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

September 8, 2021

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

RE: **Notice of Exempt Modification for T-Mobile: 876380**
Great Hollow Road, Woodbury, CT 06798
Latitude: 41° 31′ 19.20″ / Longitude: -73° 13′ 14.65″

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 108-foot mount on the existing 139-foot monopole tower located at Great Hollow Road, Woodbury, CT. The property is owned by O&G Industries Inc, Torrington CT. The tower is owned by Crown Castle. T-Mobile now intends to replace six (6) antennas, add three (3) new antennas and ancillary equipment at the 108ft level. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:
Tower:

Installed New:
(3) Ericsson – AIR6449 B41 Antennas
(3) RFS/Celwave – APXVAALL24_43-U-NA20
(3) RFS/Celwave – APX16DWV-16DWV-S-E-A20
(3) Ericsson 4480 B71 + B85 Remote Radios
(3) Ericsson 4460 B25 + B66 Remote Radios
(2) RFS/Celwave – HB158-21U6S24-XXM_TMO 1-5/8”
Mount Modification per GDP Report

Remove:
(3) RFS/Celwave – APXVSPP18-C-A20
(3) RFS/Celwave – APXVTM14-ALU-120
(3) Alcatel Lucent – TD-RRH8x20-25
(3) Alcatel Lucent – RRH2x50-800
(3) Alcatel Lucent – PCS 1900MHZ 4x45W-65MHZ

Ground:

Install New:
(1) 6160 SSC Cabinet
(1) B160 Battery Cabinet

(1) RBS 6601 IN 6160 SSC Cabinet
(3)BB 6648 IN 6160 SSC Cabinet
(1) DUG20 IN RBS 6601
(1) CSR IXRE V2

The facility was approved by the Connecticut Siting Council in Docket No. 236 on June 19, 2003. The approval was given with conditions. T-Mobile's proposed modification complies with all conditions as stated in the Council's Decision and Order.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The First Selectman, Ms. Barbara Perkinson for the Town of Woodbury, Town Planner, Mr. William Agresta and O&G Industries as property owner. Crown Castle is the tower owner.

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

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

Sincerely,

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

Attachments
cc:

Barbara Perkinson, First Selectman
Town of Woodbury
281 Main Street South
Woodbury, CT 06798
203-263-2141
(*via FedEx Delivery*)

William Agresta, Town Planner
Town of Woodbury
281 Main Street South
Woodbury, CT 06798
203-263-3467
(*via FedEx Delivery*)

O&G Industries
112 Wall Street
Torrington, CT 06790
(*via FedEx Delivery*)

Crown Castle, Tower Owner

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

June 24, 2003

TO: Parties and Intervenors

FROM: S. Derek Phelps, Executive Director

RE: **DOCKET NO. 236** - Sprint Spectrum L.P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility off Great Hollow Road or at 103 Great Hollow Road, South Woodbury, Connecticut.

By its Decision and Order dated June 19, 2003, the Connecticut Siting Council granted a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility located at Site A off of Great Hollow Road, Woodbury, Connecticut.

Enclosed are the Council's Findings of Fact, Opinion, and Decision and Order.

SDP/laf

Enclosures (4)

c: Albert Palko, State Documents Librarian
Council Members

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

DOCKET NO. 236

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Sprint Spectrum, L.P. d/b/a Sprint PCS for the construction, maintenance and operation of a wireless telecommunications facility located at Site A off of Great Hollow Road, Woodbury, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on June 19, 2003.

By order of the Council,

Pamela B. Katz, P.E., Chairman

June 19, 2003

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

June 24, 2003

Thomas J. Regan, Esq.
Brown Rudnick Berlack Israels LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402

RE: **DOCKET NO. 236** - Sprint Spectrum L.P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility off Great Hollow Road or at 103 Great Hollow Road, South Woodbury, Connecticut.

Dear Attorney Regan:

By its Decision and Order dated June 19, 2003, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at Site A off of Great Hollow Road in Woodbury to Sprint Spectrum.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/CML

Enclosures (4)

Town of Woodbury

Zoning Permit

Number 8156 Date: **February 3, 2004**

Permission granted to: O & G Ind. (owner) / Peter Maxwell (agent)

To Construct: Telecommunications facilities

Address: Great Hollow Road

District OS-80 Map 34 Lot 15

Set back distance from lot lines

Front:: N/A

Right Side: N/A

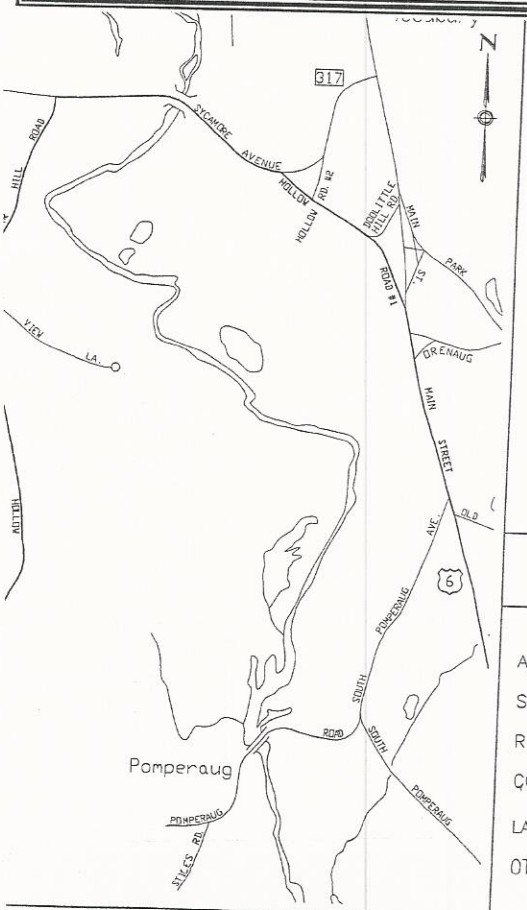
Left Side: N/A

Rear: N/A

A-2 Requirements ☐ Foundation N/A ☐ Final N/A ☐ Both Required

Reviewed and approved: ~~Judi Lynch, Land Use Administrator~~ Mark Dunn Town Planner

Building Height must be shown and indicated on the final.



PROPERTY OWNER:	ROBERT CHASE, TRUSTEE C/O O&G INDUSTRIES WOODBURY, CT
PROPERTY LESSEE:	SPRINT SITES USA 535 EAST CRESCENT AVENUE RAMSEY, NEW JERSEY 07446
APPLICANT/SUBLESSEE:	AT&T WIRELESS PCS LLC 12 OMEGA DRIVE STAMFORD, CONNECTICUT 06902
LATITUDE:	41.52201° (NAD 83)
LONGITUDE:	73.22074° (NAD 83)
ELEVATION:	590' AMSL
JURISDICTION:	TOWN OF WOODBURY, CONNECTICUT
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE QUALIFICATION PARTICIPANTS

	NAME	COMPANY	NUMBER
A/E	IGNACIO C ARTAIZ	URS CORPORATION AES	(860) 529-8882
SAC	HOLLIS REDDING	OPTASITE, INC.	(860) 657-1460
RF	KUMAR RUGHOOBUR	BECHTEL	(203) 630-9930
CON	ALI HEMMATI	BECHTEL	(201) 707-8161
LANDLORD	RUSS VAN OUDENAREN	SPRINT SITES USA	(201) 995-4023
OTHER	–		–

0	10/01/03	ISSUED FOR CONSTRUCTION	JCF
A	09/16/03	100% REVIEW	

STATE OF CONNECTICUT IGNACIO C. ARTAIZ

URS CORPORATION AES

TITLE SHEET

Town of Woodbury

Date: 1/30/04 Zoning Permit Number 8156

Address of property: Great Hollow Road

Map No. 34 **Lot No.** 15 Subdivision Name:

Name of Owner: O & G Industries Phone Number: 860-489-9261

Address of Owner: 112 Wall Street

DESCRIPTION OF WORK PROPOSED

concrete pad & telecommunications equipment cabinets within existing fenced enclosure; antennas on existing monopole

Size of structure: Height of structure: 110'

Square footage: Number of stories:

Type of construction: 100x100 SF leased area

Zone: ☐ R-40 ☐ OS-60 ☑ OS-80 ☐ OS-100 ☐ GA ☐ MSD ☐ PI ☐ EE ☐ MQ

Width of lot: Depth of lot: Total Acreage:

Setback distances from property lines

Front yard: 223 Rear yard:

Right side yard: NA Left side yard:

Name of Agent: Peter N. Maxwell Phone Number: 860-202-0219

Address of Agent: URS Corp, 795 Brook St. Bldg 5, Rocky Hill, CT 06067

Please Note:
An agent must provide an approval letter from the owner of the subject property before application will be approved.

Check all applicable

Is this property in the Historic District?	☐ Yes	☑ No
Does this application involve any grading or filling?	☐ Yes	☐ No
Will there be construction in or within 100 feet of a wetland watercourse?	☐ Yes	☐ No
Will this require approval from the Pomperaug Health District	☑ Yes	☐ No

Other

Signature of Owner/Agent:

Approved by: Mark Nelson Date: 2-3-04

Please Note

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

120203

Town of Woodbury, CT

Property Listing Report

Map Block Lot	Building #	Unique Identifier
034-015		45300

Property Information

Property Location	202 GREAT HOLLOW RD
Mailing Address	112 WALL STREET TORRINGTON CT 06790
Land Use	Residential
Zoning Code	OS80
Neighborhood	22

Owner	O & G INDUSTRIES INC
Co-Owner	
Book / Page	360/ 104
Land Class	Vacant Land
Census Tract	3621
Acreage	210.3

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Outbuildings	332302	232610
Land	1869813	191400
Total	2202115	0

Utility Information

Electric	No
Gas	No
Sewer	No
Public Water	No
Well	No

Primary Construction Details

Year Built		Heating Fuel		Building Use	
Building Desc.		Heating Type		Building Condition	
Building Style		AC Type		Frame Type	
Stories		Bedrooms		Fireplaces	
Exterior Walls		Full Bathrooms		Bsmt Gar	
Exterior Walls 2		Half Bathrooms		Fin Bsmt Area	
Interior Walls		Extra Fixtures		Fin Bsmt Quality	
Interior Walls 2		Total Rooms		Building Grade	
Interior Floors 1		Bath Style		Roof Style	
Interior Floors 2		Kitchen Style		Roof Cover	
		Occupancy			

Report Created On 9/2/2021

Town of Woodbury, CT

Property Listing Report | Map Block Lot: 034-015 | Building #: | Unique Identifier: 45300

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Cell Towers	Fencing	600	Average	2010
Cell Towers	Pad	160	Average	2010
Cell Towers	Building/Equipment	300	Average	2010
Cell Towers	Building/Equipment	64	Average	2010
Cell Towers	Pad	200	Average	2002
Cell Towers	Building/Equipment	160	Average	2010
Cell Towers	Mono Pole	150	Average	2002
Cell Towers	Building/Equipment	200	Average	2010

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

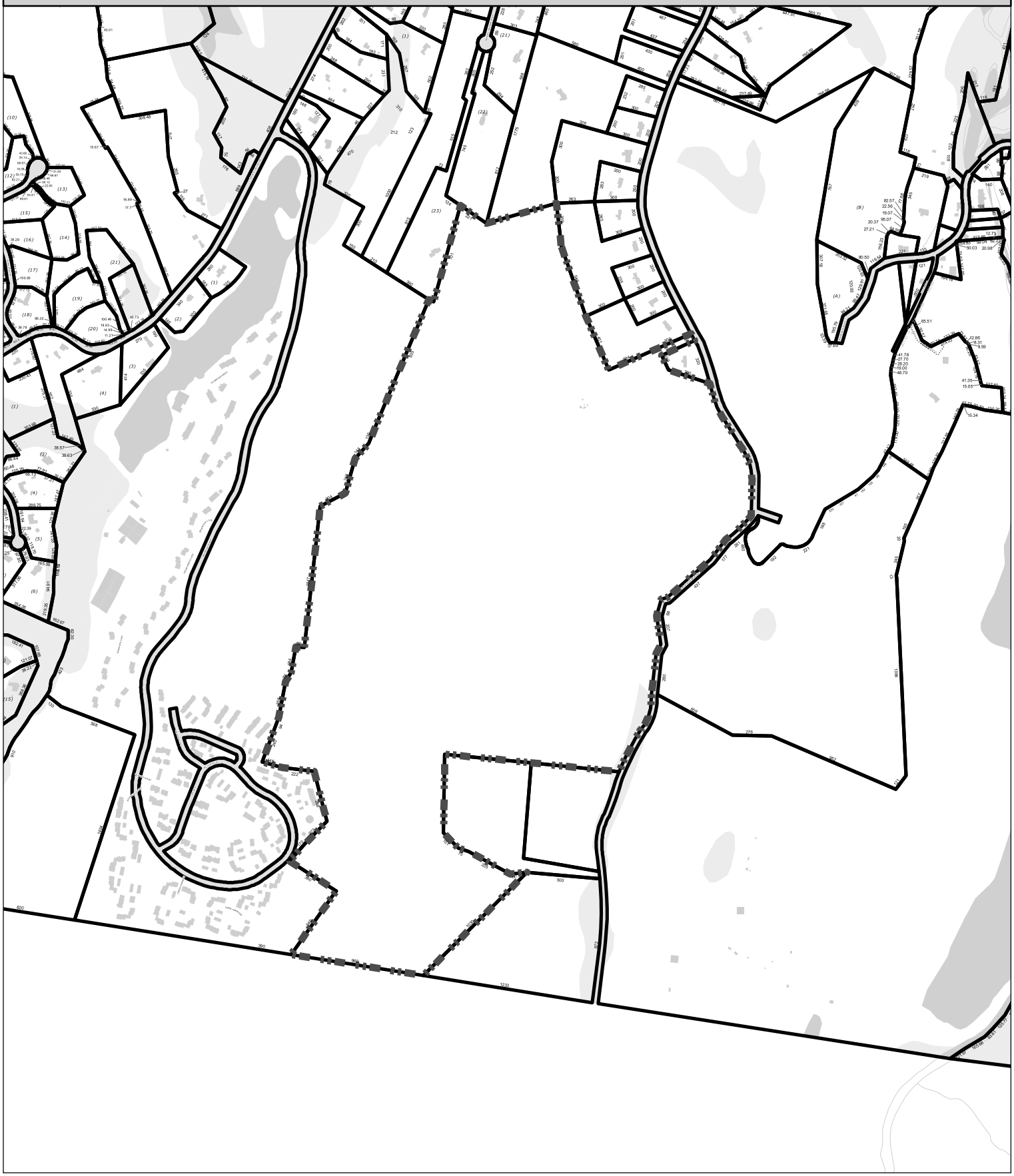
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
O & G INDUSTRIES INC	360_ 104	3/20/2008	0
CHASE ROBERT L-TTEE	241_ 210	5/28/1999	0

Report Created On 9/2/2021

Town of Woodbury, Connecticut - Assessment Parcel Map

Parcel: 034-015 Address: 202 GREAT HOLLOW RD



Approximate Scale: **1 inch = 900 feet**

0 470 940 1,410 1,880 Feet

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

Map Produced:
6/16/2021

Date: **July 26, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	**Site Number:**	CTHA650A
	Site Name:	CT33XC520
Crown Castle Designation:	**BU Number:**	876380
	Site Name:	O&G Woodbury
	JDE Job Number:	666758
	Work Order Number:	1981190
	Order Number:	567926 Rev. 3
Engineering Firm Designation:	**B+T Group Project Number:**	137090.006.01
Site Data:	**Great Hollow Road, Woodbury, Litchfield County, CT** **Latitude *41° 31' 19.2"*, Longitude *-73° 13' 14.65"*** **138.5 Foot - Monopole Tower**	

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

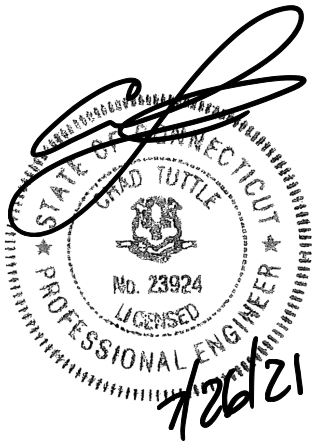
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity - 68.1%**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Luke Antloger

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 02/10/2022



Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 138.5 ft. Monopole designed by Engineered Endeavors, Inc.

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

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
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)
104.0	106.0	3	Ericsson	AIR6449 B41_T-MOBILE	2	1-5/8
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	RADIO 4480 B71_TMO		
		3	RFS Celwave	APX16DWV-16DWV-S-E-A20		
		3	RFS Celwave	APXVAALL24_43-U-NA20_TMO		
	104.0	1	--	Platform Mount [LP 1201-1_HR-1]		
		1	Site Pro 1	PRK-1245 Kicker Kit		
87.0	84.0	3	RFS Celwave	ACU-A20-N	--	--
70.0	71.0	1	Lucent	KS24019-L112A	1	1/2
	70.0	1	--	Side Arm Mount [SO 701-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft.)	Center Line Elevation (ft.)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
138.0	148.0	1	Dbspectra	DS9A09F36D-N	14 2 1 4 2	1-1/4 3/4 1/2 7/16 3/8
	139.0	6	CCI Antennas	TPX-070821		
		3	Commscope	ATSBT-TOP-FF-4G		
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14		
		3	Ericsson	RRUS 8843 B2/B66A		
		4	Kathrein	80010964		
		2	Kathrein	80010965		
		3	Powerwave Tech.	7770.00		
		3	Powerwave Tech.	TT19-08BP111-001		
		2	Quintel Tech.	QS46512-2		

Mounting Level (ft.)	Center Line Elevation (ft.)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		1	Quintel Tech.	QS66512-2		
		3	Raycap	DC6-48-60-18-8F		
	138.0	1	--	Platform Mount [LP 303-1_HR-1]		
137.0	137.0	3	Ericsson	TME-RRUS-11	--	--
		1	--	Side Arm Mount [SO 102-3]		
136.0	148.0	1	Telewave	ANT150F6	1	1-1/4
	136.0	1	--	Pipe Mount [PM 601-1]		
129.0	129.0	3	Andrew	LNX-8513DS-A1M	7	1-5/8
		6	Quintel Tech.	QS6656-5D		
		1	RFS Celwave	DB-C1-12C-24AB-0Z		
		3	Samsung Telecom.	RFV01U-D1A		
		3	Samsung Telecom.	RFV01U-D2A		
		3	VZW	Sub6 Antenna - VZS01		
		1	--	Platform Mount [LP 405-1]		
114.0	114.0	3	Fujitsu	TA08025-B604	1	1-1/2
		3	Fujitsu	TA08025-B605		
		3	JMA Wireless	MX08FRO665-21		
		1	Raycap	RDIDC-9181-PF-48		
		1	Commscope	MC-PK8-DSH		
87.0	87.0	6	Andrew	ETM19V2S12UB	16 2	1-5/8 3/8
		3	Commscope	ATBT-BOTTOM-24V		
		3	Commscope	LNX-6515DS-VTM		
		6	RFS Celwave	APXV18-209014-C		
		1	--	Platform Mount [LP 305-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	1533002	CCI Sites
Mount Modification Report	9898962	CCI Sites
Tower Modification Drawing	2055776	CCI Sites
Post Modification Inspection	8290781	CCI Sites
Tower Modification Drawing	3030835	CCI Sites
Post Modification Inspection	3420974	CCI Sites
Tower Modification Drawing	8337308	CCI Sites
Post Modification Inspection	8818850	CCI Sites
Foundation Drawing	2122534	CCI Sites
Geotech Report	1531967	CCI Sites
Crown CAD Package	Date: 06/02/2021	CCI Sites

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft.)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	138.5 - 108.5	Pole	TP24.5x17.375x0.188	1	-13.457	888.757	57.0	Pass
L2	108.5 - 83.758	Pole	TP31.862x24.5x0.25	2	-21.136	1475.796	59.0	Pass
L3	83.758 - 43.034	Pole	TP43.416x30.029x0.313	3	-31.730	2519.191	59.7	Pass
L4	43.034 - 0	Pole	TP55.5x41.036x0.313	4	-45.370	3362.352	68.1	Pass
							Summary	
						Pole (L4)	68.1	Pass
						Rating =	68.1	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
1,2	Flange Connections	108.5	34.5	Pass
1,2	Anchor Rods	Base	46.1	Pass
1,2	Base Plate	Base	62.3	Pass
1,2	Base Foundation (Structure)	Base	43.5	Pass
1,2	Base Foundation (Soil Interaction)	Base	51.3	Pass

Structure Rating (max from all components) =	**68.1%**

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.

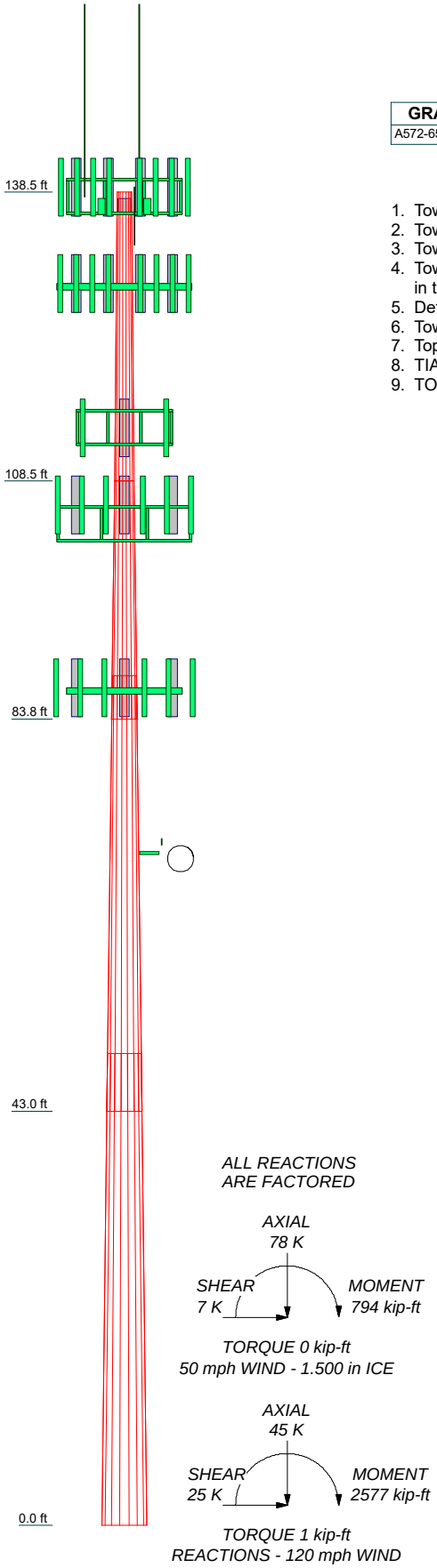
4.1) Recommendations

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	30.000	18	0.188		17.375	24.500		1.3
2	24.742	18	0.250	4.482	24.500	31.862		1.9
3	45.206	18	0.313	5.927	30.029	43.416	A572-65	5.6
4	48.961	18	0.313		41.036	55.500		7.9
								16.6



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 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: 68.1%

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

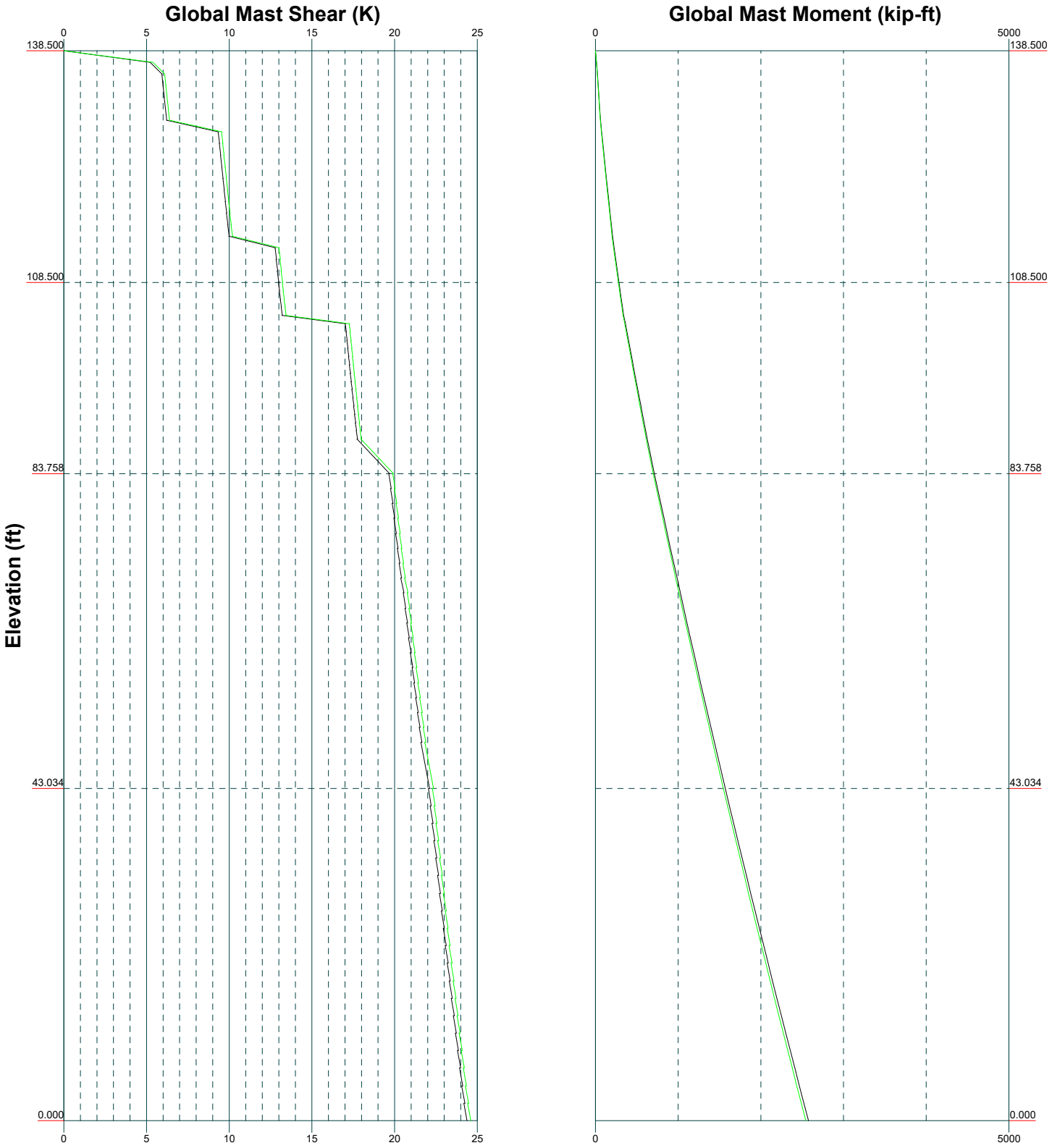
Job: 137090.006.01 - O&G WOODBURY, CT (BU# 876380			
Project:			
Client: Crown Castle	Drawn by: Sampath	App'd:	
Code: TIA-222-H	Date: 07/23/21	Scale: NTS	
Path:		Dwg No. E-1	

TIA-222-H - 120 mph/50 mph 1.500 in Ice Exposure B

Vx Vz

Maximum Values

Mx Mz



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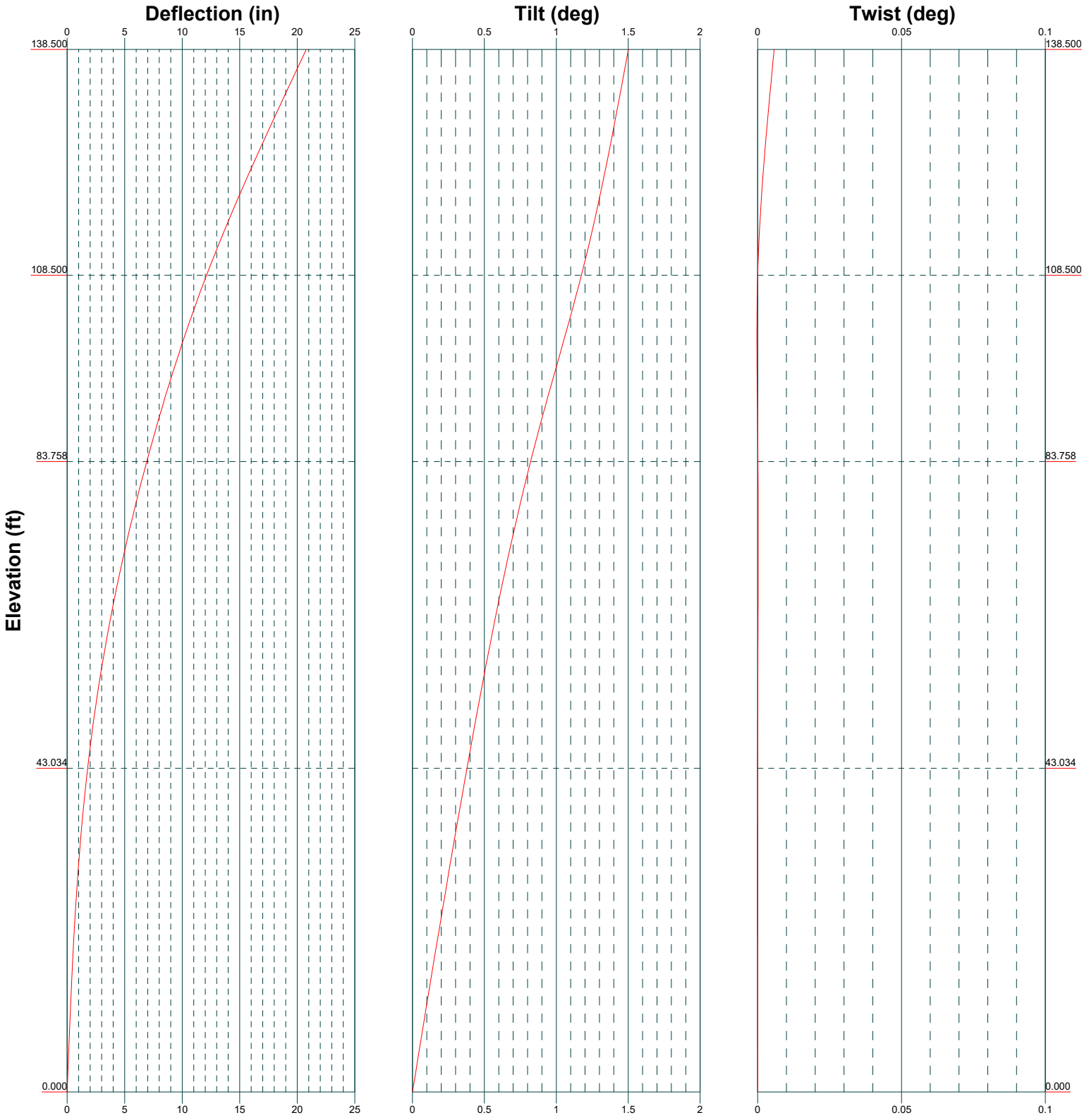
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 587-4630

