



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

June 30, 2022

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

**RE: Notice of Exempt Modification for T-Mobile: CTNH032H
Crown Site ID#876370
41 Beckwith Road, Montville, CT 06370
Latitude: 41° 26' 7.66" / Longitude: -72° 13' 15.07"**

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 175-foot mount on the existing 180-foot monopole tower located at 41 Beckwith Road, Montville, CT. The property is owned by Bond Gladys J Trustee and tower are owned by Crown Castle. T-Mobile now intends to replace four (4) antennas, add two (2) new antennas and ancillary equipment at the 175ft 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 AIR 6419 B41 Antennas
- (3) Commscope - W-65A-R1 Antennas
- (3) Ericsson-Radio 4460 B25+ B66 RRU
- (2) Hybrid Cable (1-5/8")

Remove:

- (3) RFS APX16DWV-16DWV-S-E-A20 Antennas
- (3) Ericsson RRUS11-B2
- (3) Ericsson RRUS11-B4
- (1) 6x12 Hybrid Cable
- (1) 9x18 Hybrid Cable

Ground:

Install New:

- (1) B160 Battery Cabinet
- (2) PSU 4813 Voltage Booster
- (1.) 6160 AC V1 Enclosure
- (1.) CSR IXRe

The Foundation for a Wireless World.
CrownCastle.com

(1^)^ RP 6651

Remove:

(1) DUW30


The facility was approved by the Town of Montville Planning & Zoning Commission on May 9th, 2000.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Ronald McDaniel, Mayor, Town of Montville, Liz Burdick, Planning Director, Town of Montville. Bond Family Trust, 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

Melanie A. Bachman

Page 3

Attachments

cc:

Ronald McDaniel, Mayor
Town of Montville
310 Norwich-New London Tpke, 2nd Floor
Uncasville, CT 06382
860-848-6778

Liz Burdick, Planning Director
Town of Montville Planning Department
310 Norwich-New London Tpke,
Uncasville, CT 06382
860-848-6779

Bond Family Trust, Property Owner
C/O Steve Bond
41 Beckwith Road
Oakdale, CT06370

Crown Castle –Tower Owner

e. malach
May 10, 2000
MW

L E G A L N O T I C E

The Montville Planning and Zoning Commission at its meeting held on, **May 9,** 2000, took the following action:

Sprint PCS/Bond: An application for a special permit for telecommunications tower located on the property located at **41 Beckwith Road, Montville, Ct. Shown on Assessor's Map 12, Lot 1. GRANTED with CONDITIONS.**

Maps and documentation concerning the above applications are on file in the office of the Town Planner and Town Clerk, Town Hall Annex and Town Hall, respectively, Montville, Ct.

Dated at Montville, Ct. this 10th day of May, 2000.

MONTVILLE PLANNING AND ZONING COMMISSION

Gregory Majewski, Chairman

PUBLISH IN THE NEW LONDON DAY MAY ¹² 11, 2000

PLEASE REFERENCE PURCHASE ORDER 6100 I 1 ON INVOICE.

Note must be 48 hours in advance - per Judy @ the Day.

VOL. 342 PAGE 391

**TOWN OF MONTVILLE
PLANNING & ZONING COMMISSION**

310 NORWICH-NEW LONDON TPKE.
UNCASVILLE, CONNECTICUT 06382-2599

CERTIFICATE OF NOTICE OF DECISION

APPROVAL: APPROVED W/CONDITIONS

LOCATION/DESCRIPTION: 41 BECKWITH ROAD

NATURE OF PROJECT: TELECOMMUNICATIONS TOWER

APPLICABLE ZONING REGULATION: REGULATION

OWNER OF RECORD: SPRINT PCS/BOND



PLANNING DIRECTOR



CLERICAL ASSISTANT

REMARKS:

Received for Record SEP 06 2000
At 11 h 58 m A. M. and recorded by
Lisa Simone Town Clerk

AFTER RECORDING, PLEASE RETURN TO:
Thomas J. Regan, Esquire
Brown Rudnick Freed & Gesmer
185 Asylum Street, 38th Floor
Hartford, CT 06103-3402

Received for Record SEP 06 2000
at 11:58 o'clock AM noon
and recorded in MONTVILLE Land Records
Vol. 342 page 391 by
Dina Ramirez
TOWN CLERK X

3147



Property Card: 41 BECKWITH RD

Town of Montville, CT

Parcel Information

Location:	41 BECKWITH RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	B0046400	Map Block Lot:	012-001-000	Acres:	226
		Zone:	WRP	Volume / Page:	0606/0806
		Sale Date:	06/29/2015	Sale Price:	\$0

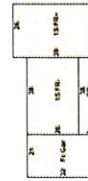
Value Information

	Appraised Value	Assessed Value	Owner's Data
Land	560200	183120	BOND GLADYS J TRUSTEE 41 BECKWITH RD OAKDALE, CT 06370
Buildings	278500	194950	
Detached Outbuildings	338200	236740	
Total	1176900	614810	

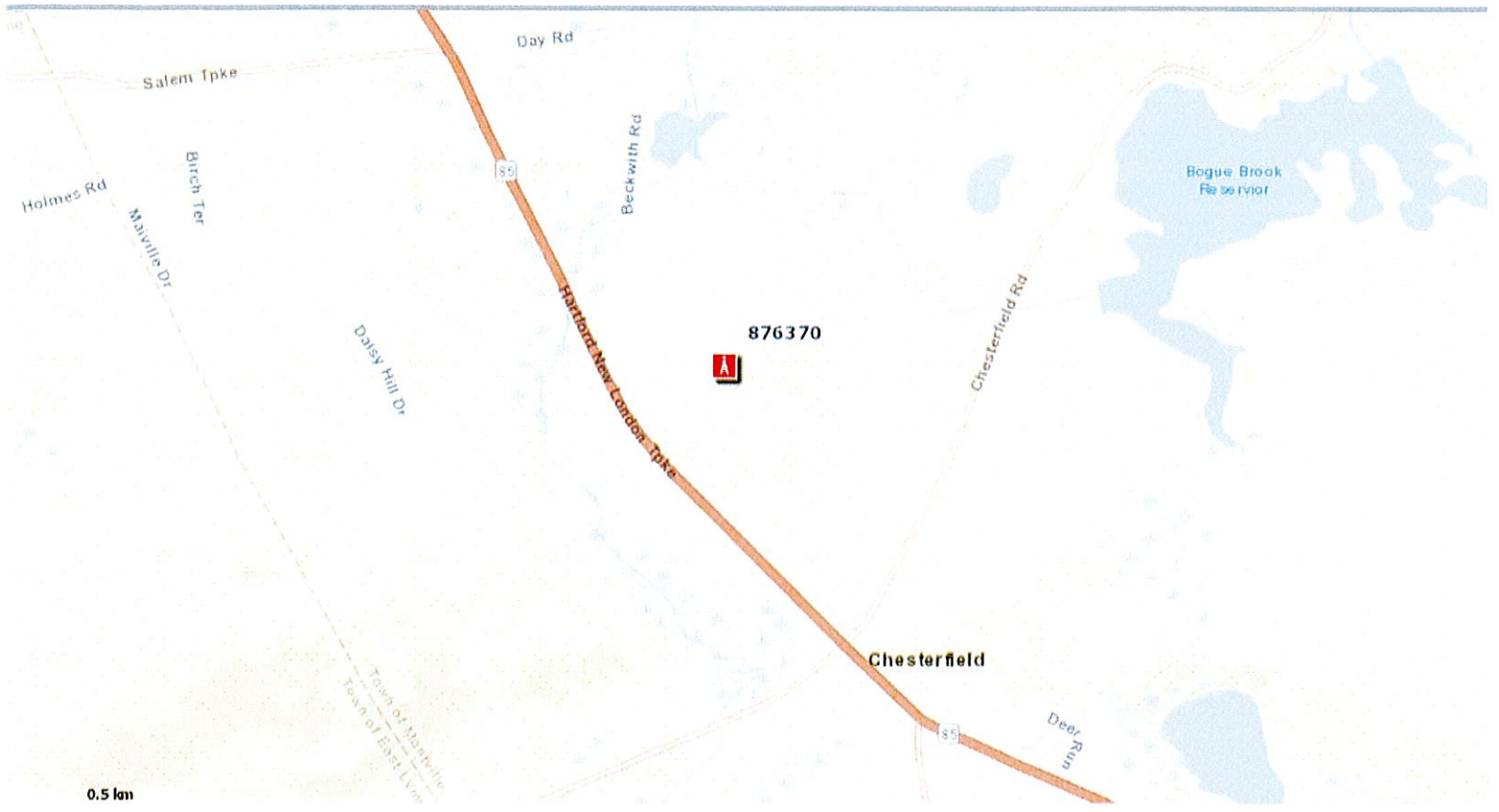
Building 1



Category:	Residential	Siding:	Aluminum Siding	Total Rooms:	6
Stories:	1.00	Fuel:	Oil	Beds/Units:	3
GLA:	2054	Heating:	Forced Hot Air	Baths:	2
Year Built:	1963	Fireplace:	0		
Class:	C+	Cooling Percent:	None	Half Baths:	1
Use:	Single Family	Floors:	Hardwood	Basement Garage:	0
Construction Style:	Split Level	Roof Material:	Asphalt	Finished Basement:	700



Data shown on this report is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this report.



0.5 km

876370



Chesterfield

Bogue Brook Reservoir

Deerfield

Town of Hartsville
Town of East Lynn

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, July 1, 2022 10:28 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777278616844: Your package has been delivered

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



Hi. Your package was
delivered Fri, 07/01/2022 at
10:24am.



Delivered to 310 NORWICH NEW LONDON TP, UNCASVILLE, CT 06382
Received by B.ETH

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER [777278616844](#)

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Montville Ronald McDaniel, Mayor 310 Norwich-New London Turnpike 2nd Floor UNCASVILLE, CT, US, 06382
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 6/30/2022 05:45 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	UNCASVILLE, CT, US, 06382
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, July 1, 2022 10:28 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777278638849: Your package has been delivered

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Hi. Your package was
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Delivered to 310 NORWICH NEW LONDON TP, UNCASVILLE, CT 06382
Received by B.ETH

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER [777278638849](#)

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Montville Liz Burdick, Planning Director 310 Norwich-New London Turnpike Planning Department UNCASVILLE, CT, US, 06382
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 6/30/2022 05:45 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	UNCASVILLE, CT, US, 06382
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, July 1, 2022 12:03 PM
To: Barbadora, Jeff
Subject: FedEx Shipment 777278674906: Your package has been delivered

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



Hi. Your package was
delivered Fri, 07/01/2022 at
11:58am.



Delivered to 41 BECKWITH RD, OAKDALE, CT 06370

[OBTAIN PROOF OF DELIVERY](#)

TRACKING NUMBER [777278674906](#)

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Bond Family Trust C/O Steve Bond, property owner 41 Beckwith Road OAKDALE, CT, US, 06370
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 6/30/2022 05:45 PM
DELIVERED TO	Residence
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	OAKDALE, CT, US, 06370
SPECIAL HANDLING	Deliver Weekday Residential Delivery
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight



Date: **May 12, 2022**

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

Subject: **Structural Analysis Report**

Carrier Designation: **T-Mobile Co-Locate**
Site Number: CTNH032H

Crown Castle Designation: **BU Number:** 876370
Site Name: MAYBROOK / BOND
JDE Job Number: 713865
Work Order Number: 2111548
Order Number: 613479 Rev. 0

Engineering Firm Designation: **Project Number:** 135737.007.01

Site Data: **41 Beckwith Rd., MONTVILLE, New London County, CT**
Latitude 41° 26' 7.66", Longitude -72° 13' 15.07"
180 Foot - Monopole Tower

We are pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity – 58.4%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 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: MTS Engineering, P.L.L.C.
COA: BER:2386985; Expires: 03/31/2023



Chad E. Tuttle, P.E.

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1) INTRODUCTION

This tower is a 180 ft. Monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
175.0	175.0	3	Commscope	VV-65A-R1_TMO	4	1-5/8
		3	Ericsson	AIR 6419 B41_TMO		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	RFS Celwave	APXVAARR18_43-U-NA20		
		1	--	Platform Mount [LP 303-1_KCKR-HR-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)
180.0	180.0	3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ	4	1-1/4
		6	Alcatel Lucent	RRH2X50-800		
		3	Commscope	NNVV-65B-R4		
		3	Nokia	FZHN		
		3	RFS Celwave	APXVTM14-ALU-I20		
		1	--	Platform Mount [LP 303-1]		
167.0	167.0	6	Antel	LPA-80080/4CF	12	1-5/8
		3	Commscope	CBC78T-DS-43-2X		
		6	Commscope	JAHH-65B-R3B		
		2	Raycap	RC3DC-3315-PF-48		
		3	Samsung Telecom.	MT6407-77A		
		3	Samsung Telecom.	RF4439D-25A		
		3	Samsung Telecom.	RF4440D-13A		
		1	--	Platform Mount [LP 303-1_KCKR-HR-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
75.0	76.0	1	Lucent	KS24019-L112A	1	1/2
	75.0	1	--	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	1532099	CCI Sites
Foundation Drawing	2122781	CCI Sites
Geotech Report	1533478	CCI Sites
Crown CAD Package	Date: 05/04/2022	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. We should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	180 - 133	Pole	TP27.51x15.5x0.25	1	-14.254	1278.858	58.4	Pass
L2	133 - 87.33	Pole	TP38.56x25.988x0.375	2	-23.090	2693.113	47.1	Pass
L3	87.33 - 42.66	Pole	TP49.1x36.461x0.438	3	-36.069	4006.915	43.0	Pass
L4	42.66 - 0	Pole	TP59x46.539x0.438	4	-54.544	4995.165	45.9	Pass
							Summary	
						Pole (L1)	58.4	Pass
						Rating =	58.4	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	41.5	Pass
1,2	Base Plate	Base	57.7	Pass
1,2,3	Base Foundation	Base	50.8	Pass
Structure Rating (max from all components) =				58.4%

Notes:

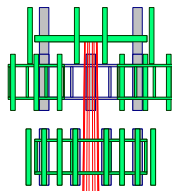
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H Section 15.5.
- 3) Foundation capacity determined by comparing analysis reactions to original design reactions.

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



MATERIAL STRENGTH

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

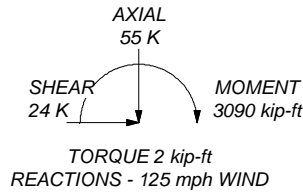
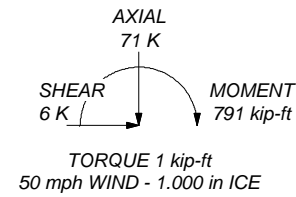
TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 58.4%

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	47.000	18	0.250	4.000	15.500	27.510	A572-65	2.7
2	49.870	18	0.375	5.330	25.988	38.560	A572-65	6.4
3	50.000	18	0.438	6.670	36.461	49.100	A572-65	10.0
4	49.330	18	0.438	46.539	59.000		A572-65	12.2
								31.3

180.0 ft
133.0 ft
87.3 ft
42.7 ft
0.0 ft

ALL REACTIONS ARE FACTORED



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

Job: 135737.007.01 - MAYBROOK / BOND, CT (BU# 87637)		
Project:	Client: Crown Castle	Drawn by: S Shetty
Code: TIA-222-H	Date: 05/11/22	App'd:
Path:	Scale: NTS	Dwg No. E-1

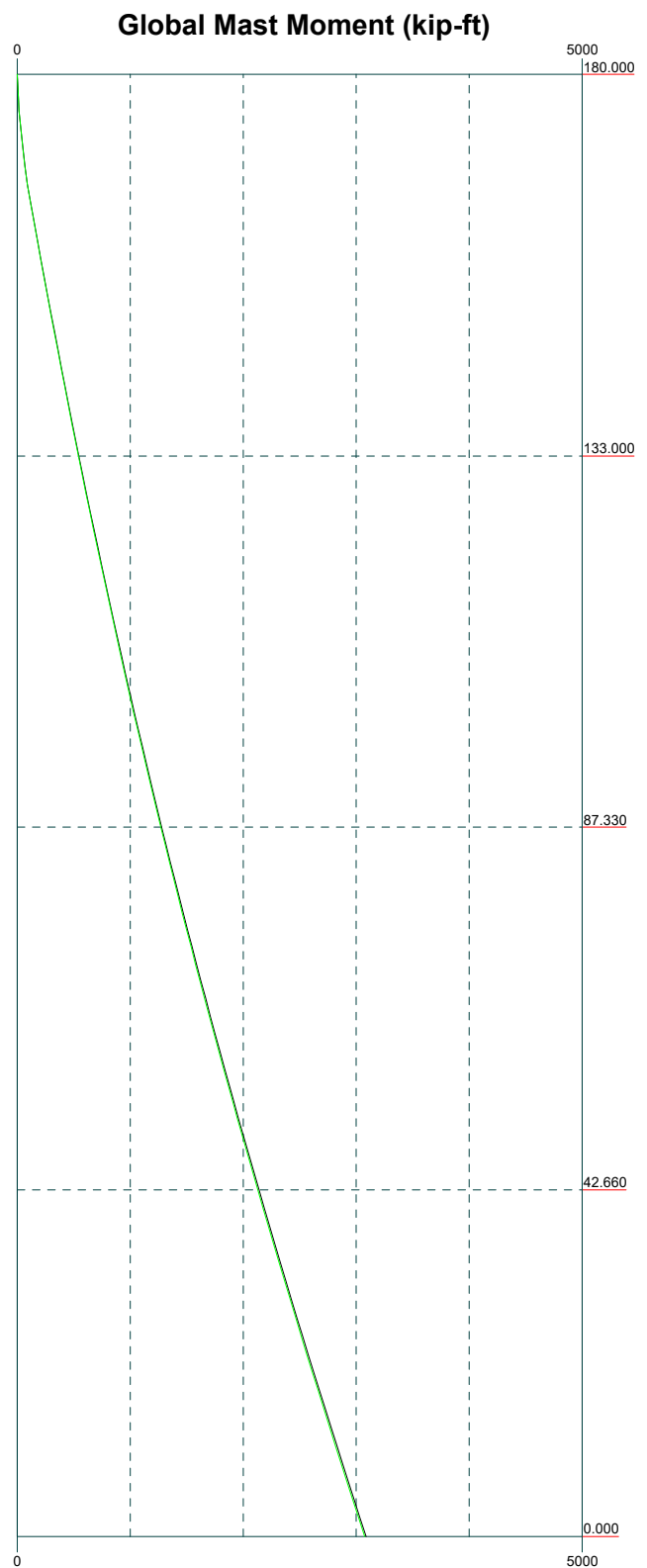
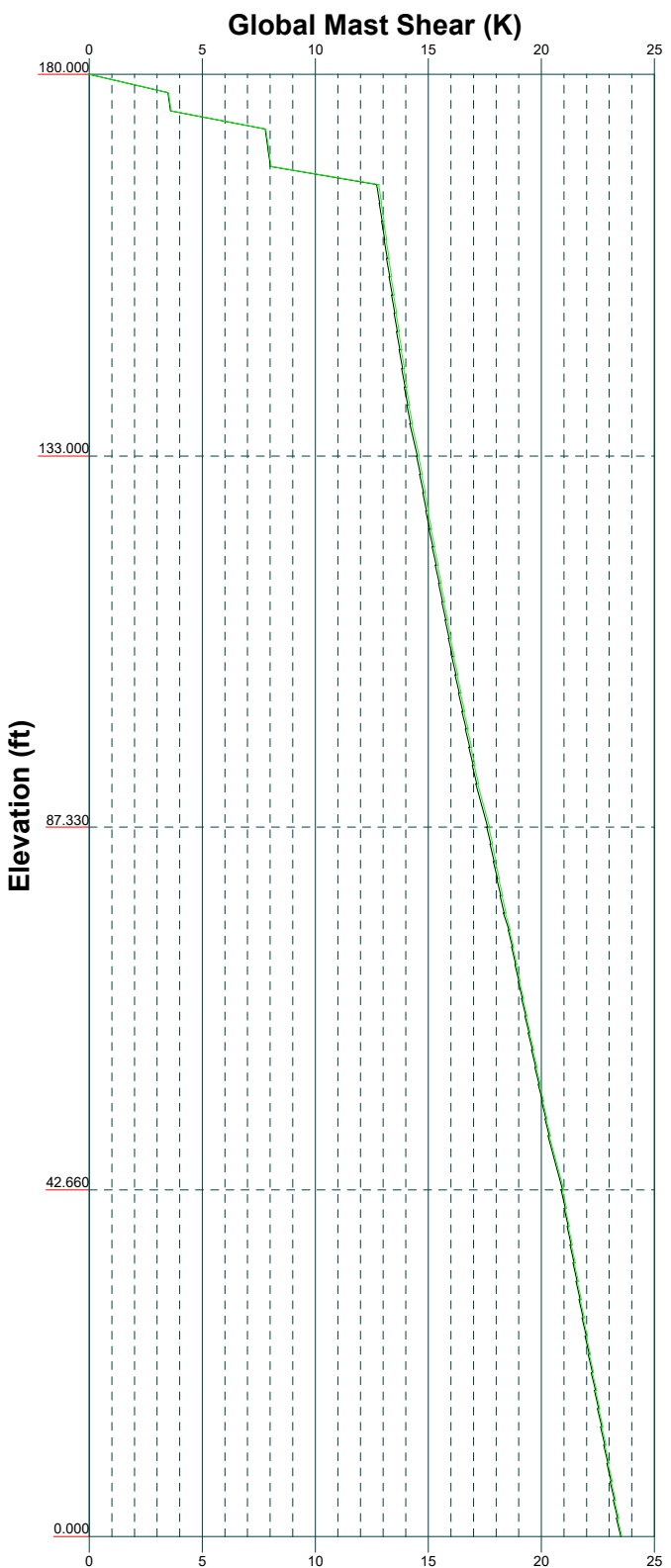
C:\Users\INDPC01\Desktop\135737_876370_MayBrook Bond - Sutan - Sub\Tia_007_01\135737_007_01_MAYBROOK_BOND.ctb

Vx

Vz

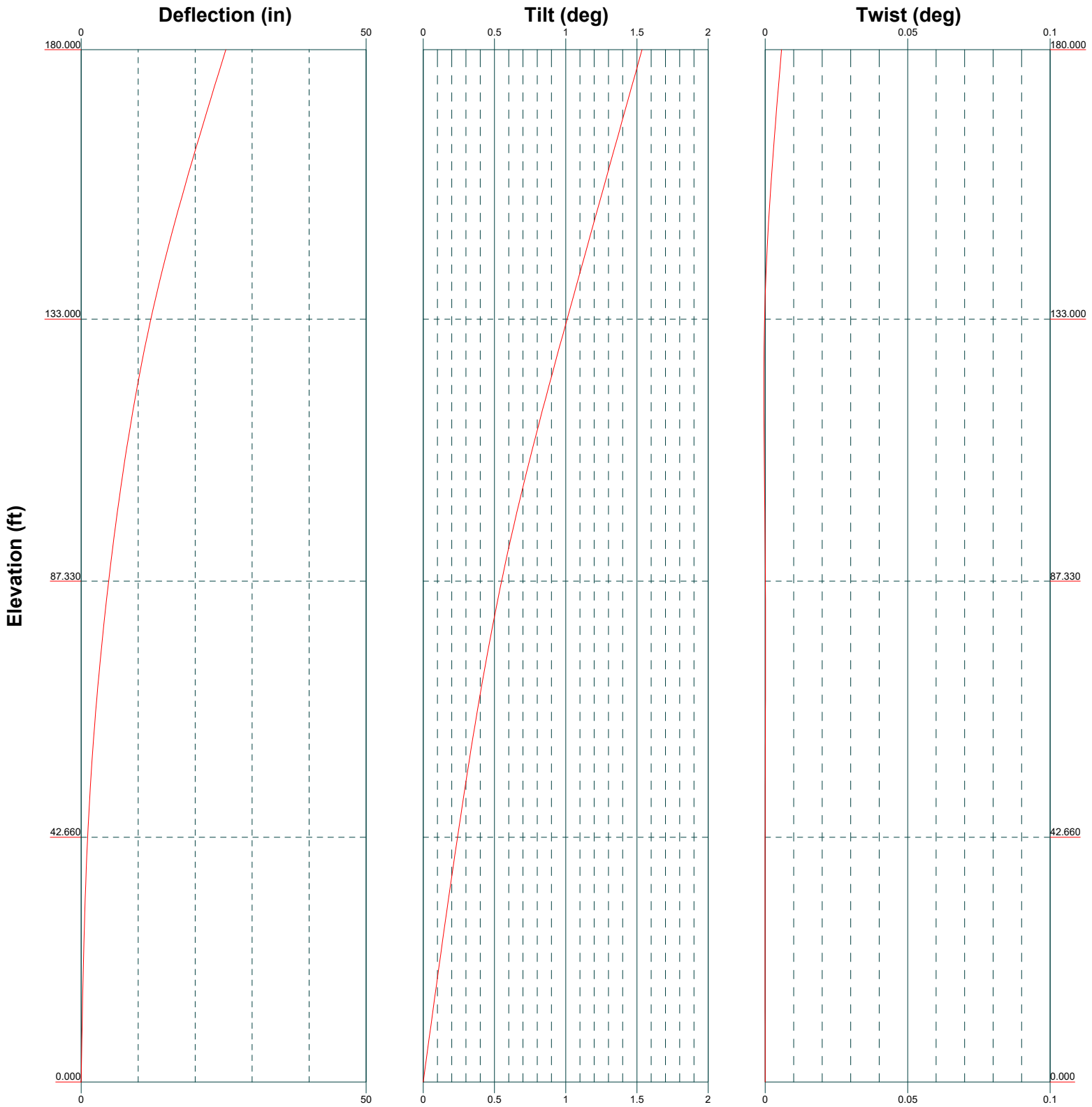
Mx

Mz



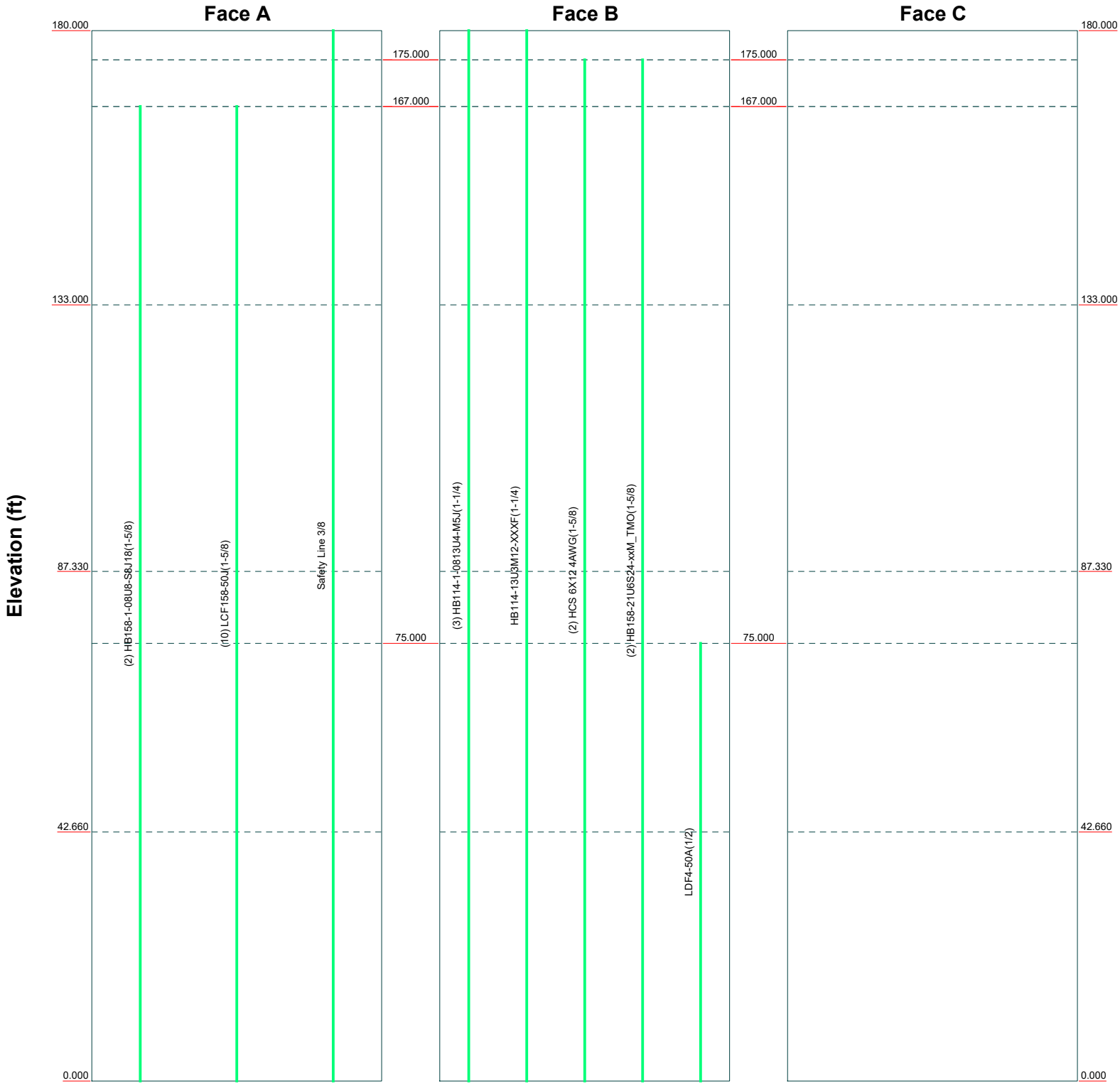
MTS Engineering, P.L.L.C.
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 Phone: (918) 587-4630
 FAX: (918) 295-0265

Job: 135737.007.01 - MAYBROOK / BOND, CT (BU# 87637)		
Project:		
Client: Crown Castle	Drawn by: S Shetty	App'd:
Code: TIA-222-H	Date: 05/11/22	Scale: NTS
Path:	Dwg No. E-4	



Feed Line Distribution Chart 0' - 180'

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



	MTS Engineering, P.L.L.C.		Job: 135737.007.01 - MAYBROOK / BOND, CT (BU# 87637)		
	1717 S. Boulder, Suite 300		Project:		
	Tulsa, OK 74119		Client: Crown Castle	Drawn by: S Shetty	App'd:
	Phone: (918) 587-4630		Code: TIA-222-H	Date: 05/11/22	Scale: NTS
	FAX: (918) 295-0265		Path:	Dwg No. E-7	

C:\Users\INDPC01\Desktop\135737_876370_MayBrook_Bond--Susan--Sub\The_007_01\135737_007_01_MAYBROOK_BOND.ctb

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">MTS Engineering, P.L.L.C. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job 135737.007.01 - MAYBROOK / BOND, CT (BU# 876370)	Page 1 of 16
	Project	Date 18:26:22 05/11/22
	Client Crown Castle	Designed by S Shetty

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in New London County, Connecticut.

