



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

March 15, 2022

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

RE: **Notice of Exempt Modification for T-Mobile: CTHA846A/841793**
50 Pine Lane, Windsor, CT 06095
Latitude: 41° 49' 11.43" / Longitude: -72° 40' 1.88"

Dear Ms. Bachman:

T-Mobile currently maintains seven (7) antennas at the 109-foot mount on the existing 148-foot monopole tower located at 50 Pine Lane, Windsor, CT. The property is owned by the Town of Windsor and the tower is owned by Crown Castle. T-Mobile now intends to replace seven (7) antennas, add two (2) new antennas and ancillary equipment at the 109ft level. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:

- (3) Ericsson – AIR6449 B41 Antennas
- (3) RFS-APXVAALL24_43-U-NA20 Antennas
- (3) RFS-W-65-R1 Antennas
- (3) Ericsson- Radio 4449 B71+B85 RRU
- (3) Ericsson-Radio 4460 B25 + B66 RRU
- (3) Hybrid Cable (1-5/8")
- (1) Antenna Mount Replace

Remove:

- (3) Argus Tech – LLPX310R Antennas
- (2) Andrew – VHLP800 Microwave Dish
- (2) Andrew – VHLP2-18 Microwave Dish
- (3) Samsung Telcomme – RRH- 2WB
- (3) T-Arm Antenna Mounts

Ground:

Install New:

- (1) 6160 Cabinet
- (1) B160 Battery Cabinet
- (1) CSR IXRE V2 (Gen2) Router
- (1) PSU 4813 Voltage Booster
- (3) BB 6648 In New RBS 6160 Cabinet
- (1) RBS 6601 In New RBS 6160 Cabinet
- (1) DUG20

The facility was approved by the Windsor Town Planner and Zoning Commission October 10, 2000 by way of Special Use Permit #547. This approval was given without conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mr. Peter Souza, Town Manager for the Town of Windsor, Mr. Eric Barz, Town Planner for the Town of Windsor. Town of Windsor is the property owner and Crown Castle is the tower owner.

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

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

Melanie A. Bachman

Page 3

Sincerely,



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

Attachments

cc:

Peter Souza, Town Manager (via FedEx)
Town Manager's Office
275 Broad Street
Windsor, CT 06095
860.285.1981

Eric Barz, AICP, Town Planner (Via FedEx)
Planning Department
275 Broad Street
Windsor, CT 06095
860.285.1981

Town of Windsor – Property Owner

Crown Castle - Tower Owner



RECEIVED

SEP 08 2000

TOWN OF WINDSOR
PLANNING DEPT.

SU#547

AM
TTC
10:10:00

Application for a
Special Use

Town Planning and Zoning Commission

Your Name Town of Windsor Your Phone # 860-285-1877
AT&T Wireless PCS, LLC 203-831-4011

Your Address 275 Broad Street, Windsor, Connecticut 06095
149 Water Street, Norwalk, Connecticut 06854

Are You the.... Owner Optionee Buyer Agent Other
If Other please explain Lessee

Owner's Name (If other than applicant) Town of Windsor Owner's Phone # 860-285-1877

Owner's Address 275 Broad Street, Windsor, Connecticut 06095

Address of Subject Parcel(s) 50 Pine Lane

Size of Subject Parcel(s) 258,311 Sq. Ft. Zone of Subject Parcel(s) NZ

Please describe the Special Use Wilson Firehouse Municipal Tower Facility/Wireless Facility Co-location

Applicable Section(s) of Zoning Regulations 12.2 & 2.2.19E(1)

Please describe how the Special Use will benefit the Town of Windsor (feel free to use the other side).
Additional material to be supplied.

Your Signature
Christopher B. Fisher
Attorney for the Applicant

September 5, 2000
Date

Owner's Signature

9/6/00
Date

Office Use Only *****
Fee Paid _____ Application# _____ Application Received By _____
Date of Action _____ Approved _____ Disapproved _____
Approved \$/mo _____

I, Anita M. Mips, Chairperson of the Windsor Town Planning and Zoning Commission, hereby certify that on October 10, 2000 the Planning and Zoning Commission of the Town of Windsor granted approval of Special Use Application #547 for a Wireless Telecommunications Tower with a monopole height of 150 feet plus 13-foot Town public service whip antennas for a total height of 163 feet, under Zoning Regulations Sections 12.2 & 2.2.19E(1).

This approval also includes the following waivers in accordance with Zoning Regulations Section 12.1:

- 1) a waiver of the fall zone distance requirement for 73 feet in relation to the distance of the tower from the easterly property line, 163 feet being required and 90 feet being proposed;
- 2) a waiver of the fall zone distance requirement for 236 feet in relation to the distance of the tower from I-91 to the east, 326 feet being required and 90 feet being proposed;
- 3) a waiver of the fall zone distance requirement for 245 feet in relation to the distance of the tower from the residential zone to the north, 576 feet being required and 331 feet being proposed; and
- 4) a waiver of the fall zone requirement for 52 feet in relation to the distance of the tower from Putnam Memorial Highway to the south, 326 feet being required and 274 feet being proposed.

Said Special Use was granted for the property located at: 50 Pine Lane

The owner of record of said parcel is: Town of Windsor

Dated at Windsor, Connecticut, this 30th day of November, 2000

 Chairperson

Public Act #75-317

Received for Record this _____ day of _____, 2000

_____ Attest: Town Clerk



Town Hall • Windsor, CT 06095-2994

BUILDING PERMIT APPLICATION

PERMIT #: B-041172

ADDRESS OF WORK LOCATION: 50 PINE LANE WINDSOR, CT

TYPE OF PERMIT (Check One)

BUILDING (List size or sq. ft.)
 Foundation 12' x 20'
 Addition NA
 Acc. Structure 12' x 20'
 Deck NA
 Roofing/Siding (# Squares) NA
 Pool: Aboveground: NA Inground: NA
 Other NA

- ELECTRICAL**
- S. Change
- New Residential
- New Commercial
- Addition
- Pool Wiring
- Temporary Service
- Low Voltage
- Other
- PLUMBING**
- New Residential
- New Commercial
- Addition
- Fire Suppression
- Water Heater
- Other
- HVAC**
- New Residential
- New Commercial
- Addition
- Central Air
- Replace/Repair
- Other

New Residential (Total Gross Square Feet) NA
 Residential Renovation NA
 New Commercial (Total Gross Square Feet) 240 SQ FT
 Commercial Renovation (Square Feet of Renovated Space) NA
 Signs (size & type) NA

Copy to FMO

DESCRIPTION OF WORK (must fill out for all permits): Addition of Cingular Wireless antennas and pre-fab concrete equipment shelter to existing ATT Wireless monopole and compound.

Retail Market Value \$ 40,500 Fee: 550 Work Start Date: 5-24-04
 Owner: ATT WIRELESS (land), of Windsor (land) Applicant: CINGULAR WIRELESS (TIM BURKS)
 Address: (ATT) 15 East Midland Ave Address: 500 Enterprise Drive Suite 3A
5th Floor PARAMUS, NJ Zip 07652 ROCKY HILL, CT Zip 06067
 Phone # (Days): 201-576-2416 Phone # (Days): 860 513 7218
 License #: MCO 900137 Type: MAJOR CONTRACTOR Exp.: 6-30-04
CFM CONSTRUCTION ✓ OK

I understand that applying for this permit does not guarantee that it will be issued, and no work shall be done prior to the issuance of said permit or the approval of the **Building Official**. I agree to be in compliance with all applicable codes, standards, statutes, and ordinances which may pertain.

Applicant's Signature: Timothy M. Burks Print Name: TIMOTHY M. BURKS Date: 5/12/04

STAFF MEMBER Check Pertinent Items and initial:

Zoning OK - TP-2 Taxes Exempt/OK Worker's Comp. OK - CFM Wetlands OK - 4/15/04
 Other: _____ Septic _____ Sewer _____ Letter of Authorization ✓ T.O.W.
 Use Group: S-1 Construction Type: 2-C

Fee: Check Cash Transaction/Receipt #: 1172 Blanket Not Electrical

Special Conditions or Comments: All Work Per '99 Ct State Bldg Code Reqmts Incl. Section 114 Threshold Structures & Section 1705 Spec Insp. All Elect/Mech Work Req's Super Permits. Call For Inspections Noted - Allow 48HR Notice. Completion Letters + Documentation Req'd. for C&O Prior to Use. This is Cingular Colocate.

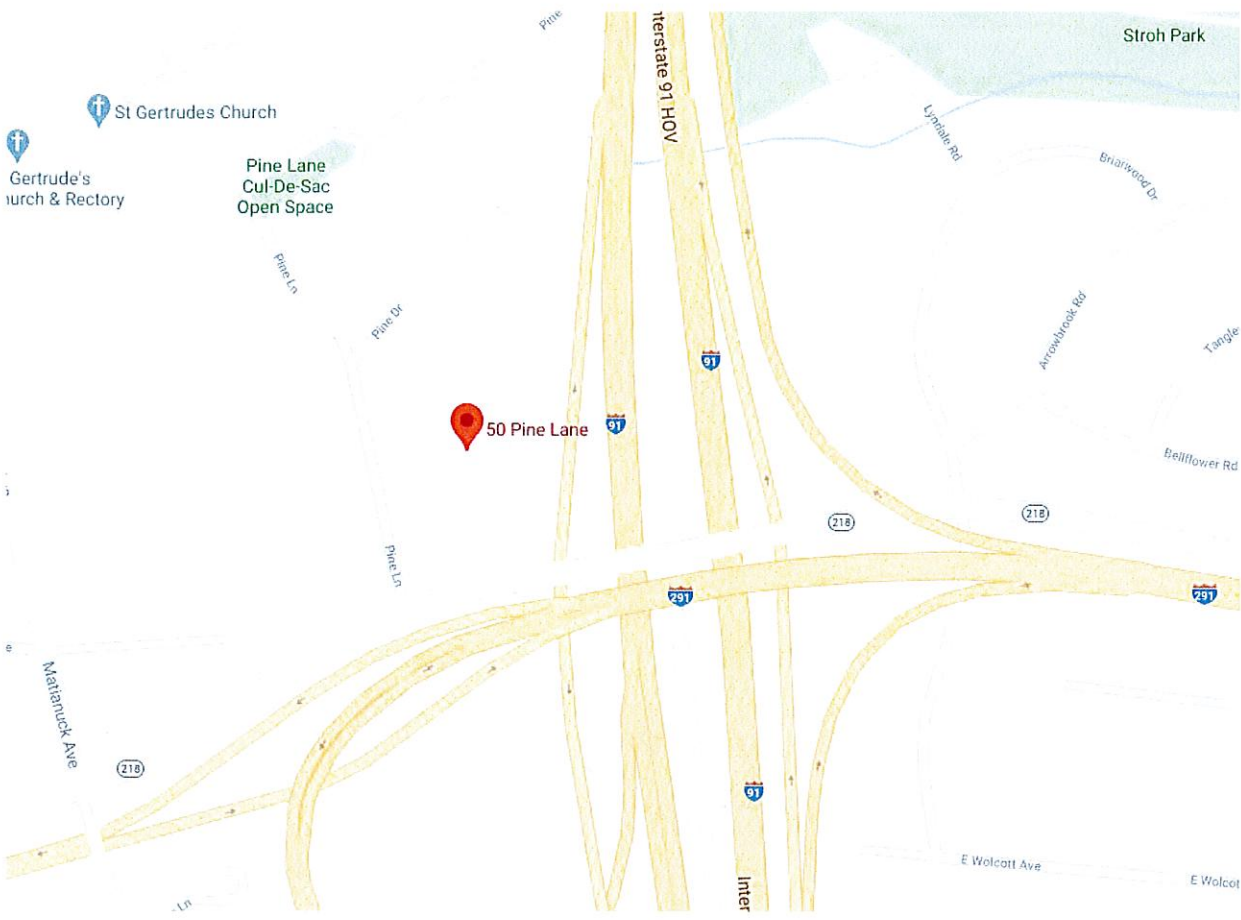
Reviewed & Issued By: Stephen Dupre CBO Date: June 17, 2004

Exhibit B

Property Card

CONSTRUCTION DETAIL		CONSTRUCTION DETAIL (CONTINUED)										
Element	Cd	Description	Element Cd Description									
Style: Model	94	Outbuildings										
Grade:	00	Vacant										
Stories:												
Occupancy												
Exterior Wall 1												
Exterior Wall 2												
Roof Structure:												
Roof Cover												
Interior Wall 1												
Interior Wall 2												
Interior Fir 1												
Interior Fir 2												
Heat Fuel												
Heat Type:												
AC Type:												
Total Bedrooms												
Total Bthrms:												
Total Half Baths												
Total Xtra Fixtrs												
Total Rooms:												
Bath Style:												
Kitchen Style:												
CONDO DATA												
Parcel Id	C	Ownr	S									
Adjust Type	Code	Description	Factor%									
Condo Fir												
Condo Unit												
COST / MARKET VALUATION												
Building Value New			0									
Year Built			0									
Effective Year Built												
Depreciation Code												
Remodel Rating												
Year Remodeled												
Depreciation %			0									
Functional Obsol			0									
External Obsol			0									
Trend Factor			1									
Condition												
Condition %												
Percent Good												
Cns Sect Rcnld												
Dep % Ovr												
Dep Ovr Comment												
Misc Imp Ovr												
Misc Imp Ovr Comment												
Cost to Cure Ovr												
Cost to Cure Ovr Comment												
OB - OUTBUILDING & YARD ITEMS(L) / XF - BUILDING EXTRA FEATURES(B)												
Code	Descript	Sub	Sub Tv	L/B	Units	Unit Pric	Yr Bilt	Cond. C	% Gd	Grade	Grade A	Appr. V
CB3	PerCast	L			360	350.00	2001		95		0.00	119.70
CB3	PerCast	L			240	350.00	2004		100		0.00	84.000
BUILDING SUB-AREA SUMMARY SECTION												
Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value						
Ttl Gross Liv / Lease Area		0	0	0								

No Sketch



St Gertrudes Church
Gertrude's Church & Rectory
Pine Lane Cul-De-Sac Open Space

50 Pine Lane

Stroh Park

Interstate 91 HOV

91

91

291

91

Inter

218

218

210

291

E Wolcott

E Wolcott Ave

Bellflower Rd

Tangle

Briarwood Dr

Arcambrook Rd

Lynnhale Rd

Pine Dr

Pine Ln

Marianuck Ave

Ln

Barbadora, Jeff

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Sent: Wednesday, March 16, 2022 8:57 AM
To: Barbadora, Jeff
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8:54am.



Delivered to 275 BROAD ST, WINDSOR, CT 06095
Received by M.MILLER

[OBTAIN PROOF OF DELIVERY](#)

TRACKING NUMBER [776302583781](#)

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

TO Town of Windsor
Peter Souza Town Manager
275 Broad Street
WINDSOR, CT, US, 06095

REFERENCE 799001.7680

SHIPPER REFERENCE 799001.7680

SHIP DATE Tue 3/15/2022 06:45 PM

DELIVERED TO Receptionist/Front Desk

PACKAGING TYPE FedEx Envelope

ORIGIN WESTBOROUGH, MA, US, 01581

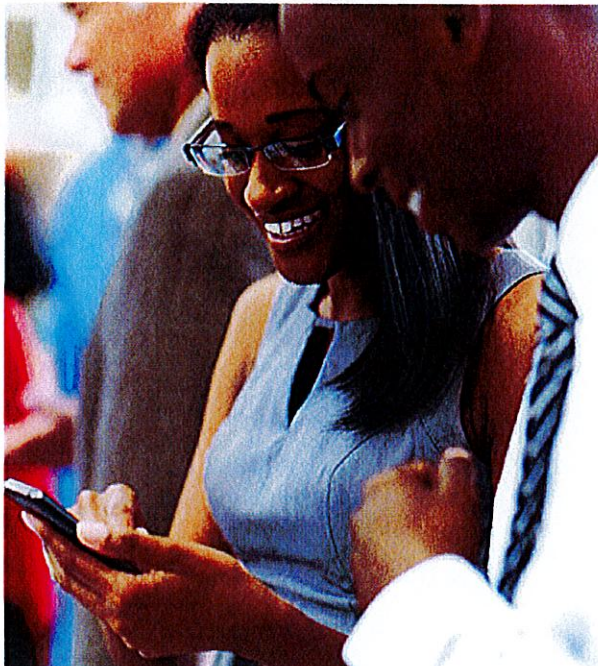
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SPECIAL HANDLING Deliver Weekday

NUMBER OF PIECES 1

TOTAL SHIPMENT WEIGHT 1.00 LB

SERVICE TYPE FedEx Priority Overnight



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Received by M.MILLER

[OBTAIN PROOF OF DELIVERY](#)

TRACKING NUMBER [776302602449](#)

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

TO Town of Windsor
Eric Barz Town Planner
275 Broad Street
WINDSOR, CT, US, 06095

REFERENCE 799001.7680

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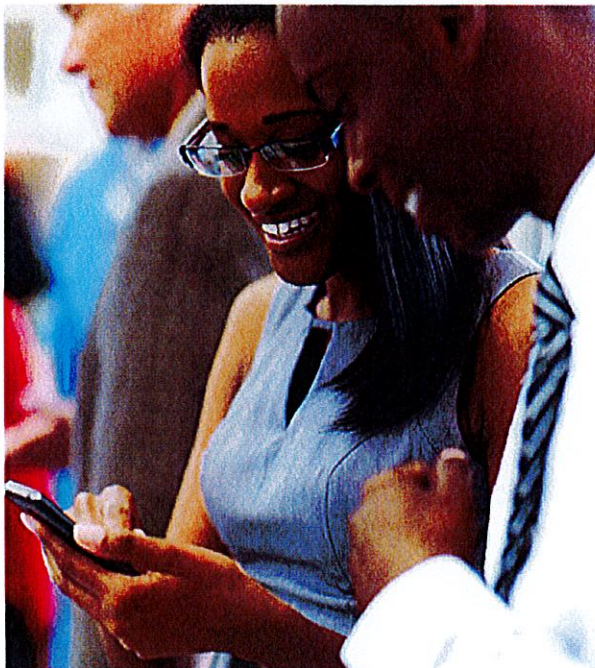
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NUMBER OF PIECES 1

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Date: **January 12, 2022**



Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-6909

Subject: **Structural Analysis Report**

Carrier Designation: **Clearwire Corp Co-Locate**
Site Number: CTHA846A
Site Name: CT52XC025

Crown Castle Designation: **BU Number:** 841793
Site Name: WINDSOR PINE LANE
JDE Job Number: 666757
Work Order Number: 2066347
Order Number: 567937 Rev. 7

Engineering Firm Designation: **Black & Veatch Corp. Project Number:** 406642

Site Data: **50 Pine Lane, Windsor, Hartford County, CT**
Latitude 41° 49' 11.43", Longitude -72° 40' 1.88"
147.458 Foot - Monopole Tower

Black & Veatch Corp. is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity - 89.3%**

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: Phakkapol Phithaksukseree

Respectfully submitted by:

Ping Jiang, P.E.
Professional Engineer

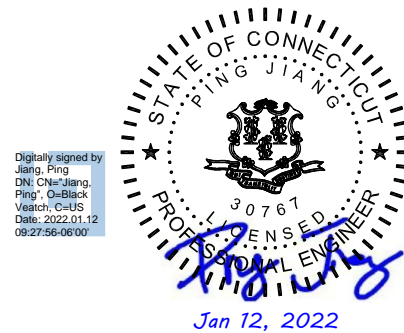


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1) INTRODUCTION

This tower is a 147.458 ft Monopole tower designed by Summit.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	2 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.179
Seismic S1:	0.064
Service Wind Speed:	60 mph
Seismic Loading:	Does not control per engineering judgment

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)
108.0	109.0	3	commscope	VV-65A-R1_TMO w/ Mount Pipe	3 3	1-5/8 conduit
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
	3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe			
	108.0	3	site pro 1	VFA10-SD-S 10' V-Frame		

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)
149.0	153.0	1	decibel	DB225-C	1	7/8
	149.0	1	cci tower mounts (v2.1)	Platform Mount [LP 1201-1]		
141.0	147.0	1	bird technologies group	432E-83I-01-T	1 2	1/2 7/8
		2	rfi antennas	CC807-11		
	141.0	2	cci tower mounts (v2.1)	Side Arm Mount [SO 901-1]		
140.0	140.0	1	cci tower mounts (v2.1)	Pipe Mount [PM 601-1]	1	EU90
		1	rfs celwave	SC3-W100ASTX		
129.0	130.0	2	cci antennas	DMP65R-BU6D	2	3/8
		1	cci antennas	DMP65R-BU8D	3	13/16
		3	ericsson	AIR 6419 B77G	6	1-1/8
		3	ericsson	AIR 6449 N77	8	conduit

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 32 B66A		
		3	ericsson	RRUS 4415 B25		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS E2 B29		
		3	quintel technology	QD6616-7		
		3	raycap	DC9-48-60-24-8C-EV		
	129.0	3	tower mounts	Sabre C1085278C		
118.0	118.0	1	cci tower mounts (v2.1)	Side Arm Mount [SO 308-1]	1	7/8
		1	rfi antennas	BPA7496-180-11 w/ Mount Pipe		
98.0	98.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-K6MHDX-9-96 (3)		
85.0	85.0	2	cci tower mounts (v2.1)	Side Arm Mount [SO 102-3]	5	13/32
		4	cci tower mounts (v2.1)	Side Arm Mount [SO 901-1]		
		1	wade antenna	WH 14-69/S		
		1	wade antenna	WL 14-69/S		
	83.0	2	wade antenna	WL 14-69/S		
	78.0	1	wade antenna	J105-HI		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4469790	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4469791	CCISITES
4-TOWER MANUFACTURER DRAWINGS	6064532	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary) (Monopole Tower)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	147.458 - 115.418	Pole	TP31.25x24x0.2188	1	-9.44	1187.33	25.2	Pass
L2	115.418 - 74.2933	Pole	TP37.75x29.9413x0.2188	2	-20.69	1445.66	86.8	Pass
L3	74.2933 - 39.21	Pole	TP44.625x36.5034x0.3125	3	-28.06	2428.89	76.4	Pass
L4	39.21 - 0	Pole	TP51.25x42.8761x0.375	4	-41.13	3433.41	77.1	Pass
							Summary	
						Pole (L2)	86.8	Pass
						Rating =	86.8	Pass

Table 5 - Tower Component Stresses vs. Capacity (Monopole Tower) - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	62.7	Pass
	Base Plate		89.3	Pass
1	Base Foundation (Structure)	0	43.7	Pass
	Base Foundation (Soil Interaction)		83.0	Pass

Structure Rating (max from all components) =	89.3%
---	--------------

Notes:

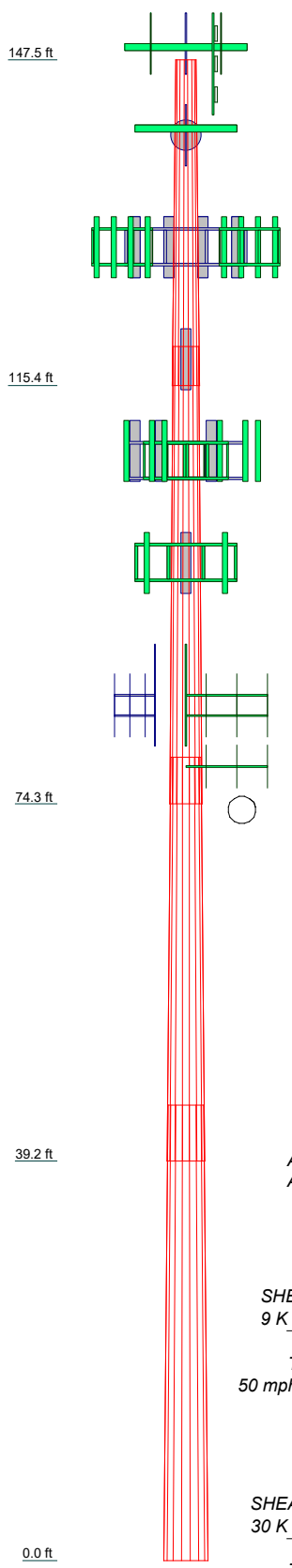
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity. Rating per TIA-222-H Section 15.5.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4					
Length (ft)	32.04	44.98	39.74	44.71					
Number of Sides	18	18	18	18					
Thickness (in)	0.2188	0.2188	0.3125	0.3750					
Socket Length (ft)	3.85	4.66	5.50	42.8761					
Top Dia (in)	24.0000	23.9413	36.5034	51.2500					
Bot Dia (in)	31.2500	37.7500	44.6250						
Grade			A607-60						
Weight (K)	2.1	3.6	5.4	8.5					



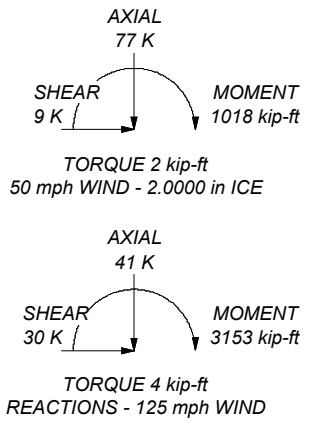
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C 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 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 86.8%

ALL REACTIONS ARE FACTORED



BLACK & VEATCH Building a world of difference.	Black & Veatch Corp. 6800 W. 115th St., Suite 2292 Overland Park, KS 66211 Phone: (913) 458-6909 FAX:	Job: WINDSOR PINE LANE (BU#841793) Project: 406642 (841793.2066347) Client: Crown Castle Drawn by: Phakkapol Phithaksukseree App'd: Code: TIA-222-H Date: 01/12/22 Scale: NTS Path:
	Dwg No. E-1	

Tower Input Data

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

- Tower is located in Hartford County, Connecticut.
- Tower base elevation above sea level: 94.00 ft.
- Basic wind speed of 125 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 2.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs 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	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	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 <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ 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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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	147.46-115.42	32.04	3.85	18	24.0000	31.2500	0.2188	0.8750	A607-60 (60 ksi)
L2	115.42-74.29	44.98	4.66	18	29.9413	37.7500	0.2188	0.8750	A607-60 (60 ksi)
L3	74.29-39.21	39.74	5.50	18	36.5034	44.6250	0.3125	1.2500	A607-60 (60 ksi)
L4	39.21-0.00	44.71		18	42.8761	51.2500	0.3750	1.5000	A607-60 (60 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	24.3365	16.5116	1179.7676	8.4423	12.1920	96.7657	2361.0876	8.2574	3.8390	17.55
	31.6983	21.5454	2621.1402	11.0161	15.8750	165.1112	5245.7293	10.7747	5.1150	23.383
L2	31.0482	20.6368	2303.3061	10.5515	15.2102	151.4318	4609.6429	10.3203	4.8847	22.33
	38.2986	26.0584	4637.3676	13.3236	19.1770	241.8192	9280.8371	13.0317	6.2590	28.613
L3	37.9853	35.8969	5940.0926	12.8478	18.5437	320.3288	11888.001	17.9518	5.8746	18.799
	45.2652	43.9525	10903.681	15.7309	22.6695	480.9846	21821.710	21.9804	7.3040	23.373
L4	44.5257	50.5869	11544.502	15.0879	21.7810	530.0252	23104.195	25.2983	6.8862	18.363
	51.9828	60.5540	19801.081	18.0606	26.0350	760.5562	39628.217	30.2827	8.3600	22.293

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 147.46- 115.42				1	1	1			
L2 115.42- 74.29				1	1	1			
L3 74.29- 39.21				1	1	1			
L4 39.21-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diamete r in	Perimete r in	Weight plf

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight plf	
Safety Line 3/8	A	No	No	CaAa (Out Of Face)	147.46 - 8.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.04 0.14 0.24 0.44	0.22 0.75 1.28 2.34

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf

LDF5-50A(7/8)	C	No	No	Inside Pole	147.46 - 0.00	1	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33

LDF5-50A(7/8)	C	No	No	Inside Pole	141.00 - 0.00	2	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33
LDF4-50A(1/2)	C	No	No	Inside Pole	141.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15

EU 90- FR(ELLIPTICAL)	C	No	No	Inside Pole	140.00 - 0.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34

2" innerduct conduit	C	No	No	Inside Pole	129.00 - 0.00	8	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
PWRT-604-S(1- 1/8)	C	No	No	Inside Pole	129.00 - 0.00	6	No Ice	0.00	0.59
							1/2" Ice	0.00	0.59
							1" Ice	0.00	0.59
							2" Ice	0.00	0.59
PWRT-608- S(13/16)	C	No	No	Inside Pole	129.00 - 0.00	3	No Ice	0.00	0.62
							1/2" Ice	0.00	0.62
							1" Ice	0.00	0.62
							2" Ice	0.00	0.62
FB-L98B-034- XXX(3/8)	C	No	No	Inside Pole	129.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06

LDF5-50A(7/8)	C	No	No	Inside Pole	118.00 - 0.00	1	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33

2" innerduct conduit	C	No	No	Inside Pole	108.00 - 0.00	3	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	108.00 - 0.00	1	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
HB158-21U6S24- xxM_TMO(1-5/8)	C	No	No	Inside Pole	108.00 - 0.00	2	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50

CU12PSM9P6XXX (1-1/2)	C	No	No	Inside Pole	98.00 - 0.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
							2" Ice	0.00	2.35

1110(13/32)	C	No	No	Inside Pole	85.00 - 0.00	5	No Ice	0.00	0.05
							1/2" Ice	0.00	0.05
							1" Ice	0.00	0.05
							2" Ice	0.00	0.05

Feed Line/Linear Appurtenances Section Areas

Tower Section <i>n</i>	Tower Elevation <i>ft</i>	Face	A_R <i>ft²</i>	A_F <i>ft²</i>	C_{AA} In Face <i>ft²</i>	C_{AA} Out Face <i>ft²</i>	Weight <i>K</i>
L1	147.46-115.42	A	0.000	0.000	0.000	1.202	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.14
L2	115.42-74.29	A	0.000	0.000	0.000	1.542	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.70
L3	74.29-39.21	A	0.000	0.000	0.000	1.316	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.68
L4	39.21-0.00	A	0.000	0.000	0.000	1.170	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.77

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section <i>n</i>	Tower Elevation <i>ft</i>	Face or Leg	Ice Thickness <i>in</i>	A_R <i>ft²</i>	A_F <i>ft²</i>	C_{AA} In Face <i>ft²</i>	C_{AA} Out Face <i>ft²</i>	Weight <i>K</i>
L1	147.46-115.42	A	1.951	0.000	0.000	0.000	13.704	0.07
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.14
L2	115.42-74.29	A	1.888	0.000	0.000	0.000	17.590	0.09
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.70
L3	74.29-39.21	A	1.794	0.000	0.000	0.000	14.565	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.68
L4	39.21-0.00	A	1.615	0.000	0.000	0.000	12.368	0.07
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.77

Feed Line Center of Pressure

Section	Elevation <i>ft</i>	CP_x <i>in</i>	CP_z <i>in</i>	CP_x Ice <i>in</i>	CP_z Ice <i>in</i>
L1	147.46-115.42	0.0000	-0.3434	0.0000	-1.7616
L2	115.42-74.29	0.0000	-0.3450	0.0000	-1.8494
L3	74.29-39.21	0.0000	-0.3462	0.0000	-1.8684
L4	39.21-0.00	0.0000	-0.2727	0.0000	-1.4670

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 t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
14" x 2' Top Hat	C	None		0.0000	147.46	No Ice	1.17	1.17	0.11
						1/2" Ice	1.82	1.82	0.13
						Ice	2.02	2.02	0.16
						1" Ice	2.45	2.45	0.22
						2" Ice			

Platform Mount [LP 1201-1]	C	None		0.0000	149.00	No Ice	18.38	18.38	2.10
						1/2" Ice	22.11	22.11	2.65
						Ice	25.87	25.87	3.26
						1" Ice	33.47	33.47	4.66
						2" Ice			
(4) 6'x2" Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	149.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
(4) 6'x2" Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	149.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
(4) 6'x2" Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	149.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
DB225-C	A	From Leg	3.00 6.00 4.00	0.0000	149.00	No Ice	2.32	2.32	0.03
						1/2" Ice	4.18	4.18	0.04
						Ice	6.03	6.03	0.04
						1" Ice	9.74	9.74	0.06
						2" Ice			

Side Arm Mount [SO 901-1]	A	None		0.0000	141.00	No Ice	0.33	0.62	0.11
						1/2" Ice	0.46	0.78	0.11
						Ice	0.62	0.97	0.12
						1" Ice	1.01	1.43	0.15
						2" Ice			
Side Arm Mount [SO 901-1]	B	None		0.0000	141.00	No Ice	0.33	0.62	0.11
						1/2" Ice	0.46	0.78	0.11
						Ice	0.62	0.97	0.12
						1" Ice	1.01	1.43	0.15
						2" Ice			
CC807-11	A	From Leg	2.00 0.00 6.00	0.0000	141.00	No Ice	5.27	5.27	0.05
						1/2" Ice	7.04	7.04	0.09
						Ice	8.83	8.83	0.14
						1" Ice	12.45	12.45	0.27
						2" Ice			
CC807-11	B	From Leg	2.00 0.00 6.00	0.0000	141.00	No Ice	5.27	5.27	0.05
						1/2" Ice	7.04	7.04	0.09
						Ice	8.83	8.83	0.14
						1" Ice	12.45	12.45	0.27
						2" Ice			
432E-831-01-T	A	From Leg	2.00 0.00 6.00	0.0000	141.00	No Ice	1.42	0.87	0.03
						1/2" Ice	1.57	0.99	0.04
						Ice	1.73	1.12	0.05
						1" Ice	2.06	1.41	0.09
						2" Ice			

Pipe Mount [PM 601-1]	A	From Leg	0.50 0.00 0.00	0.0000	140.00	No Ice	1.32	1.32	0.07
						1/2" Ice	1.58	1.58	0.08
						Ice	1.84	1.84	0.09
						1" Ice	2.40	2.40	0.13
						2" Ice			