Job: 137090.006.01 - O&G WOODBURY, CT (BU# 876380			
Project:			
Client: Crown Castle	Drawn by: Sampath	App'd:	
Code: TIA-222-H	Date: 07/23/21	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



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Tulsa, OK 74119
Phone: (918) 587-4630
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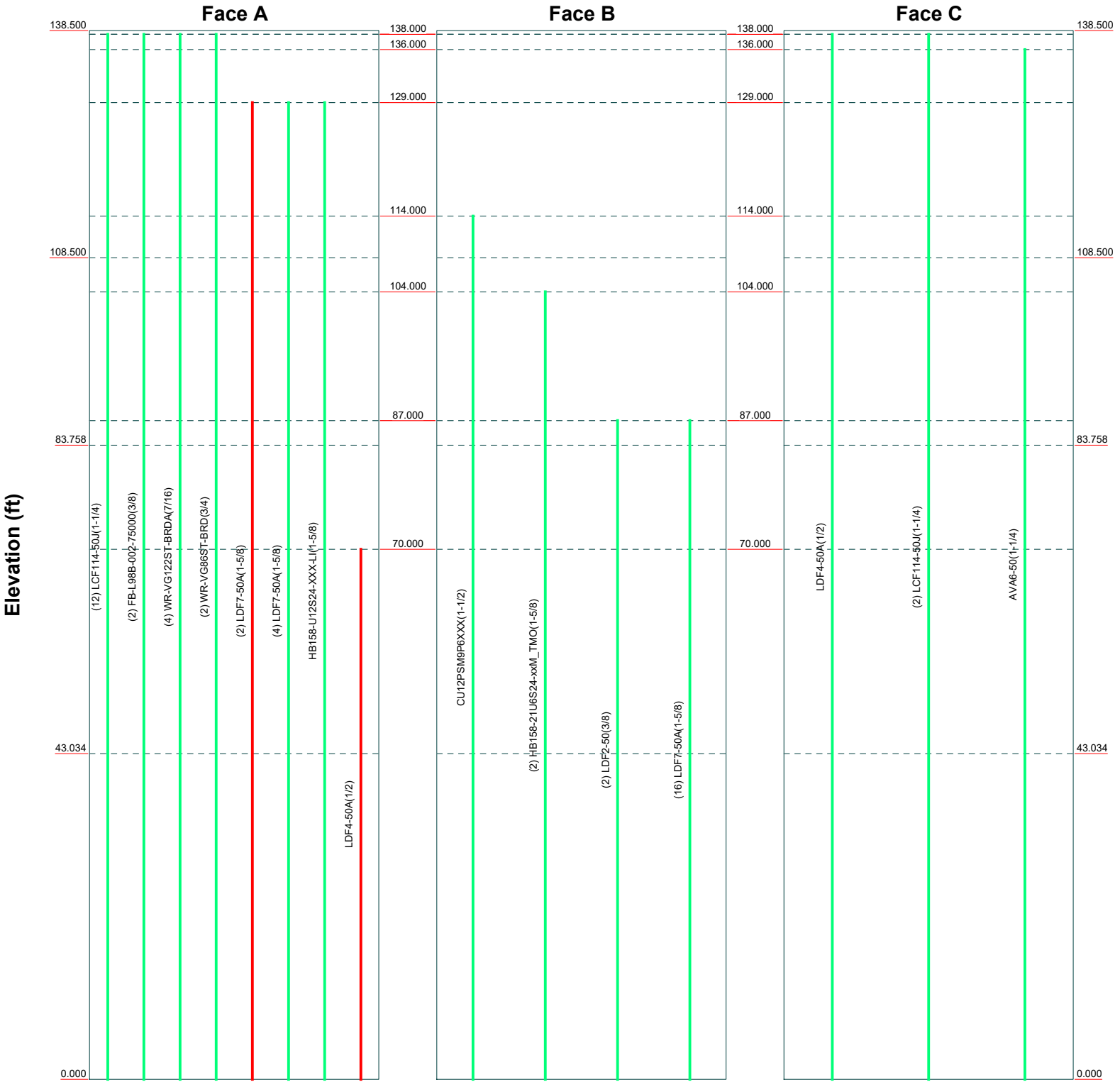
Job: 137090.006.01 - O&G WOODBURY, CT (BU# 876380			
Project:			
Client: Crown Castle	Drawn by: Sampath	App'd:	
Code: TIA-222-H	Date: 07/23/21	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 138'6"

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



B+T Group
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Job: 137090.006.01 - O&G WOODBURY, CT (BU# 876380			
Project:			
Client: Crown Castle	Drawn by: Sampath	App'd:	
Code: TIA-222-H	Date: 07/23/21	Scale: NTS	
Path:		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 Litchfield County, Connecticut.
Tower base elevation above sea level: 590.000 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.500 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	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	√ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation 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	138.500-108.500	30.000	0.000	18	17.375	24.500	0.188	0.750	A572-65 (65 ksi)
L2	108.500-83.758	24.742	4.482	18	24.500	31.862	0.250	1.000	A572-65 (65 ksi)
L3	83.758-43.034	45.206	5.927	18	30.029	43.416	0.313	1.250	A572-65 (65 ksi)
L4	43.034-0.000	48.961		18	41.036	55.500	0.313	1.250	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	17.614	10.229	381.754	6.102	8.826	43.251	764.011	5.115	2.728	14.549
	24.849	14.469	1080.524	8.631	12.446	86.817	2162.470	7.236	3.982	21.237
L2	24.839	19.242	1429.617	8.609	12.446	114.866	2861.115	9.623	3.872	15.488
	32.315	25.084	3167.004	11.222	16.186	195.663	6338.174	12.545	5.168	20.671
L3	31.791	29.475	3288.268	10.549	15.254	215.561	6580.863	14.740	4.735	15.152
	44.038	42.753	10035.478	15.302	22.055	455.012	20084.160	21.381	7.091	22.692
L4	43.399	40.393	8463.062	14.457	20.846	405.975	16937.259	20.200	6.672	21.351
	56.308	54.739	21062.822	19.592	28.194	747.068	42153.359	27.375	9.218	29.498

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 138.500-108.500				1	1	1			
L2 108.500-83.758				1	1	1			
L3 83.758-43.034				1	1	1			
L4 43.034-0.000				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
* LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	129.000 - 0.000	2	2	0.100 0.170	1.980		0.001
* LDF4-50A(1/2)	A	No	Surface Ar	70.000 -	1	1	-0.420	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			-0.400			
*										
*										

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
LDF4-50A(1/2)	C	No	No	Inside Pole	138.000 - 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
LCF114-50J(1-1/4)	C	No	No	Inside Pole	138.000 - 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
*									
LCF114-50J(1-1/4)	A	No	No	Inside Pole	138.000 - 0.000	12	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
FB-L98B-002-75000 (3/8)	A	No	No	Inside Pole	138.000 - 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
WR-VG122ST-BRD A(7/16)	A	No	No	Inside Pole	138.000 - 0.000	4	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
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	138.000 - 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
*									
AVA6-50(1-1/4)	C	No	No	Inside Pole	136.000 - 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
LDF7-50A(1-5/8)	A	No	No	Inside Pole	129.000 - 0.000	4	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-U12S24-XX X-LI(1-5/8)	A	No	No	Inside Pole	129.000 - 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
*									
CU12PSM9P6XXX(1-1/2)	B	No	No	Inside Pole	114.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
*									
HB158-21U6S24-xx M_TMO(1-5/8)	B	No	No	Inside Pole	104.000 - 0.000	2	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
							2" Ice	0.000	0.003
*									
LDF2-50(3/8)	B	No	No	Inside Pole	87.000 - 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
LDF7-50A(1-5/8)	B	No	No	Inside Pole	87.000 - 0.000	16	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
*									

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	138.500-108.500	A	0.000	0.000	8.118	0.000	0.469
		B	0.000	0.000	0.000	0.000	0.013
		C	0.000	0.000	0.000	0.000	0.058
L2	108.500-83.758	A	0.000	0.000	9.798	0.000	0.454
		B	0.000	0.000	0.000	0.000	0.202
		C	0.000	0.000	0.000	0.000	0.050
L3	83.758-43.034	A	0.000	0.000	17.826	0.000	0.752
		B	0.000	0.000	0.000	0.000	0.840
		C	0.000	0.000	0.000	0.000	0.082
L4	43.034-0.000	A	0.000	0.000	19.753	0.000	0.797
		B	0.000	0.000	0.000	0.000	0.888
		C	0.000	0.000	0.000	0.000	0.086

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	138.500-108.500	A	1.454	0.000	0.000	17.599	0.000	0.646
		B		0.000	0.000	0.000	0.000	0.013
		C		0.000	0.000	0.000	0.000	0.058
L2	108.500-83.758	A	1.418	0.000	0.000	21.019	0.000	0.662
		B		0.000	0.000	0.000	0.000	0.202
		C		0.000	0.000	0.000	0.000	0.050
L3	83.758-43.034	A	1.360	0.000	0.000	43.943	0.000	1.190
		B		0.000	0.000	0.000	0.000	0.840
		C		0.000	0.000	0.000	0.000	0.082
L4	43.034-0.000	A	1.217	0.000	0.000	50.343	0.000	1.282
		B		0.000	0.000	0.000	0.000	0.888
		C		0.000	0.000	0.000	0.000	0.086

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	138.500-108.500	-1.441	-1.503	-1.428	-1.489
L2	108.500-83.758	-1.937	-2.019	-1.931	-2.013
L3	83.758-43.034	-2.253	-1.950	-2.770	-1.838
L4	43.034-0.000	-2.431	-1.945	-3.241	-1.813

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	11	LDF7-50A(1-5/8)	108.50 - 129.00	1.0000	1.0000
L2	11	LDF7-50A(1-5/8)	83.76 - 108.50	1.0000	1.0000
L3	11	LDF7-50A(1-5/8)	43.03 - 83.76	1.0000	1.0000
L3	27	LDF4-50A(1/2)	43.03 - 70.00	1.0000	1.0000
L4	11	LDF7-50A(1-5/8)	0.00 - 43.03	1.0000	1.0000
L4	27	LDF4-50A(1/2)	0.00 - 43.03	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.746 6.179 6.607 7.488	4.254 5.014 5.711 7.155	0.055 0.103 0.157 0.287
7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.746 6.179 6.607 7.488	4.254 5.014 5.711 7.155	0.055 0.103 0.157 0.287
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.746 6.179 6.607 7.488	4.254 5.014 5.711 7.155	0.055 0.103 0.157 0.287
QS66512-2 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.040 4.420 4.820 5.630	4.180 4.570 4.970 5.790	0.137 0.206 0.287 0.482

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
QS46512-2 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.950 3.250 3.550 4.190	3.330 3.630 3.940 4.600	0.095 0.149 0.212 0.366
QS46512-2 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.950 3.250 3.550 4.190	3.330 3.630 3.940 4.600	0.095 0.149 0.212 0.366
(2) 80010965 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.260 13.030 13.800 15.410	5.790 6.470 7.170 8.600	0.136 0.226 0.328 0.570
(2) 80010964 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.610 9.180 9.770 10.980	4.100 4.590 5.100 6.160	0.116 0.186 0.265 0.453
(2) 80010964 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.610 9.180 9.770 10.980	4.100 4.590 5.100 6.160	0.116 0.186 0.265 0.453
TT19-08BP111-001	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.545 0.641 0.743 0.971	0.442 0.530 0.626 0.840	0.016 0.022 0.029 0.049
TT19-08BP111-001	B	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.545 0.641 0.743 0.971	0.442 0.530 0.626 0.840	0.016 0.022 0.029 0.049
TT19-08BP111-001	C	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.545 0.641 0.743 0.971	0.442 0.530 0.626 0.840	0.016 0.022 0.029 0.049
(2) DC6-48-60-18-8F	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.212 1.892 2.105 2.570	1.212 1.892 2.105 2.570	0.033 0.055 0.080 0.138
DC6-48-60-18-8F	B	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.212 1.892 2.105 2.570	1.212 1.892 2.105 2.570	0.033 0.055 0.080 0.138
RRUS 32	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165
RRUS 32	B	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165
RRUS 32	C	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165
(2) TPX-070821	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.469 0.559 0.656 0.872	0.101 0.147 0.202 0.334	0.008 0.011 0.016 0.030
(2) TPX-070821	B	From Leg	4.000	0.000	138.000	No Ice	0.469	0.101	0.008

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	0.559	0.147	0.011
			1.000			1" Ice	0.656	0.202	0.016
						2" Ice	0.872	0.334	0.030
(2) TPX-070821	C	From Leg	4.000	0.000	138.000	No Ice	0.469	0.101	0.008
			0.000			1/2" Ice	0.559	0.147	0.011
			1.000			1" Ice	0.656	0.202	0.016
						2" Ice	0.872	0.334	0.030
RRUS 4478 B14	A	From Leg	4.000	0.000	138.000	No Ice	1.843	1.059	0.060
			0.000			1/2" Ice	2.012	1.197	0.076
			1.000			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 4478 B14	B	From Leg	4.000	0.000	138.000	No Ice	1.843	1.059	0.060
			0.000			1/2" Ice	2.012	1.197	0.076
			1.000			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 4478 B14	C	From Leg	4.000	0.000	138.000	No Ice	1.843	1.059	0.060
			0.000			1/2" Ice	2.012	1.197	0.076
			1.000			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
ATSBT-TOP-FF-4G	A	From Leg	4.000	0.000	138.000	No Ice	0.174	0.095	0.002
			0.000			1/2" Ice	0.229	0.140	0.003
			1.000			1" Ice	0.292	0.193	0.006
						2" Ice	0.440	0.323	0.015
ATSBT-TOP-FF-4G	B	From Leg	4.000	0.000	138.000	No Ice	0.174	0.095	0.002
			0.000			1/2" Ice	0.229	0.140	0.003
			1.000			1" Ice	0.292	0.193	0.006
						2" Ice	0.440	0.323	0.015
ATSBT-TOP-FF-4G	C	From Leg	4.000	0.000	138.000	No Ice	0.174	0.095	0.002
			0.000			1/2" Ice	0.229	0.140	0.003
			1.000			1" Ice	0.292	0.193	0.006
						2" Ice	0.440	0.323	0.015
RRUS 4449 B5/B12	A	From Leg	4.000	0.000	138.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			1.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RRUS 4449 B5/B12	B	From Leg	4.000	0.000	138.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			1.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RRUS 4449 B5/B12	C	From Leg	4.000	0.000	138.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			1.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RRUS 8843 B2/B66A	A	From Leg	4.000	0.000	138.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			1.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	B	From Leg	4.000	0.000	138.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			1.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	C	From Leg	4.000	0.000	138.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			1.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
(2) 4' x 2" Pipe Mount	A	From Leg	4.000	0.000	138.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035

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
			2.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
4' x 2" Pipe Mount	B	From Leg	4.000	0.000	138.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			2.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
Platform Mount [LP 303-1_HR-1]	C	None		0.000	138.000	No Ice	17.090	17.090	1.495
						1/2" Ice	21.470	21.470	1.881
						1" Ice	25.720	25.720	2.346
						2" Ice	33.960	33.960	3.518
*									
DS9A09F36D-N	C	From Leg	4.000	0.000	138.000	No Ice	5.760	5.760	0.047
			0.000			1/2" Ice	7.713	7.713	0.088
			10.000			1" Ice	9.683	9.683	0.142
						2" Ice	13.673	13.673	0.287
*									
TME-RRUS-11	A	From Leg	2.000	0.000	137.000	No Ice	2.959	1.665	0.057
			0.000			1/2" Ice	3.226	1.976	0.085
			0.000			1" Ice	3.504	2.304	0.117
						2" Ice	4.092	3.020	0.194
TME-RRUS-11	B	From Leg	2.000	0.000	137.000	No Ice	2.959	1.665	0.057
			0.000			1/2" Ice	3.226	1.976	0.085
			0.000			1" Ice	3.504	2.304	0.117
						2" Ice	4.092	3.020	0.194
TME-RRUS-11	C	From Leg	2.000	0.000	137.000	No Ice	2.959	1.665	0.057
			0.000			1/2" Ice	3.226	1.976	0.085
			0.000			1" Ice	3.504	2.304	0.117
						2" Ice	4.092	3.020	0.194
Side Arm Mount [SO 102-3]	C	None		0.000	137.000	No Ice	3.600	3.600	0.075
						1/2" Ice	4.180	4.180	0.105
						1" Ice	4.750	4.750	0.135
						2" Ice	5.900	5.900	0.195
*									
ANT150F6	B	From Leg	1.000	0.000	136.000	No Ice	4.800	4.800	0.030
			0.000			1/2" Ice	6.828	6.828	0.066
			12.000			1" Ice	8.873	8.873	0.114
						2" Ice	13.013	13.013	0.249
Pipe Mount [PM 601-1]	B	From Leg	0.500	0.000	136.000	No Ice	1.320	1.320	0.065
			0.000			1/2" Ice	1.580	1.580	0.077
			0.000			1" Ice	1.840	1.840	0.093
						2" Ice	2.400	2.400	0.134
*									
LNX-8513DS-A1M w/ Mount Pipe	A	From Leg	4.000	0.000	129.000	No Ice	4.090	3.300	0.065
			0.000			1/2" Ice	4.490	3.680	0.128
			0.000			1" Ice	4.890	4.060	0.202
						2" Ice	5.710	4.870	0.384
LNX-8513DS-A1M w/ Mount Pipe	B	From Leg	4.000	0.000	129.000	No Ice	4.090	3.300	0.065
			0.000			1/2" Ice	4.490	3.680	0.128
			0.000			1" Ice	4.890	4.060	0.202
						2" Ice	5.710	4.870	0.384
LNX-8513DS-A1M w/ Mount Pipe	C	From Leg	4.000	0.000	129.000	No Ice	4.090	3.300	0.065
			0.000			1/2" Ice	4.490	3.680	0.128
			0.000			1" Ice	4.890	4.060	0.202
						2" Ice	5.710	4.870	0.384
(2) QS6656-5D w/ Mount Pipe	A	From Leg	4.000	0.000	129.000	No Ice	4.040	4.180	0.114
			0.000			1/2" Ice	4.420	4.570	0.183
			0.000			1" Ice	4.820	4.970	0.264

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	5.630	5.790	0.459
(2) QS6656-5D w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.040 4.420 4.820 5.630	4.180 4.570 4.970 5.790	0.114 0.183 0.264 0.459
(2) QS6656-5D w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.040 4.420 4.820 5.630	4.180 4.570 4.970 5.790	0.114 0.183 0.264 0.459
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.915 5.264 5.623 6.371	2.687 3.151 3.631 4.639	0.101 0.141 0.186 0.294
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.915 5.264 5.623 6.371	2.687 3.151 3.631 4.639	0.101 0.141 0.186 0.294
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.915 5.264 5.623 6.371	2.687 3.151 3.631 4.639	0.101 0.141 0.186 0.294
(2) RFV01U-D2A	A	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.013 1.145 1.284 1.585	0.070 0.087 0.106 0.153
RFV01U-D2A	C	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.013 1.145 1.284 1.585	0.070 0.087 0.106 0.153
RFV01U-D1A	A	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175
RFV01U-D1A	B	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175
RFV01U-D1A	C	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175
DB-C1-12C-24AB-0Z	B	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.056 4.316 4.582 5.138	3.098 3.335 3.580 4.092	0.032 0.068 0.109 0.203
3' x 2" Pipe Mount	C	From Leg	1.000 0.000 0.000	0.000	129.000	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
Platform Mount [LP 405-1]	C	None		0.000	129.000	No Ice 1/2" Ice 1" Ice 2" Ice	20.880 28.890 37.040 53.730	20.880 28.890 37.040 53.730	1.800 2.277 2.868 4.394
*									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292

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	10.110	6.120	0.522
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.010 8.520 9.040 10.110	4.230 4.690 5.160 6.120	0.108 0.194 0.292 0.522
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.010 8.520 9.040 10.110	4.230 4.690 5.160 6.120	0.108 0.194 0.292 0.522
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.012 2.189 2.373 2.763	1.168 1.311 1.461 1.784	0.022 0.040 0.060 0.110
(2) 8' x 2.375" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	114.000	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
(2) 8' x 2.375" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	114.000	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
(2) 8' x 2.375" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	114.000	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
Commscope MC-PK8-DSH	C	None		0.000	114.000	No Ice 1/2" Ice 1" Ice 2" Ice	34.240 62.950 91.660 149.080	34.240 62.950 91.660 149.080	1.749 2.099 2.450 3.151
*									
*									
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	104.000	No Ice 1/2" Ice	5.190 5.590	2.710 3.040	0.128 0.174

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
			2.000			1" Ice	6.020	3.380	0.227
						2" Ice	6.900	4.120	0.354
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	5.190 5.590 6.020	2.710 3.040 3.380	0.128 0.174 0.227
						2" Ice	6.900	4.120	0.354
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	5.190 5.590 6.020	2.710 3.040 3.380	0.128 0.174 0.227
						2" Ice	6.900	4.120	0.354
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
						2" Ice	17.820	9.670	0.782
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
						2" Ice	17.820	9.670	0.782
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
						2" Ice	17.820	9.670	0.782
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	6.290 6.860 7.450	2.760 3.270 3.790	0.061 0.105 0.157
						2" Ice	8.680	4.900	0.290
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	6.290 6.860 7.450	2.760 3.270 3.790	0.061 0.105 0.157
						2" Ice	8.680	4.900	0.290
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	6.290 6.860 7.450	2.760 3.270 3.790	0.061 0.105 0.157
						2" Ice	8.680	4.900	0.290
RADIO 4480 B71_TMO	A	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	2.852 3.064 3.284	1.383 1.543 1.710	0.093 0.114 0.139
						2" Ice	3.745	2.073	0.199
RADIO 4480 B71_TMO	B	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	2.852 3.064 3.284	1.383 1.543 1.710	0.093 0.114 0.139
						2" Ice	3.745	2.073	0.199
RADIO 4480 B71_TMO	C	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	2.852 3.064 3.284	1.383 1.543 1.710	0.093 0.114 0.139
						2" Ice	3.745	2.073	0.199
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	2.139 2.321 2.511	1.686 1.850 2.022	0.109 0.131 0.156
						2" Ice	2.912	2.387	0.217
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	2.139 2.321 2.511	1.686 1.850 2.022	0.109 0.131 0.156
						2" Ice	2.912	2.387	0.217
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 2.000	0.000	104.000	No Ice 1/2" Ice 1" Ice	2.139 2.321 2.511	1.686 1.850 2.022	0.109 0.131 0.156

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	2.912	2.387	0.217
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None		0.000	104.000	No Ice	37.610	37.610	2.631
						1/2" Ice	45.620	45.620	3.478
						1" Ice	53.590	53.590	4.462
						2" Ice	69.650	69.650	6.848
*									
(2) APXV18-209014-C w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.550 2.950 3.370 4.240	2.140 2.540 2.950 3.810	0.051 0.080 0.117 0.217
(2) APXV18-209014-C w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.550 2.950 3.370 4.240	2.140 2.540 2.950 3.810	0.051 0.080 0.117 0.217
(2) APXV18-209014-C w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.550 2.950 3.370 4.240	2.140 2.540 2.950 3.810	0.051 0.080 0.117 0.217
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.310 5.800 6.300 7.330	4.270 4.750 5.240 6.240	0.083 0.165 0.261 0.495
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.310 5.800 6.300 7.330	4.270 4.750 5.240 6.240	0.083 0.165 0.261 0.495
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.310 5.800 6.300 7.330	4.270 4.750 5.240 6.240	0.083 0.165 0.261 0.495
(2) ETM19V2S12UB	A	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.667 0.770 0.881 1.126	0.197 0.266 0.342 0.516	0.011 0.016 0.022 0.039
(2) ETM19V2S12UB	B	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.667 0.770 0.881 1.126	0.197 0.266 0.342 0.516	0.011 0.016 0.022 0.039
(2) ETM19V2S12UB	C	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.667 0.770 0.881 1.126	0.197 0.266 0.342 0.516	0.011 0.016 0.022 0.039
ATBT-BOTTOM-24V	A	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.104 0.148 0.199 0.323	0.065 0.102 0.147 0.259	0.003 0.004 0.006 0.013
ATBT-BOTTOM-24V	B	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.104 0.148 0.199 0.323	0.065 0.102 0.147 0.259	0.003 0.004 0.006 0.013
ATBT-BOTTOM-24V	C	From Leg	4.000 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.104 0.148 0.199 0.323	0.065 0.102 0.147 0.259	0.003 0.004 0.006 0.013
ACU-A20-N	A	From Leg	4.000 0.000 -3.000	0.000	87.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.001 0.002 0.004

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	0.259	0.343	0.012
ACU-A20-N	B	From Leg	4.000 0.000 -3.000	0.000	87.000	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 -3.000	0.000	87.000	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
Platform Mount [LP 305-1]	C	None		0.000	87.000	No Ice 1/2" Ice 1" Ice 2" Ice	18.040 22.040 26.060 34.160	18.040 22.040 26.060 34.160	1.121 1.470 1.882 2.896
*									
KS24019-L112A	B	From Leg	3.000 0.000 1.000	0.000	70.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.141 0.198 0.262 0.415	0.141 0.198 0.262 0.415	0.005 0.007 0.009 0.018
Side Arm Mount [SO 701-1]	B	From Leg	1.500 0.000 0.000	0.000	70.000	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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	138.5 - 108.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-29.462	-0.045	3.353
			Max. Mx	20	-13.495	277.135	1.480
			Max. My	2	-13.457	0.056	284.546
			Max. Vy	20	-12.999	277.135	1.480
			Max. Vx	2	-13.230	0.056	284.546
			Max. Torque	19			-0.969
L2	108.5 - 83.758	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-43.841	0.211	3.711
			Max. Mx	20	-21.168	613.706	1.586
			Max. My	2	-21.136	0.123	625.827
			Max. Vy	20	-17.758	613.706	1.586
			Max. Vx	2	-17.991	0.123	625.827
			Max. Torque	9			0.701
L3	83.758 - 43.034	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.019	0.586	4.136
			Max. Mx	8	-31.748	-1417.315	1.690
			Max. My	2	-31.731	-0.178	1438.747
			Max. Vy	20	-21.651	1417.252	1.395
			Max. Vx	2	-21.890	-0.178	1438.747
			Max. Torque	9			0.700
L4	43.034 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-77.598	1.753	4.809
			Max. Mx	20	-45.370	2544.133	1.027
			Max. My	2	-45.370	-0.489	2576.933

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-24.380	2544.133	1.027
			Max. Vx	2	-24.605	-0.489	2576.933
			Max. Torque	21			-0.607

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	77.598	-0.004	7.172
	Max. H_x	20	45.387	24.349	-0.010
	Max. H_z	3	34.040	-0.010	24.573
	Max. M_x	2	2576.933	-0.010	24.573
	Max. M_z	8	2543.818	-24.349	0.010
	Max. Torsion	9	0.606	-24.349	0.010
	Min. Vert	23	34.040	21.081	12.278
	Min. H_x	8	45.387	-24.349	0.010
	Min. H_z	15	34.040	0.010	-24.573
	Min. M_x	14	-2573.593	0.010	-24.573
	Min. M_z	20	-2544.133	24.349	-0.010
	Min. Torsion	21	-0.606	24.349	-0.010

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	37.822	0.000	-0.000	-1.312	0.129	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	45.387	0.010	-24.573	-2576.933	-0.489	0.123
0.9 Dead+1.0 Wind 0 deg - No Ice	34.040	0.010	-24.573	-2538.778	-0.526	0.122
1.2 Dead+1.0 Wind 30 deg - No Ice	45.387	12.183	-21.286	-2232.266	-1272.348	-0.190
0.9 Dead+1.0 Wind 30 deg - No Ice	34.040	12.183	-21.286	-2199.167	-1253.807	-0.197
1.2 Dead+1.0 Wind 60 deg - No Ice	45.387	21.091	-12.295	-1289.910	-2203.291	-0.452
0.9 Dead+1.0 Wind 60 deg - No Ice	34.040	21.091	-12.295	-1270.603	-2171.147	-0.464
1.2 Dead+1.0 Wind 90 deg - No Ice	45.387	24.349	-0.010	-2.321	-2543.818	-0.592
0.9 Dead+1.0 Wind 90 deg - No Ice	34.040	24.349	-0.010	-1.860	-2506.698	-0.606
1.2 Dead+1.0 Wind 120 deg - No Ice	45.387	21.081	12.278	1285.443	-2202.647	-0.574
0.9 Dead+1.0 Wind 120 deg - No Ice	34.040	21.081	12.278	1267.056	-2170.506	-0.586
1.2 Dead+1.0 Wind 150 deg - No Ice	45.387	12.166	21.276	2228.277	-1271.230	-0.403
0.9 Dead+1.0 Wind 150 deg - No Ice	34.040	12.166	21.276	2196.094	-1252.695	-0.409
1.2 Dead+1.0 Wind 180 deg -	45.387	-0.010	24.573	2573.593	0.805	-0.124