Tower base elevation above sea level: 256.000 ft.

Basic wind speed of 125 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 1.000 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

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets √ Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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tnxTower MTS Engineering, P.L.L.C. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 135737.007.01 - MAYBROOK / BOND, CT (BU# 876370)	Page 3 of 16
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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} ft ² /ft	Weight klf
HB114-1-0813U4-M 5J(1-1/4)	B	No	No	Inside Pole	180.000 - 0.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
HB114-13U3M12-X XXF(1-1/4)	B	No	No	Inside Pole	180.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
* HCS 6X12 4AWG(1-5/8)	B	No	No	Inside Pole	175.000 - 0.000	2	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
HB158-21U6S24-xx M_TMO(1-5/8)	B	No	No	Inside Pole	175.000 - 0.000	2	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
* HB158-1-08U8-S8J 18(1-5/8)	A	No	No	Inside Pole	167.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
LCF158-50J(1-5/8)	A	No	No	Inside Pole	167.000 - 0.000	10	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
* LDF4-50A(1/2)	B	No	No	Inside Pole	75.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
* Safety Line 3/8	A	No	No	CaAa (Out Of Face)	180.000 - 0.000	1	No Ice	0.037	0.000
							1/2" Ice	0.137	0.001
							1" Ice	0.238	0.001
* **									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	180.000-133.000	A	0.000	0.000	0.000	1.763	0.412
		B	0.000	0.000	0.000	0.000	0.627
		C	0.000	0.000	0.000	0.000	0.000
L2	133.000-87.330	A	0.000	0.000	0.000	1.713	0.549
		B	0.000	0.000	0.000	0.000	0.657
		C	0.000	0.000	0.000	0.000	0.000
L3	87.330-42.660	A	0.000	0.000	0.000	1.675	0.537
		B	0.000	0.000	0.000	0.000	0.648
		C	0.000	0.000	0.000	0.000	0.000
L4	42.660-0.000	A	0.000	0.000	0.000	1.600	0.513
		B	0.000	0.000	0.000	0.000	0.620
		C	0.000	0.000	0.000	0.000	0.000

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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} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	180.000-133.000	A	0.992	0.000	0.000	0.000	11.087	0.461
		B		0.000	0.000	0.000	0.000	0.627
		C		0.000	0.000	0.000	0.000	0.000
L2	133.000-87.330	A	0.958	0.000	0.000	0.000	10.773	0.597
		B		0.000	0.000	0.000	0.000	0.657
		C		0.000	0.000	0.000	0.000	0.000
L3	87.330-42.660	A	0.909	0.000	0.000	0.000	10.234	0.582
		B		0.000	0.000	0.000	0.000	0.648
		C		0.000	0.000	0.000	0.000	0.000
L4	42.660-0.000	A	0.811	0.000	0.000	0.000	9.356	0.554
		B		0.000	0.000	0.000	0.000	0.620
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	180.000-133.000	0.000	-0.341	0.000	-1.050
L2	133.000-87.330	0.000	-0.345	0.000	-1.118
L3	87.330-42.660	0.000	-0.347	0.000	-1.123
L4	42.660-0.000	0.000	-0.348	0.000	-1.098

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.000	0.000	180.000	No Ice	7.550	4.230	0.110
			0.000			1/2" Ice	8.040	4.670	0.197
			0.000			1" Ice	8.530	5.120	0.296
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.000	0.000	180.000	No Ice	7.550	4.230	0.110
			0.000			1/2" Ice	8.040	4.670	0.197
			0.000			1" Ice	8.530	5.120	0.296
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.000	0.000	180.000	No Ice	7.550	4.230	0.110
			0.000			1/2" Ice	8.040	4.670	0.197
			0.000			1" Ice	8.530	5.120	0.296
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000	0.000	180.000	No Ice	4.090	2.860	0.077
			0.000			1/2" Ice	4.480	3.230	0.127
			0.000			1" Ice	4.880	3.610	0.185

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	Client		Crown Castle		Designed by		S Shetty	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000	0.000	180.000	No Ice	4.090	2.860	0.077
			0.000	0.000		1/2" Ice	4.480	3.230	0.127
			0.000	0.000		1" Ice	4.880	3.610	0.185
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000	0.000	180.000	No Ice	4.090	2.860	0.077
			0.000	0.000		1/2" Ice	4.480	3.230	0.127
			0.000	0.000		1" Ice	4.880	3.610	0.185
(3) RRH2X50-800	A	From Leg	4.000	0.000	180.000	No Ice	1.701	1.282	0.053
			0.000	0.000		1/2" Ice	1.864	1.428	0.070
			0.000	0.000		1" Ice	2.035	1.580	0.090
(2) RRH2X50-800	B	From Leg	4.000	0.000	180.000	No Ice	1.701	1.282	0.053
			0.000	0.000		1/2" Ice	1.864	1.428	0.070
			0.000	0.000		1" Ice	2.035	1.580	0.090
RRH2X50-800	C	From Leg	4.000	0.000	180.000	No Ice	1.701	1.282	0.053
			0.000	0.000		1/2" Ice	1.864	1.428	0.070
			0.000	0.000		1" Ice	2.035	1.580	0.090
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.000	0.000	180.000	No Ice	2.322	2.238	0.060
			0.000	0.000		1/2" Ice	2.527	2.441	0.083
			0.000	0.000		1" Ice	2.739	2.651	0.110
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.000	0.000	180.000	No Ice	2.322	2.238	0.060
			0.000	0.000		1/2" Ice	2.527	2.441	0.083
			0.000	0.000		1" Ice	2.739	2.651	0.110
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.000	0.000	180.000	No Ice	2.322	2.238	0.060
			0.000	0.000		1/2" Ice	2.527	2.441	0.083
			0.000	0.000		1" Ice	2.739	2.651	0.110
FZHN	A	From Leg	4.000	0.000	180.000	No Ice	2.020	0.607	0.044
			0.000	0.000		1/2" Ice	2.197	0.715	0.058
			0.000	0.000		1" Ice	2.381	0.829	0.075
FZHN	B	From Leg	4.000	0.000	180.000	No Ice	2.020	0.607	0.044
			0.000	0.000		1/2" Ice	2.197	0.715	0.058
			0.000	0.000		1" Ice	2.381	0.829	0.075
FZHN	C	From Leg	4.000	0.000	180.000	No Ice	2.020	0.607	0.044
			0.000	0.000		1/2" Ice	2.197	0.715	0.058
			0.000	0.000		1" Ice	2.381	0.829	0.075
(2) 6' x 2.375" Mount Pipe	A	From Leg	4.000	0.000	180.000	No Ice	1.425	1.425	0.041
			0.000	0.000		1/2" Ice	1.925	1.925	0.051
			0.000	0.000		1" Ice	2.294	2.294	0.066
(2) 6' x 2.375" Mount Pipe	B	From Leg	4.000	0.000	180.000	No Ice	1.425	1.425	0.041
			0.000	0.000		1/2" Ice	1.925	1.925	0.051
			0.000	0.000		1" Ice	2.294	2.294	0.066
(2) 6' x 2.375" Mount Pipe	C	From Leg	4.000	0.000	180.000	No Ice	1.425	1.425	0.041
			0.000	0.000		1/2" Ice	1.925	1.925	0.051
			0.000	0.000		1" Ice	2.294	2.294	0.066
Platform Mount [LP 303-1]	C	None		0.000	180.000	No Ice	14.690	14.690	1.250
				0.000		1/2" Ice	18.010	18.010	1.569
				0.000		1" Ice	21.340	21.340	1.942
*									
APXVAARR18_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000	0.000	175.000	No Ice	11.040	5.080	0.157
			0.000	0.000		1/2" Ice	11.650	5.610	0.255
			0.000	0.000		1" Ice	12.270	6.150	0.365
APXVAARR18_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000	0.000	175.000	No Ice	11.040	5.080	0.157
			0.000	0.000		1/2" Ice	11.650	5.610	0.255
			0.000	0.000		1" Ice	12.270	6.150	0.365
APXVAARR18_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000	0.000	175.000	No Ice	11.040	5.080	0.157
			0.000	0.000		1/2" Ice	11.650	5.610	0.255
			0.000	0.000		1" Ice	12.270	6.150	0.365
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.000	0.000	175.000	No Ice	6.580	3.500	0.111
			0.000	0.000		1/2" Ice	7.060	3.900	0.162

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	Client		Crown Castle		Designed by		S Shetty	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						Vert
			ft	ft			ft ²	ft ²	K	
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	0.000		0.000	175.000	1" Ice	7.570	4.320	0.220
			4.000				No Ice	6.580	3.500	0.111
			0.000				1/2" Ice	7.060	3.900	0.162
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	0.000		0.000	175.000	1" Ice	7.570	4.320	0.220
			4.000				No Ice	6.580	3.500	0.111
			0.000				1/2" Ice	7.060	3.900	0.162
VV-65A-R1_TMO w/ Mount Pipe	A	From Leg	0.000		0.000	175.000	1" Ice	7.570	4.320	0.220
			4.000				No Ice	4.460	2.690	0.054
			0.000				1/2" Ice	4.910	3.100	0.097
VV-65A-R1_TMO w/ Mount Pipe	B	From Leg	0.000		0.000	175.000	1" Ice	5.360	3.520	0.149
			4.000				No Ice	4.460	2.690	0.054
			0.000				1/2" Ice	4.910	3.100	0.097
VV-65A-R1_TMO w/ Mount Pipe	C	From Leg	0.000		0.000	175.000	1" Ice	5.360	3.520	0.149
			4.000				No Ice	4.460	2.690	0.054
			0.000				1/2" Ice	4.910	3.100	0.097
RADIO 4460 B2/B25 B66_TMO	A	From Leg	0.000		0.000	175.000	1" Ice	5.360	3.520	0.149
			4.000				No Ice	2.139	1.686	0.109
			0.000				1/2" Ice	2.321	1.850	0.131
RADIO 4460 B2/B25 B66_TMO	B	From Leg	0.000		0.000	175.000	1" Ice	2.511	2.022	0.156
			4.000				No Ice	2.139	1.686	0.109
			0.000				1/2" Ice	2.321	1.850	0.131
RADIO 4460 B2/B25 B66_TMO	C	From Leg	0.000		0.000	175.000	1" Ice	2.511	2.022	0.156
			4.000				No Ice	2.139	1.686	0.109
			0.000				1/2" Ice	2.321	1.850	0.131
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	0.000		0.000	175.000	1" Ice	2.511	2.022	0.156
			4.000				No Ice	1.970	1.587	0.073
			0.000				1/2" Ice	2.147	1.749	0.093
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	0.000		0.000	175.000	1" Ice	2.331	1.918	0.116
			4.000				No Ice	1.970	1.587	0.073
			0.000				1/2" Ice	2.147	1.749	0.093
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	0.000		0.000	175.000	1" Ice	2.331	1.918	0.116
			4.000				No Ice	1.970	1.587	0.073
			0.000				1/2" Ice	2.147	1.749	0.093
4' x 2" Pipe Mount	A	From Leg	0.000		0.000	175.000	1" Ice	2.331	1.918	0.116
			4.000				No Ice	0.785	0.785	0.029
			0.000				1/2" Ice	1.028	1.028	0.035
4' x 2" Pipe Mount	B	From Leg	0.000		0.000	175.000	1" Ice	1.281	1.281	0.044
			4.000				No Ice	0.785	0.785	0.029
			0.000				1/2" Ice	1.028	1.028	0.035
4' x 2" Pipe Mount	C	From Leg	0.000		0.000	175.000	1" Ice	1.281	1.281	0.044
			4.000				No Ice	0.785	0.785	0.029
			0.000				1/2" Ice	1.028	1.028	0.035
Platform Mount [LP 303-1_KCKR-HR-1]	C	None	0.000		0.000	175.000	1" Ice	1.281	1.281	0.044
			4.000				No Ice	28.310	28.310	1.770
			0.000				1/2" Ice	35.690	35.690	2.297
* JAHH-65B-R3B	A	From Leg	0.000		0.000	167.000	1" Ice	43.110	43.110	2.943
			4.000				No Ice	5.290	3.050	0.063
			0.000				1/2" Ice	5.750	3.480	0.121
JAHH-65B-R3B	B	From Leg	0.000		0.000	167.000	1" Ice	6.220	3.930	0.186
			4.000				No Ice	5.290	3.050	0.063
			0.000				1/2" Ice	5.750	3.480	0.121
JAHH-65B-R3B	C	From Leg	0.000		0.000	167.000	1" Ice	6.220	3.930	0.186
			4.000				No Ice	5.290	3.050	0.063
			0.000				1/2" Ice	5.750	3.480	0.121
JAHH-65B-R3B w/ Mount	A	From Leg	0.000		0.000	167.000	1" Ice	6.220	3.930	0.186
			4.000		0.000	167.000	No Ice	5.500	4.380	0.096

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">MTS Engineering, P.L.L.C. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job		135737.007.01 - MAYBROOK / BOND, CT (BU# 876370)		Page		7 of 16	
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	Client		Crown Castle		Designed by		S Shetty	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			Horz Lateral ft	Vert ft					
Pipe			0.000			1/2" Ice	5.970	4.840	0.169
			0.000			1" Ice	6.450	5.300	0.254
JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.000	0.000	167.000	No Ice	5.500	4.380	0.096
			0.000			1/2" Ice	5.970	4.840	0.169
			0.000			1" Ice	6.450	5.300	0.254
JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.000	0.000	167.000	No Ice	5.500	4.380	0.096
			0.000			1/2" Ice	5.970	4.840	0.169
			0.000			1" Ice	6.450	5.300	0.254
(2) LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.000	0.000	167.000	No Ice	2.040	5.220	0.042
			0.000			1/2" Ice	2.420	5.670	0.084
			0.000			1" Ice	2.820	6.130	0.134
(2) LPA-80080/4CF w/ Mount Pipe	B	From Leg	4.000	0.000	167.000	No Ice	2.040	5.220	0.042
			0.000			1/2" Ice	2.420	5.670	0.084
			0.000			1" Ice	2.820	6.130	0.134
(2) LPA-80080/4CF w/ Mount Pipe	C	From Leg	4.000	0.000	167.000	No Ice	2.040	5.220	0.042
			0.000			1/2" Ice	2.420	5.670	0.084
			0.000			1" Ice	2.820	6.130	0.134
RC3DC-3315-PF-48	A	From Leg	4.000	0.000	167.000	No Ice	3.012	1.963	0.021
			0.000			1/2" Ice	3.231	2.151	0.048
			0.000			1" Ice	3.457	2.347	0.077
RC3DC-3315-PF-48	B	From Leg	4.000	0.000	167.000	No Ice	3.012	1.963	0.021
			0.000			1/2" Ice	3.231	2.151	0.048
			0.000			1" Ice	3.457	2.347	0.077
MT6407-77A	A	From Leg	4.000	0.000	167.000	No Ice	4.692	1.840	0.082
			0.000			1/2" Ice	4.980	2.063	0.111
			0.000			1" Ice	5.275	2.292	0.144
MT6407-77A	B	From Leg	4.000	0.000	167.000	No Ice	4.692	1.840	0.082
			0.000			1/2" Ice	4.980	2.063	0.111
			0.000			1" Ice	5.275	2.292	0.144
MT6407-77A	C	From Leg	4.000	0.000	167.000	No Ice	4.692	1.840	0.082
			0.000			1/2" Ice	4.980	2.063	0.111
			0.000			1" Ice	5.275	2.292	0.144
(2) RF4439D-25A	A	From Leg	4.000	0.000	167.000	No Ice	1.865	1.252	0.075
			0.000			1/2" Ice	2.035	1.394	0.093
			0.000			1" Ice	2.212	1.544	0.114
RF4439D-25A	B	From Leg	4.000	0.000	167.000	No Ice	1.865	1.252	0.075
			0.000			1/2" Ice	2.035	1.394	0.093
			0.000			1" Ice	2.212	1.544	0.114
CBC78T-DS-43-2X	A	From Leg	4.000	0.000	167.000	No Ice	0.368	0.512	0.021
			0.000			1/2" Ice	0.446	0.605	0.027
			0.000			1" Ice	0.531	0.705	0.035
CBC78T-DS-43-2X	B	From Leg	4.000	0.000	167.000	No Ice	0.368	0.512	0.021
			0.000			1/2" Ice	0.446	0.605	0.027
			0.000			1" Ice	0.531	0.705	0.035
CBC78T-DS-43-2X	C	From Leg	4.000	0.000	167.000	No Ice	0.368	0.512	0.021
			0.000			1/2" Ice	0.446	0.605	0.027
			0.000			1" Ice	0.531	0.705	0.035
RF4440D-13A	A	From Leg	4.000	0.000	167.000	No Ice	1.865	1.129	0.073
			0.000			1/2" Ice	2.035	1.267	0.090
			0.000			1" Ice	2.212	1.411	0.110
RF4440D-13A	B	From Leg	4.000	0.000	167.000	No Ice	1.865	1.129	0.073
			0.000			1/2" Ice	2.035	1.267	0.090
			0.000			1" Ice	2.212	1.411	0.110
RF4440D-13A	C	From Leg	4.000	0.000	167.000	No Ice	1.865	1.129	0.073
			0.000			1/2" Ice	2.035	1.267	0.090
			0.000			1" Ice	2.212	1.411	0.110
Side Arm Mount [SO 102-3]	C	None		0.000	167.000	No Ice	0.000	0.000	0.075

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	<p>Client Crown Castle</p>	<p>Designed by S Shetty</p>

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
8' x 2" Mount Pipe	A	From Leg	4.000	0.000	0.000	167.000	1/2" Ice	0.000	0.000	0.105
							1" Ice	0.000	0.000	0.135
							No Ice	1.900	1.900	0.029
							1/2" Ice	2.728	2.728	0.044
8' x 2" Mount Pipe	B	From Leg	4.000	0.000	0.000	167.000	1" Ice	3.401	3.401	0.063
							No Ice	1.900	1.900	0.029
							1/2" Ice	2.728	2.728	0.044
							1" Ice	3.401	3.401	0.063
8' x 2" Mount Pipe	C	From Leg	4.000	0.000	0.000	167.000	No Ice	1.900	1.900	0.029
							1/2" Ice	2.728	2.728	0.044
							1" Ice	3.401	3.401	0.063
							No Ice	1.900	1.900	0.029
Platform Mount [LP 303-1_KCKR-HR-1]	C	None	0.000	0.000	0.000	167.000	No Ice	28.310	28.310	1.770
							1/2" Ice	35.690	35.690	2.297
							1" Ice	43.110	43.110	2.943
* KS24019-L112A	A	From Leg	3.000	0.000	0.000	75.000	No Ice	0.141	0.141	0.005
							1/2" Ice	0.198	0.198	0.007
							1" Ice	0.262	0.262	0.009
Side Arm Mount [SO 701-1]	A	From Leg	1.500	0.000	0.000	75.000	No Ice	0.850	1.670	0.065
							1/2" Ice	1.140	2.340	0.079
							1" Ice	1.430	3.010	0.093
*										

Load Combinations

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

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Comb. No.	Description
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	180 - 133	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-24.919	-1.451	2.140
			Max. Mx	8	-14.268	-484.394	-0.014
			Max. My	2	-14.254	0.468	487.772
			Max. Vy	8	14.214	-484.394	-0.014
			Max. Vx	2	-14.299	0.468	487.772
			Max. Torque	22			-1.183
L2	133 - 87.33	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.305	-1.525	2.338
			Max. Mx	8	-23.098	-1178.116	-1.527
			Max. My	2	-23.090	2.027	1185.256
			Max. Vy	8	17.142	-1178.116	-1.527
			Max. Vx	2	-17.226	2.027	1185.256
			Max. Torque	22			-1.254
L3	87.33 - 42.66	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.379	-1.525	2.814
			Max. Mx	8	-36.073	-1991.642	-2.739
			Max. My	2	-36.070	3.549	2001.925
			Max. Vy	8	20.349	-1991.642	-2.739
			Max. Vx	2	-20.402	3.549	2001.925
			Max. Torque	22			-1.526
L4	42.66 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-71.466	-1.525	2.947
			Max. Mx	8	-54.544	-3075.119	-4.398
			Max. My	2	-54.544	5.242	3087.940
			Max. Vy	8	23.518	-3075.119	-4.398
			Max. Vx	2	-23.566	5.242	3087.940

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	22			-1.625

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K	
Pole	Max. Vert	27	71.466	0.006	6.188	
	Max. H _x	20	54.556	23.491	0.033	
	Max. H _z	3	40.917	0.033	23.540	
	Max. M _x	2	3087.940	0.033	23.540	
	Max. M _z	8	3075.119	-23.491	-0.033	
	Max. Torsion	10	1.623	-20.360	-11.799	
	Min. Vert	7	40.917	-20.327	11.741	
	Min. H _x	8	54.556	-23.491	-0.033	
	Min. H _z	14	54.556	-0.033	-23.540	
	Min. M _x	14	-3084.577	-0.033	-23.540	
	Min. M _z	20	-3073.448	23.491	0.033	
	Min. Torsion	22		-1.625	20.360	11.799

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	45.463	0.000	-0.000	-1.313	-0.649	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	54.556	-0.033	-23.540	-3087.940	5.242	0.703
0.9 Dead+1.0 Wind 0 deg - No Ice	40.917	-0.033	-23.540	-3039.567	5.365	0.698
1.2 Dead+1.0 Wind 30 deg - No Ice	54.556	11.717	-20.369	-2671.460	-1532.712	-0.126
0.9 Dead+1.0 Wind 30 deg - No Ice	40.917	11.717	-20.369	-2629.574	-1508.742	-0.125
1.2 Dead+1.0 Wind 60 deg - No Ice	54.556	20.327	-11.741	-1539.584	-2660.221	-0.920
0.9 Dead+1.0 Wind 60 deg - No Ice	40.917	20.327	-11.741	-1515.267	-2618.765	-0.913
1.2 Dead+1.0 Wind 90 deg - No Ice	54.556	23.491	0.033	4.398	-3075.119	-1.468
0.9 Dead+1.0 Wind 90 deg - No Ice	40.917	23.491	0.033	4.749	-3027.230	-1.457
1.2 Dead+1.0 Wind 120 deg - No Ice	54.556	20.360	11.799	1546.728	-2666.249	-1.623
0.9 Dead+1.0 Wind 120 deg - No Ice	40.917	20.360	11.799	1523.146	-2624.691	-1.610
1.2 Dead+1.0 Wind 150 deg - No Ice	54.556	11.774	20.403	2674.137	-1543.198	-1.343
0.9 Dead+1.0 Wind 150 deg - No Ice	40.917	11.774	20.403	2633.065	-1519.048	-1.333
1.2 Dead+1.0 Wind 180 deg - No Ice	54.556	0.033	23.540	3084.577	-6.899	-0.705
0.9 Dead+1.0 Wind 180 deg - No Ice	40.917	0.033	23.540	3037.148	-6.563	-0.699

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	<p>Client Crown Castle</p>	<p>Designed by S Shetty</p>

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						
1.2 Dead+1.0 Wind 210 deg - No Ice	54.556	-11.717	20.369	2668.097	1531.044	0.124
0.9 Dead+1.0 Wind 210 deg - No Ice	40.917	-11.717	20.369	2627.130	1507.536	0.123
1.2 Dead+1.0 Wind 240 deg - No Ice	54.556	-20.327	11.741	1536.229	2658.547	0.920
0.9 Dead+1.0 Wind 240 deg - No Ice	40.917	-20.327	11.741	1512.830	2617.554	0.913
1.2 Dead+1.0 Wind 270 deg - No Ice	54.556	-23.491	-0.033	-7.743	3073.448	1.469
0.9 Dead+1.0 Wind 270 deg - No Ice	40.917	-23.491	-0.033	-7.180	3026.022	1.458
1.2 Dead+1.0 Wind 300 deg - No Ice	54.556	-20.360	-11.799	-1550.072	2664.589	1.625
0.9 Dead+1.0 Wind 300 deg - No Ice	40.917	-20.360	-11.799	-1525.575	2623.492	1.612
1.2 Dead+1.0 Wind 330 deg - No Ice	54.556	-11.774	-20.403	-2677.489	1541.545	1.344
0.9 Dead+1.0 Wind 330 deg - No Ice	40.917	-11.774	-20.403	-2635.501	1517.853	1.333
1.2 Dead+1.0 Ice+1.0 Temp	71.466	0.000	-0.000	-2.947	-1.525	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	71.466	-0.006	-6.188	-791.271	-0.526	0.144
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	71.466	3.086	-5.356	-685.134	-393.806	-0.178
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	71.466	5.352	-3.089	-396.248	-681.999	-0.451
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	71.466	6.183	0.006	-2.020	-787.881	-0.604
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	71.466	5.357	3.099	391.916	-683.084	-0.595
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	71.466	3.096	5.362	680.005	-395.687	-0.426
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	71.466	0.006	6.188	785.055	-2.699	-0.144
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	71.466	-3.086	5.356	678.919	390.581	0.178
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	71.466	-5.352	3.089	390.034	678.773	0.451
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	71.466	-6.183	-0.006	-4.193	784.656	0.604
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	71.466	-5.357	-3.099	-398.129	679.860	0.595
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	71.466	-3.096	-5.362	-686.220	392.463	0.426
Dead+Wind 0 deg - Service	45.463	-0.007	-5.108	-665.141	0.615	0.154
Dead+Wind 30 deg - Service	45.463	2.542	-4.420	-575.564	-330.146	-0.027
Dead+Wind 60 deg - Service	45.463	4.411	-2.548	-332.136	-572.629	-0.201
Dead+Wind 90 deg - Service	45.463	5.097	0.007	-0.084	-661.861	-0.321
Dead+Wind 120 deg - Service	45.463	4.418	2.560	331.618	-573.933	-0.355
Dead+Wind 150 deg - Service	45.463	2.555	4.427	574.091	-332.404	-0.294
Dead+Wind 180 deg - Service	45.463	0.007	5.108	662.365	-1.993	-0.155
Dead+Wind 210 deg - Service	45.463	-2.542	4.420	572.787	328.767	0.027
Dead+Wind 240 deg - Service	45.463	-4.411	2.548	329.359	571.250	0.201
Dead+Wind 270 deg - Service	45.463	-5.097	-0.007	-2.692	660.483	0.321
Dead+Wind 300 deg - Service	45.463	-4.418	-2.560	-334.394	572.555	0.355
Dead+Wind 330 deg - Service	45.463	-2.555	-4.427	-576.867	331.026	0.294