Sabre C1085278C	A	From Face	0.00	0.0000	129.00	No Ice	11.40	6.54	0.58

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
			0.00			1/2"	15.81	9.07	0.75
			0.00			Ice	20.22	11.60	0.92
						1" Ice	29.05	16.66	1.27
						2" Ice			
Sabre C1085278C	B	From Face	0.00	0.0000	129.00	No Ice	11.40	6.54	0.58
			0.00			1/2"	15.81	9.07	0.75
			0.00			Ice	20.22	11.60	0.92
						1" Ice	29.05	16.66	1.27
						2" Ice			
Sabre C1085278C	C	From Face	0.00	0.0000	129.00	No Ice	11.40	6.54	0.58
			0.00			1/2"	15.81	9.07	0.75
			0.00			Ice	20.22	11.60	0.92
						1" Ice	29.05	16.66	1.27
						2" Ice			
DMP65R-BU6D	A	From Face	3.00	0.0000	129.00	No Ice	11.93	4.48	0.09
			0.00			1/2"	12.68	5.12	0.16
			1.00			Ice	13.45	5.78	0.24
						1" Ice	15.03	7.16	0.43
						2" Ice			
DMP65R-BU8D	B	From Face	3.00	0.0000	129.00	No Ice	15.86	5.95	0.11
			0.00			1/2"	16.80	6.78	0.20
			1.00			Ice	17.75	7.64	0.31
						1" Ice	19.71	9.39	0.55
						2" Ice			
DMP65R-BU6D	C	From Face	3.00	0.0000	129.00	No Ice	11.93	4.48	0.09
			0.00			1/2"	12.68	5.12	0.16
			1.00			Ice	13.45	5.78	0.24
						1" Ice	15.03	7.16	0.43
						2" Ice			
AIR 6419 B77G	A	From Face	3.00	0.0000	129.00	No Ice	4.64	1.87	0.07
			0.00			1/2"	5.11	2.23	0.09
			1.00			Ice	5.59	2.62	0.12
						1" Ice	6.62	3.45	0.19
						2" Ice			
AIR 6419 B77G	B	From Face	3.00	0.0000	129.00	No Ice	4.64	1.87	0.07
			0.00			1/2"	5.11	2.23	0.09
			1.00			Ice	5.59	2.62	0.12
						1" Ice	6.62	3.45	0.19
						2" Ice			
AIR 6419 B77G	C	From Face	3.00	0.0000	129.00	No Ice	4.64	1.87	0.07
			0.00			1/2"	5.11	2.23	0.09
			1.00			Ice	5.59	2.62	0.12
						1" Ice	6.62	3.45	0.19
						2" Ice			
AIR 6449 N77	A	From Face	3.00	0.0000	129.00	No Ice	3.70	2.14	0.10
			0.00			1/2"	4.06	2.45	0.13
			1.00			Ice	4.44	2.78	0.17
						1" Ice	5.23	3.48	0.26
						2" Ice			
AIR 6449 N77	B	From Face	3.00	0.0000	129.00	No Ice	3.70	2.14	0.10
			0.00			1/2"	4.06	2.45	0.13
			1.00			Ice	4.44	2.78	0.17
						1" Ice	5.23	3.48	0.26
						2" Ice			
AIR 6449 N77	C	From Face	3.00	0.0000	129.00	No Ice	3.70	2.14	0.10
			0.00			1/2"	4.06	2.45	0.13
			1.00			Ice	4.44	2.78	0.17
						1" Ice	5.23	3.48	0.26
						2" Ice			
QD6616-7	A	From Face	3.00	0.0000	129.00	No Ice	13.59	5.92	0.13
			0.00			1/2"	14.40	6.63	0.21
			1.00			Ice	15.24	7.36	0.30
						1" Ice	16.95	8.86	0.51
						2" Ice			
QD6616-7	B	From Face	3.00	0.0000	129.00	No Ice	13.59	5.92	0.13

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						Vert
			ft	ft	°	ft	ft ²	ft ²	K	
QD6616-7	C	From Face	0.00				1/2"	14.40	6.63	0.21
			1.00				Ice	15.24	7.36	0.30
							1" Ice	16.95	8.86	0.51
							2" Ice			
			3.00	0.0000	129.00	No Ice	13.59	5.92	0.13	
			0.00			1/2"	14.40	6.63	0.21	
RRUS E2 B29	A	From Face	1.00				Ice	15.24	7.36	0.30
							1" Ice	16.95	8.86	0.51
						2" Ice				
			3.00	0.0000	129.00	No Ice	3.15	1.29	0.05	
			0.00			1/2"	3.36	1.44	0.08	
			1.00			Ice	3.59	1.60	0.10	
RRUS E2 B29	B	From Face					1" Ice	4.07	1.95	0.17
							2" Ice			
			3.00	0.0000	129.00	No Ice	3.15	1.29	0.05	
			0.00			1/2"	3.36	1.44	0.08	
			1.00			Ice	3.59	1.60	0.10	
						1" Ice	4.07	1.95	0.17	
RRUS E2 B29	C	From Face					2" Ice			
			3.00	0.0000	129.00	No Ice	3.15	1.29	0.05	
			0.00			1/2"	3.36	1.44	0.08	
			1.00			Ice	3.59	1.60	0.10	
						1" Ice	4.07	1.95	0.17	
						2" Ice				
RRUS 32 B66A	A	From Face	3.00	0.0000	129.00	No Ice	2.86	1.78	0.06	
			0.00			1/2"	3.09	1.97	0.08	
			1.00			Ice	3.32	2.17	0.10	
						1" Ice	3.81	2.59	0.16	
						2" Ice				
						No Ice	2.86	1.78	0.06	
RRUS 32 B66A	B	From Face	0.00				1/2"	3.09	1.97	0.08
			1.00				Ice	3.32	2.17	0.10
						1" Ice	3.81	2.59	0.16	
						2" Ice				
			3.00	0.0000	129.00	No Ice	2.86	1.78	0.06	
			0.00			1/2"	3.09	1.97	0.08	
RRUS 32 B66A	C	From Face	1.00				Ice	3.32	2.17	0.10
							1" Ice	3.81	2.59	0.16
						2" Ice				
			3.00	0.0000	129.00	No Ice	2.86	1.78	0.06	
			0.00			1/2"	3.09	1.97	0.08	
			1.00			Ice	3.32	2.17	0.10	
RRUS 4478 B14_CCIV2	A	From Face					1" Ice	2.78	1.89	0.15
							2" Ice			
			3.00	0.0000	129.00	No Ice	2.02	1.25	0.06	
			0.00			1/2"	2.20	1.40	0.08	
			1.00			Ice	2.39	1.55	0.10	
						1" Ice	2.78	1.89	0.15	
RRUS 4478 B14_CCIV2	B	From Face					2" Ice			
			3.00	0.0000	129.00	No Ice	2.02	1.25	0.06	
			0.00			1/2"	2.20	1.40	0.08	
			1.00			Ice	2.39	1.55	0.10	
						1" Ice	2.78	1.89	0.15	
						2" Ice				
RRUS 4478 B14_CCIV2	C	From Face					2" Ice			
			3.00	0.0000	129.00	No Ice	2.02	1.25	0.06	
			0.00			1/2"	2.20	1.40	0.08	
			1.00			Ice	2.39	1.55	0.10	
						1" Ice	2.78	1.89	0.15	
						2" Ice				
RRUS 32 B30	A	From Face					2" Ice			
			3.00	0.0000	129.00	No Ice	2.69	1.57	0.06	
			0.00			1/2"	2.91	1.76	0.08	
			1.00			Ice	3.14	1.95	0.10	
						1" Ice	3.61	2.35	0.16	
						2" Ice				
RRUS 32 B30	B	From Face					2" Ice			
			3.00	0.0000	129.00	No Ice	2.69	1.57	0.06	
			0.00			1/2"	2.91	1.76	0.08	
			1.00			Ice	3.14	1.95	0.10	
						1" Ice	3.61	2.35	0.16	
						2" Ice				
RRUS 32 B30	C	From Face	3.00	0.0000	129.00	No Ice	2.69	1.57	0.06	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _{Front}	C _A A _{Side}	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
			0.00			1/2"	2.91	1.76	0.08
			1.00			Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
						2" Ice			
RRUS 4449 B5/B12	A	From Face	3.00	0.0000	129.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			1.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	B	From Face	3.00	0.0000	129.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			1.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	C	From Face	3.00	0.0000	129.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			1.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4415 B25	A	From Face	3.00	0.0000	129.00	No Ice	1.64	0.68	0.04
			0.00			1/2"	1.80	0.79	0.06
			1.00			Ice	1.97	0.91	0.07
						1" Ice	2.33	1.18	0.11
						2" Ice			
RRUS 4415 B25	B	From Face	3.00	0.0000	129.00	No Ice	1.64	0.68	0.04
			0.00			1/2"	1.80	0.79	0.06
			1.00			Ice	1.97	0.91	0.07
						1" Ice	2.33	1.18	0.11
						2" Ice			
RRUS 4415 B25	C	From Face	3.00	0.0000	129.00	No Ice	1.64	0.68	0.04
			0.00			1/2"	1.80	0.79	0.06
			1.00			Ice	1.97	0.91	0.07
						1" Ice	2.33	1.18	0.11
						2" Ice			
DC9-48-60-24-8C-EV	A	From Face	1.00	0.0000	129.00	No Ice	2.74	4.78	0.03
			0.00			1/2"	2.96	5.06	0.06
			1.00			Ice	3.20	5.35	0.10
						1" Ice	3.68	5.95	0.20
						2" Ice			
DC9-48-60-24-8C-EV	B	From Face	1.00	0.0000	129.00	No Ice	2.74	4.78	0.03
			0.00			1/2"	2.96	5.06	0.06
			1.00			Ice	3.20	5.35	0.10
						1" Ice	3.68	5.95	0.20
						2" Ice			
DC9-48-60-24-8C-EV	C	From Face	1.00	0.0000	129.00	No Ice	2.74	4.78	0.03
			0.00			1/2"	2.96	5.06	0.06
			1.00			Ice	3.20	5.35	0.10
						1" Ice	3.68	5.95	0.20
						2" Ice			

BPA7496-180-11 w/ Mount Pipe	A	From Leg	6.00	0.0000	118.00	No Ice	6.07	5.17	0.04
			0.00			1/2"	6.53	6.05	0.09
			0.00			Ice	6.99	6.81	0.15
						1" Ice	7.91	8.37	0.29
						2" Ice			
Side Arm Mount [SO 308-1]	A	From Leg	3.00	0.0000	118.00	No Ice	0.41	3.06	0.05
			0.00			1/2"	0.81	5.10	0.08
			0.00			Ice	1.23	7.20	0.12
						1" Ice	2.09	11.96	0.25
						2" Ice			
6'x2" Horizontal Pipe	A	From Leg	3.00	0.0000	118.00	No Ice	1.43	0.01	0.02
			0.00			1/2"	1.92	0.04	0.03
			0.00			Ice	2.29	0.07	0.05
						1" Ice	3.06	0.13	0.09
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K

Site Pro 1 VFA10-SD-S 10' V-Frame	A	From Leg	0.00 0.00 0.00	0.0000	108.00	No Ice	9.45	5.60	0.38
						1/2" Ice	14.18	8.75	0.46
						Ice	18.90	11.90	0.53
						1" Ice	28.35	18.20	0.69
						2" Ice			
Site Pro 1 VFA10-SD-S 10' V-Frame	B	From Leg	0.00 0.00 0.00	0.0000	108.00	No Ice	9.45	5.60	0.38
						1/2" Ice	14.18	8.75	0.46
						Ice	18.90	11.90	0.53
						1" Ice	28.35	18.20	0.69
						2" Ice			
Site Pro 1 VFA10-SD-S 10' V-Frame	C	From Leg	0.00 0.00 0.00	0.0000	108.00	No Ice	9.45	5.60	0.38
						1/2" Ice	14.18	8.75	0.46
						Ice	18.90	11.90	0.53
						1" Ice	28.35	18.20	0.69
						2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 -5.00 1.00	0.0000	108.00	No Ice	5.19	2.71	0.13
						1/2" Ice	5.59	3.04	0.17
						Ice	6.02	3.38	0.23
						1" Ice	6.90	4.12	0.35
						2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 -5.00 1.00	0.0000	108.00	No Ice	5.19	2.71	0.13
						1/2" Ice	5.59	3.04	0.17
						Ice	6.02	3.38	0.23
						1" Ice	6.90	4.12	0.35
						2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 -5.00 1.00	0.0000	108.00	No Ice	5.19	2.71	0.13
						1/2" Ice	5.59	3.04	0.17
						Ice	6.02	3.38	0.23
						1" Ice	6.90	4.12	0.35
						2" Ice			
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00 -2.50 1.00	0.0000	108.00	No Ice	14.69	6.87	0.18
						1/2" Ice	15.46	7.55	0.31
						Ice	16.23	8.25	0.45
						1" Ice	17.82	9.67	0.78
						2" Ice			
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00 -2.50 1.00	0.0000	108.00	No Ice	14.69	6.87	0.18
						1/2" Ice	15.46	7.55	0.31
						Ice	16.23	8.25	0.45
						1" Ice	17.82	9.67	0.78
						2" Ice			
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00 -2.50 1.00	0.0000	108.00	No Ice	14.69	6.87	0.18
						1/2" Ice	15.46	7.55	0.31
						Ice	16.23	8.25	0.45
						1" Ice	17.82	9.67	0.78
						2" Ice			
VV-65A-R1_TMO w/ Mount Pipe	A	From Leg	4.00 2.50 1.00	0.0000	108.00	No Ice	4.46	2.69	0.05
						1/2" Ice	4.91	3.10	0.10
						Ice	5.36	3.52	0.15
						1" Ice	6.32	4.41	0.28
						2" Ice			
VV-65A-R1_TMO w/ Mount Pipe	B	From Leg	4.00 2.50 1.00	0.0000	108.00	No Ice	4.46	2.69	0.05
						1/2" Ice	4.91	3.10	0.10
						Ice	5.36	3.52	0.15
						1" Ice	6.32	4.41	0.28
						2" Ice			
VV-65A-R1_TMO w/ Mount Pipe	C	From Leg	4.00 2.50 1.00	0.0000	108.00	No Ice	4.46	2.69	0.05
						1/2" Ice	4.91	3.10	0.10
						Ice	5.36	3.52	0.15
						1" Ice	6.32	4.41	0.28
						2" Ice			
8'x2" Mount Pipe	A	From Leg	0.00 5.00 0.00	0.0000	108.00	No Ice	1.90	1.90	0.03
						1/2" Ice	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K	
8'x2" Mount Pipe	B	From Leg	0.00 5.00 0.00	0.0000	108.00	2" Ice			
						No Ice	1.90	1.90	0.03
						1/2"	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
8'x2" Mount Pipe	C	From Leg	0.00 5.00 0.00	0.0000	108.00	2" Ice			
						No Ice	1.90	1.90	0.03
						1/2"	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
Radio 4480_TMOV2	A	From Leg	4.00 0.00 1.00	0.0000	108.00	2" Ice			
						No Ice	2.88	1.40	0.08
						1/2"	3.09	1.56	0.10
						Ice	3.31	1.73	0.13
						1" Ice	3.78	2.09	0.19
Radio 4480_TMOV2	B	From Leg	4.00 0.00 1.00	0.0000	108.00	2" Ice			
						No Ice	2.88	1.40	0.08
						1/2"	3.09	1.56	0.10
						Ice	3.31	1.73	0.13
						1" Ice	3.78	2.09	0.19
Radio 4480_TMOV2	C	From Leg	4.00 0.00 1.00	0.0000	108.00	2" Ice			
						No Ice	2.88	1.40	0.08
						1/2"	3.09	1.56	0.10
						Ice	3.31	1.73	0.13
						1" Ice	3.78	2.09	0.19
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00 0.00 1.00	0.0000	108.00	2" Ice			
						No Ice	2.14	1.69	0.11
						1/2"	2.32	1.85	0.13
						Ice	2.51	2.02	0.16
						1" Ice	2.91	2.39	0.22
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 1.00	0.0000	108.00	2" Ice			
						No Ice	2.14	1.69	0.11
						1/2"	2.32	1.85	0.13
						Ice	2.51	2.02	0.16
						1" Ice	2.91	2.39	0.22
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 1.00	0.0000	108.00	2" Ice			
						No Ice	2.14	1.69	0.11
						1/2"	2.32	1.85	0.13
						Ice	2.51	2.02	0.16
						1" Ice	2.91	2.39	0.22

Commscope MC- K6MHDX-9-96 (3)	C	None		0.0000	98.00	No Ice	15.30	15.30	1.19
						1/2"	20.48	20.48	1.71
						Ice	25.66	25.66	2.22
						1" Ice	36.02	36.02	3.25
						2" Ice			
MX08FRO665-21	A	From Leg	3.00 0.00 0.00	0.0000	98.00	2" Ice			
						No Ice	8.01	3.21	0.08
						1/2"	8.53	3.66	0.16
						Ice	9.05	4.12	0.24
						1" Ice	10.14	5.08	0.42
MX08FRO665-21	B	From Leg	3.00 0.00 0.00	0.0000	98.00	2" Ice			
						No Ice	8.01	3.21	0.08
						1/2"	8.53	3.66	0.16
						Ice	9.05	4.12	0.24
						1" Ice	10.14	5.08	0.42
MX08FRO665-21	C	From Leg	3.00 0.00 0.00	0.0000	98.00	2" Ice			
						No Ice	8.01	3.21	0.08
						1/2"	8.53	3.66	0.16
						Ice	9.05	4.12	0.24
						1" Ice	10.14	5.08	0.42
TA08025-B604	A	From Leg	3.00 0.00 0.00	0.0000	98.00	2" Ice			
						No Ice	1.96	0.98	0.06
						1/2"	2.14	1.11	0.08
						Ice	2.32	1.25	0.10

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft ²	ft ²	K
TA08025-B604	B	From Leg	3.00	0.00	0.00	98.00	1" Ice	2.71	1.55	0.15
							2" Ice	1.96	0.98	0.06
							No Ice	2.14	1.11	0.08
							1/2" Ice	2.32	1.25	0.10
							1" Ice	2.71	1.55	0.15
TA08025-B604	C	From Leg	3.00	0.00	0.00	98.00	1" Ice	2.71	1.55	0.15
							2" Ice	1.96	0.98	0.06
							No Ice	2.14	1.11	0.08
							1/2" Ice	2.32	1.25	0.10
							1" Ice	2.71	1.55	0.15
TA08025-B605	A	From Leg	3.00	0.00	0.00	98.00	1" Ice	2.71	1.72	0.16
							2" Ice	1.96	1.13	0.08
							No Ice	2.14	1.27	0.09
							1/2" Ice	2.32	1.41	0.11
							1" Ice	2.71	1.72	0.16
TA08025-B605	B	From Leg	3.00	0.00	0.00	98.00	1" Ice	2.71	1.72	0.16
							2" Ice	1.96	1.13	0.08
							No Ice	2.14	1.27	0.09
							1/2" Ice	2.32	1.41	0.11
							1" Ice	2.71	1.72	0.16
TA08025-B605	C	From Leg	3.00	0.00	0.00	98.00	1" Ice	2.71	1.72	0.16
							2" Ice	1.96	1.13	0.08
							No Ice	2.14	1.27	0.09
							1/2" Ice	2.32	1.41	0.11
							1" Ice	2.71	1.72	0.16
RDIDC-9181-PF-48	A	From Leg	3.00	0.00	0.00	98.00	1" Ice	2.76	1.78	0.11
							2" Ice	2.01	1.17	0.02
							No Ice	2.19	1.31	0.04
							1/2" Ice	2.37	1.46	0.06
							1" Ice	2.76	1.78	0.11

WH 14-69/S	C	From Face	2.00	0.00	0.00	85.00	1" Ice	6.52	6.52	0.01
							2" Ice	0.63	0.63	0.01
							No Ice	1.02	1.02	0.02
							1/2" Ice	1.42	1.42	0.04
							1" Ice	2.21	2.21	0.06
WL 14-69/S	A	From Face	2.00	0.00	0.00	85.00	1" Ice	2.21	2.21	0.06
							2" Ice	0.63	0.63	0.01
							No Ice	1.02	1.02	0.02
							1/2" Ice	1.42	1.42	0.04
							1" Ice	2.21	2.21	0.06
WL 14-69/S	A	From Face	2.00	0.00	-2.00	85.00	1" Ice	2.21	2.21	0.06
							2" Ice	0.63	0.63	0.01
							No Ice	1.02	1.02	0.02
							1/2" Ice	1.42	1.42	0.04
							1" Ice	2.21	2.21	0.06
WL 14-69/S	C	From Face	2.00	0.00	-2.00	85.00	1" Ice	2.21	2.21	0.06
							2" Ice	0.63	0.63	0.01
							No Ice	1.02	1.02	0.02
							1/2" Ice	1.42	1.42	0.04
							1" Ice	2.21	2.21	0.06
J105-HI	C	From Face	2.00	0.00	-7.00	85.00	1" Ice	7.79	0.64	0.07
							2" Ice	1.92	0.10	0.01
							No Ice	3.39	0.24	0.02
							1/2" Ice	4.85	0.37	0.04
							1" Ice	7.79	0.64	0.07
(2) Side Arm Mount [SO 102-3]	C	None				85.00	1" Ice	5.90	5.90	0.20
							2" Ice	3.60	3.60	0.07
							No Ice	4.18	4.18	0.11
							1/2" Ice	4.75	4.75	0.14
							1" Ice	5.90	5.90	0.20
(2) Side Arm Mount [SO 901-1]	A	From Face	0.00	0.00	0.00	85.00	1" Ice	5.90	5.90	0.20
							2" Ice	0.33	0.62	0.11
							1/2"	0.46	0.78	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _{Front} ft ²	C _A A _{Side} ft ²	Weight K
			0.00			Ice 0.62	0.97	0.12
						1" Ice 1.01	1.43	0.15
						2" Ice		
(2) Side Arm Mount [SO 901-1]	C	From Face	0.00	0.0000	85.00	No Ice 0.33	0.62	0.11
			0.00			1/2" 0.46	0.78	0.11
			0.00			Ice 0.62	0.97	0.12
						1" Ice 1.01	1.43	0.15
						2" Ice		
10'x2" Mount Pipe	A	From Face	2.00	0.0000	85.00	No Ice 2.38	2.38	0.04
			0.00			1/2" 3.40	3.40	0.05
			0.00			Ice 4.45	4.45	0.08
						1" Ice 5.91	5.91	0.15
						2" Ice		
10'x2" Mount Pipe	C	From Face	2.00	0.0000	85.00	No Ice 2.38	2.38	0.04
			0.00			1/2" 3.40	3.40	0.05
			0.00			Ice 4.45	4.45	0.08
						1" Ice 5.91	5.91	0.15
						2" Ice		

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K

SC3-W100ASTX	A	Paraboloid w/Shroud (HP)	From Leg	1.00	-4.0000		140.00	3.00	No Ice 7.07	0.04
				0.00					1/2" Ice 7.47	0.08
				0.00					1" Ice 7.87	0.12
									2" Ice 8.66	0.19

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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	147.458 - 115.418	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.18	-1.62	2.19
			Max. Mx	8	-9.48	-200.69	1.06
			Max. My	14	-9.44	-0.18	-205.25
			Max. Vy	20	-12.71	199.97	1.34
			Max. Vx	14	12.94	-0.18	-205.25
			Max. Torque	23			-2.83
L2	115.418 - 74.2933	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.05	-0.44	6.18
			Max. Mx	20	-20.73	971.00	2.51
			Max. My	14	-20.69	1.44	-984.46
			Max. Vy	20	-23.82	971.00	2.51
			Max. Vx	14	24.15	1.44	-984.46
			Max. Torque	23			-5.04
L3	74.2933 - 39.21	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.55	-0.46	6.58
			Max. Mx	20	-28.08	1838.62	2.76
			Max. My	14	-28.06	2.81	-1863.09
			Max. Vy	20	-26.80	1838.62	2.76
			Max. Vx	14	27.12	2.81	-1863.09
			Max. Torque	21			-4.33
L4	39.21 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.70	-0.46	6.73
			Max. Mx	20	-41.13	3114.32	2.96
			Max. My	14	-41.13	4.57	-3152.81
			Max. Vy	20	-30.04	3114.32	2.96

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	30.35	4.57	-3152.81
			Max. Torque	21			-4.43

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	76.70	-0.01	9.28
	Max. H _x	20	41.15	30.01	0.00
	Max. H _z	2	41.15	-0.05	30.22
	Max. M _x	2	3141.23	-0.05	30.22
	Max. M _z	8	3113.11	-30.00	0.06
	Max. Torsion	9	4.39	-30.00	0.06
	Min. Vert	23	30.87	25.92	15.15
	Min. H _x	8	41.15	-30.00	0.06
	Min. H _z	14	41.15	0.04	-30.31
	Min. M _x	14	-3152.81	0.04	-30.31
	Min. M _z	20	-3114.32	30.01	0.00
	Min. Torsion	21	-4.43	30.01	0.00

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	34.30	0.00	0.00	-1.01	0.07	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	41.15	0.05	-30.22	-3141.23	-5.38	1.11
0.9 Dead+1.0 Wind 0 deg - No Ice	30.87	0.05	-30.22	-3104.54	-5.33	1.12
1.2 Dead+1.0 Wind 30 deg - No Ice	41.15	14.98	-26.23	-2729.00	-1553.00	-1.12
0.9 Dead+1.0 Wind 30 deg - No Ice	30.87	14.98	-26.23	-2697.07	-1535.07	-1.12
1.2 Dead+1.0 Wind 60 deg - No Ice	41.15	25.97	-15.22	-1587.03	-2694.08	-3.19
0.9 Dead+1.0 Wind 60 deg - No Ice	30.87	25.97	-15.22	-1568.31	-2662.93	-3.19
1.2 Dead+1.0 Wind 90 deg - No Ice	41.15	30.00	-0.06	-8.40	-3113.11	-4.38
0.9 Dead+1.0 Wind 90 deg - No Ice	30.87	30.00	-0.06	-7.98	-3077.11	-4.39
1.2 Dead+1.0 Wind 120 deg - No Ice	41.15	25.91	15.24	1588.92	-2685.82	-4.16
0.9 Dead+1.0 Wind 120 deg - No Ice	30.87	25.91	15.24	1570.79	-2654.79	-4.17
1.2 Dead+1.0 Wind 150 deg - No Ice	41.15	14.95	26.27	2733.21	-1549.68	-3.05
0.9 Dead+1.0 Wind 150 deg - No Ice	30.87	14.95	26.27	2701.86	-1531.79	-3.06
1.2 Dead+1.0 Wind 180 deg - No Ice	41.15	-0.04	30.31	3152.81	4.57	-1.15
0.9 Dead+1.0 Wind 180 deg - No Ice	30.87	-0.04	30.31	3116.62	4.50	-1.16
1.2 Dead+1.0 Wind 210 deg - No Ice	41.15	-15.00	26.32	2740.12	1555.28	1.05
0.9 Dead+1.0 Wind 210 deg - No Ice	30.87	-15.00	26.32	2708.68	1537.29	1.04
1.2 Dead+1.0 Wind 240 deg - No Ice	41.15	-25.94	15.29	1595.10	2689.86	3.05

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.0 Wind 240 deg - No Ice	30.87	-25.94	15.29	1576.91	2658.75	3.05
1.2 Dead+1.0 Wind 270 deg - No Ice	41.15	-30.01	-0.00	-2.96	3114.32	4.42
0.9 Dead+1.0 Wind 270 deg - No Ice	30.87	-30.01	-0.00	-2.60	3078.27	4.43
1.2 Dead+1.0 Wind 300 deg - No Ice	41.15	-25.92	-15.15	-1578.31	2687.67	4.29
0.9 Dead+1.0 Wind 300 deg - No Ice	30.87	-25.92	-15.15	-1559.69	2656.57	4.30
1.2 Dead+1.0 Wind 330 deg - No Ice	41.15	-14.92	-26.17	-2721.24	1546.32	3.08
0.9 Dead+1.0 Wind 330 deg - No Ice	30.87	-14.92	-26.17	-2689.41	1528.42	3.09
1.2 Dead+1.0 Ice+1.0 Temp	76.70	0.00	-0.00	-6.73	-0.46	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	76.70	0.01	-9.28	-1017.84	-1.39	0.56
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	76.70	4.63	-8.05	-884.08	-504.38	-0.50
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	76.70	8.02	-4.66	-515.49	-874.34	-1.45
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	76.70	9.26	-0.01	-8.16	-1010.09	-2.01
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	76.70	8.01	4.67	503.03	-872.82	-1.98
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	76.70	4.62	8.06	871.95	-504.05	-1.47
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	76.70	-0.01	9.30	1007.04	0.27	-0.57
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	76.70	-4.63	8.07	873.19	503.90	0.48
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	76.70	-8.01	4.68	503.95	872.50	1.42
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	76.70	-9.26	-0.00	-7.45	1009.38	2.01
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	76.70	-8.01	-4.65	-514.03	872.25	2.01
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	76.70	-4.62	-8.04	-882.66	502.38	1.47
Dead+Wind 0 deg - Service	34.30	0.01	-6.56	-678.11	-1.11	0.25
Dead+Wind 30 deg - Service	34.30	3.25	-5.69	-589.22	-334.82	-0.25
Dead+Wind 60 deg - Service	34.30	5.64	-3.30	-342.99	-580.85	-0.70
Dead+Wind 90 deg - Service	34.30	6.51	-0.01	-2.61	-671.19	-0.96
Dead+Wind 120 deg - Service	34.30	5.62	3.31	341.80	-579.07	-0.91
Dead+Wind 150 deg - Service	34.30	3.24	5.70	588.55	-334.11	-0.67
Dead+Wind 180 deg - Service	34.30	-0.01	6.58	679.04	1.03	-0.25
Dead+Wind 210 deg - Service	34.30	-3.25	5.71	590.05	335.41	0.23
Dead+Wind 240 deg - Service	34.30	-5.63	3.32	343.14	580.04	0.67
Dead+Wind 270 deg - Service	34.30	-6.51	-0.00	-1.43	671.55	0.97
Dead+Wind 300 deg - Service	34.30	-5.62	-3.29	-341.10	579.56	0.95
Dead+Wind 330 deg - Service	34.30	-3.24	-5.68	-587.55	333.46	0.68

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	0.00	-34.30	0.00	0.00	34.30	0.00	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
2	0.05	-41.15	-30.22	-0.05	41.15	30.22	0.000%
3	0.05	-30.87	-30.22	-0.05	30.87	30.22	0.000%
4	14.98	-41.15	-26.23	-14.98	41.15	26.23	0.000%
5	14.98	-30.87	-26.23	-14.98	30.87	26.23	0.000%
6	25.97	-41.15	-15.22	-25.97	41.15	15.22	0.000%
7	25.97	-30.87	-15.22	-25.97	30.87	15.22	0.000%
8	30.00	-41.15	-0.06	-30.00	41.15	0.06	0.000%
9	30.00	-30.87	-0.06	-30.00	30.87	0.06	0.000%
10	25.91	-41.15	15.24	-25.91	41.15	-15.24	0.000%
11	25.91	-30.87	15.24	-25.91	30.87	-15.24	0.000%
12	14.95	-41.15	26.27	-14.95	41.15	-26.27	0.000%
13	14.95	-30.87	26.27	-14.95	30.87	-26.27	0.000%
14	-0.04	-41.15	30.31	0.04	41.15	-30.31	0.000%
15	-0.04	-30.87	30.31	0.04	30.87	-30.31	0.000%
16	-15.00	-41.15	26.32	15.00	41.15	-26.32	0.000%
17	-15.00	-30.87	26.32	15.00	30.87	-26.32	0.000%
18	-25.94	-41.15	15.29	25.94	41.15	-15.29	0.000%
19	-25.94	-30.87	15.29	25.94	30.87	-15.29	0.000%
20	-30.01	-41.15	-0.00	30.01	41.15	0.00	0.000%
21	-30.01	-30.87	-0.00	30.01	30.87	0.00	0.000%
22	-25.92	-41.15	-15.15	25.92	41.15	15.15	0.000%
23	-25.92	-30.87	-15.15	25.92	30.87	15.15	0.000%
24	-14.92	-41.15	-26.17	14.92	41.15	26.17	0.000%
25	-14.92	-30.87	-26.17	14.92	30.87	26.17	0.000%
26	0.00	-76.70	0.00	-0.00	76.70	0.00	0.000%
27	0.01	-76.70	-9.28	-0.01	76.70	9.28	0.000%
28	4.63	-76.70	-8.05	-4.63	76.70	8.05	0.000%
29	8.02	-76.70	-4.66	-8.02	76.70	4.66	0.000%
30	9.26	-76.70	-0.01	-9.26	76.70	0.01	0.000%
31	8.01	-76.70	4.67	-8.01	76.70	-4.67	0.000%
32	4.62	-76.70	8.06	-4.62	76.70	-8.06	0.000%
33	-0.01	-76.70	9.30	0.01	76.70	-9.30	0.000%
34	-4.63	-76.70	8.07	4.63	76.70	-8.07	0.000%
35	-8.01	-76.70	4.68	8.01	76.70	-4.68	0.000%
36	-9.26	-76.70	-0.00	9.26	76.70	0.00	0.000%
37	-8.01	-76.70	-4.65	8.01	76.70	4.65	0.000%
38	-4.62	-76.70	-8.04	4.62	76.70	8.04	0.000%
39	0.01	-34.30	-6.56	-0.01	34.30	6.56	0.000%
40	3.25	-34.30	-5.69	-3.25	34.30	5.69	0.000%
41	5.64	-34.30	-3.30	-5.64	34.30	3.30	0.000%
42	6.51	-34.30	-0.01	-6.51	34.30	0.01	0.000%
43	5.62	-34.30	3.31	-5.62	34.30	-3.31	0.000%
44	3.24	-34.30	5.70	-3.24	34.30	-5.70	0.000%
45	-0.01	-34.30	6.58	0.01	34.30	-6.58	0.000%
46	-3.25	-34.30	5.71	3.25	34.30	-5.71	0.000%
47	-5.63	-34.30	3.32	5.63	34.30	-3.32	0.000%
48	-6.51	-34.30	-0.00	6.51	34.30	0.00	0.000%
49	-5.62	-34.30	-3.29	5.62	34.30	3.29	0.000%
50	-3.24	-34.30	-5.68	3.24	34.30	5.68	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00015131
3	Yes	5	0.00000001	0.00007005
4	Yes	6	0.00000001	0.00012590
5	Yes	6	0.00000001	0.00003948
6	Yes	6	0.00000001	0.00013671
7	Yes	6	0.00000001	0.00004332
8	Yes	5	0.00000001	0.00038989
9	Yes	5	0.00000001	0.00018112
10	Yes	6	0.00000001	0.00011828
11	Yes	5	0.00000001	0.00095021