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
No Ice						
0.9 Dead+1.0 Wind 180 deg - No Ice	34.040	-0.010	24.573	2536.348	0.761	-0.122
1.2 Dead+1.0 Wind 210 deg - No Ice	45.387	-12.183	21.286	2228.923	1272.667	0.189
0.9 Dead+1.0 Wind 210 deg - No Ice	34.040	-12.183	21.286	2196.736	1254.044	0.197
1.2 Dead+1.0 Wind 240 deg - No Ice	45.387	-21.091	12.295	1286.564	2203.608	0.451
0.9 Dead+1.0 Wind 240 deg - No Ice	34.040	-21.091	12.295	1268.169	2171.383	0.464
1.2 Dead+1.0 Wind 270 deg - No Ice	45.387	-24.349	0.010	-1.027	2544.133	0.593
0.9 Dead+1.0 Wind 270 deg - No Ice	34.040	-24.349	0.010	-0.574	2506.933	0.606
1.2 Dead+1.0 Wind 300 deg - No Ice	45.387	-21.081	-12.278	-1288.789	2202.959	0.575
0.9 Dead+1.0 Wind 300 deg - No Ice	34.040	-21.081	-12.278	-1269.489	2170.739	0.586
1.2 Dead+1.0 Wind 330 deg - No Ice	45.387	-12.166	-21.276	-2231.619	1271.543	0.403
0.9 Dead+1.0 Wind 330 deg - No Ice	34.040	-12.166	-21.276	-2198.525	1252.929	0.409
1.2 Dead+1.0 Ice+1.0 Temp	77.598	-0.000	-0.000	-4.809	1.753	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	77.598	0.004	-7.172	-794.420	1.480	0.008
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	77.598	3.568	-6.213	-688.816	-390.053	-0.031
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	77.598	6.176	-3.590	-399.981	-676.591	-0.062
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	77.598	7.129	-0.004	-5.304	-781.356	-0.077
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	77.598	6.172	3.582	389.460	-676.273	-0.070
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	77.598	3.561	6.209	678.533	-389.501	-0.045
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	77.598	-0.004	7.172	784.457	2.120	-0.008
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	77.598	-3.568	6.213	678.853	393.655	0.031
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	77.598	-6.176	3.590	390.014	680.193	0.062
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	77.598	-7.129	0.004	-4.664	784.956	0.076
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	77.598	-6.172	-3.582	-399.427	679.871	0.070
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	77.598	-3.561	-6.209	-688.497	393.099	0.045
Dead+Wind 0 deg - Service	37.822	0.002	-5.791	-603.418	-0.021	0.036
Dead+Wind 30 deg - Service	37.822	2.871	-5.017	-522.843	-297.360	-0.047
Dead+Wind 60 deg - Service	37.822	4.971	-2.898	-302.536	-514.988	-0.117
Dead+Wind 90 deg - Service	37.822	5.739	-0.002	-1.535	-594.583	-0.157
Dead+Wind 120 deg - Service	37.822	4.969	2.894	299.506	-514.836	-0.154
Dead+Wind 150 deg - Service	37.822	2.867	5.014	519.924	-297.097	-0.110
Dead+Wind 180 deg - Service	37.822	-0.002	5.791	600.651	0.283	-0.036
Dead+Wind 210 deg - Service	37.822	-2.871	5.017	520.075	297.622	0.047
Dead+Wind 240 deg - Service	37.822	-4.971	2.898	299.769	515.249	0.117
Dead+Wind 270 deg - Service	37.822	-5.739	0.002	-1.232	594.844	0.157
Dead+Wind 300 deg - Service	37.822	-4.969	-2.894	-302.273	515.097	0.154
Dead+Wind 330 deg - Service	37.822	-2.867	-5.014	-522.691	297.359	0.110

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	-37.822	0.000	0.000	37.822	0.000	0.000%
2	0.010	-45.387	-24.573	-0.010	45.387	24.573	0.000%
3	0.010	-34.040	-24.573	-0.010	34.040	24.573	0.000%
4	12.183	-45.387	-21.286	-12.183	45.387	21.286	0.000%
5	12.183	-34.040	-21.286	-12.183	34.040	21.286	0.000%
6	21.091	-45.387	-12.295	-21.091	45.387	12.295	0.000%
7	21.091	-34.040	-12.295	-21.091	34.040	12.295	0.000%
8	24.349	-45.387	-0.010	-24.349	45.387	0.010	0.000%
9	24.349	-34.040	-0.010	-24.349	34.040	0.010	0.000%
10	21.081	-45.387	12.278	-21.081	45.387	-12.278	0.000%
11	21.081	-34.040	12.278	-21.081	34.040	-12.278	0.000%
12	12.166	-45.387	21.276	-12.166	45.387	-21.276	0.000%
13	12.166	-34.040	21.276	-12.166	34.040	-21.276	0.000%
14	-0.010	-45.387	24.573	0.010	45.387	-24.573	0.000%
15	-0.010	-34.040	24.573	0.010	34.040	-24.573	0.000%
16	-12.183	-45.387	21.286	12.183	45.387	-21.286	0.000%
17	-12.183	-34.040	21.286	12.183	34.040	-21.286	0.000%
18	-21.091	-45.387	12.295	21.091	45.387	-12.295	0.000%
19	-21.091	-34.040	12.295	21.091	34.040	-12.295	0.000%
20	-24.349	-45.387	0.010	24.349	45.387	-0.010	0.000%
21	-24.349	-34.040	0.010	24.349	34.040	-0.010	0.000%
22	-21.081	-45.387	-12.278	21.081	45.387	12.278	0.000%
23	-21.081	-34.040	-12.278	21.081	34.040	12.278	0.000%
24	-12.166	-45.387	-21.276	12.166	45.387	21.276	0.000%
25	-12.166	-34.040	-21.276	12.166	34.040	21.276	0.000%
26	0.000	-77.598	0.000	0.000	77.598	0.000	0.000%
27	0.004	-77.598	-7.172	-0.004	77.598	7.172	0.000%
28	3.568	-77.598	-6.213	-3.568	77.598	6.213	0.000%
29	6.176	-77.598	-3.590	-6.176	77.598	3.590	0.000%
30	7.129	-77.598	-0.004	-7.129	77.598	0.004	0.000%
31	6.172	-77.598	3.582	-6.172	77.598	-3.582	0.000%
32	3.561	-77.598	6.209	-3.561	77.598	-6.209	0.000%
33	-0.004	-77.598	7.172	0.004	77.598	-7.172	0.000%
34	-3.568	-77.598	6.213	3.568	77.598	-6.213	0.000%
35	-6.176	-77.598	3.590	6.176	77.598	-3.590	0.000%
36	-7.129	-77.598	0.004	7.129	77.598	-0.004	0.000%
37	-6.172	-77.598	-3.582	6.172	77.598	3.582	0.000%
38	-3.561	-77.598	-6.209	3.561	77.598	6.209	0.000%
39	0.002	-37.822	-5.791	-0.002	37.822	5.791	0.000%
40	2.871	-37.822	-5.017	-2.871	37.822	5.017	0.000%
41	4.971	-37.822	-2.898	-4.971	37.822	2.898	0.000%
42	5.739	-37.822	-0.002	-5.739	37.822	0.002	0.000%
43	4.969	-37.822	2.894	-4.969	37.822	-2.894	0.000%
44	2.867	-37.822	5.014	-2.867	37.822	-5.014	0.000%
45	-0.002	-37.822	5.791	0.002	37.822	-5.791	0.000%
46	-2.871	-37.822	5.017	2.871	37.822	-5.017	0.000%
47	-4.971	-37.822	2.898	4.971	37.822	-2.898	0.000%
48	-5.739	-37.822	0.002	5.739	37.822	-0.002	0.000%
49	-4.969	-37.822	-2.894	4.969	37.822	2.894	0.000%
50	-2.867	-37.822	-5.014	2.867	37.822	5.014	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	0.00005279
3	Yes	4	0.00000001	0.00054152
4	Yes	6	0.00000001	0.00034716
5	Yes	6	0.00000001	0.00011696
6	Yes	6	0.00000001	0.00035240
7	Yes	6	0.00000001	0.00011921
8	Yes	5	0.00000001	0.00015598
9	Yes	5	0.00000001	0.00007504
10	Yes	6	0.00000001	0.00034188
11	Yes	6	0.00000001	0.00011545
12	Yes	6	0.00000001	0.00035090
13	Yes	6	0.00000001	0.00011871
14	Yes	5	0.00000001	0.00005239
15	Yes	4	0.00000001	0.00053807
16	Yes	6	0.00000001	0.00035070
17	Yes	6	0.00000001	0.00011862
18	Yes	6	0.00000001	0.00034224
19	Yes	6	0.00000001	0.00011556
20	Yes	5	0.00000001	0.00015324
21	Yes	5	0.00000001	0.00007370
22	Yes	6	0.00000001	0.00035253
23	Yes	6	0.00000001	0.00011927
24	Yes	6	0.00000001	0.00034672
25	Yes	6	0.00000001	0.00011681
26	Yes	4	0.00000001	0.00011544
27	Yes	6	0.00000001	0.00019905
28	Yes	6	0.00000001	0.00030828
29	Yes	6	0.00000001	0.00031021
30	Yes	6	0.00000001	0.00019460
31	Yes	6	0.00000001	0.00029701
32	Yes	6	0.00000001	0.00029945
33	Yes	6	0.00000001	0.00019378
34	Yes	6	0.00000001	0.00030135
35	Yes	6	0.00000001	0.00029784
36	Yes	6	0.00000001	0.00019509
37	Yes	6	0.00000001	0.00031064
38	Yes	6	0.00000001	0.00030983
39	Yes	4	0.00000001	0.00016431
40	Yes	5	0.00000001	0.00006960
41	Yes	5	0.00000001	0.00007354
42	Yes	4	0.00000001	0.00020425
43	Yes	5	0.00000001	0.00006617
44	Yes	5	0.00000001	0.00007145
45	Yes	4	0.00000001	0.00016218
46	Yes	5	0.00000001	0.00007101
47	Yes	5	0.00000001	0.00006645
48	Yes	4	0.00000001	0.00020397
49	Yes	5	0.00000001	0.00007384
50	Yes	5	0.00000001	0.00006917

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	138.5 - 108.5	20.787	39	1.504	0.004
L2	108.5 - 83.758	12.116	39	1.175	0.001
L3	88.24 - 43.034	7.738	39	0.882	0.001
L4	48.961 - 0	2.267	39	0.438	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.000	7770.00 w/ Mount Pipe	39	20.633	1.499	0.004	18544
137.000	TME-RRUS-11	39	20.324	1.489	0.003	18544
136.000	ANT150F6	39	20.016	1.479	0.003	18544
129.000	LNX-8513DS-A1M w/ Mount Pipe	39	17.875	1.410	0.003	9760
114.000	MX08FRO665-21 w/ Mount Pipe	39	13.547	1.245	0.002	3784
104.000	AIR6449 B41_T-MOBILE w/ Mount Pipe	39	11.028	1.112	0.001	3390
87.000	(2) APXV18-209014-C w/ Mount Pipe	39	7.508	0.865	0.001	5056
70.000	KS24019-L112A	39	4.721	0.654	0.000	4845

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	138.5 - 108.5	88.636	2	6.387	0.014
L2	108.5 - 83.758	51.764	2	5.018	0.005
L3	88.24 - 43.034	33.076	2	3.771	0.002
L4	48.961 - 0	9.688	2	1.873	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.000	7770.00 w/ Mount Pipe	2	87.981	6.367	0.014	4497
137.000	TME-RRUS-11	2	86.671	6.327	0.014	4497
136.000	ANT150F6	2	85.361	6.286	0.013	4497
129.000	LNX-8513DS-A1M w/ Mount Pipe	2	76.264	6.001	0.011	2366
114.000	MX08FRO665-21 w/ Mount Pipe	2	57.859	5.314	0.006	914
104.000	AIR6449 B41_T-MOBILE w/ Mount Pipe	2	47.126	4.753	0.004	814
87.000	(2) APXV18-209014-C w/ Mount Pipe	2	32.091	3.698	0.002	1191
70.000	KS24019-L112A	2	20.177	2.796	0.001	1138

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	138.5 - 108.5 (1)	TP24.5x17.375x0.188	30.000	0.000	0.0	14.469	-13.457	846.435	0.016
L2	108.5 - 83.758 (2)	TP31.862x24.5x0.25	24.742	0.000	0.0	24.026	-21.136	1405.520	0.015
L3	83.758 - 43.034 (3)	TP43.416x30.029x0.313	45.206	0.000	0.0	41.013	-31.730	2399.230	0.013
L4	43.034 - 0 (4)	TP55.5x41.036x0.313	48.961	0.000	0.0	54.739	-45.370	3202.240	0.014

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	138.5 - 108.5 (1)	TP24.5x17.375x0.188	284.546	490.864	0.580	0.000	490.864	0.000
L2	108.5 - 83.758 (2)	TP31.862x24.5x0.25	625.827	1038.383	0.603	0.000	1038.383	0.000
L3	83.758 - 43.034 (3)	TP43.416x30.029x0.313	1438.750	2349.450	0.612	0.000	2349.450	0.000
L4	43.034 - 0 (4)	TP55.5x41.036x0.313	2576.933	3679.575	0.700	0.000	3679.575	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	138.5 - 108.5 (1)	TP24.5x17.375x0.188	13.230	250.210	0.053	0.036	540.661	0.000
L2	108.5 - 83.758 (2)	TP31.862x24.5x0.25	17.991	417.238	0.043	0.036	1118.083	0.000
L3	83.758 - 43.034 (3)	TP43.416x30.029x0.313	21.890	719.769	0.030	0.123	2606.350	0.000
L4	43.034 - 0 (4)	TP55.5x41.036x0.313	24.605	960.671	0.026	0.123	4642.967	0.000

Pole Interaction Design Data

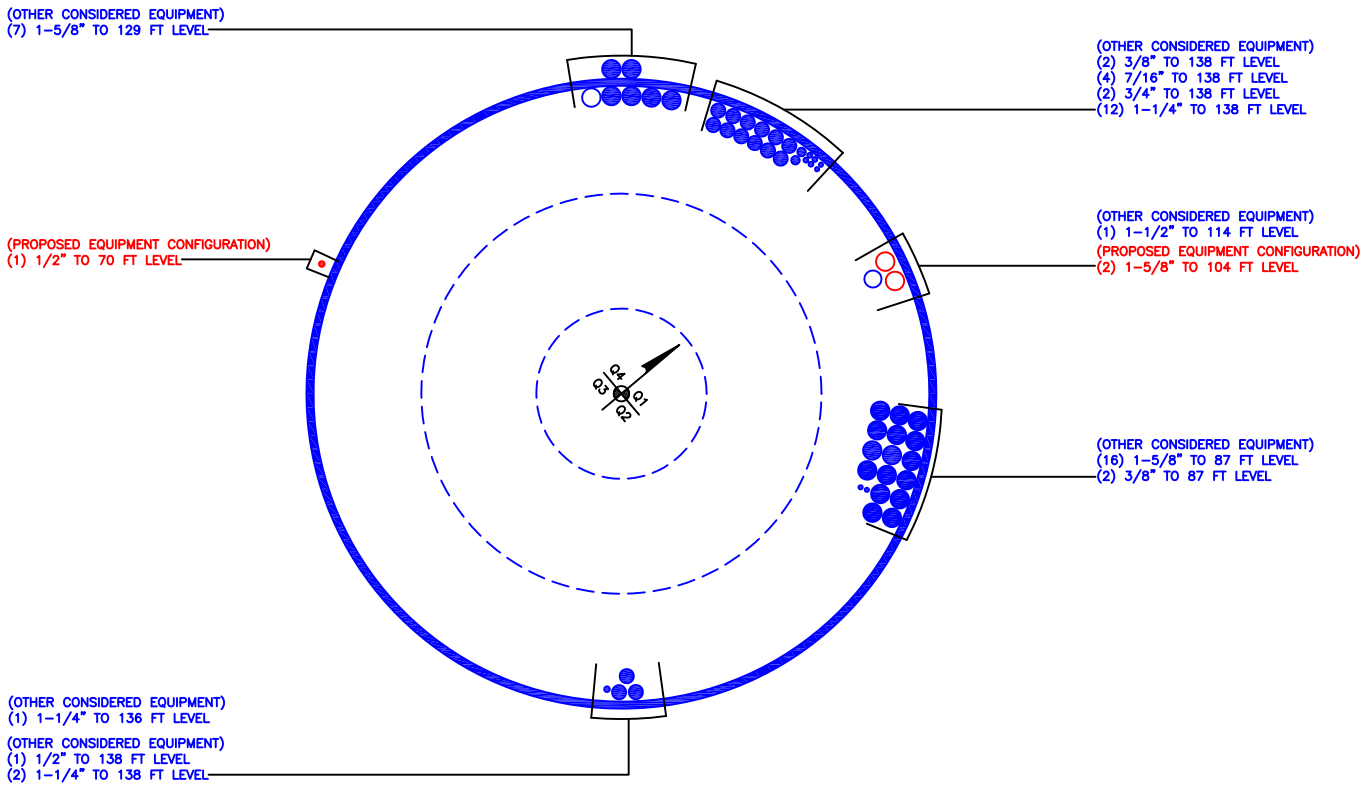
Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	138.5 - 108.5 (1)	0.016	0.580	0.000	0.053	0.000	0.598 ✔	1.050	4.8.2 ✔
L2	108.5 - 83.758 (2)	0.015	0.603	0.000	0.043	0.000	0.620 ✔	1.050	4.8.2 ✔
L3	83.758 - 43.034 (3)	0.013	0.612	0.000	0.030	0.000	0.627 ✔	1.050	4.8.2 ✔
L4	43.034 - 0 (4)	0.014	0.700	0.000	0.026	0.000	0.715 ✔	1.050	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	138.5 - 108.5	Pole	TP24.5x17.375x0.188	1	-13.457	888.757	57.0	Pass
L2	108.5 - 83.758	Pole	TP31.862x24.5x0.25	2	-21.136	1475.796	59.0	Pass
L3	83.758 - 43.034	Pole	TP43.416x30.029x0.313	3	-31.730	2519.191	59.7	Pass
L4	43.034 - 0	Pole	TP55.5x41.036x0.313	4	-45.370	3362.352	68.1	Pass
							Summary	
						Pole (L4)	68.1	Pass
						RATING =	**68.1**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876380

APPENDIX C

ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

Elevation = 108.5 ft.

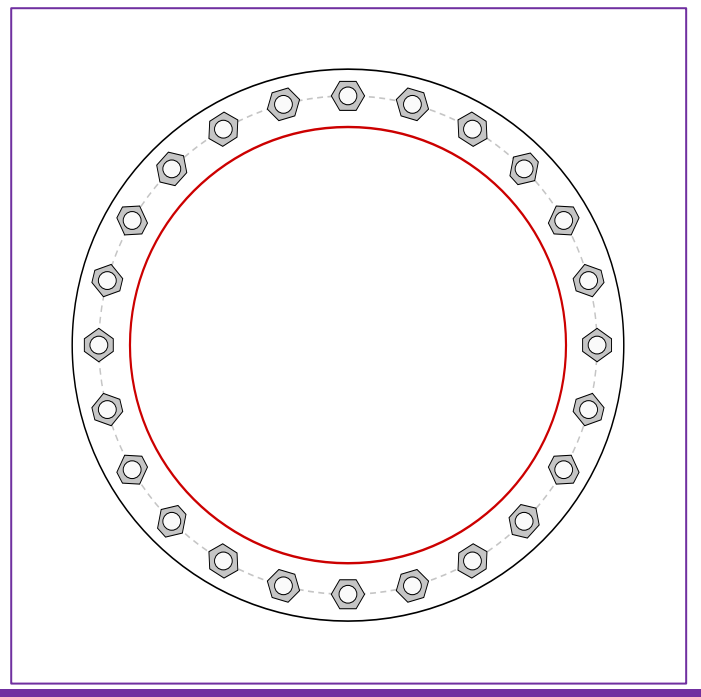
BU #	876380
Site Name	O&G WOODBURY, CT
Order #	567926, Rev. 3

TIA-222 Revision	H

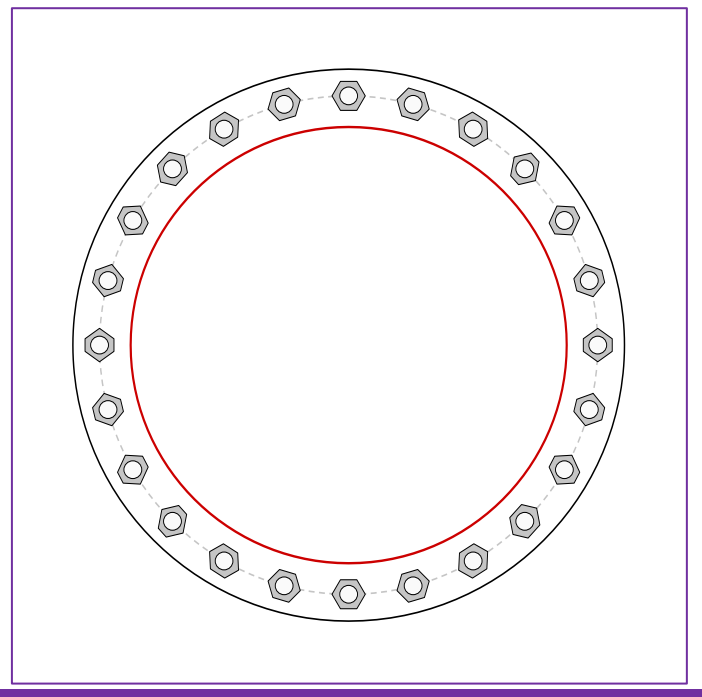
Applied Loads	
Moment (kip-ft)	284.55
Axial Force (kips)	13.46
Shear Force (kips)	13.23

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(24) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 28" BC

Top Plate Data

31" OD x 1.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Bottom Plate Data

31" OD x 1.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

24.5" x 0.1875" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Bottom Pole Data

24.5" x 0.25" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	19.75	
Allowable (kips)	54.53	
Stress Rating:	**34.5%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	12.32	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	**21.7%**	**Pass**
Tension Side Stress Rating:	**11.6%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	12.32	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	**21.7%**	**Pass**
Tension Side Stress Rating:	**11.6%**	**Pass**

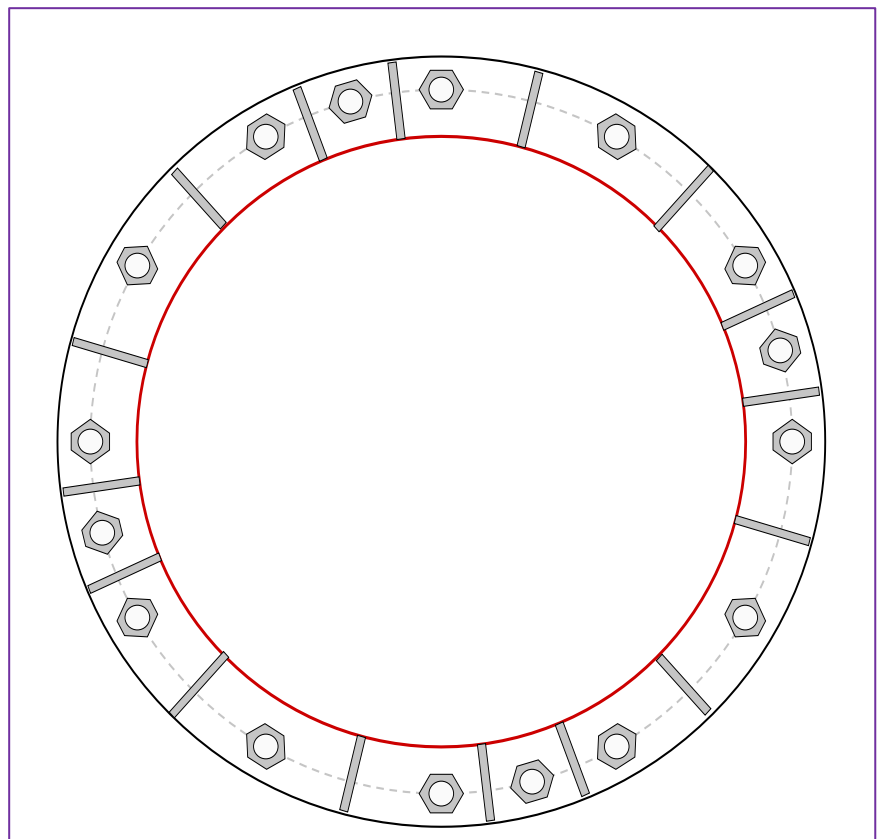
Monopole Base Plate Connection

Site Info	
BU #	876380
Site Name	O&G WOODBURY, CT
Order #	567926, Rev. 3

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

Applied Loads	
Moment (kip-ft)	2576.93
Axial Force (kips)	45.37
Shear Force (kips)	24.60

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 64" BC
GROUP 2: (4) 2-1/4" ø bolts (F1554-105 N; Fy=105 ksi, Fu=125 ksi) on 64" BC

Base Plate Data

70" OD x 1.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

(16) 15"H x 7"W x 0.75"T, Notch: 0.75"
plate: Fy= 65 ksi ; weld: Fy= 80 ksi
horiz. weld: 0.375" groove, 45° dbl bevel, 0.25" fillet
vert. weld: 0.25" fillet

Pole Data

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

Analysis Results

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

GROUP 1:

Pu_t = 117.9	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.54	ϕVn = 149.1	**46.1%**
Mu = n/a	ϕMn = n/a	**Pass**

GROUP 2:

Pu_t = 117.9	ϕPn_t = 304.69	**Stress Rating**
Vu = 1.54	ϕVn = 186.38	**36.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	35.34	(Roark's Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**62.3%**	**Pass**

Stiffener Summary

Horizontal Weld:	**30.9%**	**Pass**
Vertical Weld:	**52.0%**	**Pass**
Plate Flexure+Shear:	**12.4%**	**Pass**
Plate Tension+Shear:	**30.4%**	**Pass**
Plate Compression:	**40.2%**	**Pass**

Pole Summary

Punching Shear:	**16.1%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

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

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

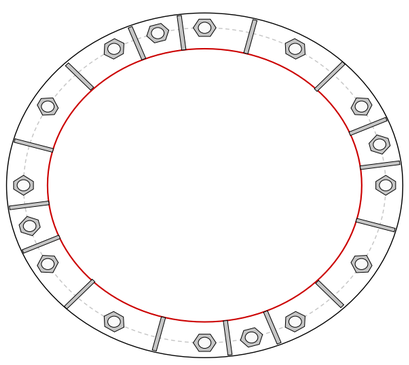
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	2.25	A615-75	64	0.5	0	N-Included		No
2	1	30	2.25	A615-75	64	0.5	0	N-Included		No
3	1	60	2.25	A615-75	64	0.5	0	N-Included		No
4	1	90	2.25	A615-75	64	0.5	0	N-Included		No
5	1	120	2.25	A615-75	64	0.5	0	N-Included		No
6	1	150	2.25	A615-75	64	0.5	0	N-Included		No
7	1	180	2.25	A615-75	64	0.5	0	N-Included		No
8	1	210	2.25	A615-75	64	0.5	0	N-Included		No
9	1	240	2.25	A615-75	64	0.5	0	N-Included		No
10	1	270	2.25	A615-75	64	0.5	0	N-Included		No
11	1	300	2.25	A615-75	64	0.5	0	N-Included		No
12	1	330	2.25	A615-75	64	0.5	0	N-Included		No
13	2	15	2.25	F1554-105	64	0.5	0	N-Included		No
14	2	105	2.25	F1554-105	64	0.5	0	N-Included		No
15	2	195	2.25	F1554-105	64	0.5	0	N-Included		No
16	2	285	2.25	F1554-105	64	0.5	0	N-Included		No

Custom Stiffener Connection

Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	7.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
2	1	45	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
3	1	75	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
4	1	112.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
5	1	135	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
6	1	165	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
7	1	202.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
8	1	225	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
9	1	255	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
10	1	292.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
11	1	315	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
12	1	345	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
13	1	22.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
14	1	97.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
15	1	277.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80
16	1	187.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.25	0.25	80

Plot Graphic



Pier and Pad Foundation

BU # :	876380
Site Name:	O&G WOODBURY
App. Number:	567926, Rev. 3

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	45.39	kips
Base Shear, Vu_comp:	24.57	kips
Moment, M_u:	2576.93	ft-kips
Tower Height, **H**:	138.5	ft
BP Dist. Above Fdn, bp_{dist}:	3.375	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	46	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6.5	ft
Pad Width, W_1:	23	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	21	
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	37	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	135	pcf
Ultimate Gross Bearing, Qult:	12.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	34	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	274.58	24.57	**8.5%**	**Pass**
Bearing Pressure (ksf)	9.00	2.20	**24.5%**	**Pass**
*Overturning (kip*ft)*	5396.28	2768.12	**51.3%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	5884.33	2687.50	**43.5%**	**Pass**
Pier Compression (kip)	31187.52	85.08	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	4020.44	899.37	**21.3%**	**Pass**
Pad Shear - 1-way (kips)	824.79	150.70	**17.4%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.028	**13.9%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4364.46	1612.50	**35.2%**	**Pass**

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

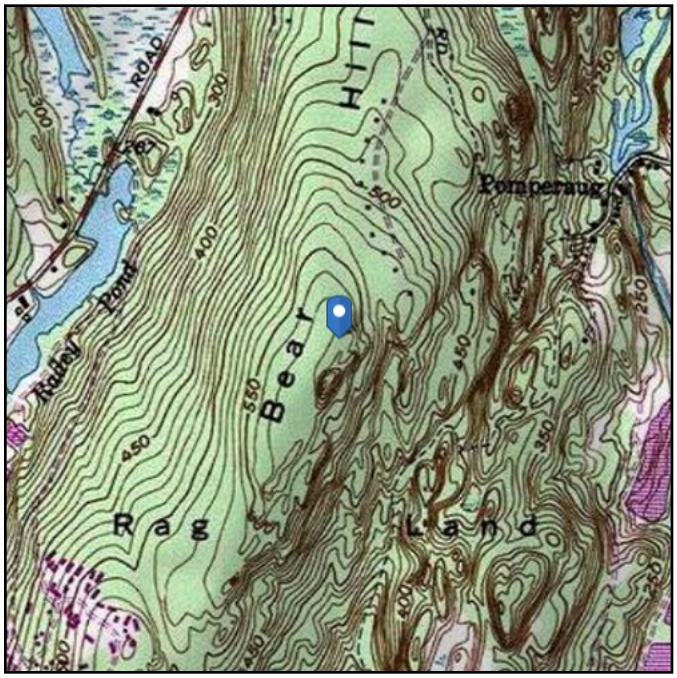
Structural Rating*:	**43.5%**
Soil Rating*:	**51.3%**

