupture	60.5%	Pass
88.67 - 88.25	Pole + Reinf.	TP23.401x23.299x0.325	Reinf. 7 Tension Rupture	60.9%	Pass
88.25 - 88	Pole + Reinf.	TP23.463x23.401x0.4	Reinf. 7 Tension Rupture	55.6%	Pass
88 - 87.42	Pole + Reinf.	TP23.605x23.463x0.4	Reinf. 7 Tension Rupture	56.2%	Pass
87.42 - 87.17	Pole	TP23.666x23.605x0.25	Pole	63.2%	Pass
87.17 - 86.92	Pole	TP23.727x23.666x0.25	Pole	63.4%	Pass
86.92 - 86.67	Pole + Reinf.	TP23.789x23.727x0.4313	Reinf. 4 Tension Rupture	54.5%	Pass
86.67 - 81.67	Pole + Reinf.	TP25.014x23.789x0.4188	Reinf. 4 Tension Rupture	59.1%	Pass
81.67 - 80.75	Pole + Reinf.	TP25.239x25.014x0.4188	Reinf. 4 Tension Rupture	59.8%	Pass
80.75 - 80.5	Pole + Reinf.	TP25.3x25.239x0.3188	Reinf. 4 Tension Rupture	68.5%	Pass
80.5 - 75.5	Pole + Reinf.	TP26.525x25.3x0.3188	Reinf. 4 Tension Rupture	73.1%	Pass
75.5 - 71.83	Pole + Reinf.	TP27.424x26.525x0.3125	Reinf. 4 Tension Rupture	76.1%	Pass
71.83 - 71.58	Pole + Reinf.	TP27.485x27.424x0.4	Reinf. 4 Tension Rupture	67.5%	Pass
71.58 - 68.83	Pole + Reinf.	TP28.159x27.485x0.4	Reinf. 4 Tension Rupture	69.4%	Pass
68.83 - 68.58	Pole + Reinf.	TP28.22x28.159x0.4625	Reinf. 3 Tension Rupture	60.1%	Pass
68.58 - 68.25	Pole + Reinf.	TP29.22x28.22x0.4625	Reinf. 3 Tension Rupture	60.3%	Pass
68.25 - 63.25	Pole + Reinf.	TP29.026x27.801x0.5188	Reinf. 3 Tension Rupture	57.2%	Pass
63.25 - 58.25	Pole + Reinf.	TP30.251x29.026x0.5125	Reinf. 3 Tension Rupture	59.5%	Pass
58.25 - 53.25	Pole + Reinf.	TP31.476x30.251x0.5	Reinf. 3 Tension Rupture	61.5%	Pass
53.25 - 48.25	Pole + Reinf.	TP32.701x31.476x0.4875	Reinf. 3 Tension Rupture	63.3%	Pass
48.25 - 46.75	Pole + Reinf.	TP34.11x32.701x0.4875	Reinf. 3 Tension Rupture	63.8%	Pass
46.75 - 41.83	Pole + Reinf.	TP33.648x32.444x0.5188	Reinf. 3 Tension Rupture	63.4%	Pass
41.83 - 41.58	Pole	TP33.709x33.648x0.3438	Pole	67.2%	Pass
41.58 - 41.17	Pole	TP33.81x33.709x0.3438	Pole	67.4%	Pass
41.17 - 40.92	Pole + Reinf.	TP33.871x33.81x0.5188	Reinf. 2 Tension Rupture	63.6%	Pass
40.92 - 35.92	Pole + Reinf.	TP35.095x33.871x0.5063	Reinf. 2 Tension Rupture	64.8%	Pass
35.92 - 30.92	Pole + Reinf.	TP36.318x35.095x0.5063	Reinf. 2 Tension Rupture	65.9%	Pass
30.92 - 25.92	Pole + Reinf.	TP37.542x36.318x0.4938	Reinf. 2 Tension Rupture	66.8%	Pass
25.92 - 25.25	Pole + Reinf.	TP38.93x37.542x0.4938	Reinf. 2 Tension Rupture	66.9%	Pass
25.25 - 19.25	Pole + Reinf.	TP38.49x37.019x0.525	Reinf. 2 Tension Rupture	65.9%	Pass
19.25 - 14.15	Pole + Reinf.	TP39.74x38.49x0.5188	Reinf. 1 Tension Rupture	66.5%	Pass
14.15 - 13.92	Pole + Reinf.	TP39.797x39.74x0.5188	Reinf. 1 Tension Rupture	66.5%	Pass
13.92 - 8.92	Pole + Reinf.	TP41.023x39.797x0.5125	Reinf. 1 Tension Rupture	67.0%	Pass
8.92 - 3.92	Pole + Reinf.	TP42.249x41.023x0.5125	Reinf. 1 Tension Rupture	67.3%	Pass
3.92 - 0	Pole + Reinf.	TP43.21x42.249x0.5063	Reinf. 1 Tension Rupture	67.6%	Pass
				Summary	
			Pole	67.4%	Pass
			Reinforcement	76.1%	Pass
			Overall	76.1%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*											
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11
130 - 125	562	n/a	562	18.41	n/a	18.41	6.9%											
125 - 120	562	n/a	562	18.41	n/a	18.41	13.6%											
120 - 114.9	390	602	992	10.29	14.60	24.89	11.7%							17.7%				15.1%
114.9 - 114.67	394	606	1000	10.32	14.60	24.92	11.9%							18.0%				15.4%
114.67 - 109.67	484	689	1172	11.06	14.60	25.66	16.5%							24.2%				20.8%
109.67 - 109.42	489	693	1182	11.10	14.60	25.70	16.8%							24.6%				21.2%
109.42 - 109.17	486	578	1064	11.13	11.68	22.81	17.7%							26.0%			26.0%	
109.17 - 104.17	589	651	1240	11.87	11.68	23.55	23.3%							33.5%			33.5%	
104.17 - 103.92	595	655	1249	11.91	11.68	23.59	23.6%							33.8%			33.8%	
103.92 - 103.67	609	795	1404	11.94	14.60	26.54	23.2%							33.0%		28.5%		
103.67 - 98.67	728	890	1618	12.68	14.60	27.28	31.3%							43.4%		37.5%		
98.67 - 96.42	787	934	1721	13.01	14.60	27.61	34.4%							47.1%		40.8%		
96.42 - 96.17	783	777	1560	13.05	11.68	24.73	35.7%							49.0%	49.0%			
96.17 - 94.5	828	805	1633	13.30	11.68	24.98	38.0%							51.6%	51.6%			
94.5 - 89.5	1227	864	2091	18.36	11.68	30.04	34.4%							51.5%	51.5%			
89.5 - 88.92	1250	874	2124	18.48	11.68	30.16	34.8%							52.1%	52.1%			
88.92 - 88.67	1292	362	1654	18.53	8.76	27.29	50.0%							60.5%				
88.67 - 88.25	1309	365	1674	18.61	8.76	27.37	50.5%							60.9%				
88.25 - 88	1288	746	2034	18.66	11.68	30.34	39.4%						51.3%	55.6%				
88 - 87.42	1312	755	2066	18.77	11.68	30.45	39.9%						51.9%	56.2%				
87.42 - 87.17	1321	n/a	1321	18.82	n/a	18.82	63.2%											
87.17 - 86.92	1331	n/a	1331	18.87	n/a	18.87	63.4%											
86.92 - 86.67	1342	914	2256	18.92	11.68	30.60	36.7%				54.5%		54.5%					
86.67 - 81.67	1562	1005	2568	19.91	11.68	31.59	40.6%				59.1%		59.1%					
81.67 - 80.75	1605	1023	2628	20.09	11.68	31.77	41.3%				59.8%		59.8%					
80.75 - 80.5	1653	427	2081	20.14	8.76	28.90	57.9%				68.5%							
80.5 - 75.5	1905	470	2375	21.12	8.76	29.88	62.6%				73.1%							
75.5 - 71.83	2105	503	2608	21.84	8.76	30.60	65.8%				76.1%							
71.83 - 71.58	2079	1203	3282	21.89	11.68	33.57	48.3%				67.5%	67.5%						
71.58 - 68.83	2237	1260	3497	22.43	11.68	34.11	50.2%				69.4%	69.4%						
68.83 - 68.58	2251	1799	4050	22.48	16.52	39.00	43.8%			60.1%								
68.58 - 68.25	2271	1809	4080	22.55	16.52	39.07	44.0%			60.3%								
68.25 - 63.25	3045	1898	4943	28.85	16.52	45.37	38.7%			57.2%								
63.25 - 58.25	3451	2054	5505	30.08	16.52	46.60	40.9%			59.5%								
58.25 - 53.25	3893	2216	6109	31.31	16.52	47.83	42.9%			61.5%								
53.25 - 48.25	4370	2385	6755	32.54	16.52	49.06	44.9%			63.3%								
48.25 - 46.75	4520	2437	6957	32.91	16.52	49.43	45.5%			63.8%								
46.75 - 41.83	5227	2519	7746	36.82	16.52	53.34	43.9%			63.4%								
41.83 - 41.58	5256	n/a	5256	36.88	n/a	36.88	67.2%											
41.58 - 41.17	5303	n/a	5303	36.99	n/a	36.99	67.4%											
41.17 - 40.92	5332	2552	7884	37.06	16.52	53.58	44.1%		63.6%									
40.92 - 35.92	5938	2732	8670	38.42	16.52	54.94	45.6%		64.8%									
35.92 - 30.92	6587	2919	9506	39.77	16.52	56.29	47.1%		65.9%									
30.92 - 25.92	7283	3112	10395	41.12	16.52	57.64	48.4%		66.8%									
25.92 - 25.25	7380	3138	10518	41.30	16.52	57.82	48.6%		66.9%									
25.25 - 19.25	8546	3265	11811	45.96	16.52	62.48	49.7%		65.9%									
19.25 - 14.15	9415	3473	12888	47.47	16.52	63.99	50.8%	66.5%										
14.15 - 13.92	9455	3483	12938	47.53	16.52	64.05	50.9%	66.5%										
13.92 - 8.92	10365	3694	14059	49.01	16.52	65.53	51.9%	67.0%										
8.92 - 3.92	11331	3911	15242	50.49	16.52	67.01	52.8%	67.3%										
3.92 - 0	12130	4085	16215	51.65	16.52	68.17	53.5%	67.6%										

Note: Section capacity checked using 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

Elevation = 120 ft.