12	Yes	6	0.00000001	0.00013835
13	Yes	6	0.00000001	0.00004397
14	Yes	5	0.00000001	0.00013646
15	Yes	5	0.00000001	0.00006334
16	Yes	6	0.00000001	0.00013008
17	Yes	6	0.00000001	0.00004095
18	Yes	6	0.00000001	0.00012183
19	Yes	5	0.00000001	0.00097889
20	Yes	5	0.00000001	0.00038440
21	Yes	5	0.00000001	0.00017868
22	Yes	6	0.00000001	0.00014084
23	Yes	6	0.00000001	0.00004493
24	Yes	6	0.00000001	0.00011817
25	Yes	5	0.00000001	0.00094809
26	Yes	4	0.00000001	0.00009884
27	Yes	5	0.00000001	0.00090341
28	Yes	6	0.00000001	0.00019308
29	Yes	6	0.00000001	0.00020451
30	Yes	5	0.00000001	0.00095377
31	Yes	6	0.00000001	0.00018193
32	Yes	6	0.00000001	0.00020049
33	Yes	5	0.00000001	0.00088098
34	Yes	6	0.00000001	0.00018740
35	Yes	6	0.00000001	0.00018157
36	Yes	5	0.00000001	0.00095019
37	Yes	6	0.00000001	0.00021088
38	Yes	6	0.00000001	0.00018646
39	Yes	4	0.00000001	0.00016099
40	Yes	4	0.00000001	0.00056711
41	Yes	4	0.00000001	0.00074377
42	Yes	4	0.00000001	0.00038590
43	Yes	4	0.00000001	0.00053673
44	Yes	4	0.00000001	0.00077186
45	Yes	4	0.00000001	0.00016022
46	Yes	4	0.00000001	0.00061420
47	Yes	4	0.00000001	0.00052676
48	Yes	4	0.00000001	0.00038706
49	Yes	4	0.00000001	0.00083614
50	Yes	4	0.00000001	0.00051512

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.458 - 115.418	21.967	39	1.2278	0.0094
L2	119.268 - 74.2933	14.843	39	1.1621	0.0068
L3	78.9533 - 39.21	6.401	45	0.7705	0.0024
L4	44.71 - 0	2.055	45	0.4175	0.0010

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	Platform Mount [LP 1201-1]	39	21.967	1.2278	0.0094	57431
147.46	14" x 2' Top Hat	39	21.967	1.2278	0.0094	57431
141.00	Side Arm Mount [SO 901-1]	39	20.301	1.2226	0.0088	44463
140.00	SC3-W100ASTX	39	20.044	1.2216	0.0088	38501
129.00	Sabre C1085278C	39	17.244	1.2017	0.0078	15556
118.00	BPA7496-180-11 w/ Mount Pipe	39	14.538	1.1548	0.0067	9890
108.00	Site Pro 1 VFA10-SD-S 10' V-	39	12.203	1.0803	0.0056	7868

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
98.00	Frame Commscope MC-K6MHDX-9-96 (3)	39	10.021	0.9830	0.0044	6545
85.00	WH 14-69/S	45	7.466	0.8388	0.0029	5372

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.458 - 115.418	102.031	14	5.6984	0.0423
L2	119.268 - 74.2933	69.001	14	5.3993	0.0309
L3	78.9533 - 39.21	29.762	14	3.5862	0.0109
L4	44.71 - 0	9.552	14	1.9414	0.0044

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	Platform Mount [LP 1201-1]	14	102.031	5.6984	0.0426	12755
147.46	14" x 2' Top Hat	14	102.031	5.6984	0.0426	12755
141.00	Side Arm Mount [SO 901-1]	14	94.309	5.6755	0.0403	9874
140.00	SC3-W100ASTX	14	93.117	5.6710	0.0399	8550
129.00	Sabre C1085278C	14	80.137	5.5812	0.0356	3453
118.00	BPA7496-180-11 w/ Mount Pipe	14	67.584	5.3657	0.0306	2190
108.00	Site Pro 1 VFA10-SD-S 10' V- Frame	14	56.745	5.0220	0.0254	1730
98.00	Commscope MC-K6MHDX-9-96 (3)	14	46.607	4.5718	0.0200	1431
85.00	WH 14-69/S	14	34.716	3.9033	0.0134	1167

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	147.458 - 115.418 (1)	TP31.25x24x0.2188	32.04	0.00	0.0	20.940 5	-9.44	1130.79	0.008
L2	115.418 - 74.2933 (2)	TP37.75x29.9413x0.2188	44.98	0.00	0.0	25.496 7	-20.69	1376.82	0.015
L3	74.2933 - 39.21 (3)	TP44.625x36.5034x0.312 5	39.74	0.00	0.0	42.837 7	-28.06	2313.23	0.012
L4	39.21 - 0 (4)	TP51.25x42.8761x0.375	44.71	0.00	0.0	60.554 0	-41.13	3269.91	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy}	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L1	147.458 - 115.418 (1)	TP31.25x24x0.2188	205.26	807.25	0.254	0.00	807.25	0.000
L2	115.418 - 74.2933 (2)	TP37.75x29.9413x0.2188	984.46	1102.68	0.893	0.00	1102.68	0.000
L3	74.2933 - 39.21 (3)	TP44.625x36.5034x0.3125	1863.09	2362.72	0.789	0.00	2362.72	0.000
L4	39.21 - 0 (4)	TP51.25x42.8761x0.375	3152.82	3960.31	0.796	0.00	3960.31	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u	ϕV_n	Ratio	Actual T_u	ϕT_n	Ratio
			K	K	$\frac{V_u}{\phi V_n}$	kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	147.458 - 115.418 (1)	TP31.25x24x0.2188	12.94	335.46	0.039	1.80	896.02	0.002
L2	115.418 - 74.2933 (2)	TP37.75x29.9413x0.2188	24.15	413.05	0.058	1.15	1328.33	0.001
L3	74.2933 - 39.21 (3)	TP44.625x36.5034x0.3125	27.12	693.97	0.039	1.15	2624.76	0.000
L4	39.21 - 0 (4)	TP51.25x42.8761x0.375	30.35	980.97	0.031	1.15	4370.61	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L1	147.458 - 115.418 (1)	0.008	0.254	0.000	0.039	0.002	0.264	1.050	4.8.2
L2	115.418 - 74.2933 (2)	0.015	0.893	0.000	0.058	0.001	0.911	1.050	4.8.2
L3	74.2933 - 39.21 (3)	0.012	0.789	0.000	0.039	0.000	0.802	1.050	4.8.2
L4	39.21 - 0 (4)	0.013	0.796	0.000	0.031	0.000	0.810	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	147.458 - 115.418	Pole	TP31.25x24x0.2188	1	-9.44	1187.33	25.2	Pass
L2	115.418 - 74.2933	Pole	TP37.75x29.9413x0.2188	2	-20.69	1445.66	86.8	Pass
L3	74.2933 - 39.21	Pole	TP44.625x36.5034x0.3125	3	-28.06	2428.89	76.4	Pass
L4	39.21 - 0	Pole	TP51.25x42.8761x0.375	4	-41.13	3433.41	77.1	Pass
Summary								
Pole (L2)							86.8	Pass
RATING =							86.8	Pass

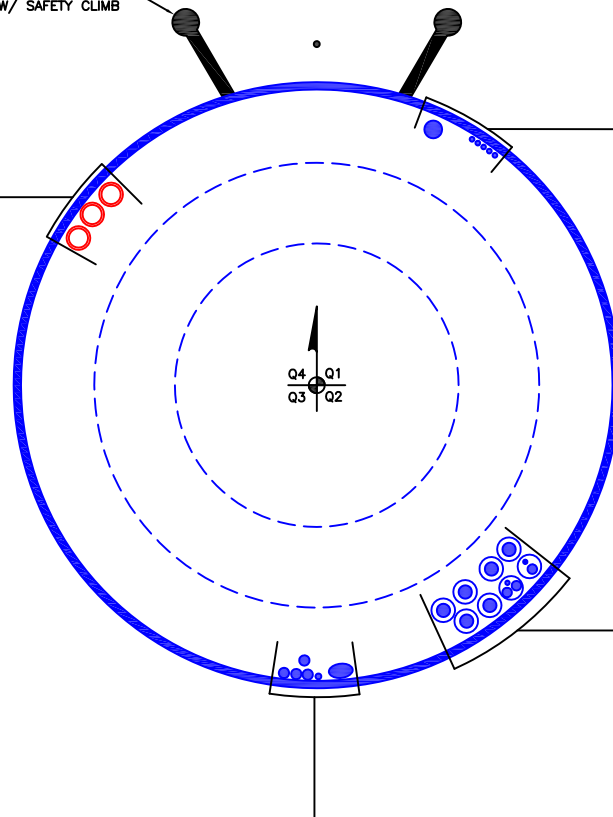
APPENDIX B
BASE LEVEL DRAWING



CLIMBING PEGS
W/ SAFETY CLIMB

(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/2" TO 98 FT LEVEL
(5) 13/32" TO 85 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION - IN CONDUIT)
(3) 1-5/8" TO 108 FT LEVEL



(OTHER CONSIDERED EQUIPMENT - IN CONDUIT)
(2) 3/8" TO 129 FT LEVEL
(3) 13/16" TO 129 FT LEVEL
(6) 1-1/8" TO 129 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 7/8" TO 118 FT LEVEL
(1) ELLIPTICAL TO 140 FT LEVEL
(1) 1/2" TO 141 FT LEVEL
(2) 7/8" TO 141 FT LEVEL
(1) 7/8" TO 149 FT LEVEL

BUSINESS UNIT: 841793 TOWER ID: C_BASELEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

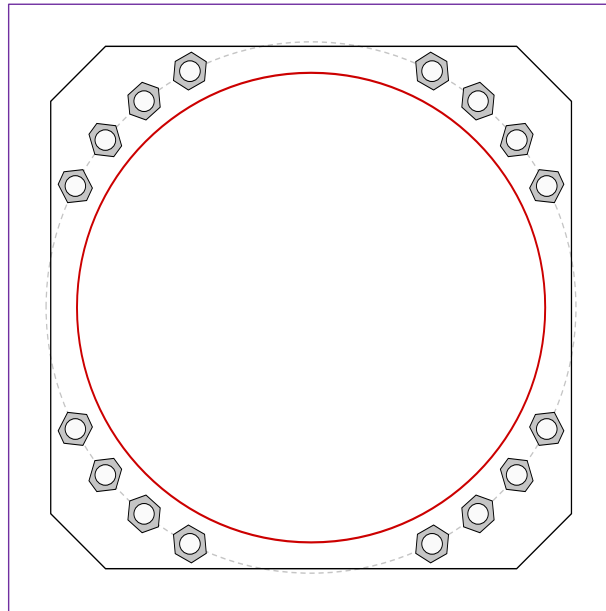


Site Info	
BU #	841793
Site Name	WINDSOR PINE LANE
Order #	567937 Rev. 7

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	2.1875

Applied Loads	
Moment (kip-ft)	3152.82
Axial Force (kips)	41.13
Shear Force (kips)	30.35

*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
(16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 58" BC <i>Anchor Spacing: 6 in</i>
Base Plate Data
57" W x 2.75" Plate (A36; $F_y=36$ ksi, $F_u=58$ ksi); Clip: 6 in
Stiffener Data
N/A
Pole Data
51.25" x 0.375" 18-sided pole (A607-60; $F_y=60$ ksi, $F_u=75$ ksi)

Anchor Rod Summary		<i>(units of kips, kip-in)</i>
$Pu_t = 160.41$	$\phi Pn_t = 243.75$	Stress Rating
$Vu = 1.9$	$\phi Vn = 149.1$	62.7%
$Mu = n/a$	$\phi Mn = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	30.38	(Flexural)
Allowable Stress (ksi):	32.4	
Stress Rating:	89.3%	Pass

Drilled Pier Foundation

BU # :	841793
Site Name:	WINDSOR PINE LANE
Order Number:	567937 Rev. 7
TIA-222 Revisor:	H
Tower Type:	Monopole



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	3152.81	
Axial Force (kips)	41.15	
Shear Force (kips)	30.31	

Material Properties	
Concrete Strength, f _c :	3 ksi
Rebar Strength, F _y :	60 ksi
Tie Yield Strength, F _y :	40 ksi

Pier Design Data	
Depth	32 ft
Ext. Above Grade	0 ft
Pier Section 1	
<i>From 0' below grade to 32' below grade</i>	
Pier Diameter	7 ft
Rebar Quantity	30
Rebar Size	11
Clear Cover to Ties	3 in
Tie Size	4
Tie Spacing	in

[Rebar & Pier Options](#)

[Embedded Pole Inputs](#)

[Belled Pier Inputs](#)

Analysis Results

Soil Lateral Check	Compression	Uplift
D _{ve0} (ft from TOC)	4.77	-
Soil Safety Factor	1.71	-
Max Moment (kip-ft)	3301.19	-
Rating*	74.2%	-

Soil Vertical Check	Compression	Uplift
Skin Friction (kips)	132.36	-
End Bearing (kips)	86.59	-
Weight of Concrete (kips)	149.60	-
Total Capacity (kips)	218.95	-
Axial (kips)	190.75	-
Rating*	83.0%	-

Reinforced Concrete Flexure	Compression	Uplift
Critical Depth (ft from TOC)	4.72	-
Critical Moment (kip-ft)	3301.17	-
Critical Moment Capacity	7186.50	-
Rating*	43.7%	-

Reinforced Concrete Shear	Compression	Uplift
Critical Depth (ft from TOC)	17.73	-
Critical Shear (kip)	234.24	-
Critical Shear Capacity	2493.80	-
Rating*	8.9%	-

Shear-Friction Methodology is Applied

Structural Foundation Rating*	43.7%
Soil Interaction Rating*	83.0%

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" type="checkbox"/>
N/A	<input type="checkbox"/>
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	<input type="checkbox"/>
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input checked="" type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

[Go to Soil Calculations](#)

Soil Profile													
Groundwater Depth	7			# of Layers	3								

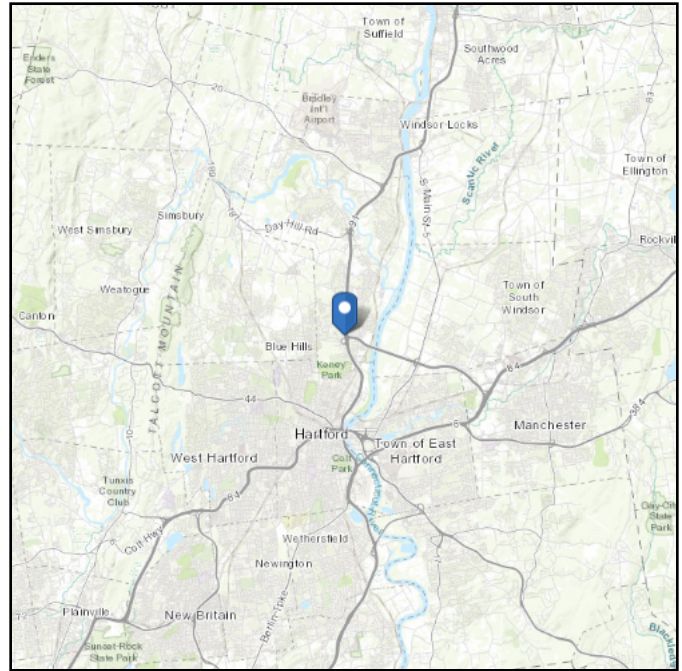
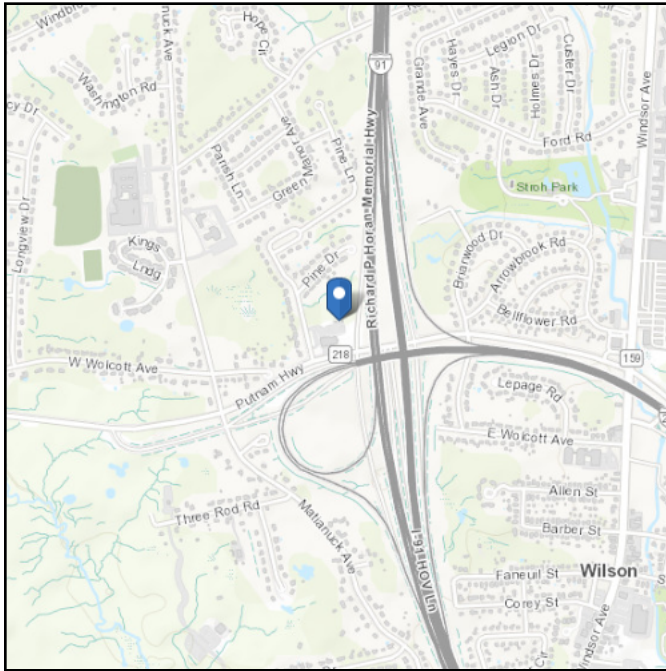
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3	3	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3	7	4	120	150		30	0.288	0.288				6	Cohesionless
3	7	32	25	50	87.6	0.5		0.275	0.275			3		Cohesive

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 93.75 ft (NAVD 88)
Latitude: 41.819842
Longitude: -72.667189

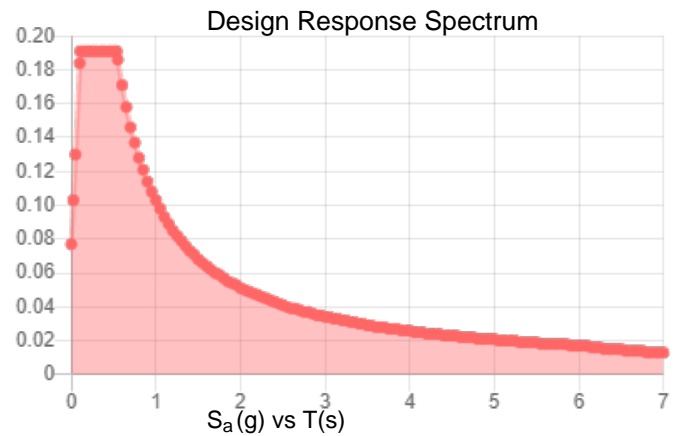
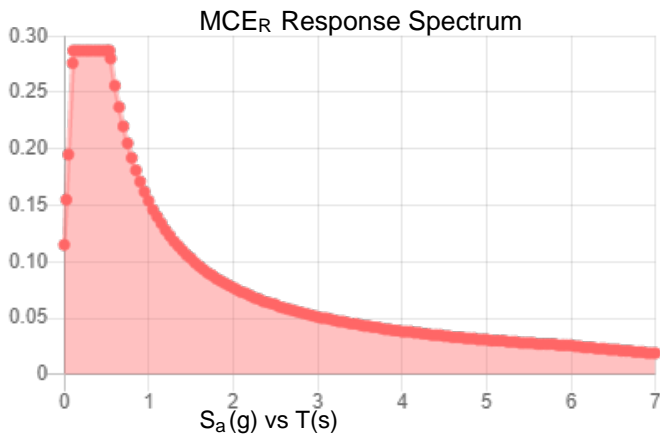


Site Soil Class: D - Stiff Soil

Results:

S_S :	0.179	S_{DS} :	0.191
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.09
S_{MS} :	0.287	PGA_M :	0.144
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed: Wed Jan 12 2022

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed 50 mph

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

Date Accessed: Wed Jan 12 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.

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Date: **January 26, 2022**



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

Subject: **Mount Replacement Analysis Report**

Carrier Designation: **T-Mobile Equipment Change-Out**
Carrier Site Number: CTHA846A
Carrier Site Name: CTHA846A

Crown Castle Designation: **BU Number:** 841793
Site Name: WINDSOR PINE LANE
JDE Job Number: 666757
Order Number: 567937 Rev. 7

Engineering Firm Designation: **GPD Report Designation:** 2022777.841793.03

Site Data: **50 Pine Lane, Windsor, Hartford County, CT 06095**
Latitude 41° 49' 11.43" Longitude -72° 40' 1.88"

Structure Information: **Tower Height & Type:** **148.0 ft Monopole Tower**
Mount Elevation: **108.0 ft**
Mount Type: **10.5 ft Sector Mount**

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

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

Sector Mount

Sufficient - 48.9%*

***See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 117 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: Brandon Brookbank

Respectfully Submitted by:



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

1/26/2022

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2) ANALYSIS CRITERIA

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8) APPENDIX D

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9) APPENDIX E

Supplemental Drawings

1) INTRODUCTION

This is a proposed 3-sector 10.5' Sector Mount designed by Site Pro 1 (Drawing #: VFA10-SD, dated 11/18/2016) with collar mount designed by Site Pro 1 (Drawing #: MSFAA, dated 5/2/2016) and (4) 8' P2 STD (2.375" O.D. x 0.154" thick) mount pipes per sector.

2) ANALYSIS CRITERIA

Building Code: 2018 Connecticut Building Code
TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 117 mph
Exposure Category: C
Topographic Factor at Base: 1
Topographic Factor at Mount: 1
Ice Thickness: 1.5 in
Wind Speed with Ice: 50 mph
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
108.0	109.0	3	Commscope	VV-65A-R1_TMO	(3) 10.5 ft. Sector Mounts
		3	Ericsson	AIR6449 B41_T-MOBILE	
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO	
		3	Ericsson	Radio 4480_TMOV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Application	Crown Order Number 567937 Rev. 7	-	CCI
RF Data Sheet	Sprint Retain RFDS #: CTHA846A, dated 10/12/2021	-	CCI
Mount Design	Site Pro 1 Drawing #: VFA10-SD, dated 11/18/2016	-	Site Pro 1
Collar Design	Site Pro 1 Drawing #: MSFAA, dated 5/2/2016	-	Site Pro 1

3.1) Analysis Method

RISA-3D Edition (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 by GPD, using Microsoft Excel, was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

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

3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) This analysis assumes all information reference in Table 2 is current and correct.
- 5) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
- 6) Steel grades have been assumed as follows, unless noted otherwise:

Solid Round, Plate	ASTM A36 (GR 36)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3a - Mount Component Stresses vs. Capacity (Sector Mount, Alpha Sector)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Front Horizontals	A5	108.0	26.9	Pass
	Standoff Horizontals	A9		40.9	Pass
	Standoff Diagonals	A15		39.8	Pass
	Standoff Verticals	A14		44.2	Pass
	Connection Plate	A31		43.0	Pass
	Mount Pipe	AP2		48.9	Pass
	Stabilizer	A118		6.0	Pass
	Connection Pipe	A29		14.1	Pass
2,3	Mount to Tower Connection	-		17.4	Pass

Table 3b - Mount Component Stresses vs. Capacity (Sector Mount, Beta Sector)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Front Horizontals	B45	108.0	26.9	Pass
	Standoff Horizontals	B48		40.9	Pass
	Standoff Diagonals	B54		39.7	Pass
	Standoff Verticals	B53		44.1	Pass
	Connection Plate	B70		43.6	Pass
	Mount Pipe	BP2		48.3	Pass
	Stabilizer	B121		6.3	Pass
2,3	Connection Pipe	B68		14.0	Pass
	Mount to Tower Connection	-		17.1	Pass

Table 3c - Mount Component Stresses vs. Capacity (Sector Mount, Gamma Sector)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Front Horizontals	C83	108.0	26.9	Pass
	Standoff Horizontals	C87		40.9	Pass
	Standoff Diagonals	C93		40.0	Pass
	Standoff Verticals	C92		44.4	Pass
	Connection Plate	C92		43.4	Pass
	Mount Pipe	CP2		48.3	Pass
	Stabilizer	C123		6.7	Pass
2,3	Connection Pipe	C107		14.0	Pass
	Mount to Tower Connection	-		17.2	Pass

Structure Rating (max from all components) =	48.9%³
---	--------------------------

Notes:

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

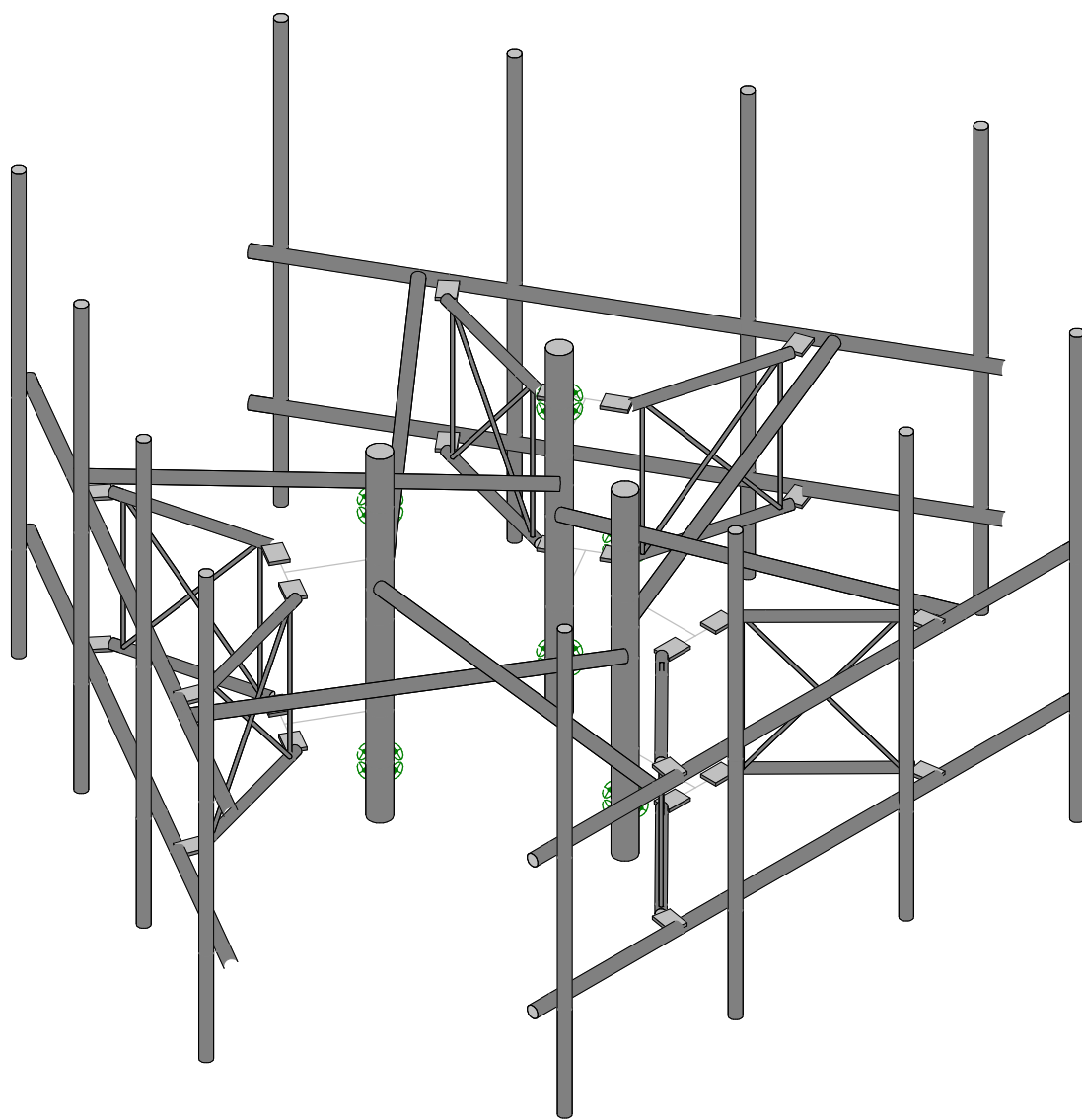
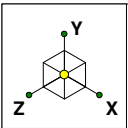
4.1) Recommendations

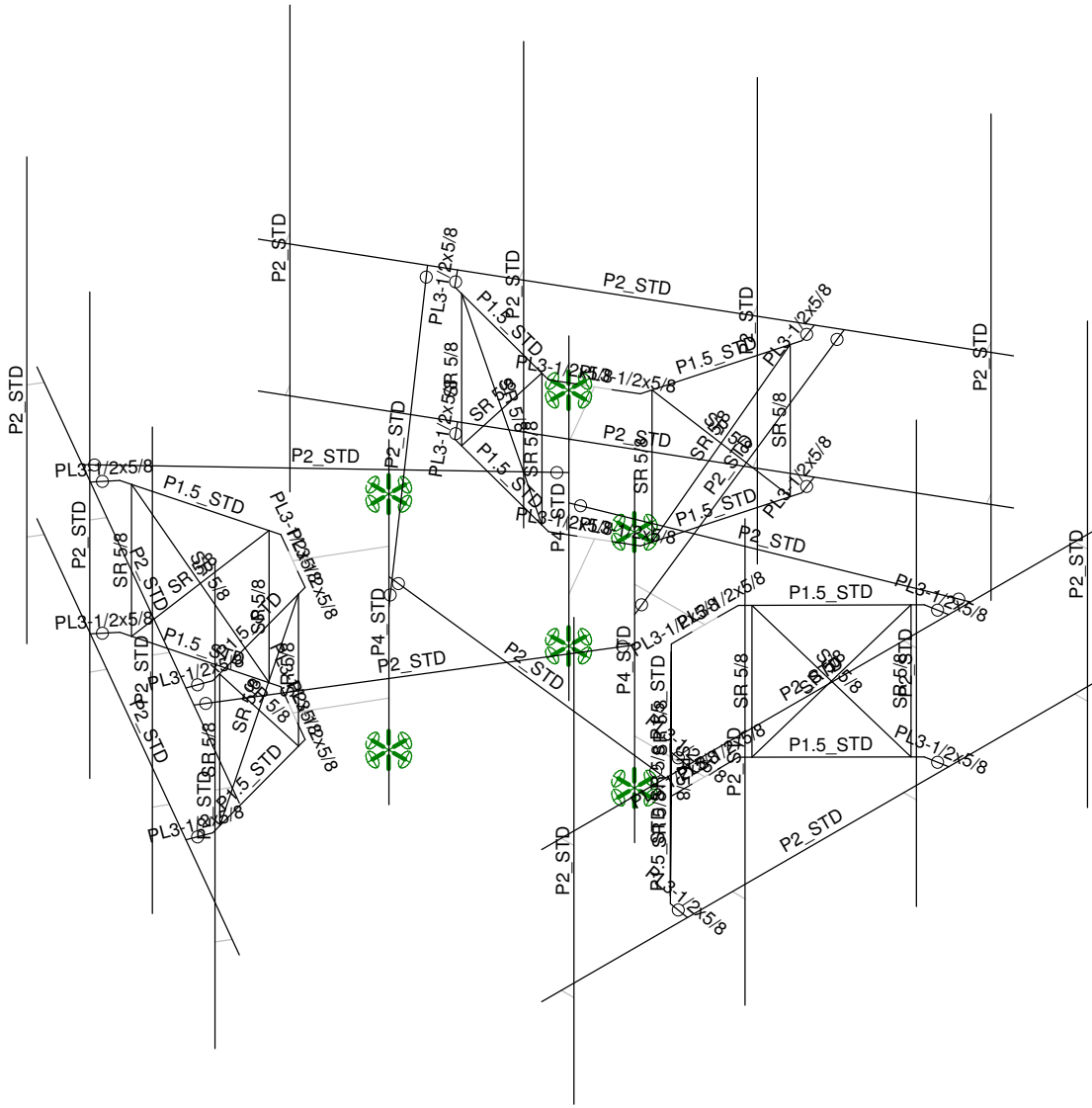
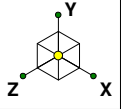
The proposed mount has sufficient capacity to support the proposed loading configuration. In order for the results of this analysis to be considered valid, the mount listed below shall be installed.