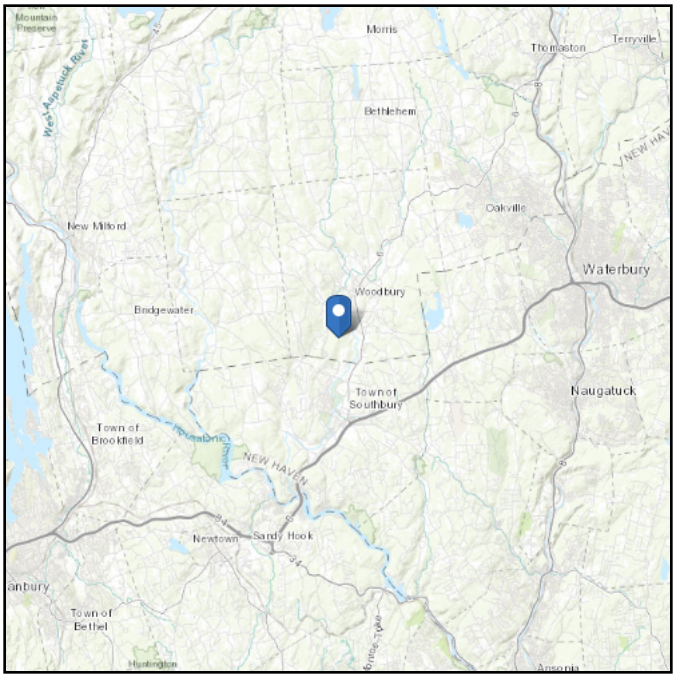
Version 4.1.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	589.96 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.522
Soil Class:	D - Stiff Soil	**Longitude:**	-73.220736





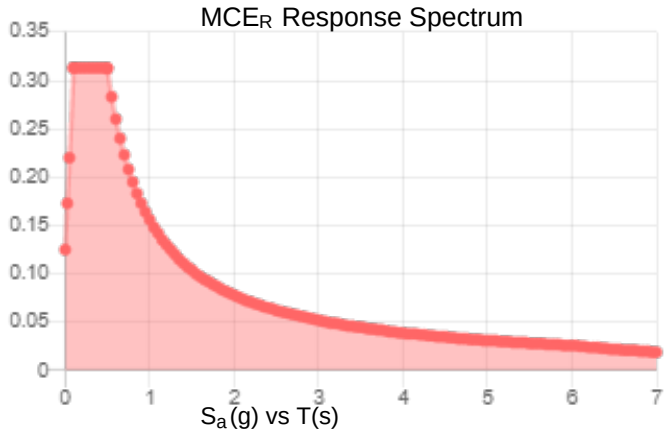
Seismic

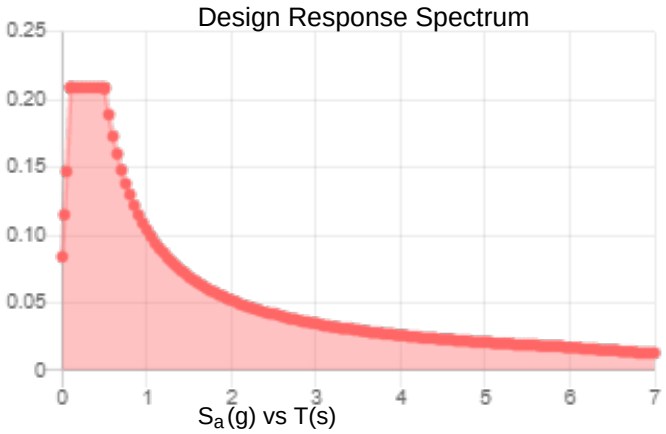
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.196	S_{DS} :	0.209
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.103
S_{MS} :	0.313	PGA_M :	0.164
S_{M1} :	0.156	F_{PGA} :	1.594
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Jul 22 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Jul 22 2021

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

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

Date: **July 19, 2021**

GPD Engineering and Architecture
Professional Corporation
520 South Main Street, Suite 2531
Akron, Ohio 44311
(216) 927-8663
CrownMA@gpdgroup.com

Subject:	**Mount Modification Report**	
Carrier Designation:	***T-Mobile* Equipment Change-Out**	
	Carrier Site Number:	CTHA650A
	Carrier Site Name:	CT33XC520
Crown Castle Designation:	**BU Number:**	876380
	Site Name:	O&G WOODBURY
	JDE Job Number:	666758
	Order Number:	567926 Rev. 3
Engineering Firm Designation:	**GPD Report Designation:**	2021777.876380.06
Site Data:	**Great Hollow Road, Woodbury, Litchfield County, CT 06798** **Latitude 41° 31' 19.20" Longitude -73° 13' 14.65"**	
Structure Information:	**Tower Height & Type:**	**139.0 ft Monopole Tower**
	Mount Elevation:	**104.0 ft**
	Mount Type:	**13.67 ft Platform Mount**

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

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

Platform Mount **Sufficent Capacity – 34.4%***
***See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut Building Code (2015 IBC). Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Brandon Brookbank

Respectfully Submitted by:

Christopher J. Scheks, P.E.
Connecticut #: 0030026

7/19/2021

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3-sector 13.67' Platform Mount. Mount geometry was obtained from site photos and experience with similar mounts.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
104.0	106.0	3	Ericsson	AIR6449 B41_T-MOBILE	13.67 ft. Platform Mount
		3	RFS/Celwave	APX16DWV-16DWV-S-E-A20	
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO	
		3	Ericsson	RADIO 4480 B71_TMO	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Application	Crown Order Number 567926 Rev. 3	-	CCI
RF Data Sheet	Sprint Retain RFDS #: CTHA650A, dated 5/14/2021	-	CCI
Mount Modification Design Drawings	GPD Project #: 2021777.876380.06, dated 07/19/2021	-	GPD

3.1) Analysis Method

RISA-3D Edition (Version 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

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

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

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) This analysis assumes all information reference in Table 2 is current and correct.
5) 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.
6) The mount was modeled from site photos. Member information and dimensions not provided have been assumed based on previous experience with similar mounts. No guarantee can be made as to the accuracy of these assumptions without a complete mount mapping.
7) Steel grades have been assumed as follows, unless noted otherwise:

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

This analysis may be affected if any assumptions are not valid or have been made in error. GPD 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	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Standoff	M5	104.0	28.4	Pass
	Toe Rail	M6		18.3	Pass
	Mount Pipe	B1		34.4	Pass
	Support Rail	M38		25.9	Pass
	Support Rail Connection	M39A		8.6	Pass
	Platform Reinforcement	M40		15.8	Pass
2,3	Mount to Tower Connection	-		31.7	Pass
	Reinforcement to Tower Connection	-		6.5	Pass

Structure Rating (max from all components) =	**34.4%[3]**

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity consumed.
3) Ratings per TIA-222-H section 15.5.

4.1) Recommendations

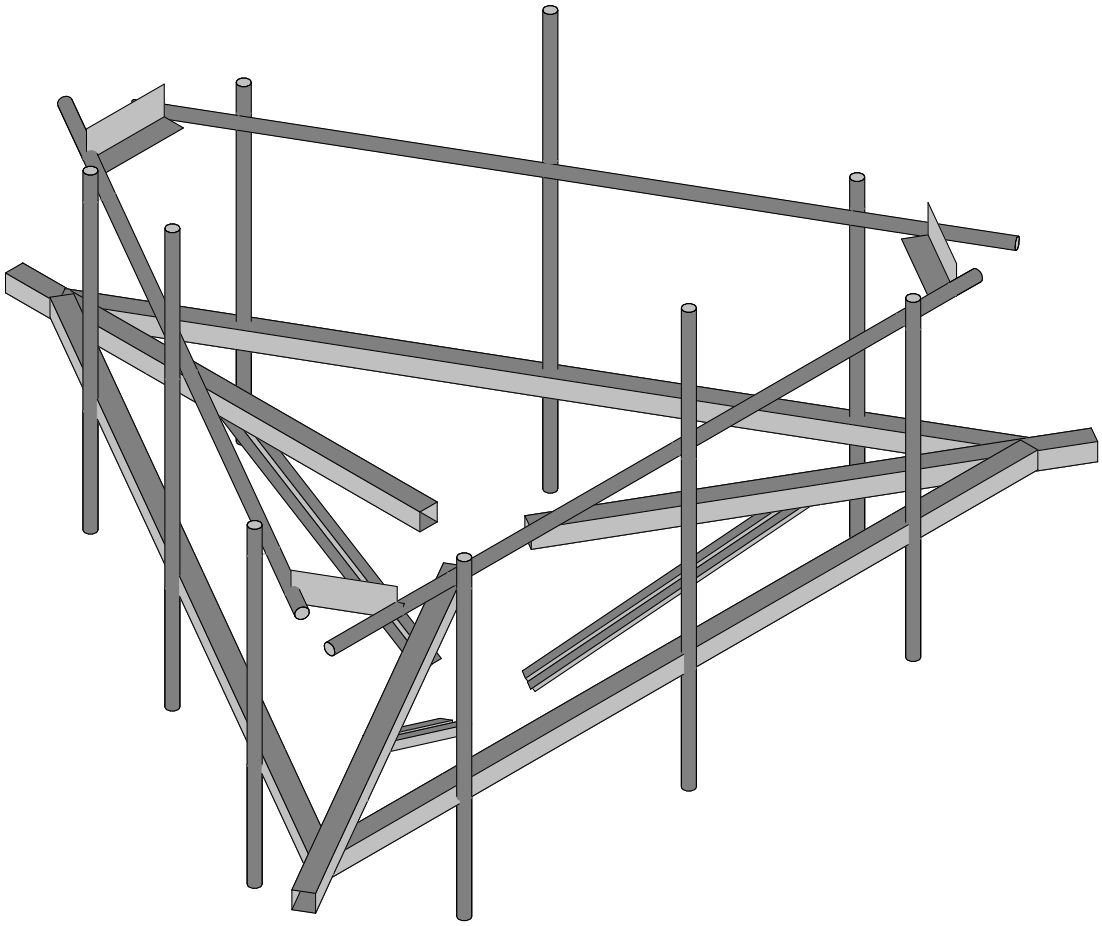
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

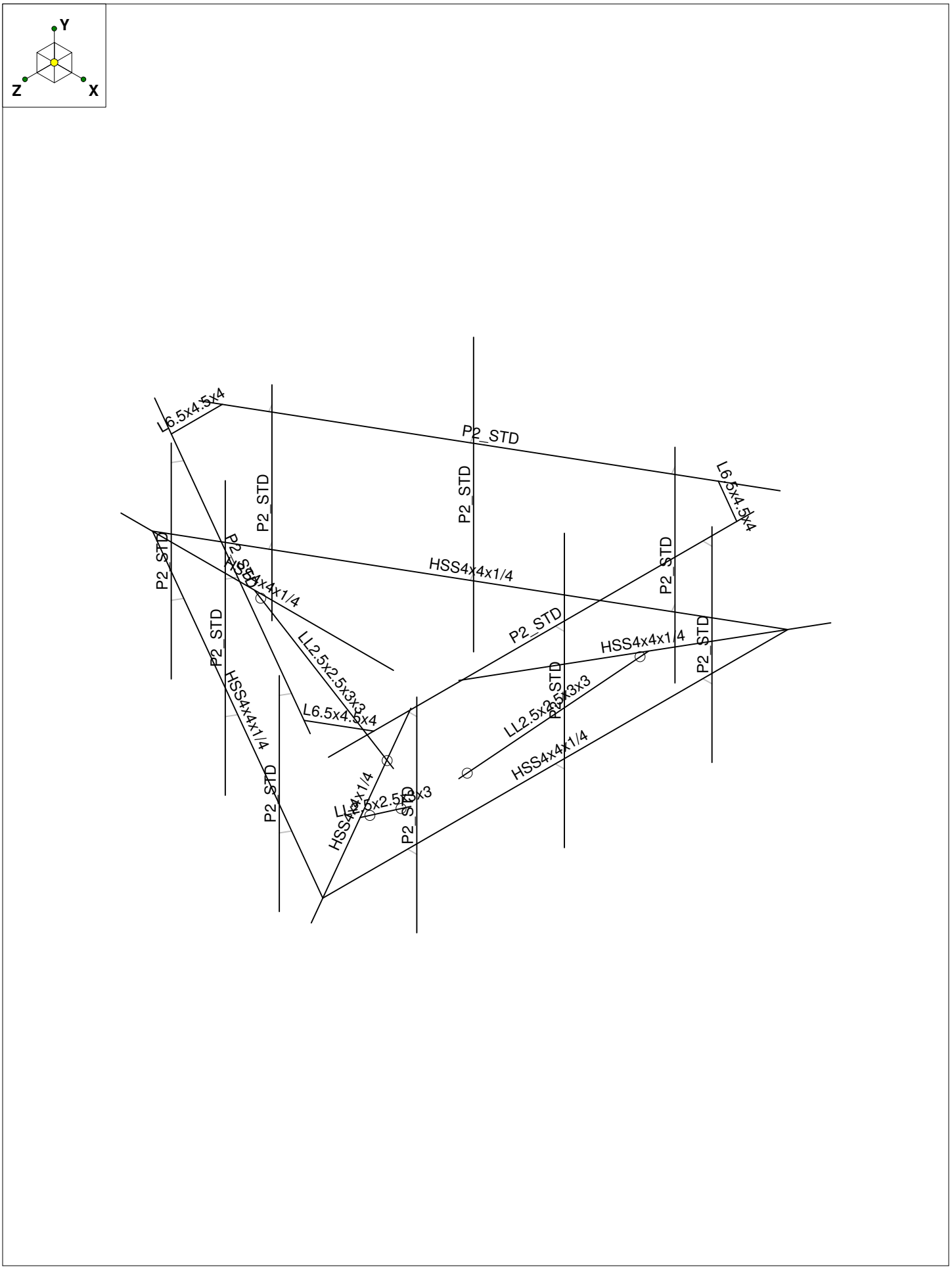
1. Install kicker support, Site Pro 1 PRK-1245

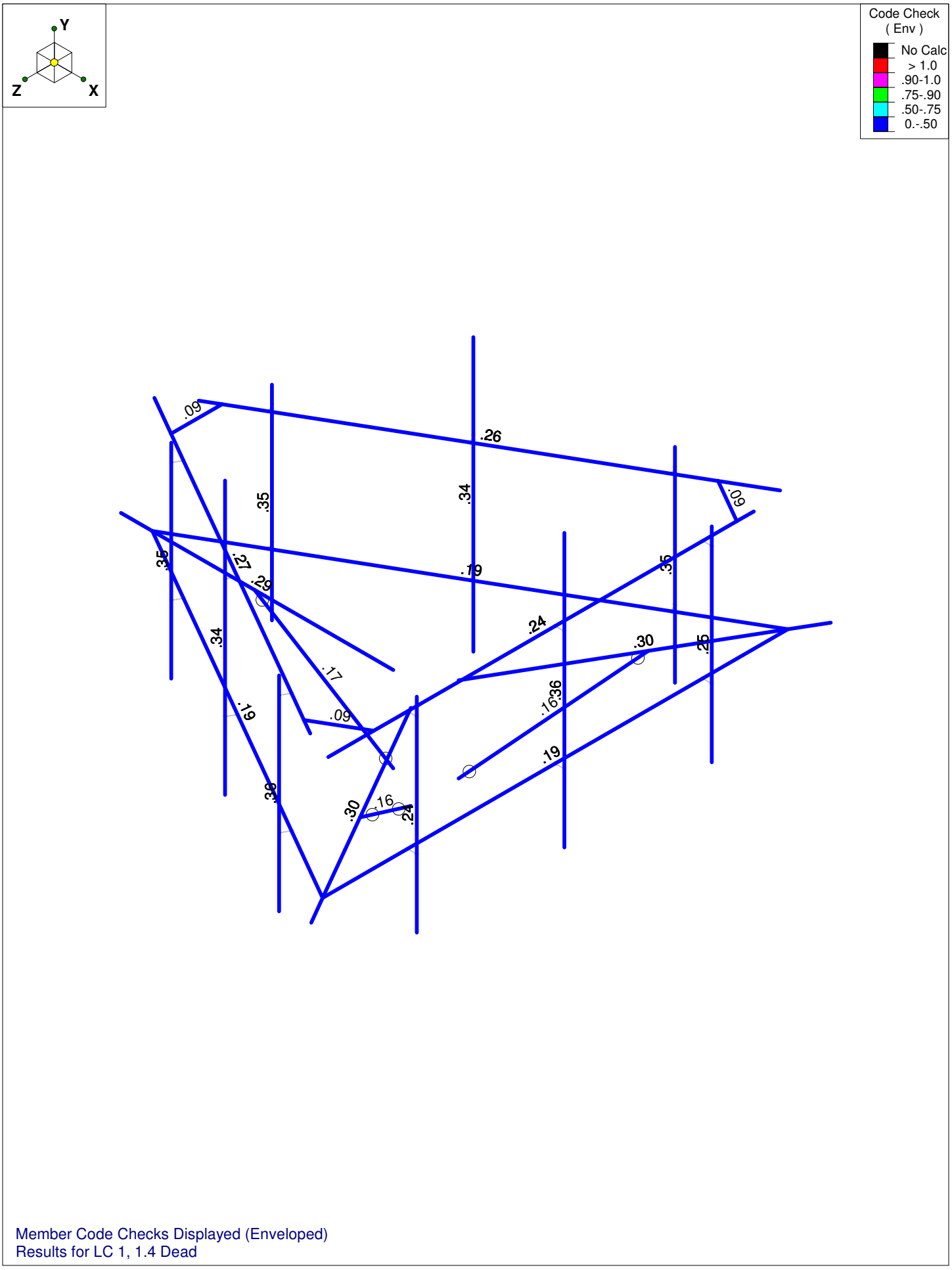
Engineering detail drawings have been provided in Appendix E – Mount Modification Design Drawings (MDD). Connection from the mount to the tower and local stresses on the tower are sufficient.

APPENDIX A

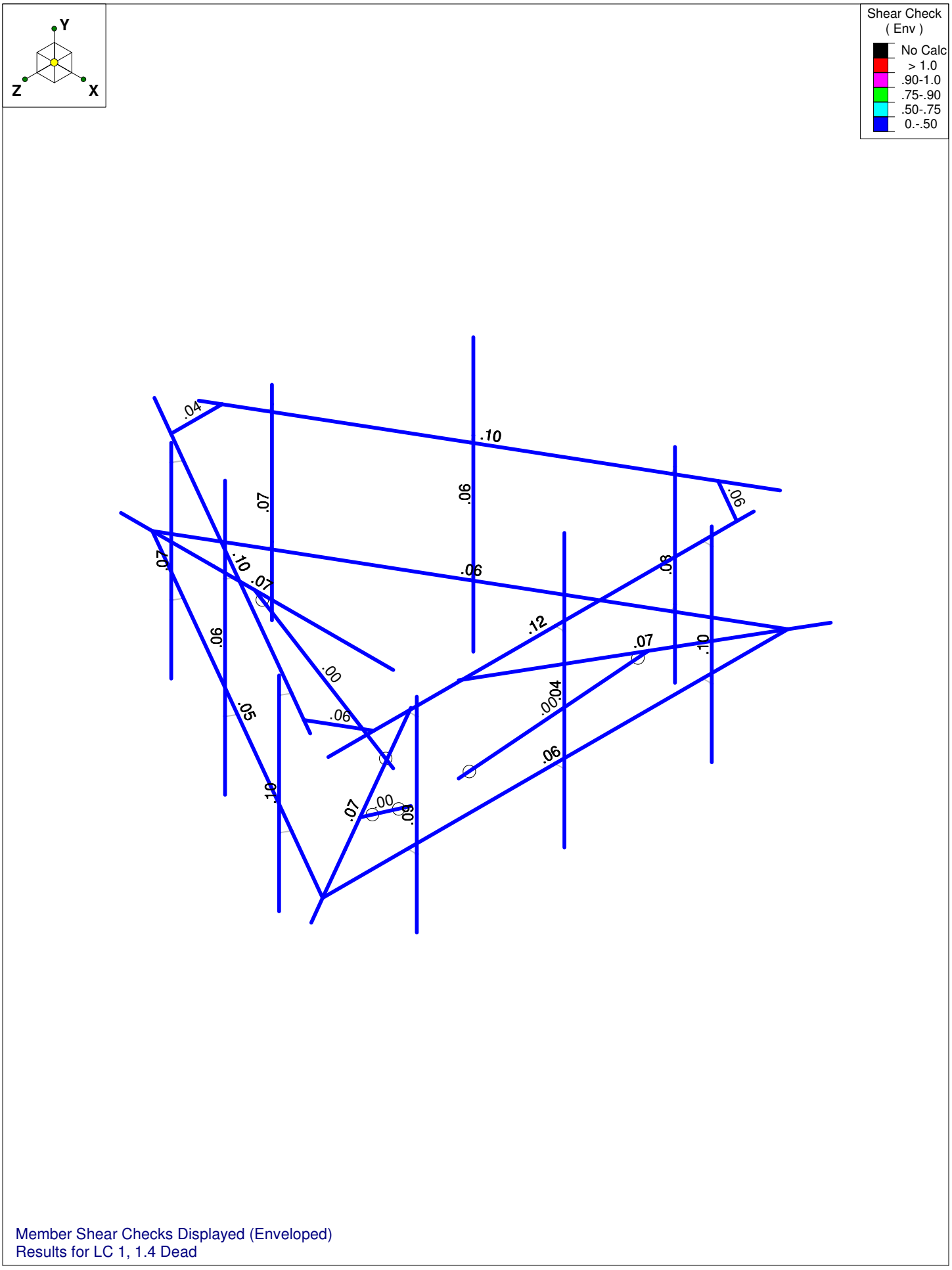
WIRE FRAME AND RENDERED MODELS


Y
Z
X

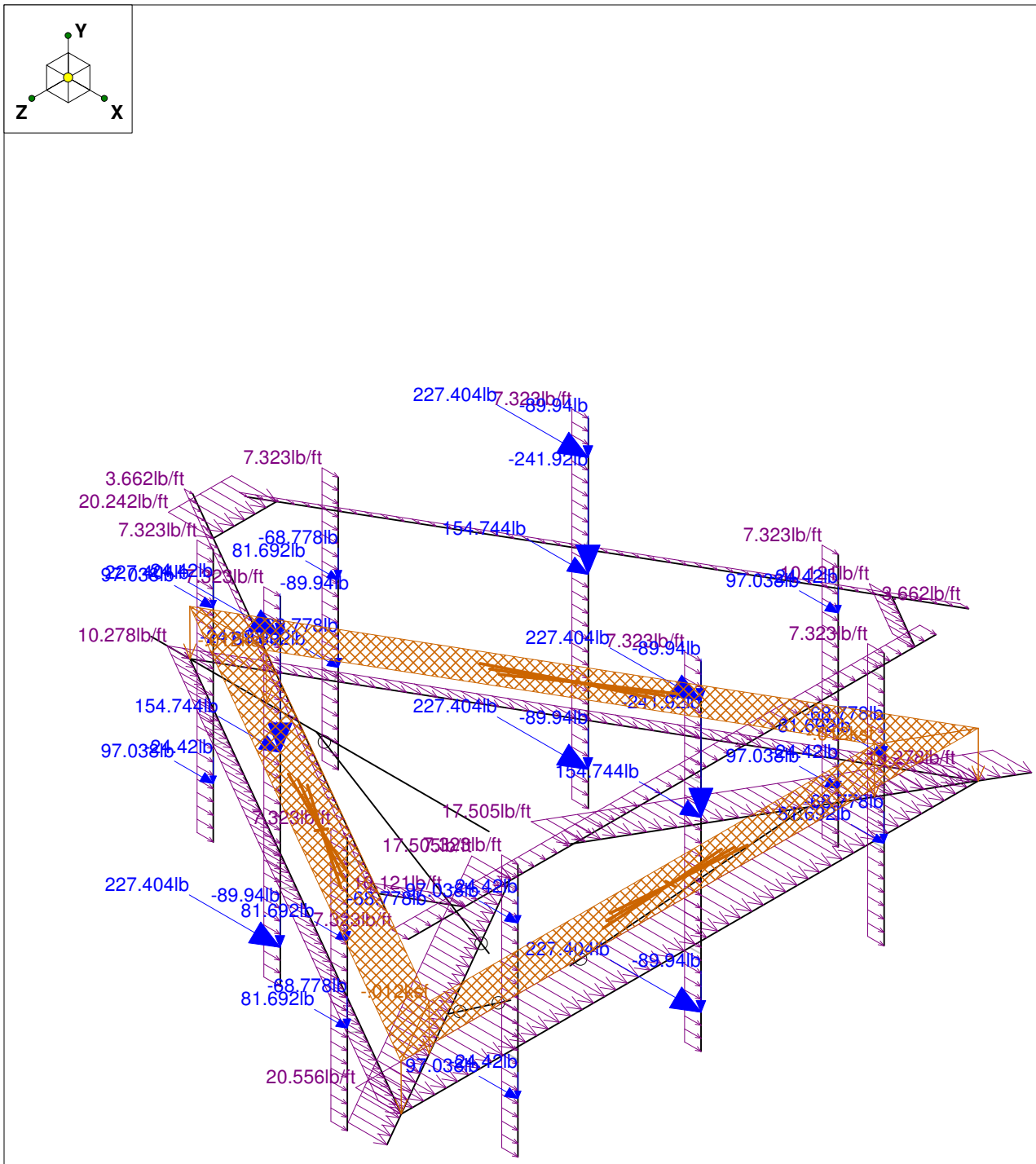

Y
Z
X
L6.5x4.5x4
P2_STD
P2_STD
P2_STD
L6.5x4.5x4
P2_STD
HSS4x4x1/4
P2_STD
P2_STD
HSS4x4x1/4
P2_STD
LL2.5x2.5x3x3
P2_STD
HSS4x4x1/4
HSS4x4x1/4
L6.5x4.5x4
P2_STD
LL2.5x2.5x3x3
HSS4x4x1/4
P2_STD
HSS4x4x1/4
P2_STD
P2_STD



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.4 Dead



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.4 Dead



Loads: LC 2, 1.2 Dead + 1.0 Wind @ 0° - No Ice

APPENDIX B

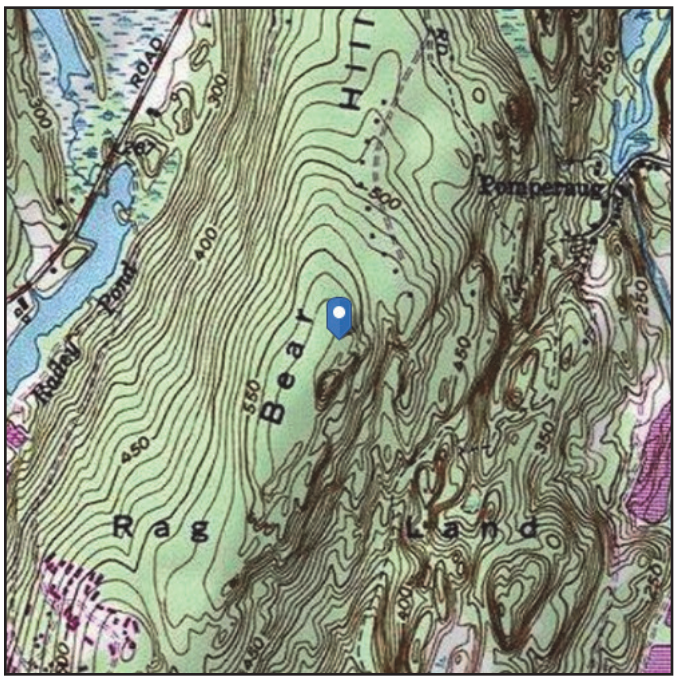
SOFTWARE INPUT CALCULATIONS

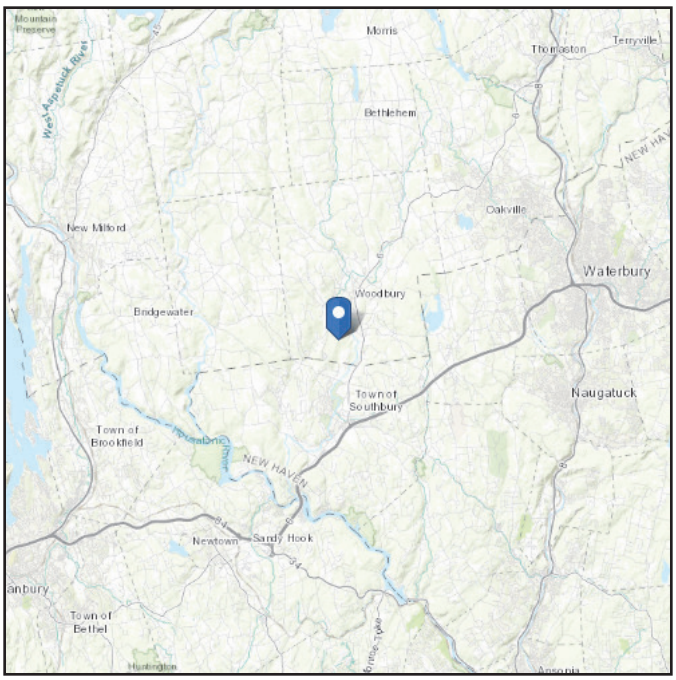
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 589.96 ft (NAVD 88)
Latitude: 41.522
Longitude: -73.220736





Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

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

Date Accessed: Mon Jun 14 2021

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

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

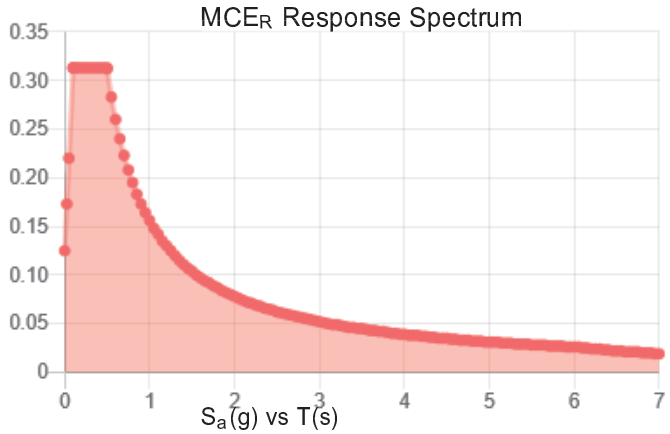
Seismic

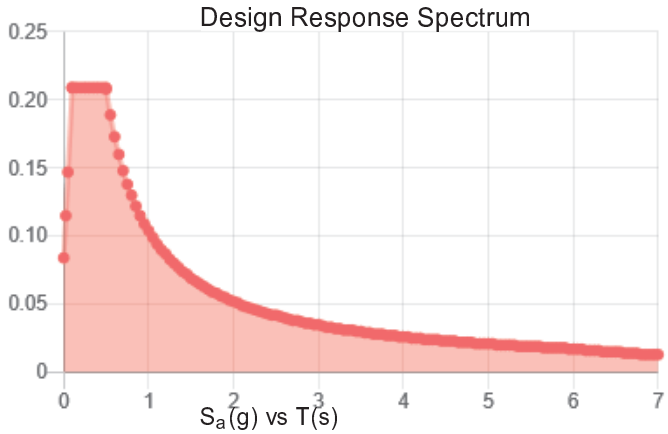
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.196	S_{DS} :	0.209
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.103
S_{MS} :	0.313	PGA_M :	0.164
S_{M1} :	0.156	F_{PGA} :	1.594
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Jun 14 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Jun 14 2021

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

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

TIA-222-H: Mount Analysis Wind Loading
876380 - O&G WOODBURY
2021777.876380.06

Structure Information		
Structure Type:	Monopole	
Structure Height:	139	ft
z (Mount Centerline) =	104	ft
Gh (Mount Gust Effect Factor) =	1.00	
Risk Category:	II	

Code Specifications		
TIA/EIA Code:	H	
Ultimate Wind Speed (No Ice) =	120	mph (3-s gust)
Ultimate Wind Speed (With Ice) =	50	mph (3-s gust)
Ice Thickness	1.5	in
Exposure Category	B	
Tower Base Elevation (AMSL)	589	ft

Topographic Inputs	
Topographic Feature:	N/A

Section Sets										No Ice	Ice Output	
Mount Components	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K_a	User's Wind Multiplier	Normal Wind Force (lb/ft)*	Normal Ice Wind Force (lb/ft)*	Ice Weight (lb/ft)*
Standoff	Square/Rect.	96.000	4	4		5.66	Flat	0.90	1.00	22.46	4.73	15.09
Toe Rail	Square/Rect.	164.000	4	4		5.66	Flat	0.90	1.00	22.84	5.68	15.09
Mount Pipe	Pipe	96.000	2.375	2.375		2.38	Round	0.90	1.00	8.14	2.89	8.34
Support Rail	Pipe	150.000	2.375	2.375		2.38	Round	0.90	1.00	8.14	3.41	8.34
Support Rail Connection	Angle	18.000	6.5	4.5		7.91	Flat	0.90	1.00	22.49	5.03	19.71
Platform Reinforcement	Other	53.000	2.5	5.5	5.5	5.50	Flat	0.90	1.00	13.37	3.23	14.76

*All forces are unfactored.