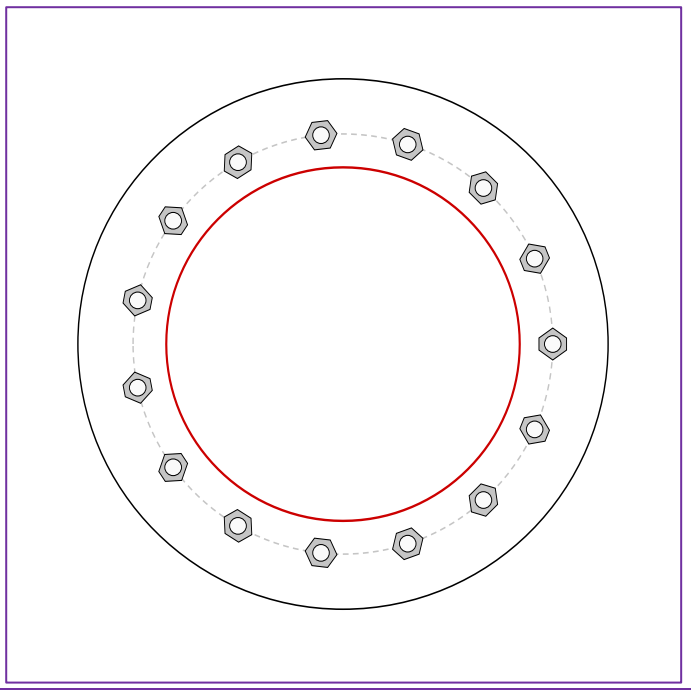
BU #	876314
Site Name	Horse Hill
Order #	595493 Rev.0

TIA-222 Revision	H

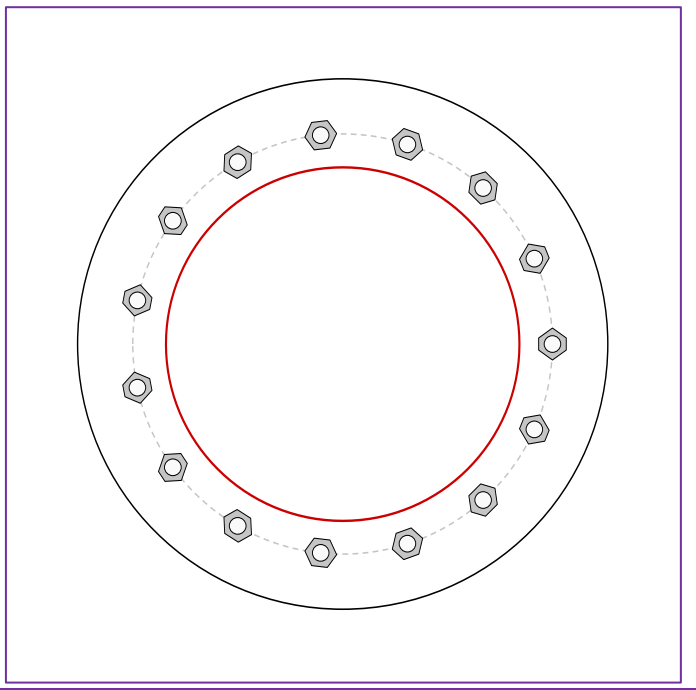
Applied Loads	
Moment (kip-ft)	39.59
Axial Force (kips)	3.85
Shear Force (kips)	4.12

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(15) 3/4" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 19" BC

Top Plate Data

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

Bottom Plate Data

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

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

16" x 0.375" round pole (A500-42; Fy=42 ksi, Fu=58 ksi)

Bottom Pole Data

16" x 0.1875" 12-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	6.41	
Allowable (kips)	30.06	
Stress Rating:	**20.3%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	3.30	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**9.7%**	**Pass**
Tension Side Stress Rating:	**4.0%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	13.18	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**38.7%**	**Pass**
Tension Side Stress Rating:	**15.9%**	**Pass**

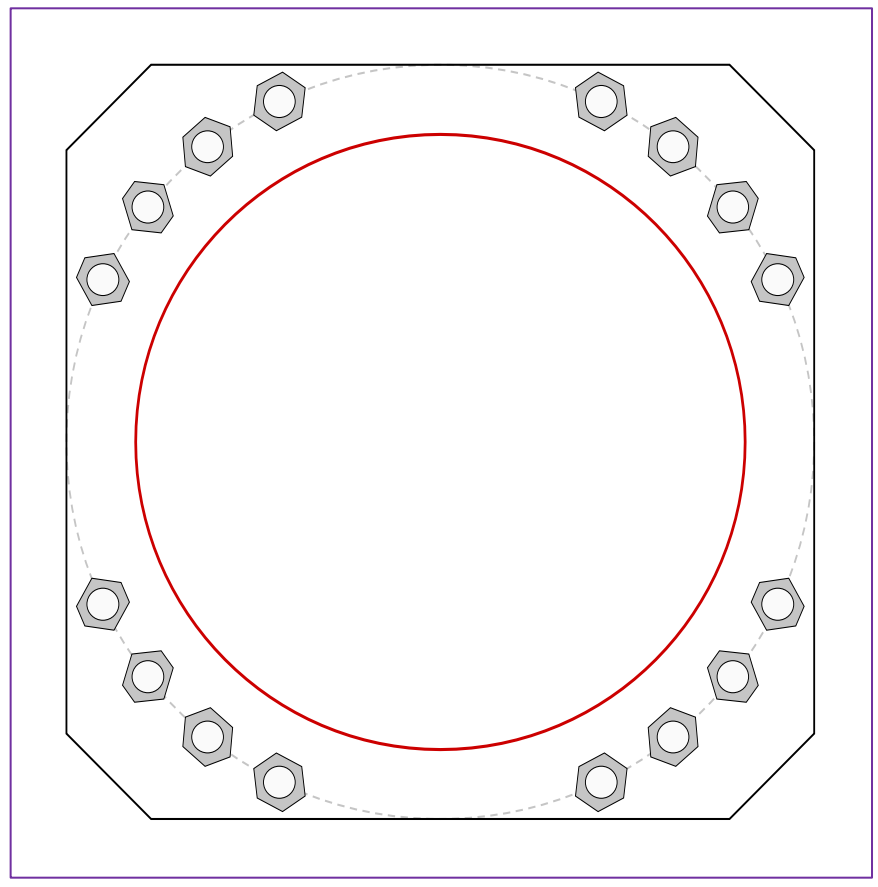
Monopole Base Plate Connection

Site Info	
BU #	876314
Site Name	Horse Hill
Order #	595493 Rev.0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.625

Applied Loads	
Moment (kip-ft)	2106.16
Axial Force (kips)	44.75
Shear Force (kips)	22.90

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 53" BC

Anchor Spacing: 6 in

Base Plate Data

53" W x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

43.21" x 0.375" 12-sided pole (A607-60; Fy=60 ksi, Fu=75 ksi)

Analysis Results

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

Pu_t = 116.33	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.43	ϕVn = 149.1	**45.5%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	26.91	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**57.0%**	**Pass**

Pile Foundation

Checks the capacity of pile foundation configurations for monopoles or self-support towers with individual foundations in Rev. F, G, and H.

BU #:	876314
Site Name:	Horse Hill
Order:	595493 Rev.0

Tower Type:	Monopole
TIA Revision:	H

Top & Bot. Pad Rein. Different?:	☐

Factored Design Reactions At Base		
Moment, M:	2106.15	ft-kips
Axial, Pu:	44.76	kips
Shear, Sc:	22.88	kips
Load Eccentricity, Ecc:	0	in
Bolt Circle / Bearing Plate Width, BC:	53	in

Pile Properties		
Pile Shape:	Round	
Pile Material:	Concrete	
Length of Pile, Lpile:	20	ft
Pile Diameter:	2.0	in
Pile (Soil) Capacity Given?	No	
Steel Grade, Fy:	70	ksi
Pile Rebar Size, Psize:	14	
Rebar Quantity, Pquan:	1	

Pile Group		
Group Configuration:	Rectangular	
Number of Columns, Nx:	3	
Number of Rows, Ny:	3	
Column Spacing, Dx:	81	in
Row Spacing, Dy:	81	in
Orientation of Neutral Axis, θ:	0	deg
Group Efficiency Given in Geotech?	No	

Program Calculated Group Efficiency, Eg: 1.00

Pile Cap		
Cap Type:	Block	
Depth to Bottom of Block, D:	3.50	ft
Thickness of Block, T:	4.00	ft
Block Width, Wx:	16.50	ft
Block Length, Wy:	16.50	ft
Pad Rebar Size (Bot.), Spad:	8	
Pad Rebar Quantity (X-direction) (Bot.), Mpad:	32	
Pad Rebar Quantity (Y-direction) (Bot.), Mpad_y:	32	

Material Properties		
Rebar Grade, Fy:	60	ksi
Concrete Strength, Fc:	3	ksi
Clear Cover, cc:	3	in

Soil Properties		
Groundwater Depth, GW:	99.00	ft
Soil Unit Weight:	165	pcf
Cohesion, Co:	0	ksf
Friction Angle, ϕ:	30	deg
Neglected Depth, ND:	3	ft
Negative Friction Force (per pile), Sw:	0	kips
SPT Blow Count, N_{blows}:	99	

Design Checks	*Capacity*	*Demand*	*Rating**	*Check*
PILE CHECKS				
Soil Compression (kips per pile):	169.65	103.41	**58.1%**	**Pass**
Soil Uplift (kips per pile):	169.65	56.62	**31.8%**	**Pass**
Pile Tensile Strength (kips):	126.00	56.62	**42.8%**	**Pass**
PAD CHECKS				
One-Way Shear (kips):	707.63	144.86	**19.5%**	**Pass**
Pad Shear - Comp Two-Way (ksi):	0.164	0.003	**1.6%**	**Pass**
*Flexural Two-Way (Comp) (kip*ft):*	6977.86	0.00	**0.0%**	**Pass**
*Pad Flexure (kip*ft):*	4777.68	1235.09	**24.6%**	**Pass**

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

Structural Rating:	**42.8%**
Soil Rating:	**58.1%**

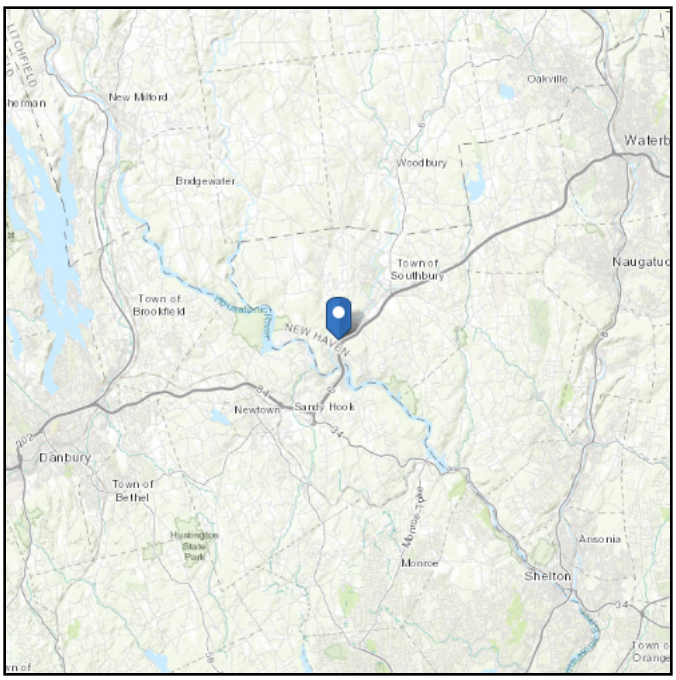
Ultimate Pile Capacities Based on Soil Properties							
						Skin Friction Given?	**Yes**
Depth (ft)		Cohesion	Friction Angle	Soil Weight	Blows per Foot (N)	Ult. Comp.	Ult. Uplift
Top	Bottom	(ksf)	(deg)	(pcf)		(ksf)	(ksf)
0	20	0	0	0	0	21.60	21.60
20	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
				Ultimate End Bearing (ksf):		0.00	-
				Total Capacities (kips):		226.19	226.19

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 445.14 ft (NAVD 88)
Latitude: 41.452214
Longitude: -73.250347



Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 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:	Tue Feb 22 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.

