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

February 26, 2024

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

RE: **Notice of Exempt Modification for T-Mobile: CT11531C**
Crown Site ID# 803934
400 Main Street, Somers, CT 06071
Latitude: 41° 59′ 1.48″ / Longitude: -72° 27′ 56.87″

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 166-foot mount level on the existing 190-foot monopole tower located at 400 Main Street, Somers, CT. The property is owned by the Town of Somers, and the tower is owned by Crown Castle. T-Mobile now intends to replace three (3) antennas, add three (3) new remote radios and ancillary equipment at the 166ft level. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Install New:
(3) Ericsson – Air 6419 B41Antennas
(3) Ericsson – 4460 B25+B66 Radios
(3) 6/24 4AWG - Hybrid Cables

Remove:
(3) RFS – APX16DWV-16DWV-S-E-A20 (Quad) Antennas
(3) Ericsson – 4415 B25 Radios
(3) Ericsson – 4415 B66A Radios
(3) HSC 6x12 Hybrid 4AWG Cables

Ground:

Install New:
(1.) RP 6651

The facility was approved by the Town of Somers in 2001, however, a copy of the approval document is not available.

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 Tim Keeney, First Selectman, Town of Somers, Jennifer Roy, Zoning Enforcement Officer, Town of Somers. Town of Somers is the property Owner and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

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

Attachments
cc:

Tim Keeney, First Selectman
Town of Somers
600 Main Street
Somers, CT 06071
860-763-8201

Jennifer Roy, Zoning Enforcement Officer
Town of Somers
600 Main Street
Somers, CT 06071
860-763-8220

Crown Castle - Tower Owner

400 MAIN ST

Location	400 MAIN ST	**Mblu**	05/ 07/ / /
Acct#	00202300	**Owner**	SOMERS TOWN OF
Assessment	$2,655,300	**Appraisal**	$3,793,200
PID	2932	**Building Count**	1
Dev Lot		**Dev Map**	
Exempt Code	X		

Current Value

Appraisal

Valuation Year	Improvements	Land	Total
2020	$2,919,400	$873,800	$3,793,200

Assessment

Valuation Year	Improvements	Land	Total
2020	$2,043,600	$611,700	$2,655,300

Owner of Record

Owner	SOMERS TOWN OF	**Sale Price**	$240,000
Co-Owner	FIRE COMPLEX	**Certificate**	
Address	400 MAIN STREET SOMERS, CT 06071	**Book & Page**	0165/0819
		Sale Date	08/18/1995

Ownership History

Ownership History

Owner	Sale Price	Certificate	Book & Page	Sale Date
SOMERS TOWN OF	$240,000		0165/0819	08/18/1995

Building Information

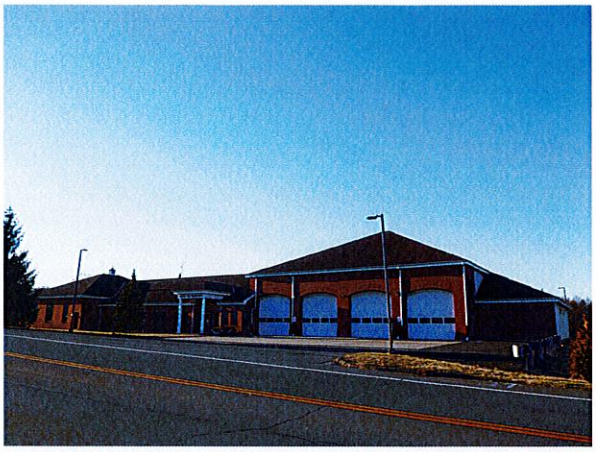
Building 1 : Section 1

Year Built:	2001
Living Area:	16,282
Replacement Cost:	$3,594,187

Building Percent Good: 77
Replacement Cost
Less Depreciation: $2,767,500

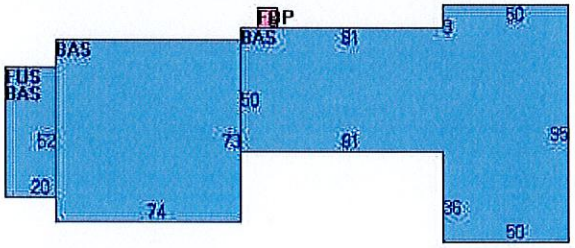
Building Attributes	
Field	**Description**
Style:	Fire Station
Model	Ind/Comm
Grade:	Good/Vg
Stories:	1.00
Occupancy:	1.00
Exterior Wall 1:	Brick Veneer
Exterior Wall 2:	Vinyl/Aluminum
Roof Struct:	Hip
Roof Cover:	Copper
Interior Wall 1:	Drywall
Interior Wall 2:	Minim/Masonry
Interior Floor 1:	Concr-Finished
Interior Floor 2:	Linoleum
Heating Fuel:	Oil
Heating Type:	Forced Air
AC Type:	None
Struct Class	Post Office
Bldg Use:	Fire Dept
Fin. Bsmt.	0
Ttl Bedrms:	
Ttl Baths:	
Ttl Half Baths:	
Ttl Xtra Fix:	
1st Floor Use:	
Heat/AC:	Heat/Ac Pkgs
Frame Type:	Wood Frame
Baths/Plumbing:	Average
Ceiling/Wall:	Sus-Ceil & Wl
Rooms/Prtns:	Average
Wall Height:	12.00
% Comn Wall:	

Building Photo



(https://images.vgsi.com/photos/SomersCTPhotos///0009/P1020043_9570

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	15,242	15,242
FUS	Finished Upper Story	1,040	1,040
FOP	Open Porch	64	0
		16,346	16,282

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
SPR1	Sprinklers-Wet	15242.00 SF	$31,700	1

A/C	Air Conditioning	8800.00 SF	$16,900	1

Land

Land Use

Use Code	928
Description	Fire Dept
Zone	A-1
Neighborhood	E
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	11.00
Frontage	
Depth	
Assessed Value	$611,700
Appraised Value	$873,800

Outbuildings

Outbuildings — Legend

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	Paving Asph			32000.00 SF	$57,600	1
LT	Light	1	Single	13.00 UNITS	$21,800	1
TWR	Tower			190.00 LF	$0	1
CB1	PreCast Cell Shed	CB		120.00 SF	$18,000	1
FN4	Fence 8'			330.00 LF	$5,900	1

Valuation History

Appraisal

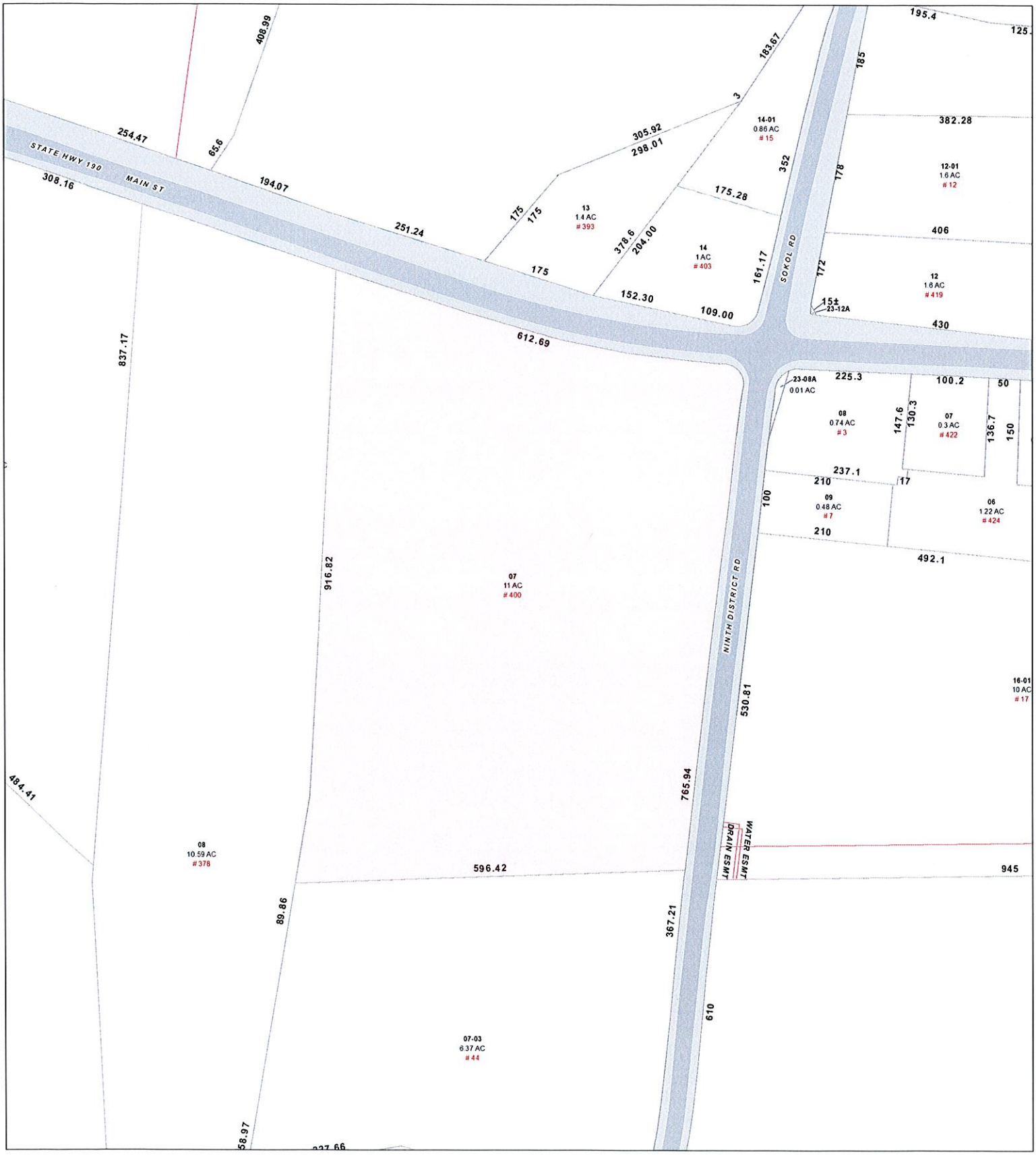
Valuation Year	Improvements	Land	Total
2022	$2,919,400	$873,800	$3,793,200
2020	$2,919,400	$873,800	$3,793,200
2019	$2,692,100	$592,500	$3,284,600

Assessment

Valuation Year	Improvements	Land	Total
2022	$2,043,600	$611,700	$2,655,300
2020	$2,043,600	$611,700	$2,655,300
2019	$1,884,400	$414,800	$2,299,200

Town of Somers, Connecticut - Assessment Parcel Map

Parcel: 05-07 **Address:** 400 MAIN ST



Map Produced June 2023

Approximate Scale: 1 inch = 200 feet

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

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Tuesday, February 27, 2024 1:48 PM
To: Barbadora, Jeff
Subject: FedEx Shipment 775318775358: Your package has been delivered

Hi. Your package was delivered Tue, 02/27/2024 at 1:37pm.

Delivered to 600 MAIN ST, SOMERS, CT 06071
Received by D.MARTI

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	775318775358
FROM	Crown Castle 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Somers Tim Keeney, First Selecman 600 main Street SOMERS, CT, US, 06071
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 2/26/2024 06:04 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	SOMERS, CT, US, 06071
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	SOS

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Tuesday, February 27, 2024 1:47 PM
To: Barbadora, Jeff
Subject: FedEx Shipment 775318856470: Your package has been delivered

Hi. Your package was delivered Tue, 02/27/2024 at 1:37pm.

Delivered to 600 MAIN ST, SOMERS, CT 06071
Received by D.MARTI

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	775318856470
FROM	Crown Castle 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Somers Jennifer Roy, ZEO 600 Main Street SOMERS, CT, US, 06071
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 2/26/2024 06:04 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	SOMERS, CT, US, 06071
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	SOS

Date: **February 06, 2024**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Site Number:	CT11531C
	Site Name:	CT531/Crown-Somers
Crown Castle Designation:	**BU Number:**	803934
	Site Name:	CT SOMERS FD CAC
	JDE Job Number:	2108548
	Work Order Number:	2282107
	Order Number:	663523 Rev. 0
Engineering Firm Designation:	**Project Number:**	87311.020.01.0001
Site Data:	**400 Main Street, Somers, Tolland County, CT** **Latitude *41° 59' 1.48"*, Longitude *-72° 27' 56.87"*** **187 Foot - Monopole Tower**	

We are 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:

LC5: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Jennifer Tillson, E.I.

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: PEC.0001564; Expires: 02/01/2025

Chad E. Tuttle, P.E.

tnxTower Report - version 8.2.2.0

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6) APPENDIX B
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7) APPENDIX C
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1) INTRODUCTION

This tower is a 187 ft. Monopole tower designed by Summit Manufacturing.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	117 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
167.0	167.0	1	--	Platform Mount [LP 1201-1]	3	1-5/8
		1	SitePro1	HRK-14		
		1	SitePro1	PRK-SFS-L Kit		
	166.0	3	Ericsson	AIR 6419 B41_TMO_CCIV2		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	RFS Celwave	APXVAALL24_43-U-NA20_TMO		

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)
185.0	190.0	1	Andrew	DB404L-B	4 1	1-1/4 7/8
	187.0	3	Alcatel Lucent	TD-RRH8X20-25		
		3	RFS Celwave	APXVTM14-C-120		
	186.0	3	RFS Celwave	APXVSPP18-C-A20		
	185.0	1	--	Platform Mount [LP 1201-1]		
	183.0	3	RFS Celwave	ACU-A20-N		
182.0	182.0	3	Alcatel Lucent	800MHZ 2X50W RRH W/Filter	--	--
		3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz		
		1	--	Side Arm Mount [SO 102-3]		
177.0	177.0	2	Antel	LPA-80063/4CF	1	1-5/8
		4	Antel	LPA-80080-4CF-EDIN-0		
		6	Commscope	NHH-65B-R2B		
		1	Raycap	RVZDC-6627-PF-48		
		3	Samsung Telecom.	MT6407-77A		
		1	--	Platform Mount [LP 1201-1_KCKR-HR-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	175.0	3	Samsung Telecom.	RF4439D-25A		
		3	Samsung Telecom.	RF4440D-13A		
155.0	159.0	3	Ericsson	AIR 6419 B77G_CCIV3	6 2 3 2 3	1-5/8 1-1/8 7/8 13/16 3/8
	158.0	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_CCIV2		
		1	Raycap	DC9-48-60-24-8C-EV_CCIV3		
	157.0	3	CCI Antennas	DMP65R-BU8D		
		3	Quintel Tech.	QD8616-7		
	155.0	1	--	Sector Mount [SM 503-3]		
	154.0	3	Ericsson	AIR 6449 B77D_CCI4		
148.0	149.0	3	RFS Celwave	APXV18-206517S-C	6	1-5/8
122.0	126.0	1	Sinclair	SD212-SF2P2SNM	1	7/8
	122.0	1	--	Side Arm Mount [SO 702-1]		
114.0	114.0	1	Sinclair	SD110-SFXPASNM	1	1/2
81.0	81.0	1	Telewave	ANT450D3	1	7/8
		1	--	Side Arm Mount [SO 309-1]		
48.0	49.0	1	Lucent	KS24019-L112A	1	1/2
	48.0	1	--	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	419873	CCI Sites
Foundation Drawing	1058248	CCI Sites
Geotech Report	1095648	CCI Sites
Crown CAD Package	Date: 11/14/2023	CCI Sites

3.1) Analysis Method

tnxTower (version 8.2.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	187 - 136	Pole	TP36.201x26x0.25	1	-23.216	1708.402	54.4	Pass
L2	136 - 89.5	Pole	TP45.003x34.801x0.375	2	-34.820	3178.707	61.5	Pass
L3	89.5 - 44.25	Pole	TP53.304x43.103x0.438	3	-50.958	4394.155	65.9	Pass
L4	44.25 - 0	Pole	TP61.28x51.079x0.5	4	-74.847	5924.918	65.4	Pass
							Summary	
						Pole (L3)	65.9	Pass
						Rating =	65.9	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	62.4	Pass
1,2	Base Plate	Base	44.3	Pass
1,2	Base Foundation (Structure)	Base	71.7	Pass
1,2	Base Foundation (Soil Interaction)	Base	53.6	Pass

Structure Rating (max from all components) =	**71.7%**

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

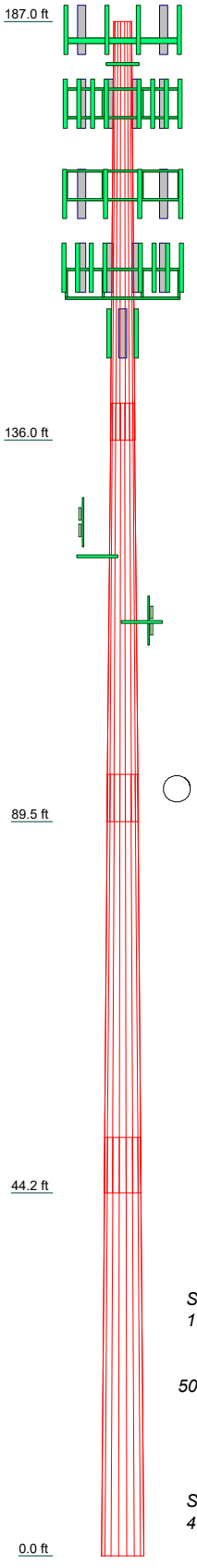
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	51.000	18	0.250	4.500	26.000	36.201	A607-65	4.2
2	51.000	18	0.375	5.750	34.801	45.003		8.2
3	51.000	18	0.438	6.750	43.103	53.304		11.5
4	51.000	18	0.500		51.079	61.280		15.3
								39.3



ALL REACTIONS ARE FACTORED

AXIAL 118 K

SHEAR 12 K *MOMENT 1751 kip-ft*

TORQUE 1 kip-ft
50 mph WIND - 1.500 in ICE

AXIAL 75 K

SHEAR 41 K *MOMENT 5624 kip-ft*

TORQUE 2 kip-ft
REACTIONS - 117 mph WIND

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 117 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 65.9%

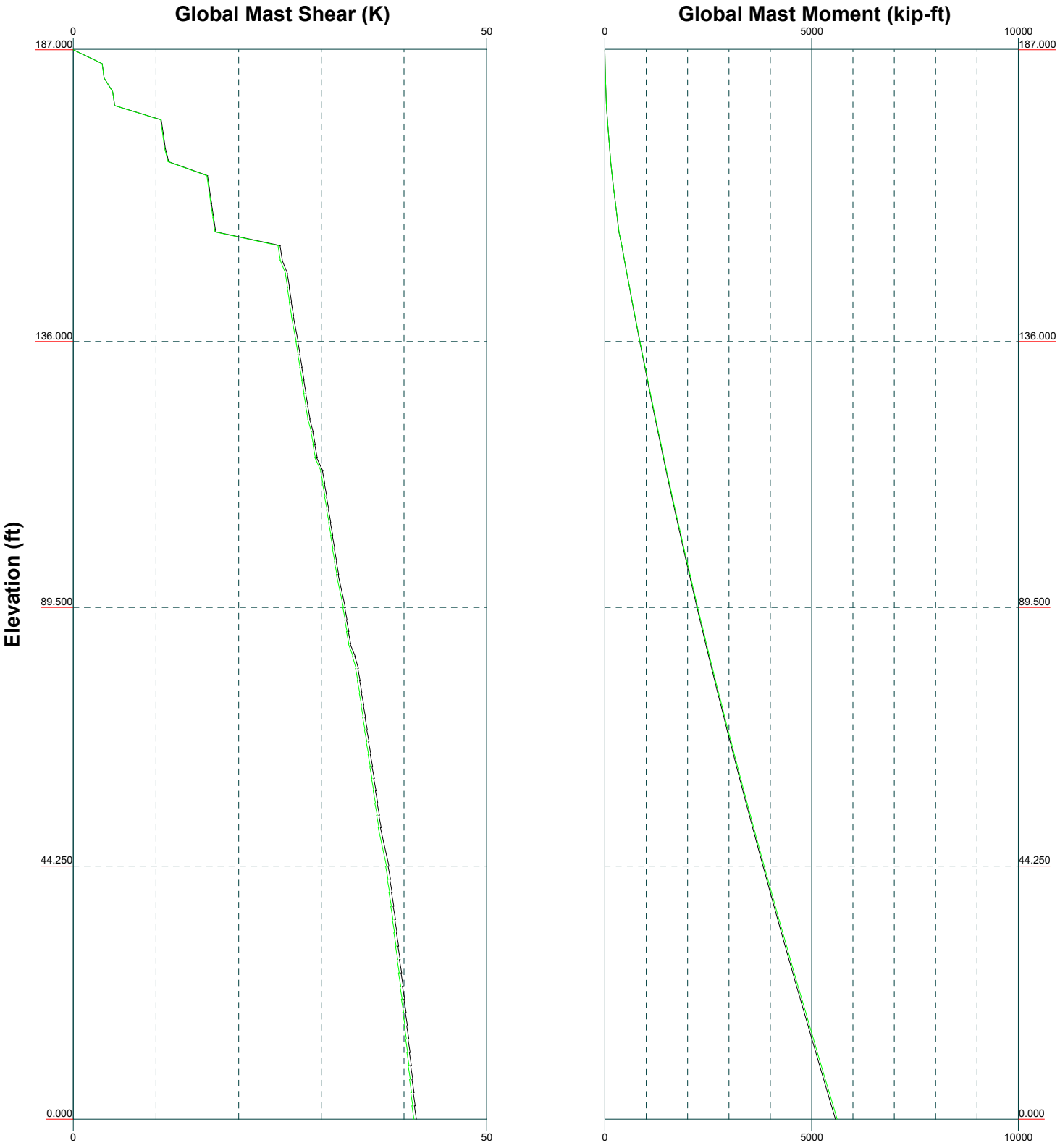
MTS Engineering, P.L.L.C.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***87311.020.01.0001 - CT SOMERS FD CAC, CT (BU# 80393-***		
Project:		
Client: Crown Castle	Drawn by: Rakshak	App'd:
Code: TIA-222-H	Date: 02/02/24	Scale: NTS
Path: E:\Feb24\Feb02\87311_803934_CT Somers FD CAC----Rakshak----Anand\tnxTower\87311_020_01_0001_CT_SOMERS_FD_CAC_CT.eri		Dwg No. E-1

TIA-222-H - 117 mph/50 mph 1.500 in Ice Exposure C

Maximum Values

Vx Vz Mx Mz



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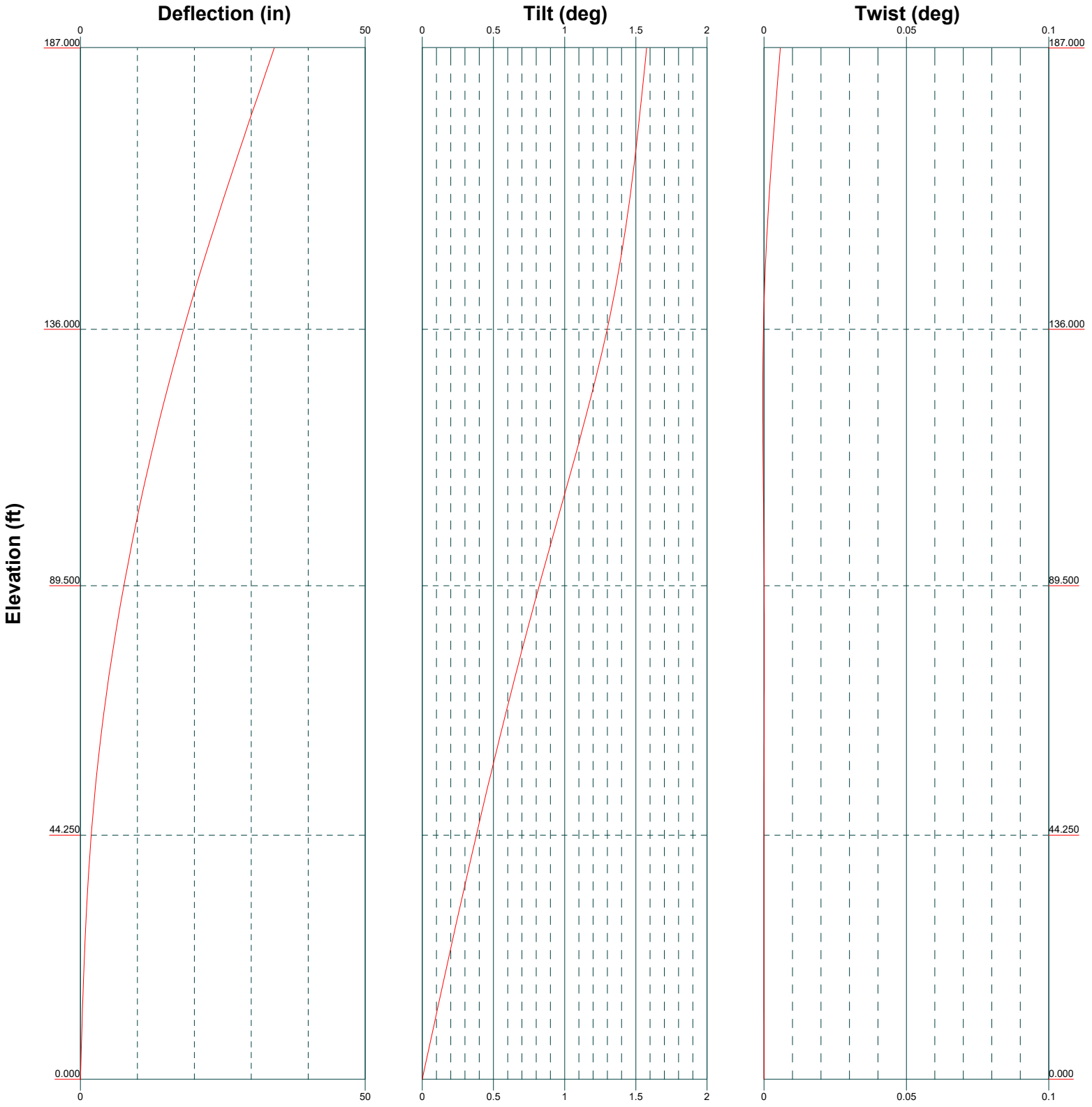
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***87311.020.01.0001 - CT SOMERS FD CAC, CT (BU# 80393-***		
Project:		
Client: Crown Castle	Drawn by: Rakshak	App'd:
Code: TIA-222-H	Date: 02/02/24	Scale: NTS
Path: E:\Feb24\Feb02\87311_803934_CT Somers FD CAC----Rakshak----Anand\tnxTower\87311_020_01_0001_CT_SOMERS_FD_CAC_CT.eri		Dwg No. E-4

TIA-222-H - Service - 60 mph

Maximum Values



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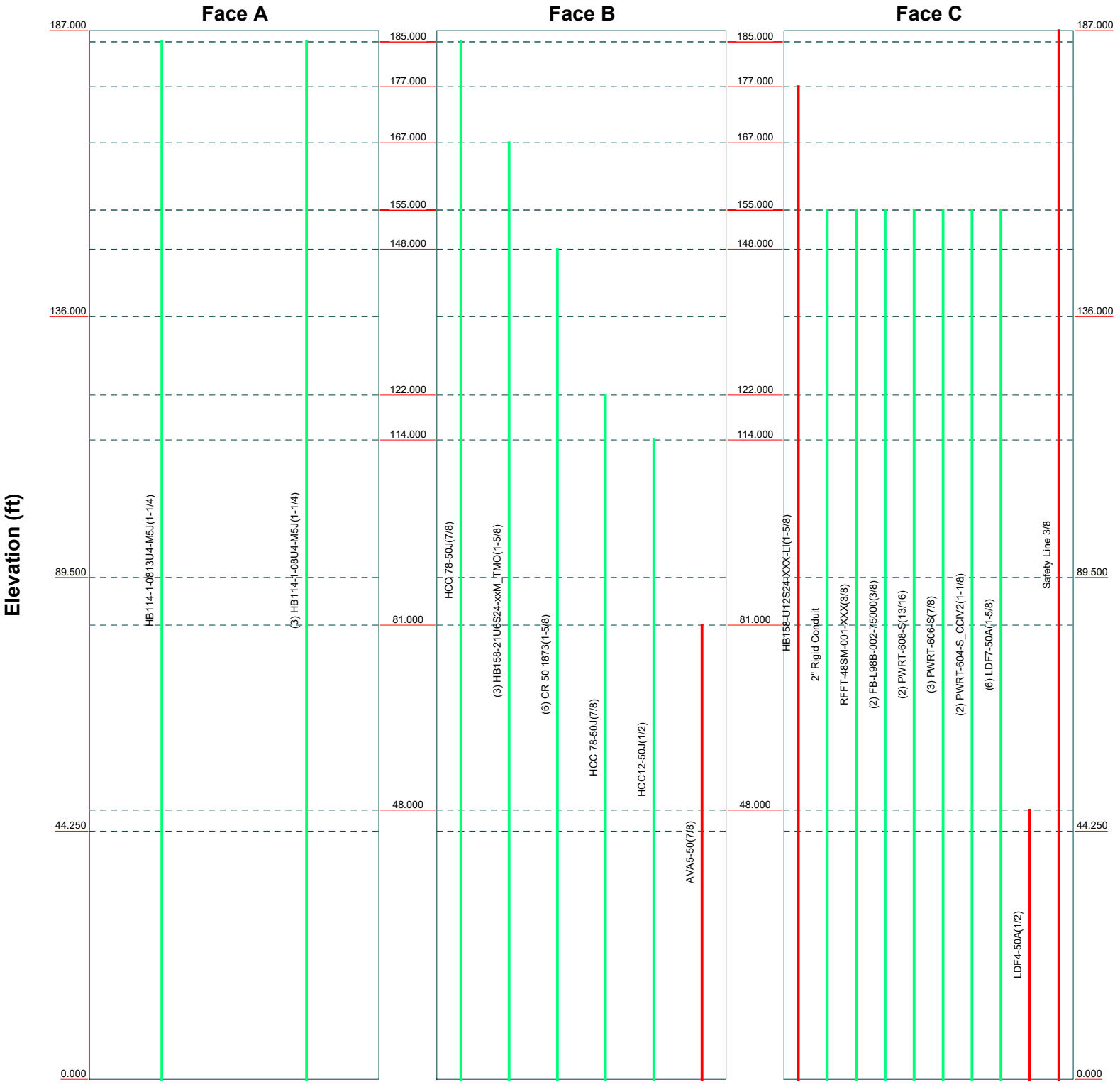
Job: ***87311.020.01.0001 - CT SOMERS FD CAC, CT (BU# 80393***		
Project:		
Client: Crown Castle	Drawn by: Rakshak	App'd:
Code: TIA-222-H	Date: 02/02/24	Scale: NTS
Path: E:\Feb24\Feb02\87311_803934_CT Somers FD CAC----Rakshak----Anand\tnxTower\87311_020_01_0001_CT_SOMERS_FD_CAC_CT.eri		Dwg No. E-5

Feed Line Distribution Chart
0' - 187'