Appurtenances							Shielding			No Ice		Ice Output	
Appurtenance Model	Loading Elevation (ft)	Height (in)	Front Width (in)	Side Depth (in)	Wt (lbs)	Type for Area	Front Shielding (%)	Side Shielding (%)	K_a and/or block shielding	Normal Wind Force (lbs)*	Wt (lbs) (no ice)*	Normal Wind Force (lbs) (w/ ice)*	Wt (lbs) (only ice)*
(3) AIR6449 B41_T-MOBILE	106	33.11	20.51	8.54	114.63	CFD	0%	0%	0.90	163.38	114.63	36.43	149.99
(3) APX16DWV-16DWV-S-E-A20	106	55.9	13.3	3.15	40.7	CFD	0%	0%	0.90	194.08	40.70	44.78	134.88
(3) APXVAALL24_43-U-NA20_TMO	106	95.9	24	8.5	149.9	CFD	0%	0%	0.90	454.81	149.90	93.13	414.22
(3) RADIO 4460 B2/B25 B66_TMO	106	17	15.1	11.9	109	Flat	0%	0%	0.90	66.32	109.00	14.64	87.23
(3) RADIO 4480 B71_TMO	106	21.8	15.7	7.5	92.6	Flat	0%	0%	0.90	88.42	92.60	18.96	85.94

*All forces are unfactored.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design ...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff	HSS4x4x1/4	None	None	A500 Gr.B Re...	Typical	3.75	8.828	8.828	13.184
2	Toe Rail	HSS4x4x1/4	None	None	A500 Gr.B Re...	Typical	3.75	8.828	8.828	13.184
3	Mount Pipe	P2_STD	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
4	Support Rail	P2_STD	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
5	Support Rail Connection	L6.5x4.5x4	None	None	A36 Gr.36	Typical	2.688	4.86	12.001	.054
6	Platform Reinforcement	LL2.5x2.5x3x3	None	None	A36 Gr.36	Typical	1.8	2.46	1.07	.023

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			24		3	
2	No Ice Wind 0 deg	None					24	20		
3	No Ice Wind 30 deg	None					48	36		
4	No Ice Wind 60 deg	None					48	40		
5	No Ice Wind 90 deg	None					24	18		
6	No Ice Wind 120 deg	None					48	40		
7	No Ice Wind 150 deg	None					48	36		
8	No Ice Wind 180 deg	None					24	20		
9	No Ice Wind 210 deg	None					48	36		
10	No Ice Wind 240 deg	None					48	40		
11	No Ice Wind 270 deg	None					24	18		
12	No Ice Wind 300 deg	None					48	40		
13	No Ice Wind 330 deg	None					48	36		
14	Ice Weight	None					24	21		
15	Ice Wind 0 deg	None					24	20		
16	Ice Wind 30 deg	None					48	36		
17	Ice Wind 60 deg	None					48	40		
18	Ice Wind 90 deg	None					24	18		
19	Ice Wind 120 deg	None					48	40		
20	Ice Wind 150 deg	None					48	36		
21	Ice Wind 180 deg	None					24	20		
22	Ice Wind 210 deg	None					48	36		
23	Ice Wind 240 deg	None					48	40		
24	Ice Wind 270 deg	None					24	18		
25	Ice Wind 300 deg	None					48	40		
26	Ice Wind 330 deg	None					48	36		
27	Live Load - A1	None					1			
28	Live Load - A2	None					1			
29	Live Load - A3	None					1			
30	Live Load - B1	None					1			
31	Live Load - B2	None					1			
32	Live Load - B3	None					1			
33	Live Load - C1	None					1			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
34	Live Load - C2	None					1			
35	Live Load - C3	None					1			
36	Live Load - M1 (Start)	None					1			
37	Live Load - M1 (Midd...	None					1			
38	Live Load - M1 (End)	None					1			
39	Live Load - M2 (Start)	None					1			
40	Live Load - M2 (Midd...	None					1			
41	Live Load - M2 (End)	None					1			
42	Live Load - M3 (Start)	None					1			
43	Live Load - M3 (Midd...	None					1			
44	Live Load - M3 (End)	None					1			
45	Live Load - M4 (Start)	None					1			
46	Live Load - M4 (Midd...	None					1			
47	Live Load - M4 (End)	None					1			
48	Live Load - M5 (Start)	None					1			
49	Live Load - M5 (Midd...	None					1			
50	Live Load - M5 (End)	None					1			
51	Live Load - M6 (Start)	None					1			
52	Live Load - M6 (Midd...	None					1			
53	Live Load - M6 (End)	None					1			
54	BLC 1 Transient Area...	None						27		

Load Combinations

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4 Dead	Yes	Y		1	1.4	0		0		0		0		0		0		0					
2	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	2	1	0		0		0		0		0		0					
3	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	2	1	0		0		0		0		0		0					
4	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	3	1	0		0		0		0		0		0					
5	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	3	1	0		0		0		0		0		0					
6	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	4	1	0		0		0		0		0		0					
7	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	4	1	0		0		0		0		0		0					
8	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	5	1	0		0		0		0		0		0					
9	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	5	1	0		0		0		0		0		0					
10	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	6	1	0		0		0		0		0		0					
11	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	6	1	0		0		0		0		0		0					
12	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	7	1	0		0		0		0		0		0					
13	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	7	1	0		0		0		0		0		0					
14	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	8	1	0		0		0		0		0		0					
15	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	8	1	0		0		0		0		0		0					
16	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	9	1	0		0		0		0		0		0					
17	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	9	1	0		0		0		0		0		0					
18	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	10	1	0		0		0		0		0		0					
19	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	10	1	0		0		0		0		0		0					
20	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	11	1	0		0		0		0		0		0					
21	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	11	1	0		0		0		0		0		0					
22	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	12	1	0		0		0		0		0		0					
23	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	12	1	0		0		0		0		0		0					
24	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	13	1	0		0		0		0		0		0					
25	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	13	1	0		0		0		0		0		0					
26	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	15	1	14	1		1	0		0		0		0					
27	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	16	1	14	1		1	0		0		0		0					
28	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	17	1	14	1		1	0		0		0		0					
29	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	18	1	14	1		1	0		0		0		0					
30	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	19	1	14	1		1	0		0		0		0					
31	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	20	1	14	1		1	0		0		0		0					

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
32	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	21	1	14	1		1	0		0		0		0					
33	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	22	1	14	1		1	0		0		0		0					
34	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	23	1	14	1		1	0		0		0		0					
35	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	24	1	14	1		1	0		0		0		0					
36	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	25	1	14	1		1	0		0		0		0					
37	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	26	1	14	1		1	0		0		0		0					
38	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	2	.063	0		0		0		0		0					
39	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	3	.063	0		0		0		0		0					
40	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	4	.063	0		0		0		0		0					
41	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	5	.063	0		0		0		0		0					
42	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	6	.063	0		0		0		0		0					
43	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	7	.063	0		0		0		0		0					
44	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	8	.063	0		0		0		0		0					
45	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	9	.063	0		0		0		0		0					
46	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	10	.063	0		0		0		0		0					
47	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	11	.063	0		0		0		0		0					
48	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	12	.063	0		0		0		0		0					
49	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	13	.063	0		0		0		0		0					
50	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	2	.063	0		0		0		0		0					
51	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	3	.063	0		0		0		0		0					
52	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	4	.063	0		0		0		0		0					
53	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	5	.063	0		0		0		0		0					
54	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	6	.063	0		0		0		0		0					
55	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	7	.063	0		0		0		0		0					
56	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	8	.063	0		0		0		0		0					
57	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	9	.063	0		0		0		0		0					
58	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	10	.063	0		0		0		0		0					
59	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	11	.063	0		0		0		0		0					
60	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	12	.063	0		0		0		0		0					
61	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	13	.063	0		0		0		0		0					
62	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	2	.063	0		0		0		0		0					
63	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	3	.063	0		0		0		0		0					
64	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	4	.063	0		0		0		0		0					
65	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	5	.063	0		0		0		0		0					
66	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	6	.063	0		0		0		0		0					
67	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	7	.063	0		0		0		0		0					
68	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	8	.063	0		0		0		0		0					
69	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	9	.063	0		0		0		0		0					
70	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	10	.063	0		0		0		0		0					
71	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	11	.063	0		0		0		0		0					
72	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	12	.063	0		0		0		0		0					
73	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	13	.063	0		0		0		0		0					
74	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	2	.063	0		0		0		0		0					
75	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	3	.063	0		0		0		0		0					
76	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	4	.063	0		0		0		0		0					
77	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	5	.063	0		0		0		0		0					
78	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	6	.063	0		0		0		0		0					
79	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	7	.063	0		0		0		0		0					
80	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	8	.063	0		0		0		0		0					
81	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	9	.063	0		0		0		0		0					
82	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	10	.063	0		0		0		0		0					
83	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	11	.063	0		0		0		0		0					
84	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	12	.063	0		0		0		0		0					
85	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	13	.063	0		0		0		0		0					
86	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	2	.063	0		0		0		0		0					
87	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	3	.063	0		0		0		0		0					
88	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	4	.063	0		0		0		0		0					

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
89	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	5	.063	0		0		0		0		0					
90	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	6	.063	0		0		0		0		0					
91	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	7	.063	0		0		0		0		0					
92	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	8	.063	0		0		0		0		0					
93	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	9	.063	0		0		0		0		0					
94	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	10	.063	0		0		0		0		0					
95	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	11	.063	0		0		0		0		0					
96	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	12	.063	0		0		0		0		0					
97	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	13	.063	0		0		0		0		0					
98	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	2	.063	0		0		0		0		0					
99	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	3	.063	0		0		0		0		0					
100	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	4	.063	0		0		0		0		0					
101	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	5	.063	0		0		0		0		0					
102	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	6	.063	0		0		0		0		0					
103	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	7	.063	0		0		0		0		0					
104	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	8	.063	0		0		0		0		0					
105	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	9	.063	0		0		0		0		0					
106	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	10	.063	0		0		0		0		0					
107	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	11	.063	0		0		0		0		0					
108	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	12	.063	0		0		0		0		0					
109	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	13	.063	0		0		0		0		0					
110	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	2	.063	0		0		0		0		0					
111	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	3	.063	0		0		0		0		0					
112	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	4	.063	0		0		0		0		0					
113	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	5	.063	0		0		0		0		0					
114	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	6	.063	0		0		0		0		0					
115	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	7	.063	0		0		0		0		0					
116	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	8	.063	0		0		0		0		0					
117	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	9	.063	0		0		0		0		0					
118	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	10	.063	0		0		0		0		0					
119	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	11	.063	0		0		0		0		0					
120	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	12	.063	0		0		0		0		0					
121	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	13	.063	0		0		0		0		0					
122	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	2	.063	0		0		0		0		0					
123	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	3	.063	0		0		0		0		0					
124	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	4	.063	0		0		0		0		0					
125	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	5	.063	0		0		0		0		0					
126	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	6	.063	0		0		0		0		0					
127	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	7	.063	0		0		0		0		0					
128	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	8	.063	0		0		0		0		0					
129	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	9	.063	0		0		0		0		0					
130	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	10	.063	0		0		0		0		0					
131	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	11	.063	0		0		0		0		0					
132	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	12	.063	0		0		0		0		0					
133	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	13	.063	0		0		0		0		0					
134	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	2	.063	0		0		0		0		0					
135	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	3	.063	0		0		0		0		0					
136	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	4	.063	0		0		0		0		0					
137	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	5	.063	0		0		0		0		0					
138	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	6	.063	0		0		0		0		0					
139	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	7	.063	0		0		0		0		0					
140	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	8	.063	0		0		0		0		0					
141	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	9	.063	0		0		0		0		0					
142	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	10	.063	0		0		0		0		0					
143	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	11	.063	0		0		0		0		0					
144	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	12	.063	0		0		0		0		0					
145	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	13	.063	0		0		0		0		0					

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
146	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	36	1.5	0		0		0		0		0		0					
147	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	37	1.5	0		0		0		0		0		0					
148	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	38	1.5	0		0		0		0		0		0					
149	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	39	1.5	0		0		0		0		0		0					
150	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	40	1.5	0		0		0		0		0		0					
151	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	41	1.5	0		0		0		0		0		0					
152	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	42	1.5	0		0		0		0		0		0					
153	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	43	1.5	0		0		0		0		0		0					
154	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	44	1.5	0		0		0		0		0		0					
155	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	45	1.5	0		0		0		0		0		0					
156	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	46	1.5	0		0		0		0		0		0					
157	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	47	1.5	0		0		0		0		0		0					
158	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	48	1.5	0		0		0		0		0		0					
159	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	49	1.5	0		0		0		0		0		0					
160	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	50	1.5	0		0		0		0		0		0					
161	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	51	1.5	0		0		0		0		0		0					
162	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	52	1.5	0		0		0		0		0		0					
163	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	53	1.5	0		0		0		0		0		0					

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	5706.669	14	52.555	3	368.651	20	.267	22	1.011	21	.836	32
2		min	-2664.125	3	-849.756	32	-368.883	8	-.246	11	-1.011	9	-.04	3
3	N5	max	816.433	13	30.958	152	3876.308	36	.102	15	1.115	5	.214	5
4		min	-2337.628	24	-826.252	37	-1179.395	13	-.75	26	-1.115	17	-.501	141
5	N8	max	819.883	17	30.96	158	1180.742	17	.737	26	1.118	13	.199	25
6		min	-2341.555	4	-826.346	27	-3876.405	28	-.115	15	-1.118	25	-.521	79
7	N81	max	-487.206	3	3789.168	32	2.081	8	0	24	0	13	0	163
8		min	-6157.285	32	311.885	3	-2.083	20	0	13	0	24	0	1
9	N83	max	3020.639	37	3718.401	37	-817.191	13	0	15	0	15	0	2
10		min	471.89	13	591.671	13	-5232.277	37	0	2	0	2	0	15
11	N85	max	3020.854	27	3718.652	27	5232.627	27	0	3	0	3	0	3
12		min	471.006	17	590.594	17	815.672	17	0	14	0	14	0	14
13	Totals:	max	4426.159	15	8369.672	32	2569.029	21						
14		min	-4426.159	2	2902.867	3	-2569.029	9						

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

	Member	Shape	Code ...	Loc[...	LC	Shear...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	B1	P2_STD	.361	48	2	.096	48		2	22056....	33847....	1.997	1.997	2...	H1-1b
2	A2	P2_STD	.359	72	14	.041	72		10	15808....	33847....	1.997	1.997	1...	H1-1b
3	C1	P2_STD	.351	48	14	.072	48		16	22056....	33847....	1.997	1.997	2...	H1-1b
4	C3	P2_STD	.348	48	2	.084	48		2	22056....	33847....	1.997	1.997	2...	H1-1b
5	B3	P2_STD	.346	48	14	.068	48		12	22056....	33847....	1.997	1.997	2...	H1-1b
6	C2	P2_STD	.338	72	2	.064	72		2	15808....	33847....	1.997	1.997	1...	H1-1b
7	B2	P2_STD	.337	72	2	.062	72		14	15808....	33847....	1.997	1.997	1...	H1-1b
8	M5	HSS4x4x1/4	.298	84	26	.073	49	y	26	119306..	155250	18.22	18.22	1...	H1-1b
9	M3	HSS4x4x1/4	.297	84	26	.075	49	y	26	119306..	155250	18.22	18.22	1...	H1-1b
10	M1	HSS4x4x1/4	.292	84	29	.072	49	y	34	119306..	155250	18.22	18.22	1...	H1-1b
11	M38	P2_STD	.272	28.1...	14	.105	28.125		12	6684.464	33847....	1.997	1.997	1...	H1-1b
12	M39	P2_STD	.261	131....	14	.105	131.25		16	6684.464	33847....	1.997	1.997	2...	H1-1b
13	A1	P2_STD	.251	48	18	.097	48		14	22056....	33847....	1.997	1.997	2...	H1-1b
14	M16	P2_STD	.244	79.6...	2	.120	131.25		2	6684.464	33847....	1.997	1.997	1...	H1-1b
15	A3	P2_STD	.242	48	6	.090	48		14	22056....	33847....	1.997	1.997	2...	H1-1b
16	M6	HSS4x4x1/4	.192	164	32	.055	164	y	16	71988....	155250	18.22	18.22	2...	H1-1b

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

	Member	Shape	Code ...	Loc[...	LC	Shear...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
17	M2	HSS4x4x1/4	.190	164	32	.063	164	y	2	71988....	155250	18.22	18.22	2...	H1-1b
18	M4	HSS4x4x1/4	.190	0	32	.052	0	y	12	71988....	155250	18.22	18.22	2...	H1-1b
19	M40	LL2.5x2.5x...	.166	57.3...	32	.002	57.399	y	24	43561....	58320	3.954	2.55	1	H1-1b*
20	M42	LL2.5x2.5x...	.163	57.3...	27	.003	0	y	14	43561....	58320	3.954	2.55	1	H1-1b*
21	M41	LL2.5x2.5x...	.163	57.3...	37	.003	57.399	y	2	43561....	58320	3.954	2.55	1	H1-1b*
22	M39A	L6.5x4.5x4	.090	18	12	.061	0	y	14	52465....	87075	2.578	7.236	2...	H2-1
23	M38A	L6.5x4.5x4	.090	18	4	.038	0	y	10	52465....	87075	2.578	7.236	2...	H2-1
24	M28	L6.5x4.5x4	.087	0	16	.063	0	y	2	52465....	87075	2.578	7.236	2...	H2-1

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

	Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	B1	P2_STD	0.361	1.05	0.344*	48	2	0.096	1.05	0.091*	48	22056.93	33847.74	1.997	1.997	2.433	H1-1b
2	A2	P2_STD	0.359	1.05	0.342*	72	14	0.041	1.05	0.039*	72	15808.49	33847.74	1.997	1.997	1.505	H1-1b
3	C1	P2_STD	0.351	1.05	0.334*	48	14	0.072	1.05	0.069*	48	22056.93	33847.74	1.997	1.997	2.487	H1-1b
4	C3	P2_STD	0.348	1.05	0.331*	48	2	0.084	1.05	0.08*	48	22056.93	33847.74	1.997	1.997	2.303	H1-1b
5	B3	P2_STD	0.346	1.05	0.33*	48	14	0.068	1.05	0.065*	48	22056.93	33847.74	1.997	1.997	2.34	H1-1b
6	C2	P2_STD	0.338	1.05	0.322*	72	2	0.064	1.05	0.061*	72	15808.49	33847.74	1.997	1.997	1.723	H1-1b
7	B2	P2_STD	0.337	1.05	0.321*	72	2	0.062	1.05	0.059*	72	15808.49	33847.74	1.997	1.997	1.717	H1-1b
8	M5	HSS4x4x1/4	0.298	1.05	0.284*	84	26	0.073	1.05	0.07*	49	119306.8	155250	18.22	18.22	1.881	H1-1b
9	M3	HSS4x4x1/4	0.297	1.05	0.283*	84	26	0.075	1.05	0.071*	49	119306.8	155250	18.22	18.22	1.882	H1-1b
10	M1	HSS4x4x1/4	0.292	1.05	0.278*	84	29	0.072	1.05	0.069*	49	119306.9	155250	18.22	18.22	1.896	H1-1b
11	M38	P2_STD	0.272	1.05	0.259*	28.13	14	0.105	1.05	0.1*	28.13	6684.464	33847.74	1.997	1.997	1.63	H1-1b
12	M39	P2_STD	0.261	1.05	0.249*	131.3	14	0.105	1.05	0.1*	131.3	6684.464	33847.74	1.997	1.997	2.553	H1-1b
13	A1	P2_STD	0.251	1.05	0.239*	48	18	0.097	1.05	0.092*	48	22056.93	33847.74	1.997	1.997	2.457	H1-1b
14	M16	P2_STD	0.244	1.05	0.232*	79.69	2	0.12	1.05	0.114*	131.3	6684.464	33847.74	1.997	1.997	1.652	H1-1b
15	A3	P2_STD	0.242	1.05	0.23*	48	6	0.09	1.05	0.086*	48	22056.93	33847.74	1.997	1.997	2.194	H1-1b
16	M6	HSS4x4x1/4	0.192	1.05	0.183*	164	32	0.055	1.05	0.052*	164	71988.85	155250	18.22	18.22	2.294	H1-1b
17	M2	HSS4x4x1/4	0.19	1.05	0.181*	164	32	0.063	1.05	0.06*	164	71988.84	155250	18.22	18.22	2.343	H1-1b
18	M4	HSS4x4x1/4	0.19	1.05	0.181*	0	32	0.052	1.05	0.05*	0	71988.85	155250	18.22	18.22	2.262	H1-1b
19	M40	LL2.5x2.5x3x3	0.166	1.05	0.158*	57.4	32	0.002	1.05	0.002*	57.4	43561.16	58320	3.954	2.55	1	H1-1b*
20	M42	LL2.5x2.5x3x3	0.163	1.05	0.155*	57.4	27	0.003	1.05	0.003*	0	43561.16	58320	3.954	2.55	1	H1-1b*
21	M41	LL2.5x2.5x3x3	0.163	1.05	0.155*	57.4	37	0.003	1.05	0.003*	57.4	43561.16	58320	3.954	2.55	1	H1-1b*
22	M39A	L6.5x4.5x4	0.09	1.05	0.086*	18	12	0.061	1.05	0.058*	0	52465.72	87075	2.578	7.236	2.077	H2-1
23	M38A	L6.5x4.5x4	0.09	1.05	0.086*	18	4	0.038	1.05	0.036*	0	52465.72	87075	2.578	7.236	2.024	H2-1
24	M28	L6.5x4.5x4	0.087	1.05	0.083*	0	16	0.063	1.05	0.06*	0	52465.72	87075	2.578	7.236	2.116	H2-1

*Rating per TIA-222-H, Section 15.5

APPENDIX D

ADDITIONAL CALCULATIONS

TIA-222-H CONNECTION CHECK
Mount to Tower Connection - Typ. All Sectors
2021777.876380.06

Bolt Information		
Bolt Diameter (d)	0.75	in
Net Tensile Area (An)	0.334	in^2
# of Bolts Total (n)	4	
Bolt Distance Up-Down	8	in
Bolt Distance Left-Right	3	in
Bolt Grade	A325N	
Bolt Tensile Strength (F_{ub})	120	ksi

Flange Information		
Height (h)	10	in
Width (w)	5	in
Thickness (t)	0.75	in
Steel Grade	A36	
Plate Yield Strength (Fy)	36	ksi
Support Arm Height	4	in
Support Arm Width	0	in

RISA 3D Reactions (Up-Down)		
Moment (M)	0.63	k-ft
Axial (T)	5.71	kips
Shear (V)	0.65	kips

RISA 3D Reactions (Left -Right)		
Moment (M)	1.12	k-ft
Axial (T)	1.94	kips
Shear (V)	0.55	kips

Bolt Capacity (Up-Down)		
Nominal Tensile Strength (R_{nt})	40.135	kips
Nominal Shear Strength (R_{nv})	26.51	kips
Bolt Tensile Force (T_{ub})	1.90	kips
Bolt Shear Force (V_{ub})	0.162	kips
$T_{ub}/\phi R_{nt}$	0.06002	
$V_{ub}/\phi R_{nv}$	0.00777	
$(V_{ub}/\phi R_{nv})^2+(T_{ub}/\phi R_{nt})^2$	0.00385	
Bolt Capacity =	6.0%	OK

*Rating per TIA-222-H, Section 15.5

Bolt Capacity (Left-Right)		
Nominal Tensile Strength (R_{nt})	40.135	kips
Nominal Shear Strength (R_{nv})	26.51	kips
Bolt Tensile Force (T_{ub})	2.72	kips
Bolt Shear Force (V_{ub})	0.138	kips
$T_{ub}/\phi R_{nt}$	0.08606	
$V_{ub}/\phi R_{nv}$	0.00662	
$(V_{ub}/\phi R_{nv})^2+(T_{ub}/\phi R_{nt})^2$	0.00782	
Bolt Capacity =	8.6%	OK

*Rating per TIA-222-H, Section 15.5

Plate Capacity (Up-Down)		
Bolt Circle (D_{BC})	8.544	in
Effective Width (B_{eff})	5.00	in
Flexural Moment (M_u)	7.59	k-in
Flexural Strength ($\emptyset M_n$)	22.78	k-in
Plate Capacity=	31.7%	OK

*Rating per TIA-222-H, Section 15.5

Plate Capacity (Left-Right)		
Bolt Circle (D_{BC})	8.544	in
Effective Width (B_{eff})	8.54	in
Flexural Moment (M_u)	8.16	k-in
Flexural Strength ($\emptyset M_n$)	38.93	k-in
Plate Capacity=	20.0%	OK

*Rating per TIA-222-H, Section 15.5

TIA-222-H CONNECTION CHECK
Reinforcement to Tower Connection - Typ. All Sectors
2021777.876380.06

Bolt Information		
Bolt Diameter (d)	0.625	in
Net Tensile Area (An)	0.226	in^2
# of Bolts Total (n)	4	
Bolt Grade	A325N	
Bolt Tensile Strength (F_{ub})	120	ksi

RISA 3D Reactions		
Moment (M)	0.00	k-ft
Axial (T)	-6.16	kips
Shear (V)	3.79	kips

Bolt Capacity		
Nominal Tensile Strength (R_{nt})	27.120	kips
Nominal Shear Strength (R_{nv})	18.41	kips
Bolt Tensile Force (T_{ub})	-1.54	kips
Bolt Shear Force (V_{ub})	0.947	kips
$T_{ub}/\phi R_{nt}$	-0.07208	
$V_{ub}/\phi R_{nv}$	0.06535	
$(V_{ub}/\phi R_{nv})^2+(T_{ub}/\phi R_{nt})^2$	0.00994	
Bolt Capacity =	6.5%	OK

*Rating per TIA-222-H, Section 15.5

APPENDIX E

MOUNT MODIFICATION DESIGN DRAWINGS (MDD)

MOUNT DESIGN DRAWINGS
PREPARED FOR CROWN CASTLE

SITE NAME: O&G WOODBURY
BU NUMBER: 876380

SITE ADDRESS:
GREAT HOLLOW ROAD
WOODBURY, CT 06798
LITCHFIELD COUNTY, USA

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

PERFORMED WORK SHALL NOT DAMAGE ANY EXISTING STRUCTURE, MOUNTS, SAFETY CLIMB, OR EQUIPMENT WHILE ON SITE. SHOULD DAMAGE OCCUR, CONTACT CROWN EOR AT EORAPPROVAL@CROWNCASTLE.COM

LOOK UP!