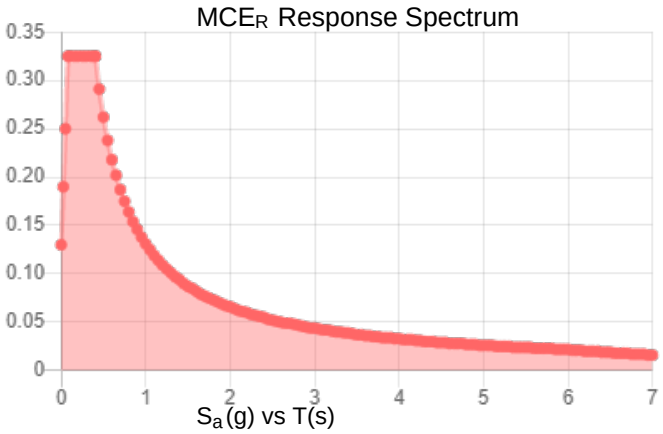
Seismic

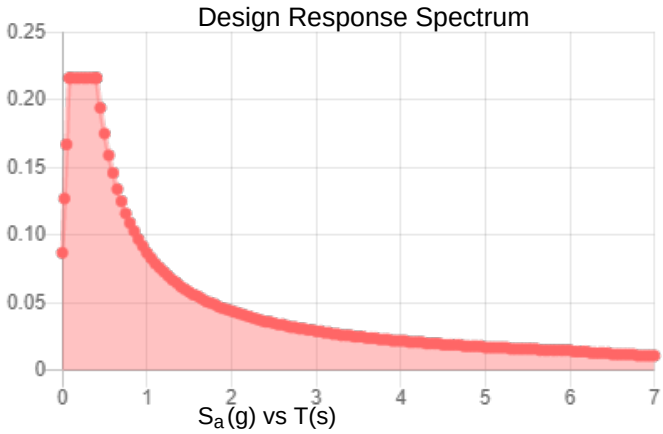
Site Soil Class: D - Stiff Soil

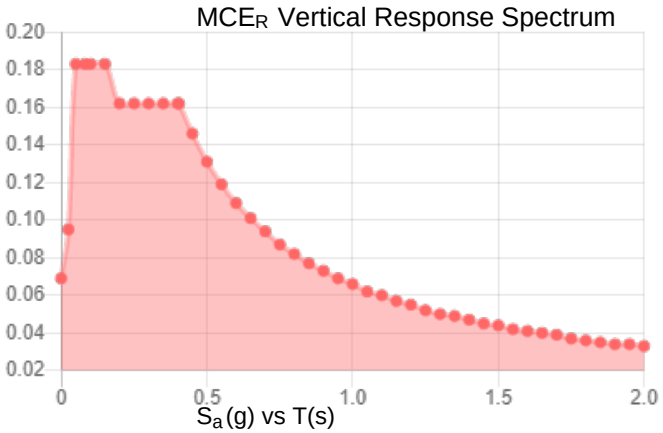
Results:

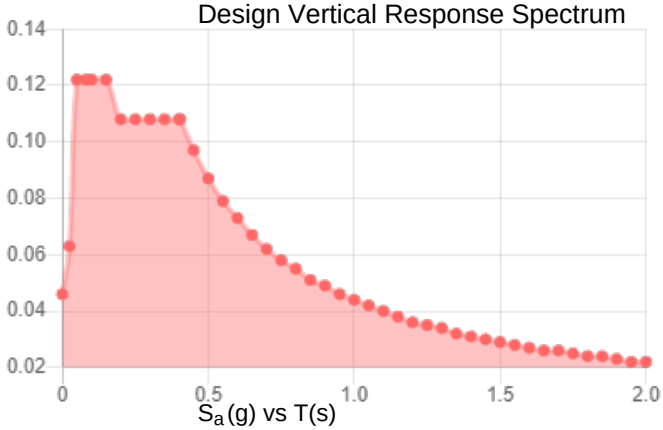
S_S :	0.203	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.114
F_v :	2.4	PGA_M :	0.179
S_{MS} :	0.325	F_{PGA} :	1.572
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.216	C_v :	0.706

Seismic Design Category B









Data Accessed: **Tue Feb 22 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:	Tue Feb 22 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.

EBI Consulting

environmental | engineering | due diligence

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

AT&T Existing Facility

Site ID: CTL05183

876314
214 Russian Village Road
Southbury, Connecticut 06488

March 11, 2022

EBI Project Number: 6222001772

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**38.28%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

March 11, 2022

AT&T

Emissions Analysis for Site: CTL05183 - 876314

EBI Consulting was directed to analyze the proposed AT&T facility located at **214 Russian Village Road** in **Southbury, Connecticut** for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at 214 Russian Village Road in Southbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

2) 4 LTE FN channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 2 UMTS channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 4 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

6) 4 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

7) 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.

8) 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.

9) The antennas used in this modeling are the Kathrein 80010121 for the 850 MHz channel(s), the CCI OPA65R-BU8DA for the 700 MHz / 2100 MHz channel(s), the CCI DMP65R-BU8DA for the 700 MHz / 850 MHz / 1900 MHz channel(s) in Sector A, the Kathrein 80010121 for the 850 MHz channel(s), the CCI OPA65R-BU6DA for the 700 MHz / 2100 MHz channel(s), the CCI DMP65R-BU6DA for the 700 MHz / 850 MHz / 1900 MHz channel(s) in Sector B, the Kathrein 80010121 for the 850 MHz channel(s), the CCI OPA65R-BU8DA for the 700 MHz / 2100 MHz channel(s), the CCI DMP65R-BU8DA for the 700 MHz / 850 MHz / 1900 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.

10) The antenna mounting height centerline of the proposed antennas is 130 feet above ground level (AGL).

11) 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.

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

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Kathrein 80010121	Make / Model:	Kathrein 80010121	Make / Model:	Kathrein 80010121
Frequency Bands:	850 MHz	Frequency Bands:	850 MHz	Frequency Bands:	850 MHz
Gain:	11.25 dBd	Gain:	11.25 dBd	Gain:	11.25 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	80.00 Watts	Total TX Power (W):	80.00 Watts	Total TX Power (W):	80.00 Watts
ERP (W):	1,066.82	ERP (W):	1,066.82	ERP (W):	1,066.82
Antenna A1 MPE %:	**0.44%**	Antenna B1 MPE %:	**0.44%**	Antenna C1 MPE %:	**0.44%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI OPA65R-BU8DA	Make / Model:	CCI OPA65R-BU6DA	Make / Model:	CCI OPA65R-BU8DA
Frequency Bands:	700 MHz / 2100 MHz	Frequency Bands:	700 MHz / 2100 MHz	Frequency Bands:	700 MHz / 2100 MHz
Gain:	13.55 dBd / 16.05 dBd	Gain:	12.15 dBd / 16.05 dBd	Gain:	13.55 dBd / 16.05 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	320.00 Watts	Total TX Power (W):	320.00 Watts	Total TX Power (W):	320.00 Watts
ERP (W):	10,066.90	ERP (W):	9,068.42	ERP (W):	10,066.90
Antenna A2 MPE %:	**3.32%**	Antenna B2 MPE %:	**2.82%**	Antenna C2 MPE %:	**3.32%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	CCI DMP65R-BU8DA	Make / Model:	CCI DMP65R-BU6DA	Make / Model:	CCI DMP65R-BU8DA
Frequency Bands:	700 MHz / 850 MHz / 1900 MHz	Frequency Bands:	700 MHz / 850 MHz / 1900 MHz	Frequency Bands:	700 MHz / 850 MHz / 1900 MHz
Gain:	11.85 dBd / 12.45 dBd / 15.55 dBd	Gain:	11.85 dBd / 12.45 dBd / 15.55 dBd	Gain:	11.85 dBd / 12.45 dBd / 15.55 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	480.00 Watts	Total TX Power (W):	480.00 Watts	Total TX Power (W):	480.00 Watts
ERP (W):	11,005.17	ERP (W):	11,005.17	ERP (W):	11,005.17
Antenna A3 MPE %:	**3.73%**	Antenna B3 MPE %:	**3.73%**	Antenna C3 MPE %:	**3.73%**

Site Composite MPE %	
Carrier	**MPE %**
AT&T (Max at Sector A):	7.49%
Dish	2.19%
Metro PCS	0.96%
Sprint	4.09%
T-Mobile	23.55%
Site Total MPE % :	38.28%

AT&T MPE % Per Sector	
AT&T Sector A Total:	7.49%
AT&T Sector B Total:	6.99%
AT&T Sector C Total:	7.49%
Site Total MPE % :	38.28%

AT&T Maximum MPE Power Values (Sector A)

AT&T Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
AT&T 850 MHz UMTS	2	533.41	130.0	2.49	850 MHz UMTS	567	0.44%
AT&T 700 MHz LTE FN	4	905.86	130.0	8.47	700 MHz LTE FN	467	1.81%
AT&T 2100 MHz LTE	4	1610.87	130.0	15.07	2100 MHz LTE	1000	1.51%
AT&T 700 MHz LTE	4	612.43	130.0	5.73	700 MHz LTE	467	1.23%
AT&T 850 MHz 5G	4	703.17	130.0	6.58	850 MHz 5G	567	1.16%
AT&T 1900 MHz LTE	4	1435.69	130.0	13.43	1900 MHz LTE	1000	1.34%
						Total:	**7.49%**

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

Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	7.49%
Sector B:	6.99%
Sector C:	7.49%
AT&T Maximum MPE % (Sector A):	7.49%
Site Total:	38.28%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **38.28%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

AT&T

AT&T SITE NUMBER: CTL05183
AT&T SITE NAME: HORSE HILL
AT&T FA CODE: 10071080
AT&T PACE NUMBER: MRCTB056987, MRCTB056922, MRCTB056915, MRCTB056936, MRCTB057023
AT&T PROJECT: LTE 4C , 4TX4RX SOFTWARE RETROFIT , LTE 3C , 5G NR 1DR-1

BUSINESS UNIT #: 876314
SITE ADDRESS: 214 RUSSIAN VILLAGE RD SOUTHBURY, CT 06488
COUNTY: NEW HEAVEN
SITE TYPE: MONOPOLE
TOWER HEIGHT: 130'-0"

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	HORSE HILL
SITE ADDRESS:	214 RUSSIAN VILLAGE RD SOUTHBURY, CT 06488
COUNTY:	NEW HEAVEN
MAP/PARCEL #:	19C-92-45
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 27' 7.9704" N
LONGITUDE:	-73° 15' 1.2492" W
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	443'
CURRENT ZONING:	R-60 RESIDENTIAL R-60 DISTRICT
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	CRIDER MIEKE 100 RUSSIAN VILLAGE ROAD SOUTHBURY, CT 06488
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO 800-286-2000
TELCO PROVIDER:	LIGHTOWER

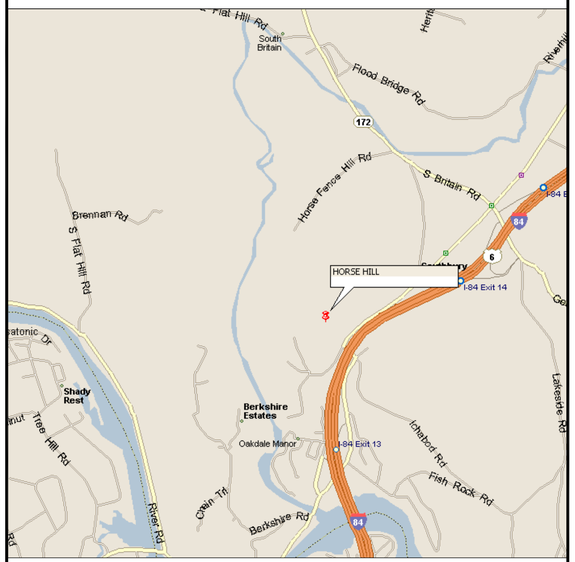
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	FINAL EQUIPMENT SCHEDULE
C-4	EQUIPMENT MOUNTING DETAILS
C-5	EQUIPMENT SPECS
C-5.1	EQUIPMENT SPECS
G-1	GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM
ATTACHED	HANDRAIL KIT/STAND-OFF MOUNT SPECS