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



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Job: ***87311.020.01.0001 - CT SOMERS FD CAC, CT (BU# 80393***		
Project:		
Client: Crown Castle	Drawn by: Rakshak	App'd:
Code: TIA-222-H	Date: 02/02/24	Scale: NTS
Path: E:\Feb24\Feb02\87311_803934_CT Somers FD CAC----Rakshak----Anand\tnxTower\87311_020_01_0001_CT_SOMERS_FD_CAC_CT.eri		Dwg No. E-7

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 Tolland County, Connecticut.
Tower base elevation above sea level: 198.000 ft.
Basic wind speed of 117 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
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	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Horizontals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Consider Moments - Diagonals	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
Use Moment Magnification	Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Stress Ratios	Retension Guys To Initial Tension	Offset Girt At Foundation
√ Use Code Safety Factors - Guys	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Escalate Ice	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Always Use Max Kz	√ Project Wind Area of Appurtenances	Use TIA-222-H Bracing Resist. Exemption
Use Special Wind Profile	√ Alternative Appurt. EPA Calculation	Use TIA-222-H Tension Splice Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	√ Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Pole Without Linear Attachments
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole With Shroud Or No Appurtenances
Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules	Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

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
L1	187.000-136.000	51.000	4.500	18	26.000	36.201	0.250	1.000	A607-65 (65 ksi)
L2	136.000-89.500	51.000	5.750	18	34.801	45.003	0.375	1.500	A607-65 (65 ksi)
L3	89.500-44.250	51.000	6.750	18	43.103	53.304	0.438	1.750	A607-65 (65 ksi)
L4	44.250-0.000	51.000		18	51.079	61.280	0.500	2.000	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	26.363	20.433	1711.654	9.141	13.208	129.592	3425.561	10.218	4.136	16.544
	36.721	28.527	4658.191	12.763	18.390	253.299	9322.512	14.266	5.931	23.726
L2	36.194	40.975	6135.246	12.221	17.679	347.039	12278.566	20.492	5.465	14.573
	45.639	53.118	13365.891	15.843	22.862	584.646	26749.369	26.564	7.261	19.361
L3	44.868	59.246	13625.291	15.146	21.896	622.267	27268.510	29.629	6.816	15.58
	54.059	73.412	25921.737	18.768	27.078	957.284	51877.583	36.713	8.612	19.683
L4	53.161	80.269	25943.042	17.955	25.948	999.807	51920.220	40.142	8.110	16.22
	62.148	96.458	45019.064	21.577	31.130	1446.152	90097.366	48.238	9.905	19.811

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 187.000-136.000				1	1	1			
L2 136.000-89.500				1	1	1			
L3 89.500-44.250				1	1	1			
L4 44.250-0.000				1	1	1			

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 klf
* HB158-U12S24-XXX-LI (1-5/8)	C	No	Surface Ar (CaAa)	177.000 - 0.000	1	1	0.330 0.350	1.976		0.003
* AVA5-50(7/8)	B	No	Surface Ar (CaAa)	81.000 - 0.000	1	1	-0.470 -0.450	1.102		0.000
* LDF4-50A(1/2)	C	No	Surface Ar	48.000 -	1	1	0.250	0.630		0.000

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 klf
			(CaAa)	0.000			0.260			
*										
Safety Line 3/8	C	No	Surface Ar (CaAa)	187.000 - 0.000	1	1	0.000 0.010	0.375		0.000
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
HB114-1-0813U4-M5J(1-1/4)	A	No	No	Inside Pole	185.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
HB114-1-08U4-M5J (1-1/4)	A	No	No	Inside Pole	185.000 - 0.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
HCC 78-50J(7/8)	B	No	No	Inside Pole	185.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
HB158-21U6S24-xx M_TMO(1-5/8)	B	No	No	Inside Pole	167.000 - 0.000	3	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
*									
2" Rigid Conduit	C	No	No	Inside Pole	155.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
RFFT-48SM-001-XXX(3/8)	C	No	No	Inside Pole	155.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
FB-L98B-002-75000 (3/8)	C	No	No	Inside Pole	155.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
PWRT-608-S(13/16)	C	No	No	Inside Pole	155.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
PWRT-606-S(7/8)	C	No	No	Inside Pole	155.000 - 0.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
PWRT-604-S_CCIV 2(1-1/8)	C	No	No	Inside Pole	155.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
LDF7-50A(1-5/8)	C	No	No	Inside Pole	155.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
CR 50 1873(1-5/8)	B	No	No	Inside Pole	148.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
HCC 78-50J(7/8)	B	No	No	Inside Pole	122.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
HCC12-50J(1/2)	B	No	No	Inside Pole	114.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
*									

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	187.000-136.000	A	0.000	0.000	0.000	0.000	0.250
		B	0.000	0.000	0.000	0.000	0.318
		C	0.000	0.000	10.014	0.000	0.414
L2	136.000-89.500	A	0.000	0.000	0.000	0.000	0.237
		B	0.000	0.000	0.000	0.000	0.628
		C	0.000	0.000	10.932	0.000	0.824
L3	89.500-44.250	A	0.000	0.000	0.000	0.000	0.231
		B	0.000	0.000	4.050	0.000	0.635
		C	0.000	0.000	10.875	0.000	0.803
L4	44.250-0.000	A	0.000	0.000	0.000	0.000	0.226
		B	0.000	0.000	4.876	0.000	0.623
		C	0.000	0.000	13.191	0.000	0.791

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	187.000-136.000	A	1.493	0.000	0.000	0.000	0.000	0.250
		B		0.000	0.000	0.000	0.000	0.318
		C		0.000	0.000	37.491	0.000	0.848
L2	136.000-89.500	A	1.441	0.000	0.000	0.000	0.000	0.237
		B		0.000	0.000	0.000	0.000	0.628
		C		0.000	0.000	38.708	0.000	1.277
L3	89.500-44.250	A	1.368	0.000	0.000	0.000	0.000	0.231
		B		0.000	0.000	14.640	0.000	0.800
		C		0.000	0.000	38.035	0.000	1.233

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L4	44.250-0.000	A	1.227	0.000	0.000	0.000	0.000	0.226
		B		0.000	0.000	16.981	0.000	0.806
		C		0.000	0.000	49.504	0.000	1.315

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	187.000-136.000	-0.839	1.248	-1.074	2.492
L2	136.000-89.500	-1.006	1.442	-1.330	2.839
L3	89.500-44.250	-0.949	0.771	-1.229	1.540
L4	44.250-0.000	-1.140	0.983	-1.749	2.214

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	6	HB158-U12S24-XXX-LI(1-5/8)	136.00 - 177.00	1.0000	1.0000
L1	29	Safety Line 3/8	136.00 - 187.00	1.0000	1.0000
L2	6	HB158-U12S24-XXX-LI(1-5/8)	89.50 - 136.00	1.0000	1.0000
L2	29	Safety Line 3/8	89.50 - 136.00	1.0000	1.0000
L3	6	HB158-U12S24-XXX-LI(1-5/8)	44.25 - 89.50	1.0000	1.0000
L3	25	AVA5-50(7/8)	44.25 - 81.00	1.0000	1.0000
L3	27	LDF4-50A(1/2)	44.25 - 48.00	1.0000	1.0000
L3	29	Safety Line 3/8	44.25 - 89.50	1.0000	1.0000
L4	6	HB158-U12S24-XXX-LI(1-5/8)	0.00 - 44.25	1.0000	1.0000
L4	25	AVA5-50(7/8)	0.00 - 44.25	1.0000	1.0000
L4	27	LDF4-50A(1/2)	0.00 - 44.25	1.0000	1.0000
L4	29	Safety Line 3/8	0.00 - 44.25	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Town of Somers									
DB404L-B	A	From Leg	1.000 0.000 5.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.140 2.052 2.964 4.788	1.140 2.052 2.964 4.788	0.014 0.018 0.022 0.031
3' x 2" Pipe Mount	A	From Leg	0.500 0.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.583 0.770 0.967 1.388	0.583 0.770 0.967 1.388	0.011 0.017 0.024 0.047
6' x 2" Mount Pipe	B	From Leg	0.500 0.000 0.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
Sprint									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.601 5.045 5.500 6.442	4.011 4.448 4.894 5.819	0.095 0.160 0.235 0.419
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.601 5.045 5.500 6.442	4.011 4.448 4.894 5.819	0.095 0.160 0.235 0.419
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.601 5.045 5.500 6.442	4.011 4.448 4.894 5.819	0.095 0.160 0.235 0.419
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.091 4.480 4.880 5.712	2.862 3.229 3.607 4.396	0.077 0.127 0.185 0.331
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.091 4.480 4.880 5.712	2.862 3.229 3.607 4.396	0.077 0.127 0.185 0.331
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.091 4.480 4.880 5.712	2.862 3.229 3.607 4.396	0.077 0.127 0.185 0.331
ACU-A20-N	A	From Leg	4.000 0.000 -2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.067 0.104 0.148 0.259	0.117 0.162 0.215 0.343	0.001 0.002 0.004 0.012
ACU-A20-N	B	From Leg	4.000 0.000 -2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.067 0.104 0.148 0.259	0.117 0.162 0.215 0.343	0.001 0.002 0.004 0.012
ACU-A20-N	C	From Leg	4.000 0.000 -2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.067 0.104 0.148 0.259	0.117 0.162 0.215 0.343	0.001 0.002 0.004 0.012
TD-RRH8X20-25	A	From Leg	4.000 0.000 2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.704 3.946 4.196 4.717	1.294 1.465 1.642 2.019	0.066 0.090 0.117 0.183
TD-RRH8X20-25	B	From Leg	4.000 0.000 2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice	3.704 3.946 4.196	1.294 1.465 1.642	0.066 0.090 0.117

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	4.717	2.019	0.183
TD-RRH8X20-25	C	From Leg	4.000 0.000 2.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.704 3.946 4.196 4.717	1.294 1.465 1.642 2.019	0.066 0.090 0.117 0.183
(2) 6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
(2) 6' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
Platform Mount [LP 1201-1]	C	None		0.000	185.000	No Ice 1/2" Ice 1" Ice 2" Ice	18.380 22.110 25.870 33.470	18.380 22.110 25.870 33.470	2.100 2.652 3.263 4.662
*									
PCS 1900MHz 4x45W-65MHz	A	From Leg	2.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
PCS 1900MHz 4x45W-65MHz	B	From Leg	2.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
PCS 1900MHz 4x45W-65MHz	C	From Leg	2.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
800MHZ 2X50W RRH W/FILTER	A	From Leg	2.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.058 2.240 2.429 2.829	1.932 2.109 2.293 2.684	0.064 0.086 0.111 0.172
800MHZ 2X50W RRH W/FILTER	B	From Leg	2.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.058 2.240 2.429 2.829	1.932 2.109 2.293 2.684	0.064 0.086 0.111 0.172
800MHZ 2X50W RRH W/FILTER	C	From Leg	2.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice	2.058 2.240 2.429	1.932 2.109 2.293	0.064 0.086 0.111

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	2.829	2.684	0.172
3' x 2" Pipe Mount	A	From Leg	1.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.583 0.770 0.967 1.388	0.583 0.770 0.967 1.388	0.011 0.017 0.024 0.047
3' x 2" Pipe Mount	B	From Leg	1.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.583 0.770 0.967 1.388	0.583 0.770 0.967 1.388	0.011 0.017 0.024 0.047
3' x 2" Pipe Mount	C	From Leg	1.000 0.000 0.000	0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.583 0.770 0.967 1.388	0.583 0.770 0.967 1.388	0.011 0.017 0.024 0.047
Side Arm Mount [SO 102-3]	C	None		0.000	182.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.600 4.180 4.750 5.900	3.600 4.180 4.750 5.900	0.075 0.105 0.135 0.195
*									
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.042 2.422 2.816 3.647	5.219 5.666 6.128 7.093	0.042 0.084 0.134 0.258
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.042 2.422 2.816 3.647	5.219 5.666 6.128 7.093	0.042 0.084 0.134 0.258
(2) LPA-80063/4CF w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.310 4.680 5.060 5.860	4.350 4.720 5.100 5.900	0.050 0.112 0.182 0.349
NHH-65B-R2B w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.095 4.483 4.880 5.701	3.295 3.672 4.058 4.857	0.069 0.132 0.205 0.385
NHH-65B-R2B w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.095 4.483 4.880 5.701	3.295 3.672 4.058 4.857	0.069 0.132 0.205 0.385
NHH-65B-R2B w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.095 4.483 4.880 5.701	3.295 3.672 4.058 4.857	0.069 0.132 0.205 0.385
NHH-65B-R2B	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.159 4.564 4.979 5.837	2.493 2.875 3.267 4.079	0.044 0.094 0.150 0.281
NHH-65B-R2B	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.159 4.564 4.979 5.837	2.493 2.875 3.267 4.079	0.044 0.094 0.150 0.281
NHH-65B-R2B	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.159 4.564 4.979 5.837	2.493 2.875 3.267 4.079	0.044 0.094 0.150 0.281
MT6407-77A w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice	5.940 6.470 7.020	3.100 3.550 4.020	0.096 0.132 0.175

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	8.170	5.010	0.282
MT6407-77A w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.940 6.470 7.020 8.170	3.100 3.550 4.020 5.010	0.096 0.132 0.175 0.282
MT6407-77A w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.940 6.470 7.020 8.170	3.100 3.550 4.020 5.010	0.096 0.132 0.175 0.282
RVZDC-6627-PF-48	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.792 4.044 4.303 4.844	2.514 2.727 2.947 3.417	0.032 0.063 0.099 0.181
RF4439D-25A	A	From Leg	4.000 0.000 -2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.865 2.035 2.212 2.589	1.252 1.394 1.544 1.866	0.075 0.093 0.114 0.165
RF4439D-25A	B	From Leg	4.000 0.000 -2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.865 2.035 2.212 2.589	1.252 1.394 1.544 1.866	0.075 0.093 0.114 0.165
RF4439D-25A	C	From Leg	4.000 0.000 -2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.865 2.035 2.212 2.589	1.252 1.394 1.544 1.866	0.075 0.093 0.114 0.165
RF4440D-13A	A	From Leg	4.000 0.000 -2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.865 2.035 2.212 2.589	1.129 1.267 1.411 1.723	0.073 0.090 0.110 0.159
RF4440D-13A	B	From Leg	4.000 0.000 -2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.865 2.035 2.212 2.589	1.129 1.267 1.411 1.723	0.073 0.090 0.110 0.159
RF4440D-13A	C	From Leg	4.000 0.000 -2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.865 2.035 2.212 2.589	1.129 1.267 1.411 1.723	0.073 0.090 0.110 0.159
8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None		0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	37.610 45.620 53.590 69.650	37.610 45.620 53.590 69.650	2.631 3.478 4.462 6.848
*									
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice	14.694 15.455 16.230	6.873 7.554 8.247	0.183 0.311 0.453

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	17.816	9.670	0.782
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.694 15.455 16.230 17.816	6.873 7.554 8.247 9.670	0.183 0.311 0.453 0.782
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.694 15.455 16.230 17.816	6.873 7.554 8.247 9.670	0.183 0.311 0.453 0.782
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.970 2.147 2.331 2.721	1.587 1.749 1.918 2.280	0.073 0.093 0.116 0.170
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.970 2.147 2.331 2.721	1.587 1.749 1.918 2.280	0.073 0.093 0.116 0.170
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.970 2.147 2.331 2.721	1.587 1.749 1.918 2.280	0.073 0.093 0.116 0.170
AIR 6419 B41_TMO_CCIV2 w/ Mount Pipe	A	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.790 6.240 6.710 7.710	2.970 3.340 3.730 4.560	0.096 0.141 0.194 0.321
AIR 6419 B41_TMO_CCIV2 w/ Mount Pipe	B	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.790 6.240 6.710 7.710	2.970 3.340 3.730 4.560	0.096 0.141 0.194 0.321
AIR 6419 B41_TMO_CCIV2 w/ Mount Pipe	C	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.790 6.240 6.710 7.710	2.970 3.340 3.730 4.560	0.096 0.141 0.194 0.321
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.139 2.321 2.511 2.912	1.686 1.850 2.022 2.387	0.109 0.131 0.156 0.217
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.139 2.321 2.511 2.912	1.686 1.850 2.022 2.387	0.109 0.131 0.156 0.217
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 -1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.139 2.321 2.511 2.912	1.686 1.850 2.022 2.387	0.109 0.131 0.156 0.217
10' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148
10' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148
10' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) L 2.5x2.5x3/16x6'	A	From Leg	3.000 0.000 1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.500 1.918 2.343 3.215	0.007 0.025 0.051 0.126	0.041 0.050 0.064 0.107
(2) L 2.5x2.5x3/16x6'	B	From Leg	3.000 0.000 1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.500 1.918 2.343 3.215	0.007 0.025 0.051 0.126	0.041 0.050 0.064 0.107
(2) L 2.5x2.5x3/16x6'	C	From Leg	3.000 0.000 1.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.500 1.918 2.343 3.215	0.007 0.025 0.051 0.126	0.041 0.050 0.064 0.107
Side Arm Mount [SO 102-3]	C	None		0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.600 4.180 4.750 5.900	3.600 4.180 4.750 5.900	0.075 0.105 0.135 0.195
Platform Mount [LP 1201-1_HR-1]	C	None		0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	26.390 31.400 36.200 45.400	26.390 31.400 36.200 45.400	2.356 3.061 3.864 5.764
*									
QD8616-7 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	16.926 17.869 18.828 20.793	9.311 10.174 11.054 12.860	0.183 0.308 0.448 0.772
QD8616-7 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	16.926 17.869 18.828 20.793	9.311 10.174 11.054 12.860	0.183 0.308 0.448 0.772
QD8616-7 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	16.926 17.869 18.828 20.793	9.311 10.174 11.054 12.860	0.183 0.308 0.448 0.772
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From Leg	4.000 0.000 4.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.791 4.143 4.509 5.285	2.147 2.446 2.759 3.430	0.069 0.104 0.146 0.250
AIR 6419 B77G_CCIV3 w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.791 4.143 4.509 5.285	2.147 2.446 2.759 3.430	0.069 0.104 0.146 0.250
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From Leg	4.000 0.000 4.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.791 4.143 4.509 5.285	2.147 2.446 2.759 3.430	0.069 0.104 0.146 0.250
AIR 6449 B77D_CCI4 w/ Mount Pipe	A	From Leg	4.000 0.000 -1.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.650 3.990 4.350 5.110	2.720 3.030 3.360 4.050	0.110 0.150 0.196 0.310
AIR 6449 B77D_CCI4 w/ Mount Pipe	B	From Leg	4.000 0.000 -1.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.650 3.990 4.350 5.110	2.720 3.030 3.360 4.050	0.110 0.150 0.196 0.310
AIR 6449 B77D_CCI4 w/ Mount Pipe	C	From Leg	4.000 0.000 -1.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.650 3.990 4.350 5.110	2.720 3.030 3.360 4.050	0.110 0.150 0.196 0.310

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DMP65R-BU8D w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	15.886 16.815 17.760 19.697	7.889 8.735 9.597 11.367	0.139 0.252 0.380 0.679
DMP65R-BU8D w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	15.886 16.815 17.760 19.697	7.889 8.735 9.597 11.367	0.139 0.252 0.380 0.679
DMP65R-BU8D w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	15.886 16.815 17.760 19.697	7.889 8.735 9.597 11.367	0.139 0.252 0.380 0.679
RRUS 8843 B2/B66A_CCIV2	A	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.980 2.157 2.341 2.733	1.695 1.861 2.035 2.405	0.075 0.096 0.119 0.176
RRUS 8843 B2/B66A_CCIV2	B	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.980 2.157 2.341 2.733	1.695 1.861 2.035 2.405	0.075 0.096 0.119 0.176
RRUS 8843 B2/B66A_CCIV2	C	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.980 2.157 2.341 2.733	1.695 1.861 2.035 2.405	0.075 0.096 0.119 0.176
RRUS 4449 B5/B12	A	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.968 2.144 2.328 2.718	1.408 1.564 1.727 2.075	0.071 0.090 0.111 0.163
RRUS 4449 B5/B12	B	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.968 2.144 2.328 2.718	1.408 1.564 1.727 2.075	0.071 0.090 0.111 0.163
RRUS 4449 B5/B12	C	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.968 2.144 2.328 2.718	1.408 1.564 1.727 2.075	0.071 0.090 0.111 0.163
(2) DC6-48-60-18-8F_CCIV2	A	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.901 3.130 3.366 3.863	4.818 5.098 5.385 5.983	0.033 0.071 0.114 0.212
RRUS 4478 B14_CCIV2	A	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.021 2.200 2.386 2.780	1.246 1.396 1.554 1.891	0.059 0.077 0.097 0.147
RRUS 4478 B14_CCIV2	B	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.021 2.200 2.386 2.780	1.246 1.396 1.554 1.891	0.059 0.077 0.097 0.147
RRUS 4478 B14_CCIV2	C	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.021 2.200 2.386 2.780	1.246 1.396 1.554 1.891	0.059 0.077 0.097 0.147
DC9-48-60-24-8C-EV_CCIV 3	C	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.560 1.722 1.892 2.253	1.560 1.722 1.892 2.253	0.016 0.033 0.052 0.100
13' x 2.375" Horz. Mount	A	From Leg	4.000	0.000	155.000	No Ice	3.090	0.010	0.048

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe			0.000			1/2" Ice	4.420	0.050	0.071
			3.000			1" Ice	5.770	0.100	0.102
						2" Ice	8.510	0.240	0.190
13' x 2.375" Horz. Mount Pipe	B	From Leg	4.000	0.000	155.000	No Ice	3.090	0.010	0.048
			0.000			1/2" Ice	4.420	0.050	0.071
			3.000			1" Ice	5.770	0.100	0.102
						2" Ice	8.510	0.240	0.190
13' x 2.375" Horz. Mount Pipe	C	From Leg	4.000	0.000	155.000	No Ice	3.090	0.010	0.048
			0.000			1/2" Ice	4.420	0.050	0.071
			3.000			1" Ice	5.770	0.100	0.102
						2" Ice	8.510	0.240	0.190
(2) L 2.5x2.5x3/16x6'	A	From Leg	3.000	0.000	155.000	No Ice	1.500	0.007	0.041
			0.000			1/2" Ice	1.918	0.025	0.050
			3.500			1" Ice	2.343	0.051	0.064
						2" Ice	3.215	0.126	0.107
(2) L 2.5x2.5x3/16x6'	B	From Leg	3.000	0.000	155.000	No Ice	1.500	0.007	0.041
			0.000			1/2" Ice	1.918	0.025	0.050
			3.500			1" Ice	2.343	0.051	0.064
						2" Ice	3.215	0.126	0.107
(2) L 2.5x2.5x3/16x6'	C	From Leg	3.000	0.000	155.000	No Ice	1.500	0.007	0.041
			0.000			1/2" Ice	1.918	0.025	0.050
			3.500			1" Ice	2.343	0.051	0.064
						2" Ice	3.215	0.126	0.107
(2) L 2.5x2.5x3/16x5.25'	A	From Leg	3.000	0.000	155.000	No Ice	1.500	0.005	0.025
			0.000			1/2" Ice	1.918	0.024	0.034
			4.500			1" Ice	2.343	0.049	0.048
						2" Ice	3.215	0.123	0.091
(2) L 2.5x2.5x3/16x5.25'	B	From Leg	3.000	0.000	155.000	No Ice	1.500	0.005	0.025
			0.000			1/2" Ice	1.918	0.024	0.034
			4.500			1" Ice	2.343	0.049	0.048
						2" Ice	3.215	0.123	0.091
(2) L 2.5x2.5x3/16x5.25'	C	From Leg	3.000	0.000	155.000	No Ice	1.500	0.005	0.025
			0.000			1/2" Ice	1.918	0.024	0.034
			4.500			1" Ice	2.343	0.049	0.048
						2" Ice	3.215	0.123	0.091
7'X2" Horizontal Pipe	A	From Leg	2.000	0.000	155.000	No Ice	1.330	0.010	0.019
			0.000			1/2" Ice	2.050	0.040	0.290
			0.000			1" Ice	2.640	0.090	0.044
						2" Ice	3.520	0.210	0.089
7'X2" Horizontal Pipe	B	From Leg	2.000	0.000	155.000	No Ice	1.330	0.010	0.019
			0.000			1/2" Ice	2.050	0.040	0.290
			0.000			1" Ice	2.640	0.090	0.044
						2" Ice	3.520	0.210	0.089
7'X2" Horizontal Pipe	C	From Leg	2.000	0.000	155.000	No Ice	1.330	0.010	0.019
			0.000			1/2" Ice	2.050	0.040	0.290
			0.000			1" Ice	2.640	0.090	0.044
						2" Ice	3.520	0.210	0.089
6' x 2" Mount Pipe	A	From Leg	1.000	0.000	155.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
6' x 2" Mount Pipe	B	From Leg	1.000	0.000	155.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
6' x 2" Mount Pipe	C	From Leg	1.000	0.000	155.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
Sector Mount [SM 503-3]	C	None		0.000	155.000	No Ice	30.430	30.430	1.690
						1/2" Ice	43.020	43.020	2.296
						1" Ice	55.430	55.430	3.097
						2" Ice	79.890	79.890	5.269
Pipe Mount [PM 601-3]	C	None		0.000	155.000	No Ice	3.170	3.170	0.195
						1/2" Ice	3.790	3.790	0.232
						1" Ice	4.420	4.420	0.279
						2" Ice	5.760	5.760	0.401
*									
APXV18-206517S-C w/ Mount Pipe	A	From Leg	0.500 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.790 4.380 4.990 6.250	3.160 3.750 4.350 5.590	0.053 0.094 0.145 0.281
APXV18-206517S-C w/ Mount Pipe	B	From Leg	0.500 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.790 4.380 4.990 6.250	3.160 3.750 4.350 5.590	0.053 0.094 0.145 0.281
APXV18-206517S-C w/ Mount Pipe	C	From Leg	0.500 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.790 4.380 4.990 6.250	3.160 3.750 4.350 5.590	0.053 0.094 0.145 0.281
*									
SD212-SF2P2SNM	C	From Leg	4.000 0.000 4.000	0.000	122.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.160 3.960 5.760 9.360	2.160 3.960 5.760 9.360	0.021 0.050 0.079 0.137
Side Arm Mount [SO 702-1]	C	From Leg	2.000 0.000 0.000	0.000	122.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.620 0.740 0.890 1.250	1.490 2.070 2.540 3.550	0.027 0.042 0.063 0.122
*									
SD110-SFXPASNM	B	From Leg	2.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.333 7.917 9.501 12.669	6.333 7.917 9.501 12.669	0.025 0.069 0.112 0.199
15' x 2" Pipe Mount	B	From Leg	1.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.562 5.091 6.635 9.775	3.562 5.091 6.635 9.775	0.055 0.081 0.118 0.219
*									
ANT450D3	A	From Leg	2.000 0.000 0.000	0.000	81.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.431 2.185 2.939 4.446	1.431 2.185 2.939 4.446	0.088 0.100 0.112 0.136
Side Arm Mount [SO 309-1]	A	From Leg	1.000 0.000 0.000	0.000	81.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.220 1.800 2.400 3.700	2.630 3.930 5.470 9.560	0.040 0.061 0.090 0.170
Side Arm Mount [SO 102-3]	C	None		0.000	83.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.600 4.180 4.750 5.900	3.600 4.180 4.750 5.900	0.075 0.105 0.135 0.195
Side Arm Mount [SO 102-3]	C	None		0.000	79.000	No Ice 1/2" Ice 1" Ice	3.600 4.180 4.750	3.600 4.180 4.750	0.075 0.105 0.135

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	5.900	5.900	0.195
*									
KS24019-L112A	A	From Leg	3.000 0.000 1.000	0.000	48.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.100 0.180 0.260 0.420	0.100 0.180 0.260 0.420	0.005 0.006 0.008 0.011
Side Arm Mount [SO 701-1]	A	From Leg	1.500 0.000 0.000	0.000	48.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.850 1.140 1.430 2.010	1.670 2.340 3.010 4.350	0.065 0.079 0.093 0.121
*									

Load Combinations

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

Comb. No.	Description
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	187 - 136	Pole	Max Tension	15	0.000	-0.001	0.000
			Max. Compression	26	-53.385	1.257	1.489
			Max. Mx	20	-23.224	729.292	-3.996
			Max. My	2	-23.265	-3.968	723.692
			Max. Vy	20	-26.636	729.292	-3.996
			Max. Vx	2	-26.398	-3.968	723.692
			Max. Torque	20			-2.806
L2	136 - 89.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.953	1.190	-0.565
			Max. Mx	20	-34.824	2057.972	-9.232
			Max. My	14	-34.853	9.291	-2041.915
			Max. Vy	20	-32.101	2057.972	-9.232
			Max. Vx	2	-31.883	-8.768	2041.567
			Max. Torque	20			-2.802
L3	89.5 - 44.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.306	0.913	-0.724
			Max. Mx	20	-50.960	3599.293	-13.350
			Max. My	2	-50.977	-13.098	3571.757
			Max. Vy	20	-37.239	3599.293	-13.350
			Max. Vx	2	-36.967	-13.098	3571.757
			Max. Torque	20			-2.240
L4	44.25 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-117.950	0.449	-1.904
			Max. Mx	20	-74.848	5618.461	-18.299
			Max. My	14	-74.848	18.303	-5575.995
			Max. Vy	20	-41.495	5618.461	-18.299
			Max. Vx	14	41.204	18.303	-5575.995
			Max. Torque	20			-2.480

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	117.950	12.402	-0.014
	Max. H_x	20	74.878	41.441	-0.090
	Max. H_z	3	56.158	-0.090	41.150
	Max. M_x	2	5575.666	-0.090	41.150
	Max. M_z	8	5618.059	-41.441	0.090
	Max. Torsion	8	2.471	-41.441	0.090
	Min. Vert	25	56.158	20.642	35.592
	Min. H_x	8	74.878	-41.441	0.090
	Min. H_z	15	56.158	0.090	-41.150
	Min. M_x	14	-5575.995	0.090	-41.150
	Min. M_z	20	-5618.461	41.441	-0.090
	Min. Torsion	20	-2.477	41.441	-0.090

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	62.398	0.000	0.000	0.148	0.145	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	74.878	0.090	-41.150	-5575.666	-17.889	0.406
0.9 Dead+1.0 Wind 0 deg - No Ice	56.158	0.090	-41.150	-5489.337	-17.612	0.410
1.2 Dead+1.0 Wind 30 deg - No Ice	74.878	20.798	-35.682	-4837.593	-2824.641	-0.876
0.9 Dead+1.0 Wind 30 deg - No Ice	56.158	20.798	-35.682	-4762.703	-2780.904	-0.866
1.2 Dead+1.0 Wind 60 deg - No Ice	74.878	35.934	-20.653	-2803.300	-4874.396	-1.928
0.9 Dead+1.0 Wind 60 deg - No Ice	56.158	35.934	-20.653	-2759.894	-4798.942	-1.915
1.2 Dead+1.0 Wind 90 deg - No Ice	74.878	41.441	-0.090	-17.891	-5618.059	-2.471
0.9 Dead+1.0 Wind 90 deg - No Ice	56.158	41.441	-0.090	-17.606	-5531.126	-2.458
1.2 Dead+1.0 Wind 120 deg - No Ice	74.878	35.844	20.497	2772.421	-4856.397	-2.354
0.9 Dead+1.0 Wind 120 deg - No Ice	56.158	35.844	20.497	2729.495	-4781.278	-2.345
1.2 Dead+1.0 Wind 150 deg - No Ice	74.878	20.642	35.592	4819.977	-2793.340	-1.602
0.9 Dead+1.0 Wind 150 deg - No Ice	56.158	20.642	35.592	4745.328	-2750.187	-1.598
1.2 Dead+1.0 Wind 180 deg - No Ice	74.878	-0.090	41.150	5575.995	18.303	-0.412
0.9 Dead+1.0 Wind 180 deg - No Ice	56.158	-0.090	41.150	5489.589	17.910	-0.416
1.2 Dead+1.0 Wind 210 deg - No Ice	74.878	-20.798	35.682	4837.938	2825.018	0.890
0.9 Dead+1.0 Wind 210 deg - No Ice	56.158	-20.798	35.682	4762.965	2781.176	0.880
1.2 Dead+1.0 Wind 240 deg - No Ice	74.878	-35.934	20.653	2803.684	4874.767	1.948
0.9 Dead+1.0 Wind 240 deg - No Ice	56.158	-35.934	20.653	2760.185	4799.209	1.935
1.2 Dead+1.0 Wind 270 deg - No Ice	74.878	-41.441	0.090	18.300	5618.461	2.477