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	<p>Client</p> <p>Crown Castle</p>	<p>Designed by</p> <p>S Shetty</p>

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-45.463	0.000	0.000	45.463	0.000	0.000%
2	-0.033	-54.556	-23.540	0.033	54.556	23.540	0.000%
3	-0.033	-40.917	-23.540	0.033	40.917	23.540	0.000%
4	11.717	-54.556	-20.369	-11.717	54.556	20.369	0.000%
5	11.717	-40.917	-20.369	-11.717	40.917	20.369	0.000%
6	20.327	-54.556	-11.741	-20.327	54.556	11.741	0.000%
7	20.327	-40.917	-11.741	-20.327	40.917	11.741	0.000%
8	23.491	-54.556	0.033	-23.491	54.556	-0.033	0.000%
9	23.491	-40.917	0.033	-23.491	40.917	-0.033	0.000%
10	20.360	-54.556	11.799	-20.360	54.556	-11.799	0.000%
11	20.360	-40.917	11.799	-20.360	40.917	-11.799	0.000%
12	11.774	-54.556	20.403	-11.774	54.556	-20.403	0.000%
13	11.774	-40.917	20.403	-11.774	40.917	-20.403	0.000%
14	0.033	-54.556	23.540	-0.033	54.556	-23.540	0.000%
15	0.033	-40.917	23.540	-0.033	40.917	-23.540	0.000%
16	-11.717	-54.556	20.369	11.717	54.556	-20.369	0.000%
17	-11.717	-40.917	20.369	11.717	40.917	-20.369	0.000%
18	-20.327	-54.556	11.741	20.327	54.556	-11.741	0.000%
19	-20.327	-40.917	11.741	20.327	40.917	-11.741	0.000%
20	-23.491	-54.556	-0.033	23.491	54.556	0.033	0.000%
21	-23.491	-40.917	-0.033	23.491	40.917	0.033	0.000%
22	-20.360	-54.556	-11.799	20.360	54.556	11.799	0.000%
23	-20.360	-40.917	-11.799	20.360	40.917	11.799	0.000%
24	-11.774	-54.556	-20.403	11.774	54.556	20.403	0.000%
25	-11.774	-40.917	-20.403	11.774	40.917	20.403	0.000%
26	0.000	-71.466	0.000	-0.000	71.466	0.000	0.000%
27	-0.006	-71.466	-6.188	0.006	71.466	6.188	0.000%
28	3.086	-71.466	-5.356	-3.086	71.466	5.356	0.000%
29	5.352	-71.466	-3.089	-5.352	71.466	3.089	0.000%
30	6.183	-71.466	0.006	-6.183	71.466	-0.006	0.000%
31	5.357	-71.466	3.099	-5.357	71.466	-3.099	0.000%
32	3.096	-71.466	5.361	-3.096	71.466	-5.362	0.000%
33	0.006	-71.466	6.188	-0.006	71.466	-6.188	0.000%
34	-3.086	-71.466	5.356	3.086	71.466	-5.356	0.000%
35	-5.352	-71.466	3.089	5.352	71.466	-3.089	0.000%
36	-6.183	-71.466	-0.006	6.183	71.466	0.006	0.000%
37	-5.357	-71.466	-3.099	5.357	71.466	3.099	0.000%
38	-3.096	-71.466	-5.361	3.096	71.466	5.362	0.000%
39	-0.007	-45.463	-5.108	0.007	45.463	5.108	0.000%
40	2.542	-45.463	-4.420	-2.542	45.463	4.420	0.000%
41	4.411	-45.463	-2.548	-4.411	45.463	2.548	0.000%
42	5.097	-45.463	0.007	-5.097	45.463	-0.007	0.000%
43	4.418	-45.463	2.560	-4.418	45.463	-2.560	0.000%
44	2.555	-45.463	4.427	-2.555	45.463	-4.427	0.000%
45	0.007	-45.463	5.108	-0.007	45.463	-5.108	0.000%
46	-2.542	-45.463	4.420	2.542	45.463	-4.420	0.000%
47	-4.411	-45.463	2.548	4.411	45.463	-2.548	0.000%
48	-5.097	-45.463	-0.007	5.097	45.463	0.007	0.000%
49	-4.418	-45.463	-2.560	4.418	45.463	2.560	0.000%
50	-2.555	-45.463	-4.427	2.555	45.463	4.427	0.000%

Non-Linear Convergence Results

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">MTS Engineering, P.L.L.C. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job 135737.007.01 - MAYBROOK / BOND, CT (BU# 876370)	Page 13 of 16
	Project	Date 18:26:22 05/11/22
	Client Crown Castle	Designed by S Shetty

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00005650
3	Yes	4	0.00000001	0.00091914
4	Yes	6	0.00000001	0.00018449
5	Yes	6	0.00000001	0.00006270
6	Yes	6	0.00000001	0.00018629
7	Yes	6	0.00000001	0.00006341
8	Yes	5	0.00000001	0.00009154
9	Yes	5	0.00000001	0.00004471
10	Yes	6	0.00000001	0.00018022
11	Yes	6	0.00000001	0.00006105
12	Yes	6	0.00000001	0.00019004
13	Yes	6	0.00000001	0.00006477
14	Yes	5	0.00000001	0.00008071
15	Yes	5	0.00000001	0.00003911
16	Yes	6	0.00000001	0.00018284
17	Yes	6	0.00000001	0.00006226
18	Yes	6	0.00000001	0.00018047
19	Yes	6	0.00000001	0.00006139
20	Yes	5	0.00000001	0.00011636
21	Yes	5	0.00000001	0.00005675
22	Yes	6	0.00000001	0.00019055
23	Yes	6	0.00000001	0.00006495
24	Yes	6	0.00000001	0.00018130
25	Yes	6	0.00000001	0.00006138
26	Yes	4	0.00000001	0.00003851
27	Yes	5	0.00000001	0.00047594
28	Yes	5	0.00000001	0.00056603
29	Yes	5	0.00000001	0.00056775
30	Yes	5	0.00000001	0.00047318
31	Yes	5	0.00000001	0.00055540
32	Yes	5	0.00000001	0.00056095
33	Yes	5	0.00000001	0.00046662
34	Yes	5	0.00000001	0.00054990
35	Yes	5	0.00000001	0.00054715
36	Yes	5	0.00000001	0.00046733
37	Yes	5	0.00000001	0.00056486
38	Yes	5	0.00000001	0.00056039
39	Yes	4	0.00000001	0.00010341
40	Yes	4	0.00000001	0.00035440
41	Yes	4	0.00000001	0.00036730
42	Yes	4	0.00000001	0.00011217
43	Yes	4	0.00000001	0.00032321
44	Yes	4	0.00000001	0.00038148
45	Yes	4	0.00000001	0.00010286
46	Yes	4	0.00000001	0.00033968
47	Yes	4	0.00000001	0.00032698
48	Yes	4	0.00000001	0.00011282
49	Yes	4	0.00000001	0.00038743
50	Yes	4	0.00000001	0.00032889

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180 - 133	25.385	39	1.538	0.005

tnxTower MTS Engineering, P.L.L.C. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 135737.007.01 - MAYBROOK / BOND, CT (BU# 876370)	Page 14 of 16
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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L2	137 - 87.33	13.137	39	1.057	0.002
L3	92.66 - 42.66	5.472	39	0.593	0.001
L4	49.33 - 0	1.485	39	0.281	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	NNVV-65B-R4 w/ Mount Pipe	39	25.385	1.538	0.005	29766
175.000	APXVAARR18 43-U-NA20 w/ Mount Pipe	39	23.838	1.482	0.004	29766
167.000	JAHH-65B-R3B	39	21.388	1.393	0.004	11448
75.000	KS24019-L112A	39	3.493	0.451	0.000	7731

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180 - 133	117.813	2	7.129	0.023
L2	137 - 87.33	61.058	2	4.915	0.007
L3	92.66 - 42.66	25.441	24	2.760	0.003
L4	49.33 - 0	6.903	24	1.307	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	NNVV-65B-R4 w/ Mount Pipe	2	117.813	7.129	0.023	6593
175.000	APXVAARR18 43-U-NA20 w/ Mount Pipe	2	110.648	6.872	0.021	6593
167.000	JAHH-65B-R3B	2	99.301	6.461	0.017	2534
75.000	KS24019-L112A	24	16.234	2.096	0.002	1662

Compression Checks

Pole Design Data

tnxTower MTS Engineering, P.L.L.C. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 135737.007.01 - MAYBROOK / BOND, CT (BU# 876370)	Page 15 of 16
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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	180 - 133 (1)	TP27.51x15.5x0.25	47.000	0.000	0.0	20.820	-14.254	1217.960	0.012
L2	133 - 87.33 (2)	TP38.56x25.988x0.375	49.670	0.000	0.0	43.844	-23.090	2564.870	0.009
L3	87.33 - 42.66 (3)	TP49.1x36.461x0.438	50.000	0.000	0.0	65.233	-36.069	3816.110	0.009
L4	42.66 - 0 (4)	TP59x46.539x0.438	49.330	0.000	0.0	81.321	-54.544	4757.300	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	180 - 133 (1)	TP27.51x15.5x0.25	487.772	812.516	0.600	0.000	812.516	0.000
L2	133 - 87.33 (2)	TP38.56x25.988x0.375	1185.450	2442.142	0.485	0.000	2442.142	0.000
L3	87.33 - 42.66 (3)	TP49.1x36.461x0.438	2002.700	4530.550	0.442	0.000	4530.550	0.000
L4	42.66 - 0 (4)	TP59x46.539x0.438	3089.550	6570.458	0.470	0.000	6570.458	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	180 - 133 (1)	TP27.51x15.5x0.25	14.299	365.387	0.039	0.708	839.575	0.001
L2	133 - 87.33 (2)	TP38.56x25.988x0.375	17.236	769.461	0.022	1.131	2482.208	0.000
L3	87.33 - 42.66 (3)	TP49.1x36.461x0.438	20.419	1144.830	0.018	1.287	4709.800	0.000
L4	42.66 - 0 (4)	TP59x46.539x0.438	23.583	1427.190	0.017	1.344	7319.500	0.000

Pole Interaction Design Data

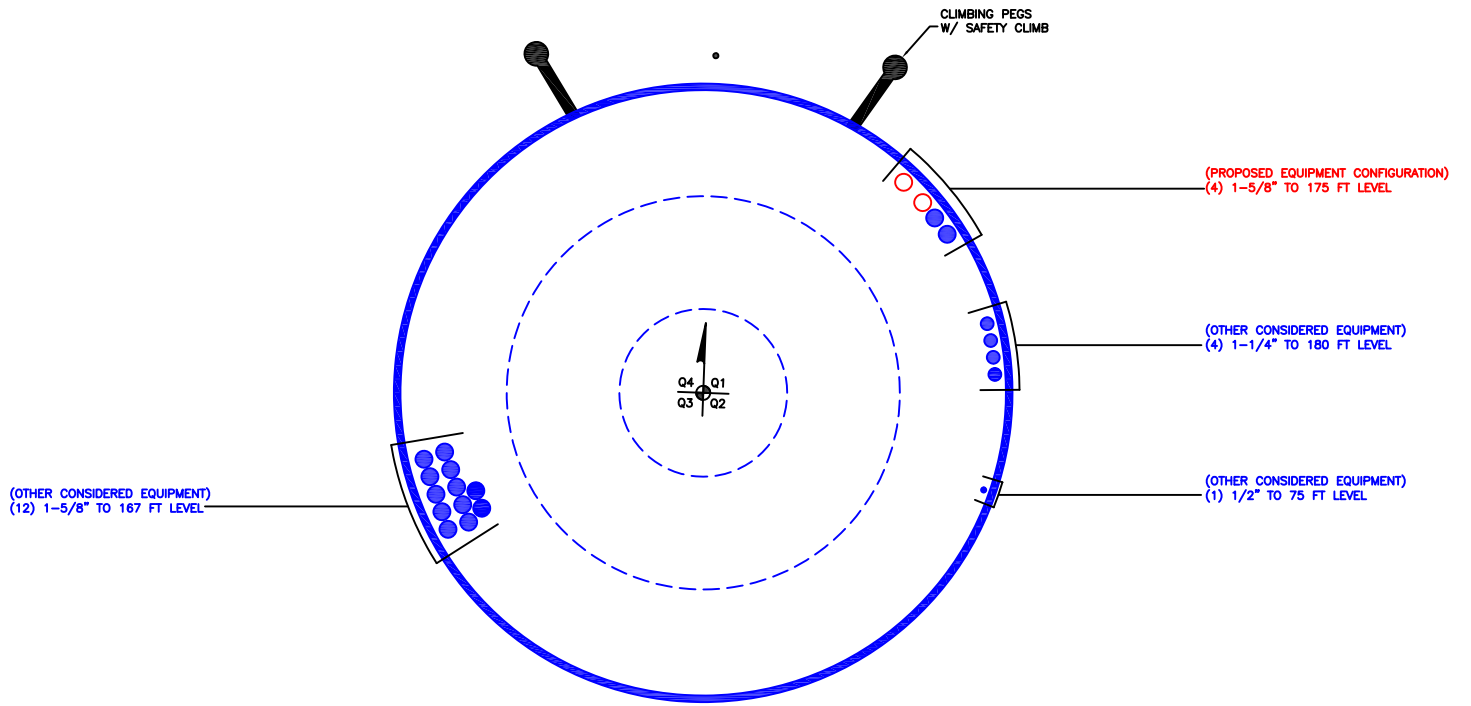
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	180 - 133 (1)	0.012	0.600	0.000	0.039	0.001	0.614	1.050	4.8.2 ✓
L2	133 - 87.33 (2)	0.009	0.485	0.000	0.022	0.000	0.495	1.050	4.8.2 ✓
L3	87.33 - 42.66 (3)	0.009	0.442	0.000	0.018	0.000	0.452	1.050	4.8.2 ✓
L4	42.66 - 0 (4)	0.011	0.470	0.000	0.017	0.000	0.482	1.050	4.8.2 ✓

<p>tnxTower</p> <p>MTS Engineering, P.L.L.C. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job 135737.007.01 - MAYBROOK / BOND, CT (BU# 876370)	Page 16 of 16
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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	180 - 133	Pole	TP27.51x15.5x0.25	1	-14.254	1278.858	58.4	Pass	
L2	133 - 87.33	Pole	TP38.56x25.988x0.375	2	-23.090	2693.113	47.1	Pass	
L3	87.33 - 42.66	Pole	TP49.1x36.461x0.438	3	-36.069	4006.915	43.0	Pass	
L4	42.66 - 0	Pole	TP59x46.539x0.438	4	-54.544	4995.165	45.9	Pass	
							Summary		
							Pole (L1)	58.4	Pass
							RATING =	58.4	Pass

APPENDIX B
BASE LEVEL DRAWING



BUSINESS UNIT: 876370

APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

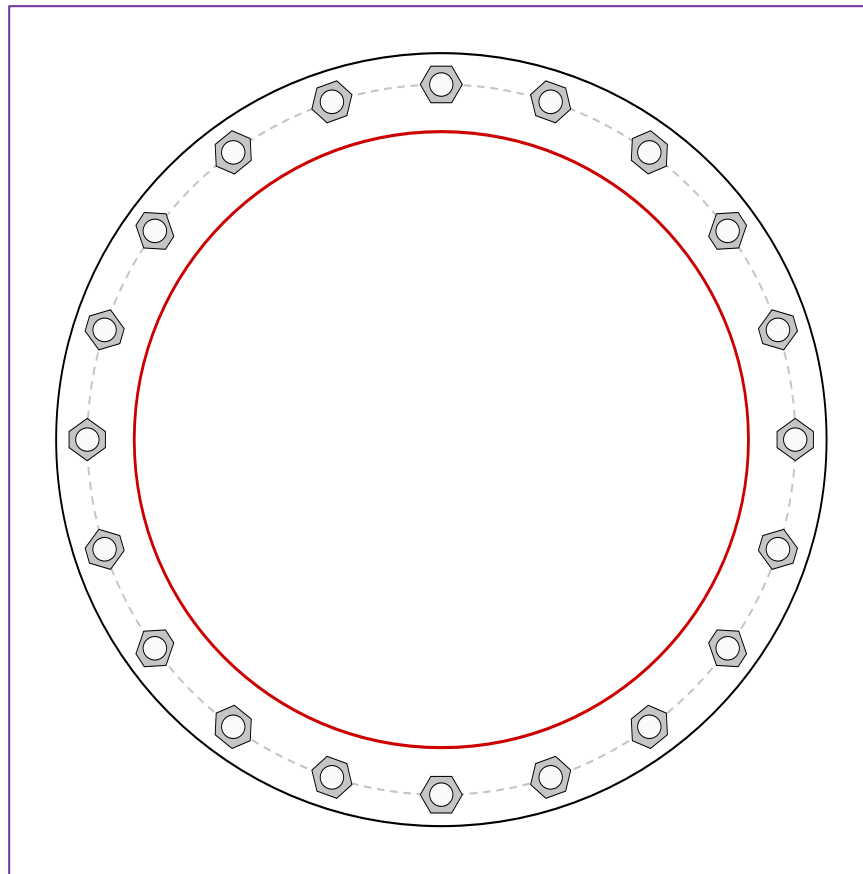


Site Info	
BU #	876370
Site Name	MAYBROOK / BOND, C
Order #	613479, Rev#0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2.625

Applied Loads	
Moment (kip-ft)	3089.55
Axial Force (kips)	54.54
Shear Force (kips)	23.58

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
(20) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 68" BC
Base Plate Data
74" OD x 2" Plate (A871 Gr 60; $F_y=60$ ksi, $F_u=75$ ksi)
Stiffener Data
N/A
Pole Data
59" x 0.4375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
$P_{u,t} = 106.27$	$\phi P_{n,t} = 243.75$	Stress Rating	
$V_u = 1.18$	$\phi V_n = 149.1$	41.5%	
$M_u = 2.01$	$\phi M_n = 128.14$	Pass	
Base Plate Summary			
Max Stress (ksi):	32.72	(Flexural)	
Allowable Stress (ksi):	54		
Stress Rating:	57.7%	Pass	

PROJECT	135737.007.01 - MAYBROOK / BOND,
SUBJECT	Foundation Reaction Comparison
DATE	05-11-22



v1.3.2

TIA Rev. H - Monopole

Base Reaction Type	Unfactored Original Design Reactions		Factored Reactions		Rating % with TIA-222-H Section 15.5 applied	
	Value	Units	Value	Units	Rating %	Result
MP Overturning Moment	4315.6	kip-ft	3090	kip-ft	50.5%	Pass
MP Base Shear	33.33	kips	24	kips	50.8%	Pass

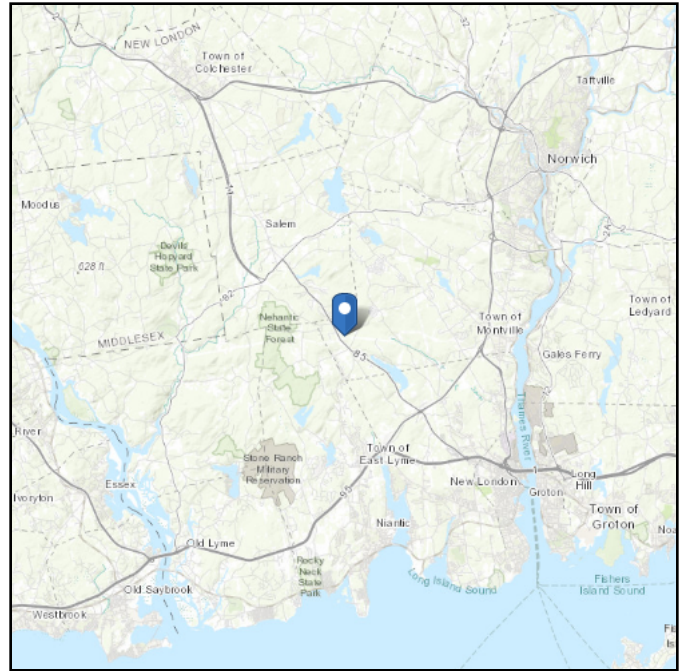
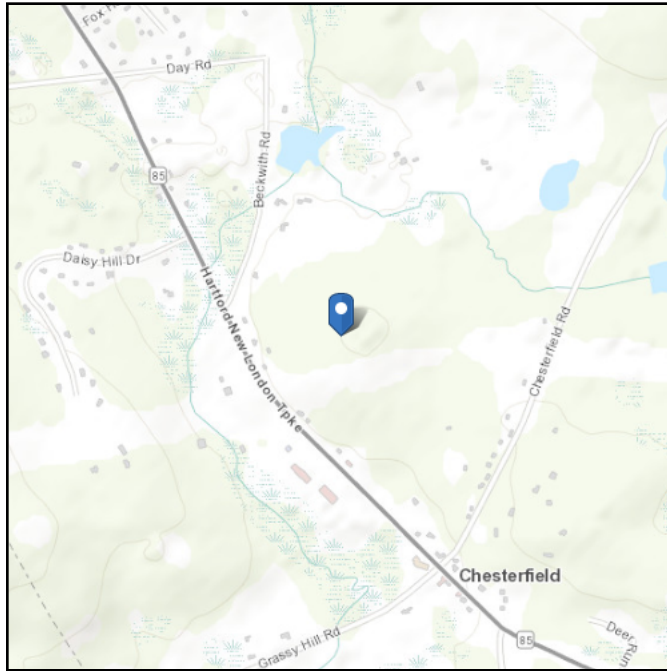
***Design reactions per CCI site doc:2122781

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 256.7 ft (NAVD 88)
Latitude: 41.435461
Longitude: -72.220853



Wind

Results:

Wind Speed	125 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	96 Vmph
100-year MRI	102 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed May 11 2022

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

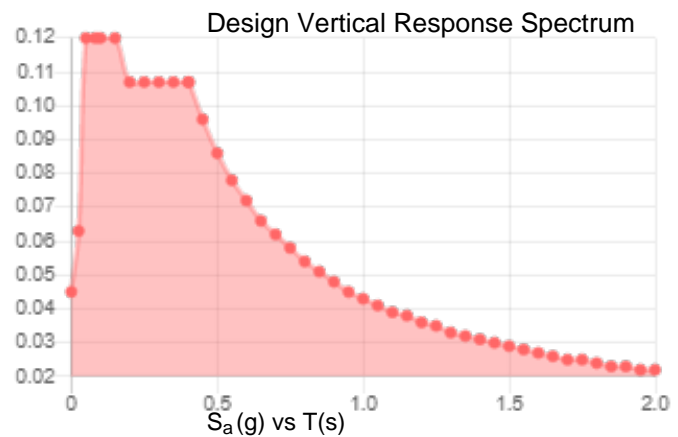
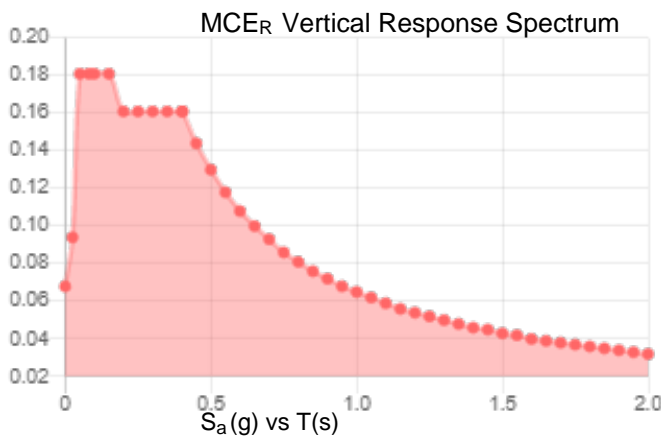
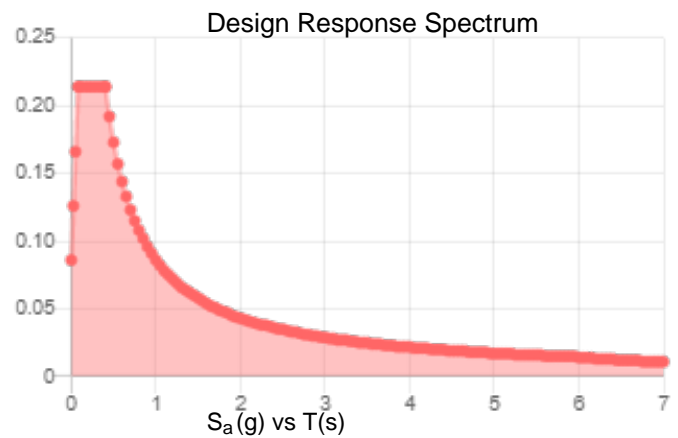
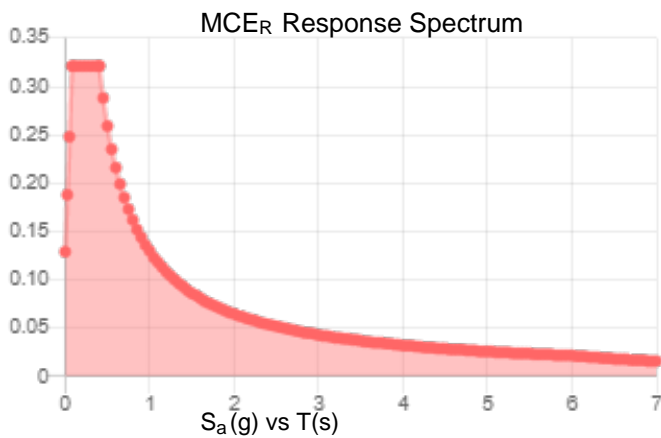
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

Results:

S_s :	0.201	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA _M :	0.176
S_{MS} :	0.321	F_{PGA} :	1.577
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.214	C_v :	0.702

Seismic Design Category B



Data Accessed: Wed May 11 2022

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed May 11 2022

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

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

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Date: **May 6, 2022**



Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject: **Mount Analysis Report**

Carrier Designation: **T-Mobile Equipment Change-Out**
Carrier Site Number: CTNH032H
Carrier Site Name: CTNH032H

Crown Castle Designation: **BU Number:** 876370
Site Name: Maybrook / Bond
JDE Job Number: 713865
Order Number: 613479 Rev. 0

Engineering Firm Designation: **Trylon Report Designation:** 208660

Site Data: **41 Beckwith Rd., Montville, New London County, CT, 6370**
Latitude 41°26'7.66" Longitude -72°13'15.07"

Structure Information: **Tower Height & Type:** **180.0 ft Monopole**
Mount Elevation: **175.0 ft**
Mount Width & Type: **12.5 ft Platform**

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

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

Platform

Sufficient

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Adrian Marin

Respectfully Submitted by:
Cliff Abernathy, P.E.

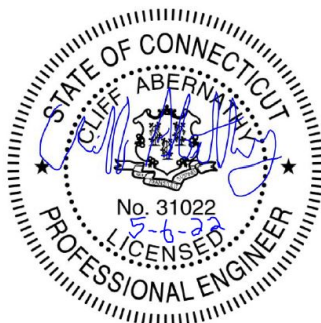


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Additional Calculations

1) INTRODUCTION

This is an existing 3 sector 12.5 ft Platform, mapped by RKS.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	1.50 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.165
Seismic S₁:	0.059
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
175.0	175.0	3	Commscope	VV-65A-R1_TMO	12.5 ft Platform
		3	Ericsson	AIR 6419 B41_TMO	
		3	RFS/Celwave	APXVAARR18_43-U-NA20	
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE	
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	613479, Rev. 0	CCI Sites
Mount Mapping	RKS	8353054	CCI Sites
Mount Analysis Report	Paul J Ford and Company	8375873	CCI Sites

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Trylon 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 Tower Mount Analysis (Revision E).