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 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

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

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.
TOWER SCOPE OF WORK:
- REMOVE (1) ANDREW - SBNH-1D6565C ANTENNAS
- REMOVE (1) KMW - AM-X-CD-16-65-00T-RET ANTENNAS
- REMOVE (1) POWER WAVE - P65-17-XLH-RR ANTENNAS
- REMOVE (6) POWER WAVE - LGP21401 TMA
- REMOVE (3) ERICSSON - RRUS-11 B12 RRU
- REMOVE (3) ERICSSON - RRUS-12 B2 RRU
- INSTALL (2) CCI - OPA65R-BU8DA ANTENNAS
- INSTALL (2) CCI - DMP65R-BU8DA ANTENNAS
- INSTALL (1) CCI - OPA65R-BU6DA ANTENNAS
- INSTALL (1) CCI - DMP65R-BU6DA ANTENNAS
- INSTALL (3) ERICSSON - 4478 B14 RRU
- INSTALL (3) ERICSSON - 4449 B5/B12 RRU
- INSTALL (3) ERICSSON - 8843 B2/B66A RRU
- INSTALL (1) RAYCAP - DC6-48-60-18-8F SQUID
- INSTALL (2) 7/8" 6AWG DC CABLES
- INSTALL (1) 3/8" 18-PAIR FIBER CABLE
- INSTALL (6) Y-CABLES
- INSTALL (1) 2-3/8" O.D. (SCH 40) X 6'-0" LONG GALV. PIPE MOUNT W/ASSOCIATED HARDWARE
- INSTALL (3) 1'-0" SITEPRO1 - PM1 STAND-OFF MOUNTS

GROUND SCOPE OF WORK:
- REMOVE (1) DUS41 FROM EXISTING BATTERY CABINET
- INSTALL (1)-6630(+1DLe) IN EXISTING BATTERY CABINET
- INSTALL (4) RECTIFIERS TO EXISTING POWER PLANT
- INSTALL (1) RMDC12

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:	2/22/22
MOUNT ANALYSIS:	B+T GROUP
DATED:	2/17/22
AC ELECTRICAL POWER DESIGN:	BY OTHERS
DATED:	
RFDS REVISION:	PRELIMINARY
DATED:	12/21/21
ORDER ID:	595493
REVISION:	0

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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
4/6/22

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

SHEET NUMBER: T-1
REVISION: 0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: 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.

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

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).

575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

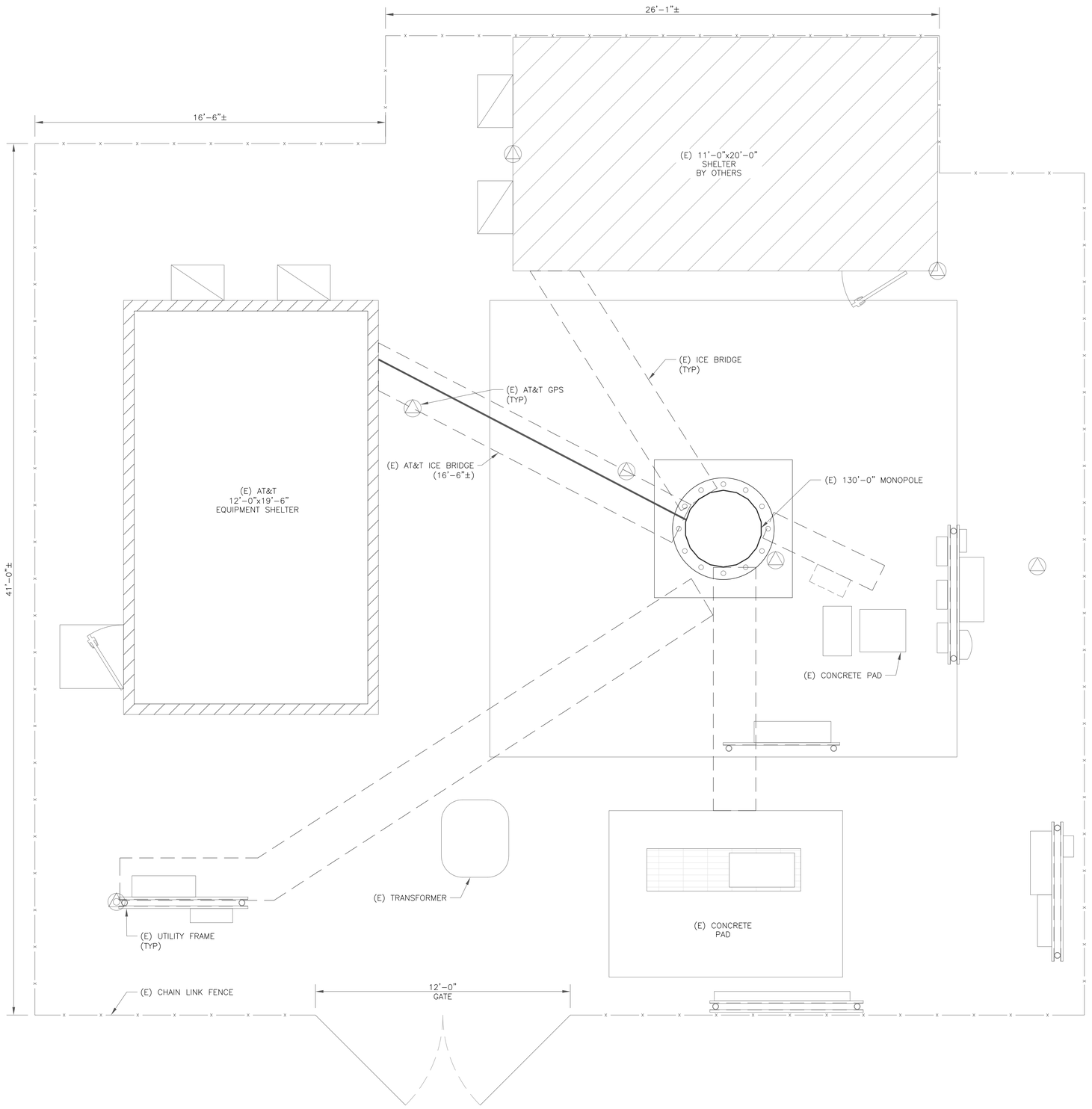
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

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

SHEET NUMBER: **T-2**

REVISION: **0**

136923.004.01_876314_Horse Hill_Crown AT&T CD.dwg – Sheet:T-2 – User: kevin.turkall – Apr 06, 2022 – 7:03pm



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

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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

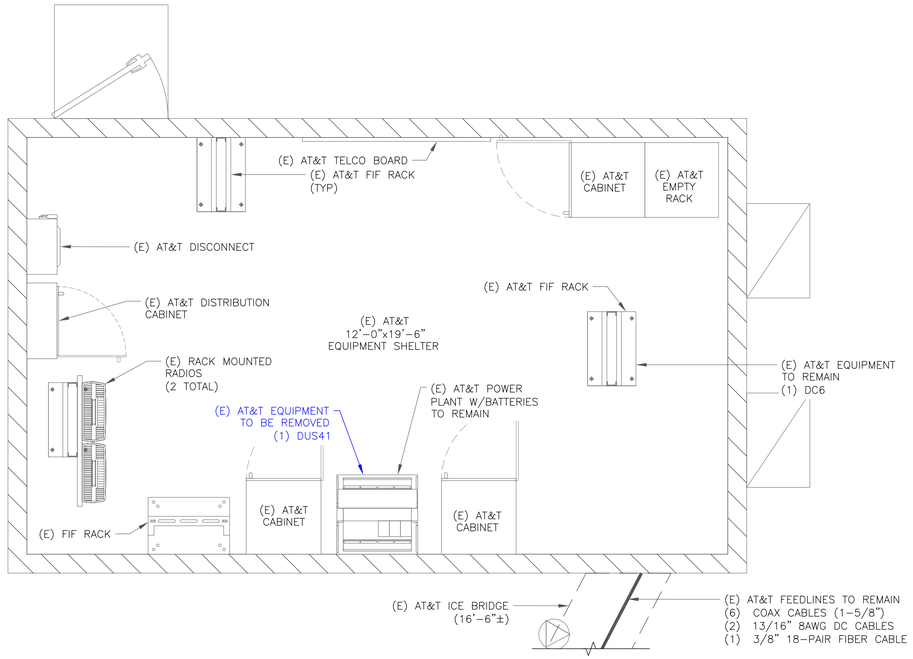
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

STATE OF CONNECTICUT
CHAD HAMEL
No. 23924
LICENSED
PROFESSIONAL ENGINEER
4/6/22

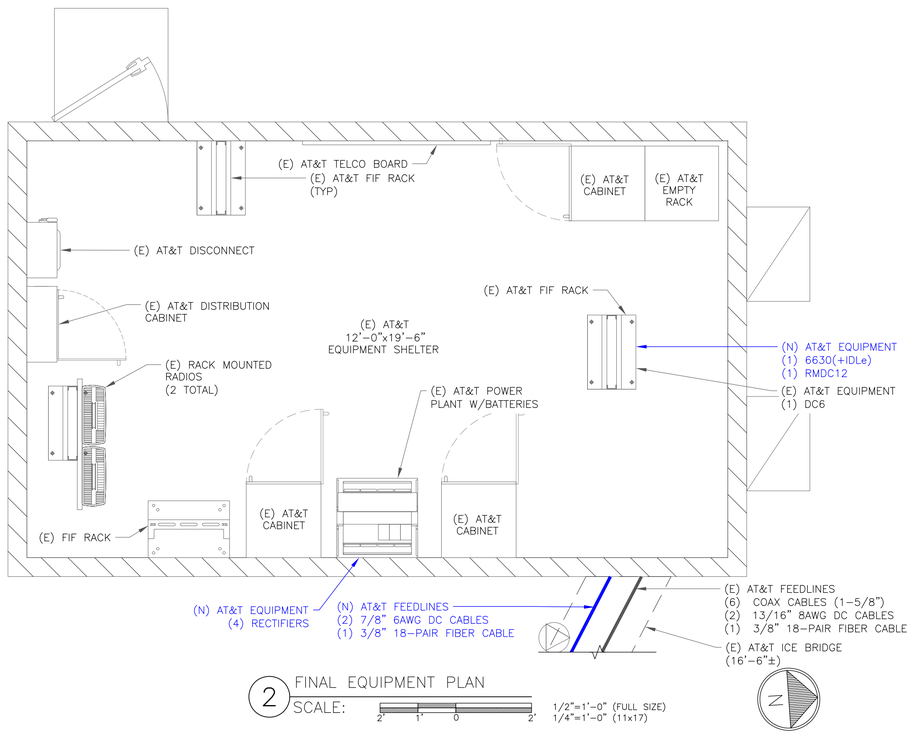
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: C-1.1
REVISION: 0



1 EXISTING EQUIPMENT PLAN

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



2 FINAL EQUIPMENT PLAN

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

GROUND SCOPE OF WORK:

- REMOVE (1) DUS41 FROM (E) BATTERY CABINET
- INSTALL (4) RECTIFIERS TO EXISTING POWER PLANT
- INSTALL (1) 6630(+IDLe) TO EXISTING BBU
- INSTALL (1) RMDC12

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
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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