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
0.9 Dead+1.0 Wind 270 deg - No Ice	56.158	-41.441	0.090	17.915	5531.415	2.464
1.2 Dead+1.0 Wind 300 deg - No Ice	74.878	-35.844	-20.497	-2772.027	4856.837	2.341
0.9 Dead+1.0 Wind 300 deg - No Ice	56.158	-35.844	-20.497	-2729.197	4781.594	2.331
1.2 Dead+1.0 Wind 330 deg - No Ice	74.878	-20.642	-35.592	-4819.623	2793.785	1.582
0.9 Dead+1.0 Wind 330 deg - No Ice	56.158	-20.642	-35.592	-4745.058	2750.507	1.579
1.2 Dead+1.0 Ice+1.0 Temp	117.950	-0.000	-0.000	1.904	0.449	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	117.950	0.014	-12.323	-1737.227	-2.590	-0.025
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	117.950	6.213	-10.679	-1505.866	-876.928	-0.331
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	117.950	10.748	-6.174	-870.481	-1516.100	-0.548
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	117.950	12.402	-0.014	-1.327	-1748.844	-0.618
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	117.950	10.734	6.150	868.711	-1512.797	-0.524
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	117.950	6.189	10.665	1506.506	-871.208	-0.288
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	117.950	-0.014	12.323	1741.161	4.011	0.025
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	117.950	-6.213	10.679	1509.803	878.343	0.332
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	117.950	-10.748	6.174	874.425	1517.515	0.549
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	117.950	-12.402	0.014	5.274	1750.263	0.619
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	117.950	-10.734	-6.150	-864.766	1514.223	0.523
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	117.950	-6.189	-10.665	-1502.568	872.634	0.287
Dead+Wind 0 deg - Service	62.398	0.022	-10.192	-1368.887	-4.271	0.102
Dead+Wind 30 deg - Service	62.398	5.151	-8.838	-1187.689	-693.418	-0.220
Dead+Wind 60 deg - Service	62.398	8.900	-5.115	-688.222	-1196.734	-0.484
Dead+Wind 90 deg - Service	62.398	10.264	-0.022	-4.295	-1379.316	-0.618
Dead+Wind 120 deg - Service	62.398	8.878	5.077	680.812	-1192.282	-0.588
Dead+Wind 150 deg - Service	62.398	5.113	8.816	1183.534	-685.733	-0.399
Dead+Wind 180 deg - Service	62.398	-0.022	10.192	1369.166	4.603	-0.103
Dead+Wind 210 deg - Service	62.398	-5.151	8.838	1187.969	693.748	0.221
Dead+Wind 240 deg - Service	62.398	-8.900	5.115	688.495	1197.049	0.485
Dead+Wind 270 deg - Service	62.398	-10.264	0.022	4.578	1379.647	0.619
Dead+Wind 300 deg - Service	62.398	-8.878	-5.077	-680.538	1192.631	0.587
Dead+Wind 330 deg - Service	62.398	-5.113	-8.816	-1183.254	686.067	0.398

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-62.398	0.000	0.000	62.398	0.000	0.000%
2	0.090	-74.878	-41.150	-0.090	74.878	41.150	0.000%
3	0.090	-56.158	-41.150	-0.090	56.158	41.150	0.000%
4	20.798	-74.878	-35.682	-20.798	74.878	35.682	0.000%
5	20.798	-56.158	-35.682	-20.798	56.158	35.682	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
6	35.934	-74.878	-20.653	-35.934	74.878	20.653	0.000%
7	35.934	-56.158	-20.653	-35.934	56.158	20.653	0.000%
8	41.441	-74.878	-0.090	-41.441	74.878	0.090	0.000%
9	41.441	-56.158	-0.090	-41.441	56.158	0.090	0.000%
10	35.844	-74.878	20.497	-35.844	74.878	-20.497	0.000%
11	35.844	-56.158	20.497	-35.844	56.158	-20.497	0.000%
12	20.642	-74.878	35.592	-20.642	74.878	-35.592	0.000%
13	20.642	-56.158	35.592	-20.642	56.158	-35.592	0.000%
14	-0.090	-74.878	41.150	0.090	74.878	-41.150	0.000%
15	-0.090	-56.158	41.150	0.090	56.158	-41.150	0.000%
16	-20.798	-74.878	35.682	20.798	74.878	-35.682	0.000%
17	-20.798	-56.158	35.682	20.798	56.158	-35.682	0.000%
18	-35.934	-74.878	20.653	35.934	74.878	-20.653	0.000%
19	-35.934	-56.158	20.653	35.934	56.158	-20.653	0.000%
20	-41.441	-74.878	0.090	41.441	74.878	-0.090	0.000%
21	-41.441	-56.158	0.090	41.441	56.158	-0.090	0.000%
22	-35.844	-74.878	-20.497	35.844	74.878	20.497	0.000%
23	-35.844	-56.158	-20.497	35.844	56.158	20.497	0.000%
24	-20.642	-74.878	-35.592	20.642	74.878	35.592	0.000%
25	-20.642	-56.158	-35.592	20.642	56.158	35.592	0.000%
26	0.000	-117.950	0.000	0.000	117.950	0.000	0.000%
27	0.014	-117.950	-12.323	-0.014	117.950	12.323	0.000%
28	6.213	-117.950	-10.679	-6.213	117.950	10.679	0.000%
29	10.748	-117.950	-6.173	-10.748	117.950	6.174	0.000%
30	12.402	-117.950	-0.014	-12.402	117.950	0.014	0.000%
31	10.734	-117.950	6.150	-10.734	117.950	-6.150	0.000%
32	6.189	-117.950	10.665	-6.189	117.950	-10.665	0.000%
33	-0.014	-117.950	12.323	0.014	117.950	-12.323	0.000%
34	-6.213	-117.950	10.679	6.213	117.950	-10.679	0.000%
35	-10.748	-117.950	6.173	10.748	117.950	-6.174	0.000%
36	-12.402	-117.950	0.014	12.402	117.950	-0.014	0.000%
37	-10.734	-117.950	-6.150	10.734	117.950	6.150	0.000%
38	-6.189	-117.950	-10.665	6.189	117.950	10.665	0.000%
39	0.022	-62.398	-10.192	-0.022	62.398	10.192	0.000%
40	5.151	-62.398	-8.838	-5.151	62.398	8.838	0.000%
41	8.900	-62.398	-5.115	-8.900	62.398	5.115	0.000%
42	10.264	-62.398	-0.022	-10.264	62.398	0.022	0.000%
43	8.878	-62.398	5.077	-8.878	62.398	-5.077	0.000%
44	5.113	-62.398	8.816	-5.113	62.398	-8.816	0.000%
45	-0.022	-62.398	10.192	0.022	62.398	-10.192	0.000%
46	-5.151	-62.398	8.838	5.151	62.398	-8.838	0.000%
47	-8.900	-62.398	5.115	8.900	62.398	-5.115	0.000%
48	-10.264	-62.398	0.022	10.264	62.398	-0.022	0.000%
49	-8.878	-62.398	-5.077	8.878	62.398	5.077	0.000%
50	-5.113	-62.398	-8.816	5.113	62.398	8.816	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00005826
3	Yes	4	0.00000001	0.00073756
4	Yes	6	0.00000001	0.00027461
5	Yes	6	0.00000001	0.00009051
6	Yes	6	0.00000001	0.00028206

7	Yes	6	0.00000001	0.00009319
8	Yes	5	0.00000001	0.00017653
9	Yes	5	0.00000001	0.00008453
10	Yes	6	0.00000001	0.00026755
11	Yes	6	0.00000001	0.00008827
12	Yes	6	0.00000001	0.00027558
13	Yes	6	0.00000001	0.00009135
14	Yes	5	0.00000001	0.00004114
15	Yes	4	0.00000001	0.00063799
16	Yes	6	0.00000001	0.00027925
17	Yes	6	0.00000001	0.00009222
18	Yes	6	0.00000001	0.00027282
19	Yes	6	0.00000001	0.00008975
20	Yes	5	0.00000001	0.00010939
21	Yes	5	0.00000001	0.00005283
22	Yes	6	0.00000001	0.00027821
23	Yes	6	0.00000001	0.00009222
24	Yes	6	0.00000001	0.00026917
25	Yes	6	0.00000001	0.00008892
26	Yes	4	0.00000001	0.00000281
27	Yes	6	0.00000001	0.00017622
28	Yes	6	0.00000001	0.00026150
29	Yes	6	0.00000001	0.00026449
30	Yes	6	0.00000001	0.00017705
31	Yes	6	0.00000001	0.00025944
32	Yes	6	0.00000001	0.00026082
33	Yes	6	0.00000001	0.00017622
34	Yes	6	0.00000001	0.00026469
35	Yes	6	0.00000001	0.00026264
36	Yes	6	0.00000001	0.00017764
37	Yes	6	0.00000001	0.00026310
38	Yes	6	0.00000001	0.00026076
39	Yes	4	0.00000001	0.00013209
40	Yes	4	0.00000001	0.00093762
41	Yes	5	0.00000001	0.00006745
42	Yes	4	0.00000001	0.00018736
43	Yes	4	0.00000001	0.00089210
44	Yes	4	0.00000001	0.00097185
45	Yes	4	0.00000001	0.00013074
46	Yes	4	0.00000001	0.00098510
47	Yes	4	0.00000001	0.00092107
48	Yes	4	0.00000001	0.00017720
49	Yes	5	0.00000001	0.00006652
50	Yes	4	0.00000001	0.00090791

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	187 - 136	34.036	47	1.578	0.004
L2	140.5 - 89.5	19.365	47	1.337	0.002
L3	95.25 - 44.25	8.679	47	0.880	0.001
L4	51 - 0	2.450	47	0.440	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.000	3' x 2" Pipe Mount	47	34.036	1.578	0.004	53575
185.000	DB404L-B	47	33.373	1.570	0.004	53575
182.000	PCS 1900MHz 4x45W-65MHz	47	32.379	1.559	0.003	53575
177.000	(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	47	30.727	1.539	0.003	26787
168.000	Side Arm Mount [SO 102-3]	47	27.786	1.500	0.003	14098
167.000	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	47	27.463	1.496	0.003	13393
155.000	QD8616-7 w/ Mount Pipe	47	23.668	1.434	0.002	8370
148.000	APXV18-206517S-C w/ Mount Pipe	47	21.544	1.391	0.002	6867
122.000	SD212-SF2P2SNM	47	14.482	1.168	0.001	5779
114.000	SD110-SFXPASNM	47	12.591	1.084	0.001	5788
83.000	Side Arm Mount [SO 102-3]	47	6.518	0.751	0.001	5531
81.000	ANT450D3	47	6.196	0.730	0.001	5488
79.000	Side Arm Mount [SO 102-3]	47	5.882	0.710	0.001	5446
48.000	KS24019-L112A	47	2.192	0.412	0.000	5230

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	187 - 136	138.669	18	6.447	0.015
L2	140.5 - 89.5	78.930	18	5.459	0.007
L3	95.25 - 44.25	35.383	18	3.592	0.003
L4	51 - 0	9.984	18	1.793	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.000	3' x 2" Pipe Mount	18	138.669	6.447	0.015	13428
185.000	DB404L-B	18	135.968	6.415	0.014	13428
182.000	PCS 1900MHz 4x45W-65MHz	18	131.921	6.367	0.014	13428
177.000	(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	18	125.196	6.285	0.013	6713
168.000	Side Arm Mount [SO 102-3]	18	113.221	6.128	0.012	3531
167.000	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	18	111.906	6.109	0.011	3354
155.000	QD8616-7 w/ Mount Pipe	18	96.454	5.858	0.009	2093
148.000	APXV18-206517S-C w/ Mount Pipe	18	87.807	5.680	0.008	1715
122.000	SD212-SF2P2SNM	18	59.037	4.768	0.005	1435
114.000	SD110-SFXPASNM	18	51.331	4.426	0.004	1435
83.000	Side Arm Mount [SO 102-3]	18	26.573	3.064	0.002	1363
81.000	ANT450D3	18	25.259	2.980	0.002	1352
79.000	Side Arm Mount [SO 102-3]	18	23.981	2.897	0.002	1341
48.000	KS24019-L112A	18	8.933	1.681	0.001	1284

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	187 - 136 (1)	TP36.201x26x0.25	51.000	0.000	0.0	27.813	-23.216	1627.050	0.014
L2	136 - 89.5 (2)	TP45.003x34.801x0.375	51.000	0.000	0.0	51.749	-34.820	3027.340	0.012
L3	89.5 - 44.25 (3)	TP53.304x43.103x0.438	51.000	0.000	0.0	71.537	-50.958	4184.910	0.012
L4	44.25 - 0 (4)	TP61.28x51.079x0.5	51.000	0.000	0.0	96.458	-74.847	5642.780	0.013

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	187 - 136 (1)	TP36.201x26x0.25	731.237	1321.717	0.553	0.000	1321.717	0.000
L2	136 - 89.5 (2)	TP45.003x34.801x0.375	2061.792	3254.917	0.633	0.000	3254.917	0.000
L3	89.5 - 44.25 (3)	TP53.304x43.103x0.438	3603.917	5306.567	0.679	0.000	5306.567	0.000
L4	44.25 - 0 (4)	TP61.28x51.079x0.5	5623.525	8358.583	0.673	0.000	8358.583	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	187 - 136 (1)	TP36.201x26x0.25	26.678	488.116	0.055	2.516	1498.317	0.002
L2	136 - 89.5 (2)	TP45.003x34.801x0.375	32.132	908.202	0.035	1.241	3458.042	0.000
L3	89.5 - 44.25 (3)	TP53.304x43.103x0.438	37.254	1255.470	0.030	1.738	5664.117	0.000
L4	44.25 - 0 (4)	TP61.28x51.079x0.5	41.500	1692.840	0.025	1.948	9010.667	0.000

Pole Interaction Design Data

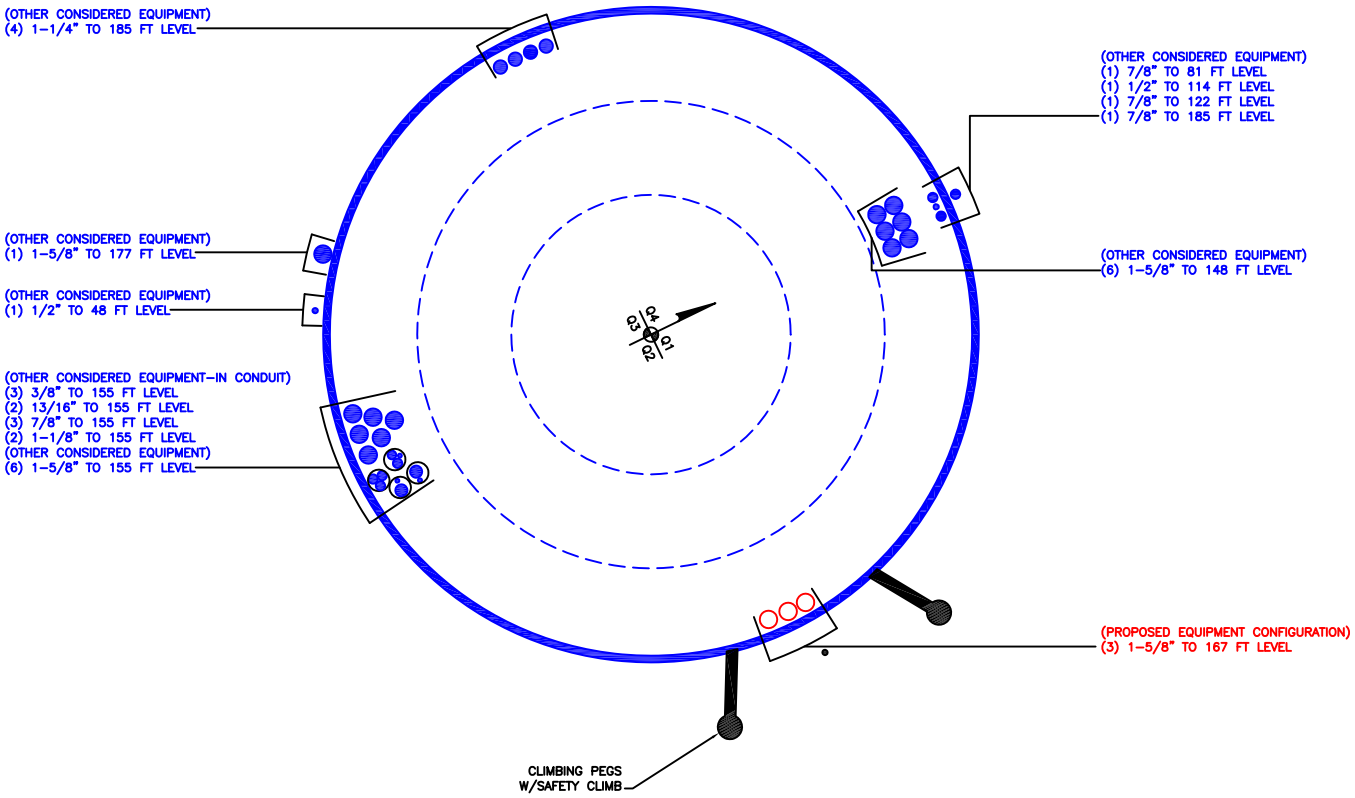
Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	187 - 136 (1)	0.014	0.553	0.000	0.055	0.002	0.571 ✔	1.050	✔
L2	136 - 89.5 (2)	0.012	0.633	0.000	0.035	0.000	0.646 ✔	1.050	✔
L3	89.5 - 44.25 (3)	0.012	0.679	0.000	0.030	0.000	0.692 ✔	1.050	✔
L4	44.25 - 0 (4)	0.013	0.673	0.000	0.025	0.000	0.687 ✔	1.050	✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	187 - 136	Pole	TP36.201x26x0.25	1	-23.216	1708.402	54.4	Pass
L2	136 - 89.5	Pole	TP45.003x34.801x0.375	2	-34.820	3178.707	61.5	Pass
L3	89.5 - 44.25	Pole	TP53.304x43.103x0.438	3	-50.958	4394.155	65.9	Pass
L4	44.25 - 0	Pole	TP61.28x51.079x0.5	4	-74.847	5924.918	65.4	Pass
							Summary	
						Pole (L3)	65.9	Pass
						RATING =	**65.9**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 803934

APPENDIX C

ADDITIONAL CALCULATIONS

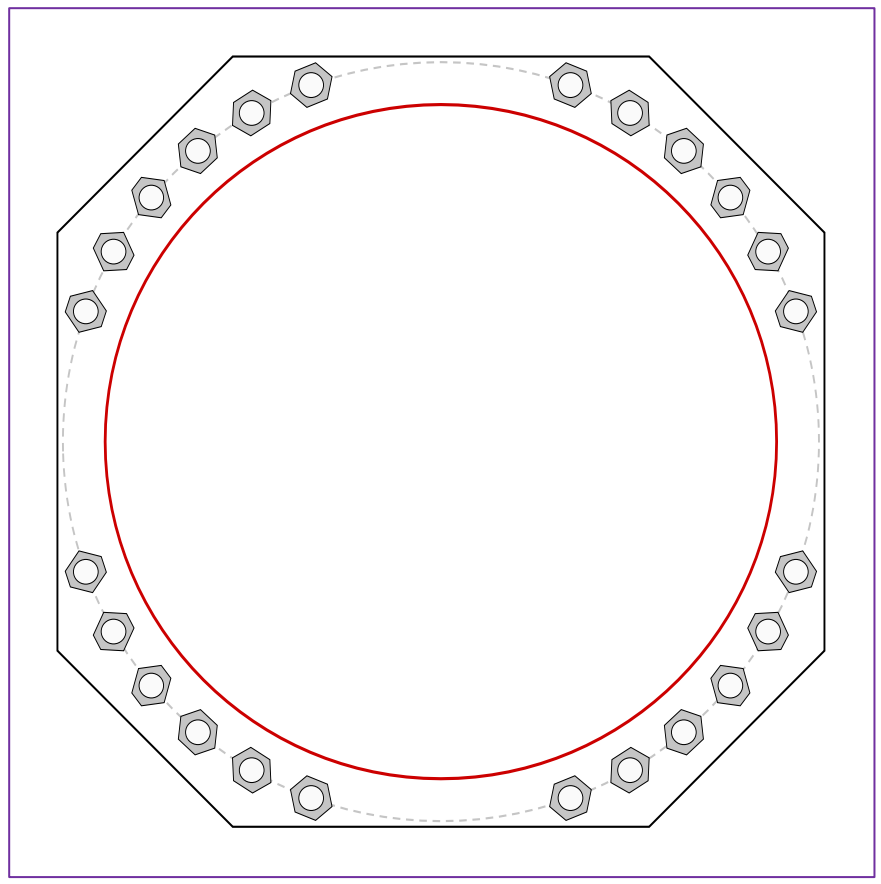
Monopole Base Plate Connection

Site Info	
BU #	803934
Site Name	CT SOMERS FD CAC, CT
Order #	663523, Rev# 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2

Applied Loads	
Moment (kip-ft)	5623.52
Axial Force (kips)	74.85
Shear Force (kips)	41.50

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(24) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 69" BC

Anchor Spacing: 6 in

Base Plate Data

70" W x 3.25" Plate (A572-55; Fy=55 ksi, Fu=70 ksi); Clip: 16 in

Stiffener Data

N/A

Pole Data

61.28" x 0.5" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 159.81	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.73	ϕVn = 149.1	**62.4%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	23.01	(Flexural)
Allowable Stress (ksi):	49.5	
Stress Rating:	**44.3%**	**Pass**

Drilled Pier Foundation

BU # :	803934
Site Name:	CT SOMERS FD CAC, CT
Order Number:	663523, Rev# 0
TIA-222 Revison:	H
Tower Type:	Monopole

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

Go to Soil Calculations

Applied Loads	Comp.	Uplift
Moment (kip-ft)	5624	
Axial Force (kips)	75	
Shear Force (kips)	41	

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

Pier Design Data		
Depth	29	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 29' below grade		
Pier Diameter	8	ft
Rebar Quantity	32	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	
Tie Spacing	18	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	6.52	-
Soil Safety Factor	2.37	-
Max Moment (kip-ft)	5851.64	-
Rating*	*53.6%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	282.74	-
End Bearing (kips)	904.78	-
Weight of Concrete (kips)	174.64	-
Total Capacity (kips)	1187.52	-
Axial (kips)	249.64	-
Rating*	*20.0%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	6.40	-
Critical Moment (kip-ft)	5851.49	-
Critical Moment Capacity	9002.33	-
Rating*	*61.9%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	20.83	-
Critical Shear (kip)	544.35	-
Critical Shear Capacity	722.61	-
Rating*	*71.7%*	-

Structural Foundation Rating*	**71.7%**
Soil Interaction Rating*	**53.6%**

*Rating per TIA-222-H Section 15.5

Soil Profile

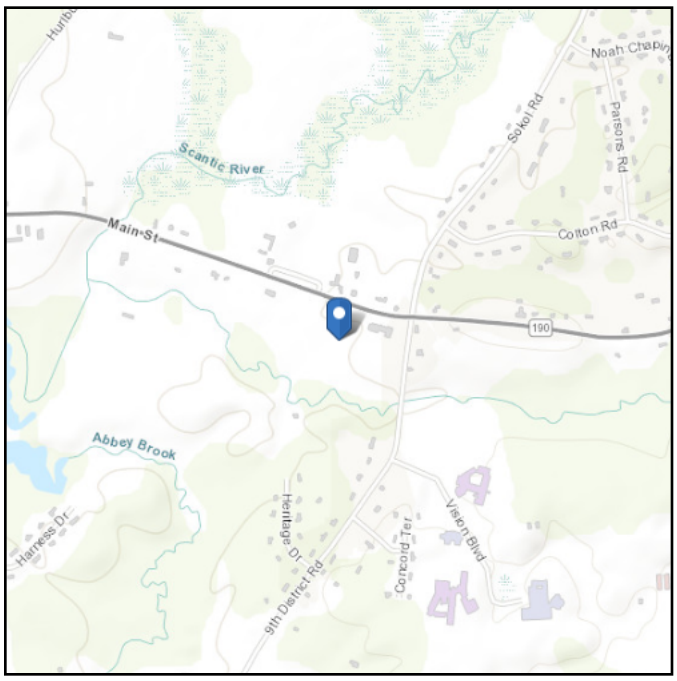
Groundwater Depth	4.5	# of Layers	3

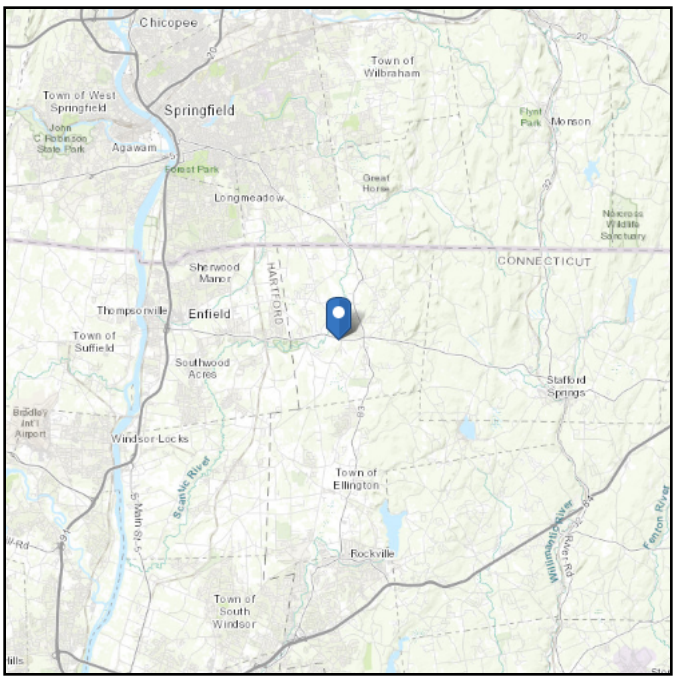
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	4	4	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	4	4.5	0.5	120	150	0	34	0.000	0.000	0.60	0.60			Cohesionless
3	4.5	29	24.5	60	87.6	0	34	0.000	0.000	0.60	0.60	24		Cohesionless

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.983744
Risk Category:	II	**Longitude:**	-72.465797
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	197.77966929482847 ft (NAVD 88)





Wind

Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Wed Jan 31 2024

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.

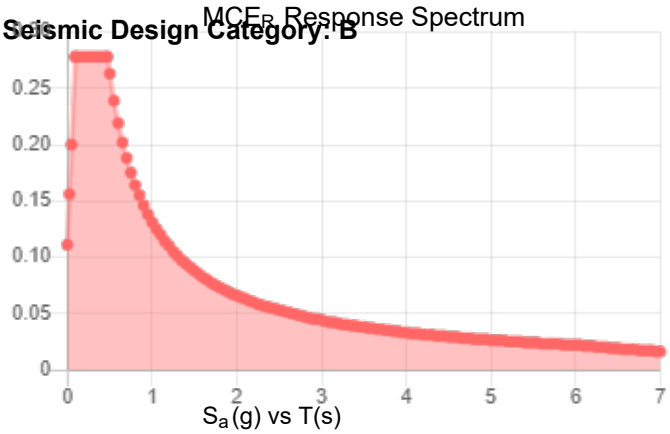
Seismic

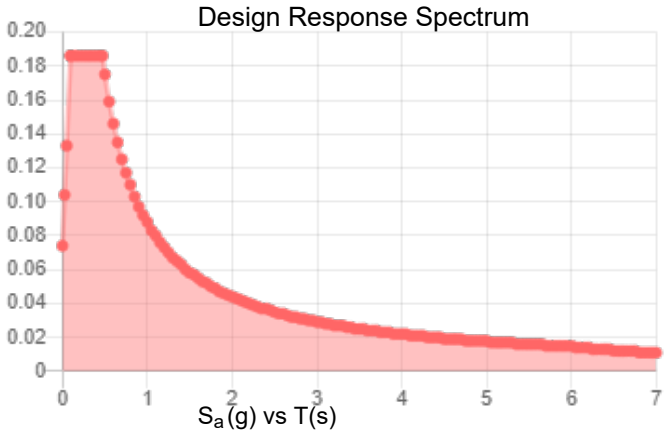
Site Soil Class: D - Default (see Section 11.4.3)

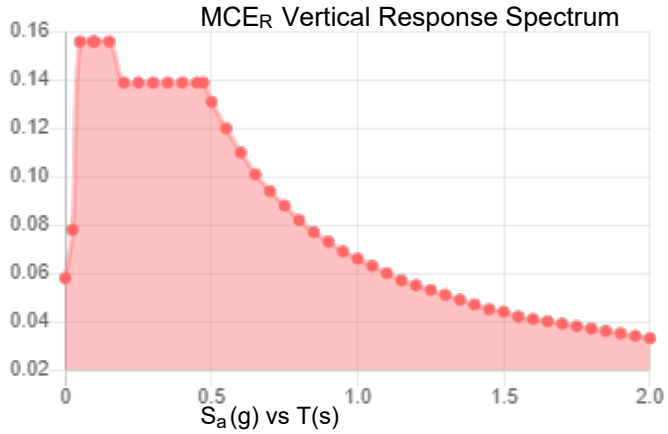
Results:

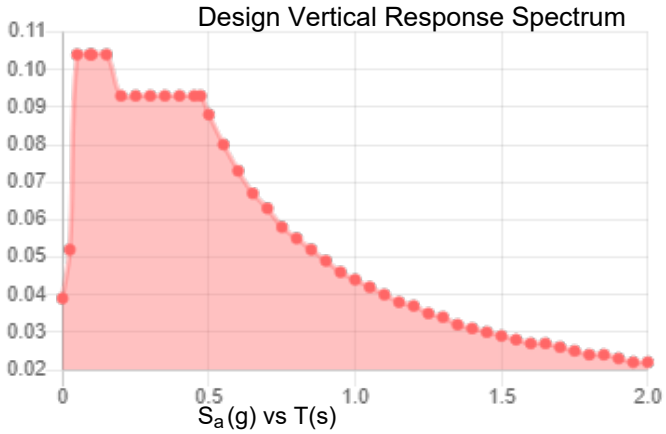
S_S :	0.174	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.091
F_v :	2.4	PGA_M :	0.146
S_{MS} :	0.278	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.186	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Wed Jan 31 2024**

Date Source:

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

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Jan 31 2024

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

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

Date: January 11, 2024

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

Subject:	**Mount Analysis - Conditional Passing Report**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CT11531C
	Carrier Site Name:	CT531/Crown-Somers
Crown Castle Designation:	**BU Number:**	803934
	Site Name:	CT Somers FD CAC
	JDE Job Number:	2100790
	Order Number:	656060, Rev.0
Engineering Firm Designation:	**Report Designation:**	87311.016.01.0002
Site Data:	**400 Main Street, Somers, CT, Tolland County, 06071** **Latitude 41° 59' 1.48" Longitude -72° 27' 56.87"**	
Structure Information:	**Tower Height & Type:**	**187 ft. Monopole**
	Mount Elevation:	**167 ft.**
	Mount Type:	**14 ft. Platform Mount**

We are pleased to submit this **"Mount Analysis - Conditional Passing Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the 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 the acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

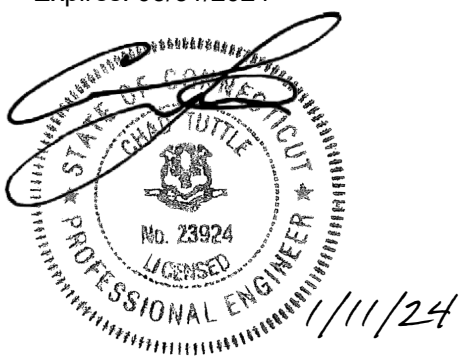
Platform Mount **Sufficient**
***The capacities listed are based on recommendations listed in Sec.4.1 being installed.**

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Jennifer Tillson, E.I.