3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design 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) 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.
- 5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
- 6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, 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. Tylon 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, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2,3,4	Mount Pipe(s)	MP5	175.0	20.7	Pass
	Horizontal(s)	H2		9.2	Pass
	Standoff(s)	M86		22.5	Pass
	Bracing(s)	M49A		11.9	Pass
	Handrail(s)	M83		20.3	Pass
	Kicker(s)	M53A		10.3	Pass
	Plate(s)	M41		38.7	Pass
	Mount Connection(s)	-		25.4	Pass

Structure Rating (max from all components) =	38.7%
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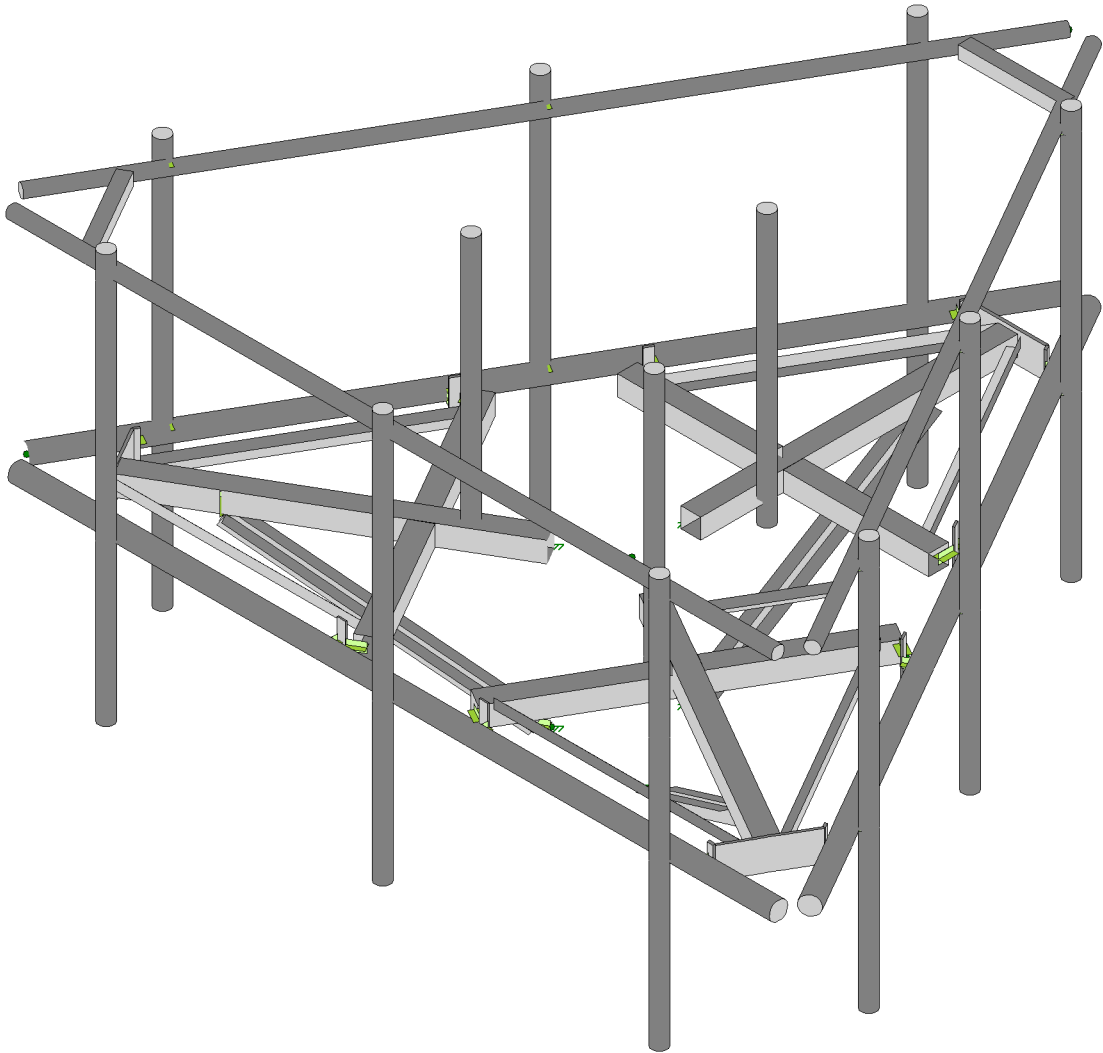
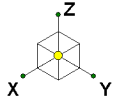
Notes:

- 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 detailed mount connection calculations.
- 3) All sectors are typical
- 4) Rating per TIA-222-H, Section 15.5

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon

AM

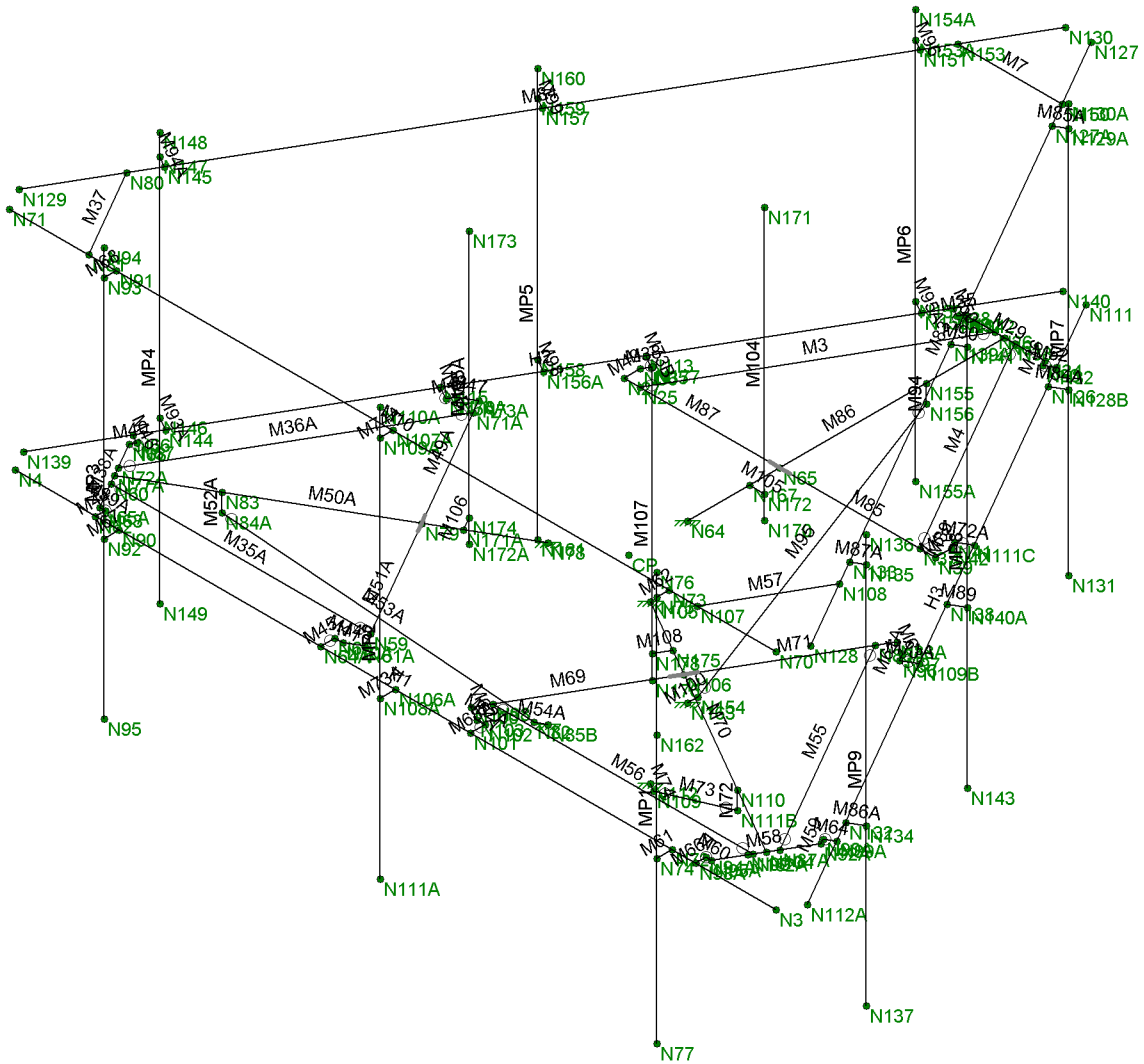
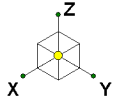
208660

876370

SK - 1

May 6, 2022 at 3:44 PM

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Envelope Only Solution

Trylon
AM
208660

876370

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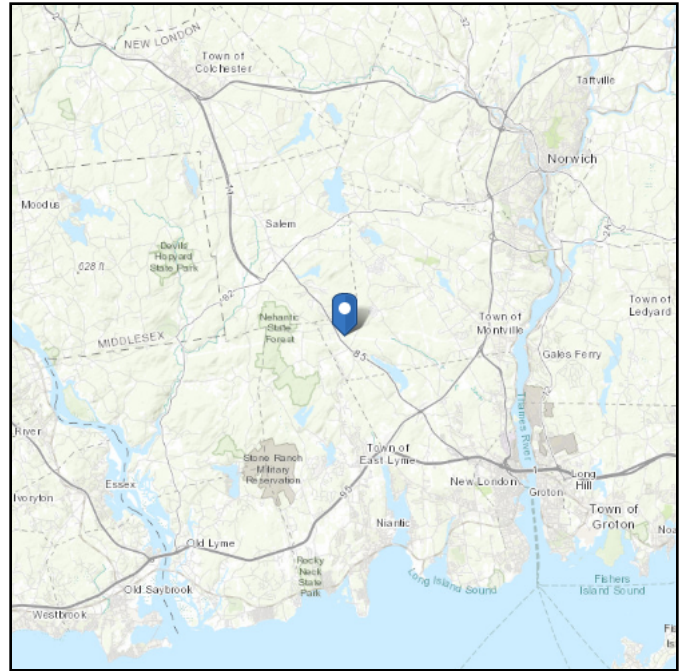
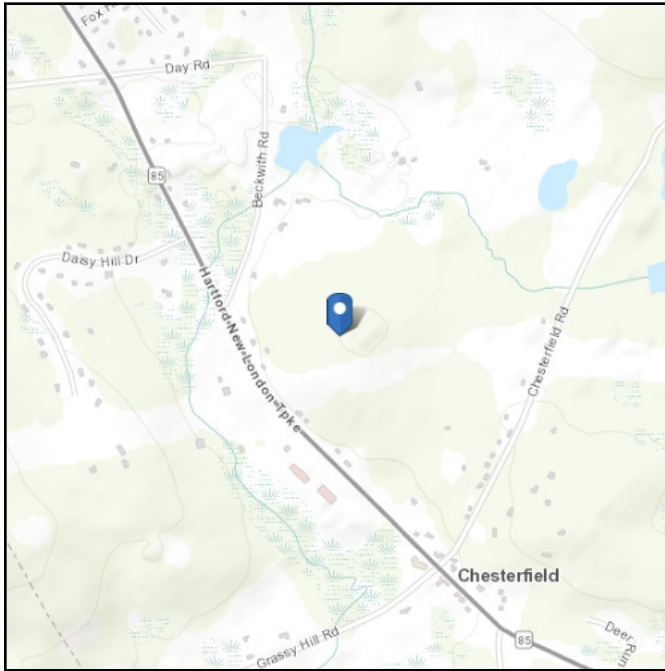
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 256.7 ft (NAVD 88)
Latitude: 41.435461
Longitude: -72.220853



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: Fri May 06 2022

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

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Trylon

1825 W. Walnut Hill Lane Suite 120
Irving, TX 75038

TIA LOAD CALCULATOR 2.2

PROJECT DATA	
Job Code:	208660
Carrier Site ID:	CTNH032H
Carrier Site Name:	CTNH032H

CODES AND STANDARDS	
Building Code:	2015 IBC
Local Building Code:	2018 CSBC
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	175.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	180.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	256.7	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	135	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.16	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (G _h):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	50.92	psf
Ground Elevation Factor (K_e):	0.99	--

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	7.12	psf
Mount Ice Thickness (t_{iz}):	1.77	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	91.66	psf
Round Member Pressure:	54.99	psf
Ice Wind Pressure:	7.69	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel. (S_s):	0.165	g
1 Second Accel. (S_1):	0.059	g
Short Period Des. (S_{DS}):	0.18	g
1 Second Des. (S_{D1}):	0.09	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (C_s):	0.09	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LOADING

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>--</i>	<i>EPA_N (ft2)</i>	<i>EPA_T (ft2)</i>	<i>Weight (lbs)</i>
AIR 6419 B41_TMO	3	175	No Ice	7	2.83	96.50
--	--	--	w/ Ice	8.69	4.17	174.69
VV-65A-R1_TMO	3	175	No Ice	4.48	1.74	33.30
--	--	--	w/ Ice	5.94	3.05	141.12
APXVAARR18_43-U-NA20	3	175	No Ice	10.99	3.89	106.00
--	--	--	w/ Ice	12.91	5.50	336.23
RADIO 4460 B2/B25 B66_TMO	3	175	No Ice	2.14	1.69	109.00
--	--	--	w/ Ice	2.59	2.10	92.73
RADIO 4449 B71 B85A_T-MOBILE	3	175	No Ice	1.97	1.59	73.21
--	--	--	w/ Ice	2.41	2.00	83.58
--	--	--	No Ice			
--	--	--	w/ Ice			
--	--	--	No Ice			
--	--	--	w/ Ice			
--	--	--	No Ice			
--	--	--	w/ Ice			
--	--	--	No Ice			
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--	--	--	No Ice			
--	--	--	w/ Ice			
--	--	--	No Ice			
--	--	--	w/ Ice			
--	--	--	No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>--</i>	<i>EPA_N (ft²)</i>	<i>EPA_T (ft²)</i>	<i>Weight (lbs)</i>
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
AIR 6419 B41_TMO	3	175	1.00	1.16	0.95	1.77	50.92	6.98
VV-65A-R1_TMO	3	175	1.00	1.16	0.95	1.77	50.92	6.98
APXVAARR18_43-U-NA20	3	175	1.00	1.16	0.95	1.77	50.92	6.98
RADIO 4460 B2/B25 B66_TN	3	175	1.00	1.16	0.95	1.77	50.92	6.98
RADIO 4449 B71 B85A_T-MO	3	175	1.00	1.16	0.95	1.77	50.92	6.98

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>--</i>	<i>0° 180°</i>	<i>30° 210°</i>	<i>60° 240°</i>	<i>90° 270°</i>	<i>120° 300°</i>	<i>150° 330°</i>
AIR 6419 B41_TMO	3	No Ice	320.80	177.47	273.02	129.69	273.02	177.47
--	--	w/ Ice	54.60	33.31	47.50	26.21	47.50	33.31
VV-65A-R1_TMO	3	No Ice	205.31	111.13	173.92	79.74	173.92	111.13
--	--	w/ Ice	37.35	23.70	32.80	19.15	32.80	23.70
APXVAARR18_43-U-NA20	3	No Ice	503.66	259.62	422.31	178.27	422.31	259.62
--	--	w/ Ice	81.17	46.24	69.53	34.60	69.53	46.24
RADIO 4460 B2/B25 B66_TMO	3	No Ice	98.03	82.45	92.84	77.26	92.84	82.45
--	--	w/ Ice	16.30	13.98	15.53	13.21	15.53	13.98
RADIO 4449 B71 B85A_T-MOBILE	3	No Ice	90.29	77.10	85.89	72.71	85.89	77.10
--	--	w/ Ice	15.17	13.21	14.52	12.56	14.52	13.21
--	--	No Ice						
--	--	w/ Ice						
--	--	No Ice						
--	--	w/ Ice						
--	--	No Ice						
--	--	w/ Ice						
--	--	No Ice						
--	--	w/ Ice						
--	--	No Ice						
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--	--	w/ Ice						

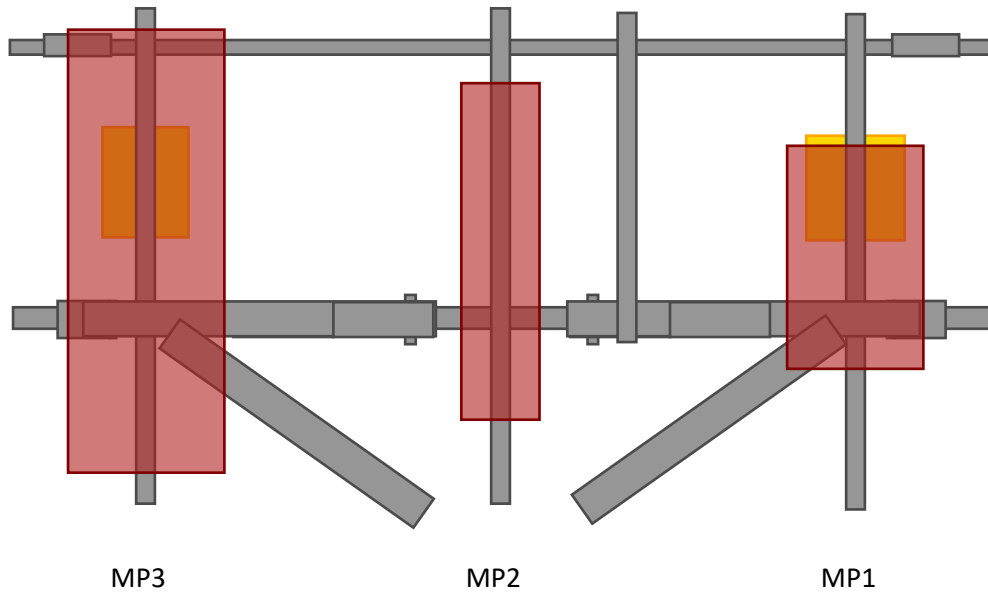
EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

<i>Appurtenance Name</i>	<i>Qty.</i>	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>Weight [lbs]</i>	<i>F_p [lbs]</i>
AIR 6419 B41_TMO	3	175	96.5	10.19
VV-65A-R1_TMO	3	175	33.3	3.52
APXVAARR18_43-U-NA20	3	175	106	11.19
RADIO 4460 B2/B25 B66_TMO	3	175	109	11.51
RADIO 4449 B71 B85A_T-MOBILE	3	175	73.21	7.73

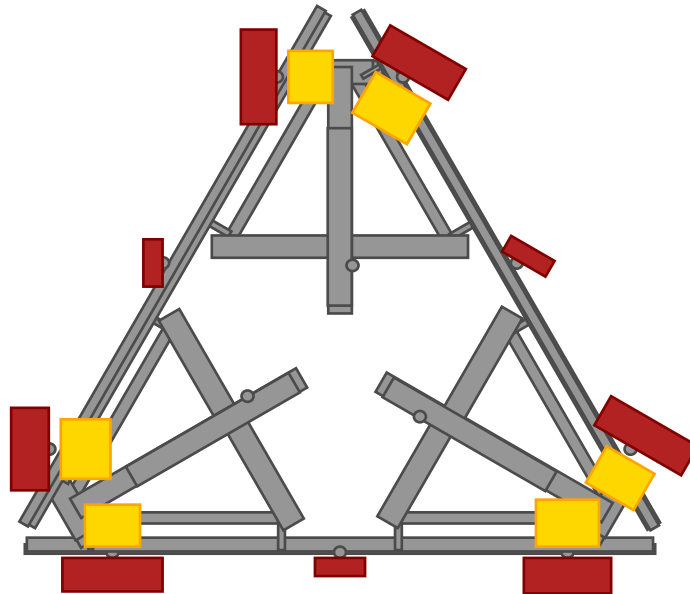
ELEVATION VIEW



*these drawings are intended to show approximate locations of equipment on the mount and should not be used to determine exact placement of equipment or additional hardware

**Elevation View Shows Only One Sector

PLAN VIEW



APPENDIX C
SOFTWARE ANALYSIS OUTPUT

APPENDIX D
ADDITIONAL CALCULATIONS

BOLT TOOL 1.5.2

Project Data	
Job Code:	208660
Carrier Site ID:	CTNH032H
Carrier Site Name:	CTNH032H

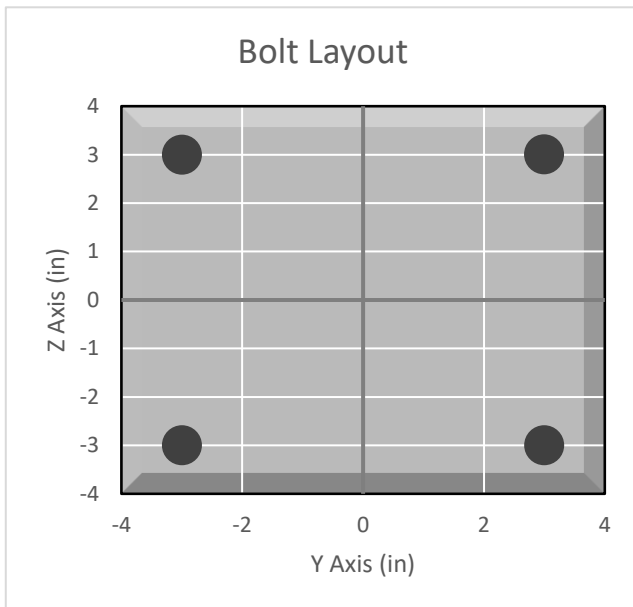
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in

Connection Description
Standoff to Collar

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	2639.3	lbs
Shear Force (V_u):	385.0	lbs
Tension Usage:	12.4%	--
Shear Usage:	2.7%	--
Interaction:	12.4%	Pass
Controlling Member:	M70	--
Controlling LC:	10	--

*Rating per TIA-222-H Section 15.5



BOLT TOOL 1.5.2

Project Data	
Job Code:	208660
Carrier Site ID:	CTNH032H
Carrier Site Name:	CTNH032H

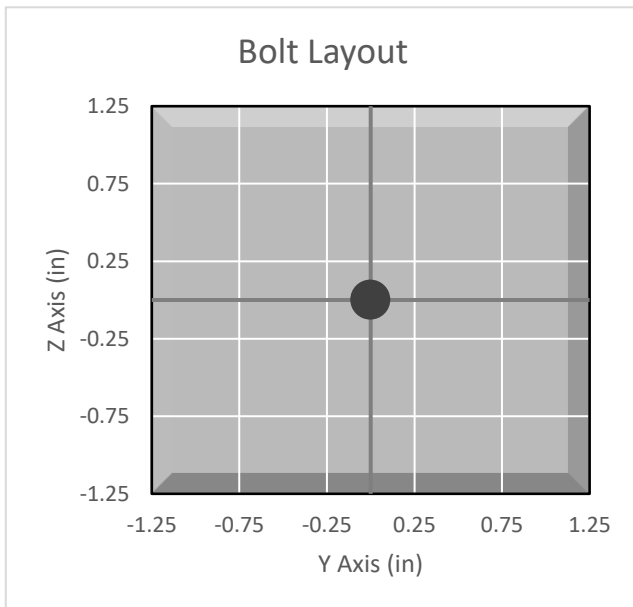
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.5	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	1	--
Threads Included:	Yes	--
Double Shear:	Yes	--
Connection Pipe Size:	-	in

Connection Description
Kicker 1 Bolt

Bolt Check*		
Tensile Capacity (ϕT_n):	12770.9	lbs
Shear Capacity (ϕV_n):	8835.7	lbs
Tension Force (T_u):	0.1	lbs
Shear Force (V_u):	2359.9	lbs
Tension Usage:	0.0%	--
Shear Usage:	25.4%	--
Interaction:	25.4%	Pass
Controlling Member:	M100	--
Controlling LC:	34	--

*Rating per TIA-222-H Section 15.5





Radio Frequency Exposure Analysis Report

June 9, 2022

Centerline on behalf of T-Mobile
Centerline Communications Project Number: N/A

T-Mobile Site Name: Maybrook/Bond
Site Number: CTNH032H

Site Address: 41 Beckwith Road, Oakdale, CT 06370

Site Compliance Summary

T-Mobile Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	5.10739 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	0.53278%



June 9, 2022

Centerline
Attn: Ryan Clark, Site Acquisition
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **Maybrook/Bond**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed T-Mobile facility at **41 Beckwith Road, Oakdale, CT 06370** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{\text{MHz}}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of $1 \text{ mW}/\text{cm}^2$ ($1000 \mu\text{W}/\text{cm}^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.



Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.



Data & Results

The following table details the antennas and operating parameters for the T-Mobile antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the Ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.



Maximum Calculated Cumulative Power Density (Location: approximately 5' SE of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
T-Mobile A 1	ERICSSON AIR6419 NR	3400	22.85	175.00	2.00	80.00	30840.40	0.67471	1000.00	0.06747
T-Mobile A 1	ERICSSON AIR6419 LTE	3400	22.85	175.00	2.00	80.00	30840.40	0.67471	1000.00	0.06747
T-Mobile A 2	COMMSCOPE VV-65A-R1	2100	16.43	175.00	2.00	140.00	12307.17	0.03248	1000.00	0.00325
T-Mobile A 2	COMMSCOPE VV-65A-R1	1900	15.80	175.00	2.00	140.00	10645.30	0.04485	1000.00	0.00449
T-Mobile A 3	RFS APXVAARR18_43-U-NA20	700	12.34	175.00	4.00	40.00	2742.33	0.01422	466.67	0.00305
T-Mobile A 3	RFS APXVAARR18_43-U-NA20	600	12.29	175.00	4.00	40.00	2710.94	0.01142	400.00	0.00285
T-Mobile A 3	RFS APXVAARR18_43-U-NA20	600	12.29	175.00	4.00	30.00	2033.21	0.00856	400.00	0.00214
T-Mobile B 4	COMMSCOPE VV-65A-R1	2100	16.43	175.00	2.00	80.00	7032.67	0.02283	1000.00	0.00228
T-Mobile B 4	COMMSCOPE VV-65A-R1	1900	15.80	175.00	2.00	80.00	6083.03	0.01874	1000.00	0.00187
T-Mobile B 5	ERICSSON AIR6419 NR	3400	22.85	175.00	2.00	140.00	53970.70	1.18620	1000.00	0.11862
T-Mobile B 5	ERICSSON AIR6419 LTE	3400	22.85	175.00	2.00	140.00	53970.70	1.18620	1000.00	0.11862
T-Mobile B 6	RFS APXVAARR18_43-U-NA20	700	12.34	175.00	4.00	40.00	2742.33	0.01288	466.67	0.00276
T-Mobile B 6	RFS APXVAARR18_43-U-NA20	600	12.29	175.00	4.00	40.00	2710.94	0.02195	400.00	0.00549
T-Mobile B 6	RFS APXVAARR18_43-U-NA20	600	12.29	175.00	4.00	30.00	2033.21	0.01646	400.00	0.00412
T-Mobile C 7	COMMSCOPE VV-65A-R1	2100	16.43	175.00	2.00	80.00	7032.67	0.00001	1000.00	0.00000
T-Mobile C 7	COMMSCOPE VV-65A-R1	1900	15.80	175.00	2.00	80.00	6083.03	0.00002	1000.00	0.00000
T-Mobile C 8	ERICSSON AIR6419 NR	3400	22.85	175.00	2.00	140.00	53970.70	0.00136	1000.00	0.00014
T-Mobile C 8	ERICSSON AIR6419 LTE	3400	22.85	175.00	2.00	140.00	53970.70	0.00136	1000.00	0.00014
T-Mobile C 9	RFS APXVAARR18_43-U-NA20	700	12.34	175.00	4.00	40.00	2742.33	0.00009	466.67	0.00002
T-Mobile C 9	RFS APXVAARR18_43-U-NA20	600	12.29	175.00	4.00	40.00	2710.94	0.00001	400.00	0.00000
T-Mobile C 9	RFS APXVAARR18_43-U-NA20	600	12.29	175.00	4.00	30.00	2033.21	0.00000	400.00	0.00000
Sprint A 10	COMMSCOPE NNVV-65B-R4	862	12.54	180.00	2.00	40.00	1435.79	0.00892	574.67	0.00155
Sprint A 10	COMMSCOPE NNVV-65B-R4	1900	14.68	180.00	2.00	60.00	3525.18	0.01013	1000.00	0.00101
Sprint A 11	RFS APXVTM14 ALU-I20	2500	15.85	180.00	1.00	34.70	1334.53	0.00184	1000.00	0.00018
Sprint B 12	COMMSCOPE NNVV-65B-R4	862	12.54	180.00	2.00	40.00	1435.79	0.00663	574.67	0.00115
Sprint B 12	COMMSCOPE NNVV-65B-R4	1900	14.68	180.00	2.00	60.00	3525.18	0.00837	1000.00	0.00084
Sprint B 13	RFS APXVTM14 ALU-I20	2500	15.85	180.00	1.00	34.70	1334.53	0.00278	1000.00	0.00028
Sprint C 14	COMMSCOPE NNVV-65B-R4	862	12.54	180.00	2.00	40.00	1435.79	0.00001	574.67	0.00000
Sprint C 14	COMMSCOPE NNVV-65B-R4	1900	14.68	180.00	2.00	60.00	3525.18	0.00000	1000.00	0.00000
Sprint C 15	RFS APXVTM14 ALU-I20	2500	15.85	180.00	1.00	34.70	1334.53	0.00001	1000.00	0.00000
Verizon A 16	AMPHENOL LPA-80080-4CF	850	12.50	167.00	7.00	20.00	2489.59	0.03099	566.67	0.00547
Verizon A 17	COMMSCOPE JAHH-65C-R3B	700	12.94	167.00	2.00	40.00	1574.31	0.00644	466.67	0.00138
Verizon A 17	COMMSCOPE JAHH-65C-R3B	850	13.52	167.00	2.00	40.00	1799.24	0.00629	566.67	0.00111
Verizon A 17	COMMSCOPE JAHH-65C-R3B	1900	15.87	167.00	4.00	40.00	6181.87	0.01314	1000.00	0.00131
Verizon A 18	COMMSCOPE JAHH-65C-R3B	700	12.94	167.00	2.00	40.00	1574.31	0.00644	466.67	0.00138