SAFETY CLIMB: 'LOOK UP'
THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENT AND EQUIPMENT INSTALLATION SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT 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, OR IMPACT THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

DRAWINGS INCLUDED

TOWER INFORMATION

TOWER HEIGHT / TYPE:	139.0 FT MONOPOLE
TOWER LOCATION:	LAT: 41° 31' 19.20"
DATUM: (NAD 1983)	LONG: -73° 13' 14.65"
WORK ORDER #:	CCI/WO #: NA
ORDER #:	567926 REV #: 3
SITE ADDRESS:	GREAT HOLLOW ROAD WOODBURY, CT 06798 LITCHFIELD COUNTY, USA

CODE COMPLIANCE

GOVERNING CODES:	TIA-222-H
WIND SPEEDS:	120 MPH 3 SECOND GUST
	50 MPH 3 SECOND GUST
ICE THICKNESS:	1.5 IN
RISK CATEGORY:	II
EXPOSURE CATEGORY:	B
TOPO CATEGORY:	1.0

PROJECT CONTACTS:

1. CROWN PROJECT MANAGER:
   ARIANNE WONG
   (925) 737-1239
   ARIANNE.WONG@CROWNCASTLE.COM
   ONE PARK PLACE SUITE 300
   DUBLIN, CA 94568

2. ENGINEER OF RECORD:
   GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION
   520 SOUTH MAIN STREET, SUITE 2531
   AKRON, OH 44311
   (330) 572-2100
   FOR QUESTIONS PLEASE EMAIL:
   CROWNMODS@GPDGROUP.COM

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHERER
No. 30026
LICENSED PROFESSIONAL ENGINEER

7/19/21

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876380.06

CARRIER: T-MOBILE

SITE NAME: O&G WOODBURY
BU NUMBER: 876380
WO NUMBER: NA

ENG/QA BY: BAB DATE: 7/19/21
DFT BY: BAB DATE: 7/19/21
DFT/QA BY: DP DATE: 7/19/21
APRV'D BY: CJS DATE: 7/19/21
SCALE: N.T.S.

TITLE PAGE

S-1 REV 0

GENERAL NOTES

1. DETAILED DRAWINGS AND NOTES SHALL GOVERN GENERAL NOTES AND TYPICAL DETAILS. CONTACT VENDOR POINT OF CONTACT (POC) AND ENGINEER OF RECORD (EOR) FOR CLARIFICATION AS NEEDED.
2. DO NOT SCALE DRAWINGS.
3. FOR THIS MODIFICATION, THE TOWER AND MOUNT HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY STRUCTURAL DEFECTS, UNO. IF THE GC DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE CROWN POC AND EOR IMMEDIATELY.
4. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED, UNO. CONFLICTING NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR AND THE POC.
5. CONTRACTOR PERSONNEL SHALL NOT DRILL HOLES IN ANY NEW OR EXISTING STRUCTURAL MEMBERS, OTHER THAN THOSE DRILLED HOLES SHOWN ON STRUCTURAL DRAWINGS, WITHOUT THE APPROVAL OF THE EOR.
6. ANY HARDWARE REMOVED FROM THE EXISTING MOUNT SHALL BE REPLACED WITH NEW HARDWARE OF EQUAL SIZE AND QUALITY, UNO. NO EXISTING FASTENERS SHALL BE REUSED.
7. ALL JOINTS USING ASTM A325 OR A490 BOLTS, U-BOLTS, V-BOLTS, AND THREADED RODS SHALL BE SNUG TIGHTENED, UNO.
8. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED SNUG TIGHTENED ASTM A325 OR A490 BOLTS, U-BOLTS, V-BOLTS, AND THREADED RODS.
9. ALL JOINTS ARE BEARING TYPE CONNECTIONS UNO. IF NO BOLT LENGTH IS GIVEN IN THE BILL OF MATERIALS, THE CONNECTION MAY INCLUDE THREADS IN THE SHEAR PLANES, AND THE GC IS RESPONSIBLE FOR SIZING THE LENGTH OF THE BOLT.
10. IF ASTM A325 OR A490 BOLTS, AND/OR THREADED RODS ARE SPECIFIED TO BE PRE-TENSIONED, THESE SHALL BE INSTALLED AND TIGHTENED TO THE PRE-TENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKSNAYDER
No. 30026
LICENSED
PROFESSIONAL ENGINEER

7/19/21

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876380.06

CARRIER: T-MOBILE

SITE NAME: O&G WOODBURY
BU NUMBER: 876380
WO NUMBER: NA

ENG/QA BY: BAB DATE: 7/19/21

DFT BY: BAB DATE: 7/19/21

DFT/QA BY: DP DATE: 7/19/21

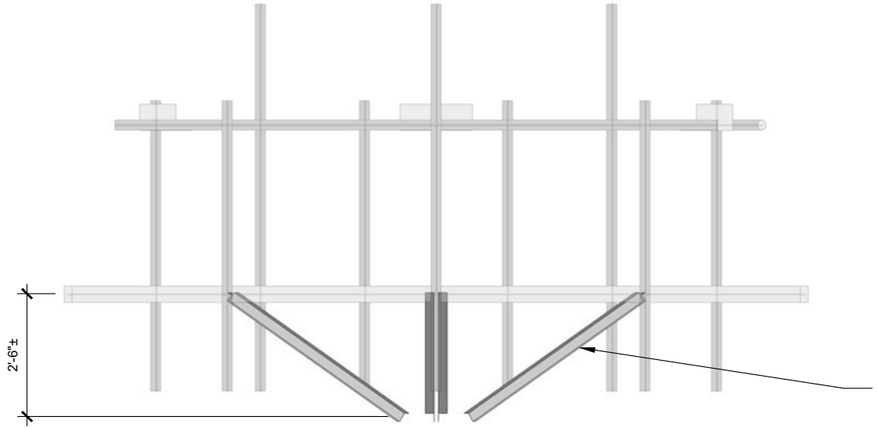
APRV'D BY: CJS DATE: 7/19/21

SCALE: N.T.S.

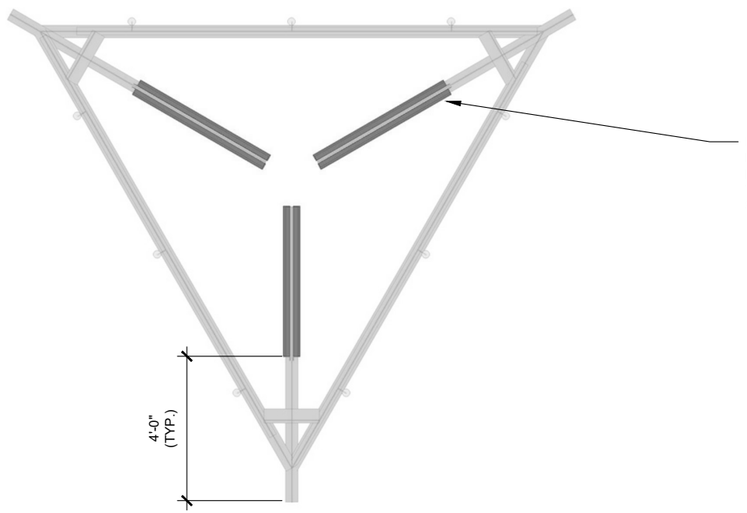
GENERAL NOTES

S-2

REV 0



1 S-3 ELEVATION VIEW



2 S-3 PLAN VIEW

MOUNT MODIFICATION SCHEDULE

	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
A	104.0	**INSTALL A NEW KICKER STYLE REINFORCEMENT KIT CONNECTED TO TOWER SHAFT AND MOUNT STANDOFF.**	S-3 & S-4
PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.			

NOTES:
1. ANY SUBSTITUTION OF PARTS SPECIFIED IN THIS DESIGN PACKAGE SHALL REQUIRE ENGINEER APPROVAL PRIOR TO FABRICATION.
2. ALL MATERIAL REMOVED FROM MOUNT SHALL BE DISPOSED OF BY CONTRACTOR OFF SITE.

NOTES:
1. ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED PER ASTM A153 / A153M OR A123, AS APPLICABLE. FIELD DRILLED OR CUT MATERIAL TO BE COATED WITH TWO BRUSH COATS OF CROWN APPROVED ZINC RICH PAINT IN ACCORDANCE WITH ENG-BUL-10149 *TOWER PROTECTIVE COATINGS BULLETIN.*

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKS
No. 30026
LICENSED PROFESSIONAL ENGINEER
7/19/21

GPD Engineering and Architecture Professional Corporation
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GPD PROJECT NUMBER
2021777.876380.06

CARRIER: T-MOBILE

SITE NAME: O&G WOODBURY

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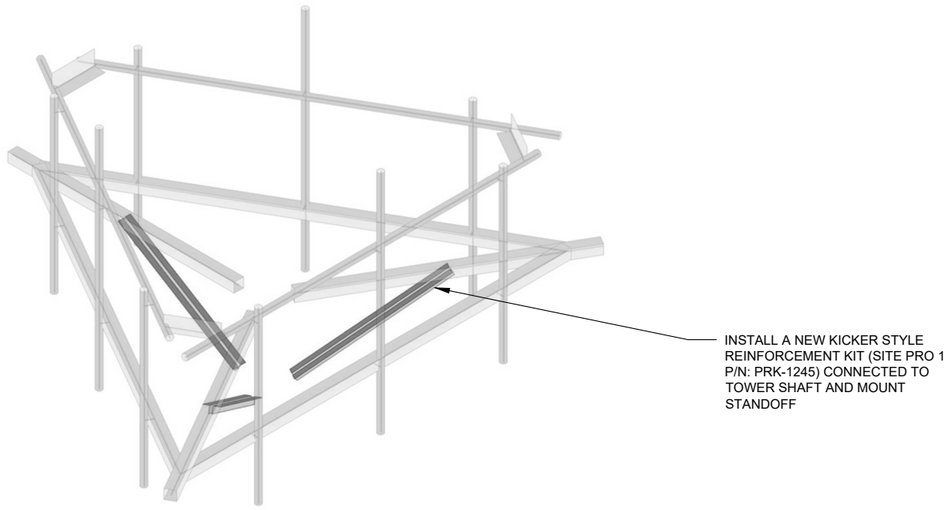
APRV'D BY: CJS	DATE: 7/19/21	

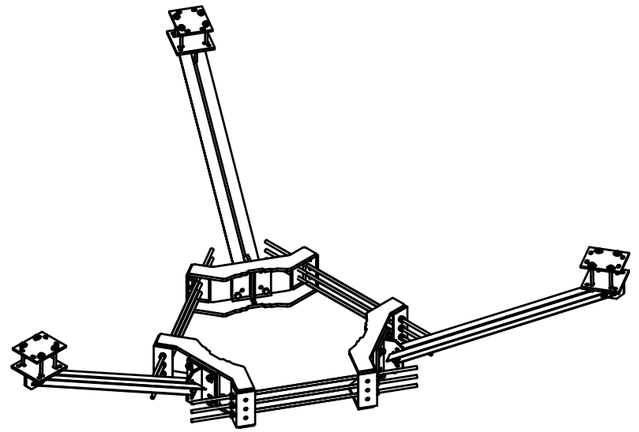
SCALE: N.T.S.

MOUNT MODIFICATION SCHEDULE

S-3 REV 0



3 S-4 ISOMETRIC VIEW



4 S-4 PRK-1245 KICKER STYLE REINFORCEMENT KIT

NO.	DATE	DESCRIPTION	BY

REVISIONS

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876380.06

CARRIER: T-MOBILE

SITE NAME: O&G WOODBURY

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STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKS
No. 30026
LICENSED
PROFESSIONAL ENGINEER

7/19/21

DETAILS/PARTS

S-4

REV 0

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA650A

876380
198 Great Hollow Road
Woodbury, Connecticut 06798

September 1, 2021

EBI Project Number: 6221004837

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**46.23%**

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

September 1, 2021

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTHA650A - 876380

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **198 Great Hollow Road** in **Woodbury, Connecticut** 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 ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 198 Great Hollow Road in Woodbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

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

13) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated

transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antenna mounting height centerline of the proposed antennas is 106 feet above ground level (AGL).

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

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

EBI Consulting

environmental | engineering | due diligence

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	106 feet	Height (AGL):	106 feet	Height (AGL):	106 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A1 MPE %:	**13.07%**	Antenna B1 MPE %:	**13.07%**	Antenna C1 MPE %:	**13.07%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	106 feet	Height (AGL):	106 feet	Height (AGL):	106 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	**3.55%**	Antenna B2 MPE %:	**3.55%**	Antenna C2 MPE %:	**3.55%**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd
Height (AGL):	106 feet	Height (AGL):	106 feet	Height (AGL):	106 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	14,005.63	ERP (W):	14,005.63	ERP (W):	14,005.63
Antenna A3 MPE %:	**5.04%**	Antenna B3 MPE %:	**5.04%**	Antenna C3 MPE %:	**5.04%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	21.66%
AT&T	13.07%
Verizon	3.5%
Nextel	0.59%
T-Mobile (Existing)	7.27%
CL&P	0.14%
Site Total MPE % :	46.23%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	21.66%
T-Mobile Sector B Total:	21.66%
T-Mobile Sector C Total:	21.66%
Site Total MPE % :	46.23%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	106.0	39.71	2500 MHz LTE 1C & 2C Traffic	1000	3.97%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	106.0	3.86	2500 MHz LTE 1C & 2C Broadcast	1000	0.39%
T-Mobile 2500 MHz NR Traffic	1	22089.26	106.0	79.41	2500 MHz NR Traffic	1000	7.94%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	106.0	7.72	2500 MHz NR Broadcast	1000	0.77%
T-Mobile 600 MHz LTE	2	591.73	106.0	4.25	600 MHz LTE	400	1.06%
T-Mobile 600 MHz NR	1	1577.94	106.0	5.67	600 MHz NR	400	1.42%
T-Mobile 700 MHz LTE	2	695.22	106.0	5.00	700 MHz LTE	467	1.07%
T-Mobile 1900 MHz GSM	4	1167.14	106.0	16.78	1900 MHz GSM	1000	1.68%
T-Mobile 1900 MHz LTE	2	2334.27	106.0	16.78	1900 MHz LTE	1000	1.68%
T-Mobile 2100 MHz LTE	2	2334.27	106.0	16.78	2100 MHz LTE	1000	1.68%
						Total:	**21.66%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	21.66%
Sector B:	21.66%
Sector C:	21.66%
T-Mobile Maximum MPE % (Sector A):	21.66%
Site Total:	46.23%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **46.23%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

T-Mobile

T-MOBILE SITE NUMBER: CTHA650A
T-MOBILE SITE NAME: CTHA650A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 139'-0"

BUSINESS UNIT #: 876380
SITE ADDRESS: 198 GREAT HOLLOW ROAD, WOODBURY, CT 06798
COUNTY: LITCHFIELD
JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E5A998E 6160

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	O&G WOODBURY
SITE ADDRESS:	198 GREAT HOLLOW ROAD WOODBURY, CT 06798
COUNTY:	LITCHFIELD
MAP/PARCEL #:	034-015
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.52200555°
LONGITUDE:	-73.22073611°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	593 FT
CURRENT ZONING:	OS80
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	O & G INDUSTRIES INC 112 WALL STREET TORRINGTON, CT 06790
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	N/A
TELCO PROVIDER:	N/A

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S BOULDER AVE, SUITE 300 TULSA, OK 74119 MARVIN PHILLIPS marvin.phillps@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 TRICA PELON - PROJECT MANAGER TRICA.PELON@CROWNCASTLE.COM

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
ATTACHED	MOUNT DESIGN DRAWINGS

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

PROJECT DESCRIPTION

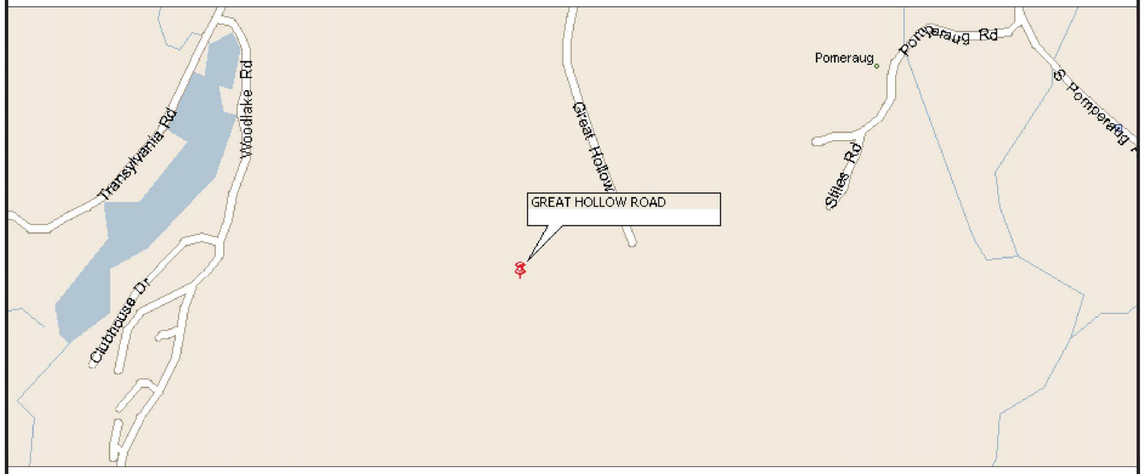
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (6) ANTENNAS
- REMOVE (9) RADIOs
- REMOVE (4) 1-1/4" HYBRID CABLES
- INSTALL (9) ANTENNAS
- INSTALL (6) RADIOs
- INSTALL (2) 1-5/8" HYBRID CABLES
- INSTALL MOUNT MODIFICATIONS PER MOUNT MODIFICATION REPORT BY GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION DATED JULY 19, 2021

GROUND SCOPE OF WORK:
- INSTALL (1) 6160 SSC CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (1) RBS 6601 IN 6160 SSC CABINET
- INSTALL (3) BB 6648 IN 6160 SSC CABINET
- INSTALL (1) DUG20 IN RBS 6601
- INSTALL (1) CSR IXRE V2

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

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2015 IBC W/AMENDMENTS
MECHANICAL	2015 IMC W/AMENDMENTS
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	7/26/21
MOUNT MODIFICATION REPORT:	GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION
DATED:	7/19/21
RFDS REVISION:	1
DATED:	5/11/21
ORDER ID:	567926
REVISION:	3

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APPROVALS

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

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

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

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

T-MOBILE SITE NUMBER:
CTHA650A

BU #: **876380**
O&G WOODBURY

198 GREAT HOLLOW ROAD
WOODBURY, CT 06798

EXISTING
139'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/22/2021	JHW	CONSTRUCTION	JHW
1	08/26/2021	JHW	CONSTRUCTION	JHW

STATE OF CONNECTICUT
No. 23024
LICENSED
PROFESSIONAL ENGINEER
08/26/2021

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: T-1
REVISION: 1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

GREENFIELD GROUNDING NOTES:

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

ELECTRICAL INSTALLATION NOTES:

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

CONDUCTOR COLOR CODE

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

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

APWA UNIFORM COLOR CODE:

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

ABBREVIATIONS:

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

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T-MOBILE SITE NUMBER:
CTHA650A

BU #: **876380**
O&G WOODBURY

198 GREAT HOLLOW ROAD
WOODBURY, CT 06798

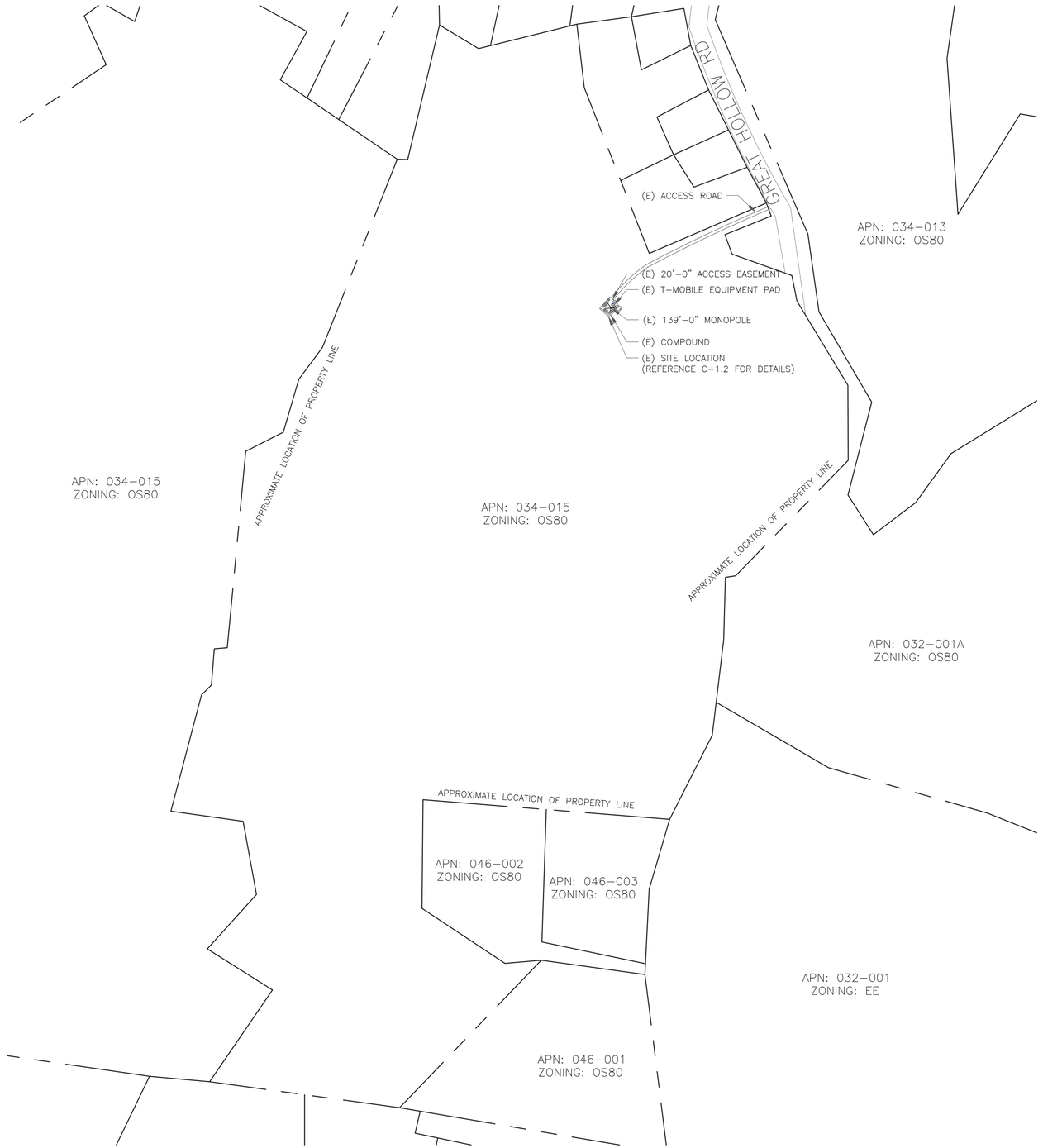
EXISTING
139'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/22/2021	JHW	CONSTRUCTION	JHW
1	08/26/2021	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: **T-2**
REVISION: **1**



1 OVERALL SITE PLAN

SCALE: 300' 150' 0 300' 1" = 300'-0" (FULL SIZE) 1" = 600'-0" (11x17)

N

SITE PLAN DISCLAIMER:

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

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REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/22/2021	JHW	CONSTRUCTION	JHW
1	08/26/2021	JHW	CONSTRUCTION	JHW

STATE OF CONNECTICUT
JOHN H. WEETER
No. 21924
LICENSED
PROFESSIONAL ENGINEER
08/26/2021

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: C-1.1

REVISION: 1

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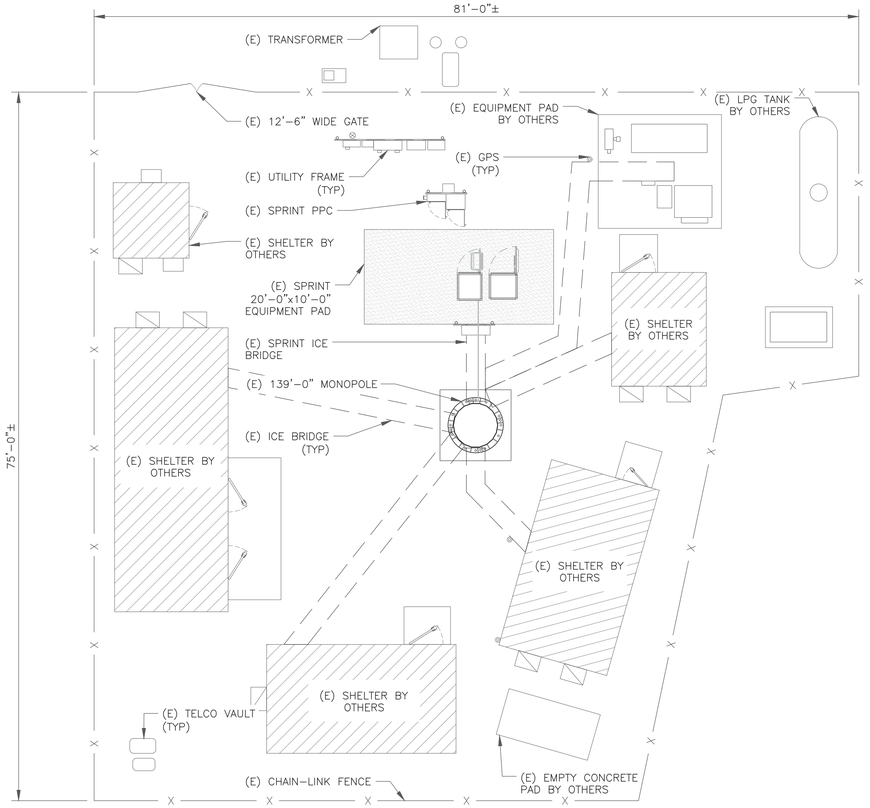
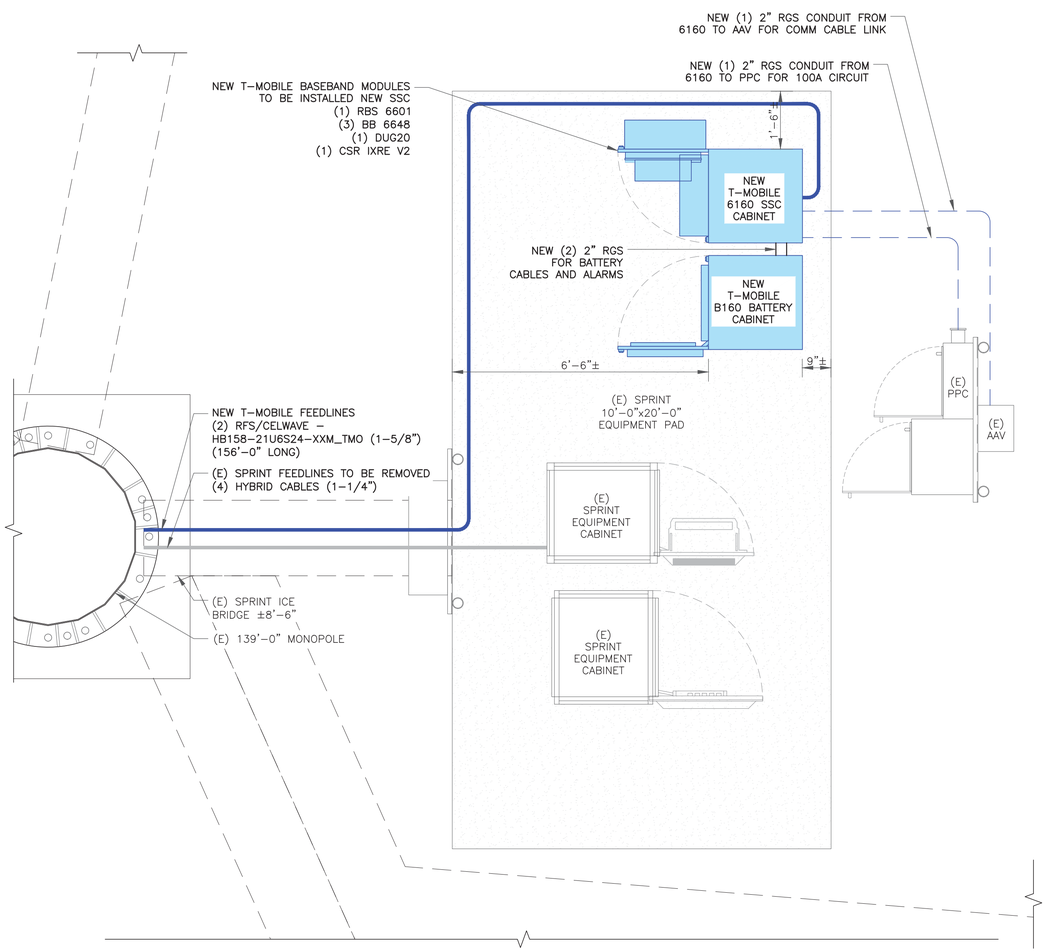


1 SITE PLAN
SCALE: 8' 6' 4' 2' 0 8'
1/8"=1'-0" (FULL SIZE)
1/16"=1'-0" (11x17)



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

NOTES:

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

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REV	DATE	DRWN	DESCRIPTION	DES./QA
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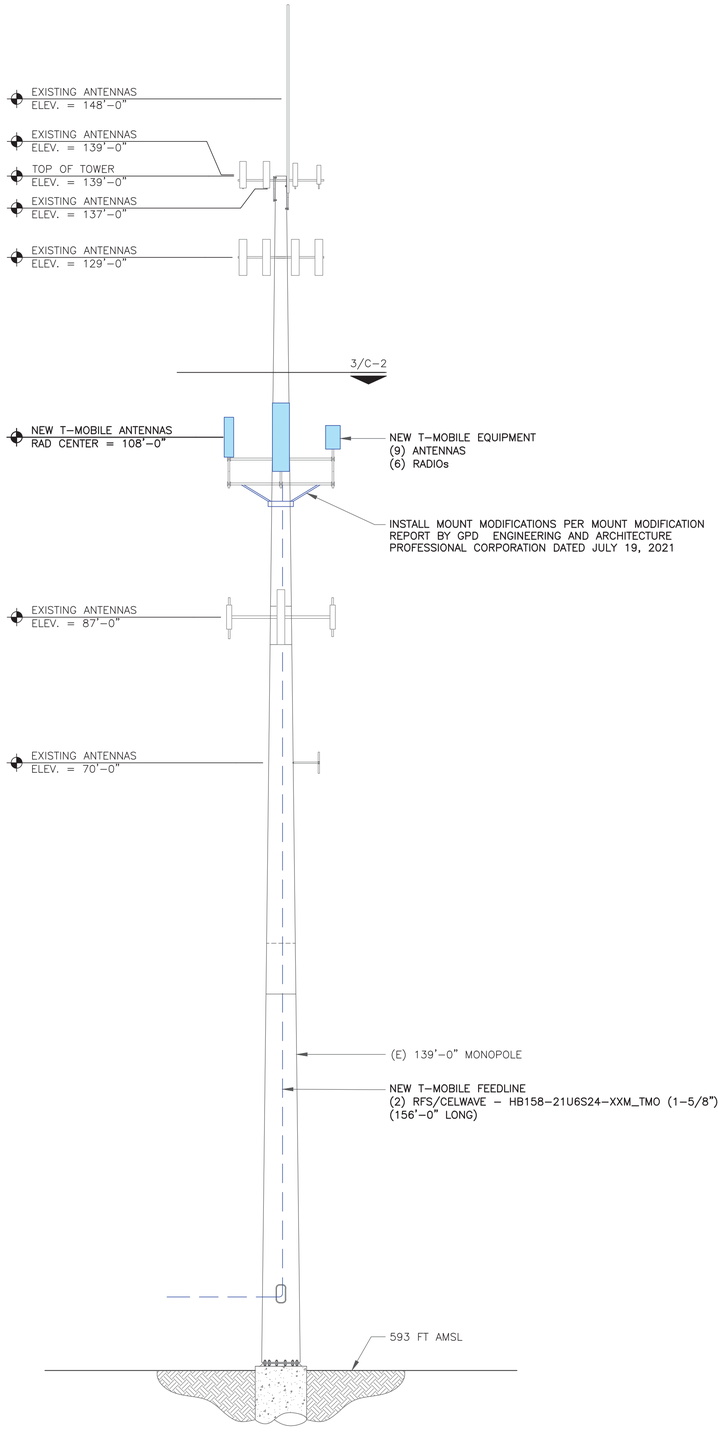
1	08/26/2021	JHW	CONSTRUCTION	JHW

08/26/2021

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: C-1.2
REVISION: 1



1 FINAL ELEVATION
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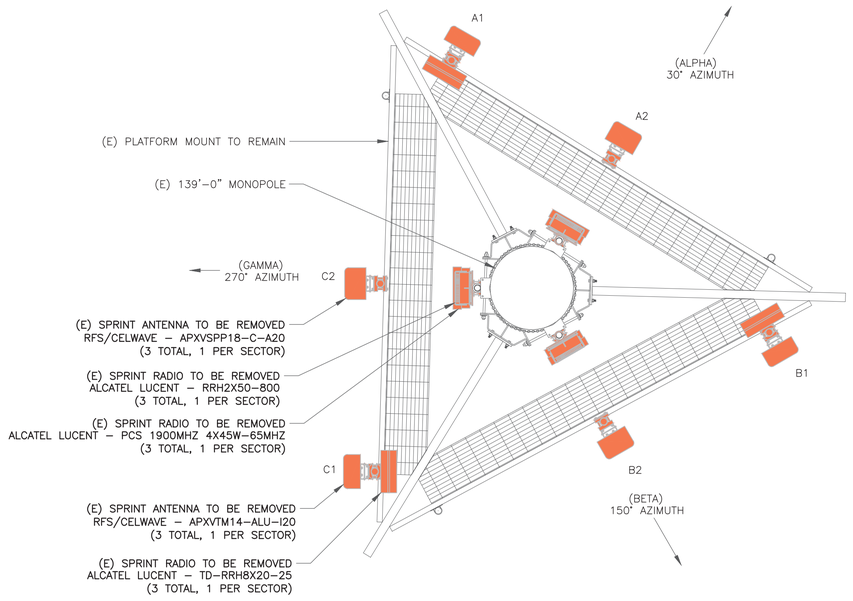

2 EXISTING ANTENNA LAYOUT
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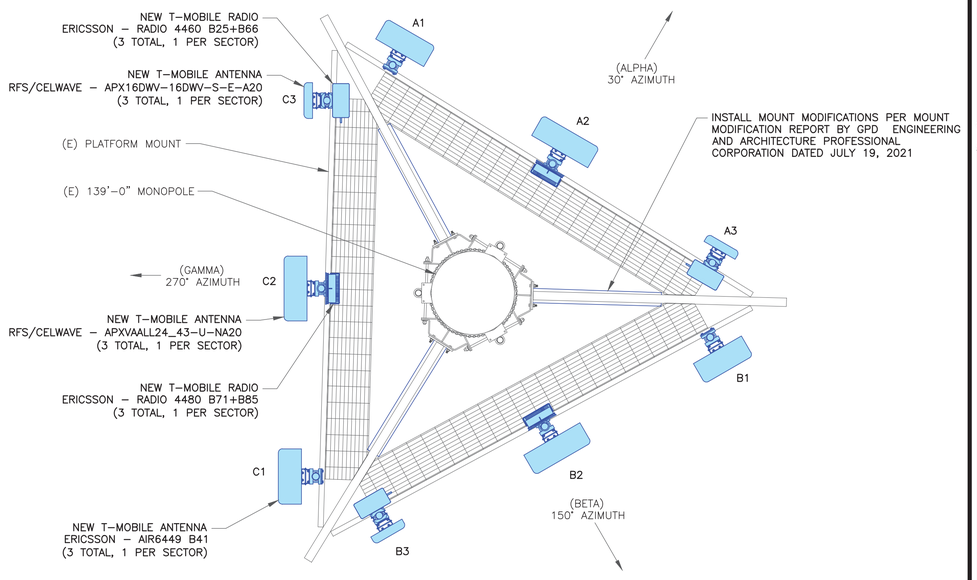

3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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139'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/22/2021	JHW	CONSTRUCTION	JHW
1	08/26/2021	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: C-2

REVISION: 1

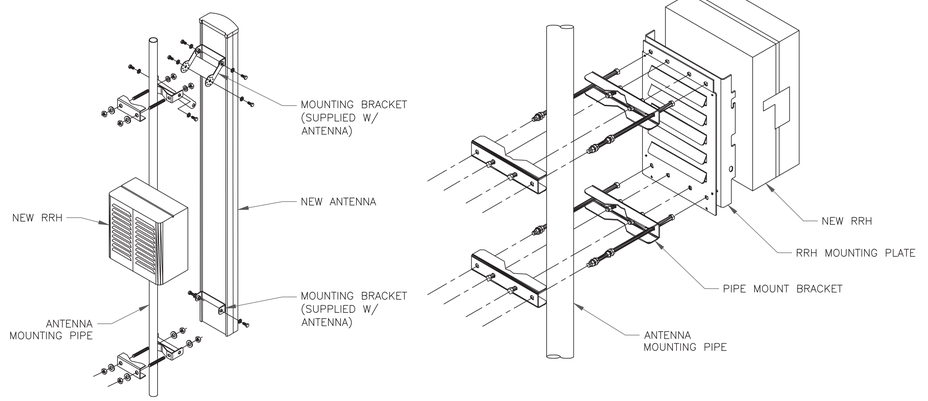
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A1	L2500/N2500	ERICSSON	AIR6449 B41	30°	–	–	108'-0"	–	(1) 1-5/8" HYBRID
	A2	L700/L600/N600	RFS/CELWAVE	APXVAALL24_43-U-NA20	30°	–	–	108'-0"	(1) ERICSSON – 4480 B71+B85	–
	A3	L2100/L1900/ G1900	RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	30°	–	–	108'-0"	(1) ERICSSON – 4460 B25+B66	–
BETA	B1	L2500/N2500	ERICSSON	AIR6449 B41	150°	–	–	108'-0"	–	(1) 1-5/8" HYBRID
	B2	L700/L600/N600	RFS/CELWAVE	APXVAALL24_43-U-NA20	150°	–	–	108'-0"	(1) ERICSSON – 4480 B71+B85	–
	B3	L2100/L1900/ G1900	RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	150°	–	–	108'-0"	(1) ERICSSON – 4460 B25+B66	–
GAMMA	C1	L2500/N2500	ERICSSON	AIR6449 B41	270°	–	–	108'-0"	–	–
	C2	L700/L600/N600	RFS/CELWAVE	APXVAALL24_43-U-NA20	270°	–	–	108'-0"	(1) ERICSSON – 4480 B71+B85	–
	C3	L2100/L1900/ G1900	RFS/CELWAVE	APX16DWV-16DWV-S-E-A20	270°	–	–	108'-0"	(1) ERICSSON – 4460 B25+B66	–

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

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

T-MOBILE SITE NUMBER:
CTHA650A

BU #: **876380**
O&G WOODBURY

198 GREAT HOLLOW ROAD
WOODBURY, CT 06798

EXISTING
139'-0" MONOPOLE

ISSUED FOR:

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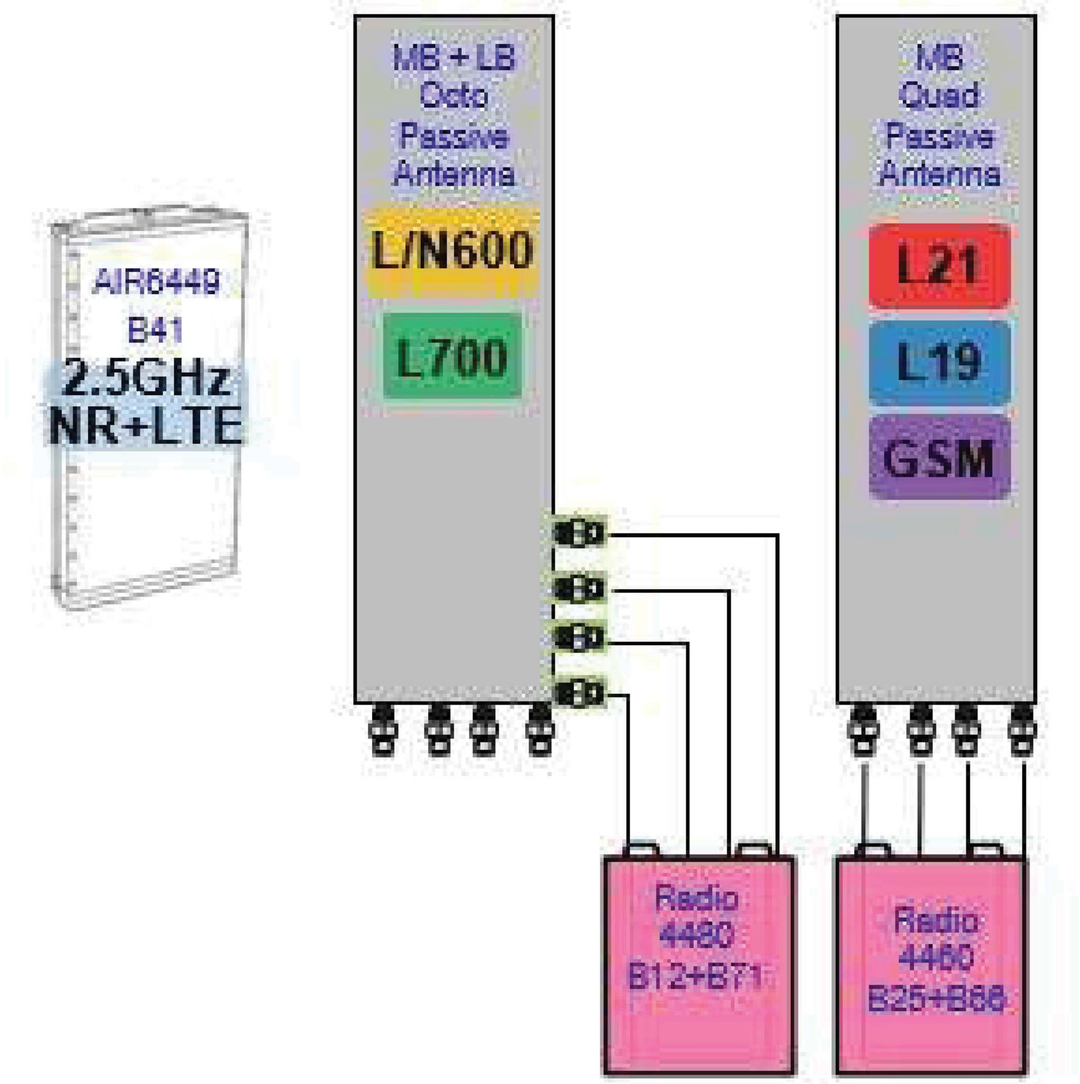
STATE OF CONNECTICUT
JASON H. WEEKS
No. 23924
LICENSED
PROFESSIONAL ENGINEER
08/26/2021

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: C-3

REVISION: 1



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

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T-MOBILE SITE NUMBER:
CTHA650A

BU #: **876380**
O&G WOODBURY

198 GREAT HOLLOW ROAD
WOODBURY, CT 06798

EXISTING
139'-0" MONOPOLE

ISSUED FOR:

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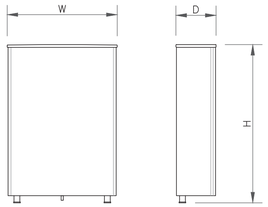
0	07/22/2021	JHW	CONSTRUCTION	JHW
1	08/26/2021	JHW	CONSTRUCTION	JHW

STATE OF CONNECTICUT
JOSEPH H. WEETER
No. 23924
LICENSED
PROFESSIONAL ENGINEER
08/26/2021

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

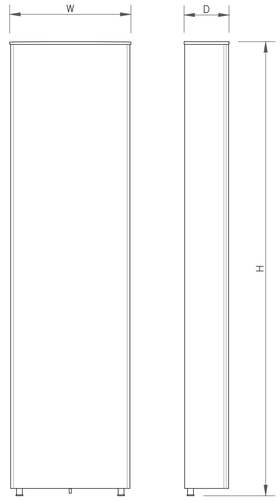
SHEET NUMBER: C-4

REVISION: 1



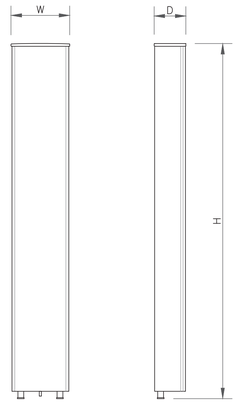
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



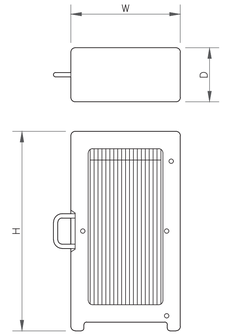
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24.0"
DEPTH	8.50"
HEIGHT	95.90"
WEIGHT	149.90 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



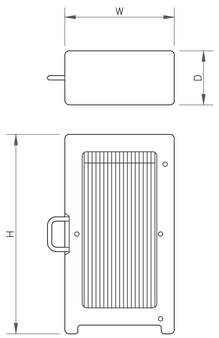
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APX16DWV-16DWV-S-E-A20
WIDTH	13.30"
DEPTH	3.15"
HEIGHT	55.90"
WEIGHT	41.0 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4480 B71+B85
WIDTH	15.70"
DEPTH	7.50"
HEIGHT	21.80"
WEIGHT	92.60 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4460 B25+B66
WIDTH	15.10"
DEPTH	11.90"
HEIGHT	17.00"
WEIGHT	109.0 LBS

5 RRU SPECS
SCALE: NOT TO SCALE

6 ERICSSON 6160 SSC
SCALE: NOT TO SCALE

BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

7 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE

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BLOOMFIELD, CT 06002

CROWN CASTLE
12 GILL STREET, SUITE 5800
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T-MOBILE SITE NUMBER:
CTHA650A

BU #: **876380**
O&G WOODBURY

198 GREAT HOLLOW ROAD
WOODBURY, CT 06798

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STATE OF CONNECTICUT
JOSEPH C. HEBERT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
08/26/2021

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

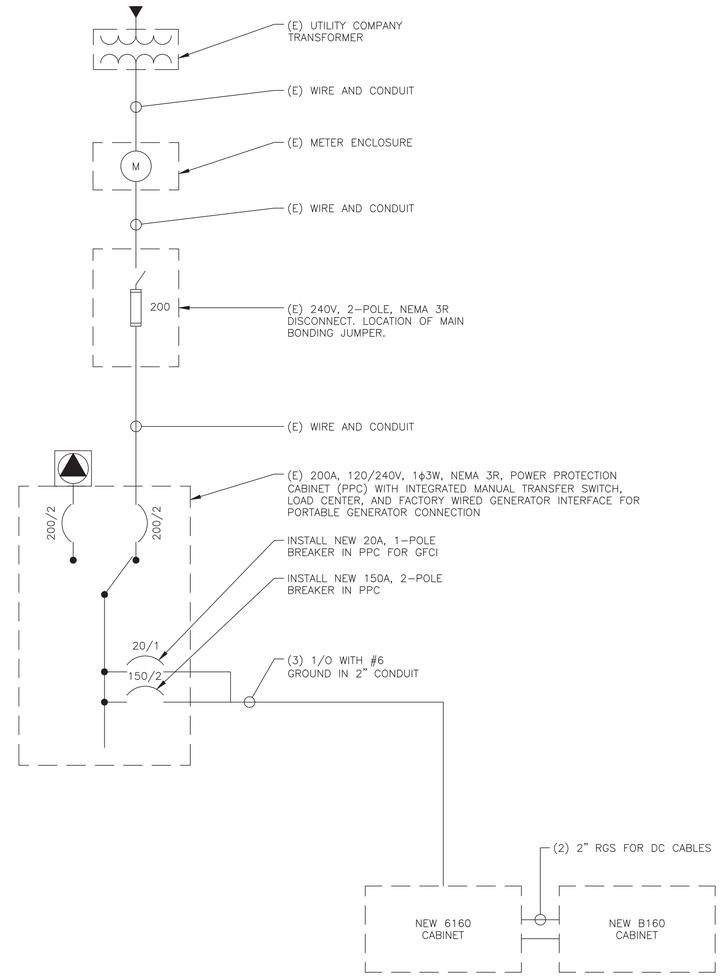
SHEET NUMBER: C-5
REVISION: 1

LOAD	POLES	AMPS	POSITIONS	AMPS	POLES	LOAD
SURGE	2	60A	**2P**	60A	2	RBS 6201
SAFETY LIGHT	1	15A	**1P**	20A	1	REC
GFCI	1	20A	**1P**	150A	2	6160
BLANK	–	–	**1P**			

RATED VOLTAGE: ■120/240 □_____, 3 PHASE, 4 WIRE	BRANCH POLES: □12 ■24 □30 □42	APPROVED MF'RS
RATED AMPS: □100 ■225 □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		

INSTALL NEW WIRES FOR NEW 6160 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #2G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 150A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO342MQ225RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS
INSTALL (1) 20A BREAKER FOR NEW GFCI (B160 CABINET)
INSTALL (1) 150A BREAKER FOR NEW 6160 CABINET

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE



NOTES:

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

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

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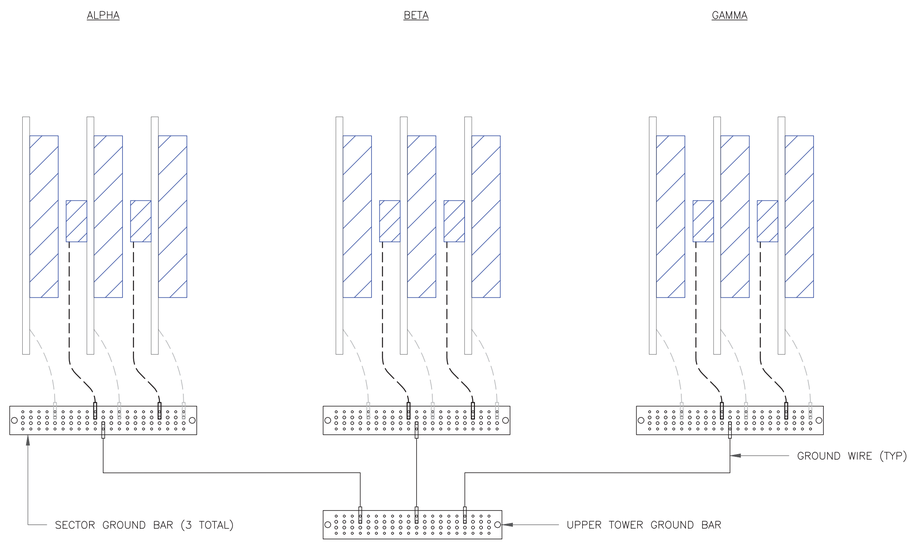
STATE OF CONNECTICUT
No. 25924
LICENSED
PROFESSIONAL ENGINEER
08/26/2021

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: E-1
REVISION: 1



NOTE:

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

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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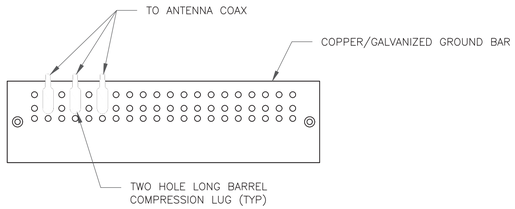
STATE OF CONNECTICUT
JOHN H. WEETER
No. 21924
LICENSED
PROFESSIONAL ENGINEER
08/26/2021

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

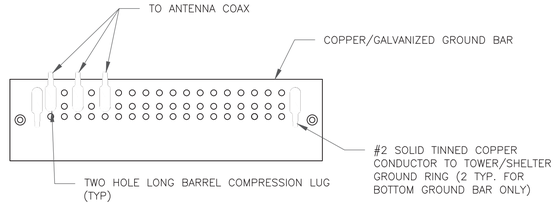
SHEET NUMBER: G-1
REVISION: 1



NOTES:

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

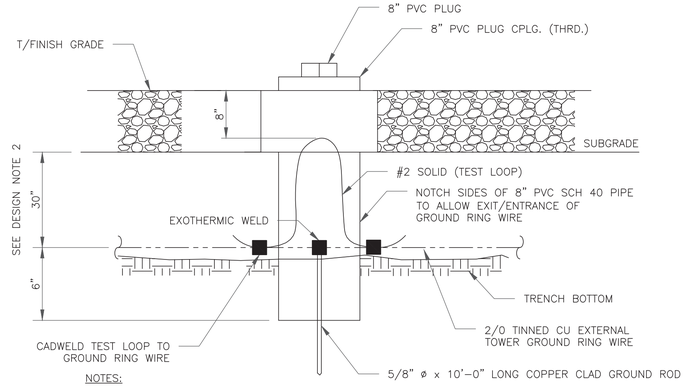
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

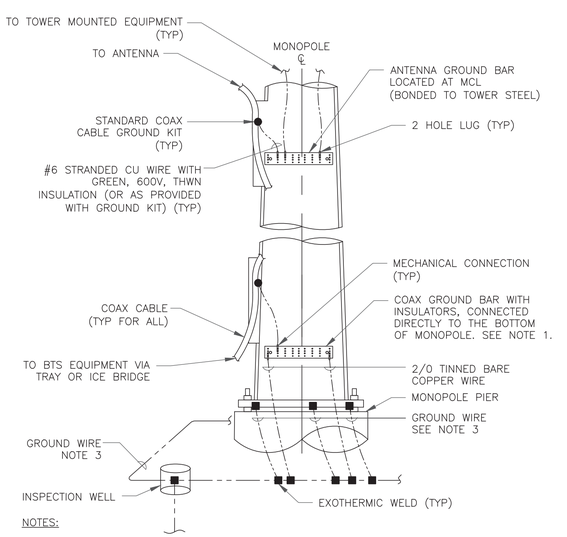
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

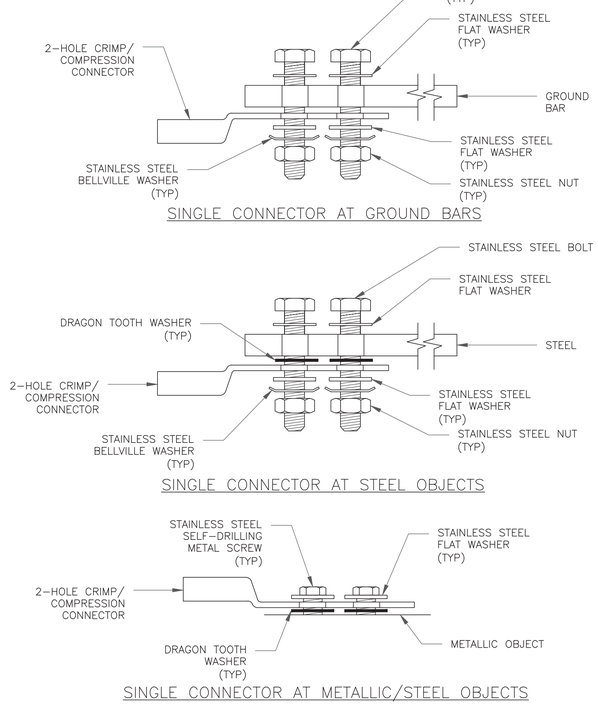
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



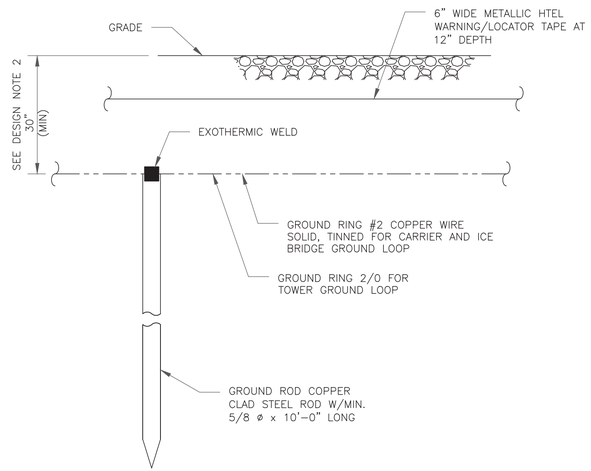
NOTES:

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

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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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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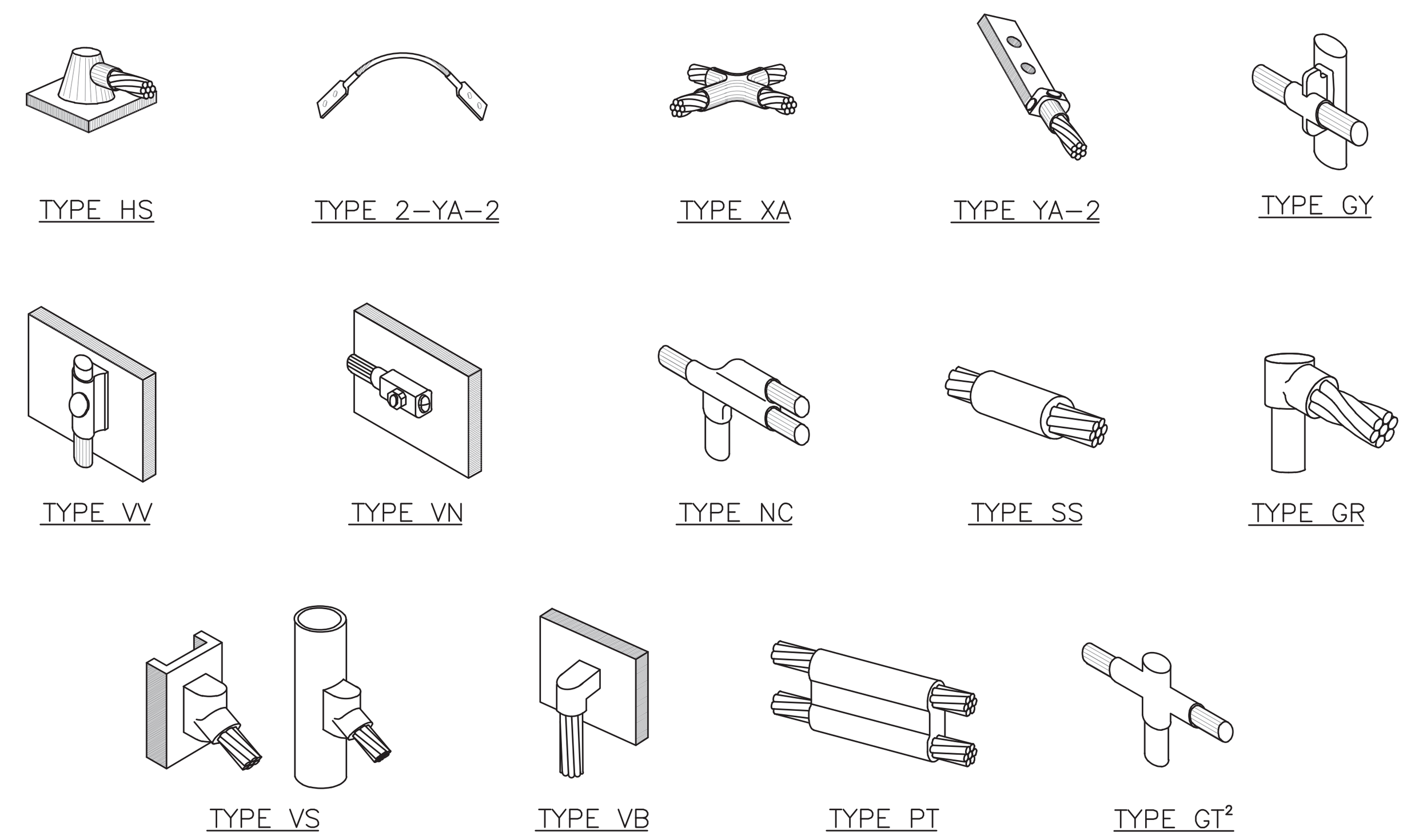
SHEET NUMBER: G-2
REVISION: 1