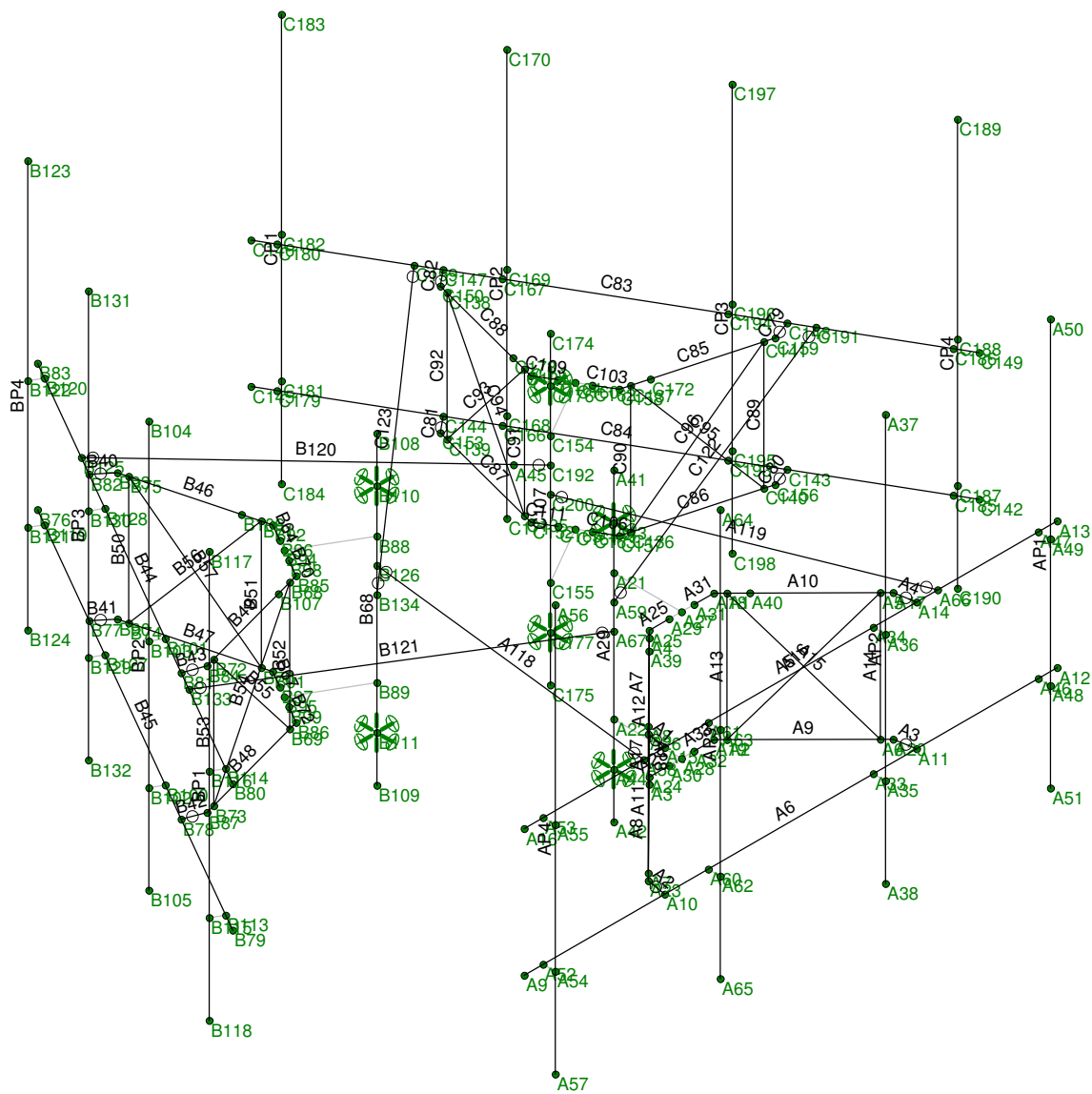
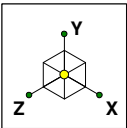
1. Mount replacement, Site Pro 1 VFA10-SD with Site Pro 1 MSFAA Collar Mounted Pipes and (4) 8' P2 STD (2.375" O.D. x 0.154" thick) mount pipes per sector.

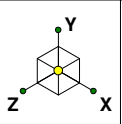
Beyond the mount replacement, no structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A
WIRE FRAME AND RENDERED MODELS

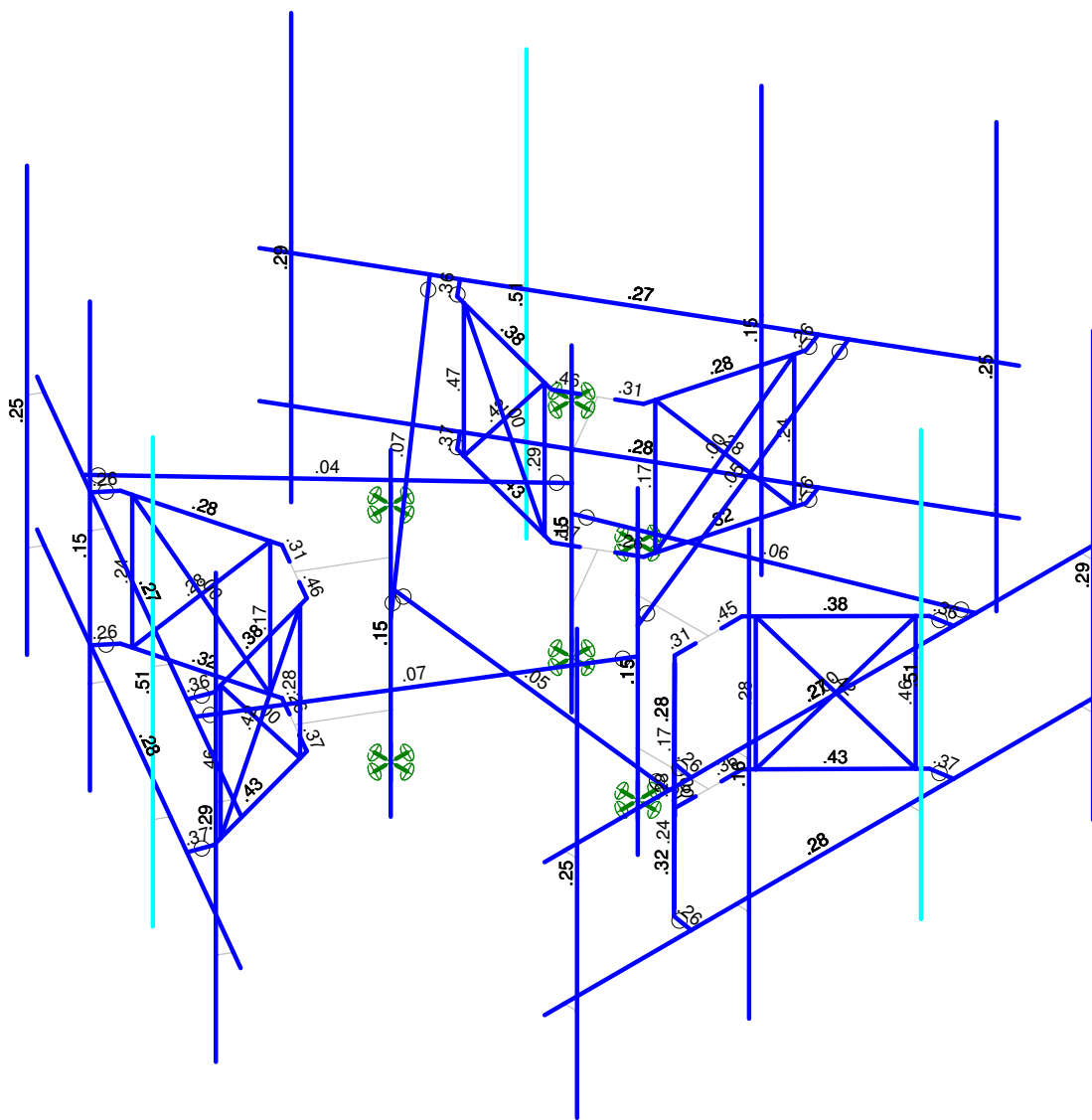




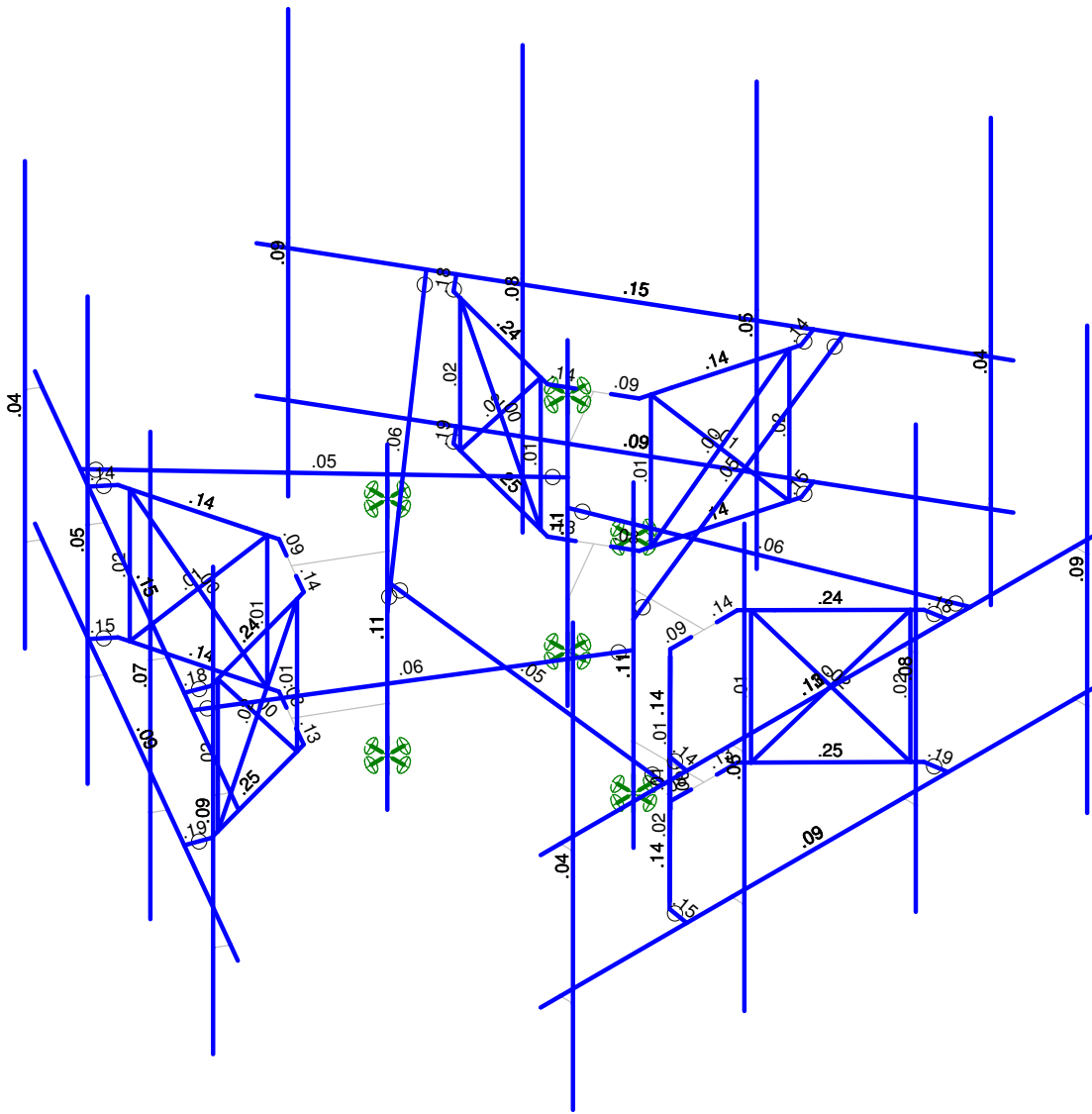
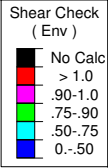
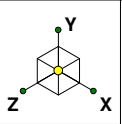




Code Check (Env)	
Black	No Calc
Red	> 1.0
Pink	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



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



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

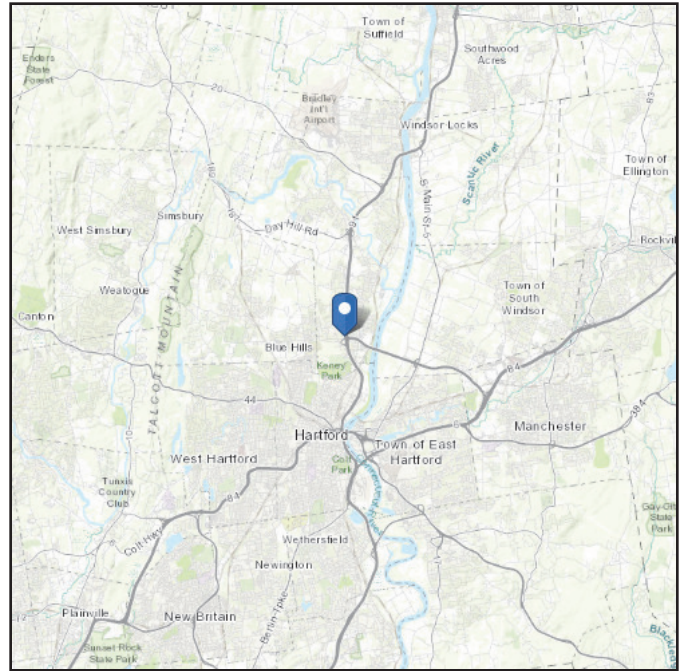
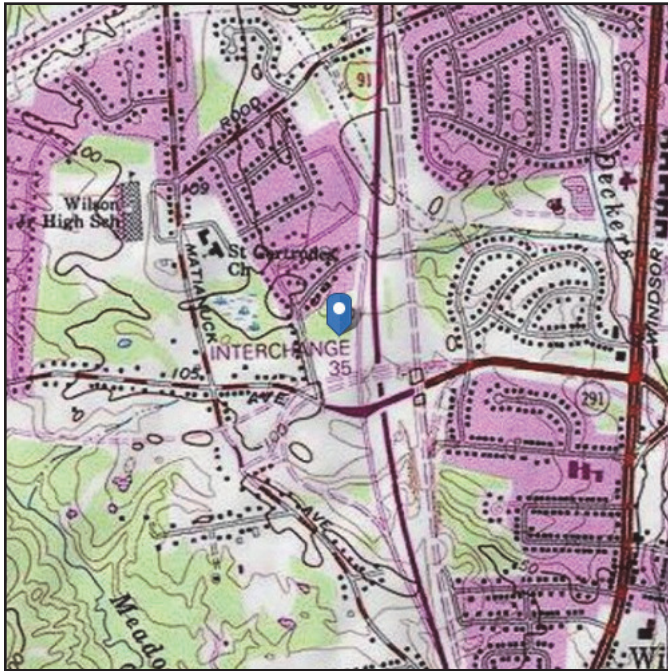
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 93.75 ft (NAVD 88)
Latitude: 41.819842
Longitude: -72.667189



Wind

Results:

Wind Speed:	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

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

Date Accessed: Fri Nov 19 2021

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

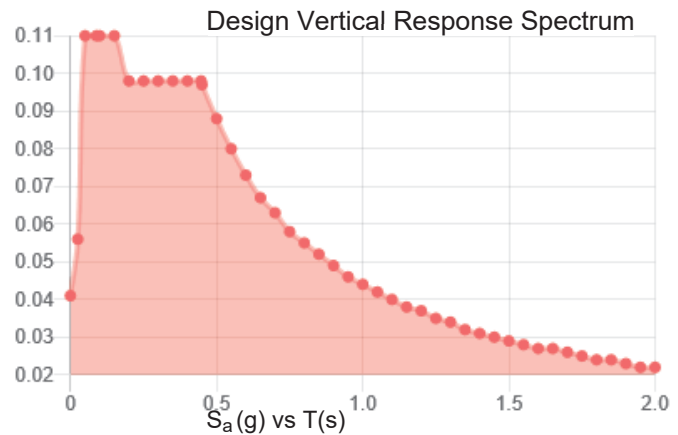
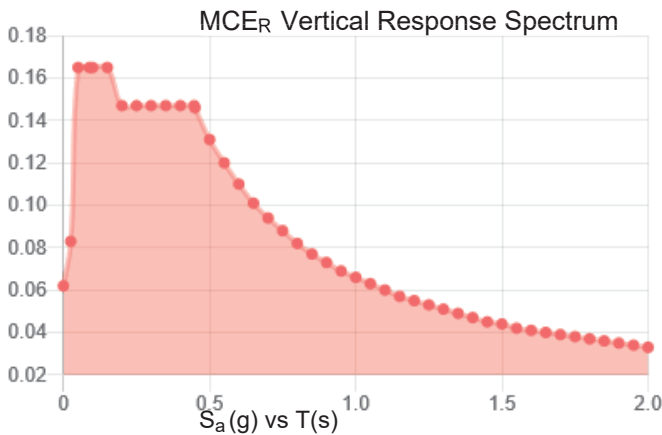
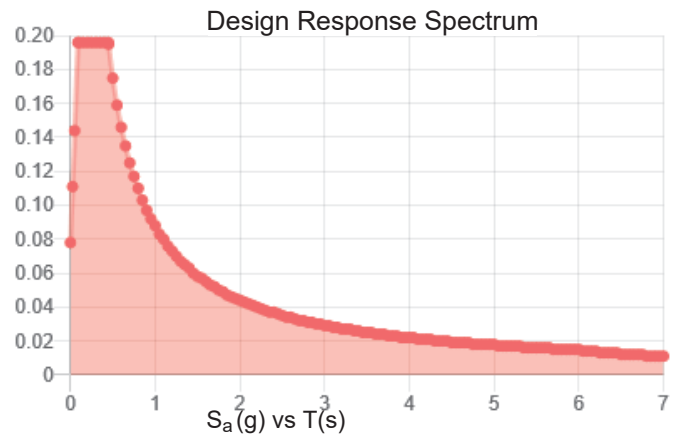
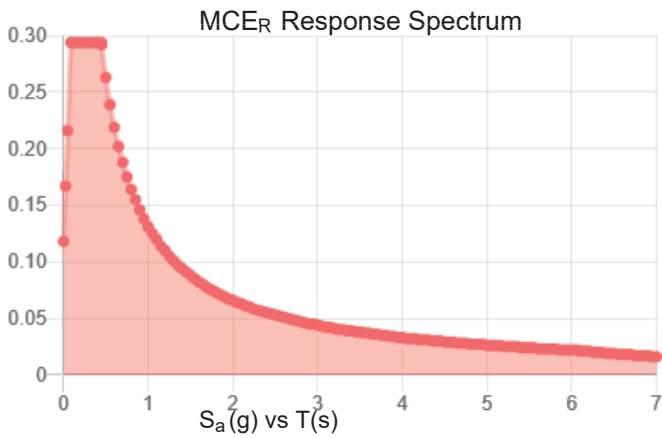
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

Results:

S_s :	0.184	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.098
F_v :	2.4	PGA _M :	0.157
S_{MS} :	0.294	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.196	C_v :	0.7

Seismic Design Category B



Data Accessed:

Fri Nov 19 2021

Date Source:

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

Ice

Results:

Ice Thickness: 1.50 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

Date Accessed: Fri Nov 19 2021

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

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

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Structure Information		
Structure Type:	Monopole	
Structure Height:	148	ft
z (Mount Centerline) =	108	ft
Gh (Mount Gust Effect Factor) =	1.00	
Risk Category:	II	

Code Specifications		
TIA/EIA Code:	H	
Ultimate Wind Speed (No Ice) =	117	mph (3-s gust)
Ultimate Wind Speed (With Ice) =	50	mph (3-s gust)
Ice Thickness	1.5	in
Exposure Category	C	
Tower Base Elevation (AMSL)	92	ft

Topographic Inputs	
Topographic Feature:	N/A

Section Sets										No Ice		Ice Output	
Mount Components	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K _s	User's Wind Multiplier	Normal Wind Force (lb/ft)*	Normal Ice Wind Force (lb/ft)*	Ice Weight (lb/ft)*	
Front Horizontals	Pipe	126.000	2.375	2.375		2.38	Round	0.90	1.00	10.14	4.23	8.38	
Standoff Horizontals	Pipe	30.000	1.9	1.9		1.90	Round	0.90	1.00	6.73	2.64	7.40	
Standoff Diagonals	Pipe	40.000	0.625	0.625		0.63	Round	0.90	1.00	2.67	2.25	4.77	
Standoff Verticals	Pipe	30.000	0.625	0.625		0.63	Round	0.90	1.00	2.67	2.11	4.77	
Connection Plate	Square/Rect.	5.000	0.625	3.5		3.56	Flat	0.90	1.00	3.19	2.02	10.82	
Mount Pipe	Pipe	96.000	2.375	2.375		2.38	Round	0.90	1.00	10.14	3.79	8.38	
Stabilizer	Pipe	126.000	2.375	2.375		2.38	Round	0.90	1.00	10.14	4.23	8.38	
Connection Pipe	Pipe	72.000	4.5	4.5		4.50	Round	0.90	1.00	16.01	4.34	12.77	

*All forces are unfactored.

Appurtenances							Shielding			No Ice		Ice Output	
Appurtenance Model	Loading Elevation (ft)	Height (in)	Front Width (in)	Side Depth (in)	Wt (lbs)	Type for Area	Front Shielding (%)	Side Shielding (%)	K _s and/or block shielding	Normal Wind Force (lbs)*	Wt (lbs) (no ice)*	Normal Wind Force (lbs) (w/ ice)*	Wt (lbs) (only ice)*
(3) VV-65A-R1_TMO	109	54.7	12	4.6	33.3	CFD	0%	0%	0.90	172.42	33.30	42.89	135.30
(3) AIR6449 B41_T-MOBILE	109	33.11	20.51	8.54	114.63	CFD	0%	0%	0.90	202.83	114.63	47.61	150.69
(3) APXVAALL24_43-U-NA20_TMO	109	95.9	24	8.5	149.9	CFD	0%	0%	0.90	564.60	149.90	121.68	416.09
(3) RADIO 4460 B2/B25 B66_TMO	109	17	15.1	11.9	109	Flat	0%	0%	0.90	82.33	109.00	19.13	87.53
(3) Radio 4480_TMOV2	109	22	15.7	7.5	81	Flat	0%	0%	0.90	110.78	81.00	24.98	86.82

*All forces are unfactored.

APPENDIX C
SOFTWARE ANALYSIS OUTPUT



Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53-b	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design Li...	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Front Horizontals	P2 STD	None	None	A53-b	Typical	1.075	.666	.666	1.331
2	Standoff Horizontals	P1.5 STD	None	None	A53-b	Typical	.799	.31	.31	.62
3	Standoff Diagonals	SR 5/8	None	None	A36 Gr.36	Typical	.307	.007	.007	.015
4	Standoff Verticals	SR 5/8	None	None	A36 Gr.36	Typical	.307	.007	.007	.015
5	Connection Plate	PL3-1/2x5/8	None	None	A36 Gr.36	Typical	2.188	.071	2.233	.253
6	Mount Pipe	P2 STD	None	None	A53-b	Typical	1.075	.666	.666	1.331
7	Stabilizer	P2 STD	None	None	A53-b	Typical	1.075	.666	.666	1.331
8	Connection Pipe	P4 STD	None	None	A53-b	Typical	3.174	7.233	7.233	14.465

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead	DL		-1			24		
2	No Ice Wind 0 deg	None					24	87	
3	No Ice Wind 30 deg	None					48	162	
4	No Ice Wind 60 deg	None					48	174	
5	No Ice Wind 90 deg	None					24	81	
6	No Ice Wind 120 deg	None					48	174	
7	No Ice Wind 150 deg	None					48	162	
8	No Ice Wind 180 deg	None					24	87	
9	No Ice Wind 210 deg	None					48	162	
10	No Ice Wind 240 deg	None					48	174	
11	No Ice Wind 270 deg	None					24	81	
12	No Ice Wind 300 deg	None					48	174	
13	No Ice Wind 330 deg	None					48	162	
14	Ice Weight	None					24	87	
15	Ice Wind 0 deg	None					24	87	
16	Ice Wind 30 deg	None					48	162	
17	Ice Wind 60 deg	None					48	174	
18	Ice Wind 90 deg	None					24	81	
19	Ice Wind 120 deg	None					48	174	
20	Ice Wind 150 deg	None					48	162	
21	Ice Wind 180 deg	None					24	87	
22	Ice Wind 210 deg	None					48	162	
23	Ice Wind 240 deg	None					48	174	
24	Ice Wind 270 deg	None					24	81	
25	Ice Wind 300 deg	None					48	174	
26	Ice Wind 330 deg	None					48	162	
27	Live Load - AP1	None					1		
28	Live Load - AP2	None					1		
29	Live Load - AP3	None					1		
30	Live Load - AP4	None					1		
31	Live Load - BP1	None					1		
32	Live Load - BP2	None					1		
33	Live Load - BP3	None					1		



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Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
34	Live Load - BP4	None					1		
35	Live Load - CP1	None					1		
36	Live Load - CP2	None					1		
37	Live Load - CP3	None					1		
38	Live Load - CP4	None					1		
39	Live Load - A5 (Start)	None					1		
40	Live Load - A5 (Middl...	None					1		
41	Live Load - A5 (End)	None					1		
42	Live Load - A6 (Start)	None					1		
43	Live Load - A6 (Middl...	None					1		
44	Live Load - A6 (End)	None					1		
45	Live Load - A7 (Start)	None					1		
46	Live Load - A7 (Middl...	None					1		
47	Live Load - A7 (End)	None					1		
48	Live Load - A8 (Start)	None					1		
49	Live Load - A8 (Middl...	None					1		
50	Live Load - A8 (End)	None					1		
51	Live Load - A9 (Start)	None					1		
52	Live Load - A9 (Middl...	None					1		
53	Live Load - A9 (End)	None					1		
54	Live Load - A10 (Start)	None					1		
55	Live Load - A10 (Mid...	None					1		
56	Live Load - A10 (End)	None					1		
57	Live Load - B44 (Start)	None					1		
58	Live Load - B44 (Mid...	None					1		
59	Live Load - B44 (End)	None					1		
60	Live Load - B45 (Start)	None					1		
61	Live Load - B45 (Mid...	None					1		
62	Live Load - B45 (End)	None					1		
63	Live Load - B46 (Start)	None					1		
64	Live Load - B46 (Mid...	None					1		
65	Live Load - B46 (End)	None					1		
66	Live Load - B47 (Start)	None					1		
67	Live Load - B47 (Mid...	None					1		
68	Live Load - B47 (End)	None					1		
69	Live Load - B48 (Start)	None					1		
70	Live Load - B48 (Mid...	None					1		
71	Live Load - B48 (End)	None					1		
72	Live Load - B49 (Start)	None					1		
73	Live Load - B49 (Mid...	None					1		
74	Live Load - B49 (End)	None					1		
75	Live Load - C83 (Start)	None					1		
76	Live Load - C83 (Mid...	None					1		
77	Live Load - C83 (End)	None					1		
78	Live Load - C84 (Start)	None					1		
79	Live Load - C84 (Mid...	None					1		
80	Live Load - C84 (End)	None					1		
81	Live Load - C85 (Start)	None					1		
82	Live Load - C85 (Mid...	None					1		
83	Live Load - C85 (End)	None					1		
84	Live Load - C86 (Start)	None					1		
85	Live Load - C86 (Mid...	None					1		
86	Live Load - C86 (End)	None					1		
87	Live Load - C87 (Start)	None					1		
88	Live Load - C87 (Mid...	None					1		
89	Live Load - C87 (End)	None					1		
90	Live Load - C88 (Start)	None					1		



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Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
91	Live Load - C88 (Mid...	None					1		
92	Live Load - C88 (End)	None					1		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4 Dead	Yes	Y		1	1.4	0		0		0		0		0		0		0		0		0	
2	1.2 Dead + 1.0 Wind @ 0° -...	Yes	Y		1	1.2	2	1	0		0		0		0		0		0		0		0	
3	0.9 Dead + 1.0 Wind @ 0° -...	Yes	Y		1	.9	2	1	0		0		0		0		0		0		0		0	
4	1.2 Dead + 1.0 Wind @ 30°...	Yes	Y		1	1.2	3	1	0		0		0		0		0		0		0		0	
5	0.9 Dead + 1.0 Wind @ 30°...	Yes	Y		1	.9	3	1	0		0		0		0		0		0		0		0	
6	1.2 Dead + 1.0 Wind @ 60°...	Yes	Y		1	1.2	4	1	0		0		0		0		0		0		0		0	
7	0.9 Dead + 1.0 Wind @ 60°...	Yes	Y		1	.9	4	1	0		0		0		0		0		0		0		0	
8	1.2 Dead + 1.0 Wind @ 90°...	Yes	Y		1	1.2	5	1	0		0		0		0		0		0		0		0	
9	0.9 Dead + 1.0 Wind @ 90°...	Yes	Y		1	.9	5	1	0		0		0		0		0		0		0		0	
10	1.2 Dead + 1.0 Wind @ 12...	Yes	Y		1	1.2	6	1	0		0		0		0		0		0		0		0	
11	0.9 Dead + 1.0 Wind @ 12...	Yes	Y		1	.9	6	1	0		0		0		0		0		0		0		0	
12	1.2 Dead + 1.0 Wind @ 15...	Yes	Y		1	1.2	7	1	0		0		0		0		0		0		0		0	
13	0.9 Dead + 1.0 Wind @ 15...	Yes	Y		1	.9	7	1	0		0		0		0		0		0		0		0	
14	1.2 Dead + 1.0 Wind @ 18...	Yes	Y		1	1.2	8	1	0		0		0		0		0		0		0		0	
15	0.9 Dead + 1.0 Wind @ 18...	Yes	Y		1	.9	8	1	0		0		0		0		0		0		0		0	
16	1.2 Dead + 1.0 Wind @ 21...	Yes	Y		1	1.2	9	1	0		0		0		0		0		0		0		0	
17	0.9 Dead + 1.0 Wind @ 21...	Yes	Y		1	.9	9	1	0		0		0		0		0		0		0		0	
18	1.2 Dead + 1.0 Wind @ 24...	Yes	Y		1	1.2	10	1	0		0		0		0		0		0		0		0	
19	0.9 Dead + 1.0 Wind @ 24...	Yes	Y		1	.9	10	1	0		0		0		0		0		0		0		0	
20	1.2 Dead + 1.0 Wind @ 27...	Yes	Y		1	1.2	11	1	0		0		0		0		0		0		0		0	
21	0.9 Dead + 1.0 Wind @ 27...	Yes	Y		1	.9	11	1	0		0		0		0		0		0		0		0	
22	1.2 Dead + 1.0 Wind @ 30...	Yes	Y		1	1.2	12	1	0		0		0		0		0		0		0		0	
23	0.9 Dead + 1.0 Wind @ 30...	Yes	Y		1	.9	12	1	0		0		0		0		0		0		0		0	
24	1.2 Dead + 1.0 Wind @ 33...	Yes	Y		1	1.2	13	1	0		0		0		0		0		0		0		0	
25	0.9 Dead + 1.0 Wind @ 33...	Yes	Y		1	.9	13	1	0		0		0		0		0		0		0		0	
26	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	15	1	14	1		1	0		0		0		0		0		0	
27	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	16	1	14	1		1	0		0		0		0		0		0	
28	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	17	1	14	1		1	0		0		0		0		0		0	
29	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	18	1	14	1		1	0		0		0		0		0		0	
30	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	19	1	14	1		1	0		0		0		0		0		0	
31	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	20	1	14	1		1	0		0		0		0		0		0	
32	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	21	1	14	1		1	0		0		0		0		0		0	
33	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	22	1	14	1		1	0		0		0		0		0		0	
34	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	23	1	14	1		1	0		0		0		0		0		0	
35	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	24	1	14	1		1	0		0		0		0		0		0	
36	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	25	1	14	1		1	0		0		0		0		0		0	
37	1.2 Dead + 1.0 Ice Wind @ ...	Yes	Y		1	1.2	26	1	14	1		1	0		0		0		0		0		0	
38	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	2	.066	0		0		0		0		0		0		0	
39	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	3	.066	0		0		0		0		0		0		0	
40	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	4	.066	0		0		0		0		0		0		0	
41	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	5	.066	0		0		0		0		0		0		0	
42	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	6	.066	0		0		0		0		0		0		0	
43	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	7	.066	0		0		0		0		0		0		0	
44	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	8	.066	0		0		0		0		0		0		0	
45	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	9	.066	0		0		0		0		0		0		0	
46	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	10	.066	0		0		0		0		0		0		0	
47	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	11	.066	0		0		0		0		0		0		0	
48	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	12	.066	0		0		0		0		0		0		0	
49	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	27	1.5	13	.066	0		0		0		0		0		0		0	
50	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	2	.066	0		0		0		0		0		0		0	



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Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
51	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	3	.066	0		0		0		0		0		0		0	
52	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	4	.066	0		0		0		0		0		0		0	
53	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	5	.066	0		0		0		0		0		0		0	
54	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	6	.066	0		0		0		0		0		0		0	
55	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	7	.066	0		0		0		0		0		0		0	
56	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	8	.066	0		0		0		0		0		0		0	
57	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	9	.066	0		0		0		0		0		0		0	
58	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	10	.066	0		0		0		0		0		0		0	
59	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	11	.066	0		0		0		0		0		0		0	
60	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	12	.066	0		0		0		0		0		0		0	
61	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	28	1.5	13	.066	0		0		0		0		0		0		0	
62	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	2	.066	0		0		0		0		0		0		0	
63	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	3	.066	0		0		0		0		0		0		0	
64	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	4	.066	0		0		0		0		0		0		0	
65	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	5	.066	0		0		0		0		0		0		0	
66	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	6	.066	0		0		0		0		0		0		0	
67	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	7	.066	0		0		0		0		0		0		0	
68	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	8	.066	0		0		0		0		0		0		0	
69	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	9	.066	0		0		0		0		0		0		0	
70	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	10	.066	0		0		0		0		0		0		0	
71	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	11	.066	0		0		0		0		0		0		0	
72	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	12	.066	0		0		0		0		0		0		0	
73	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	29	1.5	13	.066	0		0		0		0		0		0		0	
74	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	2	.066	0		0		0		0		0		0		0	
75	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	3	.066	0		0		0		0		0		0		0	
76	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	4	.066	0		0		0		0		0		0		0	
77	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	5	.066	0		0		0		0		0		0		0	
78	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	6	.066	0		0		0		0		0		0		0	
79	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	7	.066	0		0		0		0		0		0		0	
80	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	8	.066	0		0		0		0		0		0		0	
81	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	9	.066	0		0		0		0		0		0		0	
82	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	10	.066	0		0		0		0		0		0		0	
83	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	11	.066	0		0		0		0		0		0		0	
84	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	12	.066	0		0		0		0		0		0		0	
85	1.2 Dead + 1.5 Live_M - AP...	Yes	Y		1	1.2	30	1.5	13	.066	0		0		0		0		0		0		0	
86	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	2	.066	0		0		0		0		0		0		0	
87	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	3	.066	0		0		0		0		0		0		0	
88	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	4	.066	0		0		0		0		0		0		0	
89	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	5	.066	0		0		0		0		0		0		0	
90	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	6	.066	0		0		0		0		0		0		0	
91	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	7	.066	0		0		0		0		0		0		0	
92	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	8	.066	0		0		0		0		0		0		0	
93	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	9	.066	0		0		0		0		0		0		0	
94	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	10	.066	0		0		0		0		0		0		0	
95	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	11	.066	0		0		0		0		0		0		0	
96	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	12	.066	0		0		0		0		0		0		0	
97	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	31	1.5	13	.066	0		0		0		0		0		0		0	
98	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	2	.066	0		0		0		0		0		0		0	
99	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	3	.066	0		0		0		0		0		0		0	
100	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	4	.066	0		0		0		0		0		0		0	
101	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	5	.066	0		0		0		0		0		0		0	
102	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	6	.066	0		0		0		0		0		0		0	
103	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	7	.066	0		0		0		0		0		0		0	
104	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	8	.066	0		0		0		0		0		0		0	
105	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	9	.066	0		0		0		0		0		0		0	
106	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	10	.066	0		0		0		0		0		0		0	
107	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	11	.066	0		0		0		0		0		0		0	