Respectfully submitted by: MTS Engineering, P.L.L.C
COA: BER: 2386985 Expires: 03/31/2024

Chad E. Tuttle, P.E.



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1) INTRODUCTION

This is an existing 3 - sector 14' Platform Mount, mapped and analyzed by MTS Engineering, P.L.L.C.

The mount has a proposed modification per reinforcement drawings prepared by MTS Engineering, P.L.L.C, dated January of 2021. Reinforcement consists of new Support Rail Kit SitePro1 Part# HRK-14, 4'-0" above the existing main horizontals and new Platform Reinforcement Kit, SitePro1 Part# PRK-SFS-L attached to New Support Rails.

2) ANALYSIS CRITERIA

Building Code:	2022 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	117 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.174
Seismic S_1:	0.055
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb.
Man Live Load at Mount Pipes:	500 lb.

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft.)	Antenna Centerline (ft.)	Number of Antennas	Manufacturer	Model/Type	Mount / Modification Details
167	166	3	Ericsson	AIR 6419 B41_TMO_CCIV2	14' Platform Mount
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	Radio 4449 B71 B85A_T-Mobile	
		3	Ericsson	Radio 4460 B2/B25 B66_TMO	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 08/22/2023	Crown Castle
RFDS		Date: 08/03/2023	
5x5 SCAN Data	Mount Information	Date: 09/11/2023	
Mount Modification Report	MTS Engineering, P.L.L.C	Date: 01/22/2021	On File
Mount Analysis Report		Date: 08/28/2023	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 21.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

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

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Mount Analysis* (Revision E).

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

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

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1,2	Mount Pipes	167	42	70.3	Pass
	Support Tubes		20	19.7	Pass
	Main Horizontals		1	70.1	Pass
	Support Angles		9	29.8	Pass
	Support Rails		28	54.5	Pass
	Connection Angles		52	52.0	Pass
	Stabilizer Kits		31	16.1	Pass
3	Mount To Tower Connection		13	36.7	Pass

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

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

4.1) Recommendations

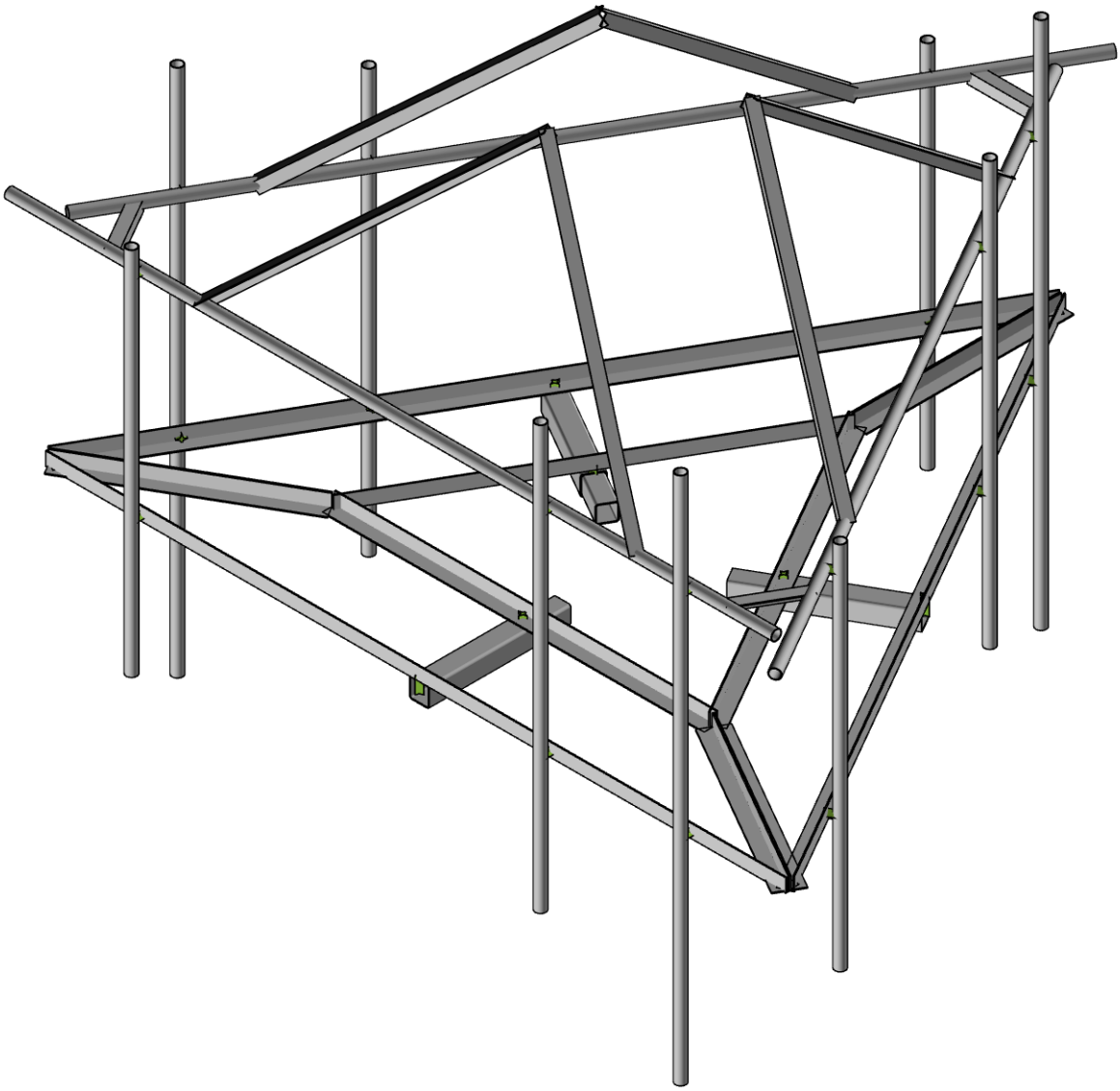
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modification listed below must be completed.

1. Install (3) New 2'' Std. x 10'-0'' long Rosenberger Mount Pipes, Part# C10-981-224 using (3) Commscope, Part# XP-2020 crossover plates in order to connect the proposed mount pipes with support rails in order to accommodate antennas.
2. Install new Support Rail Kit SitePro1 Part# HRK-14, 4'-0" above the existing main horizontals and new Platform Reinforcement Kit, SitePro1 Part# PRK-SFS-L attached to New Support Rails.

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

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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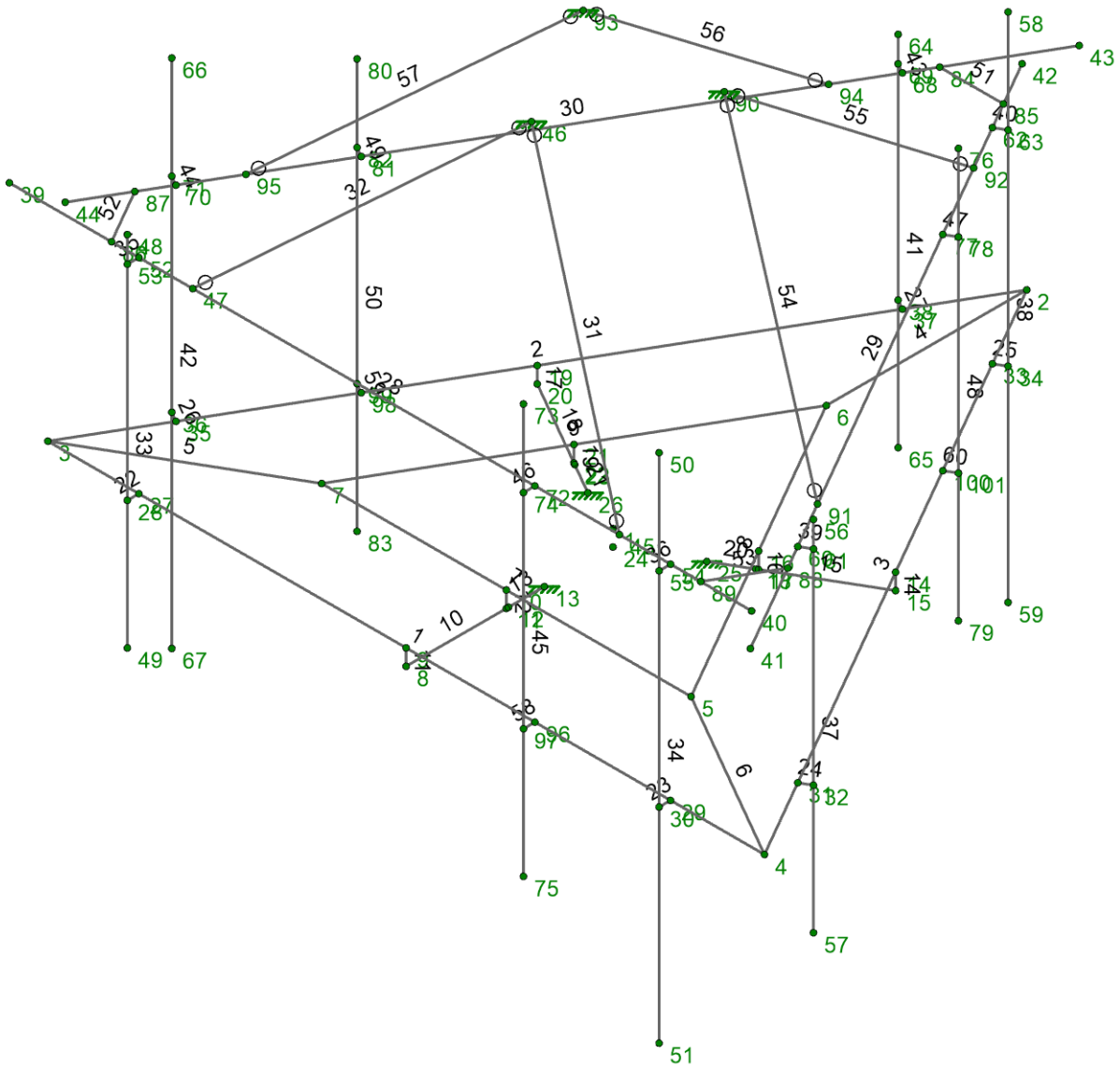

Envelope Only Solution

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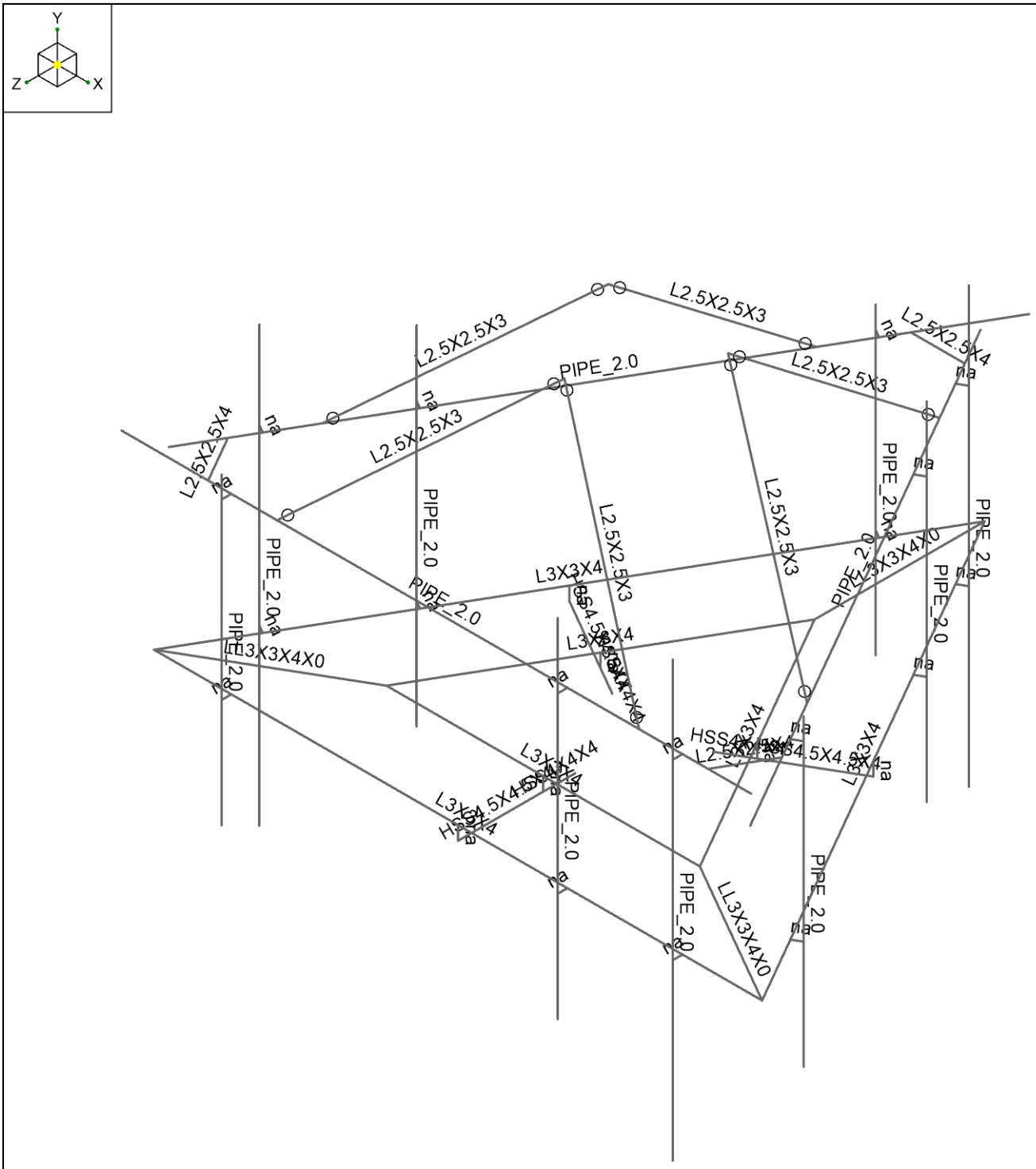

Envelope Only Solution

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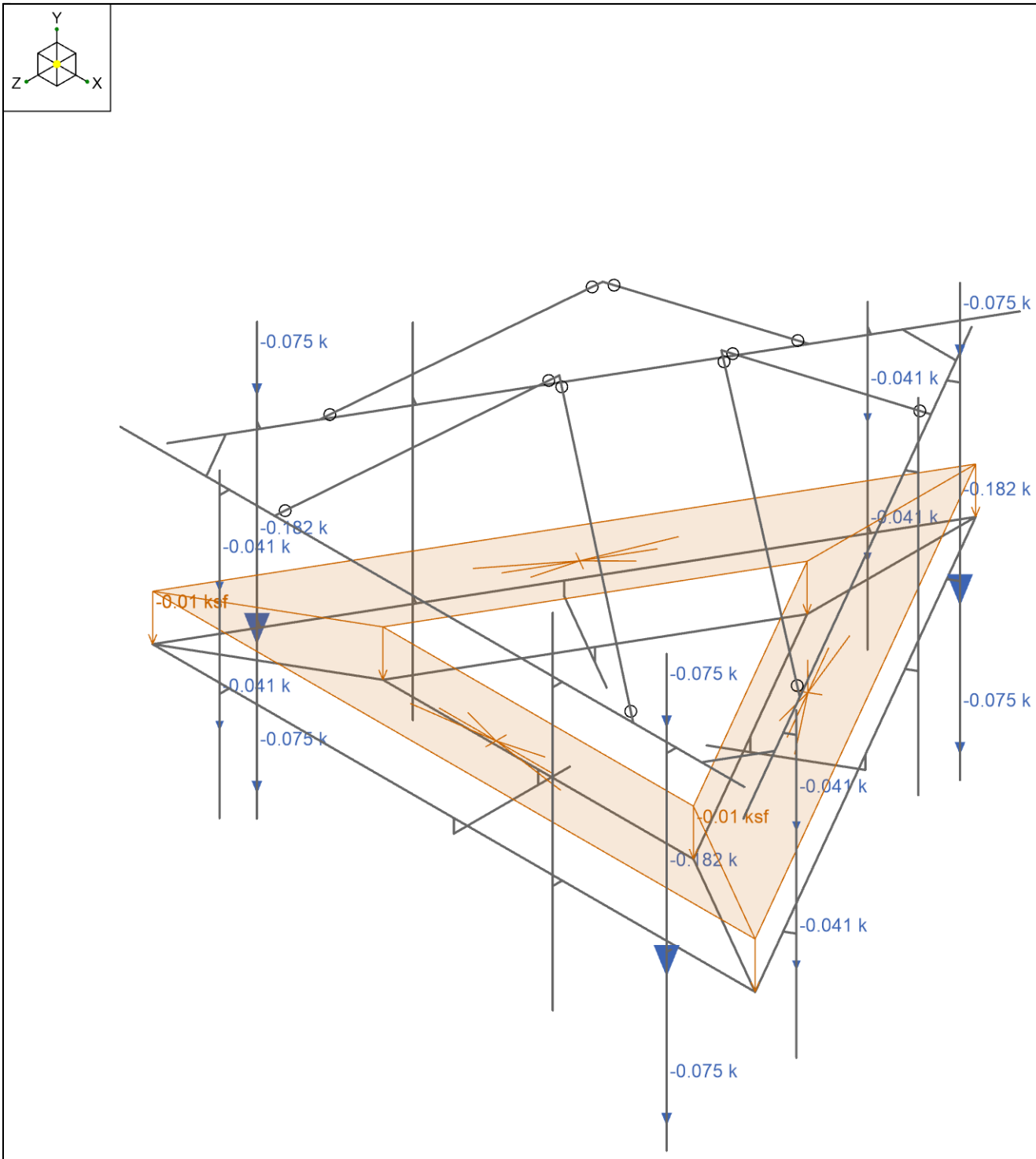

Loads: BLC 1, Dead
Envelope Only Solution

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	MP		Jan 11, 2024 at 01:51 PM
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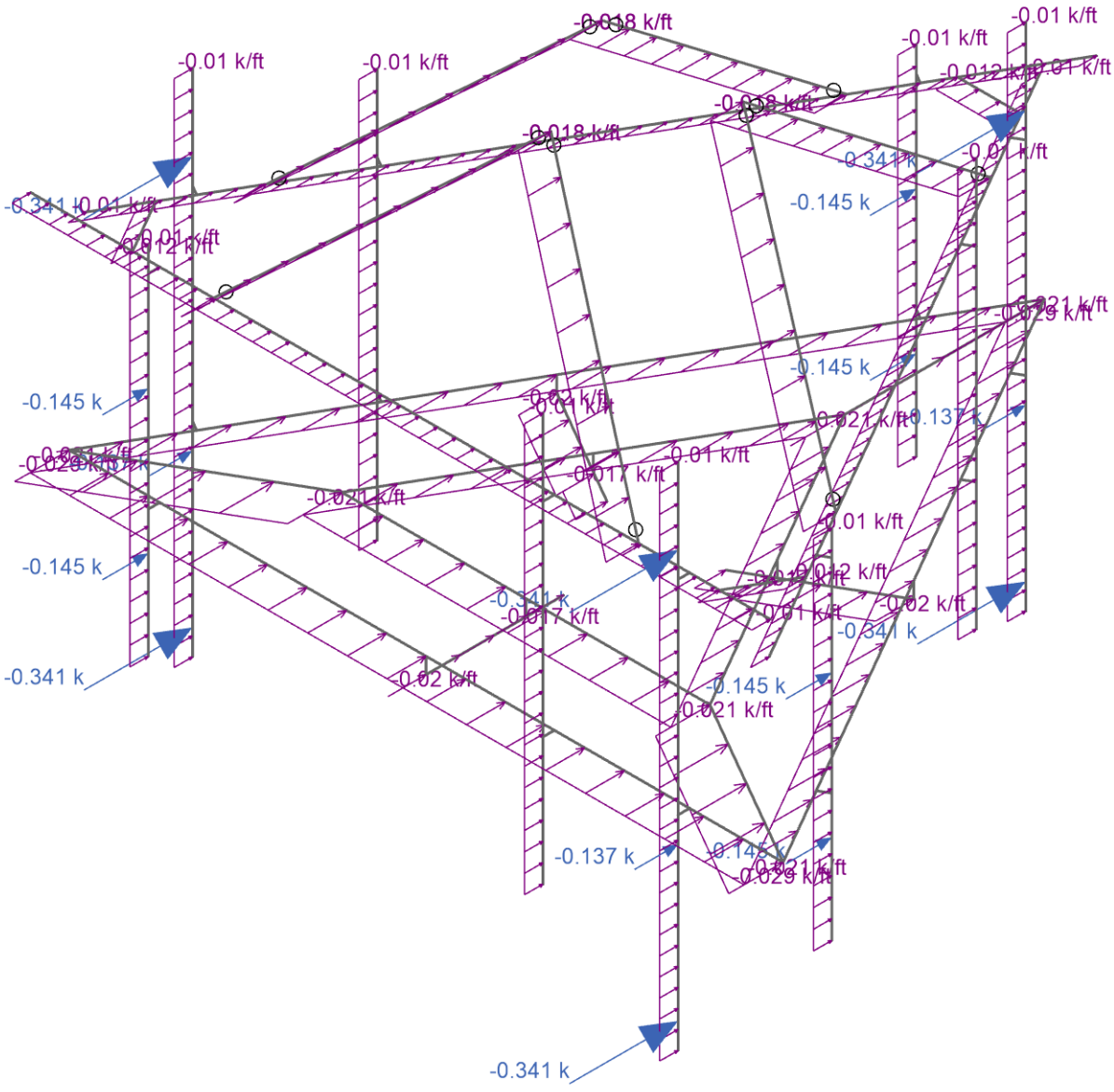

Loads: BLC 2, 0 Wind - No Ice
Envelope Only Solution

IRISA A NEMETSCHEK COMPANY	MTS Engineering, P.L.L.C	803934 - CT Somers FD CAC	SK-7
	MP		Jan 11, 2024 at 01:51 PM
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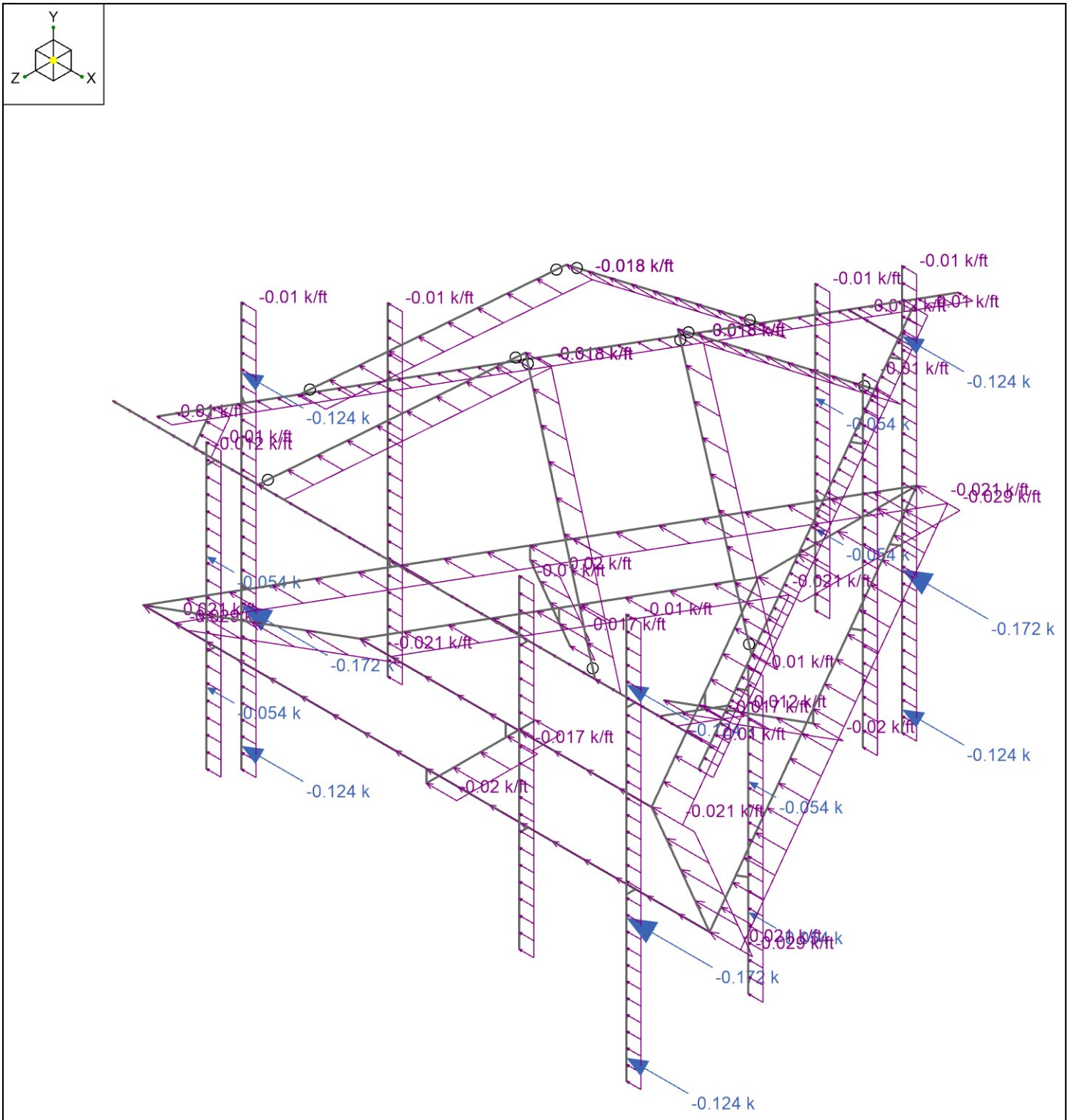

Loads: BLC 3, 90 Wind - No Ice Envelope Only Solution

IRISA	MTS Engineering, P.L.L.C	803934 - CT Somers FD CAC	SK-8
	MP		Jan 11, 2024 at 01:51 PM
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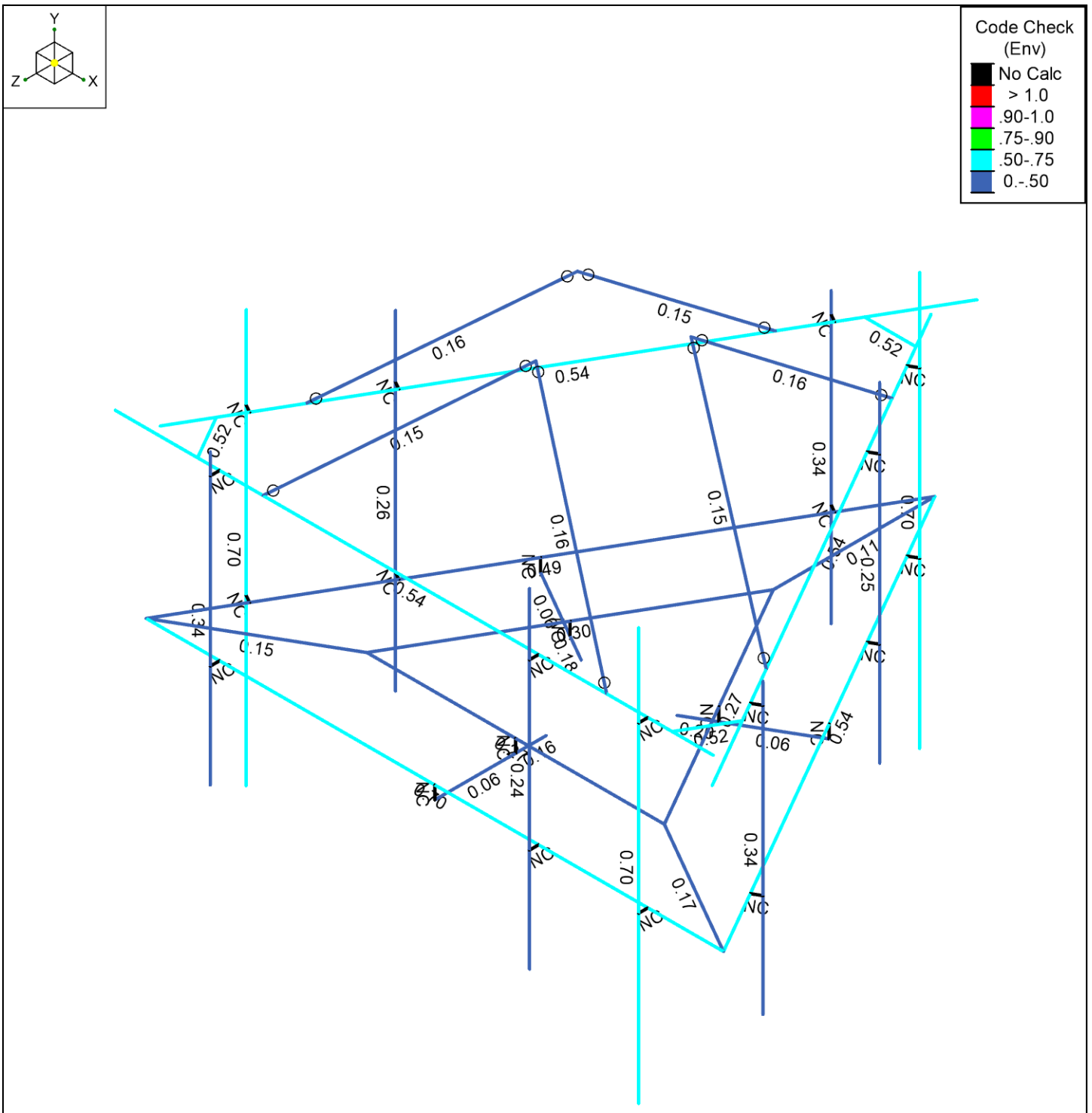