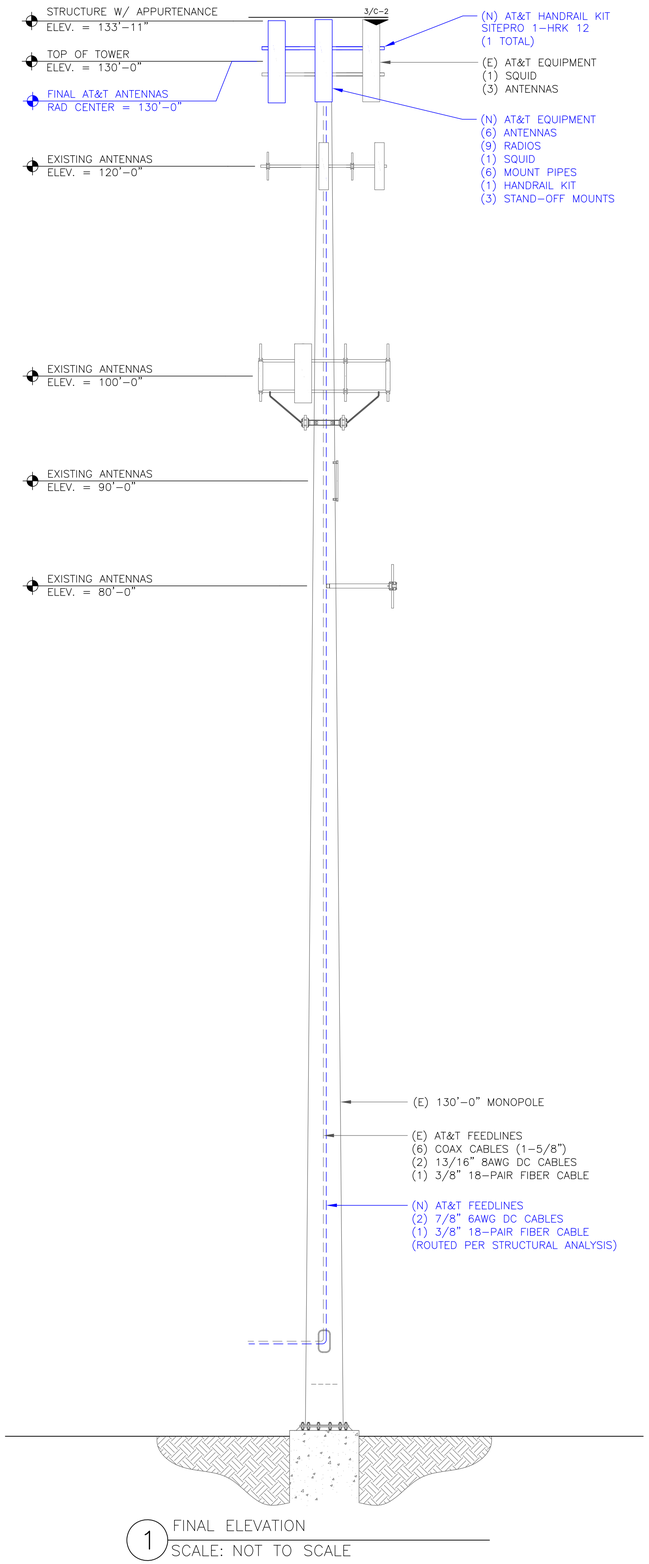
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

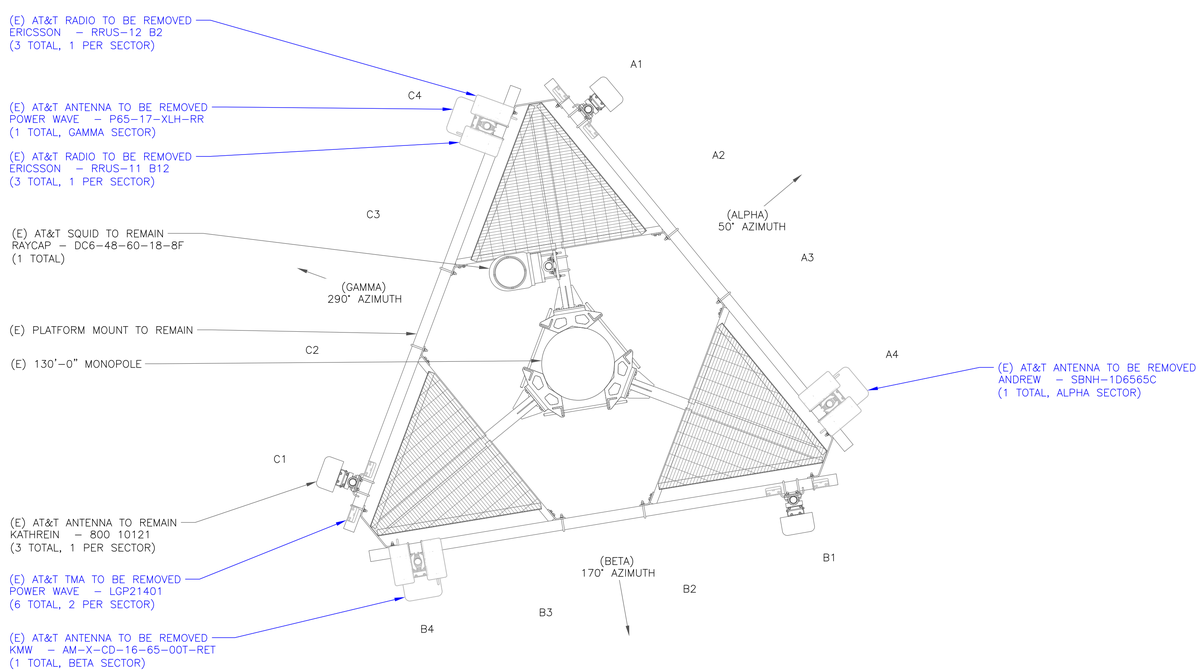
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: C-1.2

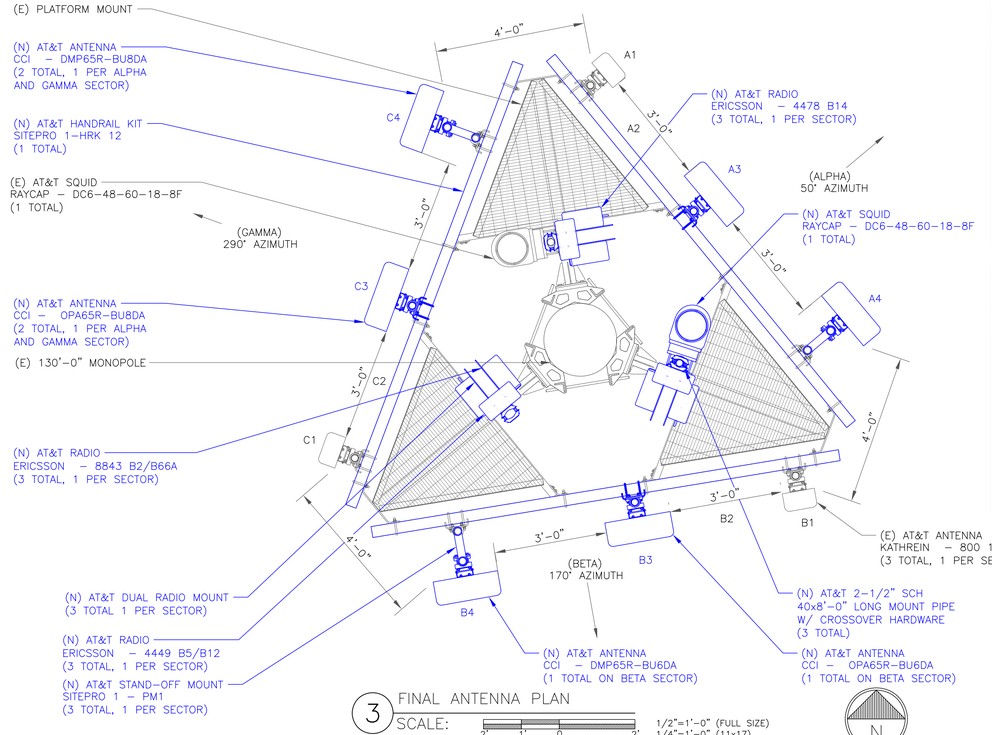
REVISION: 0



1 FINAL ELEVATION
SCALE: NOT TO SCALE



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



3 FINAL ANTENNA PLAN
SCALE: 2' 1' 0 2'
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.

INSTALLER NOTES:

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

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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

4/6/22

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

SHEET NUMBER: C-2

REVISION: 0

NOTE: RFDS BEING USED DATED 12/21/21 V PRELIMINARY

FINAL ANTENNA AND FEEDLINE SCHEDULE

POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	SURGE PROTECTION	DC/FIBER CABLES	RRHs QTY & MODEL ON TOWER	LOCATION	DIPLEXER ON TOWER	DIPLEXER ON GROUND	RET CABLE
ALPHA SECTOR																		
A1	UMTS 850	EXISITNG	50°	KATHREIN – 800–1021	130'–0"	0°	5°	1–5/8"	180'–0"	2	–	(1)(E) DC6–48–60–18–8F SQUID	(1)(E) 3/8" 18–PAIR FIBER (2)(E) 13/16" 8AWG DC	–	–	–	–	N
A2	–	–	–	EMPTY SPACE	–	–	–	–	–	–	–			(1) ERICSSON–4478 B14	TOWER	N	N	N
A3	LTE 700 / LTE AWS	NEW	50°	CCI – OPA65R–BU8DA	130'–0"	0°	9°/ 9°	–	–	–	–			–	–	–	–	N
A4	LTE 700 / 5G 850 / LTE 1900	NEW	50°	CCI – DMP65R–BU8DA	130'–0"	0°	9°/ 9° / 8°/ 8°	–	–	–	–			(1) ERICSSON –4449 B5/B12 (1) ERICSSON –8843 B2/B66A	TOWER	N	N	N
BETA SECTOR																		
B1	UMTS 850	EXISITNG	170°	KATHREIN – 800–1021	130'–0"	0°	5°	1–5/8"	180'–0"	2	–	(1) DC6–48–60–18–8F SQUID	(2)(N) 7/8" 6AWG DC (1)(N) 3/8" 18–PAIR FIBER	–	–	–	–	N
B2	–	–	–	EMPTY SPACE	–	–	–	–	–	–	–			(1) ERICSSON–4478 B14	TOWER	N	N	N
B3	LTE 700 / LTE AWS	NEW	170°	CCI – OPA65R–BU6DA	129'–0"	0°	9°/ 9°	–	–	–	–			–	–	–	–	N
B4	LTE 700 / 5G 850 / LTE 1900	NEW	170°	CCI – DMP65R–BU6DA	129'–0"	0°	2°/ 2° / 6°/ 6°	–	–	–	–			(1) ERICSSON –4449 B5/B12 (1) ERICSSON –8843 B2/B66A	TOWER	N	N	N
GAMMA SECTOR																		
C1	UMTS 850	EXISITNG	290°	KATHREIN – 800–1021	130'–0"	0°	5°	1–5/8"	180'–0"	2	–	–	-	–	–	–	–	N
C2	–	–	–	EMPTY SPACE	–	–	–	–	–	–	–			(1) ERICSSON–4478 B14	TOWER	N	N	N
C3	LTE 700 / LTE AWS	NEW	290°	CCI – OPA65R–BU8DA	130'–0"	0°	9°/ 9°	–	–	–	–			–	–	–	–	N
C4	LTE 700 / 5G 850 / LTE 1900	NEW	290°	CCI – DMP65R–BU8DA	130'–0"	0°	9°/ 9° / 8°/ 8°	–	–	–	–			(1) ERICSSON –4449 B5/B12 (1) ERICSSON –8843 B2/B66A	TOWER	N	N	N