Company : GPD
 Designer : bbrookbank
 Job Number : 2022777.841793.03
 Model Name : 841793 - WINDSOR PINE LANE

Jan 26, 2022
 6:21 PM
 Checked By: _____

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
108	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	12	.066	0		0		0		0		0		0	
109	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	32	1.5	13	.066	0		0		0		0		0		0	
110	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	2	.066	0		0		0		0		0		0	
111	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	3	.066	0		0		0		0		0		0	
112	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	4	.066	0		0		0		0		0		0	
113	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	5	.066	0		0		0		0		0		0	
114	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	6	.066	0		0		0		0		0		0	
115	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	7	.066	0		0		0		0		0		0	
116	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	8	.066	0		0		0		0		0		0	
117	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	9	.066	0		0		0		0		0		0	
118	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	10	.066	0		0		0		0		0		0	
119	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	11	.066	0		0		0		0		0		0	
120	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	12	.066	0		0		0		0		0		0	
121	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	33	1.5	13	.066	0		0		0		0		0		0	
122	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	2	.066	0		0		0		0		0		0	
123	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	3	.066	0		0		0		0		0		0	
124	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	4	.066	0		0		0		0		0		0	
125	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	5	.066	0		0		0		0		0		0	
126	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	6	.066	0		0		0		0		0		0	
127	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	7	.066	0		0		0		0		0		0	
128	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	8	.066	0		0		0		0		0		0	
129	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	9	.066	0		0		0		0		0		0	
130	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	10	.066	0		0		0		0		0		0	
131	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	11	.066	0		0		0		0		0		0	
132	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	12	.066	0		0		0		0		0		0	
133	1.2 Dead + 1.5 Live_M - BP...	Yes	Y		1	1.2	34	1.5	13	.066	0		0		0		0		0		0	
134	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	2	.066	0		0		0		0		0		0	
135	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	3	.066	0		0		0		0		0		0	
136	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	4	.066	0		0		0		0		0		0	
137	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	5	.066	0		0		0		0		0		0	
138	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	6	.066	0		0		0		0		0		0	
139	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	7	.066	0		0		0		0		0		0	
140	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	8	.066	0		0		0		0		0		0	
141	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	9	.066	0		0		0		0		0		0	
142	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	10	.066	0		0		0		0		0		0	
143	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	11	.066	0		0		0		0		0		0	
144	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	12	.066	0		0		0		0		0		0	
145	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	35	1.5	13	.066	0		0		0		0		0		0	
146	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	2	.066	0		0		0		0		0		0	
147	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	3	.066	0		0		0		0		0		0	
148	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	4	.066	0		0		0		0		0		0	
149	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	5	.066	0		0		0		0		0		0	
150	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	6	.066	0		0		0		0		0		0	
151	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	7	.066	0		0		0		0		0		0	
152	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	8	.066	0		0		0		0		0		0	
153	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	9	.066	0		0		0		0		0		0	
154	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	10	.066	0		0		0		0		0		0	
155	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	11	.066	0		0		0		0		0		0	
156	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	12	.066	0		0		0		0		0		0	
157	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	36	1.5	13	.066	0		0		0		0		0		0	
158	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	2	.066	0		0		0		0		0		0	
159	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	3	.066	0		0		0		0		0		0	
160	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	4	.066	0		0		0		0		0		0	
161	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	5	.066	0		0		0		0		0		0	
162	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	6	.066	0		0		0		0		0		0	
163	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	7	.066	0		0		0		0		0		0	
164	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	8	.066	0		0		0		0		0		0	



Company : GPD
 Designer : bbrookbank
 Job Number : 2022777.841793.03
 Model Name : 841793 - WINDSOR PINE LANE

Jan 26, 2022
 6:21 PM
 Checked By: _____

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
165	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	9	.066	0		0		0		0		0		0		0	
166	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	10	.066	0		0		0		0		0		0		0	
167	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	11	.066	0		0		0		0		0		0		0	
168	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	12	.066	0		0		0		0		0		0		0	
169	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	37	1.5	13	.066	0		0		0		0		0		0		0	
170	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	2	.066	0		0		0		0		0		0		0	
171	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	3	.066	0		0		0		0		0		0		0	
172	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	4	.066	0		0		0		0		0		0		0	
173	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	5	.066	0		0		0		0		0		0		0	
174	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	6	.066	0		0		0		0		0		0		0	
175	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	7	.066	0		0		0		0		0		0		0	
176	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	8	.066	0		0		0		0		0		0		0	
177	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	9	.066	0		0		0		0		0		0		0	
178	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	10	.066	0		0		0		0		0		0		0	
179	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	11	.066	0		0		0		0		0		0		0	
180	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	12	.066	0		0		0		0		0		0		0	
181	1.2 Dead + 1.5 Live_M - CP...	Yes	Y		1	1.2	38	1.5	13	.066	0		0		0		0		0		0		0	
182	1.2 Dead + 1.5 Live_V - A5...	Yes	Y		1	1.2	39	1.5	0		0		0		0		0		0		0		0	
183	1.2 Dead + 1.5 Live_V - A5...	Yes	Y		1	1.2	40	1.5	0		0		0		0		0		0		0		0	
184	1.2 Dead + 1.5 Live_V - A5...	Yes	Y		1	1.2	41	1.5	0		0		0		0		0		0		0		0	
185	1.2 Dead + 1.5 Live_V - A6...	Yes	Y		1	1.2	42	1.5	0		0		0		0		0		0		0		0	
186	1.2 Dead + 1.5 Live_V - A6...	Yes	Y		1	1.2	43	1.5	0		0		0		0		0		0		0		0	
187	1.2 Dead + 1.5 Live_V - A6...	Yes	Y		1	1.2	44	1.5	0		0		0		0		0		0		0		0	
188	1.2 Dead + 1.5 Live_V - A7...	Yes	Y		1	1.2	45	1.5	0		0		0		0		0		0		0		0	
189	1.2 Dead + 1.5 Live_V - A7...	Yes	Y		1	1.2	46	1.5	0		0		0		0		0		0		0		0	
190	1.2 Dead + 1.5 Live_V - A7...	Yes	Y		1	1.2	47	1.5	0		0		0		0		0		0		0		0	
191	1.2 Dead + 1.5 Live_V - A8...	Yes	Y		1	1.2	48	1.5	0		0		0		0		0		0		0		0	
192	1.2 Dead + 1.5 Live_V - A8...	Yes	Y		1	1.2	49	1.5	0		0		0		0		0		0		0		0	
193	1.2 Dead + 1.5 Live_V - A8...	Yes	Y		1	1.2	50	1.5	0		0		0		0		0		0		0		0	
194	1.2 Dead + 1.5 Live_V - A9...	Yes	Y		1	1.2	51	1.5	0		0		0		0		0		0		0		0	
195	1.2 Dead + 1.5 Live_V - A9...	Yes	Y		1	1.2	52	1.5	0		0		0		0		0		0		0		0	
196	1.2 Dead + 1.5 Live_V - A9...	Yes	Y		1	1.2	53	1.5	0		0		0		0		0		0		0		0	
197	1.2 Dead + 1.5 Live_V - A1...	Yes	Y		1	1.2	54	1.5	0		0		0		0		0		0		0		0	
198	1.2 Dead + 1.5 Live_V - A1...	Yes	Y		1	1.2	55	1.5	0		0		0		0		0		0		0		0	
199	1.2 Dead + 1.5 Live_V - A1...	Yes	Y		1	1.2	56	1.5	0		0		0		0		0		0		0		0	
200	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	57	1.5	0		0		0		0		0		0		0		0	
201	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	58	1.5	0		0		0		0		0		0		0		0	
202	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	59	1.5	0		0		0		0		0		0		0		0	
203	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	60	1.5	0		0		0		0		0		0		0		0	
204	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	61	1.5	0		0		0		0		0		0		0		0	
205	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	62	1.5	0		0		0		0		0		0		0		0	
206	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	63	1.5	0		0		0		0		0		0		0		0	
207	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	64	1.5	0		0		0		0		0		0		0		0	
208	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	65	1.5	0		0		0		0		0		0		0		0	
209	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	66	1.5	0		0		0		0		0		0		0		0	
210	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	67	1.5	0		0		0		0		0		0		0		0	
211	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	68	1.5	0		0		0		0		0		0		0		0	
212	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	69	1.5	0		0		0		0		0		0		0		0	
213	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	70	1.5	0		0		0		0		0		0		0		0	
214	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	71	1.5	0		0		0		0		0		0		0		0	
215	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	72	1.5	0		0		0		0		0		0		0		0	
216	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	73	1.5	0		0		0		0		0		0		0		0	
217	1.2 Dead + 1.5 Live_V - B4...	Yes	Y		1	1.2	74	1.5	0		0		0		0		0		0		0		0	
218	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	75	1.5	0		0		0		0		0		0		0		0	
219	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	76	1.5	0		0		0		0		0		0		0		0	
220	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	77	1.5	0		0		0		0		0		0		0		0	
221	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	78	1.5	0		0		0		0		0		0		0		0	



Company : GPD
 Designer : bbrookbank
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Load Combinations (Continued)

Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
222	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	79	1.5	0		0		0		0		0		0		0
223	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	80	1.5	0		0		0		0		0		0		0
224	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	81	1.5	0		0		0		0		0		0		0
225	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	82	1.5	0		0		0		0		0		0		0
226	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	83	1.5	0		0		0		0		0		0		0
227	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	84	1.5	0		0		0		0		0		0		0
228	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	85	1.5	0		0		0		0		0		0		0
229	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	86	1.5	0		0		0		0		0		0		0
230	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	87	1.5	0		0		0		0		0		0		0
231	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	88	1.5	0		0		0		0		0		0		0
232	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	89	1.5	0		0		0		0		0		0		0
233	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	90	1.5	0		0		0		0		0		0		0
234	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	91	1.5	0		0		0		0		0		0		0
235	1.2 Dead + 1.5 Live_V - C8...	Yes	Y		1	1.2	92	1.5	0		0		0		0		0		0		0

Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	A43	max	610.663	15	1554.879	26	1444.399	48	.519	13	0	235
2		min	-3131.023	26	132.775	15	-746.298	78	-.763	24	0	1
3	A44	max	2485.699	32	1330.561	27	725.114	84	.334	85	0	235
4		min	304.102	25	286.064	17	-1423.387	42	-.622	43	0	1
5	B110	max	1582.627	127	1542.788	29	670.264	21	1.325	8	0	235
6		min	-1011.291	25	158.049	21	-3162.62	29	-.71	21	0	1
7	B111	max	415.668	91	1329.91	31	2617.073	35	.932	35	0	235
8		min	-1456.047	133	288.128	25	94.839	9	-.298	9	0	1
9	C176	max	2402.266	33	1543.603	34	2391.565	35	.598	9	0	235
10		min	-765.165	5	160.448	7	-769.214	9	-.968	20	0	1
11	C177	max	58.789	17	1333.401	35	-140.157	21	.145	21	0	235
12		min	-2058.746	135	278.872	9	-1812.014	173	-.633	173	0	1
13	Totals:	max	4442.156	15	8311.127	26	4398.654	21				
14		min	-4442.163	2	2347.843	15	-4398.659	8				

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

Member	Shape	Code	Loc[in]	LC	Shear	Loc[in]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn y	phi*Mn z	Cb	Eqn	
1	AP2	P2 STD	.513	42.947	2	.077	45.474	2	15808.4...	33847.7...	1.997	1.997	1...	H1-1b	
2	BP2	P2 STD	.507	42.947	10	.073	45.474	10	15808.4...	33847.7...	1.997	1.997	1...	H1-1b	
3	CP2	P2 STD	.507	42.947	18	.077	45.474	18	15808.4...	33847.7...	1.997	1.997	1...	H1-1b	
4	C92	SR 5/8	.466	30	26	.021	0	1...	4378.175	9940.19	.104	.104	1	H1-1a	
5	A14	SR 5/8	.464	30	30	.021	0	38	4378.175	9940.19	.104	.104	1	H1-1a	
6	B53	SR 5/8	.463	30	32	.021	0	90	4378.175	9940.19	.104	.104	1	H1-1a	
7	B70	PL3-1/2x5/8	.458	0	29	.139	0	y	29	68391.3...	70875	.923	5.168	1...	H1-1b
8	C109	PL3-1/2x5/8	.456	0	33	.139	0	y	32	68391.3...	70875	.923	5.168	1...	H1-1b
9	A31	PL3-1/2x5/8	.452	0	37	.139	0	y	36	68391.3...	70875	.923	5.168	1...	H1-1b
10	C87	P1.5 STD	.429	2.368	143	.248	1.579	35	23949.7...	25182.8...	1.175	1.175	2...	H1-1b	
11	B48	P1.5 STD	.429	2.368	91	.248	1.579	31	23949.7...	25182.8...	1.175	1.175	2...	H1-1b	
12	A9	P1.5 STD	.429	2.368	39	.247	1.579	27	23949.7...	25182.8...	1.175	1.175	2...	H1-1b	
13	C93	SR 5/8	.420	39.464	26	.021	39.464	32	2571.533	9940.19	.104	.104	2...	H1-1a	
14	A15	SR 5/8	.418	39.464	29	.021	39.464	35	2571.533	9940.19	.104	.104	2...	H1-1a	
15	B54	SR 5/8	.417	39.464	32	.021	39.464	29	2571.533	9940.19	.104	.104	2...	H1-1a	
16	B49	P1.5 STD	.385	2.368	88	.241	1.579	32	23949.7...	25182.8...	1.175	1.175	2...	H1-1b	
17	C88	P1.5 STD	.385	2.368	140	.240	1.579	35	23949.7...	25182.8...	1.175	1.175	2...	H1-1b	
18	A10	P1.5 STD	.385	2.368	48	.239	30	26	23949.7...	25182.8...	1.175	1.175	2...	H1-1b	
19	C81	PL3-1/2x5/8	.372	4.778	35	.193	4.778	y	1...	69777.8...	70875	.923	5.168	1...	H1-1b
20	B42	PL3-1/2x5/8	.372	4.778	31	.193	4.778	y	91	69777.8...	70875	.923	5.168	1...	H1-1b



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

Member	Shape	Code	Loc[in]	LC	Shear	Loc[in]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn y	phi*Mn z	Cb	Eqn
21	A3	PL3-1/2x5/8	.369	4.778	27	.192	4.778	y	39	69777.8...	70875	.923	5.168	1...H1-1b
22	C111	PL3-1/2x5/8	.368	0	26	.132	4.696	y	35	68391.3...	70875	.923	5.168	1...H1-1b
23	B72	PL3-1/2x5/8	.366	0	35	.132	4.696	y	32	68391.3...	70875	.923	5.168	1...H1-1b
24	A33	PL3-1/2x5/8	.364	0	30	.131	4.697	y	28	68391.3...	70875	.923	5.168	1...H1-1b
25	A4	PL3-1/2x5/8	.357	4.778	37	.182	4.778	y	45	69777.8...	70875	.923	5.168	1...H1-1b
26	B43	PL3-1/2x5/8	.357	4.778	28	.182	4.778	y	97	69777.8...	70875	.923	5.168	1...H1-1b
27	C82	PL3-1/2x5/8	.356	4.778	32	.182	4.778	y	1...	69777.8...	70875	.923	5.168	1...H1-1b
28	B47	P1.5 STD	.316	2.368	125	.142	1.579	1...	23949.7...	25182.8...	1.175	1.175	2...H1-1b	
29	C86	P1.5 STD	.316	2.368	177	.142	1.579	1...	23949.7...	25182.8...	1.175	1.175	2...H1-1b	
30	A8	P1.5 STD	.316	2.368	84	.142	1.579	72	23949.7...	25182.8...	1.175	1.175	2...H1-1b	
31	C103	PL3-1/2x5/8	.310	4.696	179	.086	4.696	y	1...	68391.3...	70875	.923	5.168	1...H1-1b
32	B64	PL3-1/2x5/8	.310	4.696	127	.086	4.696	y	1...	68391.3...	70875	.923	5.168	1...H1-1b
33	A25	PL3-1/2x5/8	.310	4.697	75	.086	4.697	y	63	68391.3...	70875	.923	5.168	1...H1-1b
34	BP1	P2 STD	.286	45.474	89	.091	45.474	10	15808.4...	33847.7...	1.997	1.997	1...H1-1b	
35	CP1	P2 STD	.286	45.474	141	.091	45.474	18	15808.4...	33847.7...	1.997	1.997	1...H1-1b	
36	AP1	P2 STD	.286	45.474	49	.093	45.474	2	15808.4...	33847.7...	1.997	1.997	1...H1-1b	
37	C91	SR 5/8	.286	30	26	.009	0	1...	4378.175	9940.19	.104	.104	1 H1-1a	
38	B46	P1.5 STD	.285	2.368	127	.139	1.579	1...	23949.7...	25182.8...	1.175	1.175	2...H1-1b	
39	C85	P1.5 STD	.285	2.368	179	.140	1.579	1...	23949.7...	25182.8...	1.175	1.175	2...H1-1b	
40	A7	P1.5 STD	.285	2.368	75	.139	1.579	72	23949.7...	25182.8...	1.175	1.175	2...H1-1b	
41	B52	SR 5/8	.284	30	35	.009	0	1...	4378.175	9940.19	.104	.104	1 H1-1a	
42	A6	P2 STD	.282	92.842	49	.094	89.526	2	31232.44	33847.7...	1.997	1.997	2...H1-1b	
43	C84	P2 STD	.282	92.842	142	.092	89.526	18	31232.44	33847.7...	1.997	1.997	2...H1-1b	
44	B45	P2 STD	.282	92.842	89	.095	89.526	10	31232.44	33847.7...	1.997	1.997	2...H1-1b	
45	A13	SR 5/8	.282	30	30	.009	0	84	4378.175	9940.19	.104	.104	1 H1-1a	
46	B56	SR 5/8	.279	0	122	.013	0	1...	2571.533	9940.19	.104	.104	2...H1-1a	
47	A17	SR 5/8	.279	0	82	.013	0	76	2571.533	9940.19	.104	.104	2...H1-1a	
48	C95	SR 5/8	.279	0	173	.013	0	1...	2571.533	9940.19	.104	.104	2...H1-1a	
49	A5	P2 STD	.269	92.842	38	.134	96.158	16	31232.44	33847.7...	1.997	1.997	2...H1-1b	
50	B44	P2 STD	.269	92.842	90	.145	96.158	24	31232.44	33847.7...	1.997	1.997	2...H1-1b	
51	C83	P2 STD	.268	92.842	142	.149	96.158	8	31232.44	33847.7...	1.997	1.997	2...H1-1b	
52	C106	PL3-1/2x5/8	.265	4.696	173	.083	0	y	1...	68391.3...	70875	.923	5.168	1...H1-1b
53	B67	PL3-1/2x5/8	.265	4.696	133	.083	0	y	1...	68391.3...	70875	.923	5.168	1...H1-1b
54	A28	PL3-1/2x5/8	.264	4.697	81	.083	0	y	63	68391.3...	70875	.923	5.168	1...H1-1b
55	C80	PL3-1/2x5/8	.263	4.778	177	.151	4.778	y	1...	69777.8...	70875	.923	5.168	1...H1-1b
56	B41	PL3-1/2x5/8	.263	4.778	125	.151	4.778	y	1...	69777.8...	70875	.923	5.168	1...H1-1b
57	A2	PL3-1/2x5/8	.263	4.778	84	.151	4.778	y	84	69777.8...	70875	.923	5.168	1...H1-1b
58	C79	PL3-1/2x5/8	.259	4.778	179	.143	4.778	y	1...	69777.8...	70875	.923	5.168	1...H1-1b
59	B40	PL3-1/2x5/8	.259	4.778	127	.143	4.778	y	1...	69777.8...	70875	.923	5.168	1...H1-1b
60	A1	PL3-1/2x5/8	.259	4.778	75	.143	4.778	y	80	69777.8...	70875	.923	5.168	1...H1-1b
61	BP4	P2 STD	.247	45.474	128	.042	73.263	1...	15808.4...	33847.7...	1.997	1.997	1...H1-1b	
62	CP4	P2 STD	.247	45.474	179	.043	73.263	1...	15808.4...	33847.7...	1.997	1.997	1...H1-1b	
63	AP4	P2 STD	.247	45.474	77	.042	73.263	81	15808.4...	33847.7...	1.997	1.997	1...H1-1b	
64	B50	SR 5/8	.239	30	122	.016	0	1...	4378.175	9940.19	.104	.104	1 H1-1b	
65	C89	SR 5/8	.238	30	173	.016	0	1...	4378.175	9940.19	.104	.104	1 H1-1b	
66	A11	SR 5/8	.238	30	82	.016	0	74	4378.175	9940.19	.104	.104	1 H1-1b	
67	C90	SR 5/8	.175	30	173	.013	0	1...	4378.175	9940.19	.104	.104	1 H1-1b*	
68	B51	SR 5/8	.175	30	133	.013	0	91	4378.175	9940.19	.104	.104	1 H1-1b*	
69	A12	SR 5/8	.174	30	81	.013	0	40	4378.175	9940.19	.104	.104	1 H1-1b*	
70	AP3	P2 STD	.158	45.474	2	.046	45.474	43	15808.4...	33847.7...	1.997	1.997	1.8 H1-1b	
71	BP3	P2 STD	.152	45.474	10	.049	45.474	20	15808.4...	33847.7...	1.997	1.997	1...H1-1b	
72	CP3	P2 STD	.151	45.474	18	.047	45.474	4	15808.4...	33847.7...	1.997	1.997	1...H1-1b	
73	A29	P4 STD	.148	20.842	26	.107	26.526	47	88992.7...	99982.5...	11.318	11.318	2...H1-1b	
74	C107	P4 STD	.147	20.842	34	.107	26.526	1...	88992.7...	99982.5...	11.318	11.318	2...H1-1b	
75	B68	P4 STD	.147	20.842	30	.108	11.368	29	88992.7...	99982.5...	11.318	11.318	2...H1-1b	
76	C123	P2 STD	.070	79.542	8	.062	0	1...	20069.5...	33847.7...	1.997	1.997	1...H1-1b*	
77	B121	P2 STD	.066	79.542	24	.062	0	95	20069.5...	33847.7...	1.997	1.997	1...H1-1b*	



Company : GPD
 Designer : bbrookbank
 Job Number : 2022777.841793.03
 Model Name : 841793 - WINDSOR PINE LANE

Jan 26, 2022
 6:21 PM
 Checked By: _____

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

Member	Shape	Code	Loc[in]	LC	Shear	Loc[in]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn y	phi*Mn z	Cb	Eqn
78	A119	P2 STD	.063	79.542	16	.061	79.542	44	20069.5...	33847.7...	1.997	1.997	1...	H1-1b*
79	C122	P2 STD	.047	39.43	2	.049	0	1...	20249.4...	33847.7...	1.997	1.997	1...	H1-1b
80	A118	P2 STD	.046	39.43	8	.049	78.861	81	20249.4...	33847.7...	1.997	1.997	1...	H1-1b
81	B120	P2 STD	.045	39.43	32	.049	0	1...	20249.4...	33847.7...	1.997	1.997	1...	H1-1b
82	A16	SR 5/8	.000	0	235	.000	0	2...	2571.533	9940.19	.104	.104	1	H1-1a
83	A18	SR 5/8	.000	0	235	.000	0	2...	2571.533	9940.19	.104	.104	1	H1-1a
84	B55	SR 5/8	.000	0	235	.000	0	2...	2571.533	9940.19	.104	.104	1	H1-1a
85	B57	SR 5/8	.000	0	235	.000	0	2...	2571.533	9940.19	.104	.104	1	H1-1a
86	C94	SR 5/8	.000	0	235	.000	0	2...	2571.533	9940.19	.104	.104	1	H1-1a
87	C96	SR 5/8	.000	0	235	.000	0	2...	2571.533	9940.19	.104	.104	1	H1-1a

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

Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Egn	
1	AP2	P2 STD	0.513	1.05	0.489*	42.95	2	0.077	1.05	0.073*	45.47	15808.485	33847.742	1.997	1.997	1.76	H1-1b
2	BP2	P2 STD	0.507	1.05	0.483*	42.95	10	0.073	1.05	0.07*	45.47	15808.485	33847.742	1.997	1.997	1.762	H1-1b
3	CP2	P2 STD	0.507	1.05	0.483*	42.95	18	0.077	1.05	0.073*	45.47	15808.485	33847.742	1.997	1.997	1.763	H1-1b
4	C92	SR 5/8	0.466	1.05	0.444*	30	26	0.021	1.05	0.02*	0	4378.175	9940.19	0.104	0.104	1	H1-1a
5	A14	SR 5/8	0.464	1.05	0.442*	30	30	0.021	1.05	0.02*	0	4378.175	9940.19	0.104	0.104	1	H1-1a
6	B53	SR 5/8	0.463	1.05	0.441*	30	32	0.021	1.05	0.02*	0	4378.175	9940.19	0.104	0.104	1	H1-1a
7	B70	PL3-1/2x5/8	0.458	1.05	0.436*	0	29	0.139	1.05	0.132*	0	68391.349	70875	0.923	5.168	1.52	H1-1b
8	C109	PL3-1/2x5/8	0.456	1.05	0.434*	0	33	0.139	1.05	0.132*	0	68391.349	70875	0.923	5.168	1.519	H1-1b
9	A31	PL3-1/2x5/8	0.452	1.05	0.43*	0	37	0.139	1.05	0.132*	0	68391.349	70875	0.923	5.168	1.531	H1-1b
10	C87	P1.5 STD	0.429	1.05	0.409*	2.368	143	0.248	1.05	0.236*	1.579	23949.734	25182.895	1.175	1.175	2.023	H1-1b
11	B48	P1.5 STD	0.429	1.05	0.409*	2.368	91	0.248	1.05	0.236*	1.579	23949.734	25182.895	1.175	1.175	2.023	H1-1b
12	A9	P1.5 STD	0.429	1.05	0.409*	2.368	39	0.247	1.05	0.235*	1.579	23949.734	25182.895	1.175	1.175	2.023	H1-1b
13	C93	SR 5/8	0.42	1.05	0.4*	39.46	26	0.021	1.05	0.02*	39.46	2571.533	9940.19	0.104	0.104	2.969	H1-1a
14	A15	SR 5/8	0.418	1.05	0.398*	39.46	29	0.021	1.05	0.02*	39.46	2571.533	9940.19	0.104	0.104	2.961	H1-1a
15	B54	SR 5/8	0.417	1.05	0.397*	39.46	32	0.021	1.05	0.02*	39.46	2571.533	9940.19	0.104	0.104	2.959	H1-1a
16	B49	P1.5 STD	0.385	1.05	0.367*	2.368	88	0.241	1.05	0.23*	1.579	23949.734	25182.895	1.175	1.175	2.029	H1-1b
17	C88	P1.5 STD	0.385	1.05	0.367*	2.368	140	0.24	1.05	0.229*	1.579	23949.734	25182.895	1.175	1.175	2.029	H1-1b
18	A10	P1.5 STD	0.385	1.05	0.367*	2.368	48	0.239	1.05	0.228*	30	23949.734	25182.895	1.175	1.175	2.029	H1-1b
19	C81	PL3-1/2x5/8	0.372	1.05	0.354*	4.778	35	0.193	1.05	0.184*	4.778	69777.888	70875	0.923	5.168	1.685	H1-1b
20	B42	PL3-1/2x5/8	0.372	1.05	0.354*	4.778	31	0.193	1.05	0.184*	4.778	69777.888	70875	0.923	5.168	1.685	H1-1b
21	A3	PL3-1/2x5/8	0.369	1.05	0.351*	4.778	27	0.192	1.05	0.183*	4.778	69777.888	70875	0.923	5.168	1.685	H1-1b
22	C111	PL3-1/2x5/8	0.368	1.05	0.35*	0	26	0.132	1.05	0.126*	4.696	68391.349	70875	0.923	5.168	1.551	H1-1b
23	B72	PL3-1/2x5/8	0.366	1.05	0.349*	0	35	0.132	1.05	0.126*	4.696	68391.349	70875	0.923	5.168	1.561	H1-1b
24	A33	PL3-1/2x5/8	0.364	1.05	0.347*	0	30	0.131	1.05	0.125*	4.697	68391.349	70875	0.923	5.168	1.555	H1-1b
25	A4	PL3-1/2x5/8	0.357	1.05	0.34*	4.778	37	0.182	1.05	0.173*	4.778	69777.888	70875	0.923	5.168	1.684	H1-1b
26	B43	PL3-1/2x5/8	0.357	1.05	0.34*	4.778	28	0.182	1.05	0.173*	4.778	69777.888	70875	0.923	5.168	1.685	H1-1b
27	C82	PL3-1/2x5/8	0.356	1.05	0.339*	4.778	32	0.182	1.05	0.173*	4.778	69777.888	70875	0.923	5.168	1.685	H1-1b
28	B47	P1.5 STD	0.316	1.05	0.301*	2.368	125	0.142	1.05	0.135*	1.579	23949.734	25182.895	1.175	1.175	2.026	H1-1b
29	C86	P1.5 STD	0.316	1.05	0.301*	2.368	177	0.142	1.05	0.135*	1.579	23949.734	25182.895	1.175	1.175	2.026	H1-1b
30	A8	P1.5 STD	0.316	1.05	0.301*	2.368	84	0.142	1.05	0.135*	1.579	23949.734	25182.895	1.175	1.175	2.026	H1-1b
31	C103	PL3-1/2x5/8	0.31	1.05	0.295*	4.696	179	0.086	1.05	0.082*	4.696	68391.349	70875	0.923	5.168	1.615	H1-1b
32	B64	PL3-1/2x5/8	0.31	1.05	0.295*	4.696	127	0.086	1.05	0.082*	4.696	68391.349	70875	0.923	5.168	1.615	H1-1b
33	A25	PL3-1/2x5/8	0.31	1.05	0.295*	4.697	75	0.086	1.05	0.082*	4.697	68391.349	70875	0.923	5.168	1.619	H1-1b
34	BP1	P2 STD	0.286	1.05	0.272*	45.47	89	0.091	1.05	0.087*	45.47	15808.485	33847.742	1.997	1.997	1.675	H1-1b
35	CP1	P2 STD	0.286	1.05	0.272*	45.47	141	0.091	1.05	0.087*	45.47	15808.485	33847.742	1.997	1.997	1.673	H1-1b
36	AP1	P2 STD	0.286	1.05	0.272*	45.47	49	0.093	1.05	0.089*	45.47	15808.485	33847.742	1.997	1.997	1.674	H1-1b
37	C91	SR 5/8	0.286	1.05	0.272*	30	26	0.009	1.05	0.009*	0	4378.175	9940.19	0.104	0.104	1	H1-1a
38	B46	P1.5 STD	0.285	1.05	0.271*	2.368	127	0.139	1.05	0.132*	1.579	23949.734	25182.895	1.175	1.175	2.031	H1-1b
39	C85	P1.5 STD	0.285	1.05	0.271*	2.368	179	0.14	1.05	0.133*	1.579	23949.734	25182.895	1.175	1.175	2.031	H1-1b
40	A7	P1.5 STD	0.285	1.05	0.271*	2.368	75	0.139	1.05	0.132*	1.579	23949.734	25182.895	1.175	1.175	2.031	H1-1b
41	B52	SR 5/8	0.284	1.05	0.27*	30	35	0.009	1.05	0.009*	0	4378.175	9940.19	0.104	0.104	1	H1-1a
42	A6	P2 STD	0.282	1.05	0.269*	92.84	49	0.094	1.05	0.09*	89.53	31232.44	33847.742	1.997	1.997	2.214	H1-1b
43	C84	P2 STD	0.282	1.05	0.269*	92.84	142	0.092	1.05	0.088*	89.53	31232.44	33847.742	1.997	1.997	2.213	H1-1b
44	B45	P2 STD	0.282	1.05	0.269*	92.84	89	0.095	1.05	0.09*	89.53	31232.44	33847.742	1.997	1.997	2.213	H1-1b
45	A13	SR 5/8	0.282	1.05	0.269*	30	30	0.009	1.05	0.009*	0	4378.175	9940.19	0.104	0.104	1	H1-1a
46	B56	SR 5/8	0.279	1.05	0.266*	0	122	0.013	1.05	0.012*	0	2571.533	9940.19	0.104	0.104	2.423	H1-1a
47	A17	SR 5/8	0.279	1.05	0.266*	0	82	0.013	1.05	0.012*	0	2571.533	9940.19	0.104	0.104	2.416	H1-1a
48	C95	SR 5/8	0.279	1.05	0.266*	0	173	0.013	1.05	0.012*	0	2571.533	9940.19	0.104	0.104	2.423	H1-1a
49	A5	P2 STD	0.269	1.05	0.256*	92.84	38	0.134	1.05	0.128*	96.16	31232.44	33847.742	1.997	1.997	2.169	H1-1b
50	B44	P2 STD	0.269	1.05	0.256*	92.84	90	0.145	1.05	0.138*	96.16	31232.44	33847.742	1.997	1.997	2.169	H1-1b
51	C83	P2 STD	0.268	1.05	0.255*	92.84	142	0.149	1.05	0.142*	96.16	31232.44	33847.742	1.997	1.997	2.169	H1-1b
52	C106	PL3-1/2x5/8	0.265	1.05	0.252*	4.696	173	0.083	1.05	0.079*	0	68391.349	70875	0.923	5.168	1.642	H1-1b
53	B67	PL3-1/2x5/8	0.265	1.05	0.252*	4.696	133	0.083	1.05	0.079*	0	68391.349	70875	0.923	5.168	1.642	H1-1b
54	A28	PL3-1/2x5/8	0.264	1.05	0.251*	4.697	81	0.083	1.05	0.079*	0	68391.349	70875	0.923	5.168	1.644	H1-1b
55	C80	PL3-1/2x5/8	0.263	1.05	0.25*	4.778	177	0.151	1.05	0.144*	4.778	69777.888	70875	0.923	5.168	1.684	H1-1b
56	B41	PL3-1/2x5/8	0.263	1.05	0.25*	4.778	125	0.151	1.05	0.144*	4.778	69777.888	70875	0.923	5.168	1.684	H1-1b
57	A2	PL3-1/2x5/8	0.263	1.05	0.25*	4.778	84	0.151	1.05	0.144*	4.778	69777.888	70875	0.923	5.168	1.685	H1-1b
58	C79	PL3-1/2x5/8	0.259	1.05	0.247*	4.778	179	0.143	1.05	0.136*	4.778	69777.888	70875	0.923	5.168	1.684	H1-1b
59	B40	PL3-1/2x5/8	0.259	1.05	0.247*	4.778	127	0.143	1.05	0.136*	4.778	69777.888	70875	0.923	5.168	1.684	H1-1b
60	A1	PL3-1/2x5/8	0.259	1.05	0.247*	4.778	75	0.143	1.05	0.136*	4.778	69777.888	70875	0.923	5.168	1.684	H1-1b
61	BP4	P2 STD	0.247	1.05	0.235*	45.47	128	0.042	1.05	0.04*	73.26	15808.485	33847.742	1.997	1.997	1.611	H1-1b
62	CP4	P2 STD	0.247	1.05	0.235*	45.47	179	0.043	1.05	0.041*	73.26	15808.485	33847.742	1.997	1.997	1.627	H1-1b
63	AP4	P2 STD	0.247	1.05	0.235*	45.47	77	0.042	1.05	0.04*	73.26	15808.485	33847.742	1.997	1.997	1.597	H1-1b
64	B50	SR 5/8	0.239	1.05	0.228*	30	122	0.016	1.05	0.015*	0	4378.175	9940.19	0.104	0.104	1	H1-1b
65	C89	SR 5/8	0.238	1.05	0.227*	30	173	0.016	1.05	0.015*	0	4378.175	9940.19	0.104	0.104	1	H1-1b
66	A11	SR 5/8	0.238	1.05	0.227*	30	82	0.016	1.05	0.015*	0	4378.175	9940.19	0.104	0.104	1	H1-1b
67	C90	SR 5/8	0.175	1.05	0.167*	30	173	0.013	1.05	0.012*	0	4378.175	9940.19	0.104	0.104	1	H1-1b
68	B51	SR 5/8	0.175	1.05	0.167*	30	133	0.013	1.05	0.012*	0	4378.175	9940.19	0.104	0.104	1	H1-1b
69	A12	SR 5/8	0.174	1.05	0.166*	30	81	0.013	1.05	0.012*	0	43					