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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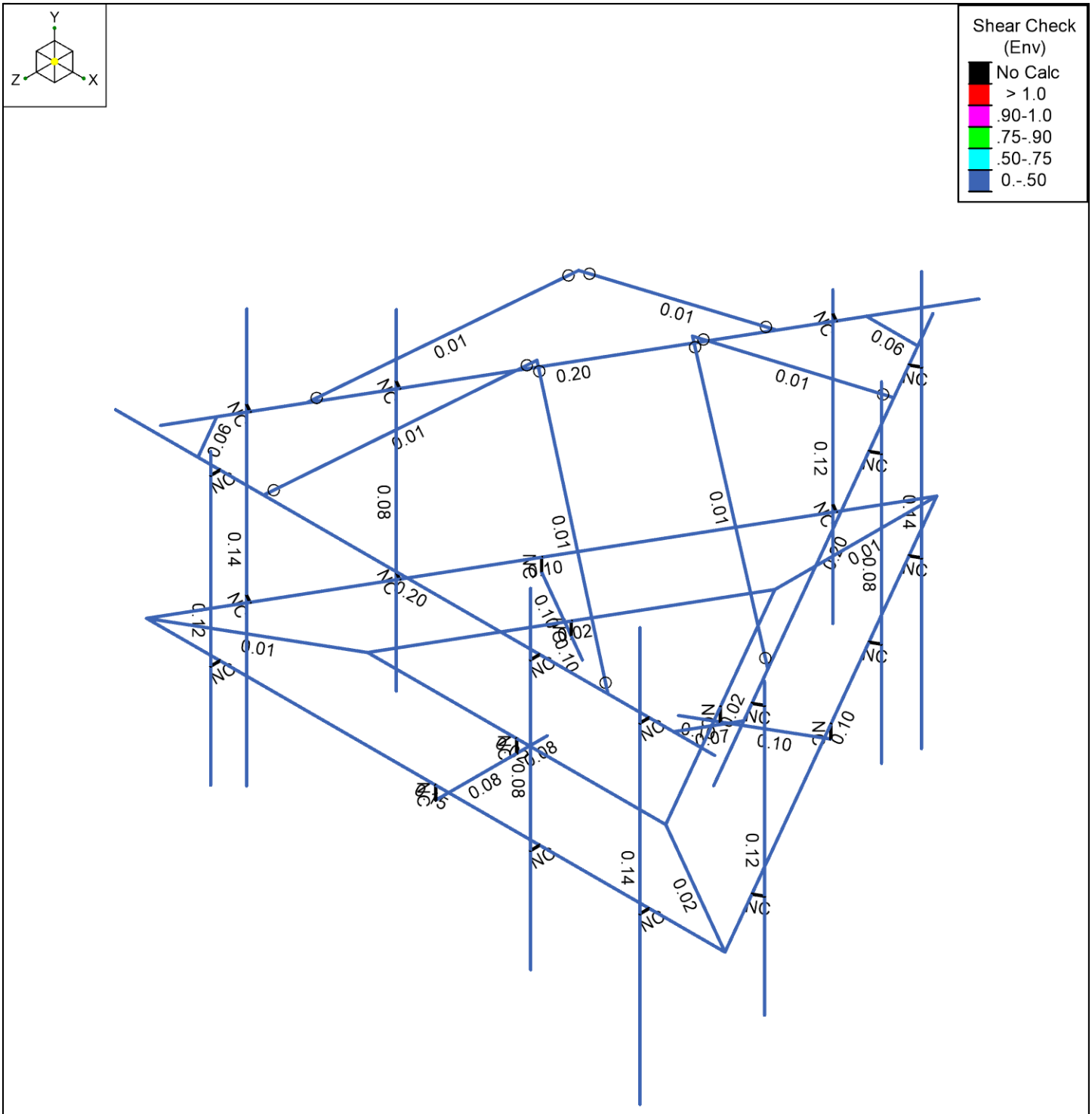

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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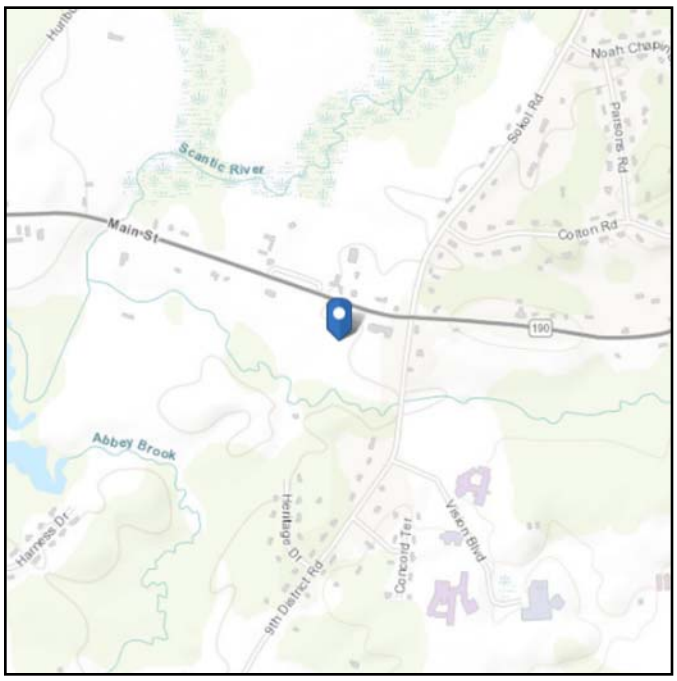
APPENDIX B

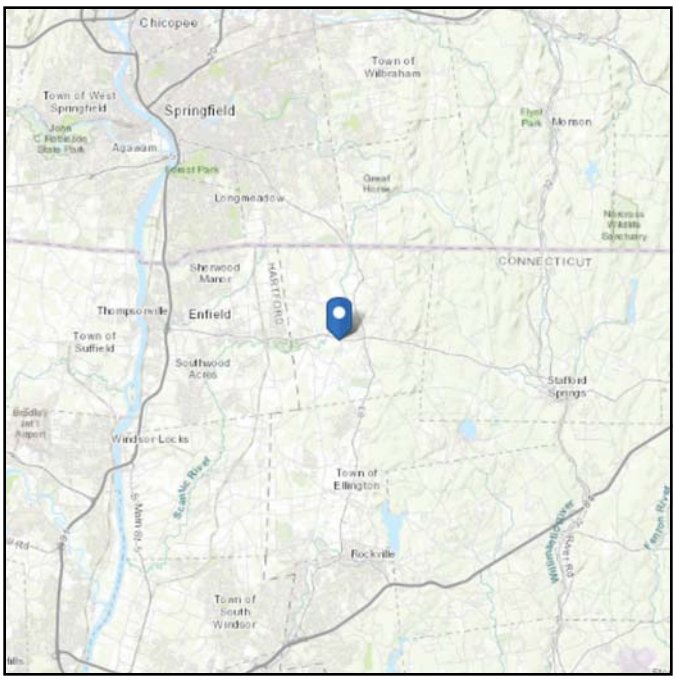
SOFTWARE INPUT CALCULATIONS

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.983744
Risk Category:	II	**Longitude:**	-72.465797
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	197.77966929482847 ft (NAVD 88)





Wind

Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu Jan 11 2024

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.

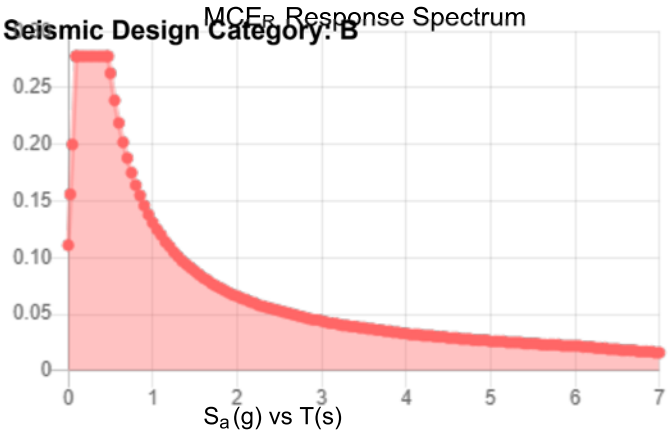
Seismic

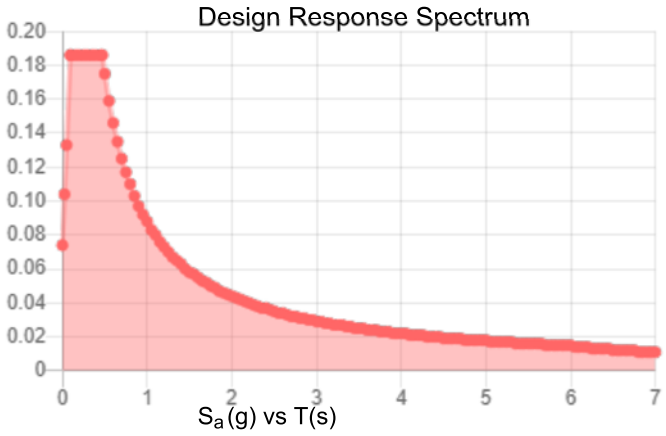
Site Soil Class: D - Default (see Section 11.4.3)

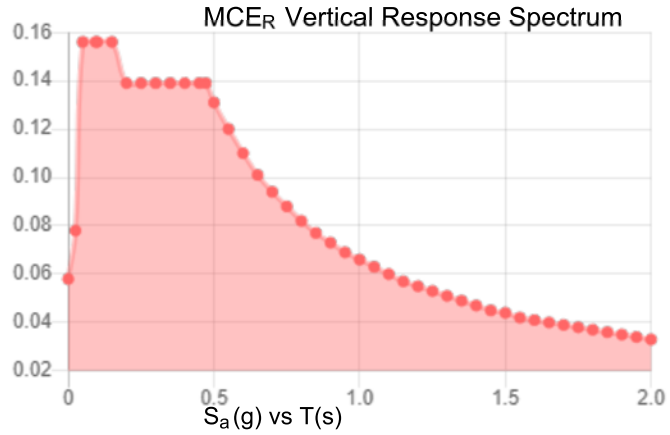
Results:

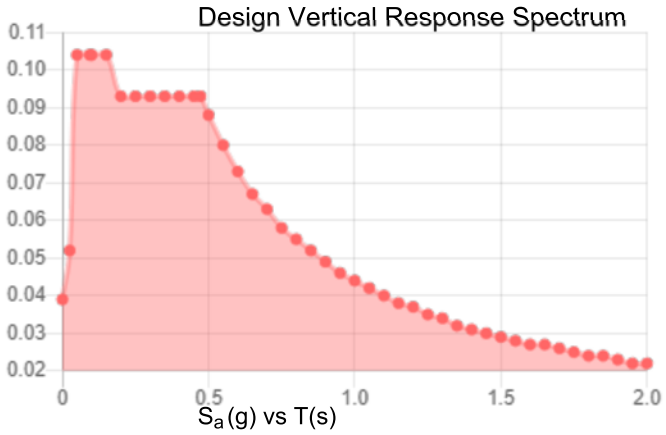
S_S :	0.174	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.091
F_v :	2.4	PGA_M :	0.146
S_{MS} :	0.278	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.186	C_v :	0.7

Seismic Design Category: B









Data Accessed: Thu Jan 11 2024

Date Source:

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

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Jan 11 2024

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	**87311.016.01.0002 - CT Somers FD CA KSC**
SUBJECT	**Platform Mount Analysis**
DATE	**01-11-24**

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	198	ft	[ASCE7 Hazard Tool]
Tower Height		:	187.00	ft	
Mount Elevation		:	167.00	ft	
Antenna Elevation		:	166.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	117	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.50	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.17		
	S_1	:	0.06		
	S_{DS}	:	0.19		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.41		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.99		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.76	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.093		[Sec. 2.7.7.1]
Amplification	A_s	:	2.572193		[Sec. 16.7]

	q_z	:	46.60	psf

PROJECT	87311.016.01.0002 - CT Somers FD CA KSC
SUBJECT	**Platform Mount Analysis**
DATE	**01-11-24**

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

Manufacturer	Model	Qty	Height (in²)	Width (in²)	Depth (in²)	Weight (lbs)	C_aA_a (N) (ft²)	C_aA_a (T) (ft²)	C_aA_a (N) Ice (ft²)	C_aA_a (T) Ice (ft²)	$F_{A (N)}$ (k)	$F_{A (T)}$ (k)	$F_{A (N)}$ Ice (k)	$F_{A (T)}$ Ice (k)
ERICSSON	AIR 6419 B41_TMO_CCIV2	0.5	34.5	19.9	8.0	81.8	3.12	1.17	3.91	1.79	0.15	0.05	0.03	0.02
ERICSSON	AIR 6419 B41_TMO_CCIV2	0.5					3.12	1.17	3.91	1.79	0.15	0.05	0.03	0.02
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5	95.9	24.0	8.5	149.9	7.34	2.66	8.51	3.69	0.34	0.12	0.07	0.03
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5					7.34	2.66	8.51	3.69	0.34	0.12	0.07	0.03
ERICSSON	DIO 4449 B71 B85A_T-MOE	1	17.9	10.6	13.2	73.2	1.59	1.97	2.53	2.99	0.07	0.08	0.01	0.02
ERICSSON	ADIO 4460 B2/B25 B66_TM	1	17.0	11.9	15.1	109.0	1.69	2.14	2.64	3.19	0.07	0.09	0.01	0.02
ERICSSON	AIR 6419 B41_TMO_CCIV2	0.5	34.5	19.9	8.0	81.8	3.12	1.17	3.91	1.79	0.15	0.05	0.03	0.02
ERICSSON	AIR 6419 B41_TMO_CCIV2	0.5					3.12	1.17	3.91	1.79	0.15	0.05	0.03	0.02
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5	95.9	24.0	8.5	149.9	7.34	2.66	8.51	3.69	0.34	0.12	0.07	0.03
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5					7.34	2.66	8.51	3.69	0.34	0.12	0.07	0.03
ERICSSON	DIO 4449 B71 B85A_T-MOE	1	17.9	10.6	13.2	73.2	1.59	1.97	2.53	2.99	0.07	0.08	0.01	0.02
ERICSSON	ADIO 4460 B2/B25 B66_TM	1	17.0	11.9	15.1	109.0	1.69	2.14	2.64	3.19	0.07	0.09	0.01	0.02
ERICSSON	AIR 6419 B41_TMO_CCIV2	0.5	34.5	19.9	8.0	81.8	3.12	1.17	3.91	1.79	0.15	0.05	0.03	0.02
ERICSSON	AIR 6419 B41_TMO_CCIV2	0.5					3.12	1.17	3.91	1.79	0.15	0.05	0.03	0.02
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5	95.9	24.0	8.5	149.9	7.34	2.66	8.51	3.69	0.34	0.12	0.07	0.03
RFS/CELWAVE	XVAALL24_43-U-NA20_TM	0.5					7.34	2.66	8.51	3.69	0.34	0.12	0.07	0.03
ERICSSON	DIO 4449 B71 B85A_T-MOE	1	17.9	10.6	13.2	73.2	1.59	1.97	2.53	2.99	0.07	0.08	0.01	0.02
ERICSSON	ADIO 4460 B2/B25 B66_TM	1	17.0	11.9	15.1	109.0	1.69	2.14	2.64	3.19	0.07	0.09	0.01	0.02

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0.3125	0	
2	2	0	0.3125	-8.082904	
3	3	-7	0.3125	4.041452	
4	4	7	0.3125	4.041452	
5	5	3.608073	0.3125	2.083122	
6	6	0	0.3125	-4.166244	
7	7	-3.608073	0.3125	2.083122	
8	8	0	0	4.041452	
9	9	0	0.3125	4.041452	
10	10	0	0.3125	2.083122	
11	11	0	0	2.083122	
12	12	0	0	2.041452	
13	13	0	0	1.341785	
14	14	3.5	0.3125	-2.020726	
15	15	3.5	0	-2.020726	
16	16	1.804036	0.3125	-1.041561	
17	17	1.804036	0	-1.041561	
18	18	1.767949	0	-1.020726	
19	19	-3.5	0.3125	-2.020726	
20	20	-3.5	0	-2.020726	
21	21	-1.804036	0.3125	-1.041561	
22	22	-1.804036	0	-1.041561	
23	23	-1.767949	0	-1.020726	
24	24	0	0	0	
25	25	1.16202	0	-0.670893	
26	26	-1.16202	0	-0.670893	
27	27	-5.220762	0.3125	4.041452	
28	28	-5.220762	0.3125	4.26562	
29	29	5.166667	0.3125	4.041452	
30	30	5.166667	0.3125	4.26562	
31	31	6.110381	0.3125	2.500587	
32	32	6.304516	0.3125	2.388503	
33	33	0.916667	0.3125	-6.49519	
34	34	1.110802	0.3125	-6.607274	
35	35	-6.083334	0.3125	2.453739	
36	36	-6.277468	0.3125	2.341655	
37	37	-0.889619	0.3125	-6.542038	
38	38	-1.083754	0.3125	-6.654122	
39	39	-7.75	4.3125	4.04145	
40	40	6.75	4.3125	4.04145	
41	41	7.374998	4.3125	4.690972	
42	42	0.124998	4.3125	-7.866396	
43	43	0.375002	4.3125	-8.732422	
44	44	-6.874998	4.3125	3.824946	
45	45	4.166667	4.3125	4.04145	
46	46	0	8	1.591665	
47	47	-4.166667	4.3125	4.04145	
48	48	-5.220762	4.8125	4.26562	
49	49	-5.220762	-2.1875	4.26562	
50	50	5.166667	6.3125	4.26562	
51	51	5.166667	-3.6875	4.26562	
52	52	-5.220762	4.3125	4.04145	
53	53	-5.220762	4.3125	4.26562	
54	54	5.166667	4.3125	4.04145	
55	55	5.166667	4.3125	4.26562	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	6.304516	4.8125	2.388503	
57	57	6.304516	-2.1875	2.388503	
58	58	1.110802	6.3125	-6.607274	
59	59	1.110802	-3.6875	-6.607274	
60	60	6.110379	4.3125	2.500588	
61	61	6.304516	4.3125	2.388503	
62	62	0.916665	4.3125	-6.495189	
63	63	1.110802	4.3125	-6.607274	
64	64	-1.083754	4.8125	-6.654122	
65	65	-1.083754	-2.1875	-6.654122	
66	66	-6.277468	6.3125	2.341655	
67	67	-6.277468	-3.6875	2.341655	
68	68	-0.889618	4.3125	-6.542037	
69	69	-1.083754	4.3125	-6.654122	
70	70	-6.083332	4.3125	2.45374	
71	71	-6.277468	4.3125	2.341655	
72	72	2.516663	4.3125	4.04145	
73	73	2.516663	5.8125	4.26562	
74	74	2.516663	4.3125	4.26562	
75	75	2.516663	-2.1875	4.26562	
76	76	2.435804	5.8125	-4.312304	
77	77	2.241667	4.3125	-4.200219	
78	78	2.435804	4.3125	-4.312304	
79	79	2.435804	-2.1875	-4.312304	
80	80	-4.952467	5.8125	0.046684	
81	81	-4.75833	4.3125	0.158769	
82	82	-4.952467	4.3125	0.046684	
83	83	-4.952467	-2.1875	0.046684	
84	84	-0.622498	4.3125	-7.004701	
85	85	0.622498	4.3125	-7.004701	
86	86	-5.755	4.3125	4.04145	
87	87	-6.377498	4.3125	2.963251	
88	88	6.377498	4.3125	2.963251	
89	89	5.755	4.3125	4.04145	
90	90	1.378423	8	-0.795833	
91	91	5.583332	4.3125	1.587714	
92	92	1.416665	4.3125	-5.629164	
93	93	-1.378423	8	-0.795833	
94	94	-1.416665	4.3125	-5.629164	
95	95	-5.583332	4.3125	1.587714	
96	96	2.516663	0.3125	4.041452	
97	97	2.516663	0.3125	4.26562	
98	98	-4.758332	0.3125	0.158769	
99	99	-4.952467	0.3125	0.046684	
100	100	2.241668	0.3125	-4.20022	
101	101	2.435804	0.3125	-4.312304	

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	13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	25	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	26	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	46	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	90	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	93	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
8	A500 Gr.C RND	29000	11154	0.3	0.65	0.527	46	1.4	62	1.3
9	A500 Gr.C RECT	29000	11154	0.3	0.65	0.527	50	1.4	62	1.3
10	A913 Gr.65	29000	11154	0.3	0.65	0.49	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
2	F1-ST1	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
3	F1-ST2	HSS4.5X4.5X4	Beam	Tube	A500 Gr.B Rect	Typical	3.84	11.4	11.4	18.5
4	MF-H1	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	0.031
5	F1-SA1	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	0.031
6	F1-SA2	LL3X3X4X0	Beam	Double Angle (No Gap)	A36 Gr.36	Typical	2.88	4.5	2.46	0.063
7	SR Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	SR Connection Angle	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical	1.19	0.692	0.692	0.026
9	Reinforcement Angles	L2.5X2.5X3	VBrace	Single Angle	A36 Gr.36	Typical	0.901	0.535	0.535	0.011

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	4	3		MF-H1	Beam	Single Angle	A36 Gr.36	Typical
2	2	3	2		MF-H1	Beam	Single Angle	A36 Gr.36	Typical
3	3	2	4		MF-H1	Beam	Single Angle	A36 Gr.36	Typical
4	4	2	6	180	F1-SA2	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
5	5	3	7	180	F1-SA2	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
6	6	4	5	180	F1-SA2	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
7	7	7	5		F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
8	8	5	6		F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
9	9	6	7		F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
10	10	8	12		F1-ST2	Beam	Tube	A500 Gr.B Rect	Typical
11	11	9	8		RIGID	None	None	RIGID	Typical
12	12	10	11		RIGID	None	None	RIGID	Typical
13	13	12	13		F1-ST1	Beam	Tube	A500 Gr.B Rect	Typical
14	14	14	15		RIGID	None	None	RIGID	Typical
15	15	15	18		F1-ST2	Beam	Tube	A500 Gr.B Rect	Typical
16	16	16	17		RIGID	None	None	RIGID	Typical
17	17	19	20		RIGID	None	None	RIGID	Typical
18	18	20	23		F1-ST2	Beam	Tube	A500 Gr.B Rect	Typical
19	19	21	22		RIGID	None	None	RIGID	Typical
20	20	18	25		F1-ST1	Beam	Tube	A500 Gr.B Rect	Typical
21	21	23	26		F1-ST1	Beam	Tube	A500 Gr.B Rect	Typical
22	22	27	28		RIGID	None	None	RIGID	Typical
23	23	29	30		RIGID	None	None	RIGID	Typical
24	24	31	32		RIGID	None	None	RIGID	Typical
25	25	33	34		RIGID	None	None	RIGID	Typical
26	26	35	36		RIGID	None	None	RIGID	Typical
27	27	37	38		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
28	28	40	39		SR Pipe	Beam	Pipe	A53 Gr.B	Typical
29	29	42	41		SR Pipe	Beam	Pipe	A53 Gr.B	Typical
30	30	44	43		SR Pipe	Beam	Pipe	A53 Gr.B	Typical
31	31	46	45	90	Reinforcement Angles	VBrace	Single Angle	A36 Gr.36	Typical
32	32	46	47	180	Reinforcement Angles	VBrace	Single Angle	A36 Gr.36	Typical
33	33	48	49		MF-P1	Column	Pipe	A53 Gr.B	Typical
34	34	50	51		MF-P1	Column	Pipe	A53 Gr.B	Typical
35	35	52	53		RIGID	None	None	RIGID	Typical
36	36	54	55		RIGID	None	None	RIGID	Typical
37	37	56	57		MF-P1	Column	Pipe	A53 Gr.B	Typical
38	38	58	59		MF-P1	Column	Pipe	A53 Gr.B	Typical
39	39	60	61		RIGID	None	None	RIGID	Typical
40	40	62	63		RIGID	None	None	RIGID	Typical
41	41	64	65		MF-P1	Column	Pipe	A53 Gr.B	Typical
42	42	66	67		MF-P1	Column	Pipe	A53 Gr.B	Typical
43	43	68	69		RIGID	None	None	RIGID	Typical
44	44	70	71		RIGID	None	None	RIGID	Typical
45	45	73	75		MF-P1	Column	Pipe	A53 Gr.B	Typical
46	46	72	74		RIGID	None	None	RIGID	Typical
47	47	77	78		RIGID	None	None	RIGID	Typical
48	48	76	79		MF-P1	Column	Pipe	A53 Gr.B	Typical
49	49	81	82		RIGID	None	None	RIGID	Typical
50	50	80	83		MF-P1	Column	Pipe	A53 Gr.B	Typical
51	51	84	85	180	SR Connection Angle	Beam	Single Angle	A36 Gr.36	Typical
52	52	86	87	180	SR Connection Angle	Beam	Single Angle	A36 Gr.36	Typical
53	53	88	89	180	SR Connection Angle	Beam	Single Angle	A36 Gr.36	Typical
54	54	90	91	180	Reinforcement Angles	VBrace	Single Angle	A36 Gr.36	Typical
55	55	90	92	90	Reinforcement Angles	VBrace	Single Angle	A36 Gr.36	Typical
56	56	93	94	180	Reinforcement Angles	VBrace	Single Angle	A36 Gr.36	Typical
57	57	93	95	90	Reinforcement Angles	VBrace	Single Angle	A36 Gr.36	Typical
58	58	96	97		RIGID	None	None	RIGID	Typical
59	59	98	99		RIGID	None	None	RIGID	Typical
60	60	100	101		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	Default	None
2	2			Yes	Default	None
3	3			Yes	Default	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	N/A	None
10	10			Yes	N/A	None
11	11			Yes	** NA **	None
12	12			Yes	** NA **	None
13	13			Yes	N/A	None
14	14			Yes	** NA **	None
15	15			Yes	N/A	None
16	16			Yes	** NA **	None
17	17			Yes	** NA **	None
18	18			Yes	N/A	None
19	19			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
20	20			Yes	N/A	None
21	21			Yes	N/A	None
22	22			Yes	** NA **	None
23	23			Yes	** NA **	None
24	24			Yes	** NA **	None
25	25			Yes	** NA **	None
26	26			Yes	** NA **	None
27	27			Yes	** NA **	None
28	28			Yes	Default	None
29	29			Yes	Default	None
30	30			Yes	Default	None
31	31	BenPIN	BenPIN	Yes	** NA **	None
32	32	BenPIN	BenPIN	Yes	** NA **	None
33	33			Yes	** NA **	None
34	34			Yes	** NA **	None
35	35			Yes	** NA **	None
36	36			Yes	** NA **	None
37	37			Yes	** NA **	None
38	38			Yes	** NA **	None
39	39			Yes	** NA **	None
40	40			Yes	** NA **	None
41	41			Yes	** NA **	None
42	42			Yes	** NA **	None
43	43			Yes	** NA **	None
44	44			Yes	** NA **	None
45	45			Yes	** NA **	None
46	46			Yes	** NA **	None
47	47			Yes	** NA **	None
48	48			Yes	** NA **	None
49	49			Yes	** NA **	None
50	50			Yes	** NA **	None
51	51			Yes	Default	None
52	52			Yes	Default	None
53	53			Yes	Default	None
54	54	BenPIN	BenPIN	Yes	** NA **	None
55	55	BenPIN	BenPIN	Yes	** NA **	None
56	56	BenPIN	BenPIN	Yes	** NA **	None
57	57	BenPIN	BenPIN	Yes	** NA **	None
58	58			Yes	** NA **	None
59	59			Yes	** NA **	None
60	60			Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	MF-H1	14	7	7	Lbyy	N/A	N/A	Lateral
2	2	MF-H1	14	7	7	Lbyy	N/A	N/A	Lateral
3	3	MF-H1	14	7	7	Lbyy	N/A	N/A	Lateral
4	4	F1-SA2	3.917			Lbyy	N/A	N/A	Lateral
5	5	F1-SA2	3.917			Lbyy	N/A	N/A	Lateral
6	6	F1-SA2	3.917			Lbyy	N/A	N/A	Lateral
7	7	F1-SA1	7.216			Lbyy	N/A	N/A	Lateral
8	8	F1-SA1	7.216			Lbyy	N/A	N/A	Lateral
9	9	F1-SA1	7.216			Lbyy	N/A	N/A	Lateral
10	10	F1-ST2	2			Lbyy	N/A	N/A	Lateral
11	13	F1-ST1	0.7			Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
12	15	F1-ST2	2			Lbyy	N/A	N/A	Lateral
13	18	F1-ST2	2			Lbyy	N/A	N/A	Lateral
14	20	F1-ST1	0.7			Lbyy	N/A	N/A	Lateral
15	21	F1-ST1	0.7			Lbyy	N/A	N/A	Lateral
16	28	SR Pipe	14.5			Lbyy	N/A	N/A	Lateral
17	29	SR Pipe	14.5			Lbyy	N/A	N/A	Lateral
18	30	SR Pipe	14.5			Lbyy	N/A	N/A	Lateral
19	31	Reinforcement Angles	6.079			Lbyy	N/A	N/A	Lateral
20	32	Reinforcement Angles	6.079			Lbyy	N/A	N/A	Lateral
21	33	MF-P1	7			Lbyy	N/A	N/A	Lateral
22	34	MF-P1	10			Lbyy	N/A	N/A	Lateral
23	37	MF-P1	7			Lbyy	N/A	N/A	Lateral
24	38	MF-P1	10			Lbyy	N/A	N/A	Lateral
25	41	MF-P1	7			Lbyy	N/A	N/A	Lateral
26	42	MF-P1	10			Lbyy	N/A	N/A	Lateral
27	45	MF-P1	8			Lbyy	N/A	N/A	Lateral
28	48	MF-P1	8			Lbyy	N/A	N/A	Lateral
29	50	MF-P1	8			Lbyy	N/A	N/A	Lateral
30	51	SR Connection Angle	1.245			Lbyy	N/A	N/A	Lateral
31	52	SR Connection Angle	1.245			Lbyy	N/A	N/A	Lateral
32	53	SR Connection Angle	1.245			Lbyy	N/A	N/A	Lateral
33	54	Reinforcement Angles	6.079			Lbyy	N/A	N/A	Lateral
34	55	Reinforcement Angles	6.079			Lbyy	N/A	N/A	Lateral
35	56	Reinforcement Angles	6.079			Lbyy	N/A	N/A	Lateral
36	57	Reinforcement Angles	6.079			Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	Y	-0.041	%35
2	33	Y	-0.041	%75
3	33	Y	0	0
4	33	Y	0	0
5	33	Y	0	0
6	34	Y	-0.075	%15
7	34	Y	-0.075	%95
8	34	Y	-0.073	%65
9	34	Y	-0.109	%65
10	34	Y	0	0
11	41	Y	-0.041	%35
12	41	Y	-0.041	%75
13	41	Y	0	0
14	41	Y	0	0
15	41	Y	0	0
16	42	Y	-0.075	%15
17	42	Y	-0.075	%95
18	42	Y	-0.073	%65
19	42	Y	-0.109	%65
20	42	Y	0	0
21	37	Y	-0.041	%35
22	37	Y	-0.041	%75
23	37	Y	0	0
24	37	Y	0	0
25	37	Y	0	0
26	38	Y	-0.075	%15
27	38	Y	-0.075	%95