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
Verizon A 18	COMMSCOPE JAHH-65C-R3B	850	13.52	167.00	2.00	40.00	1799.24	0.00629	566.67	0.00111
Verizon A 18	COMMSCOPE JAHH-65C-R3B	2100	16.12	167.00	4.00	40.00	6548.17	0.01234	1000.00	0.00123
Verizon A 19	SAMSUNG MT6407	3700	23.34	167.00	4.00	50.00	43154.89	0.53724	1000.00	0.05372
Verizon B 20	AMPHENOL LPA-80080-4CF	850	12.50	167.00	7.00	20.00	2489.59	0.02519	566.67	0.00445
Verizon B 21	COMMSCOPE JAHH-65C-R3B	700	12.94	167.00	2.00	40.00	1574.31	0.00615	466.67	0.00132
Verizon B 21	COMMSCOPE JAHH-65C-R3B	850	13.52	167.00	2.00	40.00	1799.24	0.00574	566.67	0.00101
Verizon B 21	COMMSCOPE JAHH-65C-R3B	1900	15.87	167.00	4.00	40.00	6181.87	0.01093	1000.00	0.00109
Verizon B 22	COMMSCOPE JAHH-65C-R3B	700	12.94	167.00	2.00	40.00	1574.31	0.00615	466.67	0.00132
Verizon B 22	COMMSCOPE JAHH-65C-R3B	850	13.52	167.00	2.00	40.00	1799.24	0.00574	566.67	0.00101
Verizon B 22	COMMSCOPE JAHH-65C-R3B	2100	16.12	167.00	4.00	40.00	6548.17	0.01263	1000.00	0.00126
Verizon B 23	SAMSUNG MT6407	3700	23.34	167.00	4.00	50.00	43154.89	0.44686	1000.00	0.04469
Verizon C 24	AMPHENOL LPA-80080-4CF	850	12.50	167.00	7.00	20.00	2489.59	0.00002	566.67	0.00000
Verizon C 25	COMMSCOPE JAHH-65C-R3B	700	12.94	167.00	2.00	40.00	1574.31	0.00001	466.67	0.00000
Verizon C 25	COMMSCOPE JAHH-65C-R3B	850	13.52	167.00	2.00	40.00	1799.24	0.00001	566.67	0.00000
Verizon C 25	COMMSCOPE JAHH-65C-R3B	1900	15.87	167.00	4.00	40.00	6181.87	0.00002	1000.00	0.00000
Verizon C 26	COMMSCOPE JAHH-65C-R3B	700	12.94	167.00	2.00	40.00	1574.31	0.00001	466.67	0.00000
Verizon C 26	COMMSCOPE JAHH-65C-R3B	850	13.52	167.00	2.00	40.00	1799.24	0.00001	566.67	0.00000
Verizon C 26	COMMSCOPE JAHH-65C-R3B	2100	16.12	167.00	4.00	40.00	6548.17	0.00001	1000.00	0.00000
Verizon C 27	SAMSUNG MT6407	3700	23.34	167.00	4.00	50.00	43154.89	0.00102	1000.00	0.00010
							Cumulative Power Density:	5.10739 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	0.53278%



Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at Ground that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

Michelle Stone

Michelle Stone
RF EME Technical Writer II
Centerline Communications, LLC

T-Mobile

T-MOBILE SITE NUMBER: CTNH032H
T-MOBILE SITE NAME: CTNH032H
SITE TYPE: MONOPOLE
TOWER HEIGHT: 180'-0"

BUSINESS UNIT #: 876370
SITE ADDRESS: 41 BECKWITH RD.
MONTVILLE, CT 06370
COUNTY: NEW LONDON
JURISDICTION: CONNECTICUT
SITING COUNCIL

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5D998E MUAC

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

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

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

T-MOBILE SITE NUMBER:
CTNH032H

BU #: 876370
MAYBROOK / BOND

41 BECKWITH RD.
MONTVILLE, CT 06370

EXISTING
180'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	6/3/22	DAS	PRELIMINARY REVIEW	KT
B	6/17/22	DAS	CONSTRUCTION	KT
0	6/27/22	DAS	CONSTRUCTION	KT

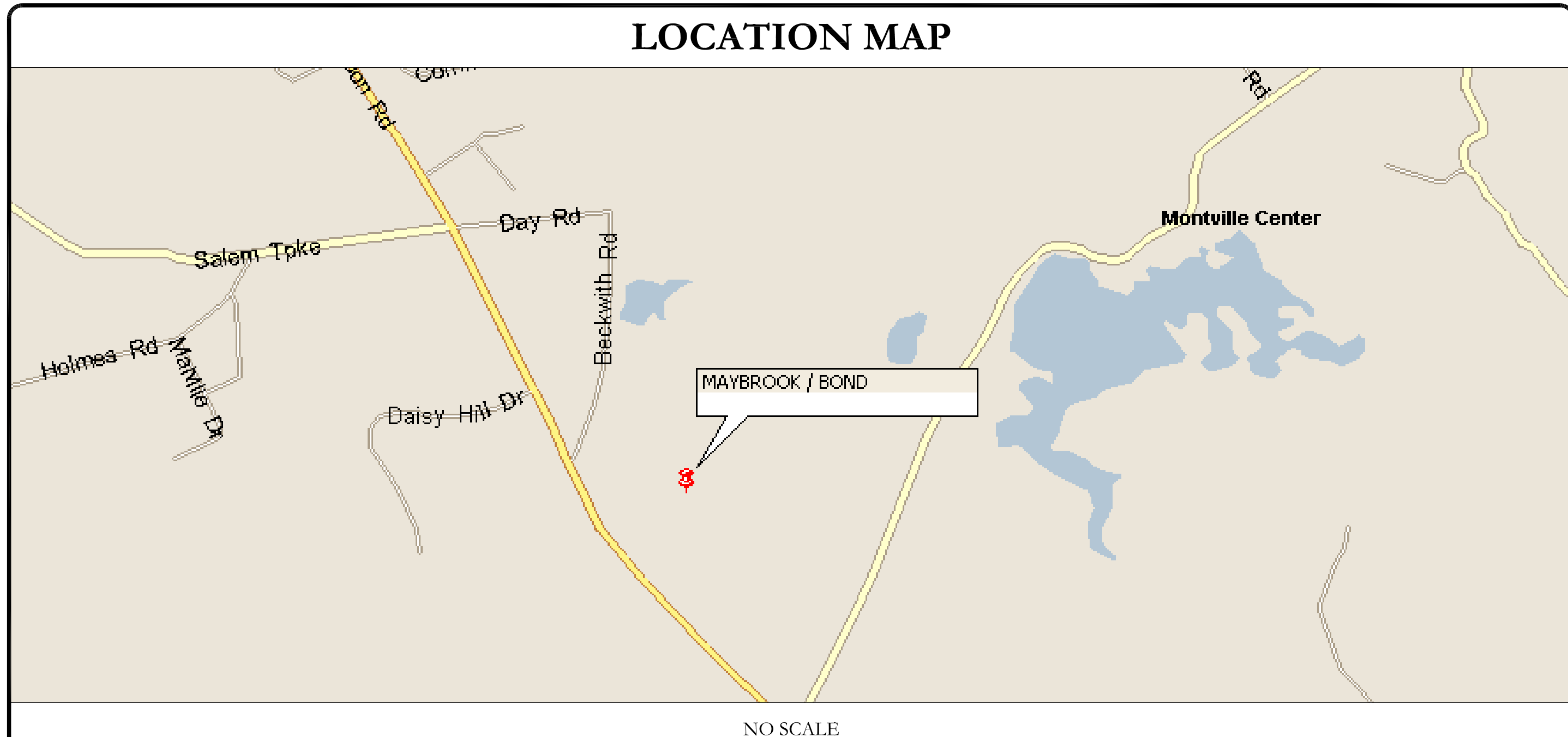
SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME:	MAYBROOK / BOND
SITE ADDRESS:	41 BECKWITH RD. MONTVILLE, CT 06370
COUNTY:	NEW LONDON
MAP/PARCEL #:	86-012/001-000
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.435461°
LONGITUDE:	-72.220853°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	270 FT
CURRENT ZONING:	WRP
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:	BOND GLADYS J TRUSTEE 41 BECKWITH RD OAKDALE, CT 06370
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 12920 SE 38TH STREET BELLEVUE, WA 98006
ELECTRIC PROVIDER:	NORTHEAST UTILITIES
TELCO PROVIDER:	LIGHTOWER

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

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

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

PROJECT DESCRIPTION	
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.	
TOWER SCOPE OF WORK:	
<ul style="list-style-type: none"> REMOVE (3) ANTENNAS REMOVE (6) RRHs REMOVE (1) 6x12 HCS HYBRID CABLE REMOVE (1) 9x18 HCS HYBRID CABLE RELOCATE (1) ANTENNA RELOCATE (1) RRH INSTALL (6) ANTENNAS INSTALL (3) RRHs INSTALL (2) 1-5/8" HYBRID CABLES ROTATE EXISTING PLATFORM FOR 100/220/340 FACES 	
GROUND SCOPE OF WORK:	
<ul style="list-style-type: none"> REMOVE (1) DUW30 INSTALL (1) 6160 AC V1 ENCLOSURE INSTALL (1) B160 CABINET INSTALL (1) RP 6651 INSTALL (1) PSU 4813 VR4A INSTALL (1) CSR IXRE V2 (GEN2) 	
NOTE: PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.	



APPLICABLE CODES/REFERENCE DOCUMENTS	
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:	
CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2020 NEC
REFERENCE DOCUMENTS:	
STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	4/12/22
MOUNT ANALYSIS:	TRYLON
DATED:	5/6/22
RFDS REVISION:	3
DATED:	4/20/22
ORDER ID:	613479
REVISION:	0

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.

Professional Engineer Seal: MTS ENGINEERING P.L.L.C. No. 23924, Expires 6/27/22

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

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

SHEET NUMBER:	REVISION:
T-1	0

1:35737.006.01_MAYBROOK_BOND.dwg - SheetT-1 - User: kevin.turkell - Jun 27, 2022 - 1:14pm

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.

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.

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.

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.

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.

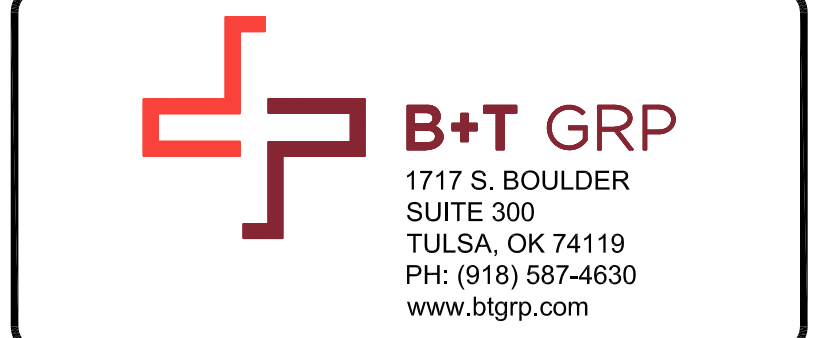
Table with columns: SYSTEM, CONDUCTOR, COLOR. Lists conductor color codes for various systems like 120/240V, 120/208V, 277/480V, and DC VOLTAGE.

APWA UNIFORM COLOR CODE:

- WHITE PROPOSED EXCAVATION
PINK TEMPORARY SURVEY MARKINGS
RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES

ABBREVIATIONS:

- ANT ANTENNA
(E) EXISTING
FIF FACILITY INTERFACE FRAME



T-MOBILE SITE NUMBER: CTNH032H

BU #: 876370 MAYBROOK / BOND

41 BECKWITH RD. MONTVILLE, CT 06370

EXISTING 180'-0" MONOPOLE

ISSUED FOR:

Table with columns: REV, DATE, DRWN, DESCRIPTION, DES./QA. Shows revision history for the drawing.



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

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SHEET NUMBER: T-2 REVISION: 0

SITE PLAN DISCLAIMER:
 PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS. 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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 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

T-MOBILE SITE NUMBER:
CTNH032H


BU #: 876370
MAYBROOK / BOND

41 BECKWITH RD.
 MONTVILLE, CT 06370

EXISTING
 180'-0" MONOPOLE

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 6/27/22

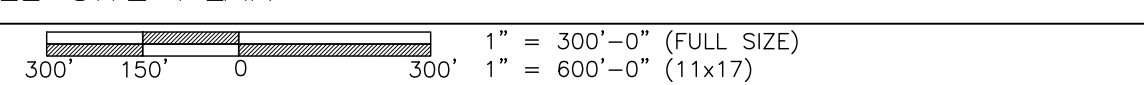
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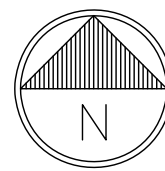
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SHEET NUMBER: C-1.1
REVISION: 0



1 OVERALL SITE PLAN

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



1:35737.006.01_MAYBROOK_BOND.dwg - Sheet C-1.1 - User: kevin.turkall - Jun 27, 2022 - 1:15pm

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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MAYBROOK / BOND

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 MONTVILLE, CT 06370

EXISTING
 180'-0" MONOPOLE

ISSUED FOR:

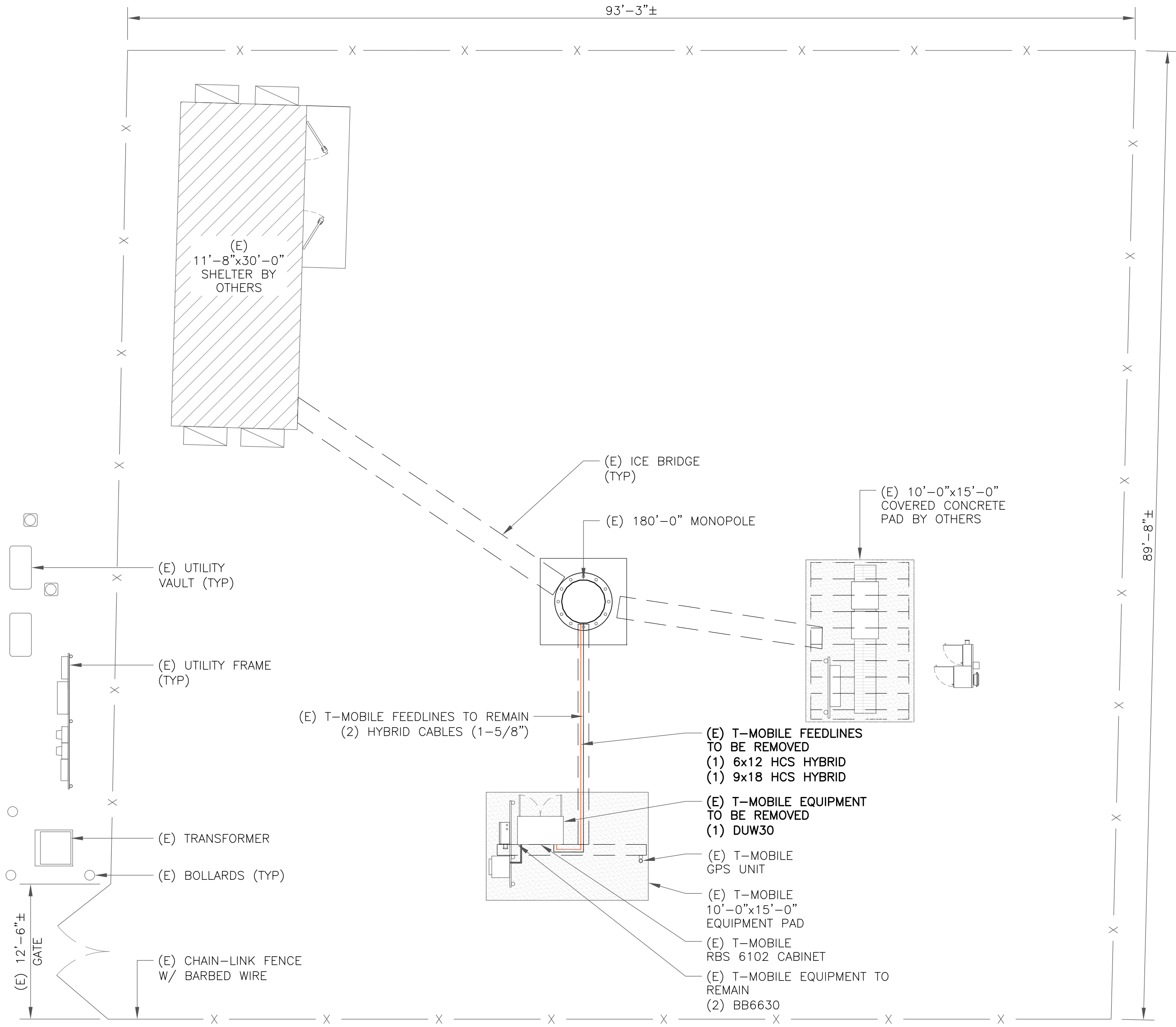
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6/27/22

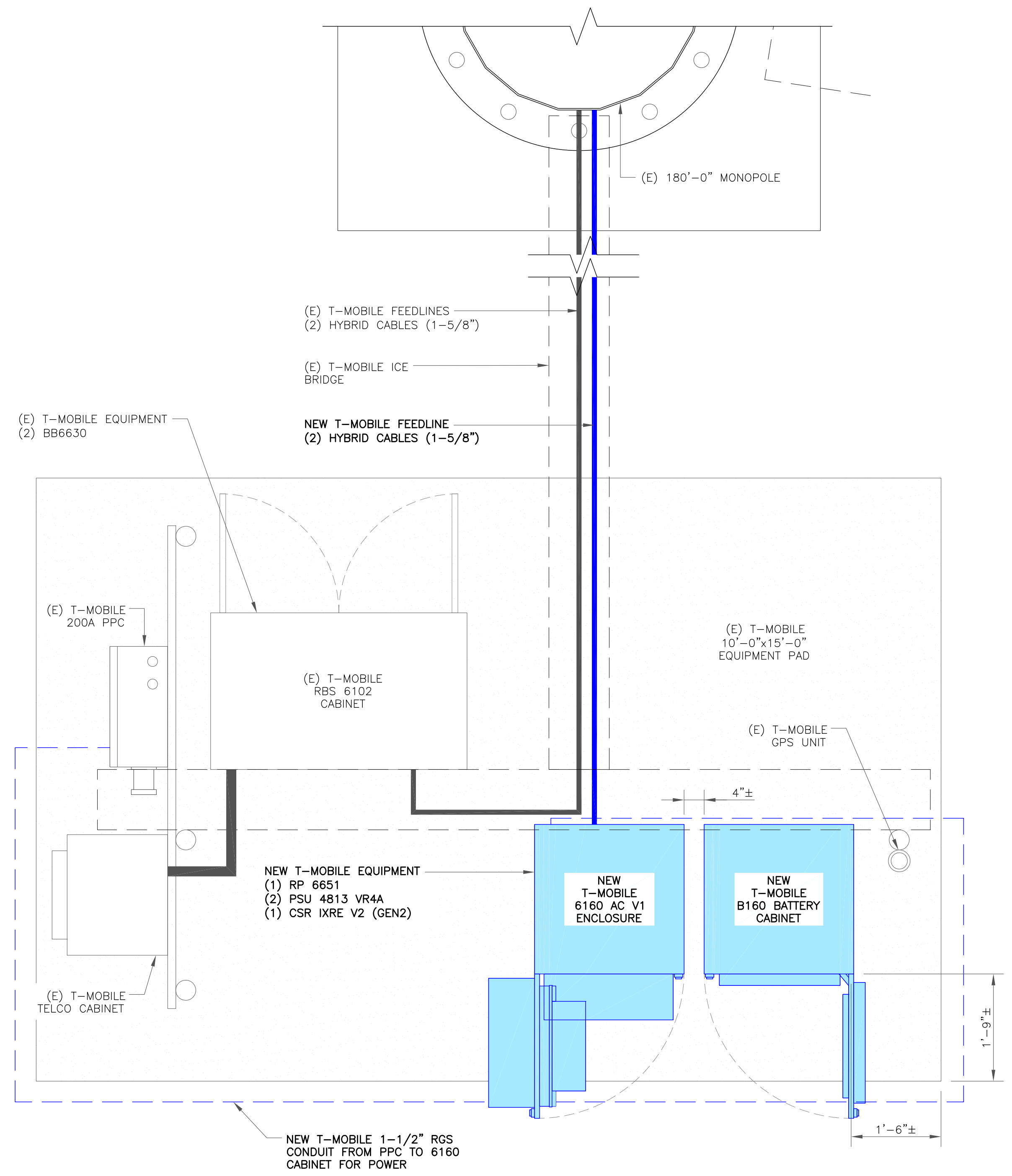
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SHEET NUMBER: C-1.2
REVISION: 0



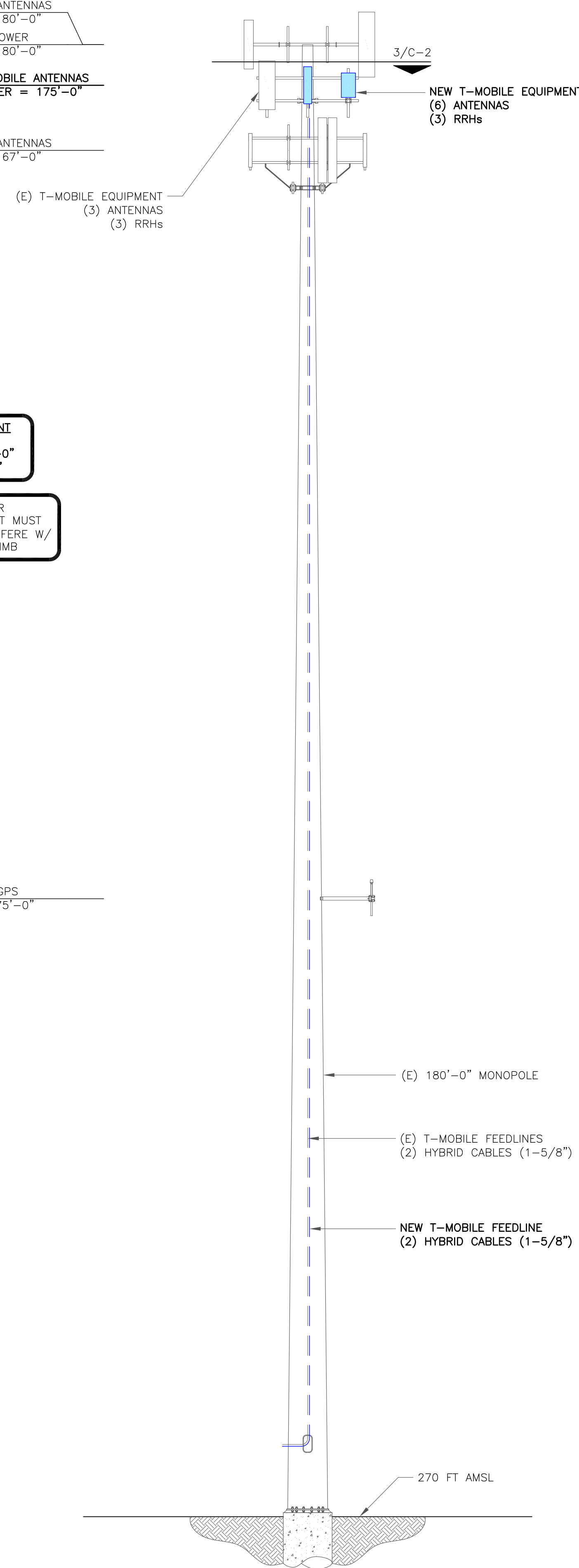
1 SITE PLAN
 SCALE: 1/8"=1'-0" (FULL SIZE)
 1/16"=1'-0" (11x17)



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

1:35737.006.01_MAYBROOK_BOND.dwg - Sheet C-1.2 - User: kevin.turkall - Jun 27, 2022 - 1:15pm

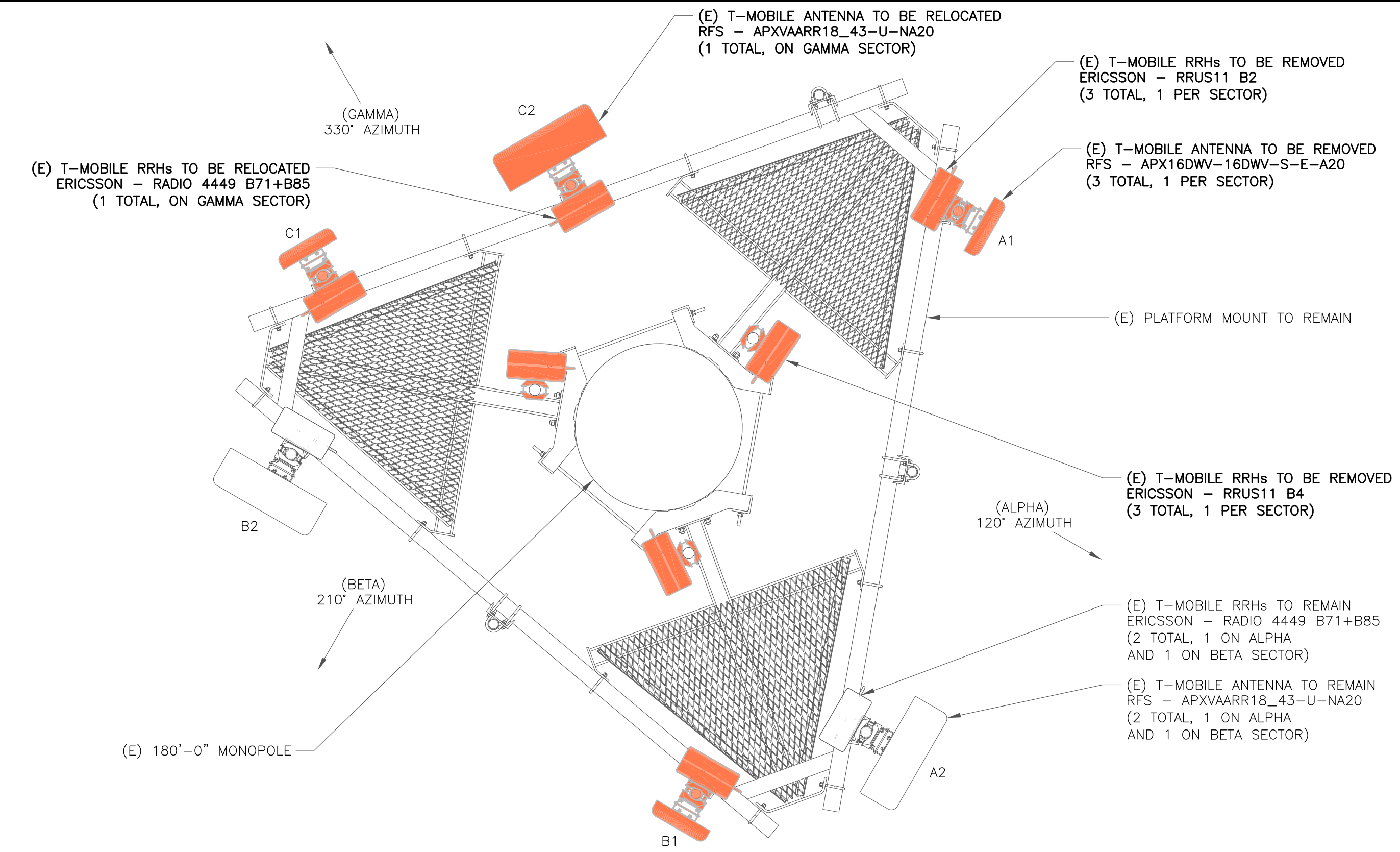
- EXISTING ANTENNAS
ELEV. = 180'-0"
- TOP OF TOWER
ELEV. = 180'-0"
- NEW T-MOBILE ANTENNAS
RAD CENTER = 175'-0"
- EXISTING ANTENNAS
ELEV. = 167'-0"