APPENDIX D
ADDITIONAL CALCULATIONS



TIA-222-H CONNECTION CHECK
Mount to Tower Connection - Alpha Sector
2022777.841793.03

Bolt Information	
Bolt Diameter (d)	0.625 in
Net Tensile Area (A _n)	0.226 in ²
# of Bolts Total (n)	4
Bolt Distance Up-Down	6 in
Bolt Distance Left-Right	6 in
Bolt Grade	A307
Bolt Tensile Strength (F _{ub})	60 ksi

RISA 3D Reactions (Up-Down)	
Moment (M)	1.07 k-ft
Axial (T)	3.13 kips
Shear (V)	1.72 kips

RISA 3D Reactions (Left-Right)	
Moment (M)	0.00 k-ft
Axial (T)	3.13 kips
Shear (V)	1.72 kips

Bolt Capacity (Up-Down)	
Nominal Tensile Strength (R _{nt})	13.560 kips
Nominal Shear Strength (R _{nv})	9.20 kips
Bolt Tensile Force (T _{ub})	1.85 kips
Bolt Shear Force (V _{ub})	0.431 kips
T _{ub} /φR _{nt}	0.17369
V _{ub} /φR _{nv}	0.05944
(V _{ub} /φR _{nv}) ² +(T _{ub} /φR _{nt}) ²	0.03539
Bolt Capacity =	17.4% OK

*Rating per TIA-222-H, Section 15.5

Bolt Capacity (Left-Right)	
Nominal Tensile Strength (R _{nt})	13.560 kips
Nominal Shear Strength (R _{nv})	9.20 kips
Bolt Tensile Force (T _{ub})	0.78 kips
Bolt Shear Force (V _{ub})	0.431 kips
T _{ub} /φR _{nt}	0.07330
V _{ub} /φR _{nv}	0.05944
(V _{ub} /φR _{nv}) ² +(T _{ub} /φR _{nt}) ²	0.00935
Bolt Capacity =	7.3% OK

*Rating per TIA-222-H, Section 15.5



TIA-222-H CONNECTION CHECK
Mount to Tower Connection - Beta Sector
2022777.841793.03

Bolt Information	
Bolt Diameter (d)	0.625 in
Net Tensile Area (A _n)	0.226 in ²
# of Bolts Total (n)	4
Bolt Distance Up-Down	6 in
Bolt Distance Left-Right	6 in
Bolt Grade	A307
Bolt Tensile Strength (F _{ub})	60 ksi

RISA 3D Reactions (Up-Down)	
Moment (M)	1.05 k-ft
Axial (T)	3.10 kips
Shear (V)	1.73 kips

RISA 3D Reactions (Left-Right)	
Moment (M)	0.00 k-ft
Axial (T)	3.10 kips
Shear (V)	1.73 kips

Bolt Capacity (Up-Down)	
Nominal Tensile Strength (R _{nt})	13.560 kips
Nominal Shear Strength (R _{nv})	9.20 kips
Bolt Tensile Force (T _{ub})	1.83 kips
Bolt Shear Force (V _{ub})	0.433 kips
$T_{ub}/\phi R_{nt}$	0.17110
$V_{ub}/\phi R_{nv}$	0.05967
$(V_{ub}/\phi R_{nv})^2 + (T_{ub}/\phi R_{nt})^2$	0.03448
Bolt Capacity =	17.1% OK

*Rating per TIA-222-H, Section 15.5

Bolt Capacity (Left-Right)	
Nominal Tensile Strength (R _{nt})	13.560 kips
Nominal Shear Strength (R _{nv})	9.20 kips
Bolt Tensile Force (T _{ub})	0.77 kips
Bolt Shear Force (V _{ub})	0.433 kips
$T_{ub}/\phi R_{nt}$	0.07257
$V_{ub}/\phi R_{nv}$	0.05967
$(V_{ub}/\phi R_{nv})^2 + (T_{ub}/\phi R_{nt})^2$	0.00927
Bolt Capacity =	7.3% OK

*Rating per TIA-222-H, Section 15.5



TIA-222-H CONNECTION CHECK
Mount to Tower Connection - Gamma Sector
2022777.841793.03

Bolt Information	
Bolt Diameter (d)	0.625 in
Net Tensile Area (A _n)	0.226 in ²
# of Bolts Total (n)	4
Bolt Distance Up-Down	6 in
Bolt Distance Left-Right	6 in
Bolt Grade	A307
Bolt Tensile Strength (F _{ub})	60 ksi

RISA 3D Reactions (Up-Down)	
Moment (M)	1.06 k-ft
Axial (T)	3.11 kips
Shear (V)	1.70 kips

RISA 3D Reactions (Left-Right)	
Moment (M)	0.00 k-ft
Axial (T)	3.11 kips
Shear (V)	1.70 kips

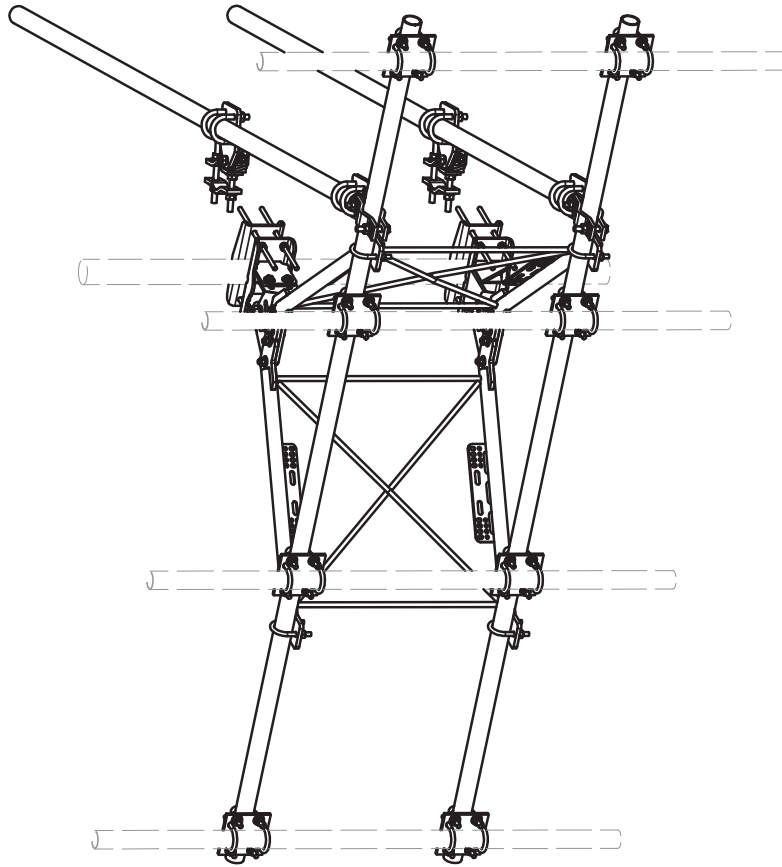
Bolt Capacity (Up-Down)	
Nominal Tensile Strength (R _{nt})	13.560 kips
Nominal Shear Strength (R _{nv})	9.20 kips
Bolt Tensile Force (T _{ub})	1.83 kips
Bolt Shear Force (V _{ub})	0.425 kips
$T_{ub}/\phi R_{nt}$	0.17154
$V_{ub}/\phi R_{nv}$	0.05866
$(V_{ub}/\phi R_{nv})^2 + (T_{ub}/\phi R_{nt})^2$	0.03451
Bolt Capacity =	17.2% OK

*Rating per TIA-222-H, Section 15.5

Bolt Capacity (Left-Right)	
Nominal Tensile Strength (R _{nt})	13.560 kips
Nominal Shear Strength (R _{nv})	9.20 kips
Bolt Tensile Force (T _{ub})	0.78 kips
Bolt Shear Force (V _{ub})	0.425 kips
$T_{ub}/\phi R_{nt}$	0.07274
$V_{ub}/\phi R_{nv}$	0.05866
$(V_{ub}/\phi R_{nv})^2 + (T_{ub}/\phi R_{nt})^2$	0.00917
Bolt Capacity =	7.3% OK

*Rating per TIA-222-H, Section 15.5

APPENDIX E
SUPPLEMENTAL DRAWINGS



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFASD	SUPPORT ARM FOR STANDARD DUTY V-FRAME ASSEMBLY		45.34	90.69
2	1	X-SDTFLB	DIAGONAL SLOT WELDMENT FOR BCAM SD		15.08	15.08
3	1	X-SDMHTP	MULTI-HOLE TAPER PLATE WELDMENT		16.63	16.63
4	2	X-SDPP	PIVOT PLATE	11-1/16 in	9.09	18.18
5	2	X-LCBP2	BENT BACKING PLATE	12 in	8.86	17.73
6	1	X-SDCAMSS	STRAIGHT SLOT WELDMENT FOR BCAM		8.48	8.48
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-SDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM		1.43	1.43
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	29.67
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DOP	1/2" THICK, 5-3/4" CENTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	4	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	163.01
14	4	A34214	3/4"-10 X 2-1/4" A325 BOLT	2 1/4 in	0.47	1.89
15	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
16	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
17	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
18	8	G58R-12	5/8" X 12" THREADED ROD (HDG.)		1.05	8.36
19	4	G58R-8	5/8" X 8" THREADED ROD (HDG.)		0.70	2.79
20	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
21	8	G5804	5/8" X 4" HDG HEX BOLT GR5		0.44	3.55
22	4	G5802	5/8" X 2" HDG HEX BOLT GR5		0.27	1.08
23	20	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.41
24	32	G58LW	5/8" HDG LOCKWASHER		0.03	0.83
25	36	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.68
26	8	G12R-15	1/2" X 15" THREADED ROD (HDG.)		0.84	6.69
27	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	23.86
28	2	G12065	1/2" X 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	0.82
29	1	G12045	1/2" X 4.5" HDG HEX BOLT GR5 FULL THREAD	4 1/2 in	0.30	0.30
30	8	G1202	1/2" X 2" HDG HEX BOLT GR5	2 in	0.18	1.41
31	85	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.90
32	98	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.36
33	99	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	7.09
					TOTAL WT. #	503.72

Locations:
 New York, NY
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 Houston, TX
 Dallas, TX

Engineering Support Team:
 1-888-753-7446

Valmont CONWAY

Engineering Support Team:
 1-888-753-7446

Locations:
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 Plymouth, IN
 Houston, TX
 Dallas, TX

DESCRIPTION	10'-6" STANDARD DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS
ENG. APPROVAL	CEK 11/3/2016
DRAWN BY	CEK
CHECKED BY	BMC 11/18/2016
DRAWING USAGE	CUSTOMER
CLASS / SUB	81 / 02
DATE	11/18/2016

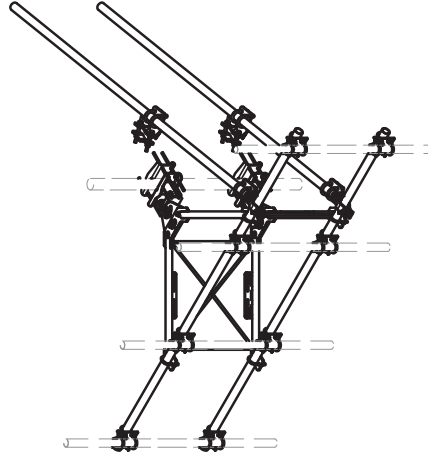
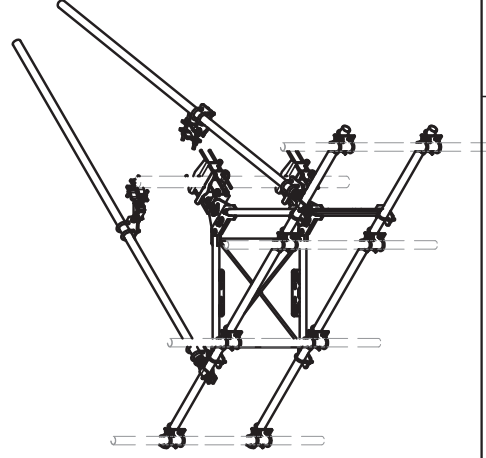
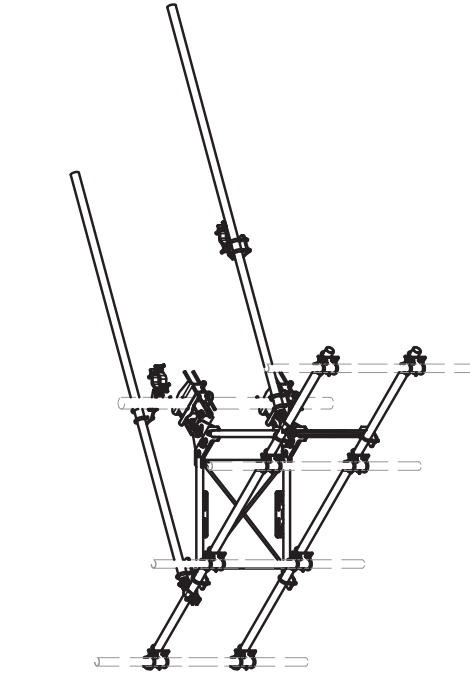
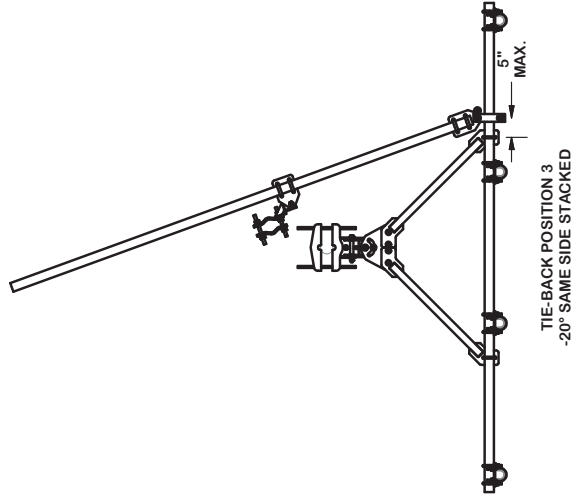
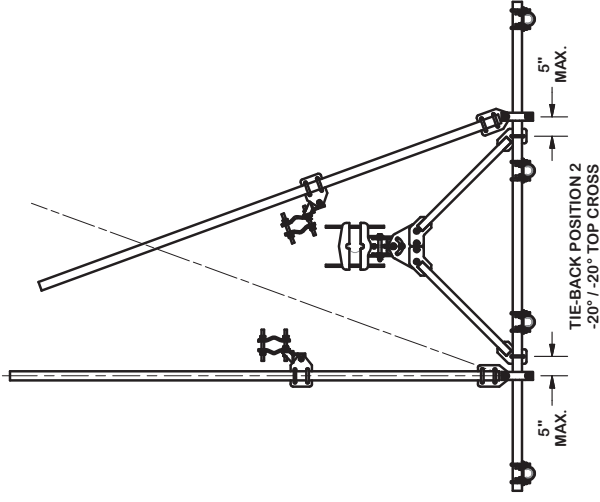
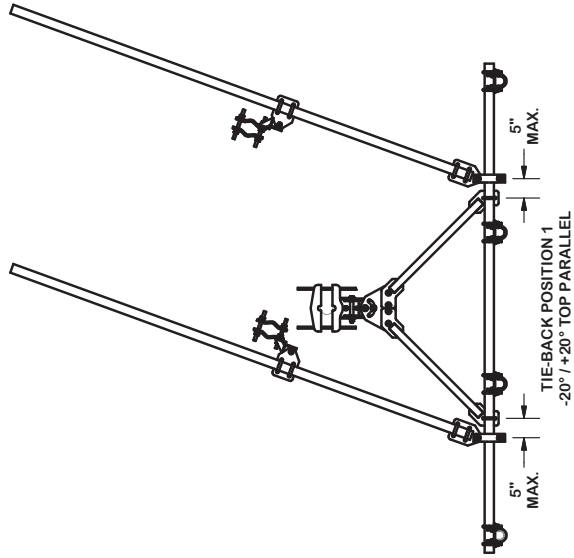
TOLERANCE NOTES

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

PROPRIETARY NOTE: DIMENSIONS CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

PART NO.	VFA10-SD
DWG. NO.	VFA10-SD

TIE-BACK POSITIONS



TOLERANCE NOTES

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

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DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 2 STIFF ARMS

CPD NO.	DRAWN BY	ENG. APPROVAL
81	CEK	11/3/2016
CLASS	DRAWING USAGE	CHECKED BY
02	CUSTOMER	BMC

PART NO. VFA10-SD
 DWG. NO. VFA10-SD

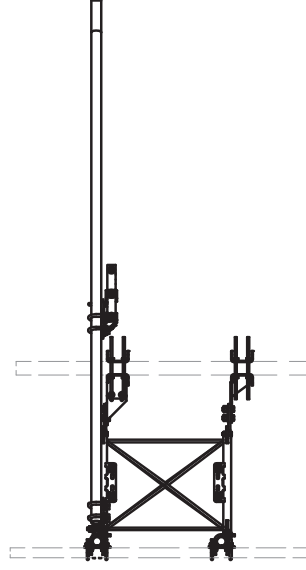
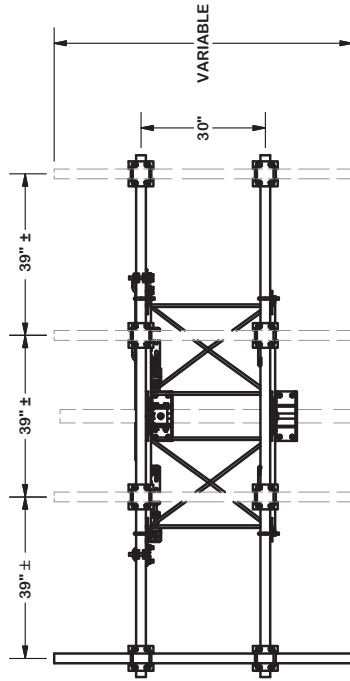
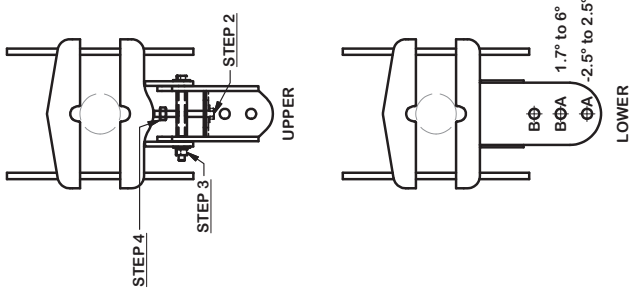
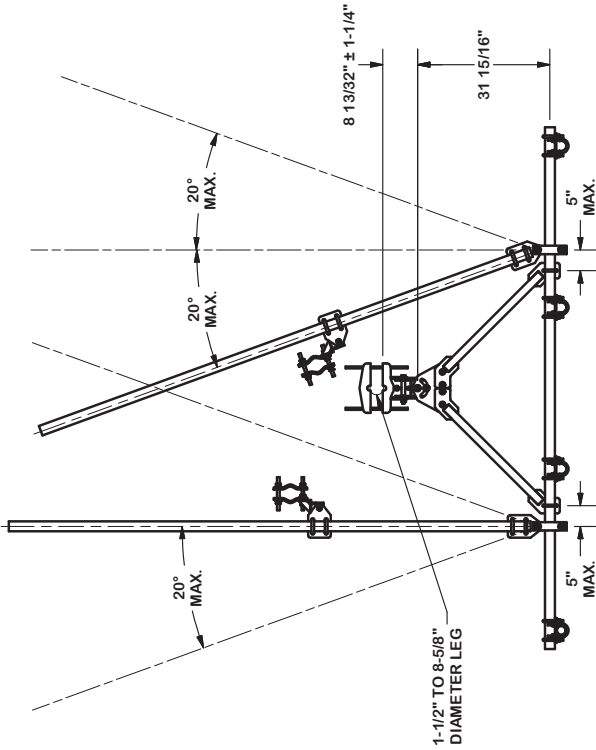


Locations:
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Engineering
 Support Team:
 1-888-753-7446
 www.valmont.com

ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
 - HOLE A = -2.5° TO 2.5°
 - HOLE B = 1.7° TO 6°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 50 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.



TOLERANCE NOTES

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 SAWED, SHEARED AND GAS CUT EDGES (± 0.030)
 DRILLED AND GAS CUT HOLES (± 0.030) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.010) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.030)
 ALL OTHER ASSEMBLY (± 0.060)

PROPRIETARY NOTE: DIMENSIONS CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 2 STIFF ARMS

CPD NO. DRAWN BY
 CEK 11/3/2016
 CLASS SUB
 81 02

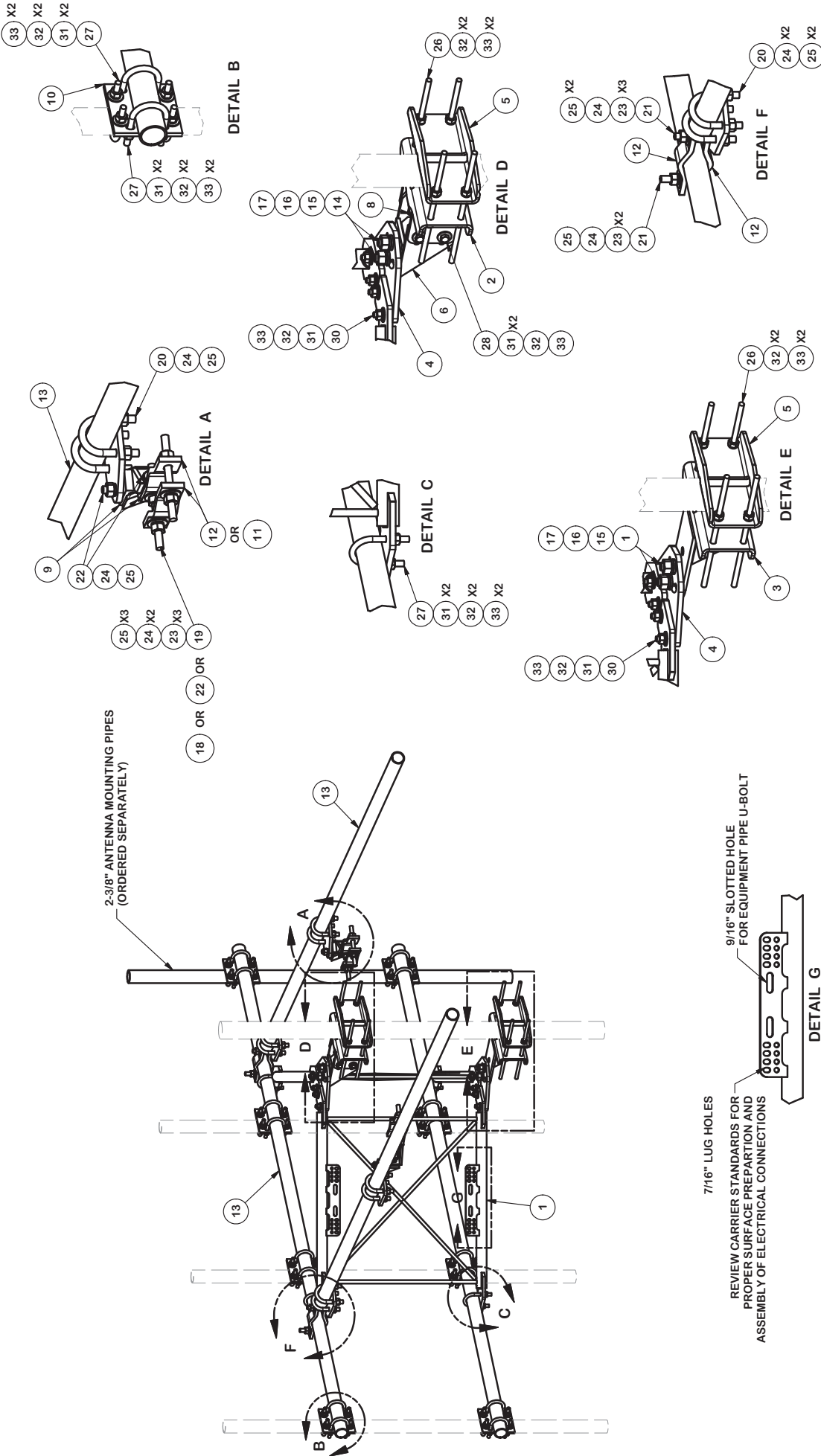
ENG. APPROVAL
 CHECKED BY
 BMC 11/18/2016

PART NO. VFA10-SD
 DWG. NO. VFA10-SD



Locations:
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TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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 DRILLED AND GAS CUT HOLES (± 0.0307) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.010) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.0307)
 ALL OTHER MACHINING (± 0.0607)

PROPRIETARY NOTE: INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 2 STIFF ARMS

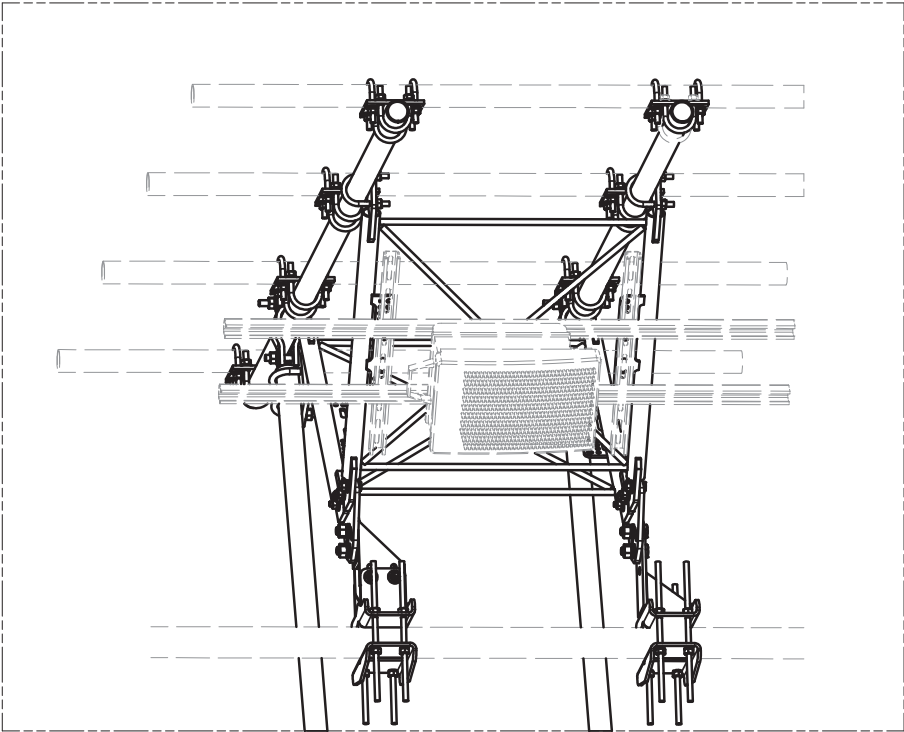
OPD NO.	DRAWN BY	ENG. APPROVAL
81	CEK	11/3/2016
CLASS	DRAWING USAGE	CHECKED BY
81	CUSTOMER	BMC
SUB		11/18/2016



Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Houston, TX
 Dallas, TX

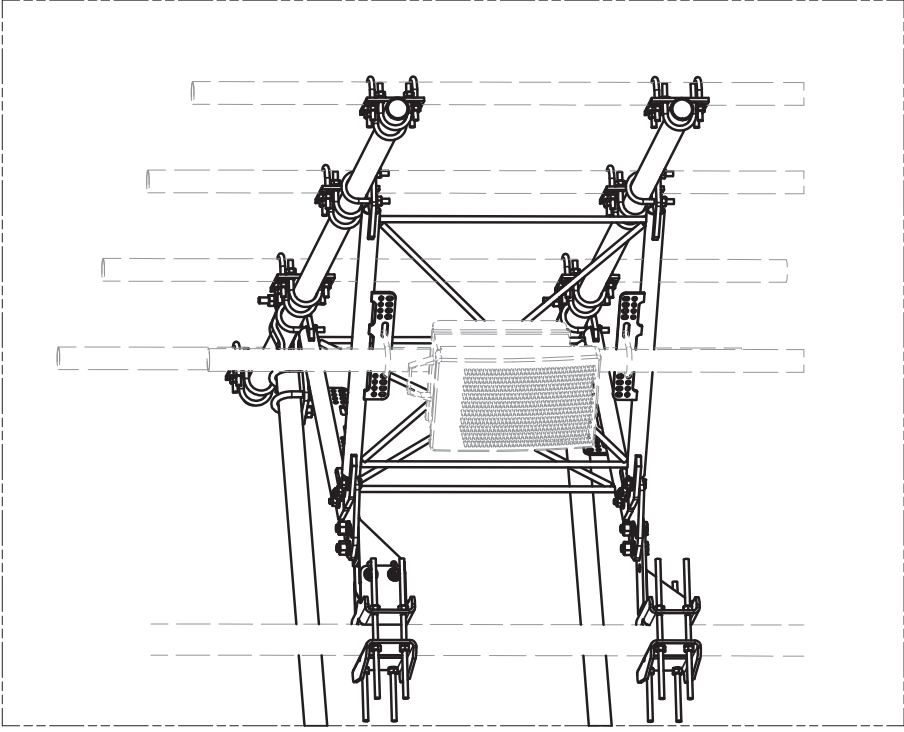
Engineering
 Support Team:
 1-888-753-7446
 Fax: 214-343-7446

PART NO.	VFA10-SD	PAGE	4 OF 5
DWG. NO.	VFA10-SD		



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

TOLERANCE NOTES

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

PROPRIETARY NOTE: INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND IS TO BE KEPT AS A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 2 STIFF ARMS

OPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
81	CEK	11/3/2016	VFA10-SD
CLASS	DRAWING USAGE	CHECKED BY	DWG. NO.
81	CUSTOMER	BMC	VFA10-SD
SUB			
02			

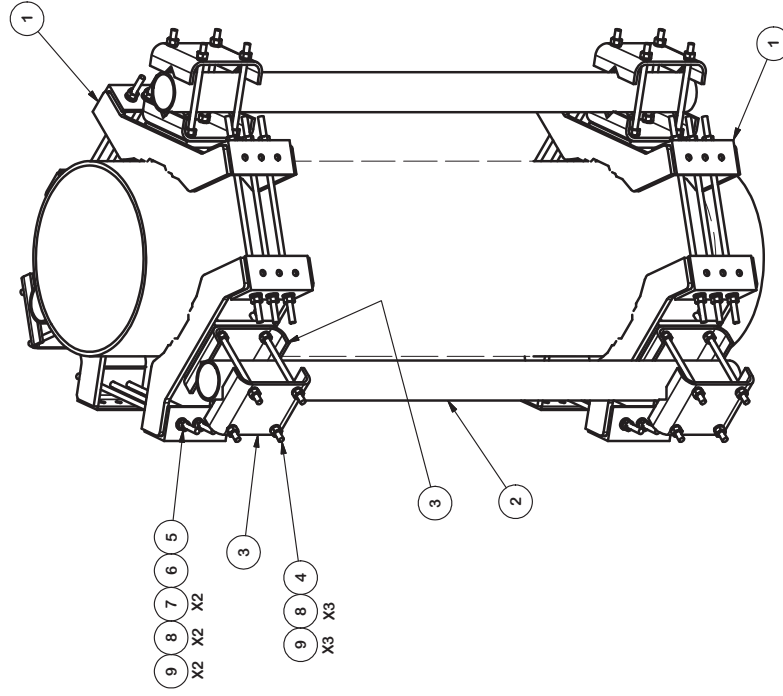
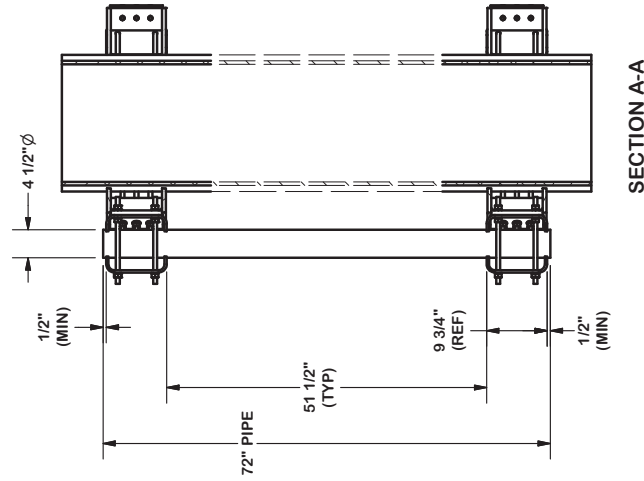
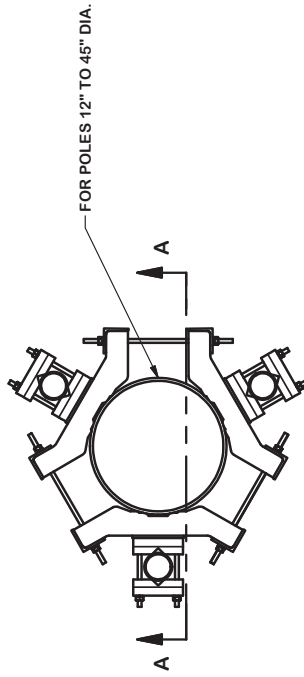


Locations:
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 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Houston, TX
 Dallas, TX

Engineering
 Support Team:
 1-888-753-7446

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.16	408.96
2	3	P472	4-1/2" X 72" SCH. 40 GALVANIZED PIPE	72 in	64.89	194.68
3	12	X-214130	BENT PLATE V-CLAMP	12 5/8 in	11.43	137.16
4	24	G58R-14	5/8" x 14" THREADED ROD (HDG.)	14 in	0.40	9.57
5	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	.55	9.90
6	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	.55	9.90
7	36	A58FW	5/8" HDG A325 FLATWASHER		.03	1.08
8	108	G58LW	5/8" HDG LOCKWASHER		0.03	3.24
9	108	A58NUT	5/8" HDG A325 HEX NUT		0.13	14.04
TOTAL WT. #						788.53



TOLERANCE NOTES

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 DRILLED AND GAS CUT HOLES (± 0.030) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.010) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.030)
 ALL OTHER ASSEMBLY (± 0.060)

PROPRIETARY NOTE: DIMENSIONS CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

MONOPOLE SECTOR FRAME
 ATTACHMENT ASSEMBLY

CPD NO. DRAWN BY
 KC8 3/18/2016

ENG. APPROVAL
 3RD PARTY

CHECKED BY
 BMC

CUSTOMER
 MSFAA

DWG. NO.
 5/2/2016



Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Houston, TX
 Dallas, TX

Engineering
 Support Team:
 1-888-653-7446

PART NO.