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
28	38	Y	-0.073	%65
29	38	Y	-0.109	%65
30	38	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	Z	-0.145	%35
2	33	Z	-0.145	%75
3	33	Z	0	0
4	33	Z	0	0
5	33	Z	0	0
6	34	Z	-0.341	%15
7	34	Z	-0.341	%95
8	34	Z	-0.067	%65
9	34	Z	-0.071	%65
10	34	Z	0	0
11	41	Z	-0.145	%35
12	41	Z	-0.145	%75
13	41	Z	0	0
14	41	Z	0	0
15	41	Z	0	0
16	42	Z	-0.341	%15
17	42	Z	-0.341	%95
18	42	Z	-0.067	%65
19	42	Z	-0.071	%65
20	42	Z	0	0
21	37	Z	-0.145	%35
22	37	Z	-0.145	%75
23	37	Z	0	0
24	37	Z	0	0
25	37	Z	0	0
26	38	Z	-0.341	%15
27	38	Z	-0.341	%95
28	38	Z	-0.067	%65
29	38	Z	-0.071	%65
30	38	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	X	-0.054	%35
2	33	X	-0.054	%75
3	33	X	0	0
4	33	X	0	0
5	33	X	0	0
6	34	X	-0.124	%15
7	34	X	-0.124	%95
8	34	X	-0.083	%65
9	34	X	-0.09	%65
10	34	X	0	0
11	41	X	-0.054	%35
12	41	X	-0.054	%75
13	41	X	0	0
14	41	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
15	41	X	0	0
16	42	X	-0.124	%15
17	42	X	-0.124	%95
18	42	X	-0.083	%65
19	42	X	-0.09	%65
20	42	X	0	0
21	37	X	-0.054	%35
22	37	X	-0.054	%75
23	37	X	0	0
24	37	X	0	0
25	37	X	0	0
26	38	X	-0.124	%15
27	38	X	-0.124	%95
28	38	X	-0.083	%65
29	38	X	-0.09	%65
30	38	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	Z	-0.033	%35
2	33	Z	-0.033	%75
3	33	Z	0	0
4	33	Z	0	0
5	33	Z	0	0
6	34	Z	-0.072	%15
7	34	Z	-0.072	%95
8	34	Z	-0.012	%65
9	34	Z	-0.013	%65
10	34	Z	0	0
11	41	Z	-0.033	%35
12	41	Z	-0.033	%75
13	41	Z	0	0
14	41	Z	0	0
15	41	Z	0	0
16	42	Z	-0.072	%15
17	42	Z	-0.072	%95
18	42	Z	-0.012	%65
19	42	Z	-0.013	%65
20	42	Z	0	0
21	37	Z	-0.033	%35
22	37	Z	-0.033	%75
23	37	Z	0	0
24	37	Z	0	0
25	37	Z	0	0
26	38	Z	-0.072	%15
27	38	Z	-0.072	%95
28	38	Z	-0.012	%65
29	38	Z	-0.013	%65
30	38	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	X	-0.015	%35
2	33	X	-0.015	%75
3	33	X	0	0
4	33	X	0	0
5	33	X	0	0
6	34	X	-0.031	%15
7	34	X	-0.031	%95
8	34	X	-0.015	%65
9	34	X	-0.016	%65
10	34	X	0	0
11	41	X	-0.015	%35
12	41	X	-0.015	%75
13	41	X	0	0
14	41	X	0	0
15	41	X	0	0
16	42	X	-0.031	%15
17	42	X	-0.031	%95
18	42	X	-0.015	%65
19	42	X	-0.016	%65
20	42	X	0	0
21	37	X	-0.015	%35
22	37	X	-0.015	%75
23	37	X	0	0
24	37	X	0	0
25	37	X	0	0
26	38	X	-0.031	%15
27	38	X	-0.031	%95
28	38	X	-0.015	%65
29	38	X	-0.016	%65
30	38	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	Z	-0.009	%35
2	33	Z	-0.009	%75
3	33	Z	0	0
4	33	Z	0	0
5	33	Z	0	0
6	34	Z	-0.022	%15
7	34	Z	-0.022	%95
8	34	Z	-0.004	%65
9	34	Z	-0.005	%65
10	34	Z	0	0
11	41	Z	-0.009	%35
12	41	Z	-0.009	%75
13	41	Z	0	0
14	41	Z	0	0
15	41	Z	0	0
16	42	Z	-0.022	%15
17	42	Z	-0.022	%95
18	42	Z	-0.004	%65
19	42	Z	-0.005	%65
20	42	Z	0	0
21	37	Z	-0.009	%35

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
22	37	Z	-0.009	%75
23	37	Z	0	0
24	37	Z	0	0
25	37	Z	0	0
26	38	Z	-0.022	%15
27	38	Z	-0.022	%95
28	38	Z	-0.004	%65
29	38	Z	-0.005	%65
30	38	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	X	-0.004	%35
2	33	X	-0.004	%75
3	33	X	0	0
4	33	X	0	0
5	33	X	0	0
6	34	X	-0.008	%15
7	34	X	-0.008	%95
8	34	X	-0.005	%65
9	34	X	-0.006	%65
10	34	X	0	0
11	41	X	-0.004	%35
12	41	X	-0.004	%75
13	41	X	0	0
14	41	X	0	0
15	41	X	0	0
16	42	X	-0.008	%15
17	42	X	-0.008	%95
18	42	X	-0.005	%65
19	42	X	-0.006	%65
20	42	X	0	0
21	37	X	-0.004	%35
22	37	X	-0.004	%75
23	37	X	0	0
24	37	X	0	0
25	37	X	0	0
26	38	X	-0.008	%15
27	38	X	-0.008	%95
28	38	X	-0.005	%65
29	38	X	-0.006	%65
30	38	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	Y	-0.106	%35
2	33	Y	-0.106	%75
3	33	Y	0	0
4	33	Y	0	0
5	33	Y	0	0
6	34	Y	-0.258	%15
7	34	Y	-0.258	%95
8	34	Y	-0.06	%65

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
9	34	Y	-0.064	%65
10	34	Y	0	0
11	41	Y	-0.106	%35
12	41	Y	-0.106	%75
13	41	Y	0	0
14	41	Y	0	0
15	41	Y	0	0
16	42	Y	-0.258	%15
17	42	Y	-0.258	%95
18	42	Y	-0.06	%65
19	42	Y	-0.064	%65
20	42	Y	0	0
21	37	Y	-0.106	%35
22	37	Y	-0.106	%75
23	37	Y	0	0
24	37	Y	0	0
25	37	Y	0	0
26	38	Y	-0.258	%15
27	38	Y	-0.258	%95
28	38	Y	-0.06	%65
29	38	Y	-0.064	%65
30	38	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	Z	-0.02	%35
2	33	Z	-0.02	%75
3	33	Z	0	0
4	33	Z	0	0
5	33	Z	0	0
6	34	Z	-0.036	%15
7	34	Z	-0.036	%95
8	34	Z	-0.018	%65
9	34	Z	-0.026	%65
10	34	Z	0	0
11	41	Z	-0.02	%35
12	41	Z	-0.02	%75
13	41	Z	0	0
14	41	Z	0	0
15	41	Z	0	0
16	42	Z	-0.036	%15
17	42	Z	-0.036	%95
18	42	Z	-0.018	%65
19	42	Z	-0.026	%65
20	42	Z	0	0
21	37	Z	-0.02	%35
22	37	Z	-0.02	%75
23	37	Z	0	0
24	37	Z	0	0
25	37	Z	0	0
26	38	Z	-0.036	%15
27	38	Z	-0.036	%95
28	38	Z	-0.018	%65
29	38	Z	-0.026	%65
30	38	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	33	X	-0.02	%35
2	33	X	-0.02	%75
3	33	X	0	0
4	33	X	0	0
5	33	X	0	0
6	34	X	-0.036	%15
7	34	X	-0.036	%95
8	34	X	-0.018	%65
9	34	X	-0.026	%65
10	34	X	0	0
11	41	X	-0.02	%35
12	41	X	-0.02	%75
13	41	X	0	0
14	41	X	0	0
15	41	X	0	0
16	42	X	-0.036	%15
17	42	X	-0.036	%95
18	42	X	-0.018	%65
19	42	X	-0.026	%65
20	42	X	0	0
21	37	X	-0.02	%35
22	37	X	-0.02	%75
23	37	X	0	0
24	37	X	0	0
25	37	X	0	0
26	38	X	-0.036	%15
27	38	X	-0.036	%95
28	38	X	-0.018	%65
29	38	X	-0.026	%65
30	38	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

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

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	30	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

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

Member Point Loads (BLC 19 : Maint LL 5)

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

Member Point Loads (BLC 20 : Maint LL 6)

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

Member Point Loads (BLC 21 : Maint LL 7)

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

Member Point Loads (BLC 22 : Maint LL 8)

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

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	30	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

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

Member Point Loads (BLC 25 : Maint LL 11)

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

Member Point Loads (BLC 26 : Maint LL 12)

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

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	10	Y	-0.25	%5

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.25	%5

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	15	Y	-0.25	%5

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.021	-0.021	0	%100
2	2	Z	-0.021	-0.021	0	%100
3	3	Z	-0.021	-0.021	0	%100
4	4	Z	-0.029	-0.029	0	%100
5	5	Z	-0.029	-0.029	0	%100
6	6	Z	-0.029	-0.029	0	%100
7	7	Z	-0.021	-0.021	0	%100
8	8	Z	-0.021	-0.021	0	%100
9	9	Z	-0.021	-0.021	0	%100
10	10	Z	-0.02	-0.02	0	%100
11	13	Z	-0.017	-0.017	0	%100
12	15	Z	-0.02	-0.02	0	%100
13	18	Z	-0.02	-0.02	0	%100
14	20	Z	-0.017	-0.017	0	%100
15	21	Z	-0.017	-0.017	0	%100
16	28	Z	-0.01	-0.01	0	%100
17	29	Z	-0.01	-0.01	0	%100
18	30	Z	-0.01	-0.01	0	%100
19	31	Z	-0.018	-0.018	0	%100
20	32	Z	-0.018	-0.018	0	%100
21	33	Z	-0.01	-0.01	0	%100
22	34	Z	-0.01	-0.01	0	%100
23	37	Z	-0.01	-0.01	0	%100
24	38	Z	-0.01	-0.01	0	%100
25	41	Z	-0.01	-0.01	0	%100
26	42	Z	-0.01	-0.01	0	%100
27	45	Z	-0.01	-0.01	0	%100
28	48	Z	-0.01	-0.01	0	%100
29	50	Z	-0.01	-0.01	0	%100
30	51	Z	-0.012	-0.012	0	%100
31	52	Z	-0.012	-0.012	0	%100
32	53	Z	-0.012	-0.012	0	%100
33	54	Z	-0.018	-0.018	0	%100
34	55	Z	-0.018	-0.018	0	%100
35	56	Z	-0.018	-0.018	0	%100
36	57	Z	-0.018	-0.018	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.021	-0.021	0	%100
2	2	X	-0.021	-0.021	0	%100
3	3	X	-0.021	-0.021	0	%100
4	4	X	-0.029	-0.029	0	%100
5	5	X	-0.029	-0.029	0	%100
6	6	X	-0.029	-0.029	0	%100
7	7	X	-0.021	-0.021	0	%100
8	8	X	-0.021	-0.021	0	%100
9	9	X	-0.021	-0.021	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
10	10	X	-0.02	-0.02	0	%100
11	13	X	-0.017	-0.017	0	%100
12	15	X	-0.02	-0.02	0	%100
13	18	X	-0.02	-0.02	0	%100
14	20	X	-0.017	-0.017	0	%100
15	21	X	-0.017	-0.017	0	%100
16	28	X	-0.01	-0.01	0	%100
17	29	X	-0.01	-0.01	0	%100
18	30	X	-0.01	-0.01	0	%100
19	31	X	-0.018	-0.018	0	%100
20	32	X	-0.018	-0.018	0	%100
21	33	X	-0.01	-0.01	0	%100
22	34	X	-0.01	-0.01	0	%100
23	37	X	-0.01	-0.01	0	%100
24	38	X	-0.01	-0.01	0	%100
25	41	X	-0.01	-0.01	0	%100
26	42	X	-0.01	-0.01	0	%100
27	45	X	-0.01	-0.01	0	%100
28	48	X	-0.01	-0.01	0	%100
29	50	X	-0.01	-0.01	0	%100
30	51	X	-0.012	-0.012	0	%100
31	52	X	-0.012	-0.012	0	%100
32	53	X	-0.012	-0.012	0	%100
33	54	X	-0.018	-0.018	0	%100
34	55	X	-0.018	-0.018	0	%100
35	56	X	-0.018	-0.018	0	%100
36	57	X	-0.018	-0.018	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.009	-0.009	0	%100
2	2	Z	-0.009	-0.009	0	%100
3	3	Z	-0.009	-0.009	0	%100
4	4	Z	-0.009	-0.009	0	%100
5	5	Z	-0.009	-0.009	0	%100
6	6	Z	-0.009	-0.009	0	%100
7	7	Z	-0.009	-0.009	0	%100
8	8	Z	-0.009	-0.009	0	%100
9	9	Z	-0.009	-0.009	0	%100
10	10	Z	-0.008	-0.008	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	-0.008	-0.008	0	%100
16	28	Z	-0.002	-0.002	0	%100
17	29	Z	-0.002	-0.002	0	%100
18	30	Z	-0.002	-0.002	0	%100
19	31	Z	-0.008	-0.008	0	%100
20	32	Z	-0.008	-0.008	0	%100
21	33	Z	-0.002	-0.002	0	%100
22	34	Z	-0.002	-0.002	0	%100
23	37	Z	-0.002	-0.002	0	%100
24	38	Z	-0.002	-0.002	0	%100
25	41	Z	-0.002	-0.002	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, %)]
26	42	Z	-0.002	-0.002	0	%100
27	45	Z	-0.002	-0.002	0	%100
28	48	Z	-0.002	-0.002	0	%100
29	50	Z	-0.002	-0.002	0	%100
30	51	Z	-0.006	-0.006	0	%100
31	52	Z	-0.006	-0.006	0	%100
32	53	Z	-0.006	-0.006	0	%100
33	54	Z	-0.008	-0.008	0	%100
34	55	Z	-0.008	-0.008	0	%100
35	56	Z	-0.008	-0.008	0	%100
36	57	Z	-0.008	-0.008	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.009	-0.009	0	%100
2	2	X	-0.009	-0.009	0	%100
3	3	X	-0.009	-0.009	0	%100
4	4	X	-0.009	-0.009	0	%100
5	5	X	-0.009	-0.009	0	%100
6	6	X	-0.009	-0.009	0	%100
7	7	X	-0.009	-0.009	0	%100
8	8	X	-0.009	-0.009	0	%100
9	9	X	-0.009	-0.009	0	%100
10	10	X	-0.008	-0.008	0	%100
11	13	X	-0.008	-0.008	0	%100
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	-0.008	-0.008	0	%100
16	28	X	-0.002	-0.002	0	%100
17	29	X	-0.002	-0.002	0	%100
18	30	X	-0.002	-0.002	0	%100
19	31	X	-0.008	-0.008	0	%100
20	32	X	-0.008	-0.008	0	%100
21	33	X	-0.002	-0.002	0	%100
22	34	X	-0.002	-0.002	0	%100
23	37	X	-0.002	-0.002	0	%100
24	38	X	-0.002	-0.002	0	%100
25	41	X	-0.002	-0.002	0	%100
26	42	X	-0.002	-0.002	0	%100
27	45	X	-0.002	-0.002	0	%100
28	48	X	-0.002	-0.002	0	%100
29	50	X	-0.002	-0.002	0	%100
30	51	X	-0.006	-0.006	0	%100
31	52	X	-0.006	-0.006	0	%100
32	53	X	-0.006	-0.006	0	%100
33	54	X	-0.008	-0.008	0	%100
34	55	X	-0.008	-0.008	0	%100
35	56	X	-0.008	-0.008	0	%100
36	57	X	-0.008	-0.008	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.001	-0.001	0	%100
8	8	Z	-0.001	-0.001	0	%100
9	9	Z	-0.001	-0.001	0	%100
10	10	Z	-0.001	-0.001	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	28	Z	-0.0003	-0.0003	0	%100
17	29	Z	-0.0003	-0.0003	0	%100
18	30	Z	-0.0003	-0.0003	0	%100
19	31	Z	-0.001	-0.001	0	%100
20	32	Z	-0.001	-0.001	0	%100
21	33	Z	-0.0003	-0.0003	0	%100
22	34	Z	-0.0003	-0.0003	0	%100
23	37	Z	-0.0003	-0.0003	0	%100
24	38	Z	-0.0003	-0.0003	0	%100
25	41	Z	-0.0003	-0.0003	0	%100
26	42	Z	-0.0003	-0.0003	0	%100
27	45	Z	-0.0003	-0.0003	0	%100
28	48	Z	-0.0003	-0.0003	0	%100
29	50	Z	-0.0003	-0.0003	0	%100
30	51	Z	-0.0008	-0.0008	0	%100
31	52	Z	-0.0008	-0.0008	0	%100
32	53	Z	-0.0008	-0.0008	0	%100
33	54	Z	-0.001	-0.001	0	%100
34	55	Z	-0.001	-0.001	0	%100
35	56	Z	-0.001	-0.001	0	%100
36	57	Z	-0.001	-0.001	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.002	-0.002	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.001	-0.001	0	%100
9	9	X	-0.001	-0.001	0	%100
10	10	X	-0.001	-0.001	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

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, %)]
16	28	X	-0.0003	-0.0003	0	%100
17	29	X	-0.0003	-0.0003	0	%100
18	30	X	-0.0003	-0.0003	0	%100
19	31	X	-0.001	-0.001	0	%100
20	32	X	-0.001	-0.001	0	%100
21	33	X	-0.0003	-0.0003	0	%100
22	34	X	-0.0003	-0.0003	0	%100
23	37	X	-0.0003	-0.0003	0	%100
24	38	X	-0.0003	-0.0003	0	%100
25	41	X	-0.0003	-0.0003	0	%100
26	42	X	-0.0003	-0.0003	0	%100
27	45	X	-0.0003	-0.0003	0	%100
28	48	X	-0.0003	-0.0003	0	%100
29	50	X	-0.0003	-0.0003	0	%100
30	51	X	-0.0008	-0.0008	0	%100
31	52	X	-0.0008	-0.0008	0	%100
32	53	X	-0.0008	-0.0008	0	%100
33	54	X	-0.001	-0.001	0	%100
34	55	X	-0.001	-0.001	0	%100
35	56	X	-0.001	-0.001	0	%100
36	57	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.013	-0.013	0	%100
2	2	Y	-0.013	-0.013	0	%100
3	3	Y	-0.013	-0.013	0	%100
4	4	Y	-0.018	-0.018	0	%100
5	5	Y	-0.018	-0.018	0	%100
6	6	Y	-0.018	-0.018	0	%100
7	7	Y	-0.013	-0.013	0	%100
8	8	Y	-0.013	-0.013	0	%100
9	9	Y	-0.013	-0.013	0	%100
10	10	Y	-0.018	-0.018	0	%100
11	13	Y	-0.016	-0.016	0	%100
12	15	Y	-0.018	-0.018	0	%100
13	18	Y	-0.018	-0.018	0	%100
14	20	Y	-0.016	-0.016	0	%100
15	21	Y	-0.016	-0.016	0	%100
16	28	Y	-0.009	-0.009	0	%100
17	29	Y	-0.009	-0.009	0	%100
18	30	Y	-0.009	-0.009	0	%100
19	31	Y	-0.011	-0.011	0	%100
20	32	Y	-0.011	-0.011	0	%100
21	33	Y	-0.009	-0.009	0	%100
22	34	Y	-0.009	-0.009	0	%100
23	37	Y	-0.009	-0.009	0	%100
24	38	Y	-0.009	-0.009	0	%100
25	41	Y	-0.009	-0.009	0	%100
26	42	Y	-0.009	-0.009	0	%100
27	45	Y	-0.009	-0.009	0	%100
28	48	Y	-0.009	-0.009	0	%100
29	50	Y	-0.009	-0.009	0	%100
30	51	Y	-0.011	-0.011	0	%100
31	52	Y	-0.011	-0.011	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
32	53	Y	-0.011	-0.011	0	%100
33	54	Y	-0.011	-0.011	0	%100
34	55	Y	-0.011	-0.011	0	%100
35	56	Y	-0.011	-0.011	0	%100
36	57	Y	-0.011	-0.011	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.001	-0.001	0	%100
8	8	Z	-0.001	-0.001	0	%100
9	9	Z	-0.001	-0.001	0	%100
10	10	Z	-0.003	-0.003	0	%100
11	13	Z	-0.003	-0.003	0	%100
12	15	Z	-0.003	-0.003	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	28	Z	-0.0009	-0.0009	0	%100
17	29	Z	-0.0009	-0.0009	0	%100
18	30	Z	-0.0009	-0.0009	0	%100
19	31	Z	-0.0007	-0.0007	0	%100
20	32	Z	-0.0007	-0.0007	0	%100
21	33	Z	-0.0009	-0.0009	0	%100
22	34	Z	-0.0009	-0.0009	0	%100
23	37	Z	-0.0009	-0.0009	0	%100
24	38	Z	-0.0009	-0.0009	0	%100
25	41	Z	-0.0009	-0.0009	0	%100
26	42	Z	-0.0009	-0.0009	0	%100
27	45	Z	-0.0009	-0.0009	0	%100
28	48	Z	-0.0009	-0.0009	0	%100
29	50	Z	-0.0009	-0.0009	0	%100
30	51	Z	-0.001	-0.001	0	%100
31	52	Z	-0.001	-0.001	0	%100
32	53	Z	-0.001	-0.001	0	%100
33	54	Z	-0.0007	-0.0007	0	%100
34	55	Z	-0.0007	-0.0007	0	%100
35	56	Z	-0.0007	-0.0007	0	%100
36	57	Z	-0.0007	-0.0007	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.002	-0.002	0	%100
6	6	X	-0.002	-0.002	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, %)]
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.001	-0.001	0	%100
9	9	X	-0.001	-0.001	0	%100
10	10	X	-0.003	-0.003	0	%100
11	13	X	-0.003	-0.003	0	%100
12	15	X	-0.003	-0.003	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	28	X	-0.0009	-0.0009	0	%100
17	29	X	-0.0009	-0.0009	0	%100
18	30	X	-0.0009	-0.0009	0	%100
19	31	X	-0.0007	-0.0007	0	%100
20	32	X	-0.0007	-0.0007	0	%100
21	33	X	-0.0009	-0.0009	0	%100
22	34	X	-0.0009	-0.0009	0	%100
23	37	X	-0.0009	-0.0009	0	%100
24	38	X	-0.0009	-0.0009	0	%100
25	41	X	-0.0009	-0.0009	0	%100
26	42	X	-0.0009	-0.0009	0	%100
27	45	X	-0.0009	-0.0009	0	%100
28	48	X	-0.0009	-0.0009	0	%100
29	50	X	-0.0009	-0.0009	0	%100
30	51	X	-0.001	-0.001	0	%100
31	52	X	-0.001	-0.001	0	%100
32	53	X	-0.001	-0.001	0	%100
33	54	X	-0.0007	-0.0007	0	%100
34	55	X	-0.0007	-0.0007	0	%100
35	56	X	-0.0007	-0.0007	0	%100
36	57	X	-0.0007	-0.0007	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	1	Y	-0.0002035	-0.006	0	2
2	1	Y	-0.006	-0.01	2	4
3	1	Y	-0.01	-0.009	4	6
4	1	Y	-0.009	-0.009	6	8
5	1	Y	-0.009	-0.01	8	10
6	1	Y	-0.01	-0.006	10	12
7	1	Y	-0.006	-0.0002035	12	14
8	6	Y	-0.002	-0.01	0	1.958
9	6	Y	-0.01	-0.017	1.958	3.917
10	7	Y	-0.01	-0.01	0.008	7.208
11	3	Y	-0.002	-0.005	0	2.333
12	3	Y	-0.005	-0.009	2.333	4.667
13	3	Y	-0.009	-0.012	4.667	7
14	3	Y	-0.012	-0.009	7	9.333
15	3	Y	-0.009	-0.005	9.333	11.667
16	3	Y	-0.005	-0.002	11.667	14
17	8	Y	-0.01	-0.01	0.008	7.208
18	2	Y	-0.002	-0.005	0	2.333
19	2	Y	-0.005	-0.009	2.333	4.667
20	2	Y	-0.009	-0.012	4.667	7
21	2	Y	-0.012	-0.009	7	9.333
22	2	Y	-0.009	-0.005	9.333	11.667

Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
23	2	Y	-0.005	-0.002	11.667	14
24	4	Y	-0.002	-0.01	0	1.958
25	4	Y	-0.01	-0.017	1.958	3.917
26	5	Y	-0.002	-0.01	0	1.958
27	5	Y	-0.01	-0.017	1.958	3.917
28	9	Y	-0.01	-0.01	0.008	7.208

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	2	Y	-0.002	-0.004	0	2.333
2	2	Y	-0.004	-0.008	2.333	4.667
3	2	Y	-0.008	-0.01	4.667	7
4	2	Y	-0.01	-0.008	7	9.333
5	2	Y	-0.008	-0.004	9.333	11.667
6	2	Y	-0.004	-0.002	11.667	14
7	4	Y	-0.002	-0.008	0	1.958
8	4	Y	-0.008	-0.014	1.958	3.917
9	5	Y	-0.002	-0.008	0	1.958
10	5	Y	-0.008	-0.014	1.958	3.917
11	9	Y	-0.008	-0.008	0.008	7.208
12	1	Y	-0.0001628	-0.005	0	2
13	1	Y	-0.005	-0.008	2	4
14	1	Y	-0.008	-0.007	4	6
15	1	Y	-0.007	-0.007	6	8
16	1	Y	-0.007	-0.008	8	10
17	1	Y	-0.008	-0.005	10	12
18	1	Y	-0.005	-0.0001628	12	14
19	6	Y	-0.002	-0.008	0	1.958
20	6	Y	-0.008	-0.014	1.958	3.917
21	7	Y	-0.008	-0.008	0.008	7.208
22	3	Y	-0.002	-0.004	0	2.333
23	3	Y	-0.004	-0.007	2.333	4.667
24	3	Y	-0.007	-0.009	4.667	7
25	3	Y	-0.009	-0.007	7	9.333
26	3	Y	-0.007	-0.004	9.333	11.667
27	3	Y	-0.004	-0.002	11.667	14
28	8	Y	-0.008	-0.008	0.008	7.208

Member Area Loads (BLC 1 : Dead)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	3	2	6	7	Y	Two Way	-0.01
2	3	4	5	7	Y	Two Way	-0.01
3	5	6	2	4	Y	Two Way	-0.01

Member Area Loads (BLC 8 : Ice)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	3	2	6	7	Y	Two Way	-0.008
2	3	4	5	7	Y	Two Way	-0.008
3	5	6	2	4	Y	Two Way	-0.008

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	27	L	Y	-0.5
2	37	L	Y	-0.5
3	31	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	96	L	Y	-0.5
2	98	L	Y	-0.5
3	100	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	35	L	Y	-0.5
2	29	L	Y	-0.5
3	33	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		30		3
2	0 Wind - No Ice	WLZ			30	36	
3	90 Wind - No Ice	WLX			30	36	
4	0 Wind - Ice	WLZ			30	36	
5	90 Wind - Ice	WLX			30	36	
6	0 Wind - Service	WLZ			30	36	
7	90 Wind - Service	WLX			30	36	
8	Ice	OL1			30	36	3
9	0 Seismic	ELZ			30	36	
10	90 Seismic	ELX			30	36	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
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			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	BLC 1 Transient Area Loads	None				28	
31	BLC 8 Transient Area Loads	None				28	

Load Combinations

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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

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
0	13	max	2.426	5	1.083	15	0.583	2	-0.109	9	1.576	5	0.38	59
1		min	-2.298	11	0.129	8	-0.534	8	-1.999	15	-1.46	11	-0.183	41
2	25	max	1.492	3	1.083	19	2.605	3	1.207	52	2.029	9	1.705	19
3		min	-1.515	9	0.154	13	-2.738	9	0.111	11	-1.914	3	0.063	13
4	26	max	1.451	7	1.082	23	2.731	13	0.949	24	2.036	13	-0.171	4
5		min	-1.556	13	0.174	4	-2.642	7	-0.01	6	-1.918	7	-1.777	22
6	46	max	0.161	4	2.265	20	0.006	2	0	3	0	9	0	38

Envelope Node Reactions (Continued)