NOTE: BOLD DENOTES NEW EQUIPMENT

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

STATE OF CONNECTICUT
KEVIN T. CURTIS
No. 23924
LICENSED
PROFESSIONAL ENGINEER
4/6/22

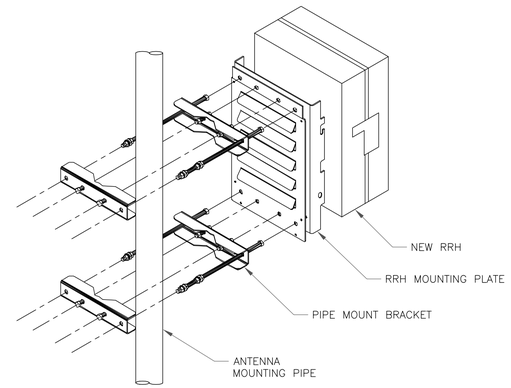
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: C-3

REVISION: 0

1 NOT USED
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE

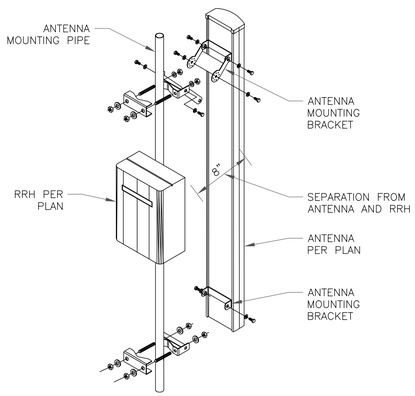


NOTE:
ANTENNA NOT SHOWN FOR CLARITY

3 SINGLE RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

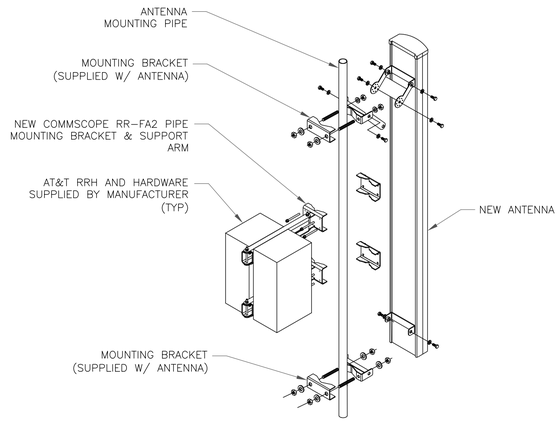
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.
4. RRHs SHALL NOT BE INSTALLED CLOSER THAN 8" TO ANTENNAS.



4 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

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

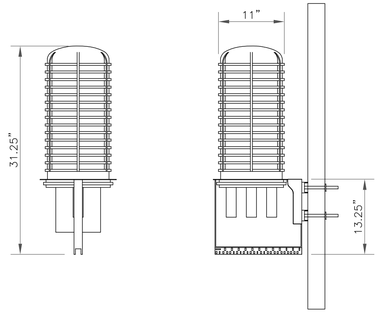


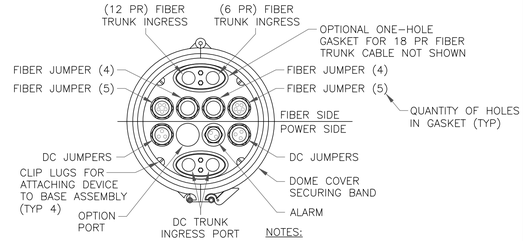
5 ANTENNA WITH DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

RAYCAP
DC6-48-60-18-8F

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

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





NOTES:

1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

6 SQUID MOUNTING 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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

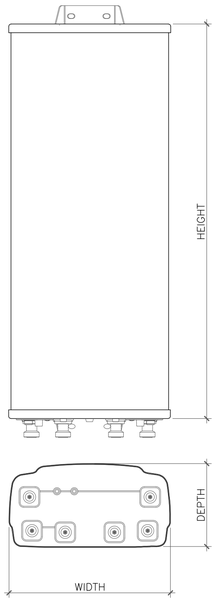
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

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

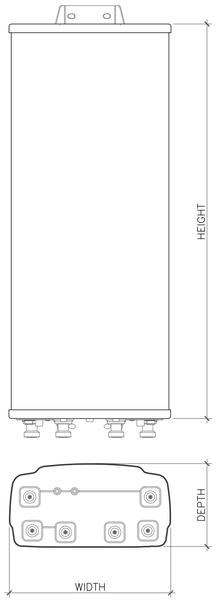
SHEET NUMBER: C-4

REVISION: 0



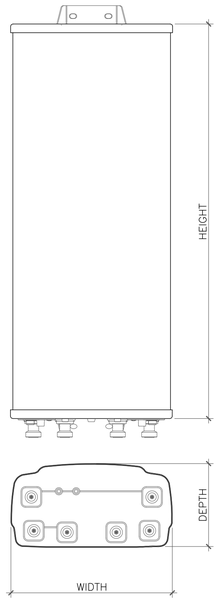
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
DMP65R-BU6D	71.20"	20.70"	7.70"	89.30 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



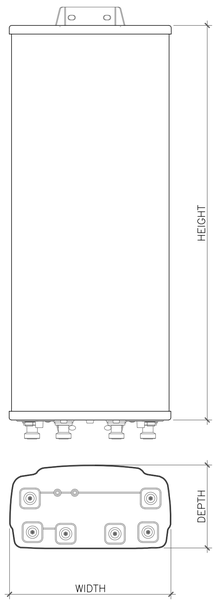
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
DMP65R-BU8D	96.00"	20.70"	7.70"	105.60lbs

2 ANTENNA DETAIL
SCALE: NOT TO SCALE



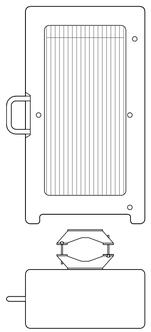
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
OPA65R-BU6D	71.2"	21.00"	7.80"	63.50lbs

3 ANTENNA DETAIL
SCALE: NOT TO SCALE



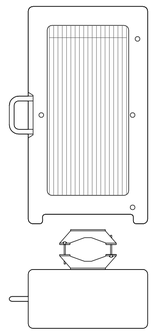
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
OPA65R-BU8D	96.00"	21.0"	7.80"	76.50 lbs

4 ANTENNA DETAIL
SCALE: NOT TO SCALE



ERICSSON - 4449 B5/B12
WEIGHT (FULLY EQUIPPED): 71.0 LBS
SIZE (HxWxD): 17.90x13.19x9.44 IN.
CONNECTOR TYPE: 4.3-10 FEMALE (4 TOTAL PORTS)

5 ERICSSON - 4449 B5/B12
SCALE: NOT TO SCALE



ERICSSON - 4478 B14_CCIV2
WEIGHT (FULLY EQUIPPED): 59.40 LBS
SIZE (HxWxD): 18.10x13.40x8.26 IN.
CONNECTOR TYPE: 4.3-10 FEMALE (4 TOTAL PORTS)

6 ERICSSON - 4478 B14_CCIV2
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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

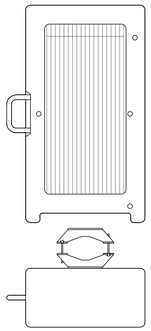
EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

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

SHEET NUMBER: C-5
REVISION: 0



ERICSSON – 8843 B2/B66A
WEIGHT (FULLY EQUIPPED): 75.0 LBS
SIZE (HxWxD): 18.00x13.20x11.30 IN.
CONNECTOR TYPE: 4.3–10 FEMALE (4 TOTAL PORTS)

1 ERICSSON – 8843 B2/B66A
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE

3 NOT USED
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

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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

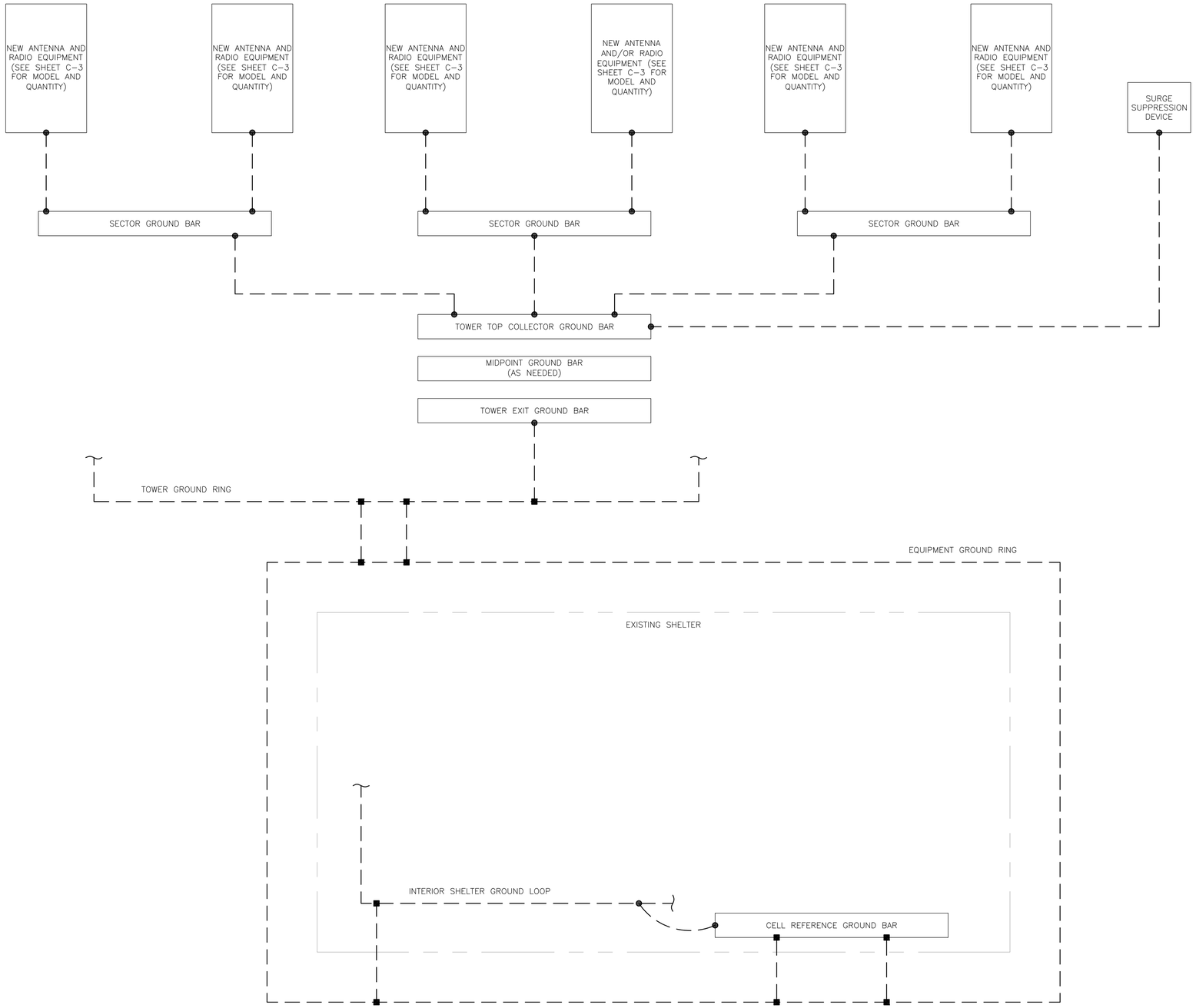
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

4/6/22

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

SHEET NUMBER: C-5.1

REVISION: 0



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.