MSFAA

DWG. NO.

MSFAA

1 OF 1

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

T-Mobile Existing Facility

Site ID: CTHA846A

841793

50 Pine Lane

Windsor, Connecticut 06095

March 12, 2022

EBI Project Number: 6222001688

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	34.05%

March 12, 2022

T-Mobile

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

Emissions Analysis for Site: CTHA846A - 841793

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **50 Pine Lane in Windsor, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 50 Pine Lane in Windsor, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 13) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-RI for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels

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

- 14) The antenna mounting height centerline of the proposed antennas is 109 feet above ground level (AGL).
- 15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 16) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.35 dBd / 17.3 dBd / 22.35 dBd / 17.3 dBd	Gain:	22.35 dBd / 17.3 dBd / 22.35 dBd / 17.3 dBd	Gain:	22.35 dBd / 17.3 dBd / 22.35 dBd / 17.3 dBd
Height (AGL):	109 feet	Height (AGL):	109 feet	Height (AGL):	109 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts
ERP (W):	34,144.54	ERP (W):	34,144.54	ERP (W):	34,144.54
Antenna A1 MPE %:	11.57%	Antenna B1 MPE %:	11.57%	Antenna C1 MPE %:	11.57%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	109 feet	Height (AGL):	109 feet	Height (AGL):	109 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200.00 Watts	Total TX Power (W):	200.00 Watts	Total TX Power (W):	200.00 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	3.35%	Antenna B2 MPE %:	3.35%	Antenna C2 MPE %:	3.35%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope VV-65A-RI	Make / Model:	Commscope VV-65A-RI	Make / Model:	Commscope VV-65A-RI
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd
Height (AGL):	109 feet	Height (AGL):	109 feet	Height (AGL):	109 feet
Channel Count:	7	Channel Count:	7	Channel Count:	7
Total TX Power (W):	300.00 Watts	Total TX Power (W):	300.00 Watts	Total TX Power (W):	300.00 Watts
ERP (W):	11,293.20	ERP (W):	11,293.20	ERP (W):	11,293.20
Antenna A3 MPE %:	3.83%	Antenna B3 MPE %:	3.83%	Antenna C3 MPE %:	3.83%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	18.75%
Dish	1.87%
Cingular	0.44%
Town	0.27%
Metro PCS	0.94%
AT&T	9.03%
Clearwire	0.17%
Nextel	1.65%
Various Others	0.93%
Site Total MPE % :	34.05%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	18.75%
T-Mobile Sector B Total:	18.75%
T-Mobile Sector C Total:	18.75%
Site Total MPE % :	34.05%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	10307.45	109.0	34.93	2500 MHz LTE IC & 2C Traffic	1000	3.49%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	109.0	3.64	2500 MHz LTE IC & 2C Broadcast	1000	0.36%
T-Mobile 2500 MHz NR Traffic	1	20614.90	109.0	69.86	2500 MHz NR Traffic	1000	6.99%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	109.0	7.28	2500 MHz NR Broadcast	1000	0.73%
T-Mobile 600 MHz LTE	2	591.73	109.0	4.01	600 MHz LTE	400	1.00%
T-Mobile 600 MHz NR	1	1577.94	109.0	5.35	600 MHz NR	400	1.34%
T-Mobile 700 MHz LTE	2	695.22	109.0	4.71	700 MHz LTE	467	1.01%
T-Mobile 1900 MHz GSM	4	1076.77	109.0	14.60	1900 MHz GSM	1000	1.46%
T-Mobile 1900 MHz LTE	1	2153.53	109.0	7.30	1900 MHz LTE	1000	0.73%
T-Mobile 2100 MHz LTE	2	2416.30	109.0	16.38	2100 MHz LTE	1000	1.64%
						Total:	18.75%

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	18.75%
Sector B:	18.75%
Sector C:	18.75%
T-Mobile Maximum MPE % (Sector A):	18.75%
Site Total:	34.05%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **34.05%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

T-Mobile

T-MOBILE SITE NUMBER: CTHA846A
T-MOBILE SITE NAME: CTHA846A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 148'-0"

BUSINESS UNIT #: 841793
SITE ADDRESS: 50 PINE LANE
 WINDSOR, CT 06095
COUNTY: HARTFORD
JURISDICTION: CONNECTICUT
SITING COUNCIL

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E5A998E 6160

T-Mobile
 35 GRIFFIN ROAD
 BLOOMFIELD, CT 06002

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

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

T-MOBILE SITE NUMBER:
CTHA846A

BU #: 841793
WINDSOR PINE LANE

 50 PINE LANE
 WINDSOR, CT 06095

 EXISTING
 148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	7/1/21	JHW	CONSTRUCTION	MTJ
1	9/27/21	MTJ	CONSTRUCTION	MTJ
2	2/9/22	GAC	CONSTRUCTION	LR

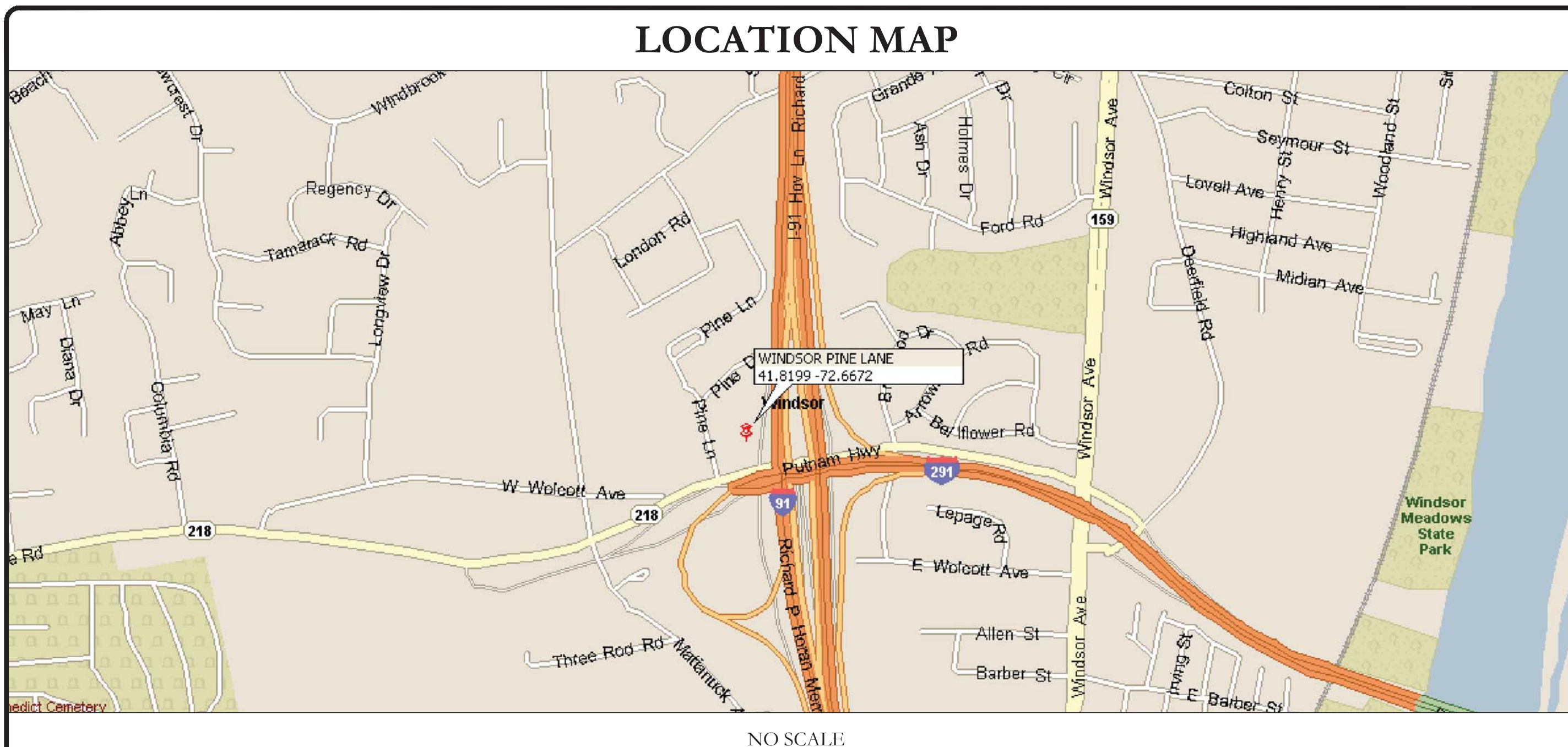
SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WINDSOR PINE LANE
SITE ADDRESS:	50 PINE LANE WINDSOR, CT 06095
COUNTY:	HARTFORD
MAP/PARCEL #:	735
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.81985000
LONGITUDE:	-72.66717222
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	92 FT
CURRENT ZONING:	NZ
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:	TOWN OF WINDSOR 275 BROAD ST WINDSOR, CT 06095
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	N/A
TELCO PROVIDER:	N/A

DRAWING INDEX

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

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24X36. 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 TEAM

A&E FIRM:	B+T GROUP 1717 S BOULDER AVE, SUITE 300 TULSA, OK 74119 RICHARD MCCLURE (918) 587-4630
CROWN CASTLE USA INC. DISTRICT CONTACTS:	12 GILL STREET, SUITE 5800 WOBURN, MA 01801
	TRICIA PELON - PROJECT MANAGER TRICIA.PELON@CROWNCastle.COM

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

PROJECT DESCRIPTION

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

TOWER SCOPE OF WORK:

- REMOVE (3) ANTENNAS
- REMOVE (4) MW DISHES
- REMOVE (3) RADIOS
- REMOVE (6) COAX CABLES (5/16")
- REMOVE (4) COAX CABLES (1/2")
- REMOVE (3) T-ARM MOUNTS
- INSTALL MOUNTS PER MOUNT REPLACEMENT ANALYSIS REPORT BY GPD ENGINEERING AND ARCHITECTURAL PROFESSIONAL CORPORATION DATED 1/26/22
- INSTALL (9) ANTENNAS
- INSTALL (6) RADIOS
- INSTALL (3) HYBRID TRUNKS (1-5/8")

GROUND SCOPE OF WORK:

- INSTALL (1) 6160 CABINET
- INSTALL (1) B160 CABINET
- INSTALL (1) RBS 6601
- INSTALL (3) BB 6648
- INSTALL (1) CSR IXRe V2 (GEN2)
- INSTALL (1) DUG20
- INSTALL 4'-0"x9'-0" CONCRETE PAD IN NEW 10'-0"x15'-0" LEASE AREA

NOTE:
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.

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	2018 CT STATE BUILDING CODE/2015 IBC W/CT AMENDMENTS (BUILDING)
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS (MECHANICAL)
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/CT AMENDMENTS

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BLACK AND VEATCH
DATED:	1/12/22
MOUNT REPLACEMENT ANALYSIS REPORT:	GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION
DATED:	1/26/22
AC ELECTRICAL POWER DESIGN:	N/A
DATED:	
RFDS REVISION:	1
DATED:	10/12/21
ORDER ID:	567937
REVISION:	1

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

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.

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

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: T-1
REVISION: 2

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GREENFIELD GROUNDING NOTES:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

ABBREVIATIONS:

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

APWA UNIFORM COLOR CODE:

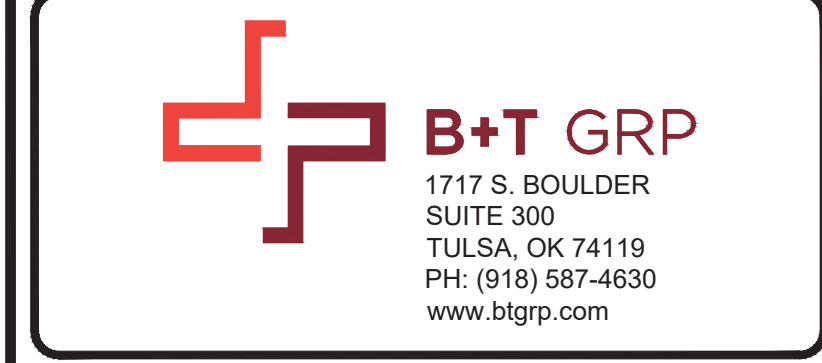
- WHITE PROPOSED EXCAVATION
- PINK TEMPORARY SURVEY MARKINGS
- RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
- ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
- BLUE POTABLE WATER
- PURPLE RECLAIMED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



35 GRIFFIN ROAD
BLOOMFIELD, CT 06002



12 GILL STREET, SUITE 5800
WOBURN, MA 01801



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

T-MOBILE SITE NUMBER:
CTHA846A

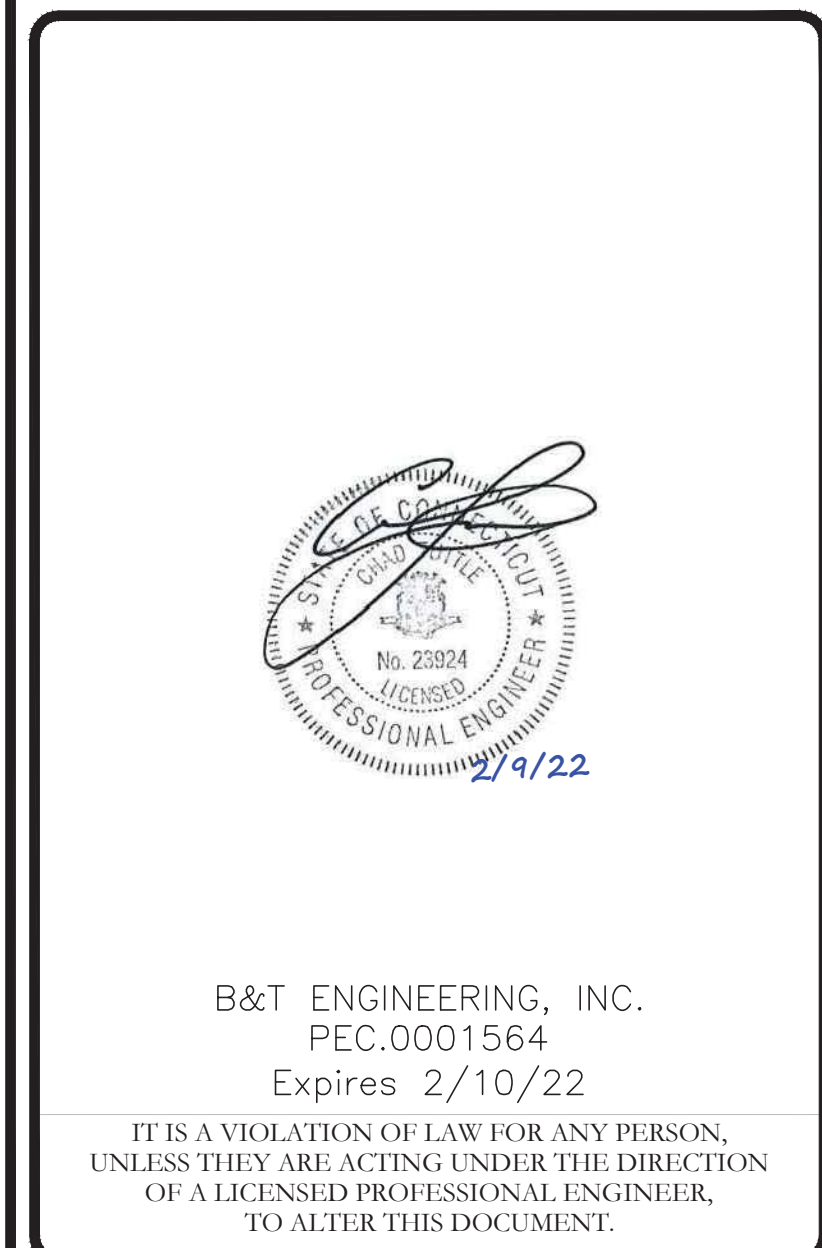
BU #: 841793
WINDSOR PINE LANE

50 PINE LANE
WINDSOR, CT 06095

EXISTING
148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	7/1/21	JHW	CONSTRUCTION	MTJ
1	9/27/21	MTJ	CONSTRUCTION	MTJ
2	2/9/22	GAC	CONSTRUCTION	LR



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

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SHEET NUMBER:
T-2

REVISION:
2

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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 35 GRIFFIN ROAD
 BLOOMFIELD, CT 06002

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

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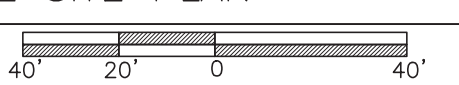
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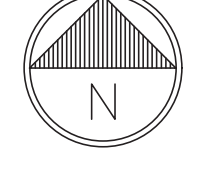
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C-1.1

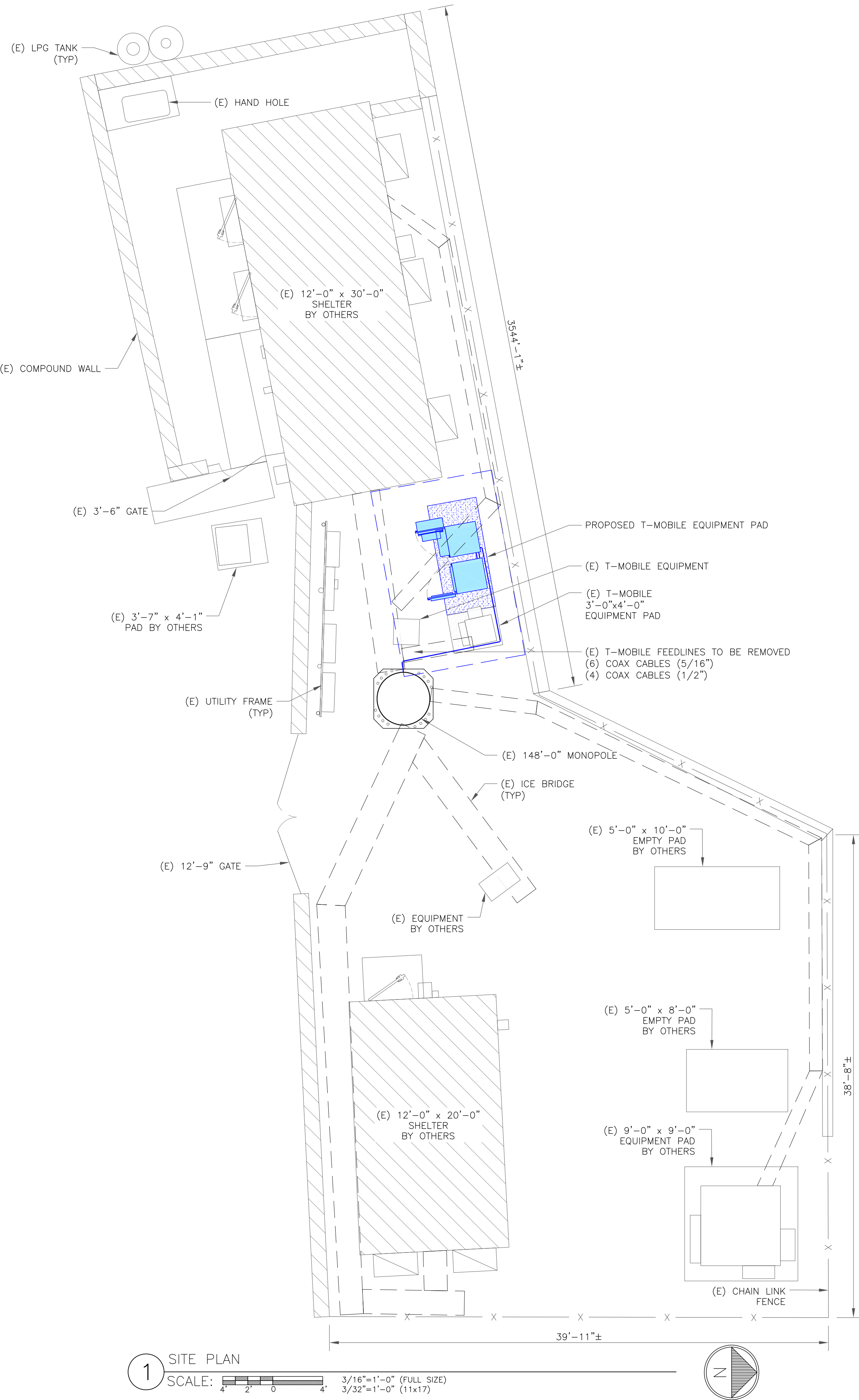
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2



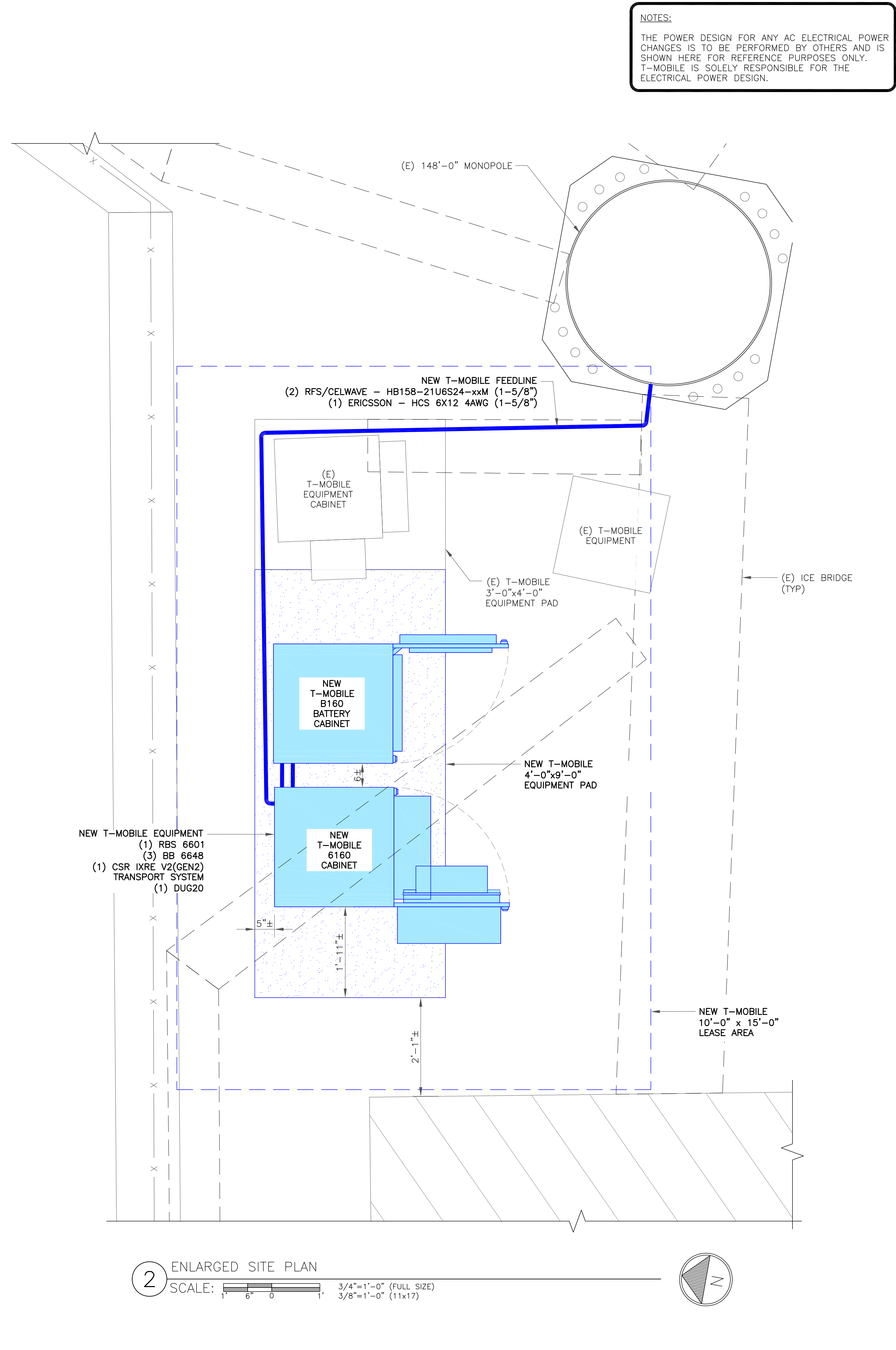
1 OVERALL SITE PLAN

SCALE:  1"=40'-0" (FULL SIZE)
 1"=80'-0" (11x17)





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



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

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

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35 GRIFFIN ROAD
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T-MOBILE SITE NUMBER:
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EXISTING
148'-0" MONOPOLE

ISSUED FOR:

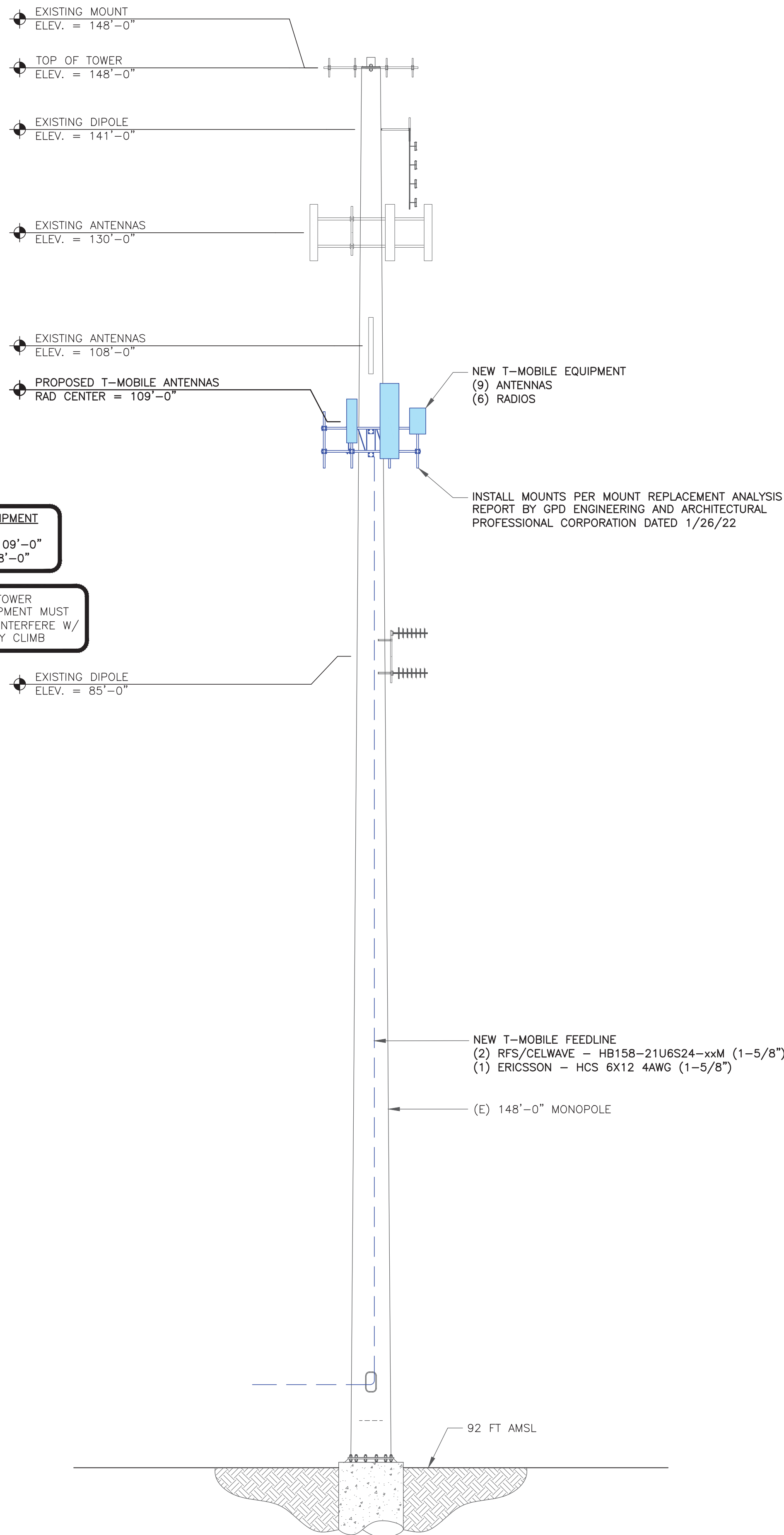
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1	9/27/21	MTJ	CONSTRUCTION	MTJ
2	2/9/22	GAC	CONSTRUCTION	LR