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
7		min	-0.342	10	0.175	2	-1.487	20	-0.001	9	0	38	0	9
8	90	max	-0.014	6	2.253	24	0.991	14	0	39	0	61	0.001	2
9		min	-1.161	24	0.219	7	-0.103	8	0	57	0	43	0	8
10	93	max	1.403	17	2.245	16	0.573	14	0	53	0	52	0	12
11		min	0.045	11	0.265	10	-0.128	8	0	11	0	46	0	42
12	Totals:	max	5.271	5	9.281	25	7.016	2						
13		min	-5.271	11	3.529	7	-7.016	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
0	1	L3X3X4	0.701	0	8	0.152	0	z	8	15.778	46.656	1.688	2.161	1	H2-1
1	2	L3X3X4	0.485	0	4	0.103	0	z	3	15.778	46.656	1.688	2.161	1	H2-1
2	3	L3X3X4	0.542	0	13	0.099	0	z	13	15.778	46.656	1.688	2.161	1	H2-1
3	4	LL3X3X4X0	0.113	0	12	0.011	3.917	z	12	76.374	93.312	6.48	4.361	1	H1-1b
4	5	LL3X3X4X0	0.145	0	3	0.012	3.917	z	9	76.374	93.312	6.48	4.911	1	H1-1b
5	6	LL3X3X4X0	0.171	0	8	0.016	3.917	z	8	76.374	93.312	6.48	4.361	1	H1-1b
6	7	L3X3X4	0.266	3.608	24	0.015	3.608	y	23	14.847	46.656	1.688	3.244	1.476	H2-1
7	8	L3X3X4	0.273	3.608	8	0.015	3.608	y	15	14.847	46.656	1.688	3.231	1.452	H2-1
8	9	L3X3X4	0.298	3.608	8	0.015	3.608	y	19	14.847	46.656	1.688	3.202	1.402	H2-1
9	10	HSS4.5X4.5X4	0.062	2	14	0.079	1.958	z	5	156.915	158.976	20.907	20.907	1.856	H1-1b
10	13	HSS4X4X4	0.163	0.7	4	0.077	0.7	z	11	139.232	139.518	16.181	16.181	1.166	H1-1b
11	15	HSS4.5X4.5X4	0.062	2	18	0.101	1.958	z	9	156.915	158.976	20.907	20.907	1.85	H1-1b
12	18	HSS4.5X4.5X4	0.062	2	22	0.101	1.958	z	13	156.915	158.976	20.907	20.907	1.851	H1-1b
13	20	HSS4X4X4	0.197	0.7	8	0.1	0.7	z	3	139.232	139.518	16.181	16.181	1.164	H1-1b
14	21	HSS4X4X4	0.183	0.7	13	0.101	0.7	z	7	139.232	139.518	16.181	16.181	1.166	H1-1b
15	28	PIPE_2.0	0.545	2.719	21	0.203	2.568		20	4.679	32.13	1.872	1.872	1	H1-1a
16	29	PIPE_2.0	0.544	2.719	25	0.197	2.568		25	4.679	32.13	1.872	1.872	1	H1-1a
17	30	PIPE_2.0	0.538	2.719	17	0.199	2.568		15	4.679	32.13	1.872	1.872	1	H1-1a
18	31	L2.5X2.5X3	0.161	3.04	17	0.01	6.079	y	8	8.885	29.192	0.873	1.524	1.136	H2-1
19	32	L2.5X2.5X3	0.151	3.04	23	0.007	6.079	y	24	8.885	29.192	0.873	1.524	1.136	H2-1
20	33	PIPE_2.0	0.343	0.51	92	0.115	4.448		23	17.855	32.13	1.872	1.872	1	H1-1b
21	34	PIPE_2.0	0.701	6.042	2	0.144	2.083		21	9.837	32.13	1.872	1.872	1	H1-1b
22	37	PIPE_2.0	0.343	0.51	96	0.117	4.448		15	17.855	32.13	1.872	1.872	1	H1-1b
23	38	PIPE_2.0	0.703	6.042	2	0.144	2.083		14	9.837	32.13	1.872	1.872	1	H1-1b
24	41	PIPE_2.0	0.343	0.51	94	0.117	4.448		19	17.855	32.13	1.872	1.872	1	H1-1b
25	42	PIPE_2.0	0.703	6.042	8	0.143	2.083		18	9.837	32.13	1.872	1.872	1	H1-1b
26	45	PIPE_2.0	0.241	5.5	17	0.081	5.5		15	14.916	32.13	1.872	1.872	1	H1-1b
27	48	PIPE_2.0	0.254	1.5	9	0.081	5.5		19	14.916	32.13	1.872	1.872	1	H1-1b
28	50	PIPE_2.0	0.264	5.5	13	0.079	5.5		23	14.916	32.13	1.872	1.872	1	H1-1b
29	51	L2.5X2.5X4	0.518	0	15	0.064	1.245	y	94	36.654	38.556	1.114	2.537	1.159	H2-1
30	52	L2.5X2.5X4	0.52	0	20	0.064	1.245	y	92	36.654	38.556	1.114	2.537	1.189	H2-1
31	53	L2.5X2.5X4	0.517	0	24	0.066	0	y	13	36.654	38.556	1.114	2.537	1.18	H2-1
32	54	L2.5X2.5X3	0.151	3.04	15	0.007	6.079	y	16	8.885	29.192	0.873	1.524	1.136	H2-1
33	55	L2.5X2.5X3	0.16	3.04	21	0.009	6.079	y	12	8.885	29.192	0.873	1.524	1.136	H2-1
34	56	L2.5X2.5X3	0.15	3.04	19	0.007	6.079	y	20	8.885	29.192	0.873	1.524	1.136	H2-1
35	57	L2.5X2.5X3	0.16	3.04	25	0.008	6.079	y	4	8.885	29.192	0.873	1.524	1.136	H2-1

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**87311.016.01.0002 - CT Somers FD CA**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**01/11/24**	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	:	0.583	k
Vertical Shear	:	1.083	k
Horizontal Shear	:	2.426	k
Torsion	:	0.38	k.ft
Moment from Horizontal Forces	:	1.576	k.ft
Moment from Vertical Forces	:	1.999	k.ft

Bolt Parameters (Assumed)

Bolt Grade	:	A307	
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	:	2.66	k
Force from Horz. Moment	:	2.85	k
Force from Vert. Moment	:	3.62	k
Shear Load / Bolt	:	0.66	k
Tension Load / Bolt	:	0.15	k
Resultant from Moments / Bolt	:	2.31	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	45.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	10.36	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**23.66%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	27.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	6.22	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**13.03%**		**OKAY**
Unity Check, Combined	:	**36.69%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**1.92%**		**OKAY**

FOX HILL TELECOM

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CT11531C

CT531/Crown - Somers
400 Main Street
Somers, CT 06071

September 29, 2023

Fox Hill Telecom Project Number: 230997

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.63 %

Fox Hill Telecom, Inc Worcester MA 01609

September 29, 2023

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

Emissions Analysis for Site: **CT11531C – CT531/Crown - Somers**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **400 Main Street, Somers, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report the percentage of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **400 Main Street, Somers, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4\ ERP}{R^2}$$

S = Power Density (in μw/cm^2)
ERP = Effective Radiated Power from antenna (watts)
R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.

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

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

Table 1: Channel Data Table

The following T-Mobile antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAALL24_43-U-NA20	166
A	2	Ericsson AIR6419 B41	166
B	1	RFS APXVAALL24_43-U-NA20	166
B	2	Ericsson AIR6419 B41	166
C	1	RFS APXVAALL24_43-U-NA20	166
C	2	Ericsson AIR6419 B41	166

Table 2: Antenna Data

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

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	495	19,770.39	1.02
Antenna A2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	0.89
						Sector A Composite MPE%	**1.91**
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	495	19,770.39	1.02
Antenna B2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	0.89
						Sector B Composite MPE%	**1.91**
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	13	495	19,770.39	1.02
Antenna C2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	0.89
						Sector C Composite MPE%	**1.91**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**1.91 %**
AT&T	3.96 %
Verizon Wireless	2.19 %
Town (LB VHF)	0.30 %
Town (HB VHF)	0.22 %
Town (UHF)	0.05 %
Site Total MPE %:	**8.63 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	1.91 %
T-MOBILE Sector B Total:	1.91 %
T-MOBILE Sector C Total:	1.91 %
Site Total:	8.63 %

Table 5: Site MPE Summary

Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three T-Mobile sectors have the same configuration yielding the same results for all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	2	1,390.44	166	1.68	600 MHz	400	0.42%
T-Mobile 700 MHz LTE	2	485.32	166	0.56	700 MHz	467	0.12%
T-Mobile 1900 MHz (PCS) LTE	4	1,849.52	166	2.30	1900 MHz (PCS)	1000	0.23%
T-Mobile 1900 MHz (PCS) GSM	1	693.57	166	0.20	1900 MHz (PCS)	1000	0.02%
T-Mobile 2100 MHz (AWS) LTE	4	1,981.80	166	2.30	2100 MHz (AWS)	1000	0.23%
T-Mobile 2500 MHz (BRS) LTE / 5G NR	8	2,825.08	166	8.90	2500 MHz (BRS)	1000	0.89%
						Total:	**1.91 %**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	1.91 %
Sector B:	1.91 %
Sector C:	1.91 %
T-MOBILE Maximum Total (per sector):	1.91 %
Site Total:	8.63 %
Site Compliance Status:	**COMPLIANT**

The estimated composite MPE value for this site assuming all carriers present is **8.63 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

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 estimated values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
(978)660-3998

THE COMPOUND AUDIT WAS COMPLETED ON 9/12/2023. THE CONSTRUCTION DRAWING REFLECT CONDITIONS AT TIME OF AUDIT.

T-Mobile

T-MOBILE SITE NUMBER: CT11531C
T-MOBILE SITE NAME: CT531/CROWN - SOMERS
T-MOBILE PROJECT: ANCHOR
RAN: 67D5D998E 6160
A&L: 67D5998E_1xAIR_1OP+1QP

BUSINESS UNIT #: 803934
SITE ADDRESS: 400 MAIN STREET SOMERS, CT 06071
COUNTY: TOLLAND
SITE TYPE: MONOPOLE
TOWER HEIGHT: 190'-0"

SITE INFORMATION

CROWN CASTLE USA INC.	
SITE NAME:	CT SOMERS FD CAC
BU NUMBER:	803934
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 100 FILLEY ST BLOOMFIELD CT, 06002
SITE ADDRESS:	400 MAIN STREET SOMERS, CT 06071
COUNTY:	TOLLAND
LATITUDE:	41° 59' 1.48" / 41.9837°
LONGITUDE:	-72° 27' 56.87" / -72.4658°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	198'+/- AMSL
AREA OF CONSTRUCTION:	EXISTING
CURRENT ZONING:	A-1
MAP/PARCEL #:	05-07
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	TOWN OF SOMERS 400 MAIN STREET SOMERS, CT 06071
JURISDICTION:	CONNECTICUT SITING COUNCIL 10 FRANKLIN SQUARE NEW BRITAIN, CT 06051
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO 800-286-2000
TELCO PROVIDER:	LIGHTOWER 1-855-93-FIBER

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 WALTER SMITH WSMITH@BTGRP.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	8020 KATY FREEWAY HOUSTON, TX 77024
	TRICIA PELON - PROJECT MANAGER TRICIA.PELON@CROWNCASTLE.COM
	ISRAEL CAREY - CONSTRUCTION MANAGER ISRAEL.CAREY@CROWNCASTLE.COM
	SUSAN PALM - AES SUSAN.PALM@CROWNCASTLE.COM

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

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	COMPOUND PLAN
C-1.2	EXISTING EQUIPMENT PLAN
C-1.3	FINAL EQUIPMENT PLAN
C-2	TOWER ELEVATIONS
C-3	ANTENNA PLANS
C-4	FINAL EQUIPMENT SCHEDULE
C-5	TOWER EQUIPMENT DETAILS & SPECIFICATIONS
E-1	PANEL SCHEDULES & ONE-LINE DIAGRAM
G-1	TYPICAL GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

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

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

PROJECT DESCRIPTION

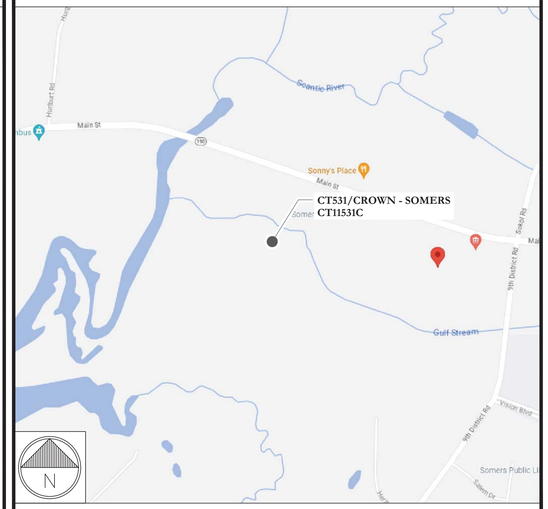
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (3) RFS - APX16DWV-16DWV-S-E-A20 (QUAD) ANTENNAS
- REMOVE (3) ERICSSON - RADIO 4415 B25 RADIOS
- REMOVE (3) ERICSSON - RADIO 4415 B66A RADIOS
- REMOVE (3) ERICSSON - HCS 6X12 HYBRID 4AWG CABLES
- RELOCATE (3) RFS - APXVAALL24_43-U-NA20 (OCTO) ANTENNAS
- RELOCATE (3) ERICSSON - RADIO 4449 B71+B 85 RADIOS
- INSTALL (3) ERICSSON - AIR 6419 B41 (ACTIVE ANTENNA - MASSIVE MIMO) ANTENNAS
- INSTALL (3) ERICSSON - RADIO 4460 B25+B 66 RADIOS
- INSTALL (3) 6/24 4AWG HYBRID CABLES

GROUND SCOPE OF WORK:
- INSTALL (1) RP 6651

EXISTING T-MOBILE ELECTRIC SERVICE:
METER: 200A 120/480V~3W
PPC: 200A 120/240V~1PH, 30A GENERATOR PLUG, 200A MAXIMUM BRANCH CIRCUIT SIZE & 24 AC BREAKER POSITIONS.
PPC UPGRADE NOT REQUIRED

LOCATION MAP



NO SCALE

APPLICABLE CODES & REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2022 CONNECTICUT SBC/2021 IBC
MECHANICAL	2022 CONNECTICUT SBC/2021 IMC
ELECTRICAL	2022 CONNECTICUT SBC/2020 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	2/6/2024
MOUNT ANALYSIS:	B+T GROUP
DATED:	1/11/2024
RFDS REVISION:	5
DATED:	12/21/23
ORDER ID:	656060
REVISION:	0

T-MOBILE SITE NUMBER:
CT11531C

BU #: **803934**
CROWN CASTLE SITE NAME:
CT SOMERS FD CAC

400 MAIN STREET
SOMERS, CT 06071

EXISTING 190'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	9/20/23	TDG	PRELIMINARY	MTJ
0	1/18/24	YX	CONSTRUCTION	LR
1	2/22/24	YX	CONSTRUCTION	LR

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

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/24

SHEET NUMBER: T-1
REVISION: 1

T-MOBILE_NATIONAL_ANCHOR

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER..40 ksi
   #5 BARS AND LARGER..60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH......................3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER..2"
   #5 BARS AND SMALLER..1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS..3/4"
   BEAMS AND COLUMNS..1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

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

ELECTRICAL INSTALLATION NOTES:

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

CONDUCTOR COLOR CODE

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

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

APWA UNIFORM COLOR CODE:

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

ABBREVIATIONS:

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

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

T-MOBILE SITE NUMBER:
CT11531C

BU #: **803934**
CROWN CASTLE SITE NAME:
CT SOMERS FD CAC

400 MAIN STREET
SOMERS, CT 06071

EXISTING 190'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	9/20/23	TDG	PRELIMINARY	MTJ
0	1/18/24	YX	CONSTRUCTION	LR
1	2/22/24	YX	CONSTRUCTION	LR

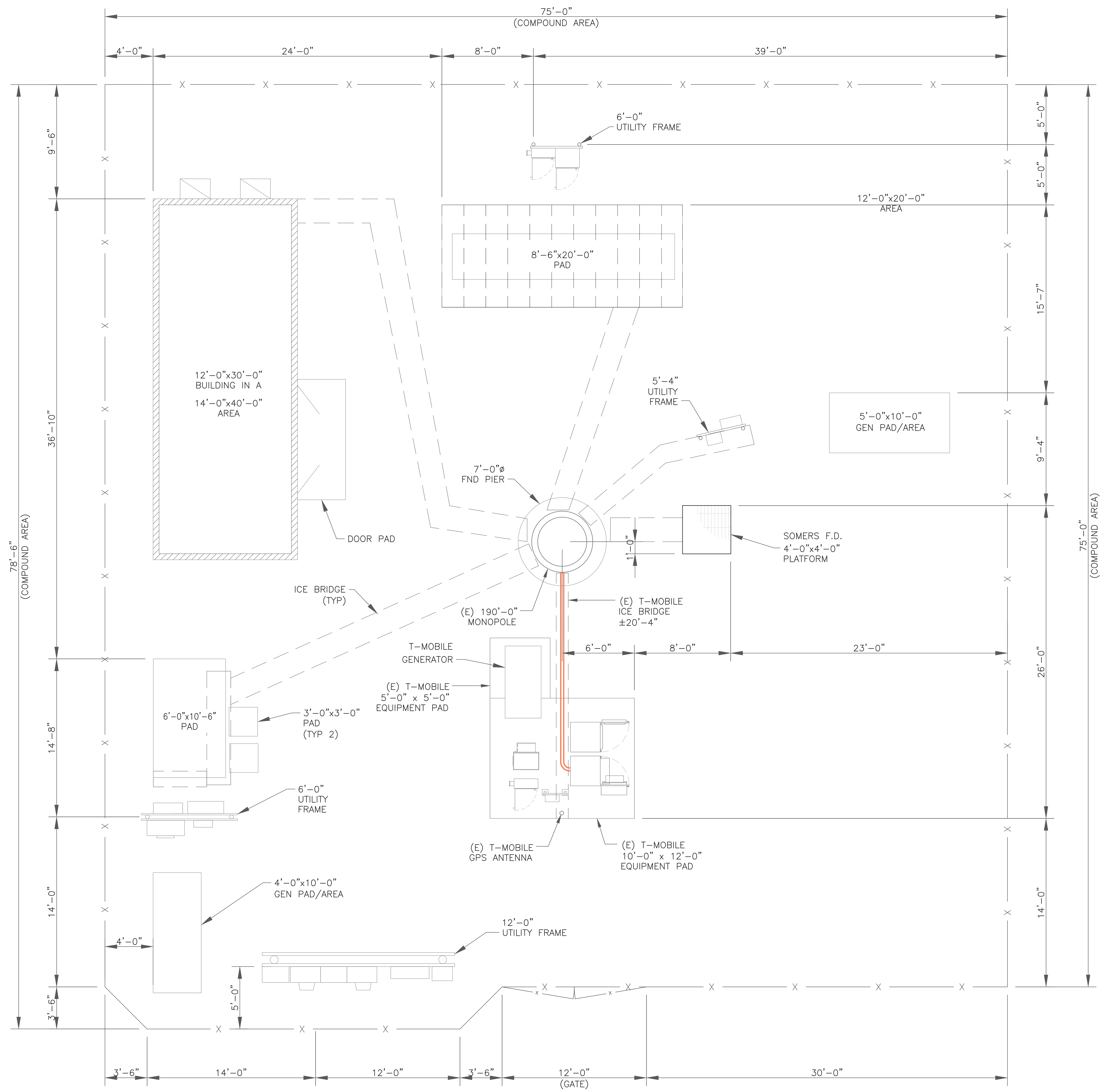
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/24

SHEET NUMBER: T-2

REVISION: 1

EQUIPMENT LEGEND:

(white)	EXISTING
(orange)	TO BE RELOCATED/REMOVED
(blue)	NEW/RELOCATED



1 COMPOUND PLAN

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

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STATE OF CONNECTICUT · No. 23024 · LICENSED · PROFESSIONAL ENGINEER
2/22/24

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/24

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SHEET NUMBER: C-1.1

REVISION: 1

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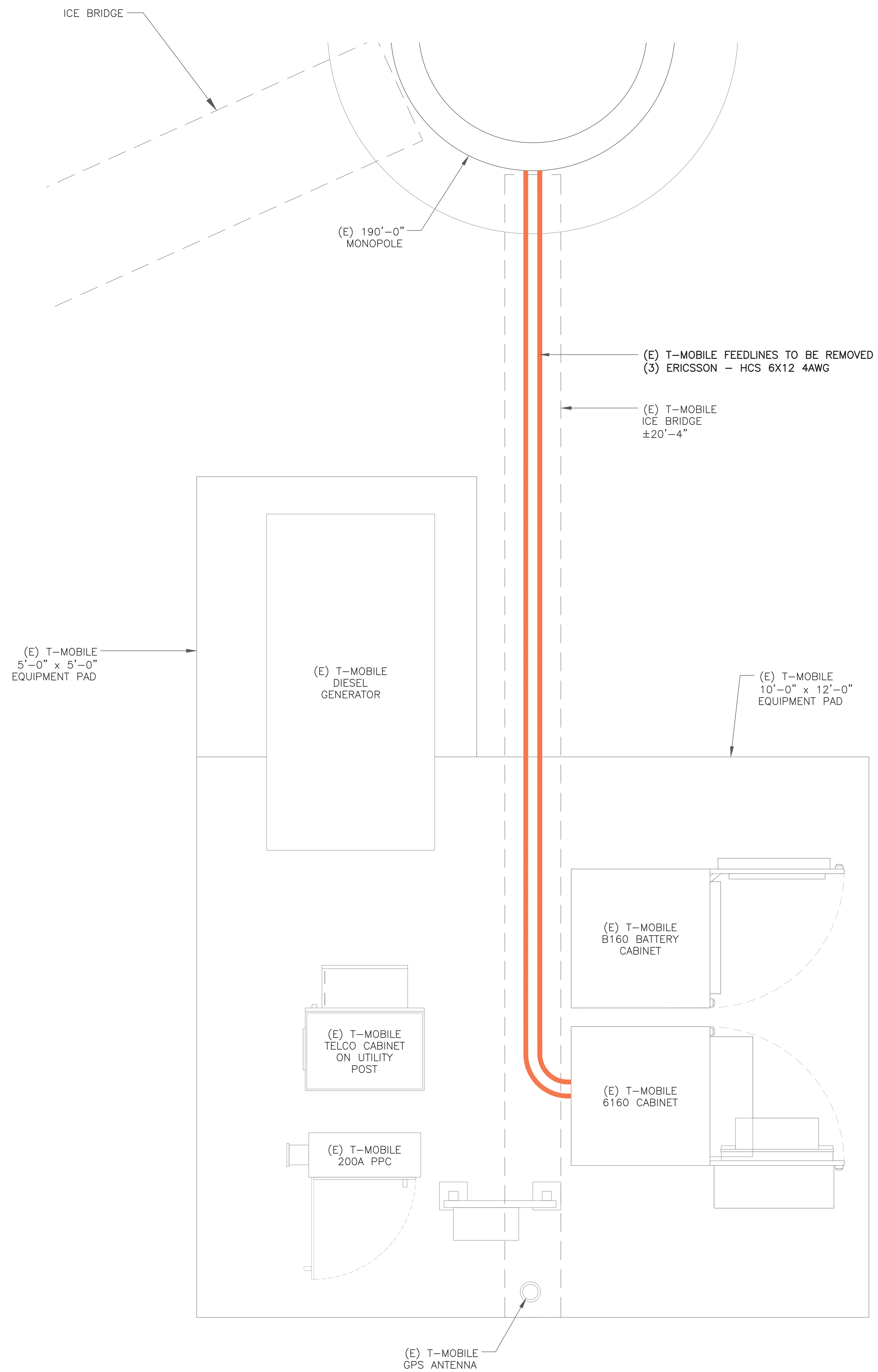

1 EXISTING EQUIPMENT PLAN

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

EQUIPMENT LEGEND:

- EXISTING
- TO BE RELOCATED/REMOVED
- NEW/RELOCATED

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EXISTING 190'-0" MONOPOLE

ISSUED FOR:

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1	2/22/24	YX	CONSTRUCTION	LR

2/22/24

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SHEET NUMBER:	REVISION:
C-1.2	1

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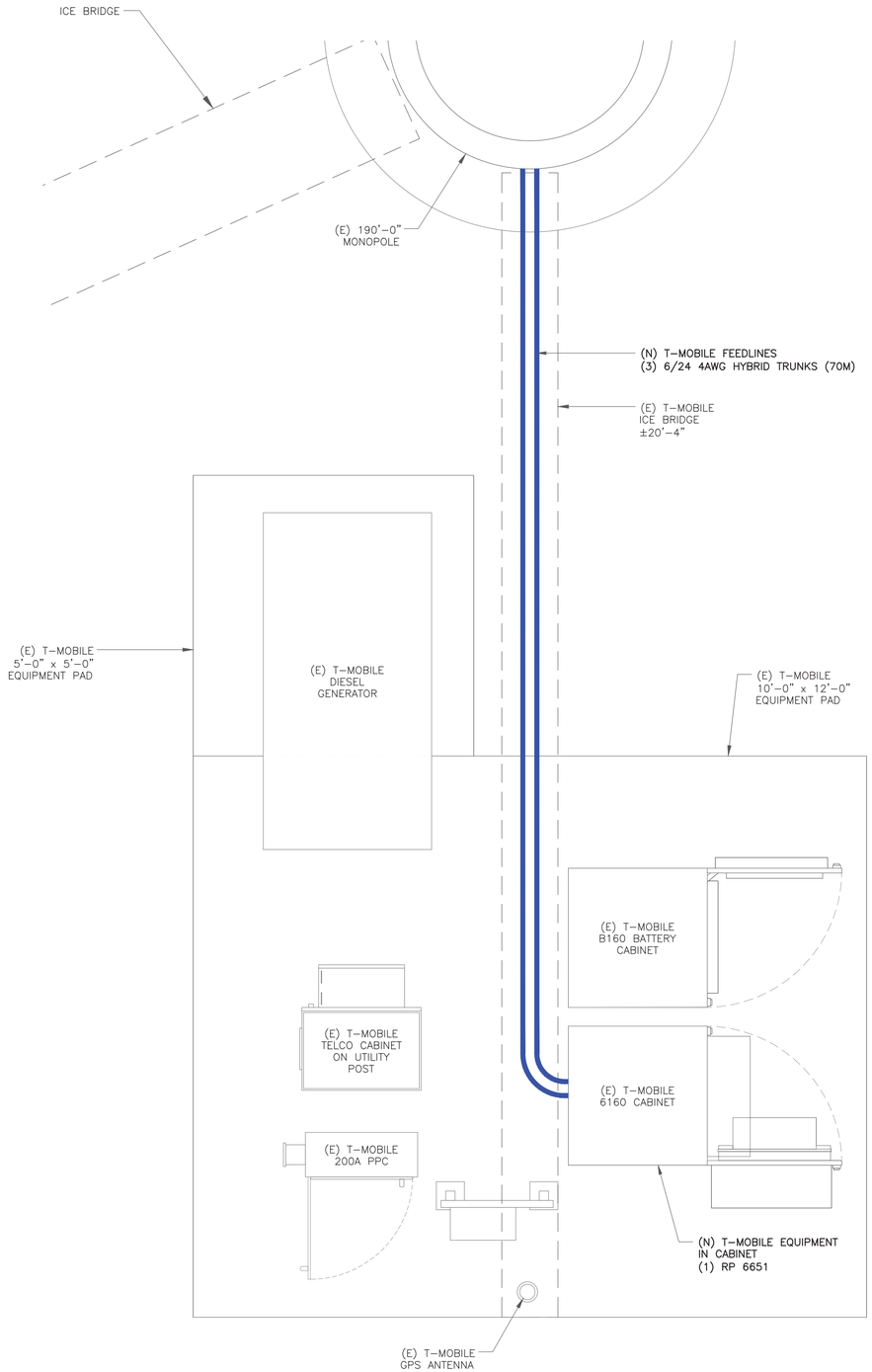

1 FINAL EQUIPMENT PLAN

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

EQUIPMENT LEGEND:

- EXISTING
- TO BE RELOCATED/REMOVED
- NEW/RELOCATED

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EXISTING 190'-0" MONOPOLE

ISSUED FOR:

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1	2/22/24	YX	CONSTRUCTION	LR

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/24

SHEET NUMBER: C-1.3

REVISION: 1

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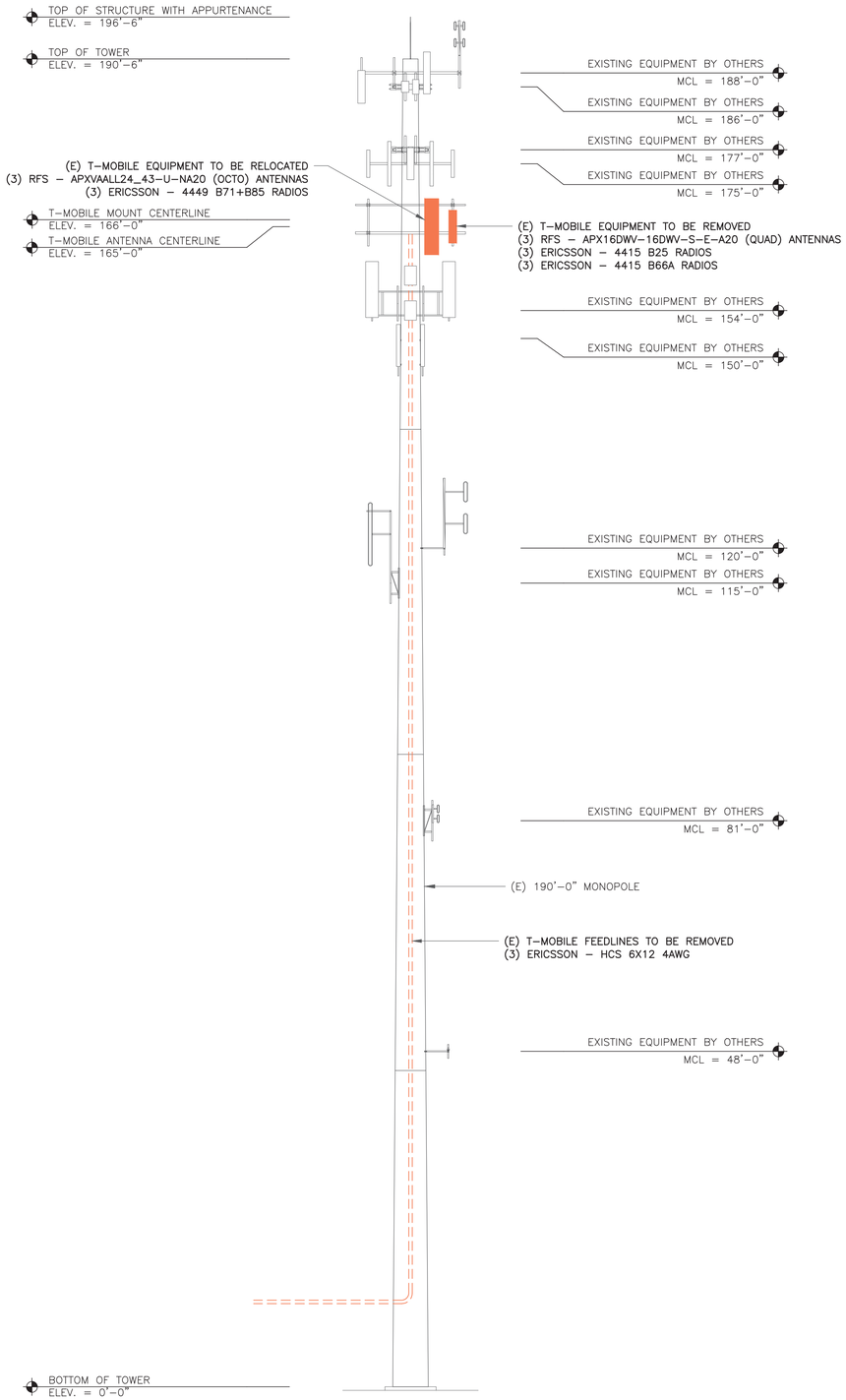
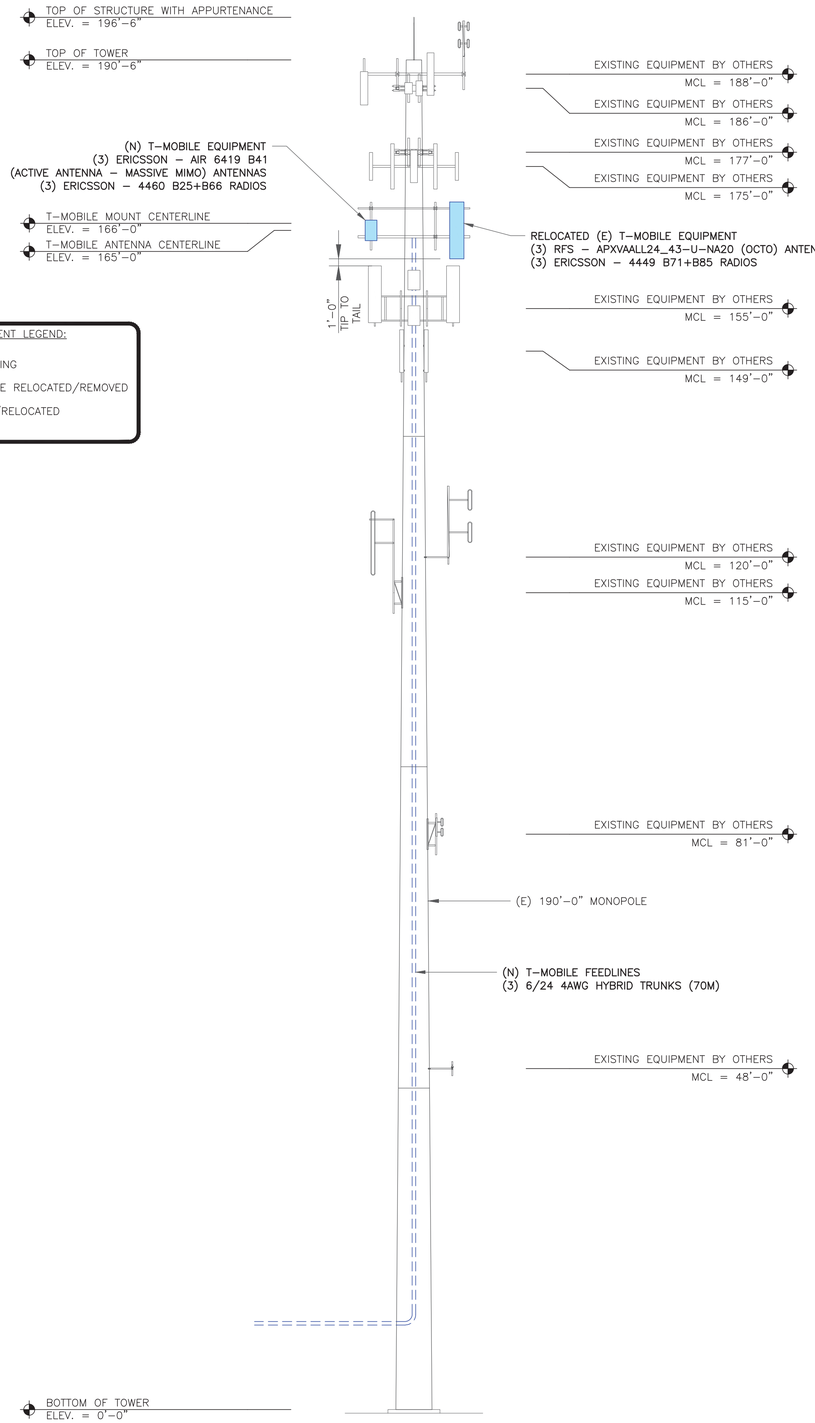