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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

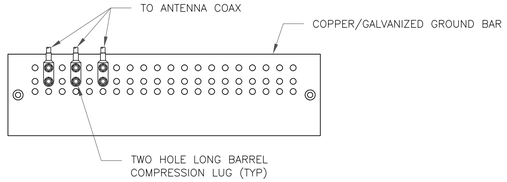
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

STATE OF CONNECTICUT
GRAND RAPIDS
No. 23924
LICENSED
PROFESSIONAL ENGINEER
4/6/22

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

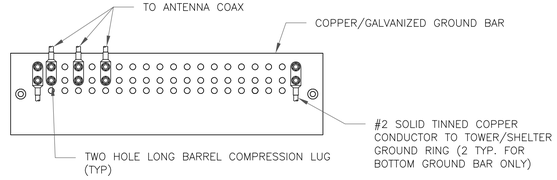
SHEET NUMBER: G-1
REVISION: 0



NOTES:

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

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

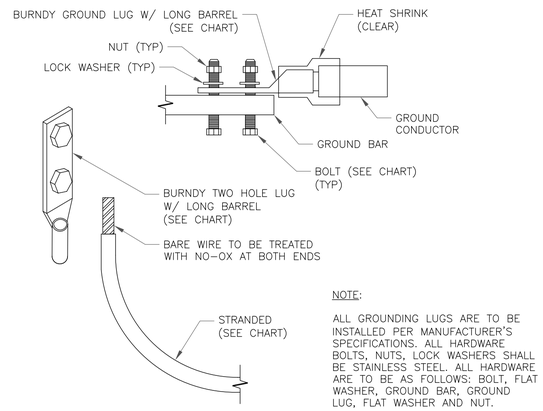


NOTES:

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

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

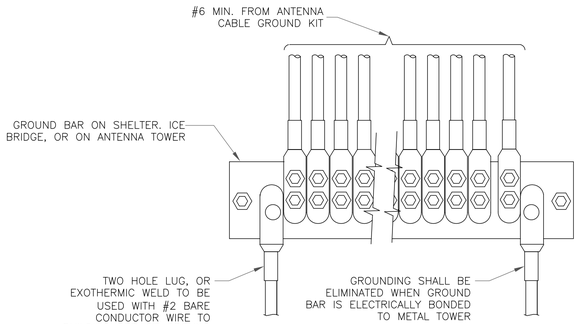
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



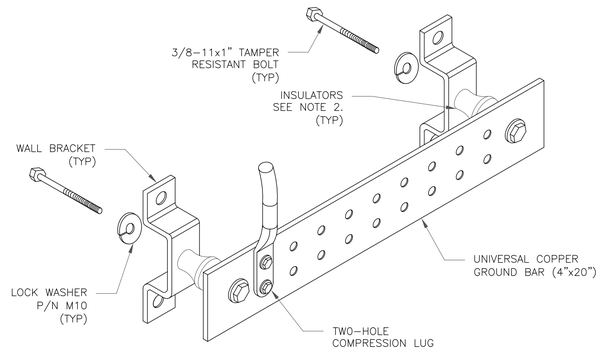
NOTE:

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

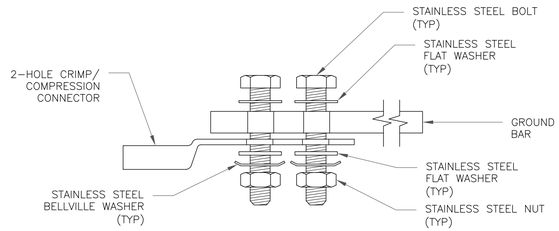


NOTES:

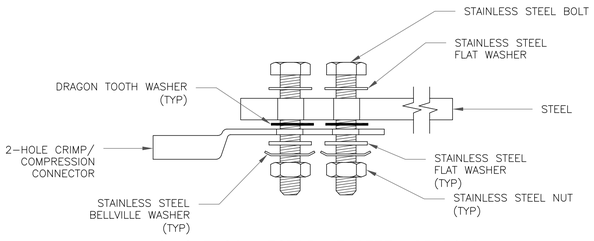
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

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

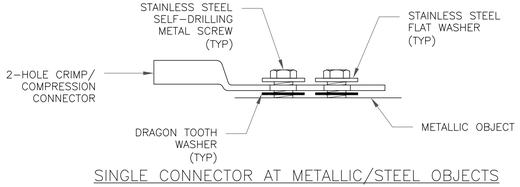
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

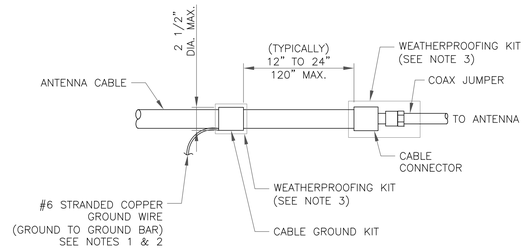


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

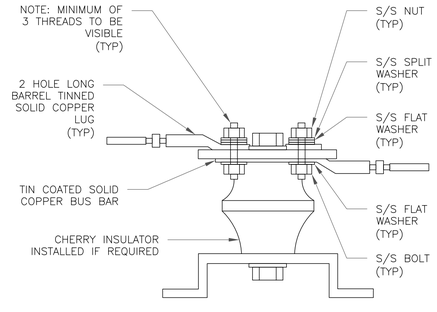
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



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:
CTL05183

BU #: **876314**
HORSE HILL

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING
130'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/2/22	JTS	PRELIMINARY REVIEW	KT
B	3/24/22	JHW	PRELIMINARY REVIEW	KT
0	4/6/22	JHW	CONSTRUCTION	KT

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

SHEET NUMBER: G-2
REVISION: 0

Diagram - Sector	A	Diagram File Name - CT5183_A_B_C_LTE Multi Carriers_Rev.1.vsd					
Atoll Site Name -	CTV5183	Location Name -	HORSE HILL	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"

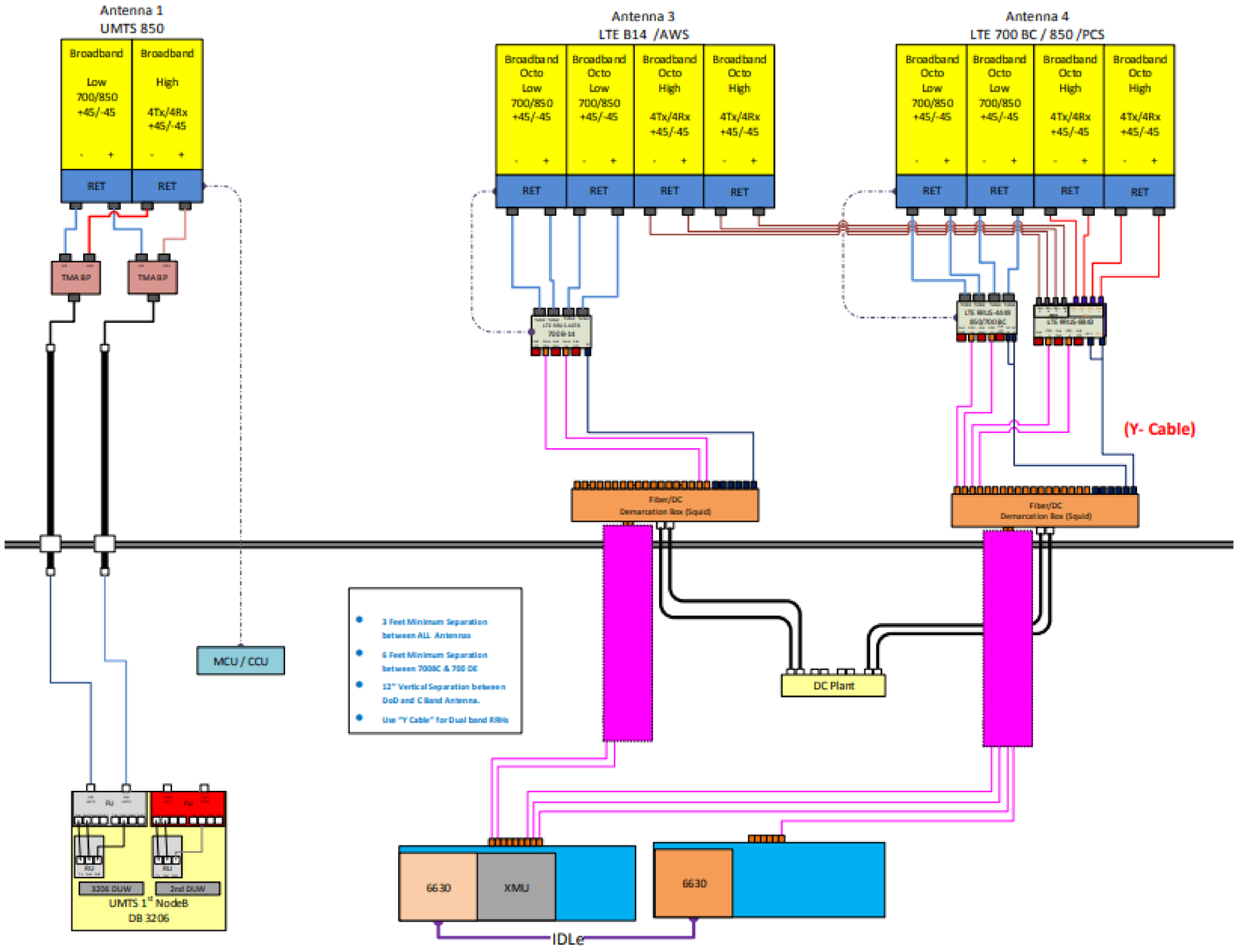


Diagram - Sector B | Diagram File Name - CT5183_A_B_C_LTE Multi Carriers_Rev.1.vsd

Atoll Site Name - CTV5183 | Location Name - HORSE HILL | Market - CONNECTICUT | Market Cluster - NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"