1 FINAL ELEVATION
SCALE: NOT TO SCALE

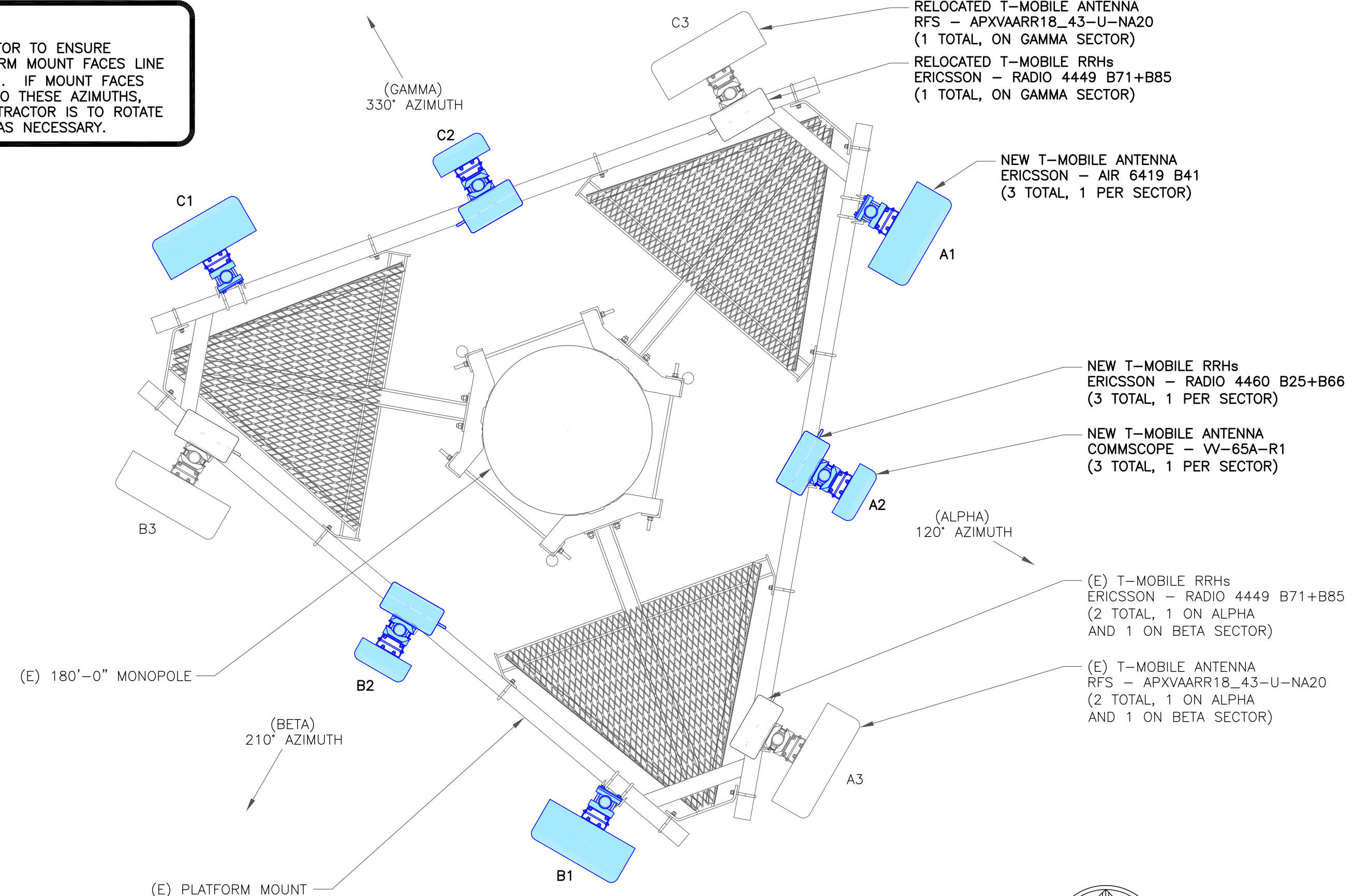
T-MOBILE EQUIPMENT
ANTENNA CL: 175'-0"
MOUNT CL: 175'-0"

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



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE

INSTALLER NOTE:
GENERAL CONTRACTOR TO ENSURE EQUIPMENT PLATFORM MOUNT FACES LINE UP 100°/220°/340°. IF MOUNT FACES DO NOT LINE UP TO THESE AZIMUTHS, THE GENERAL CONTRACTOR IS TO ROTATE PLATFORM MOUNT AS NECESSARY.



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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180'-0" MONOPOLE

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SHEET NUMBER: **C-2** REVISION: **0**

1:35737.006.01_MAYBROOK_BOND.dwg - Sheet: C-2 - User: kevin.turkall - Jun 27, 2022 - 1:15pm

**T-MOBILE SITE NUMBER:
CTNH032H**

**BU #: 876370
MAYBROOK / BOND**

41 BECKWITH RD.
MONTVILLE, CT 06370

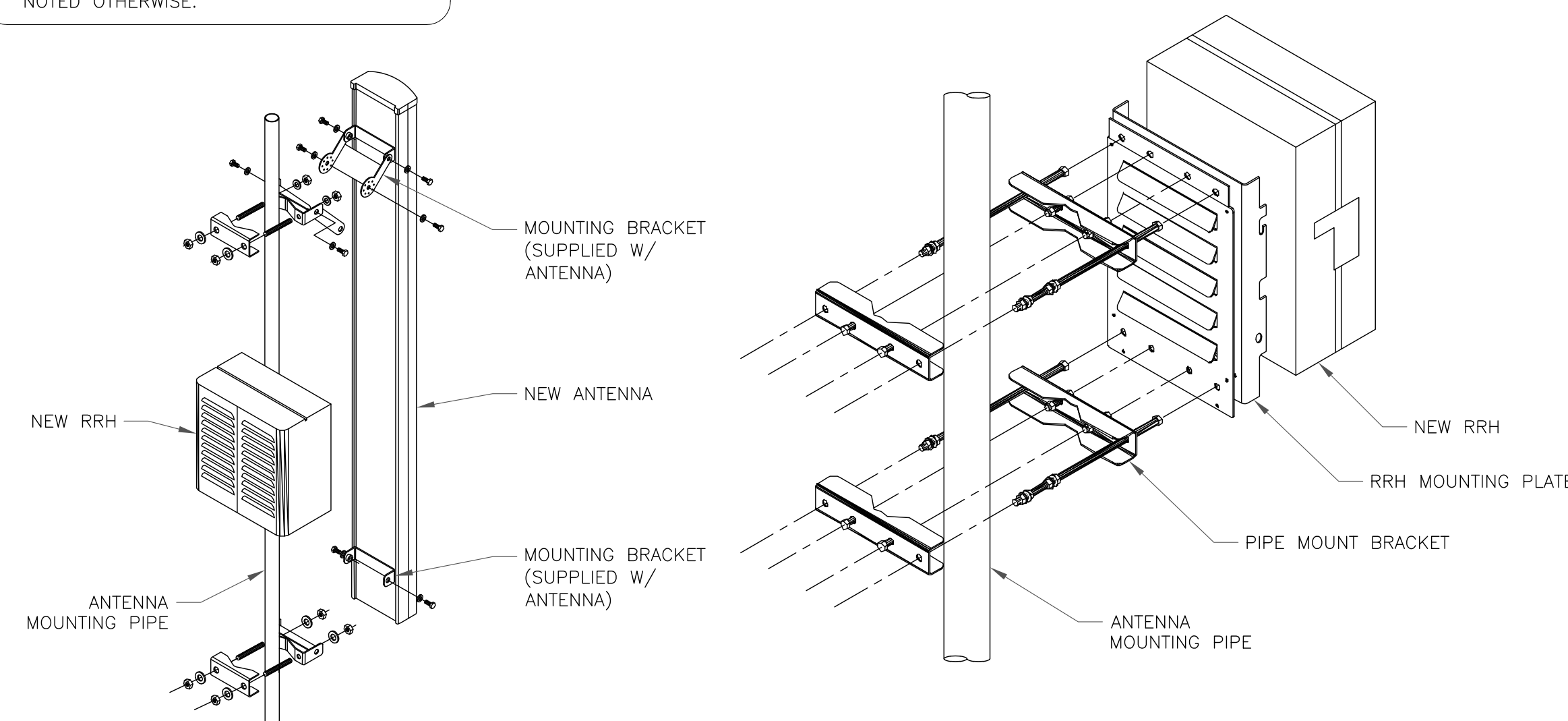
EXISTING
180'-0" MONOPOLE

RF SYSTEM SCHEDULE										
SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A1	L2500/N2500	ERICSSON	AIR 6419 B41	120°	0°	-	175'-0"	-	-
	A2	L2100/L1900	COMMSCOPE	W-65A-R1	120°	0°	-	175'-0"	RADIO 4460 B25+B66	-
	A3	L700/L600/N600	RFS	APXVAARR18_43-U-NA20	120°	0°	-	175'-0"	RADIO 4449 B71+B85	(1) 1-5/8" 6x12 HCS HYBRID
BETA	B1	L2500/N2500	ERICSSON	AIR 6419 B41	210°	0°	-	175'-0"	-	-
	B2	L2100/L1900	COMMSCOPE	W-65A-R1	210°	0°	-	175'-0"	RADIO 4460 B25+B66	(1) 1-5/8" 6/24 4AWG HYBRID
	B3	L700/L600/N600	RFS	APXVAARR18_43-U-NA20	210°	0°	-	175'-0"	RADIO 4449 B71+B85	(1) 1-5/8" 6x12 HCS HYBRID
GAMMA	C1	L2500/N2500	ERICSSON	AIR 6419 B41	330°	0°	-	175'-0"	-	-
	C2	L2100/L1900	COMMSCOPE	W-65A-R1	330°	0°	-	175'-0"	RADIO 4460 B25+B66	(1) 1-5/8" 6/24 4AWG HYBRID
	C3	L700/L600/N600	RFS	APXVAARR18_43-U-NA20	330°	0°	-	175'-0"	RADIO 4449 B71+B85	-

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

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SHEET NUMBER:

C-3

REVISION:

0

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6/27/22

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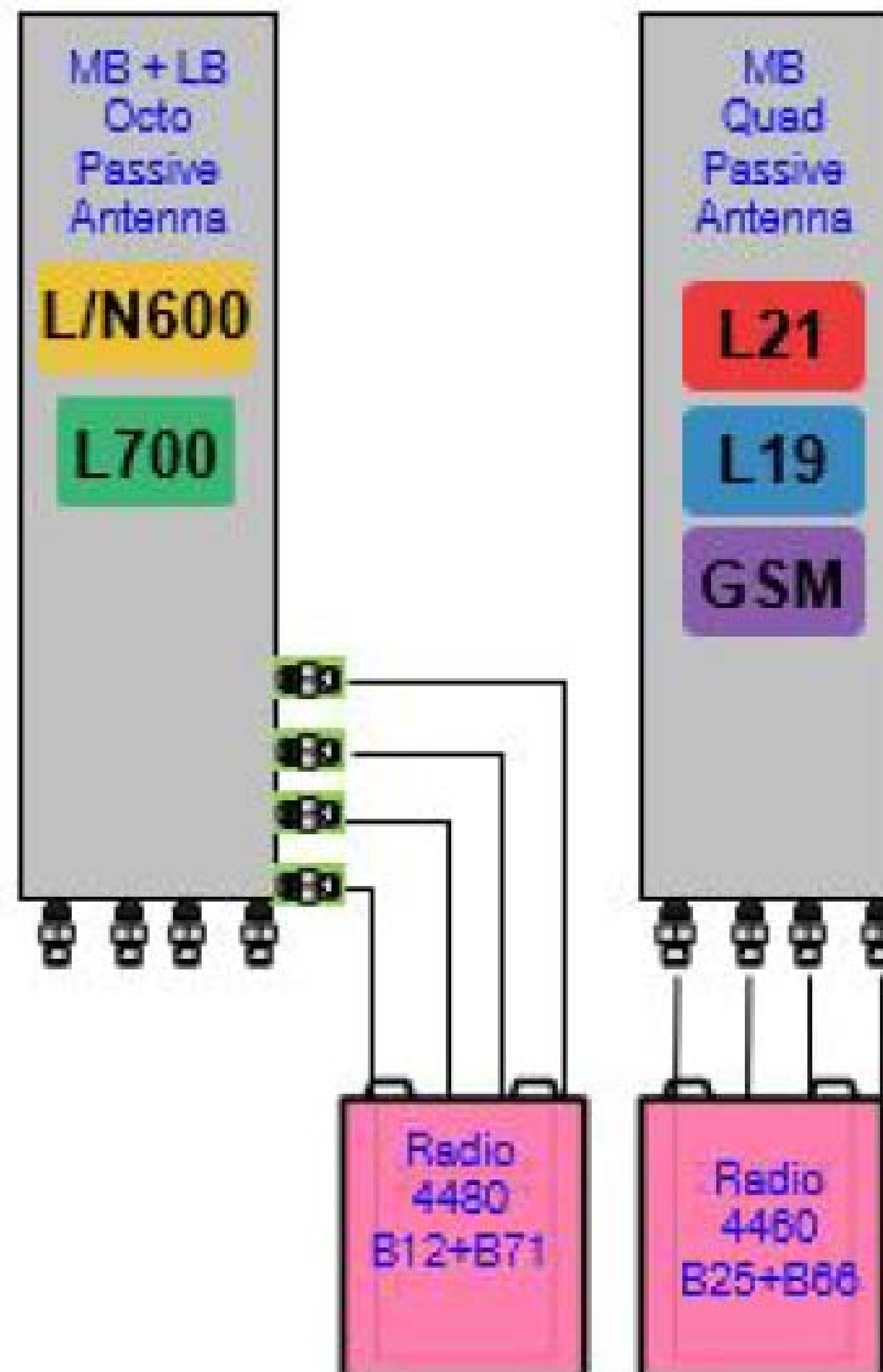
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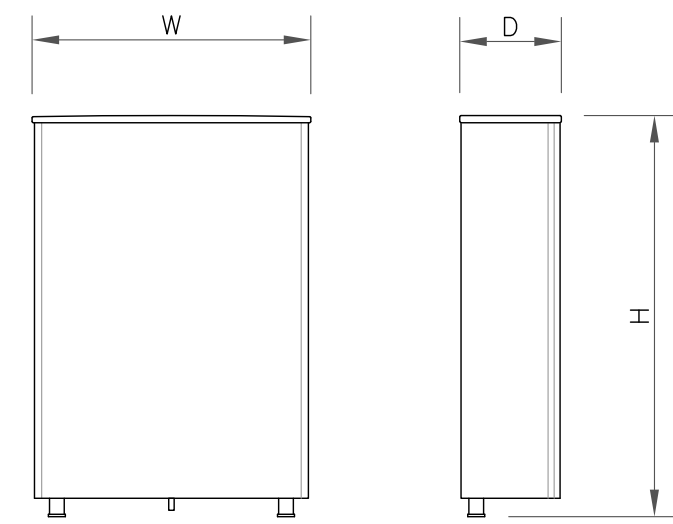
C-4

REVISION:

0

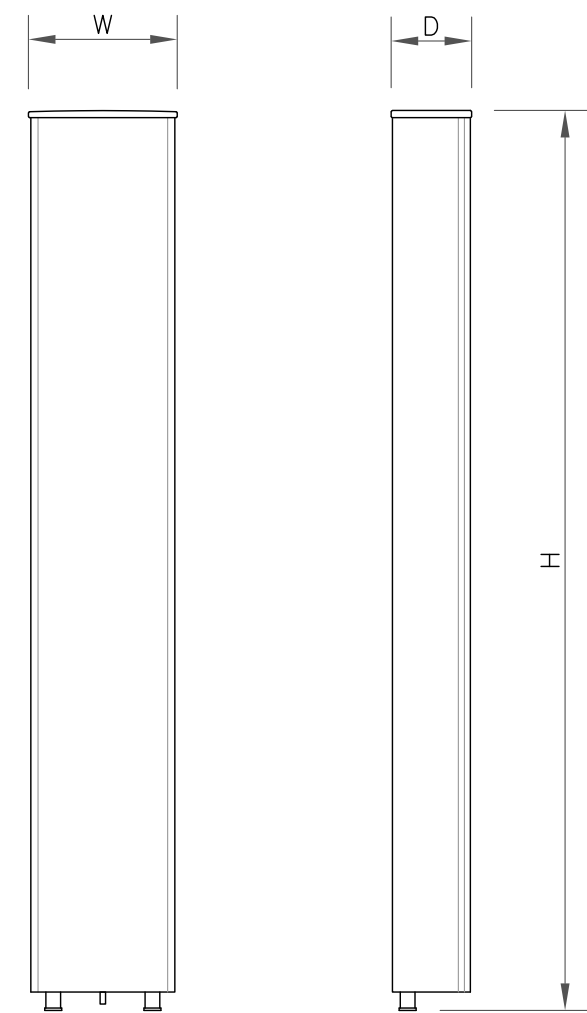


1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE



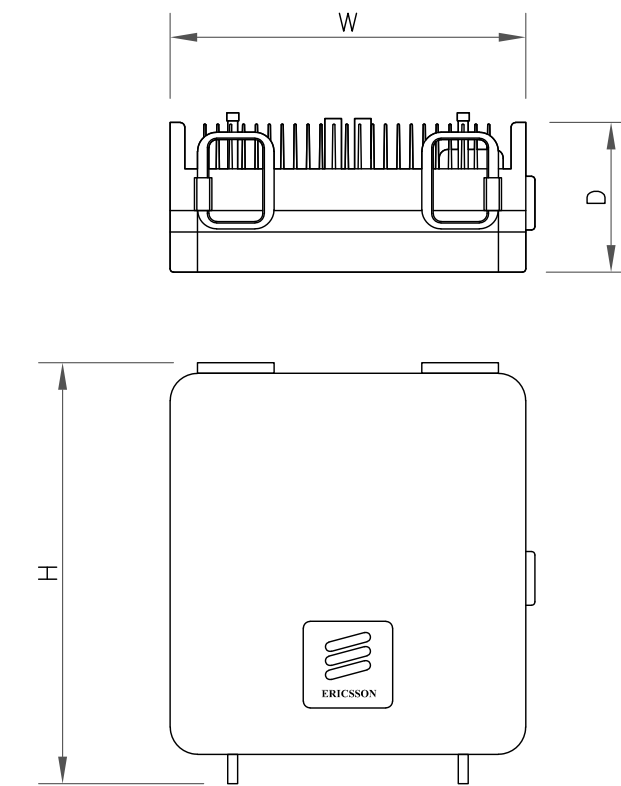
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS	
MANUFACTURER	COMMSCOPE
MODEL #	VV-65A-R1
WIDTH	12.0"
DEPTH	4.6"
HEIGHT	54.70"
WEIGHT	33.30 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4460 B25+B66
WIDTH	15.10"
DEPTH	11.90"
HEIGHT	17.00"
WEIGHT	109.00 LBS

3 RRU SPECS
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

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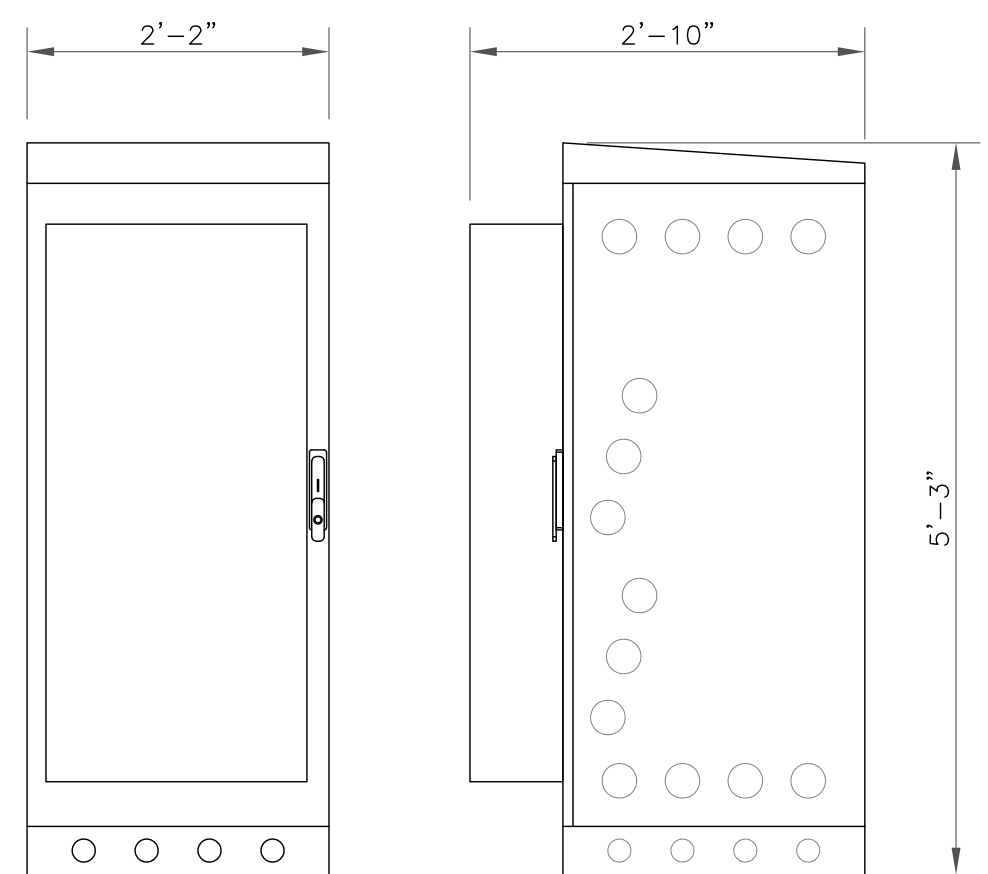
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SHEET NUMBER:

C-5

REVISION:

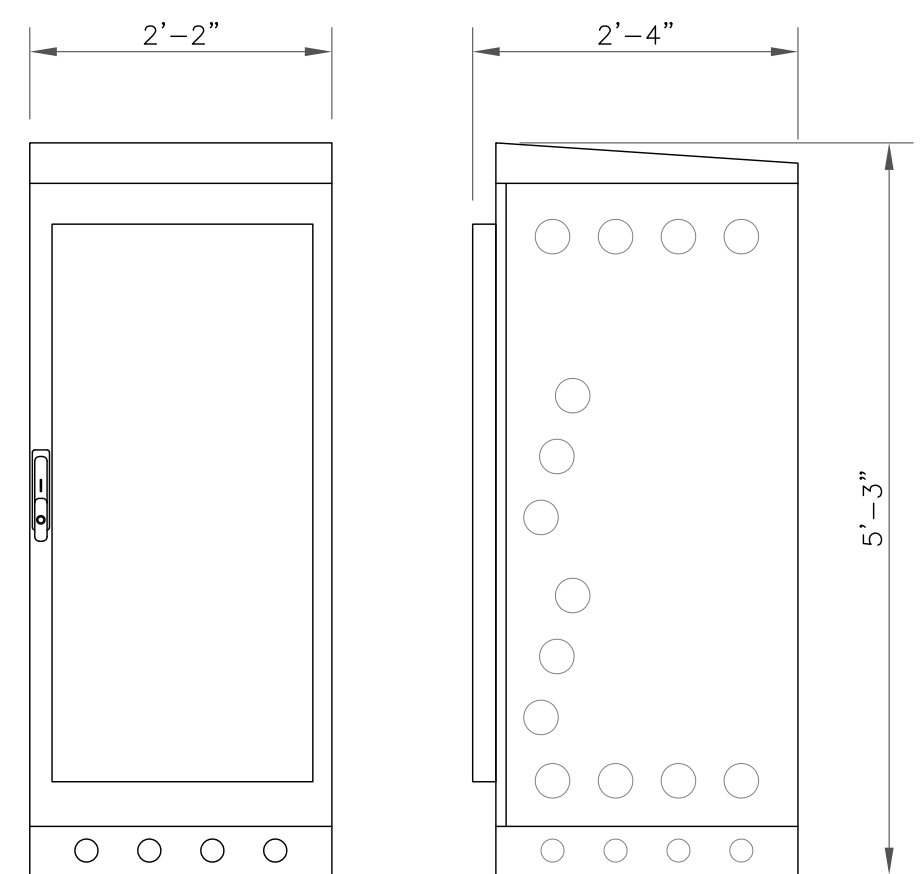
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EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 34.0"
(1600.0mm x 660.0mm x 864.0mm)
WEIGHT (EMPTY): 320 LBS (145 kg)
WEIGHT (FULLY LOADED): 1,500 LBS (681 kg)

5 ERICSSON - 6160
SCALE: NOT TO SCALE



EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 28.0"
(1600.0mm x 660.0mm x 711.0mm)
WEIGHT (EMPTY): 295 LBS (134 kg)
WEIGHT (FULLY LOADED): 2,000 LBS (908 kg)

6 ERICSSON - B160
SCALE: NOT TO SCALE

7 NOT USED
SCALE: NOT TO SCALE

8 NOT USED
SCALE: NOT TO SCALE

1:35737.006.01_MAYBROOK_BOND.dwg - Sheet#E-1 - User: kevin.turkall - Jun 27, 2022 - 1:15pm

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
TVSS	2	60	1	13	20	1	PANEL GFCI
			2	14	15	1	AAV GFCI
SPARE	2	80	3	15	20	1	AAV OUTLET
			4	16	20	1	LIGHT
6160 CABINET	2	125	5	17	125	2	CTNH032H
			6	18			
GFI	1	20	7	19			
			8	20			
			9	21			
			10	22			
			11	23			
			12	24			

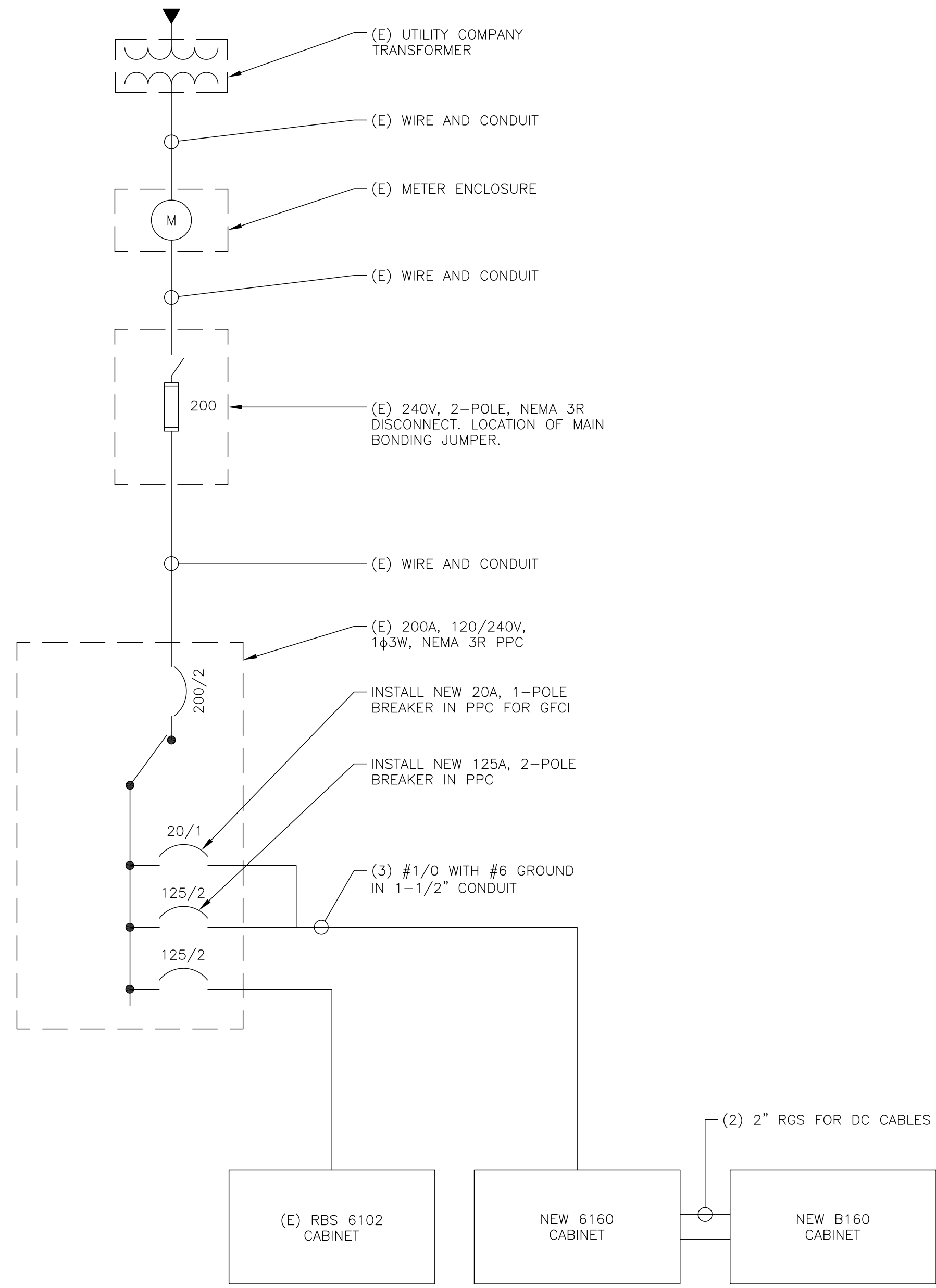
RATED VOLTAGE: 120/240 _____ 1 PHASE, 3 WIRE
 BRANCH POLES: 12 24 30 42
 APPROVED MFR'S
 RATED AMPS: 100 200 400 _____
 CABINET: SURFACE FLUSH NEMA 1 3R 4X
 MAIN LUGS ONLY MAIN 200 AMPS BREAKER FUSED SWITCH HINGED DOOR KEYPED DOOR LATCH
 FUSED CIRCUIT BREAKER BRANCH DEVICES _____ TO BE GFCI BREAKERS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