1 EXISTING TOWER ELEVATION

SCALE: 8' 4' 0 8' 3/32"=1'-0" (FULL SIZE) 3/64"=1'-0" (11x17)



2 FINAL TOWER ELEVATION

SCALE: 16' 12' 8' 4' 0 16' 1/16"=1'-0" (FULL SIZE) 1/32"=1'-0" (11x17)

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SHEET NUMBER: C-2

REVISION: 1

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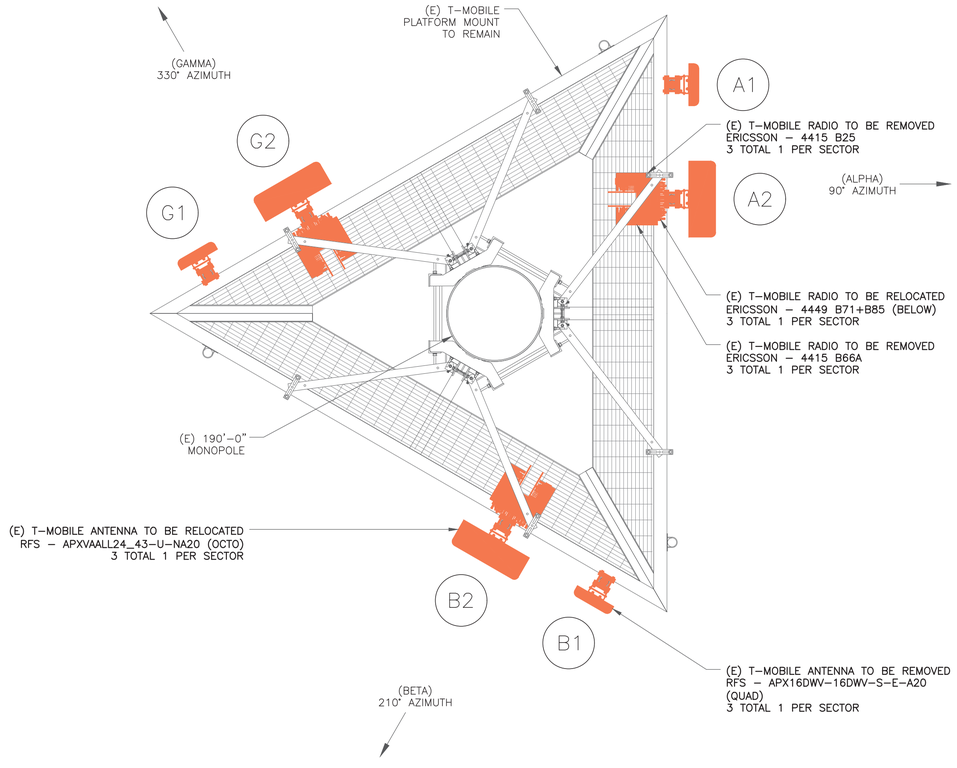
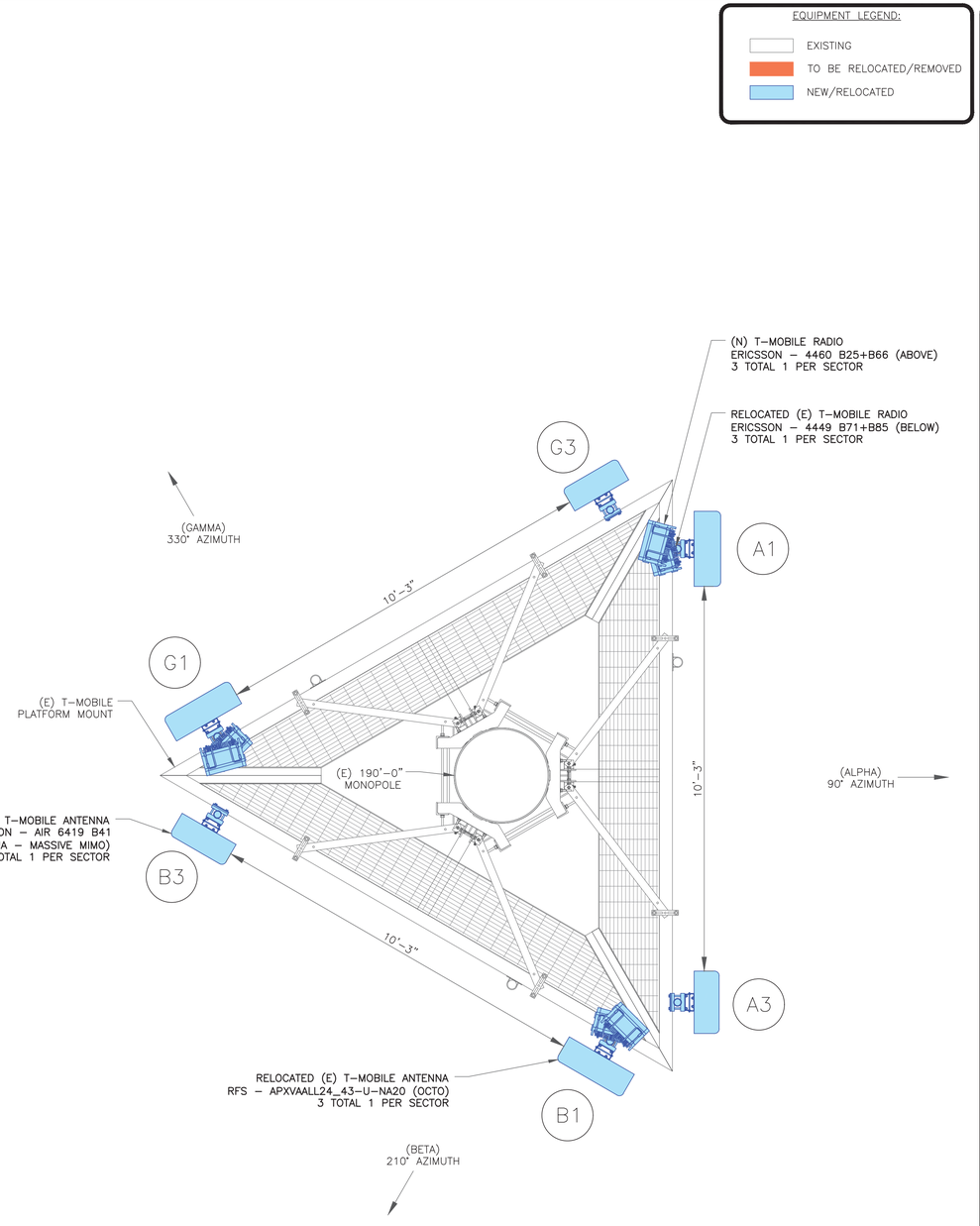


1 EXISTING ANTENNA PLAN

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



2 FINAL ANTENNA PLAN

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

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EXISTING 190'-0"
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BER:2386985
Expires 3/31/24

SHEET NUMBER: C-3

REVISION: 1

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA		SURGE PROTECTION		CABLES			
ALPHA	TECH	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
A1	L600/L700/ N600; N1900/ G1900/ L1900/ L2100	(E) RFS – APXVAALL24_43-U-NA20 (OCTO)	90°	165'-0"	1	(E) ERICSSON – 4449 B71+B85	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(N) ERICSSON – 4460 B25+B66	TOWER											
A2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
A3	N2500	(N) ERICSSON – AIR 6419 B41 (ACTIVE ANTENNA – MASSIVE MIMO)	90°	165'-0"	–	–	–	–	–	–	–	–	–	–	1	(N) HYBRID	1-5/8"	70M
BETA																		
B1	L600/L700/ N600; N1900/ G1900/ L1900/ L2100	(E) RFS – APXVAALL24_43-U-NA20 (OCTO)	210°	165'-0"	1	(E) ERICSSON – 4449 B71+B85	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(N) ERICSSON – 4460 B25+B66	TOWER											
B2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B3	N2500	(N) ERICSSON – AIR 6419 B41 (ACTIVE ANTENNA – MASSIVE MIMO)	210°	165'-0"	–	–	–	–	–	–	–	–	–	–	1	(N) HYBRID	1-5/8"	70M
GAMMA																		
G1	L600/L700/ N600; N1900/ G1900/ L1900/ L2100	(E) RFS – APXVAALL24_43-U-NA20 (OCTO)	330°	165'-0"	1	(E) ERICSSON – 4449 B71+B85	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(N) ERICSSON – 4460 B25+B66	TOWER											
G2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
G3	N2500	(N) ERICSSON – AIR 6419 B41 (ACTIVE ANTENNA – MASSIVE MIMO)	330°	165'-0"	–	–	–	–	–	–	–	–	–	–	1	(N) HYBRID	1-5/8"	70M
													UNUSED FEEDLINES		–	–	–	–
															–	–	–	–

1 FINAL EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

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1	2/22/24	YX	CONSTRUCTION	LR

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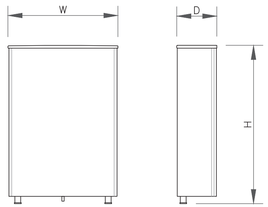
BER:2386985
Expires 3/31/24

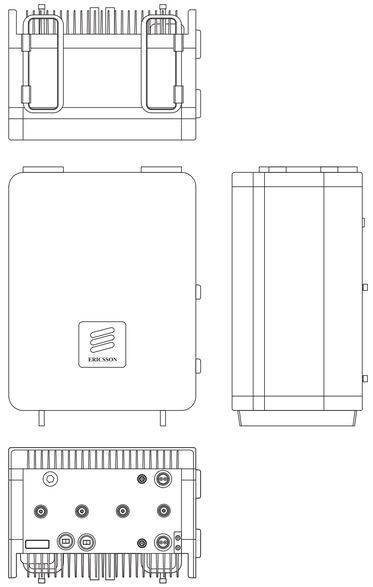
SHEET NUMBER: C-4

REVISION: 1



ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6419 B41
WIDTH	19.95"
DEPTH	7.99"
HEIGHT	34.49"
WEIGHT	81.84 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



ERICSSON – RADIO 4460
WEIGHT: 109 LBS
SIZE (HxWxD): 17.0x15.1x11.9 IN.

2 ERICSSON – RADIO 4460
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

T-Mobile

CROWN CASTLE

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

T-MOBILE SITE NUMBER:
CT11531C

BU #: **803934**
CROWN CASTLE SITE NAME:
CT SOMERS FD CAC

400 MAIN STREET
SOMERS, CT 06071

EXISTING 190'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	9/20/23	TDG	PRELIMINARY	MTJ
0	1/18/24	YX	CONSTRUCTION	LR
1	2/22/24	YX	CONSTRUCTION	LR

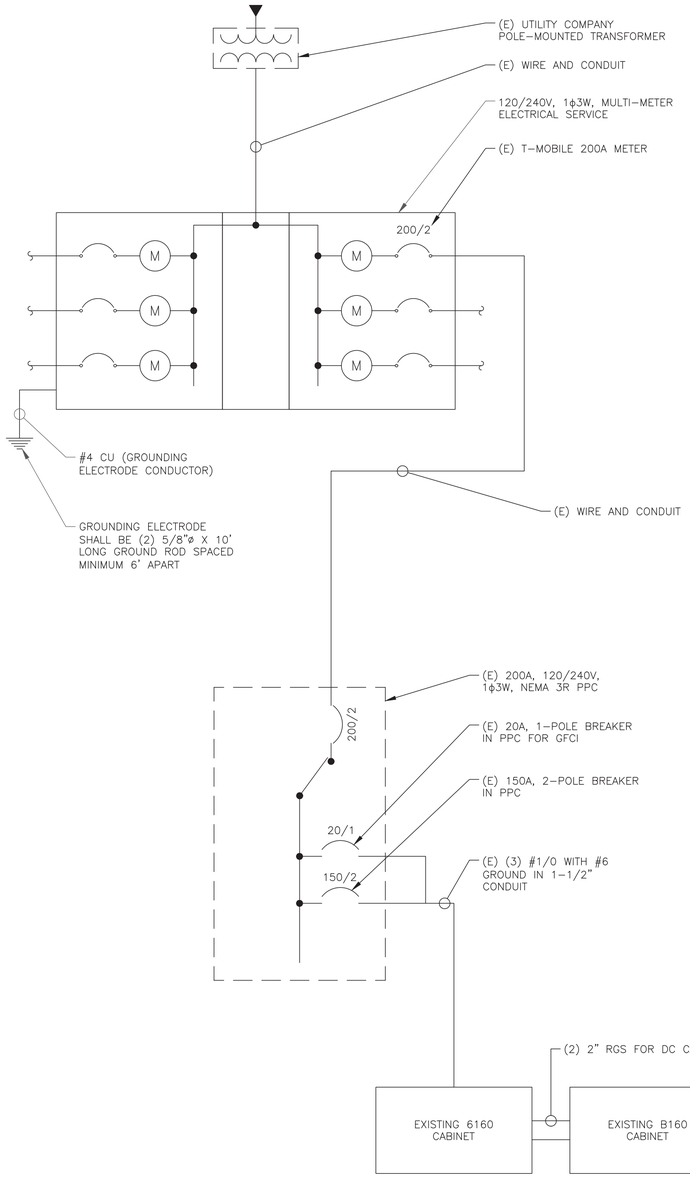
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/24

SHEET NUMBER: C-5

REVISION: 1

NOTES:

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



1 ONE-LINE DIAGRAM
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE

NOTES:

1. PANEL SCHEDULE PENDING FIELD VERIFICATION.

FINAL PANEL SCHEDULE

LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
SURGE	2	60A	1	2	20A	1	REC
			3	4	150A	2	6160
GFCI	1	20A	5	6			
			7	8			
			9	10			
			11	12			
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			

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

3 FINAL PANEL SCHEDULE
SCALE: NOT TO SCALE

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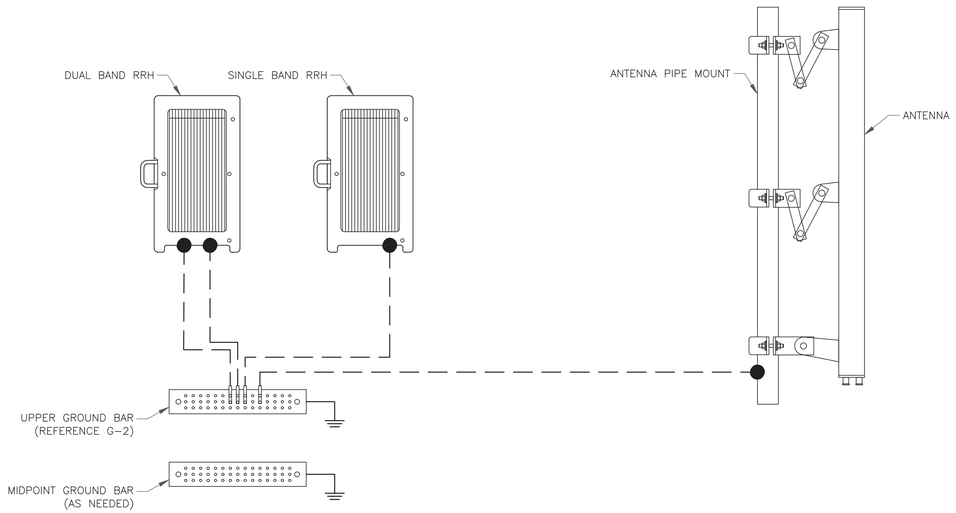
Expires 3/31/24

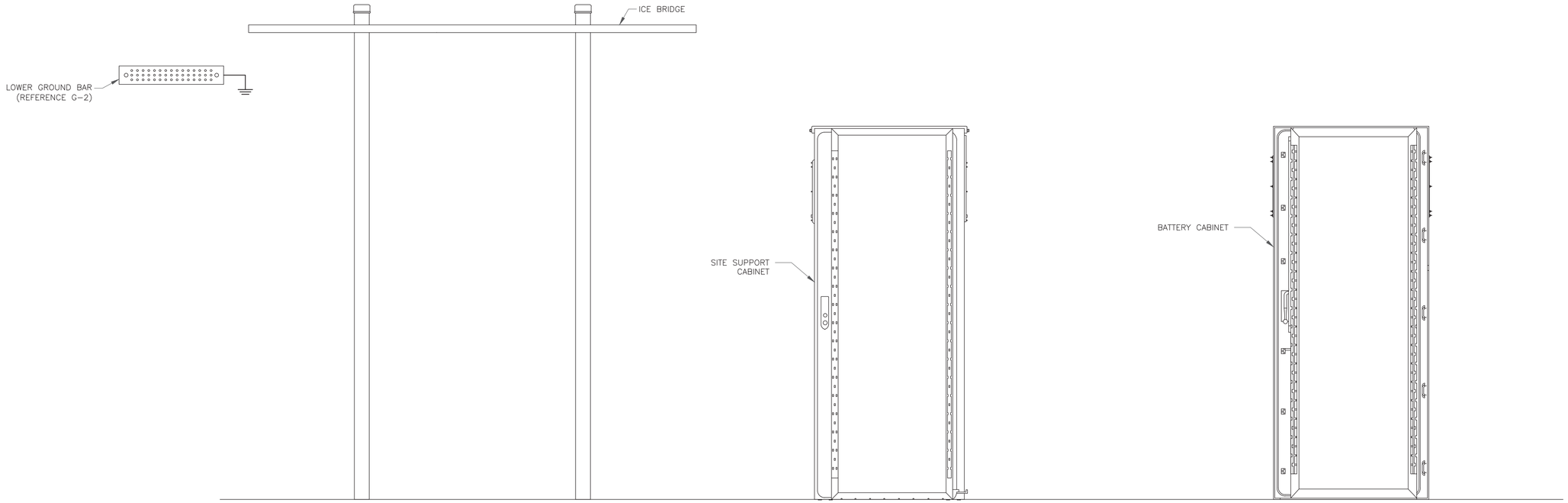
SHEET NUMBER: E-1

REVISION: 1



ANTENNA LEVEL

GROUND LEVEL



1 TYPICAL FINAL GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

— — —	#6 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
—— · ——	#2 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
— · · —	#2 BARE, SOLID, TINNED COPPER GROUND WIRE
■	EXOTHERMIC WELD
●	MECHANICAL CONNECTION
⊙	COPPER GROUND ROD
⊗	GROUND ROD W/ TEST WELL

NOTE:

SEE FINAL EQUIPMENT PLAN FOR NEW EQUIPMENT REQUIRING GROUNDING. CONTRACTOR TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD. CONTRACTOR TO VERIFY IN FIELD AND INSTALL ANY MISSING T-MOBILE GROUND BARS ON SITE.

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BER:2386985
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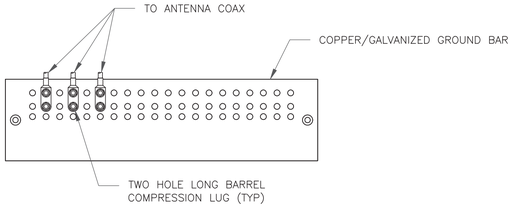
SHEET NUMBER: G-1

REVISION: 1

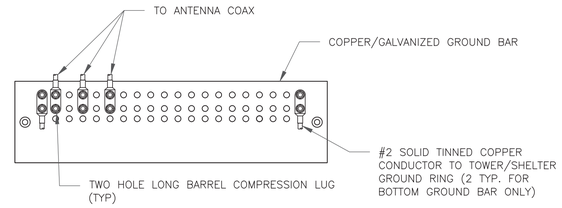
T-MOBILE_NATIONAL_ANCHOR



NOTES:

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

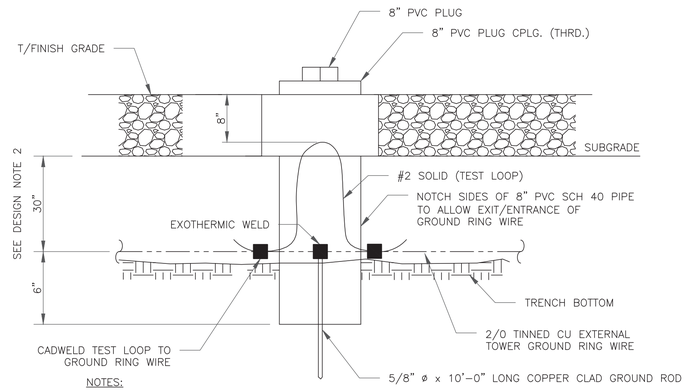
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

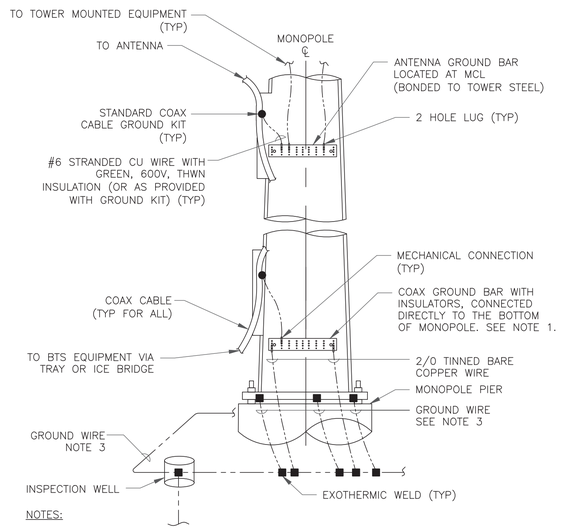
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

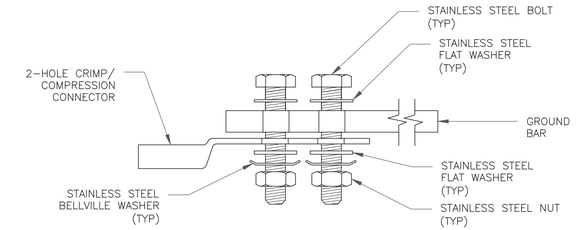
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



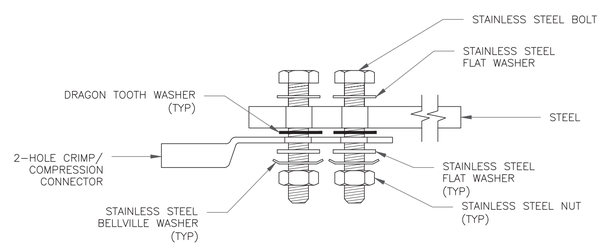
NOTES:

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

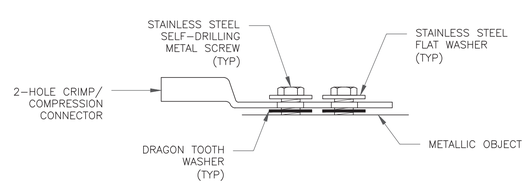
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

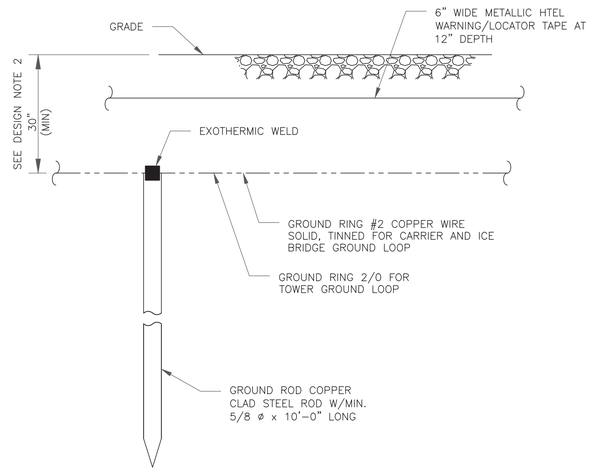


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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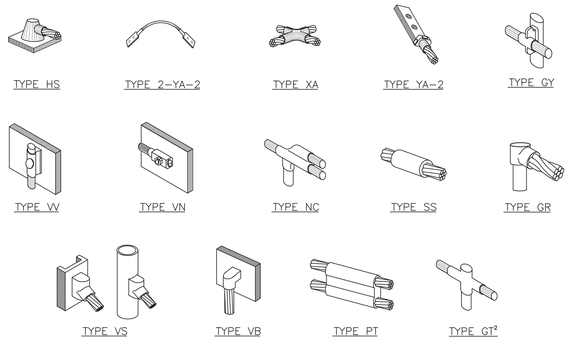
Expires 3/31/24

SHEET NUMBER: G-2

REVISION: 1

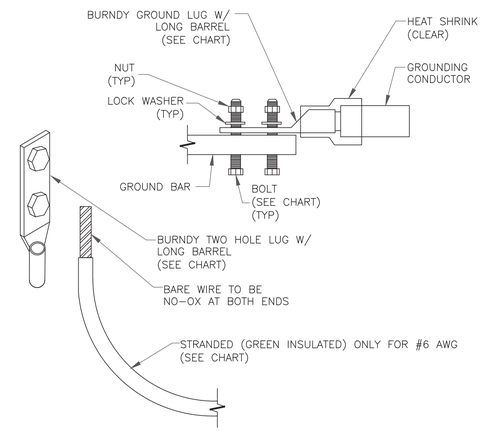


NOTE:

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

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

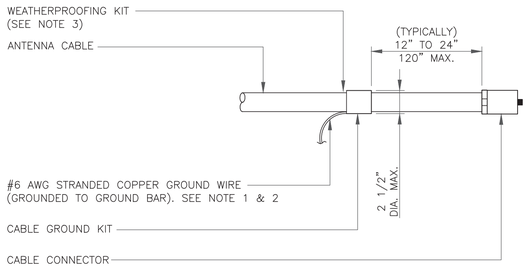
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" – 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" – 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" – 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" – 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" – 16 NC S 2 BOLT



NOTES:

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

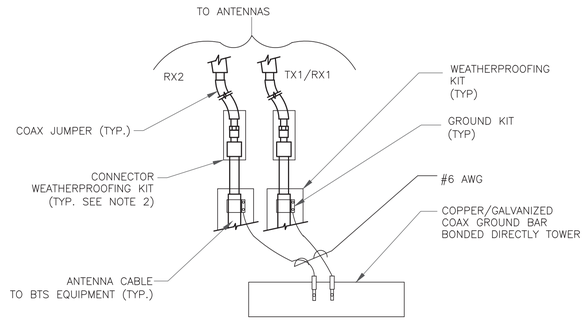
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

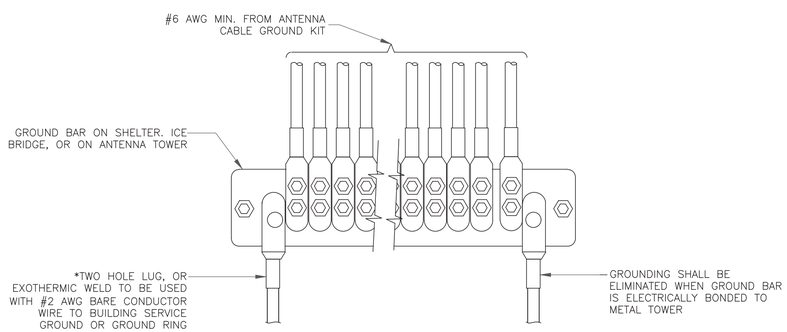
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



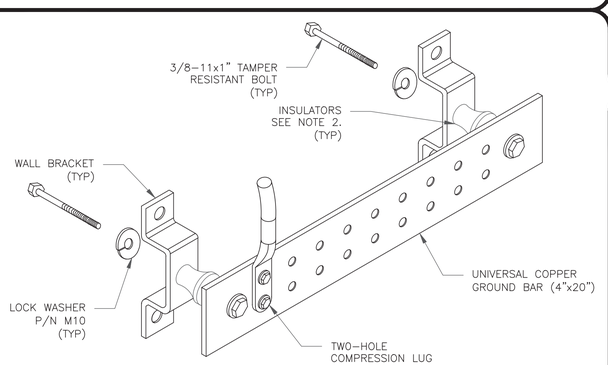
NOTES:

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

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



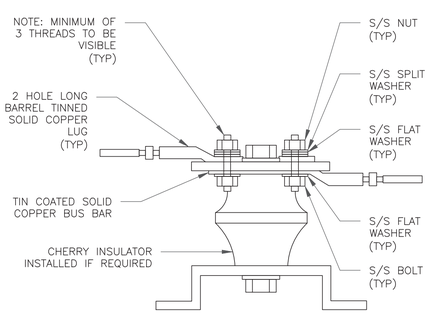
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



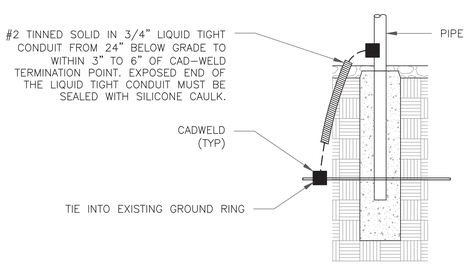
NOTES:

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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

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