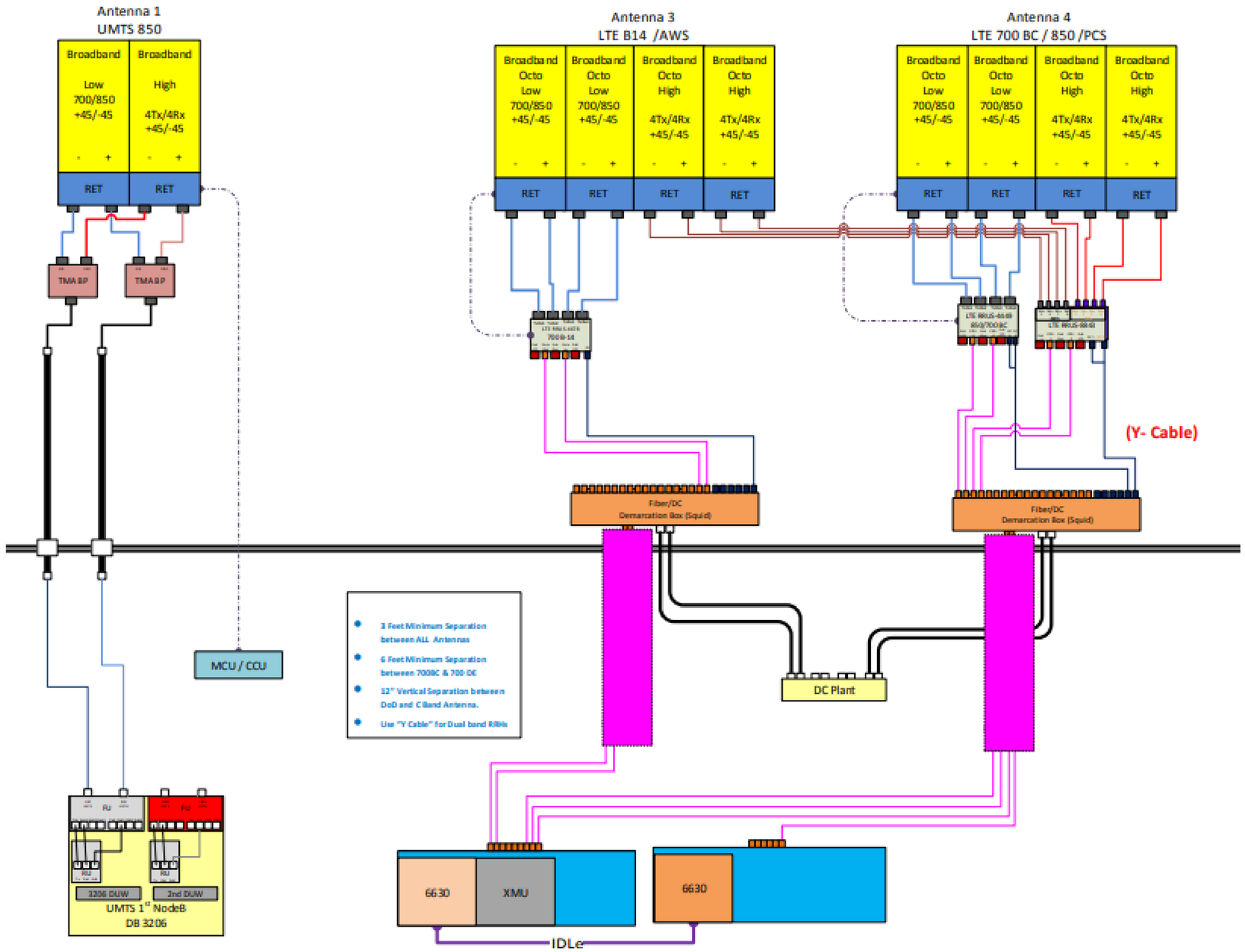
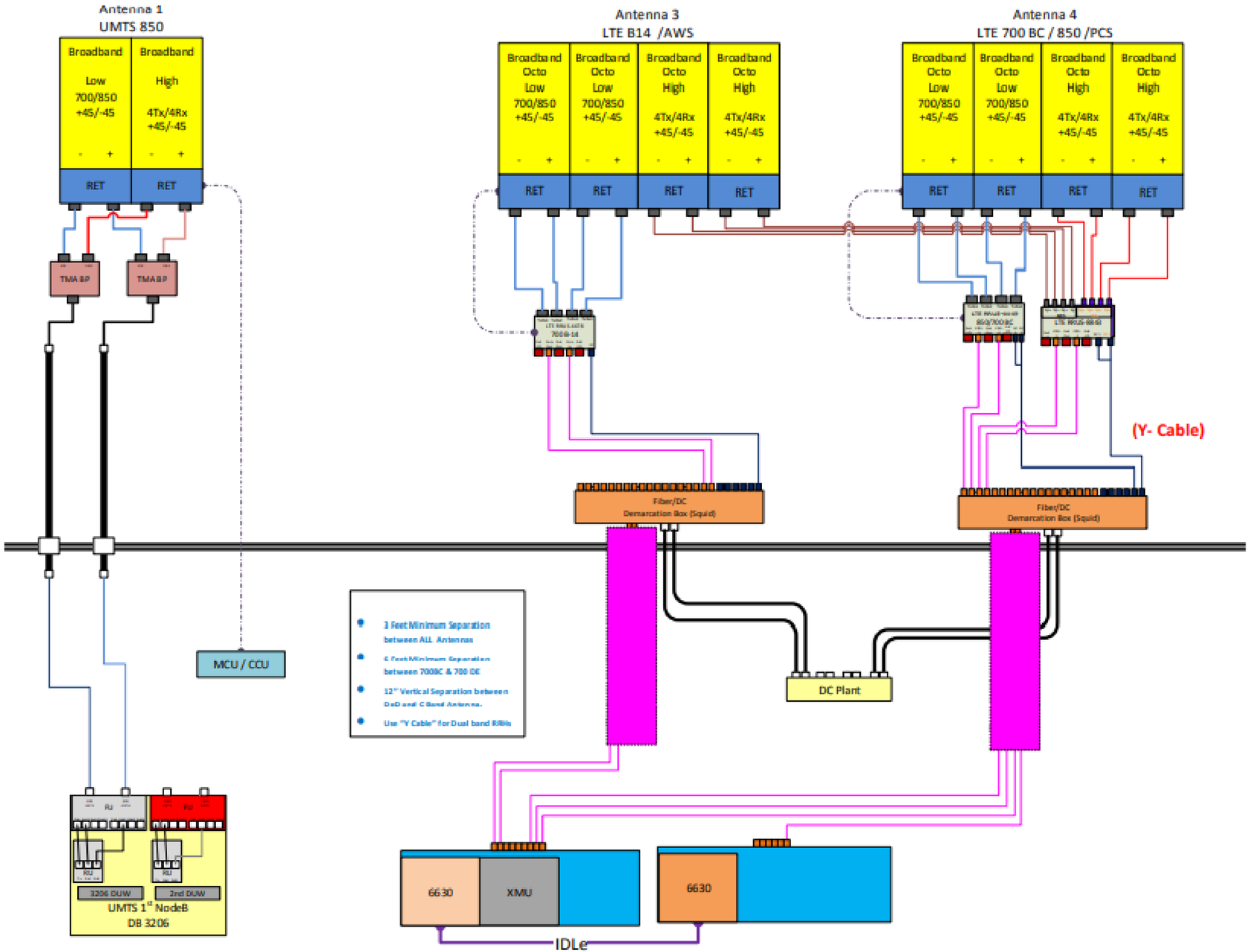


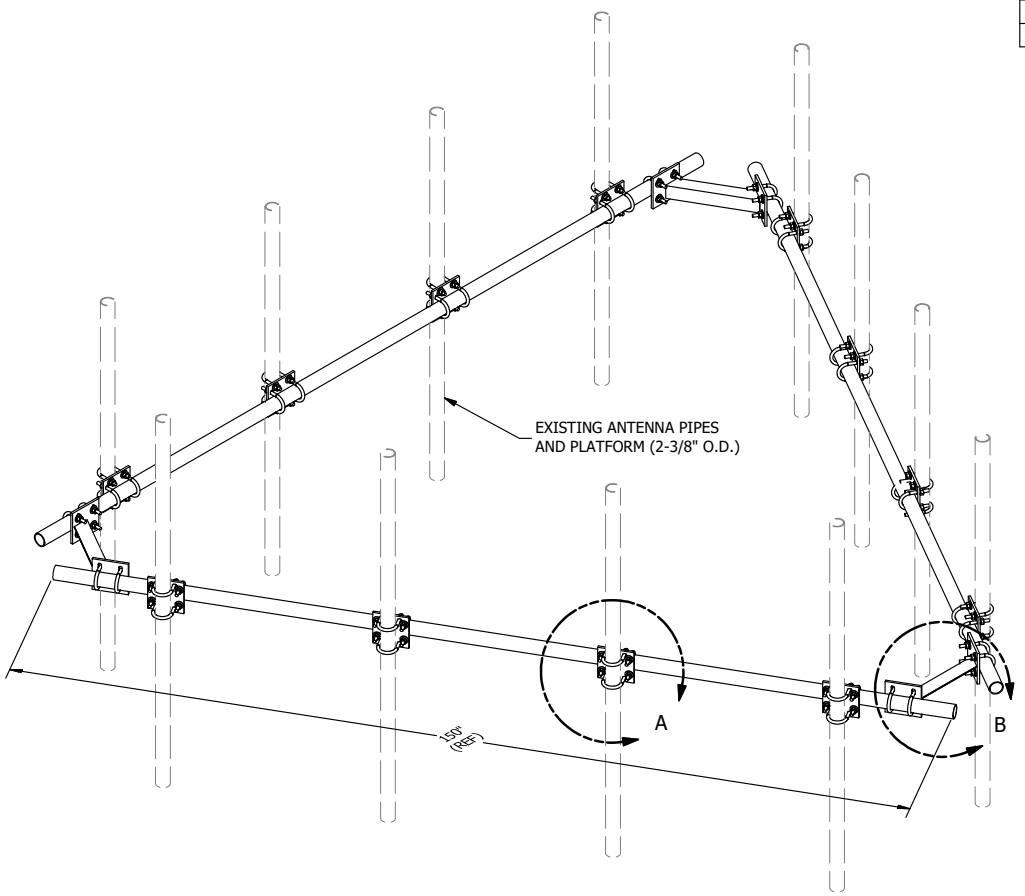
Diagram - Sector: C | Diagram File Name - CT5183_A_B_C_LTE Multi Carriers_Rev.1.vsd

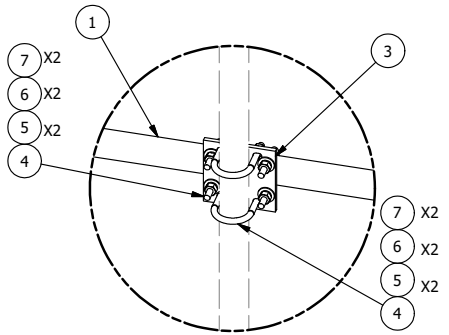
Atoll Site Name - CTV5183 | Location Name - HORSE HILL | Market - CONNECTICUT | Market Cluster - NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"

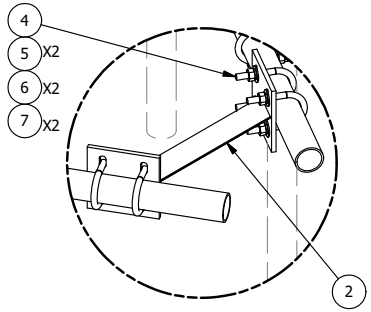


PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	44.50
4	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	37.51
5	120	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	4.09
6	120	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
					TOTAL WT. #	272.43





DETAIL A



DETAIL B

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

REVISION HISTORY

TOLERANCE NOTES

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

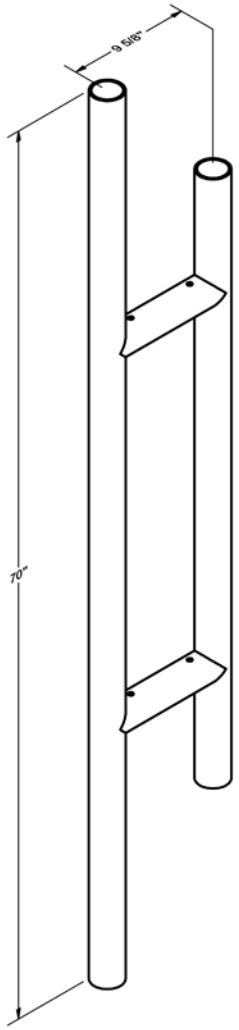
DESCRIPTION: **HANDRAIL KIT FOR 12'-6" FACE**

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	KC8 5/30/2012		HRK12

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 7/13/2014	HRK12

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-PM1	PM1 STANDOFF MOUNT WELDMENT		43.30	43.30



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 AND ANGLES ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION: 1' PANEL STAND-OFF MOUNT

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
Tampa, FL

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	CEK 8/9/2019		PM1	1 OF 1

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 8/21/2019	PM1