INSTALL BREAKERS IN POSITIONS 5 AND 6 WITH A NEW 2P 125A BREAKER
 INSTALL NEW 1P 20A BREAKER IN POSITION 7
 IF 125A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL Q012040M200RB (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

1 FINAL T-MOBILE PANEL DETAIL
SCALE: NOT TO SCALE

NOTES:

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



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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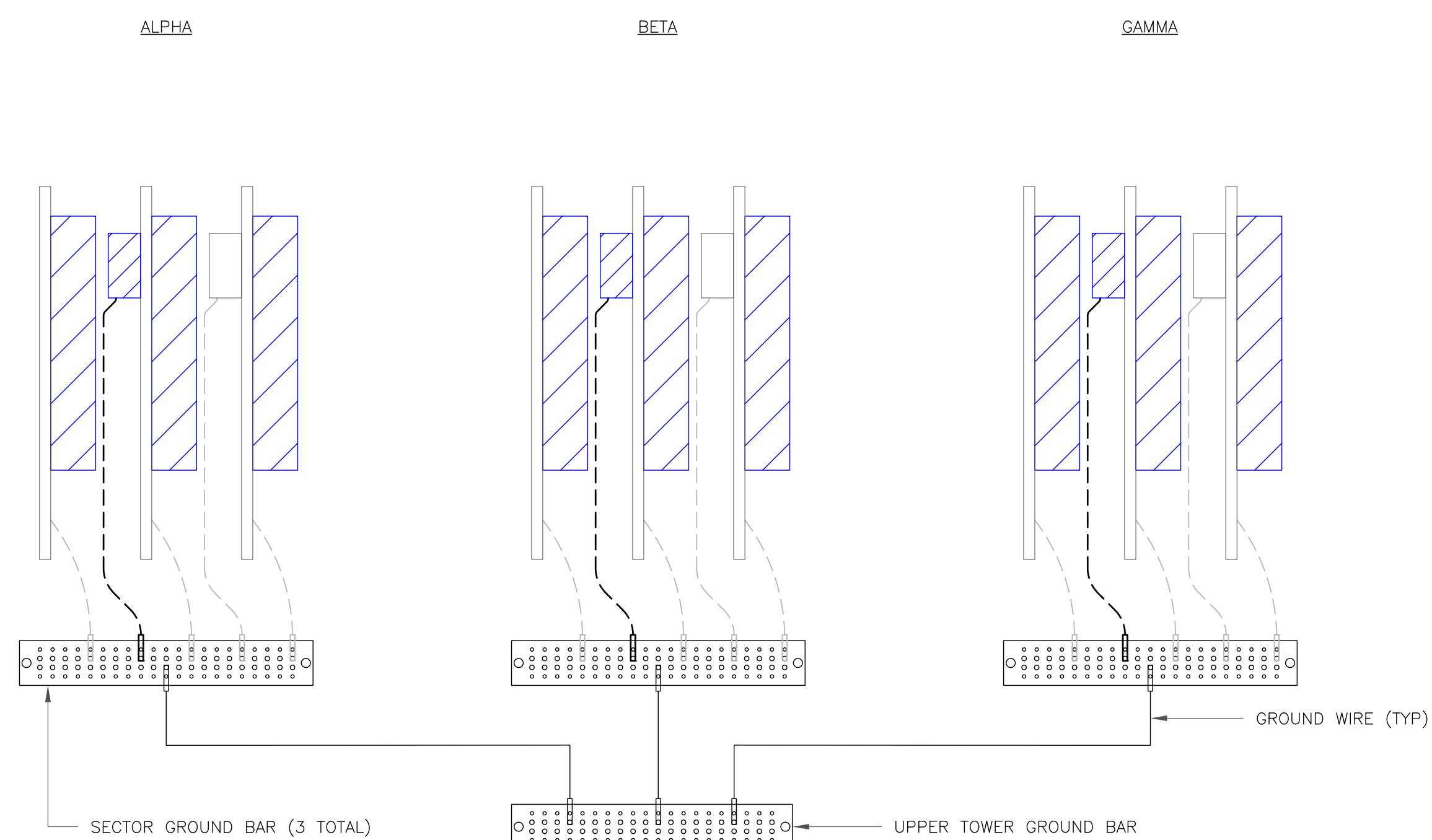
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NOTE:
ALL NEW GROUNDS TO BE #6 STRANDED
COPPER WITH GREEN INSULATION UNLESS
NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



6/27/22

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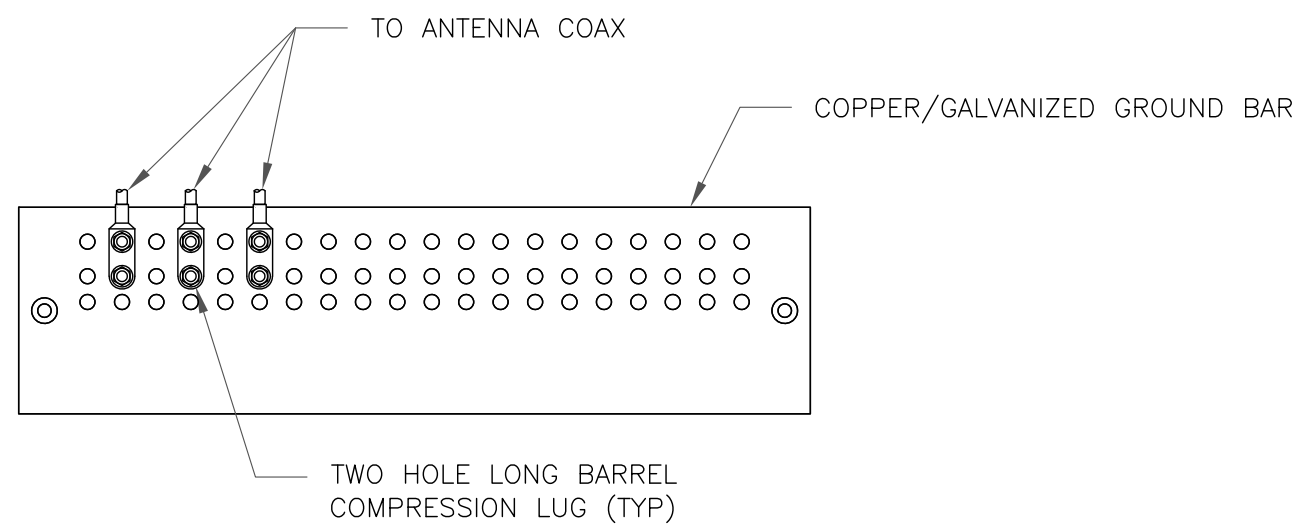
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SHEET NUMBER:

G-1

REVISION:

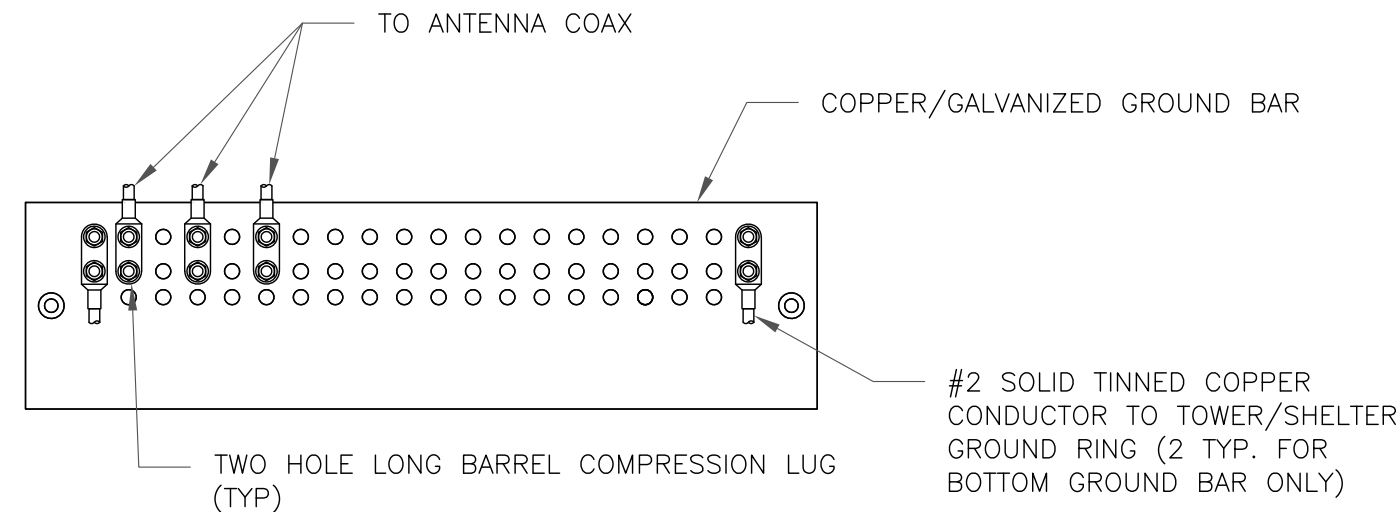
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NOTES:

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

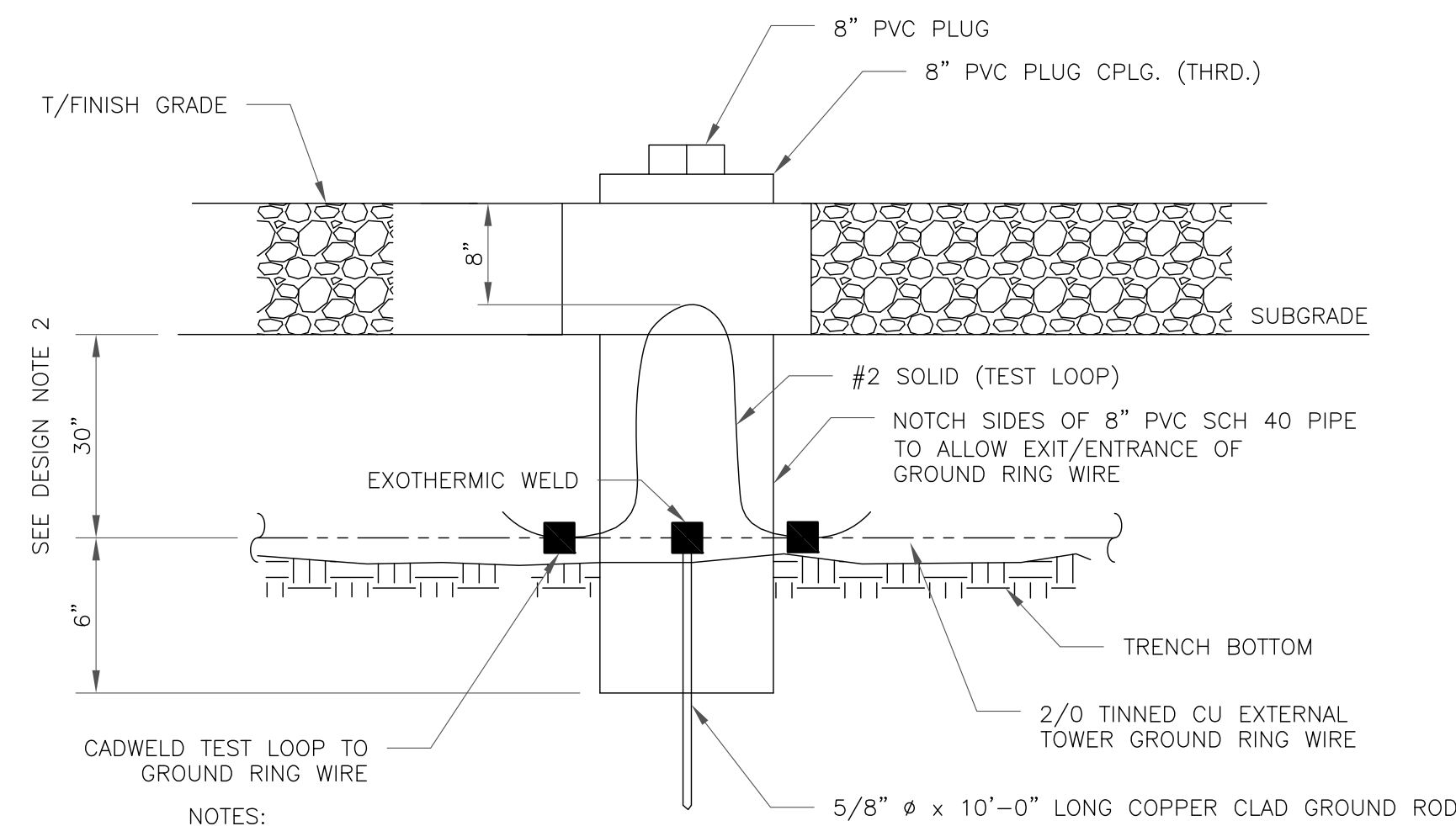
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

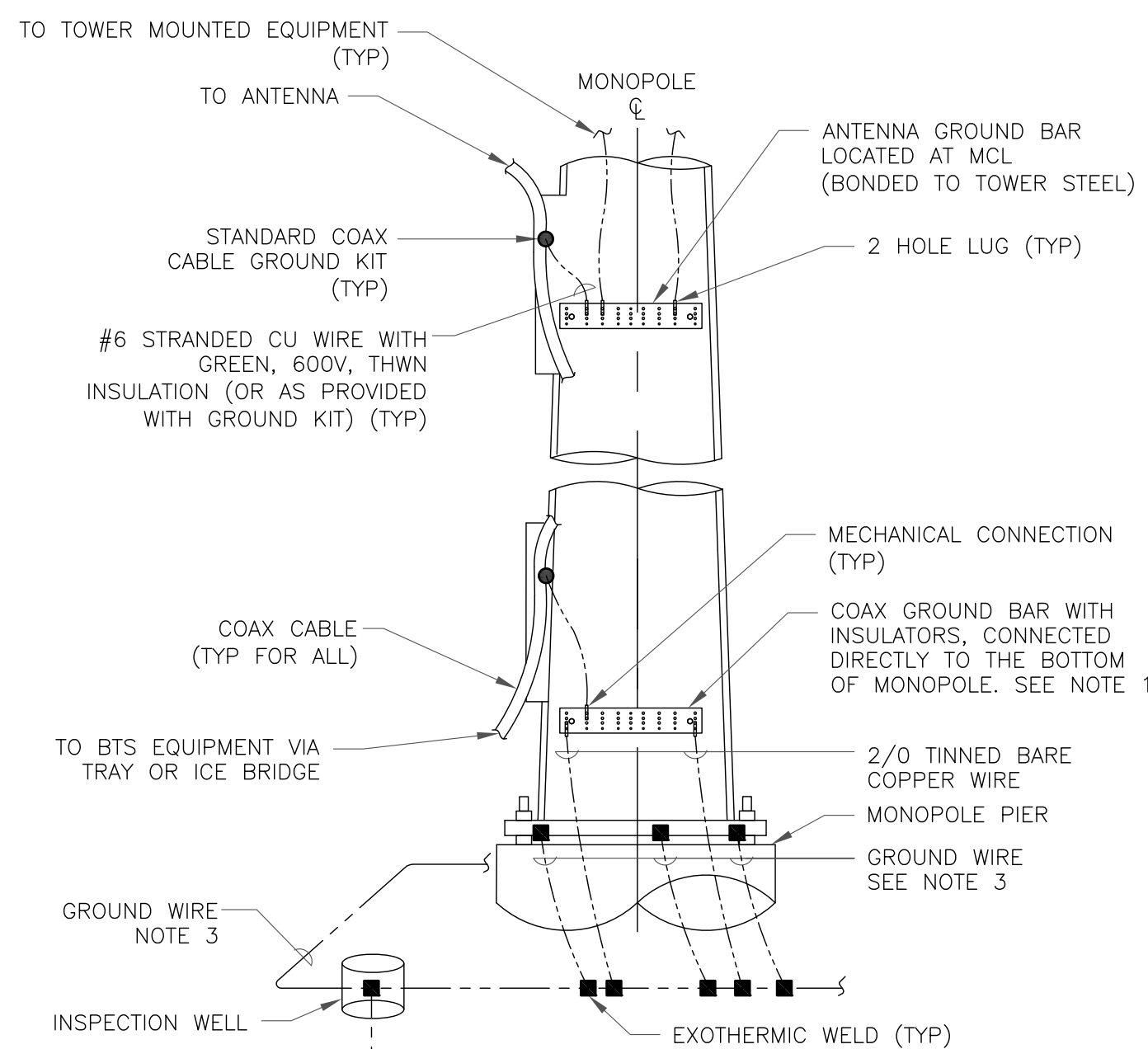
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

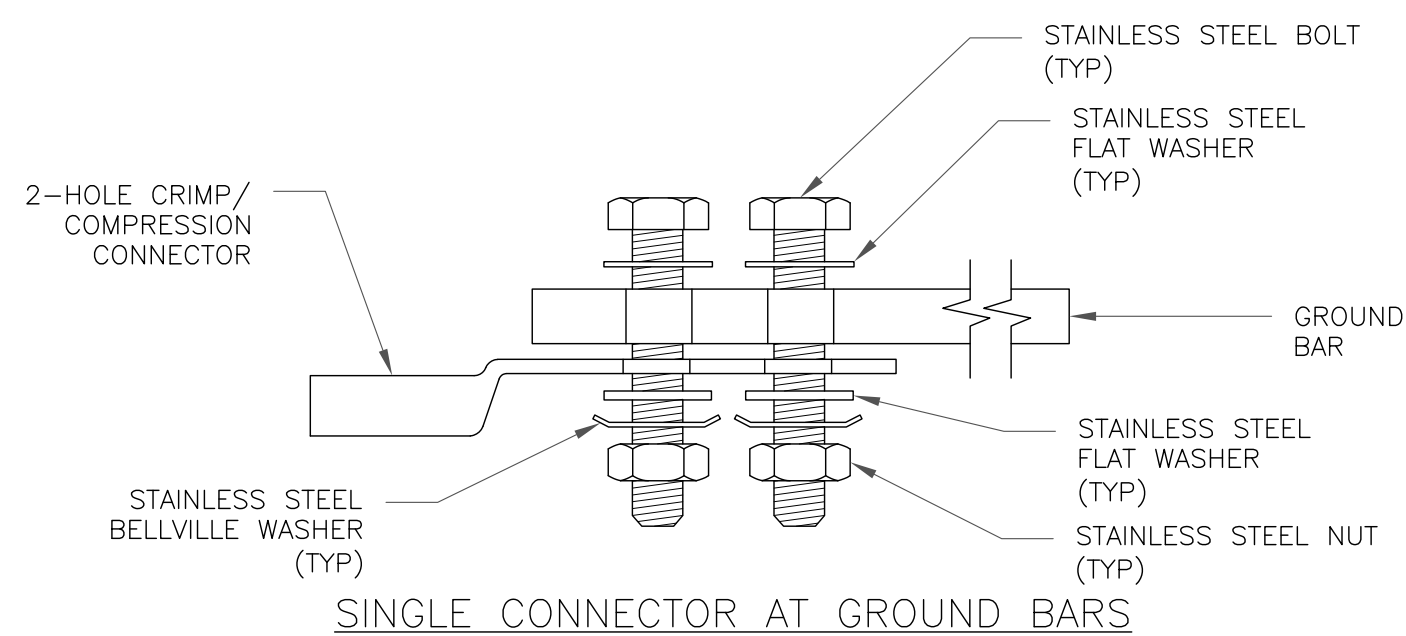
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



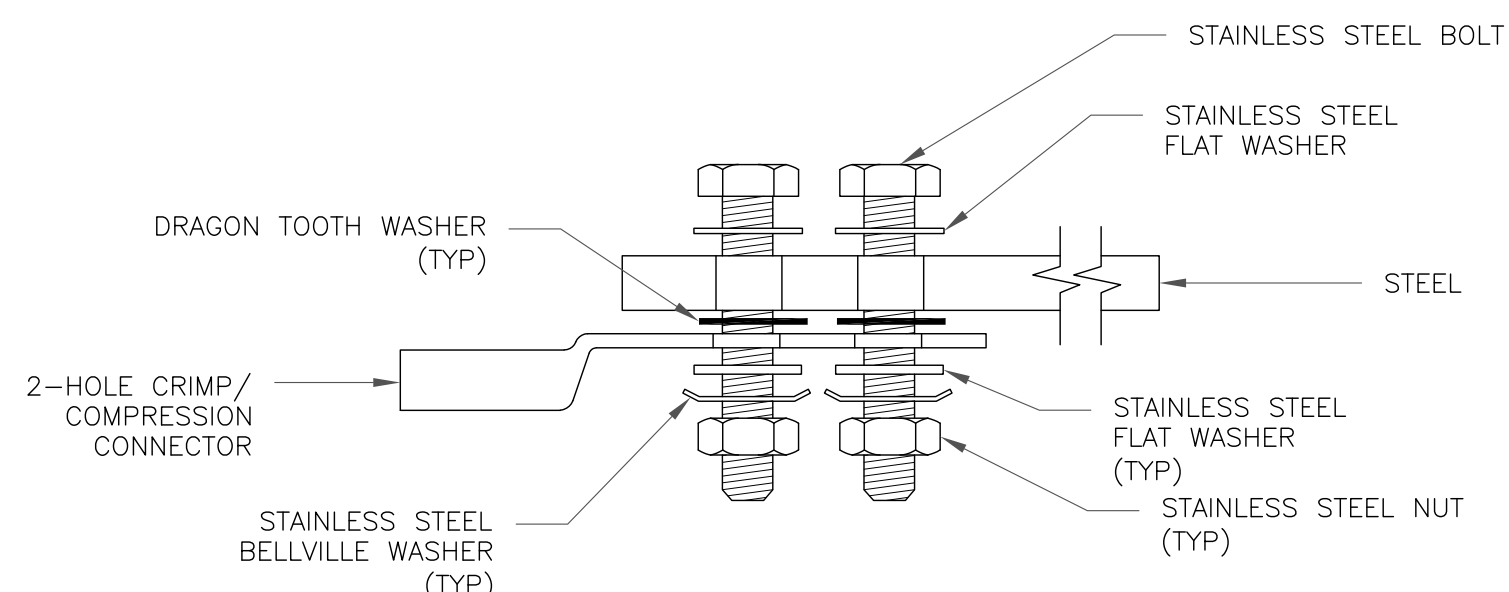
NOTES:

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

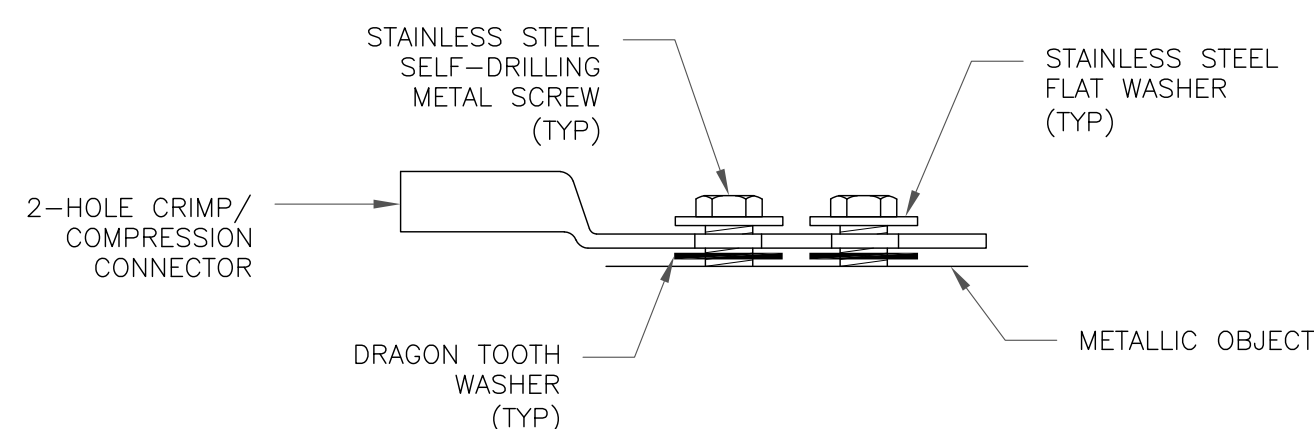
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

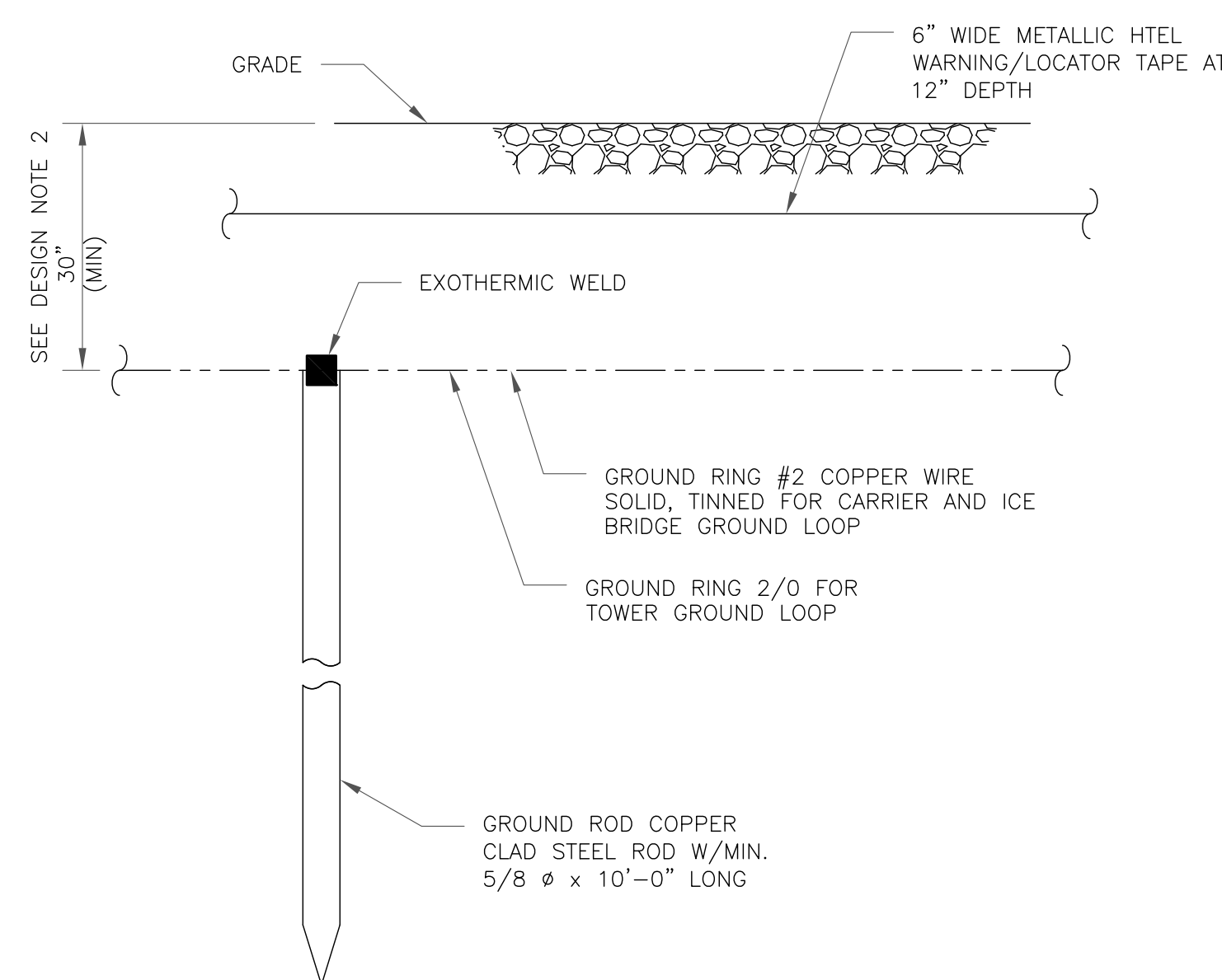


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

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

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

T-MOBILE SITE NUMBER:
CTNH032H

BU #: **876370**
MAYBROOK / BOND

41 BECKWITH RD.
MONTVILLE, CT 06370

EXISTING
180'-0" MONOPOLE

ISSUED FOR:

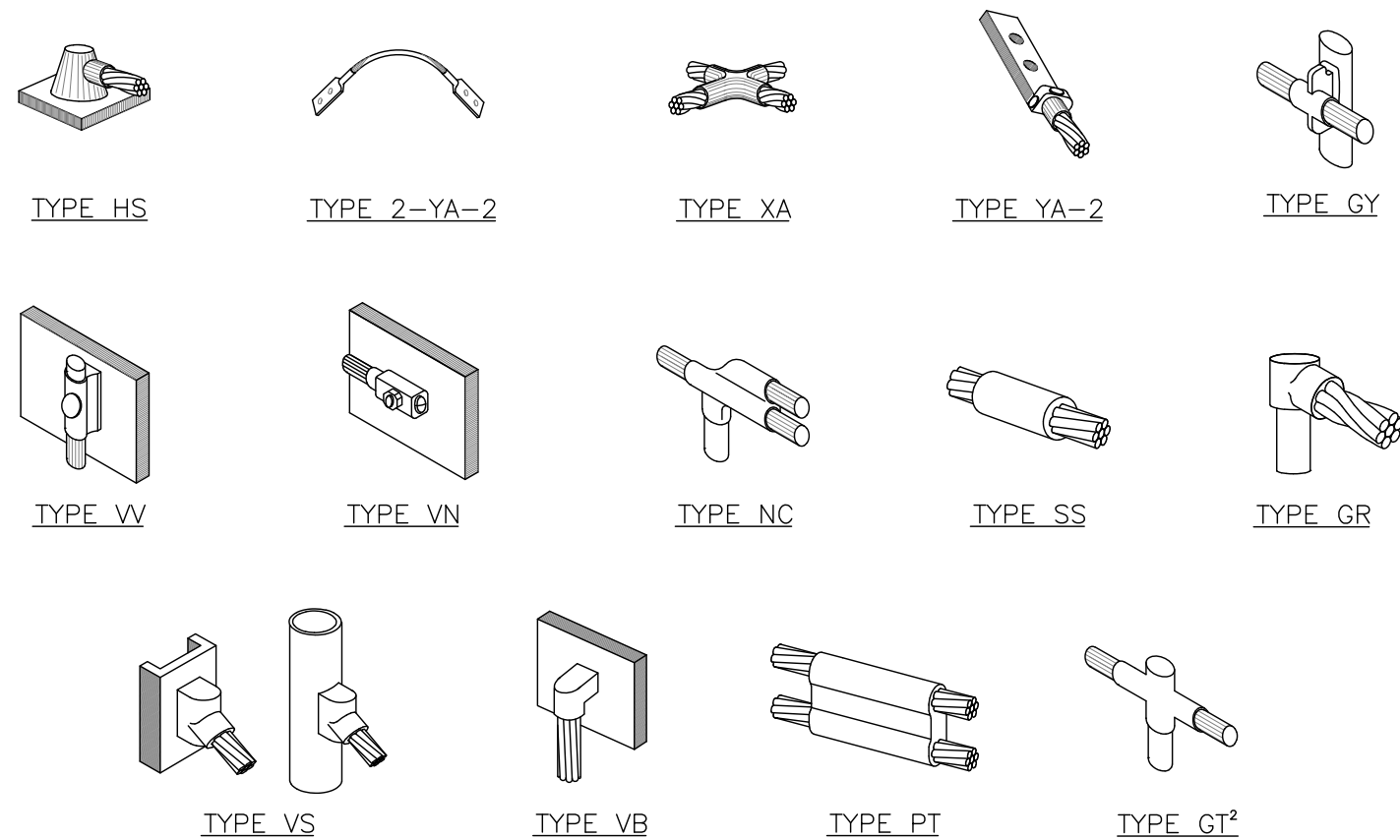
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	6/3/22	DAS	PRELIMINARY REVIEW	KT
B	6/17/22	DAS	CONSTRUCTION	KT
0	6/27/22	DAS	CONSTRUCTION	KT



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

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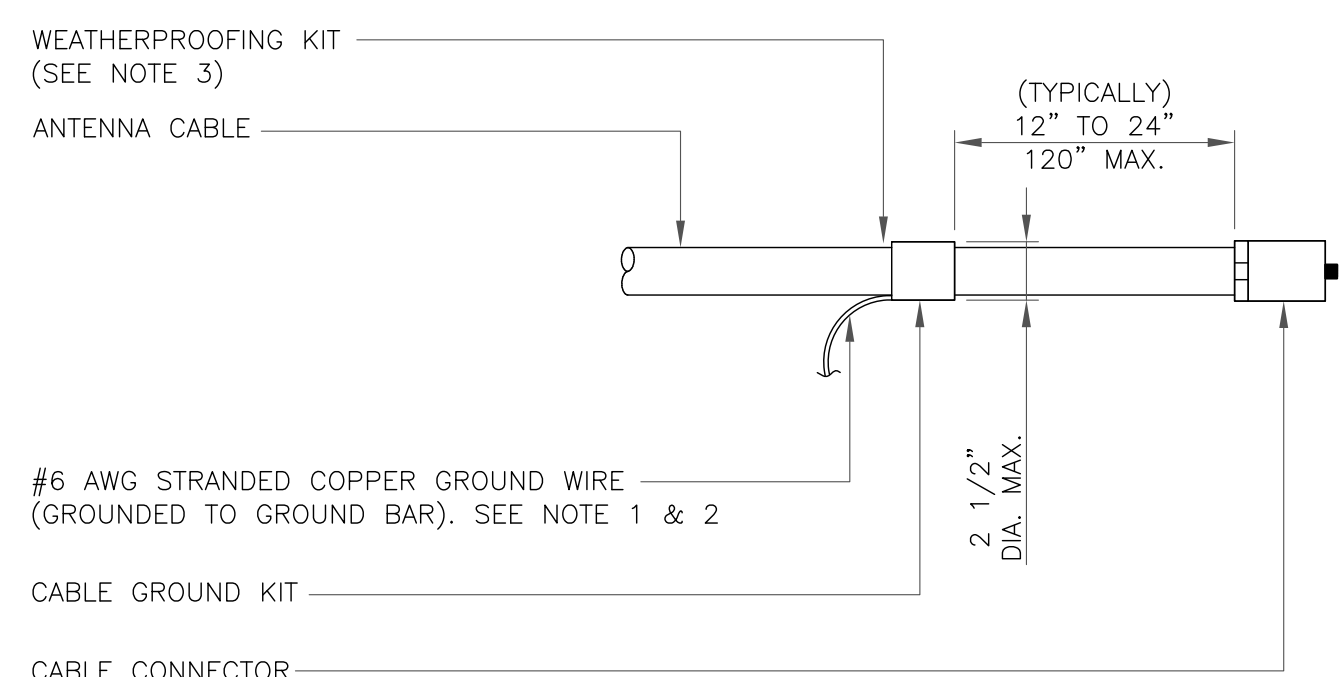
SHEET NUMBER: **G-2** REVISION: **0**



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.

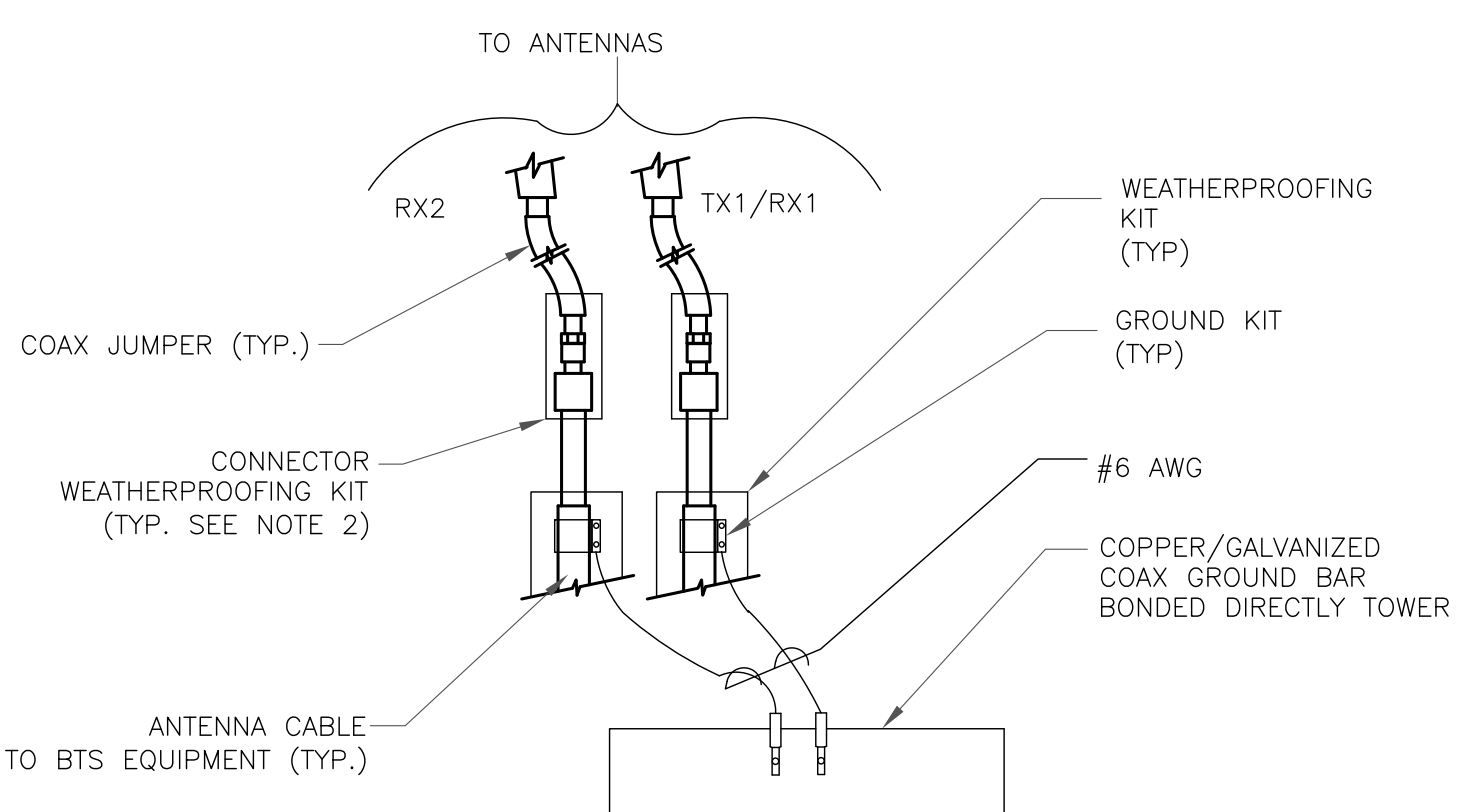
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



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.

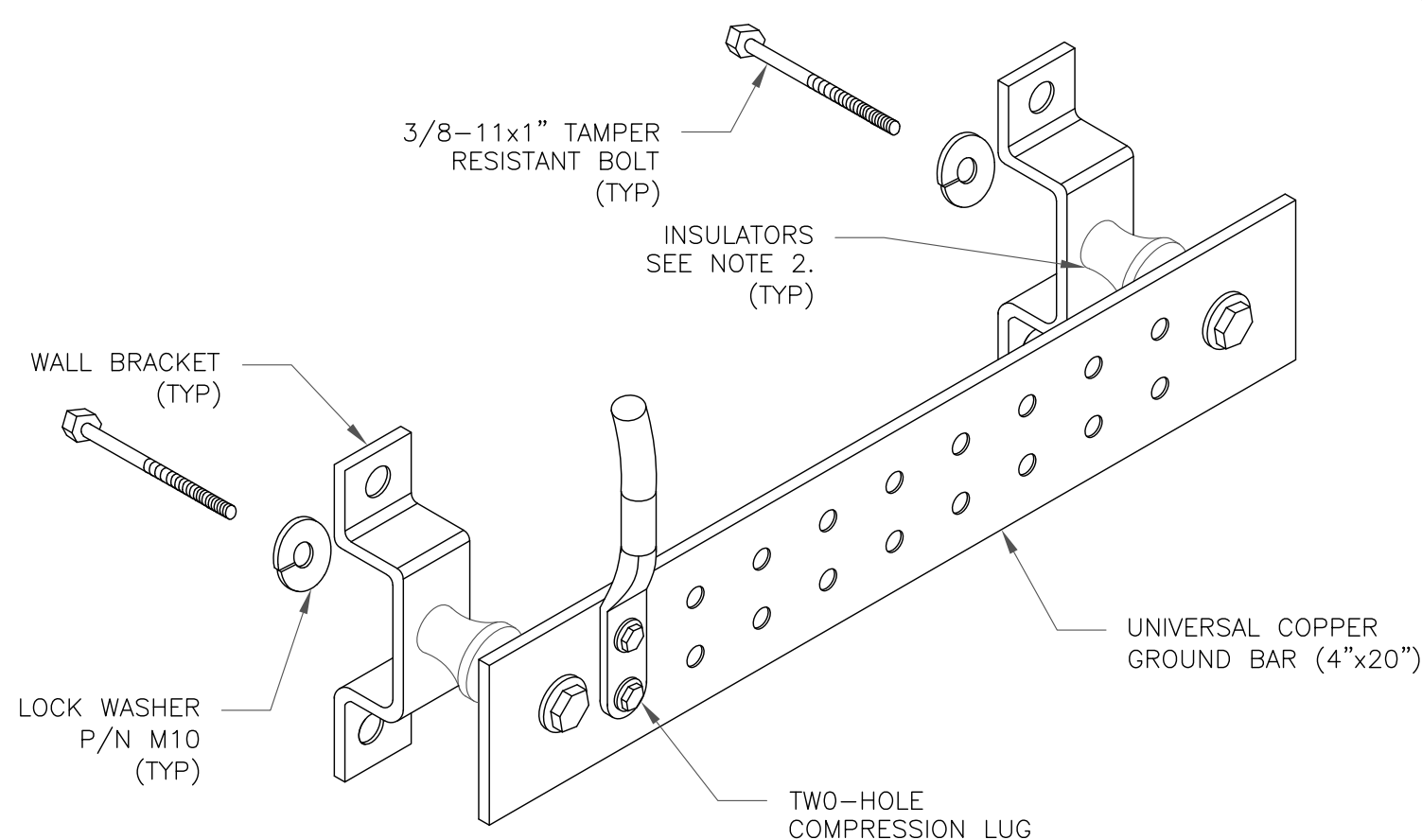
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



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.

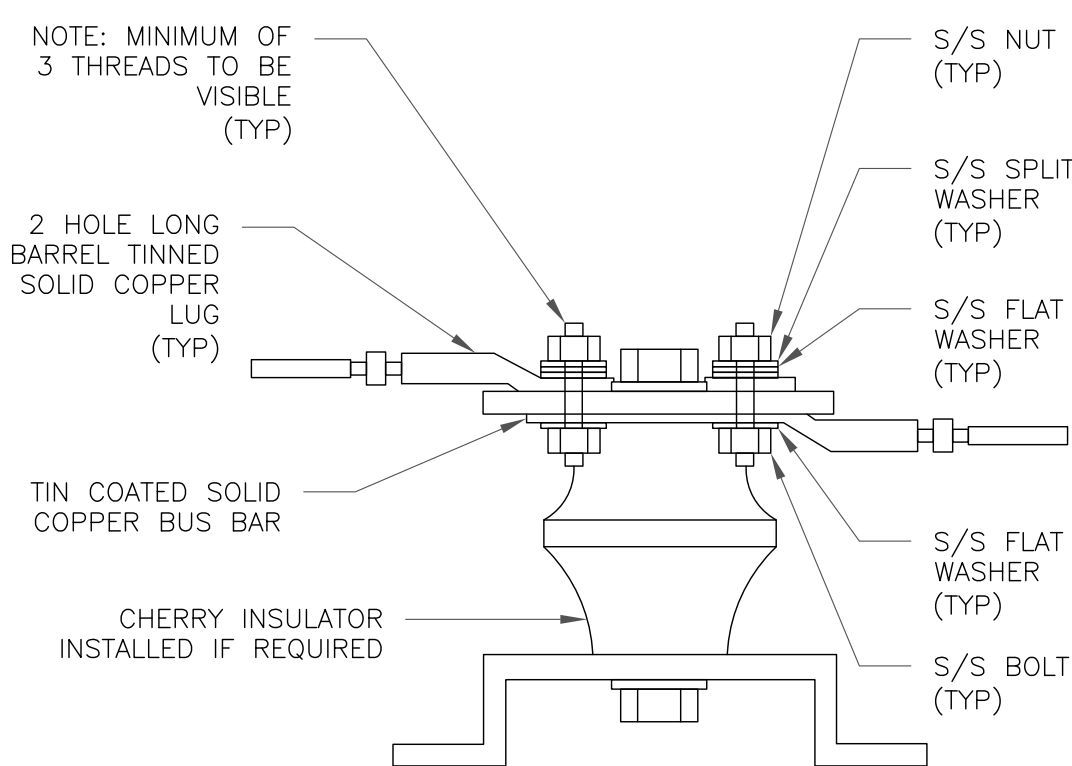
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



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.

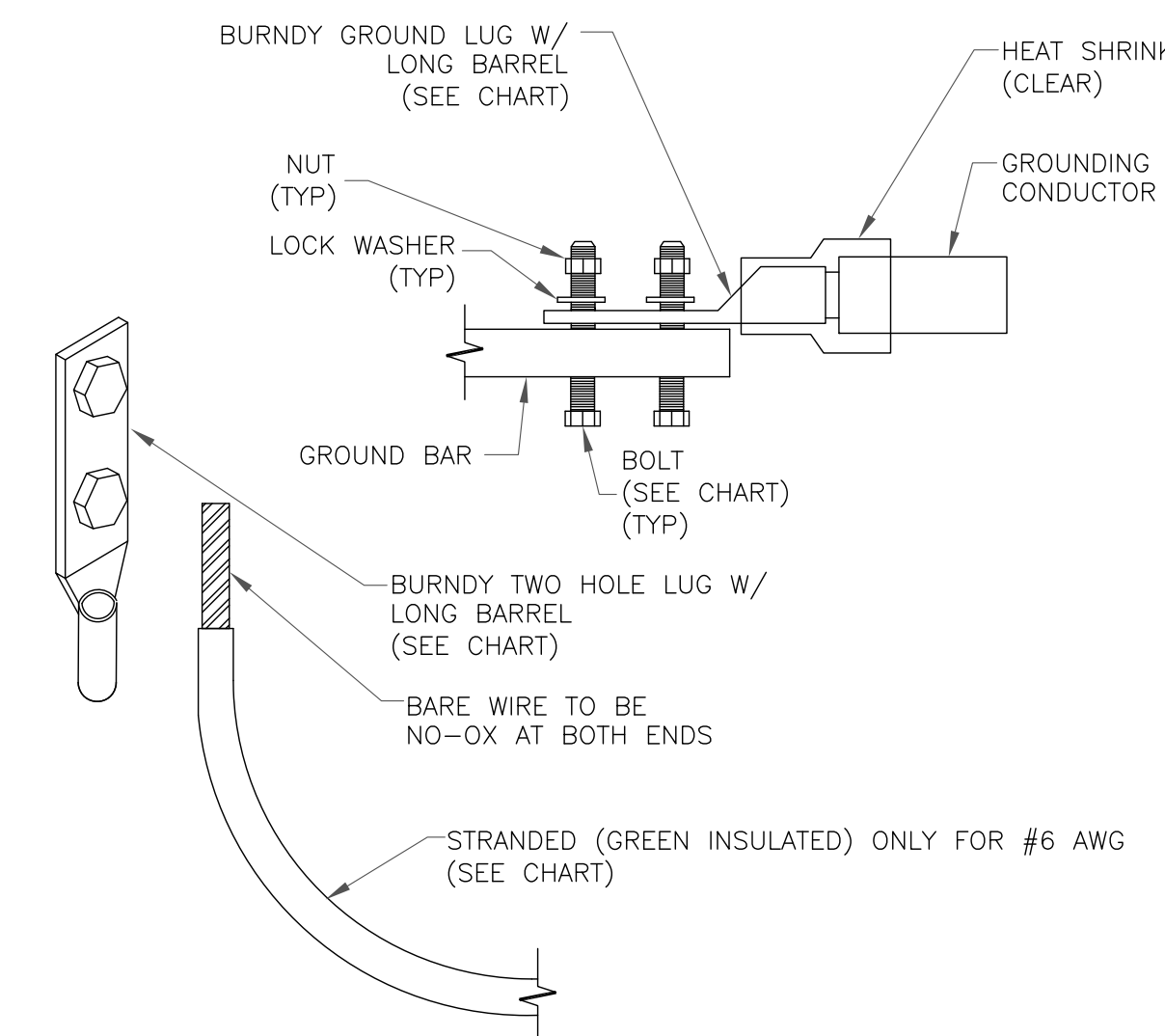
6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTE: MINIMUM OF 3 THREADS TO BE VISIBLE (TYP)

7 LUG DETAIL
SCALE: NOT TO SCALE

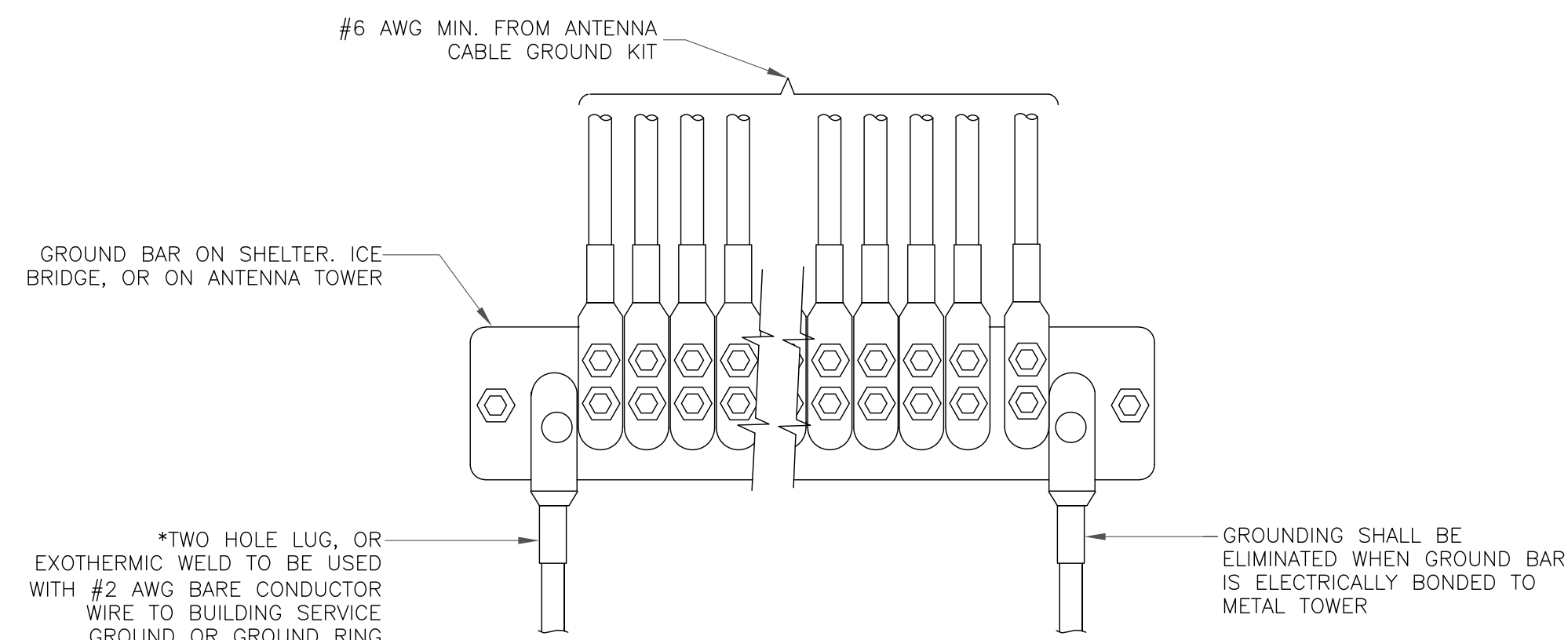
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



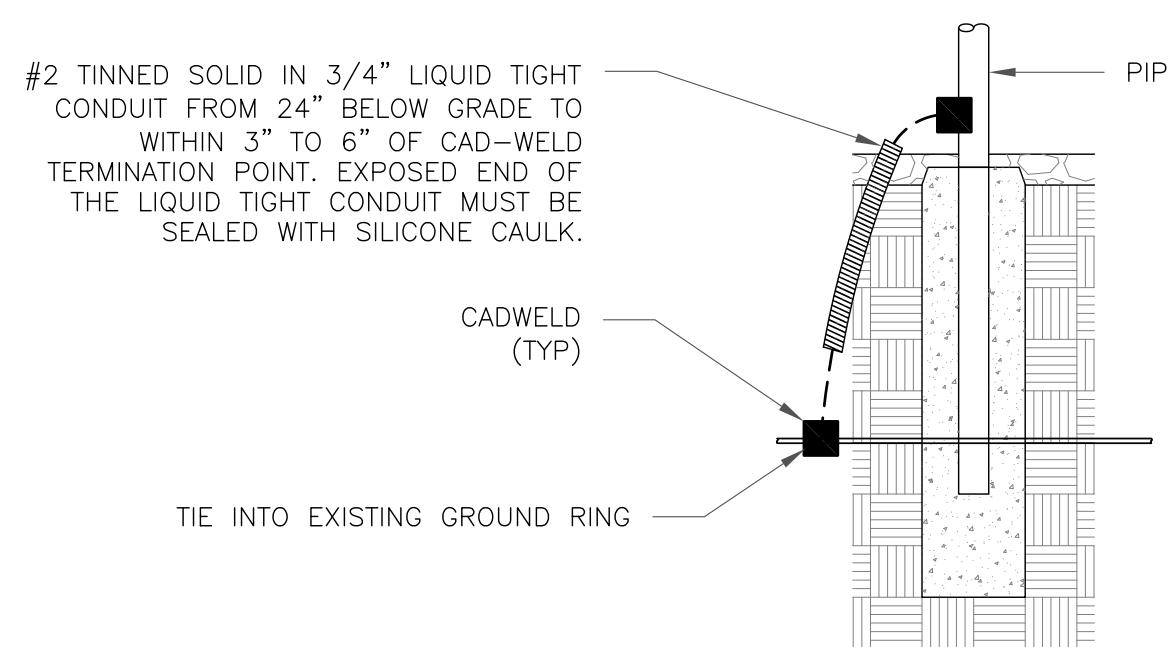
NOTES:

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



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile

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PARSIPPANY, NJ 07054

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SHEET NUMBER:

G-3

REVISION:

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