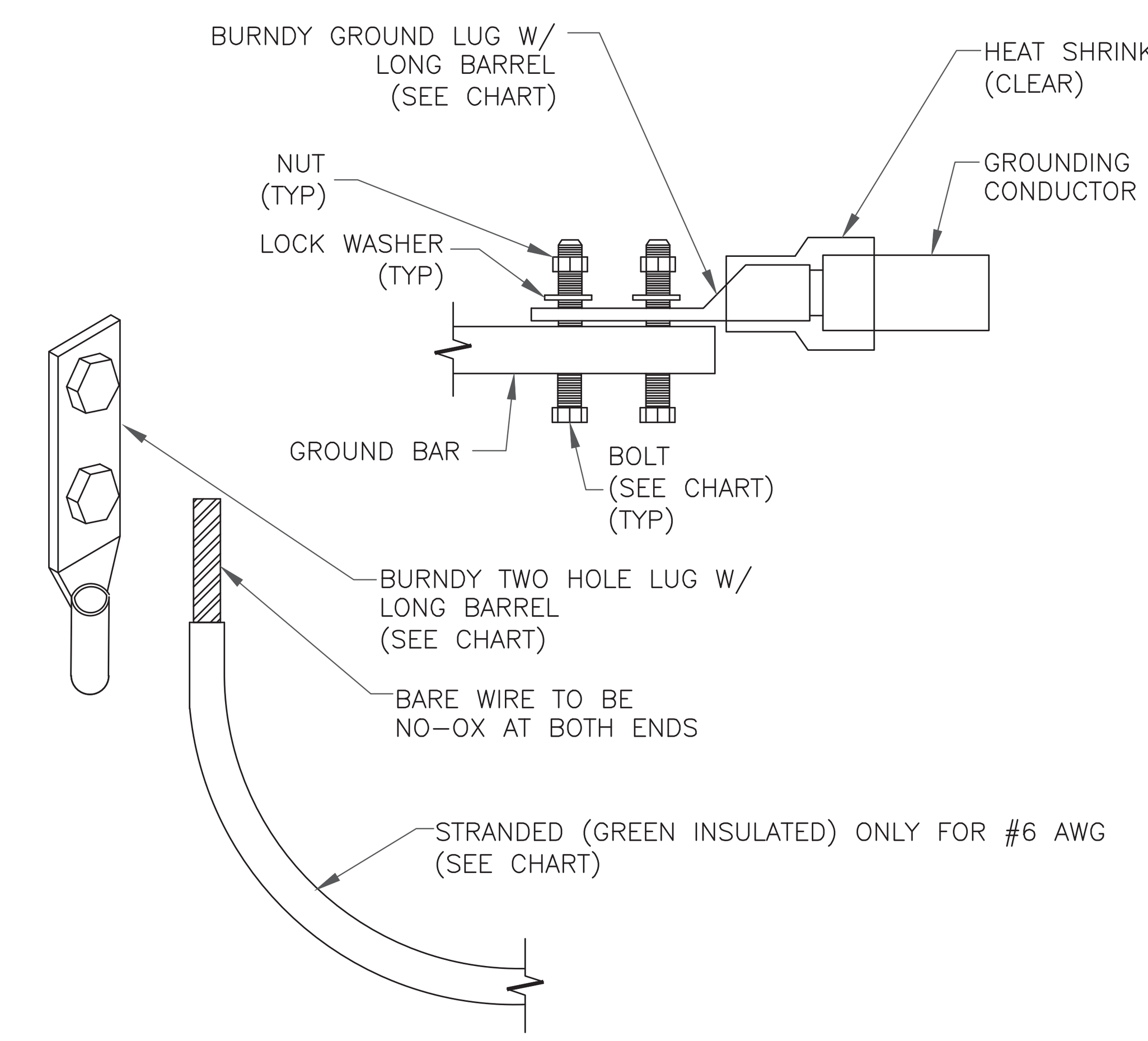


NOTE:

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

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

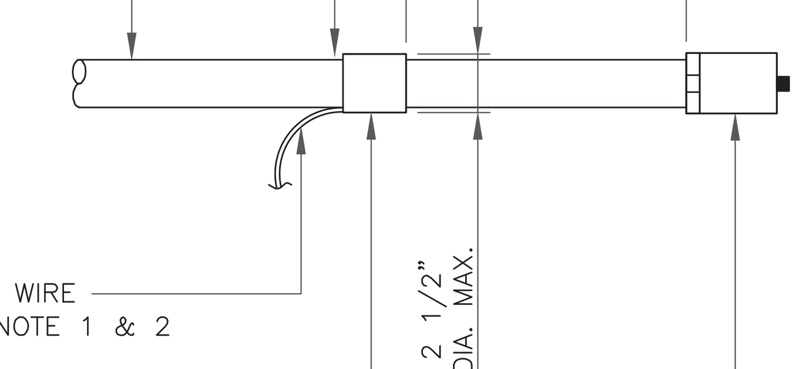
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

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

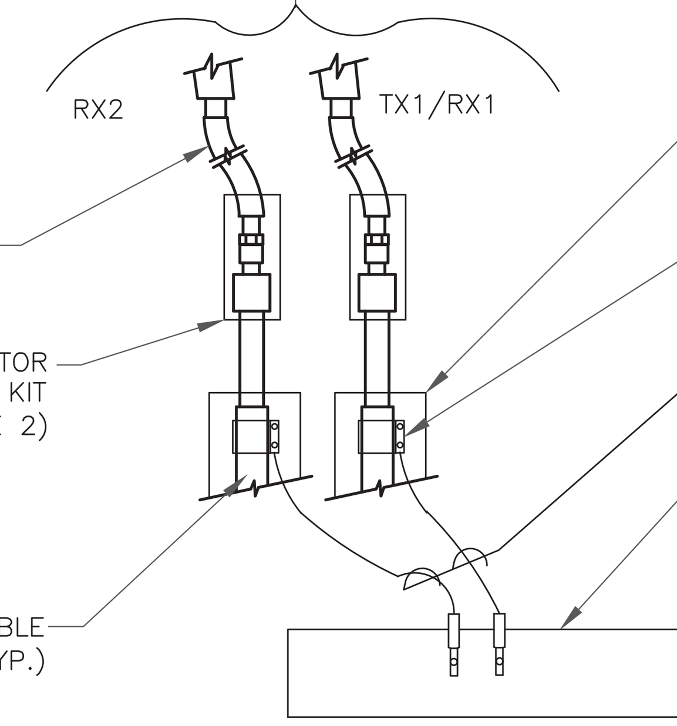
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

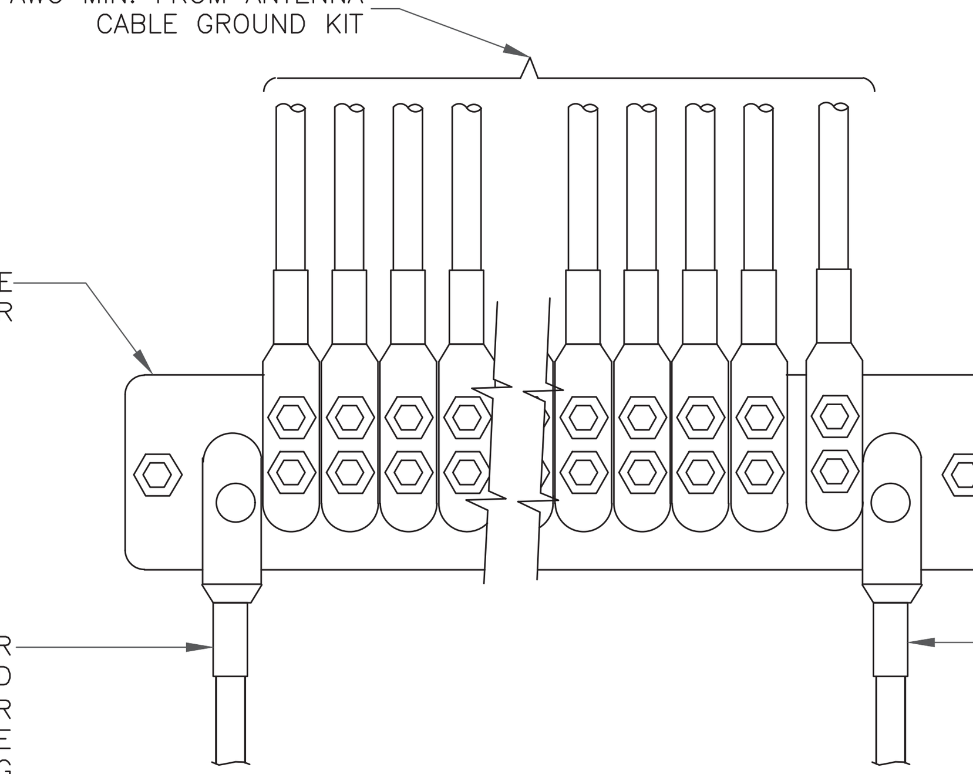
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



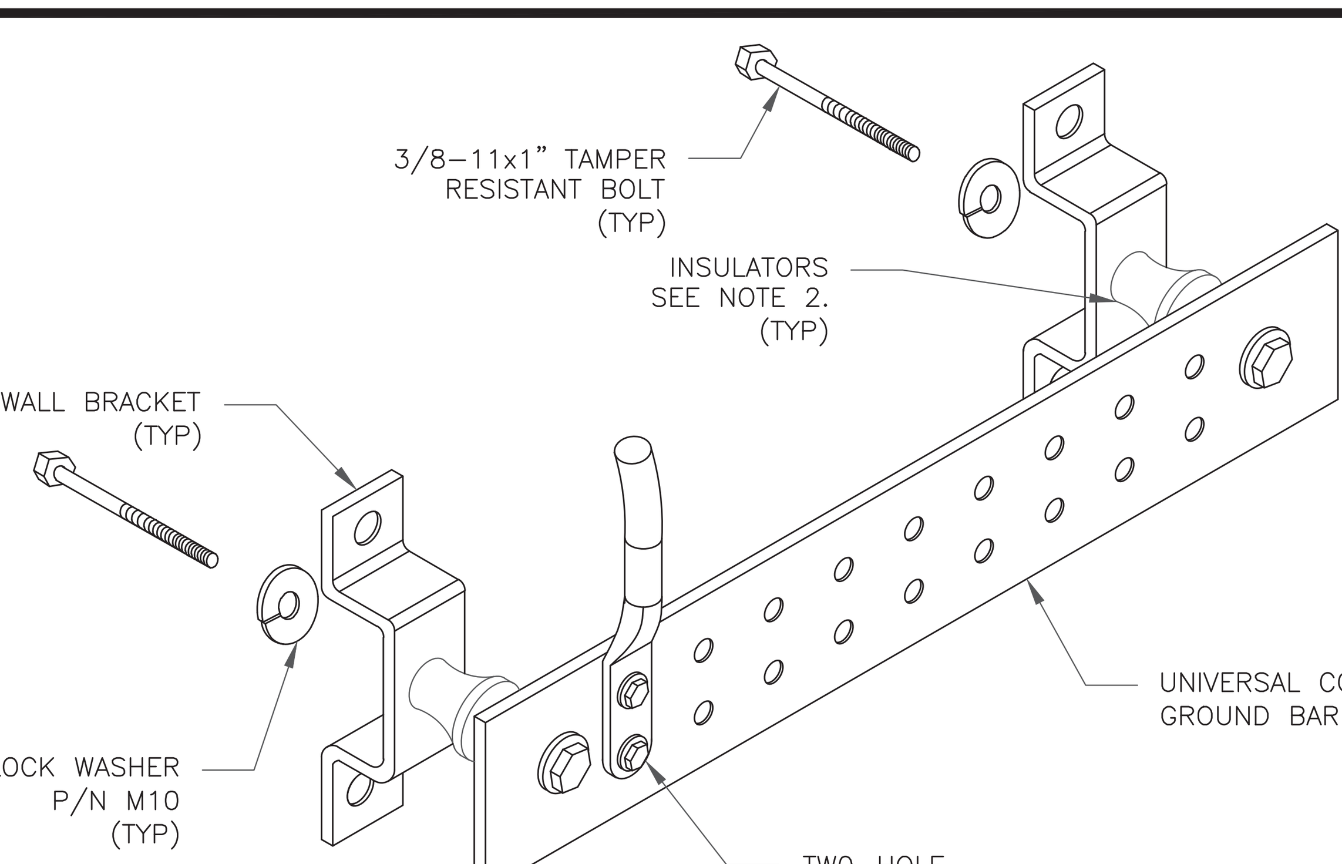
NOTES:

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

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

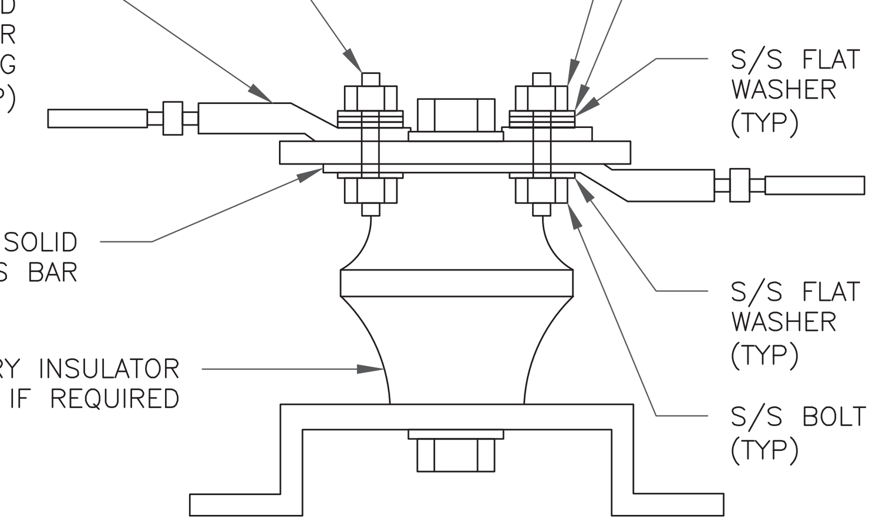


NOTES:

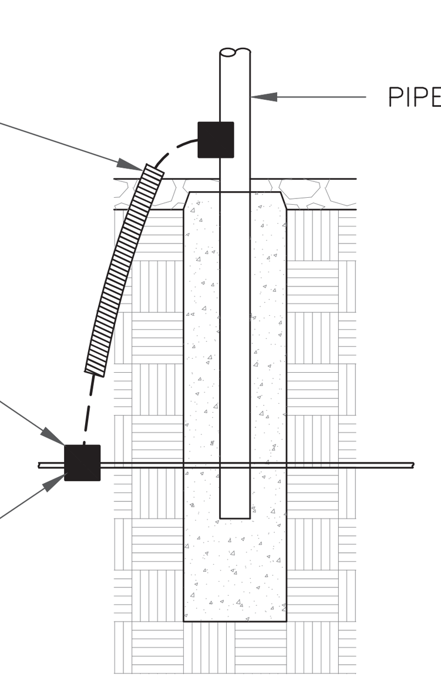
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T · · Mobile · · ·
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

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

T-MOBILE SITE NUMBER:
CTHA650A

BU #: **876380**
O&G WOODBURY

198 GREAT HOLLOW ROAD
WOODBURY, CT 06798

EXISTING
139'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/22/2021	JHW	CONSTRUCTION	JHW
1	08/26/2021	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

SHEET NUMBER: G-3
REVISION: 1

MOUNT DESIGN DRAWINGS
PREPARED FOR CROWN CASTLE

SITE NAME: O&G WOODBURY
BU NUMBER: 876380

SITE ADDRESS:
GREAT HOLLOW ROAD
WOODBURY, CT 06798
LITCHFIELD COUNTY, USA

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

PERFORMED WORK SHALL NOT DAMAGE ANY EXISTING STRUCTURE, MOUNTS, SAFETY CLIMB, OR EQUIPMENT WHILE ON SITE. SHOULD DAMAGE OCCUR, CONTACT CROWN EOR AT EORAPPROVAL@CROWNCASTLE.COM

LOOK UP!

SAFETY CLIMB: 'LOOK UP'
THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENT AND EQUIPMENT INSTALLATION SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT 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, OR IMPACT THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

DRAWINGS INCLUDED

TOWER INFORMATION

TOWER HEIGHT / TYPE:	139.0 FT MONOPOLE
TOWER LOCATION:	LAT: 41° 31' 19.20"
DATUM: (NAD 1983)	LONG: -73° 13' 14.65"
WORK ORDER #:	CCI/WO #: NA
ORDER #:	567926 REV #: 3
SITE ADDRESS:	GREAT HOLLOW ROAD WOODBURY, CT 06798 LITCHFIELD COUNTY, USA

CODE COMPLIANCE

GOVERNING CODES:	TIA-222-H
WIND SPEEDS:	120 MPH 3 SECOND GUST
	50 MPH 3 SECOND GUST
ICE THICKNESS:	1.5 IN
RISK CATEGORY:	II
EXPOSURE CATEGORY:	B
TOPO CATEGORY:	1.0

PROJECT CONTACTS:

1. CROWN PROJECT MANAGER:
   ARIANNE WONG
   (925) 737-1239
   ARIANNE.WONG@CROWNCASTLE.COM
   ONE PARK PLACE SUITE 300
   DUBLIN, CA 94568

2. ENGINEER OF RECORD:
   GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION
   520 SOUTH MAIN STREET, SUITE 2531
   AKRON, OH 44311
   (330) 572-2100
   FOR QUESTIONS PLEASE EMAIL:
   CROWNMODS@GPDGROUP.COM

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHERER
No. 30026
LICENSED PROFESSIONAL ENGINEER

7/19/21

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876380.06

CARRIER: T-MOBILE

SITE NAME: O&G WOODBURY
BU NUMBER: 876380
WO NUMBER: NA

ENG/QA BY: BAB DATE: 7/19/21
DFT BY: BAB DATE: 7/19/21
DFT/QA BY: DP DATE: 7/19/21
APRV'D BY: CJS DATE: 7/19/21
SCALE: N.T.S.

TITLE PAGE

S-1 REV 0

GENERAL NOTES

1. DETAILED DRAWINGS AND NOTES SHALL GOVERN GENERAL NOTES AND TYPICAL DETAILS. CONTACT VENDOR POINT OF CONTACT (POC) AND ENGINEER OF RECORD (EOR) FOR CLARIFICATION AS NEEDED.
2. DO NOT SCALE DRAWINGS.
3. FOR THIS MODIFICATION, THE TOWER AND MOUNT HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY STRUCTURAL DEFECTS, UNO. IF THE GC DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE CROWN POC AND EOR IMMEDIATELY.
4. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED, UNO. CONFLICTING NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR AND THE POC.
5. CONTRACTOR PERSONNEL SHALL NOT DRILL HOLES IN ANY NEW OR EXISTING STRUCTURAL MEMBERS, OTHER THAN THOSE DRILLED HOLES SHOWN ON STRUCTURAL DRAWINGS, WITHOUT THE APPROVAL OF THE EOR.
6. ANY HARDWARE REMOVED FROM THE EXISTING MOUNT SHALL BE REPLACED WITH NEW HARDWARE OF EQUAL SIZE AND QUALITY, UNO. NO EXISTING FASTENERS SHALL BE REUSED.
7. ALL JOINTS USING ASTM A325 OR A490 BOLTS, U-BOLTS, V-BOLTS, AND THREADED RODS SHALL BE SNUG TIGHTENED, UNO.
8. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED SNUG TIGHTENED ASTM A325 OR A490 BOLTS, U-BOLTS, V-BOLTS, AND THREADED RODS.
9. ALL JOINTS ARE BEARING TYPE CONNECTIONS UNO. IF NO BOLT LENGTH IS GIVEN IN THE BILL OF MATERIALS, THE CONNECTION MAY INCLUDE THREADS IN THE SHEAR PLANES, AND THE GC IS RESPONSIBLE FOR SIZING THE LENGTH OF THE BOLT.
10. IF ASTM A325 OR A490 BOLTS, AND/OR THREADED RODS ARE SPECIFIED TO BE PRE-TENSIONED, THESE SHALL BE INSTALLED AND TIGHTENED TO THE PRE-TENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKSNAYDER
No. 30026
LICENSED
PROFESSIONAL ENGINEER

7/19/21

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876380.06

CARRIER: T-MOBILE

SITE NAME: O&G WOODBURY
BU NUMBER: 876380
WO NUMBER: NA

ENG/QA BY: BAB DATE: 7/19/21

DFT BY: BAB DATE: 7/19/21

DFT/QA BY: DP DATE: 7/19/21

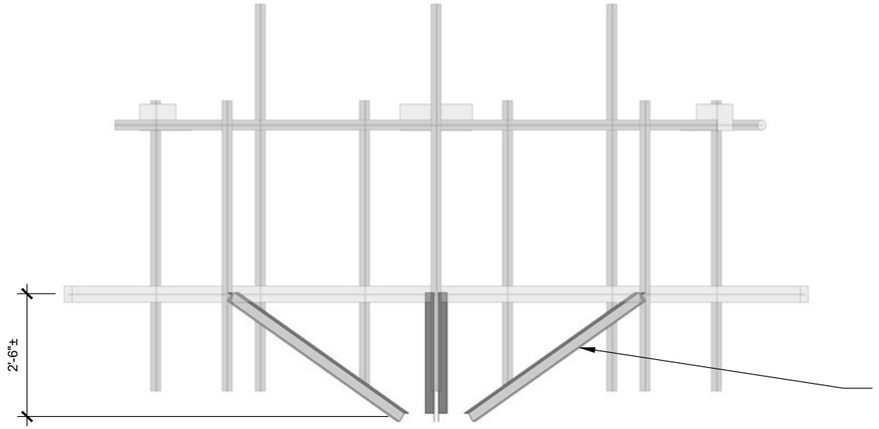
APRV'D BY: CJS DATE: 7/19/21

SCALE: N.T.S.

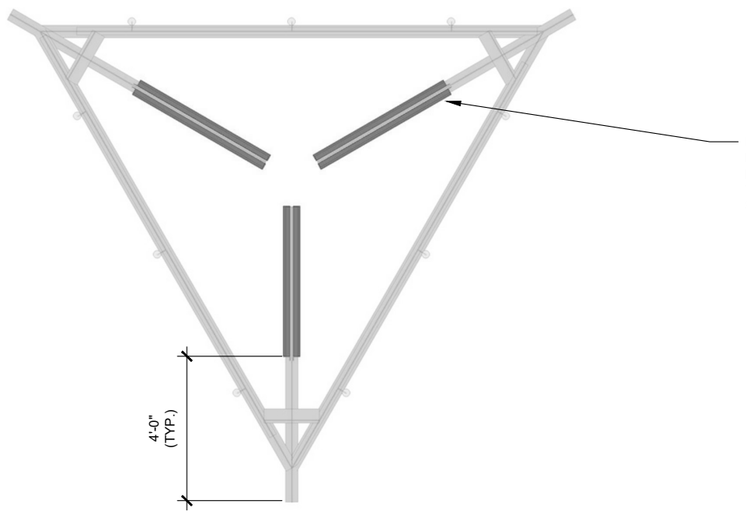
GENERAL NOTES

S-2

REV 0



1 S-3 ELEVATION VIEW



2 S-3 PLAN VIEW

MOUNT MODIFICATION SCHEDULE

	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
A	104.0	**INSTALL A NEW KICKER STYLE REINFORCEMENT KIT CONNECTED TO TOWER SHAFT AND MOUNT STANDOFF.**	S-3 & S-4
PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.			

NOTES:
1. ANY SUBSTITUTION OF PARTS SPECIFIED IN THIS DESIGN PACKAGE SHALL REQUIRE ENGINEER APPROVAL PRIOR TO FABRICATION.
2. ALL MATERIAL REMOVED FROM MOUNT SHALL BE DISPOSED OF BY CONTRACTOR OFF SITE.

NOTES:
1. ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED PER ASTM A153 / A153M OR A123, AS APPLICABLE. FIELD DRILLED OR CUT MATERIAL TO BE COATED WITH TWO BRUSH COATS OF CROWN APPROVED ZINC RICH PAINT IN ACCORDANCE WITH ENG-BUL-10149 *TOWER PROTECTIVE COATINGS BULLETIN.*

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKS
No. 30026
LICENSED PROFESSIONAL ENGINEER
7/19/21

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876380.06

CARRIER: T-MOBILE

SITE NAME: O&G WOODBURY

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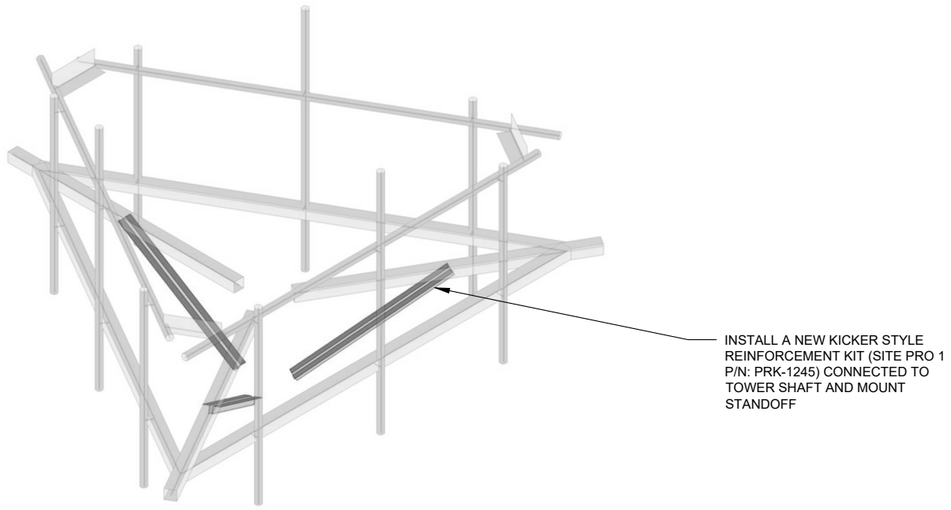
APRV'D BY: CJS	DATE: 7/19/21	

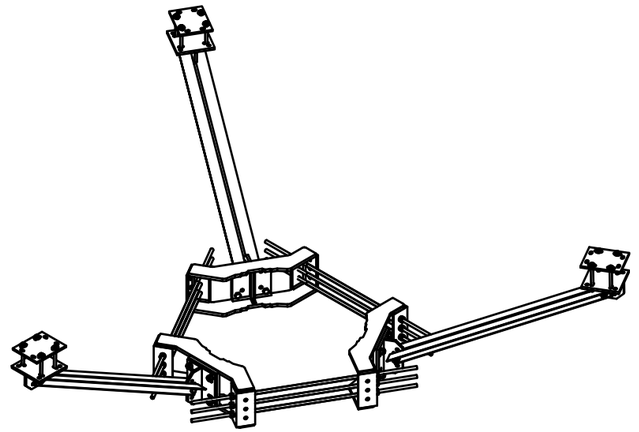
SCALE: N.T.S.

MOUNT MODIFICATION SCHEDULE

S-3 REV 0



3 S-4 ISOMETRIC VIEW



4 S-4 PRK-1245 KICKER STYLE REINFORCEMENT KIT

NO.	DATE	DESCRIPTION	BY

REVISIONS

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
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STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKS
No. 30026
LICENSED
PROFESSIONAL ENGINEER

7/19/21

DETAILS/PARTS

S-4

REV 0

20018

CROWN CASTLE - ETA PROPERTY
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

32-61/1110

DATE 9/8/2021

PAY TO THE ORDER OF Connecticut siting Council $ 625-

Sixhundred 25/100 DOLLARS

Security Features Included. Details on Back.

CHASE
JPMorgan Chase Bank, N.A.
www.Chase.com

VALID FOR 180 DAYS

FOR CTHA650A-876380-666758-SL7926

MP

⑈020018⑈ ⑆111000614⑆ 464638118⑈

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, September 3, 2021 11:46 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 774712762983: Your package has been delivered

Hi. Your package was delivered Fri, 09/03/2021 at 11:44am.

Delivered to 281 MAIN ST S, WOODBURY, CT 06798

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 774712762983

FROM Jeff Barbadora
1800 W. Park Drive
WESTBOROUGH, MA, US, 01581

TO	Town of Woodbury First Selectman Barbara Perkinson 281 Main Street South WOODBURY, CT, US, 06798
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 9/02/2021 06:14 PM
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WOODBURY, CT, US, 06798
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:46 AM CDT 09/03/2021.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, September 3, 2021 11:46 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 774712796282: Your package has been delivered

Hi. Your package was delivered Fri, 09/03/2021 at 11:44am.

Delivered to 281 MAIN ST S, WOODBURY, CT 06798

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 774712796282

FROM Jeff Barbadora
1800 W. Park Drive
WESTBOROUGH, MA, US, 01581

TO	Town of Woodbury Town Planner William Agresta 281 Main Street South WOODBURY, CT, US, 06798
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 9/02/2021 06:14 PM
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WOODBURY, CT, US, 06798
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

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Thank you for your business.

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, September 3, 2021 10:57 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 774712836062: Your package has been delivered

Hi. Your package was delivered Fri, 09/03/2021 at 10:55am.

Delivered to 112 WALL ST, TORRINGTON, CT 06790
Received by L.LYDIA

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 774712836062

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	O&G Industries O&G Industries 112 Wall Street TORRINGTON, CT, US, 06790
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 9/02/2021 06:14 PM
DELIVERED TO	Shipping/Receiving
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	TORRINGTON, CT, US, 06790
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

FOLLOW FEDEX

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:57 AM CDT 09/03/2021.

All weights are estimated.

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Thank you for your business.