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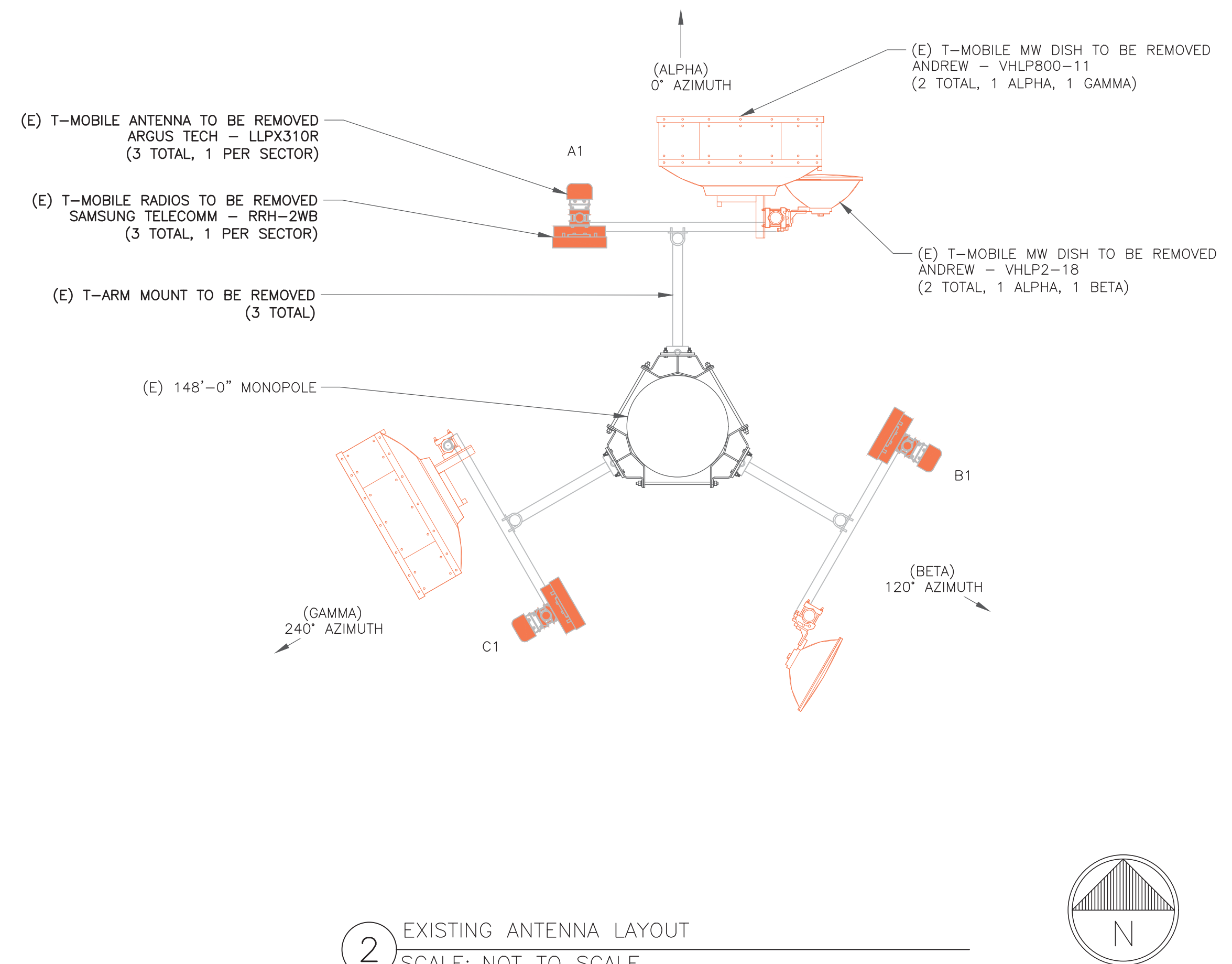
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SHEET NUMBER: **C-1.2** REVISION: **2**

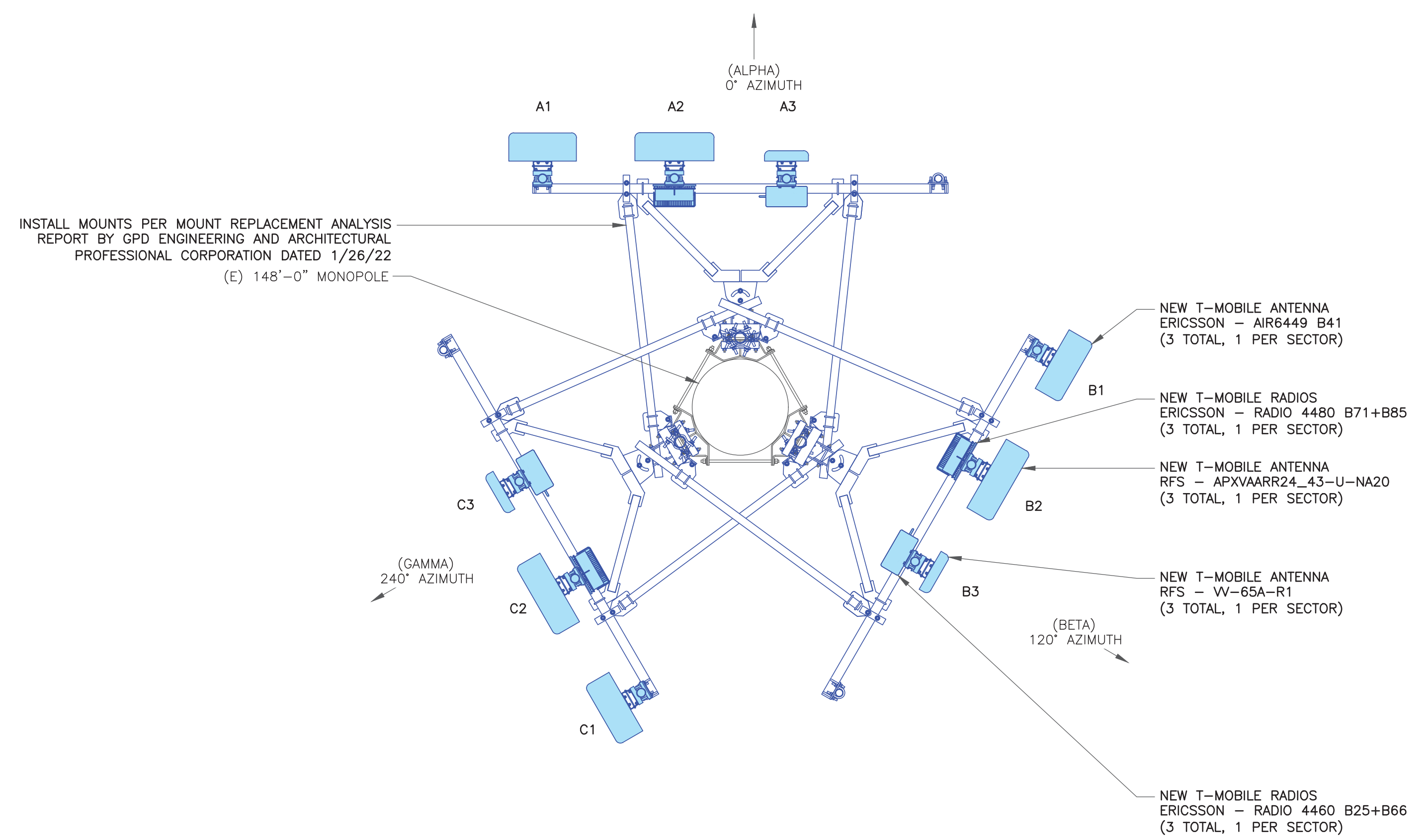
141992.008.01_WINDSOR_PINE_LANE.dwg - Sheet C-1.2 - User: lisa.rider - Feb 09, 2022 - 5:57pm



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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ISSUED FOR:

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

T-Mobile

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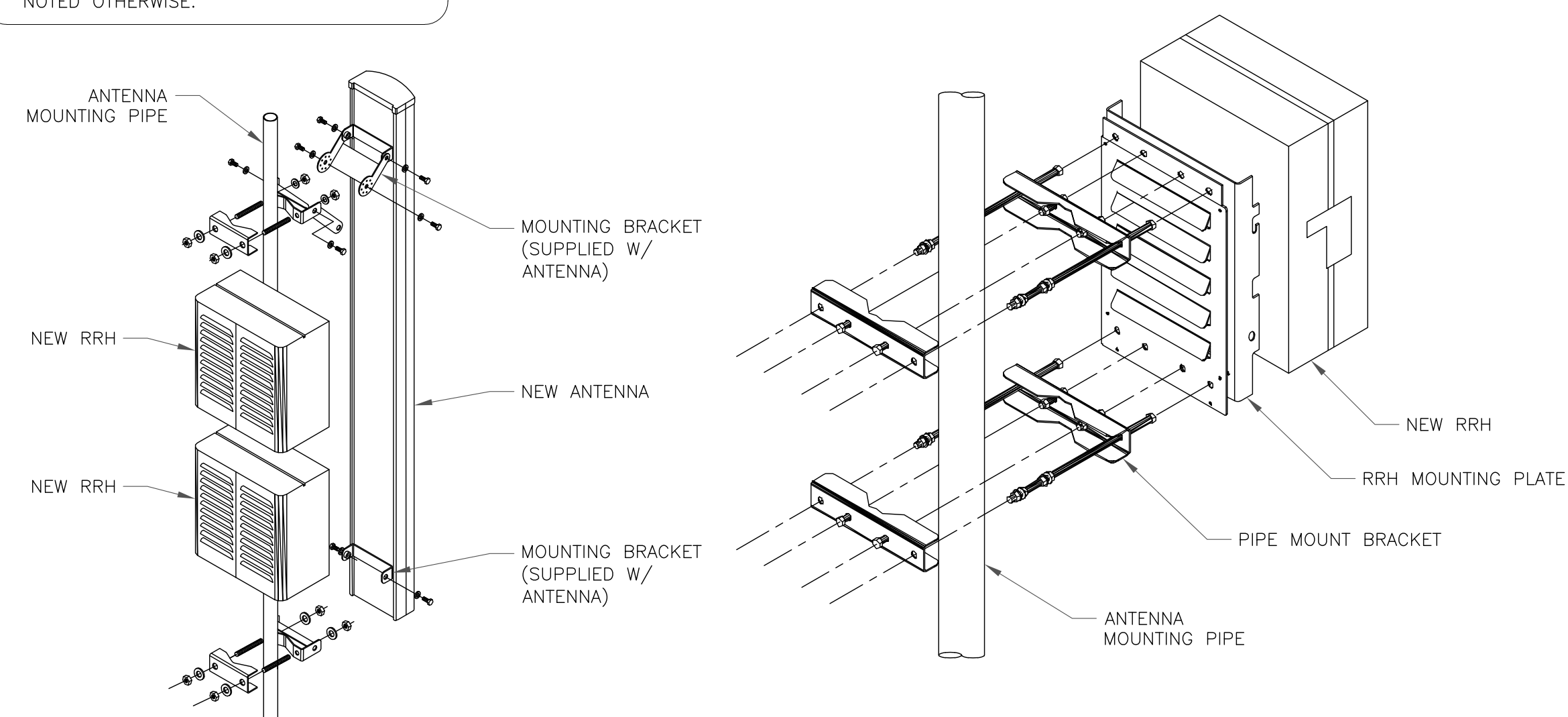
EXISTING
148'-0" MONOPOLE

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	AIR6449 B41	0°	0°	-	109'-0"	-	-
	A2	L700/L600/N600	RFS	APXVAARR24_43-U-NA20	0°	0°	-	109'-0"	(1)ERICSSON-RADIO 4480 B71+B85	(3) 1-5/8" HYBRID
	A3	L2100/L1900/ G1900	RFS	WV-65A-R1	0°	0°	-	109'-0"	(1)ERICSSON-RADIO 4460 B25+B66	
	-	-	-	-	-	-	-	-	-	
BETA	B1	L2500 / N2500	ERICSSON	AIR6449 B41	120°	0°	-	109'-0"	-	
BETA	B2	L700/L600/N600	RFS	APXVAARR24_43-U-NA20	120°	0°	-	109'-0"	(1)ERICSSON-RADIO 4480 B71+B85	-
	B3	L2100/L1900/ G1900	RFS	WV-65A-R1	120°	0°	-	109'-0"	(1)ERICSSON-RADIO 4460 B25+B66	-
	-	-	-	-	-	-	-	-	-	
GAMMA	C1	L2500 / N2500	ERICSSON	AIR6449 B41	240°	0°	-	109'-0"	-	-
	C2	L700/L600/N600	RFS	APXVAARR24_43-U-NA20	240°	0°	-	109'-0"	(1)ERICSSON-RADIO 4480 B71+B85	-
	B3	L2100/L1900/ G1900	RFS	WV-65A-R1	240°	0°	-	109'-0"	(1)ERICSSON-RADIO 4460 B25+B66	-
	-	-	-	-	-	-	-	-	-	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	7/1/21	JHW	CONSTRUCTION	MTJ
1	9/27/21	MTJ	CONSTRUCTION	MTJ
2	2/9/22	GAC	CONSTRUCTION	LR



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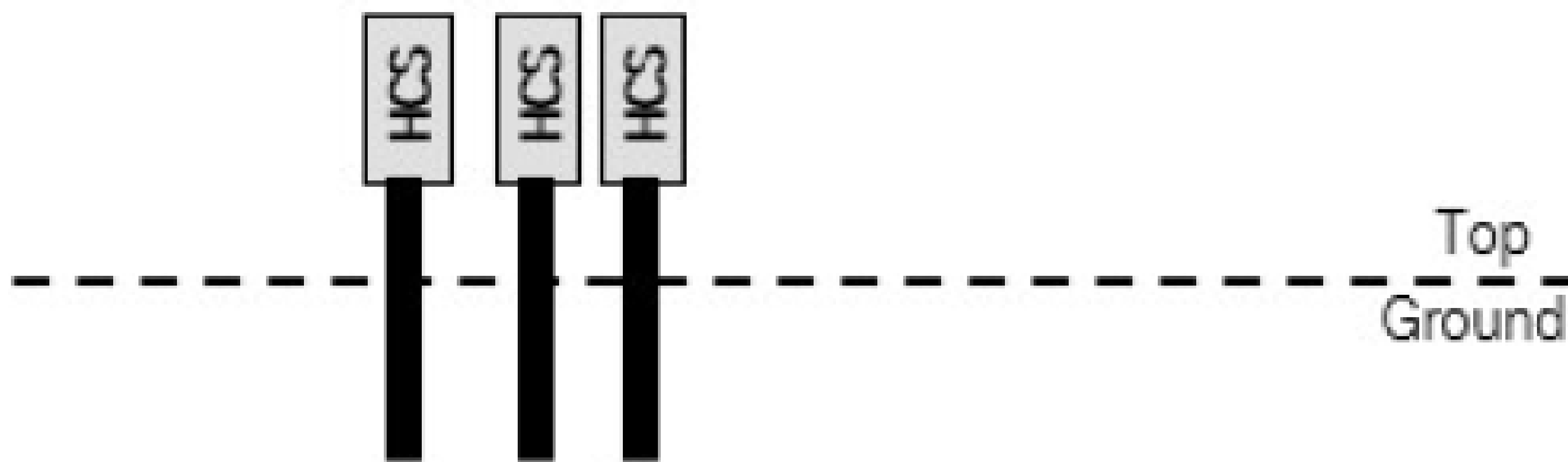
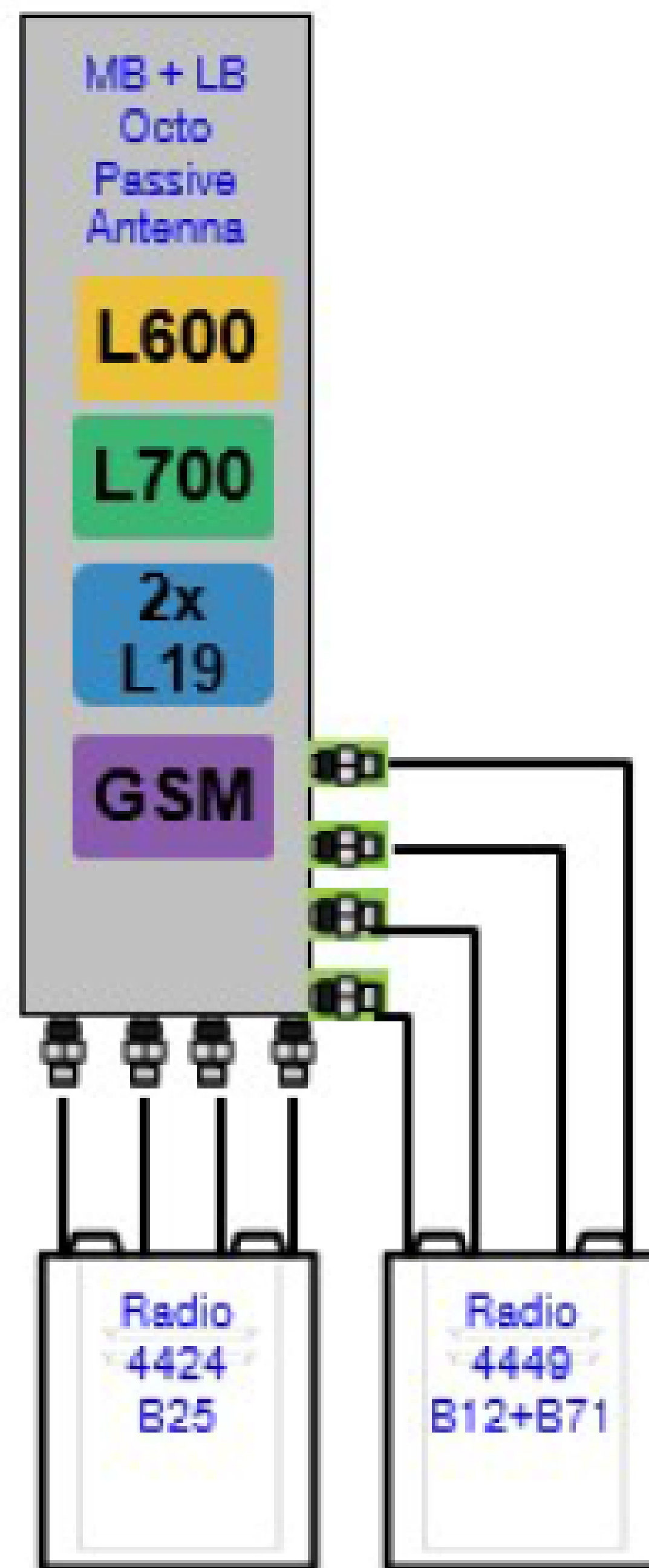
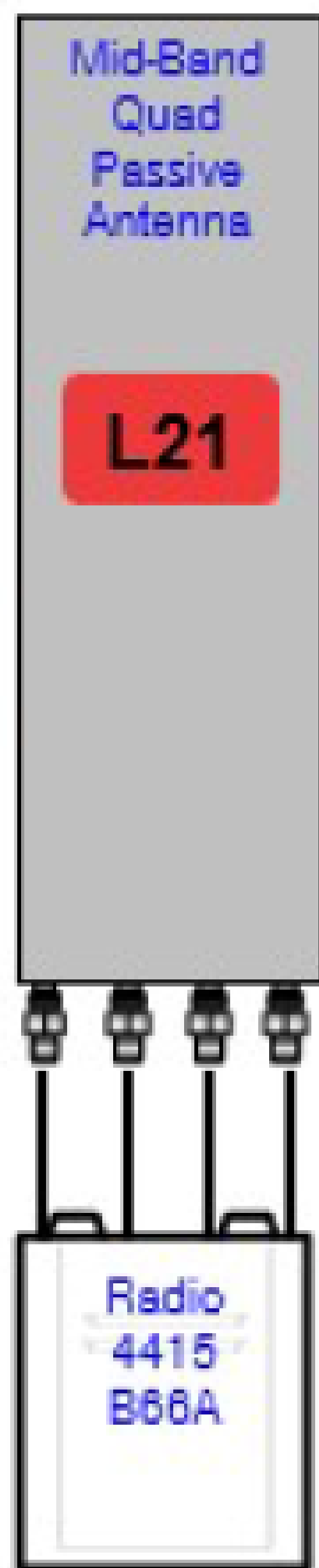
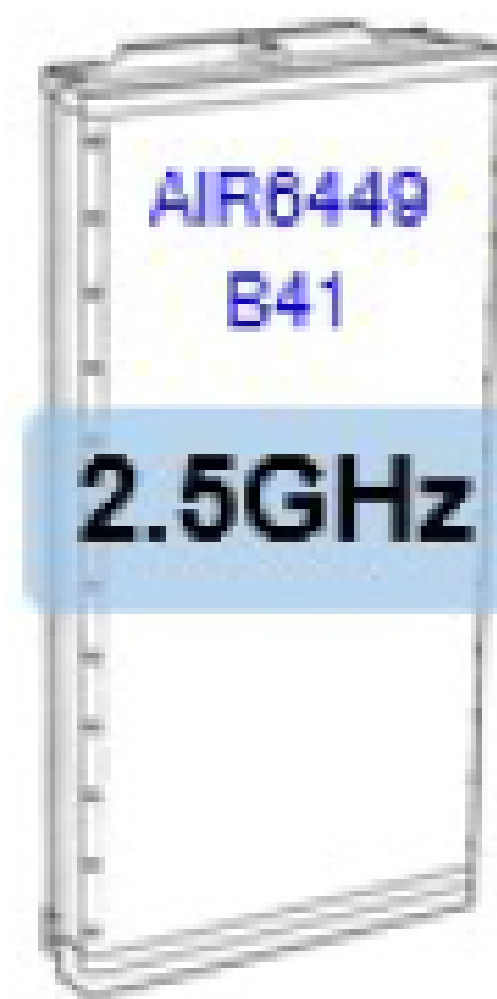
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C-3

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1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

12 GILL STREET, SUITE 5800
WOBURN, MA 01801

B+T GRP

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

T-MOBILE SITE NUMBER:
CTHA846A

BU #: 841793
WINDSOR PINE LANE

50 PINE LANE
WINDSOR, CT 06095

EXISTING
148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	7/1/21	JHW	CONSTRUCTION	MTJ
1	9/27/21	MTJ	CONSTRUCTION	MTJ
2	2/9/22	GAC	CONSTRUCTION	LR



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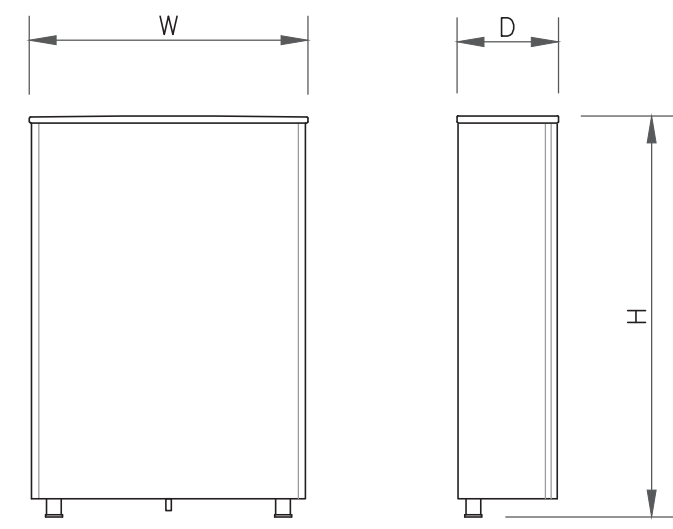
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SHEET NUMBER:

C-4

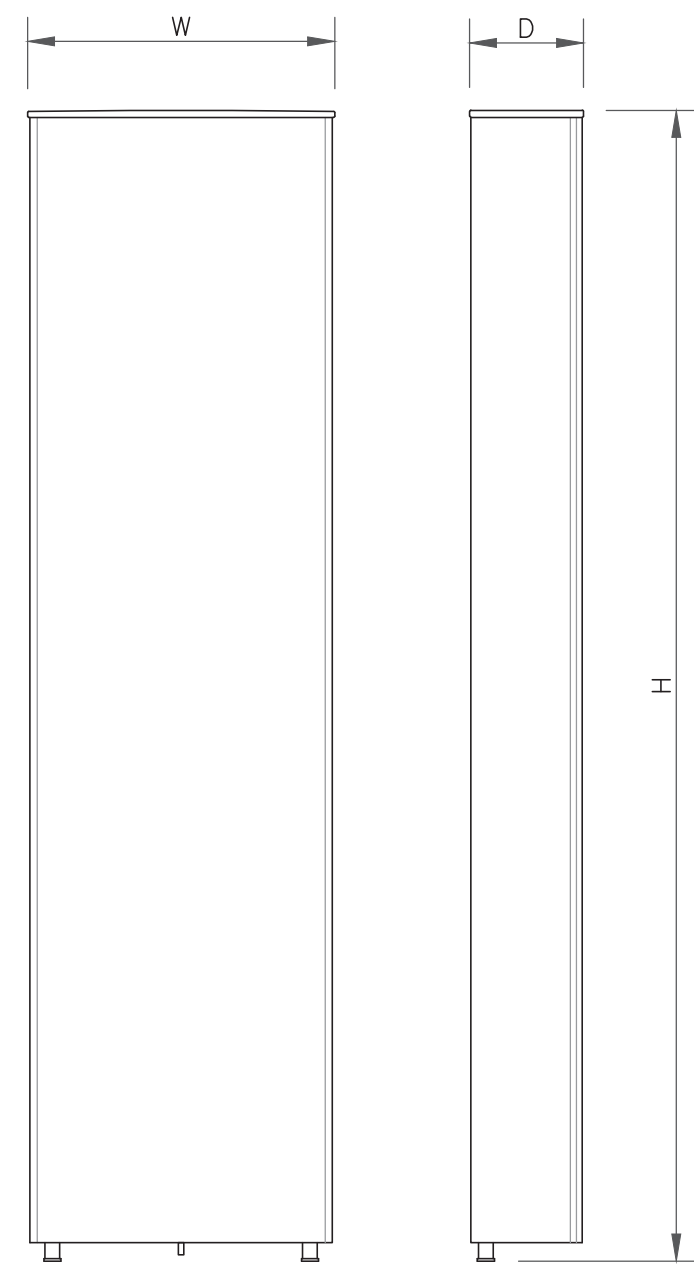
REVISION:

2



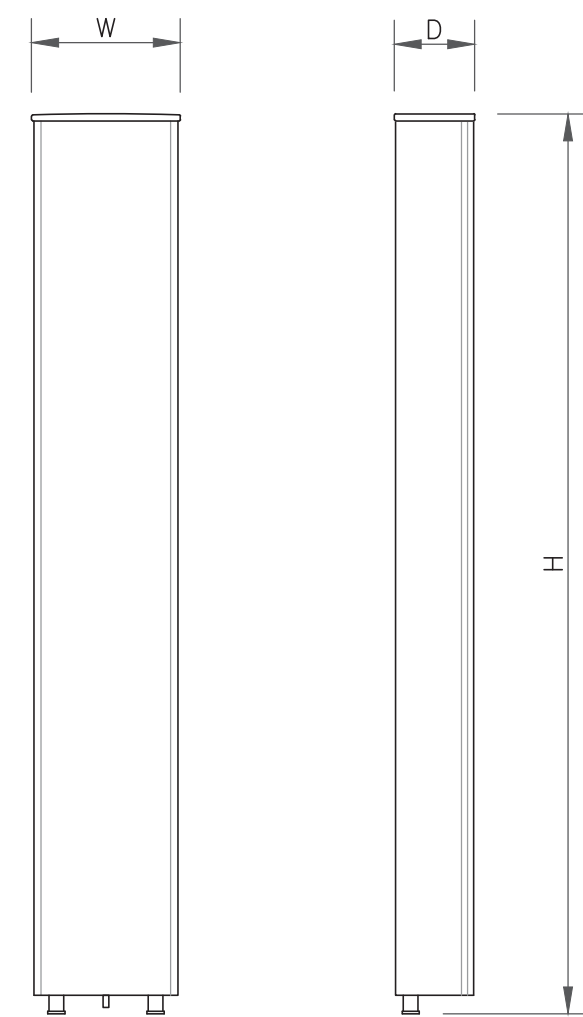
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



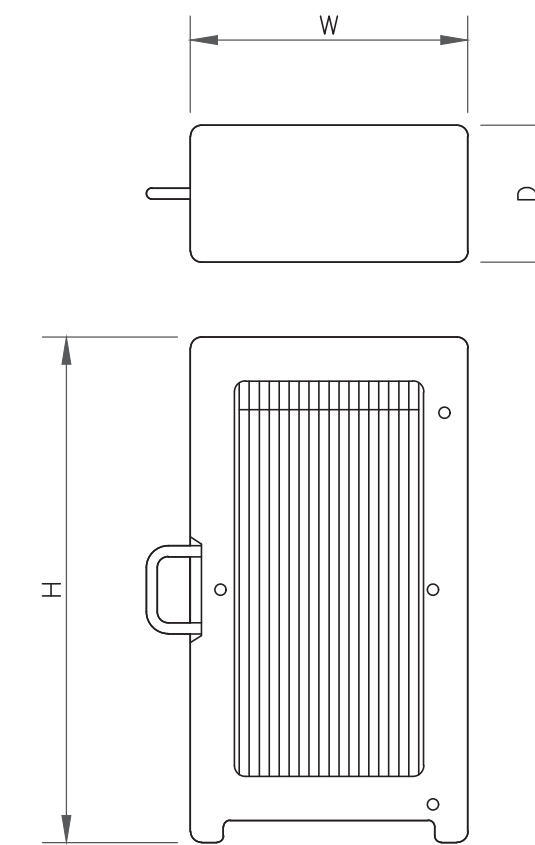
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAARR24_43-U-NA20
WIDTH	24.00"
DEPTH	8.50"
HEIGHT	95.90"
WEIGHT	149.90 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APX16DWV-16DWV-S-E-A20
WIDTH	13.30"
DEPTH	3.15"
HEIGHT	55.90"
WEIGHT	41.00 LBS

3 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	109.0 LBS

4 RRU SPECS
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
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12 GILL STREET, SUITE 5800
WOBURN, MA 01801

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

T-MOBILE SITE NUMBER:
CTHA846A

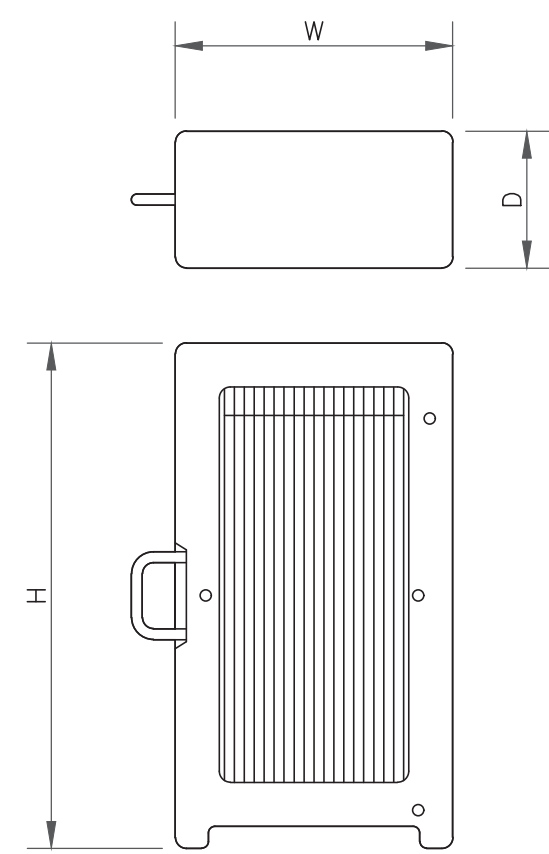
BU #: **841793**
WINDSOR PINE LANE

50 PINE LANE
WINDSOR, CT 06095

EXISTING
148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
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1	9/27/21	MTJ	CONSTRUCTION	MTJ
2	2/9/22	GAC	CONSTRUCTION	LR



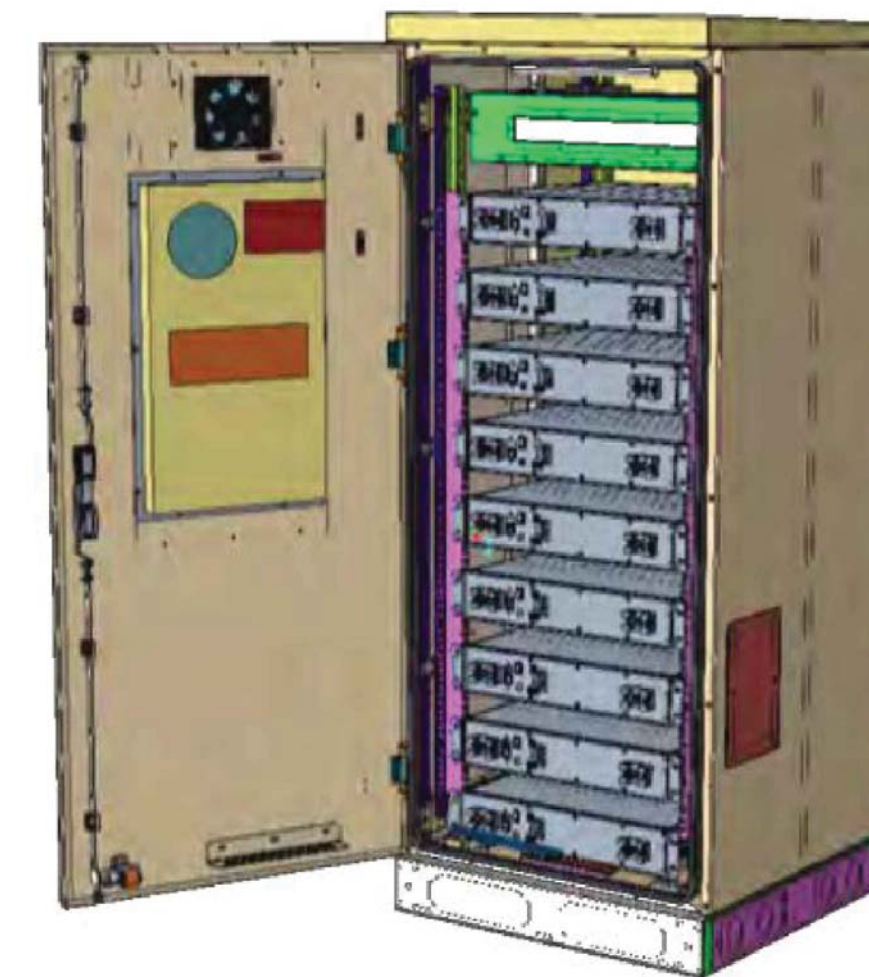
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4480 B71
WIDTH	15.70"
DEPTH	7.50"
HEIGHT	21.80"
WEIGHT	92.60 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



ERICSSON 6160 SSC
WEIGHT: 60.0 LBS
SIZE (HxWxD): 63"x25.6"x33.5" IN.

6 ERICSSON 6160 SSC
SCALE: NOT TO SCALE



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

7 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE



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T-Mobile

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T-MOBILE SITE NUMBER:
CTHA846A

BU #: 841793
WINDSOR PINE LANE

50 PINE LANE
WINDSOR, CT 06095

EXISTING
148'-0" MONOPOLE

ISSUED FOR:

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2	2/9/22	GAC	CONSTRUCTION	LR



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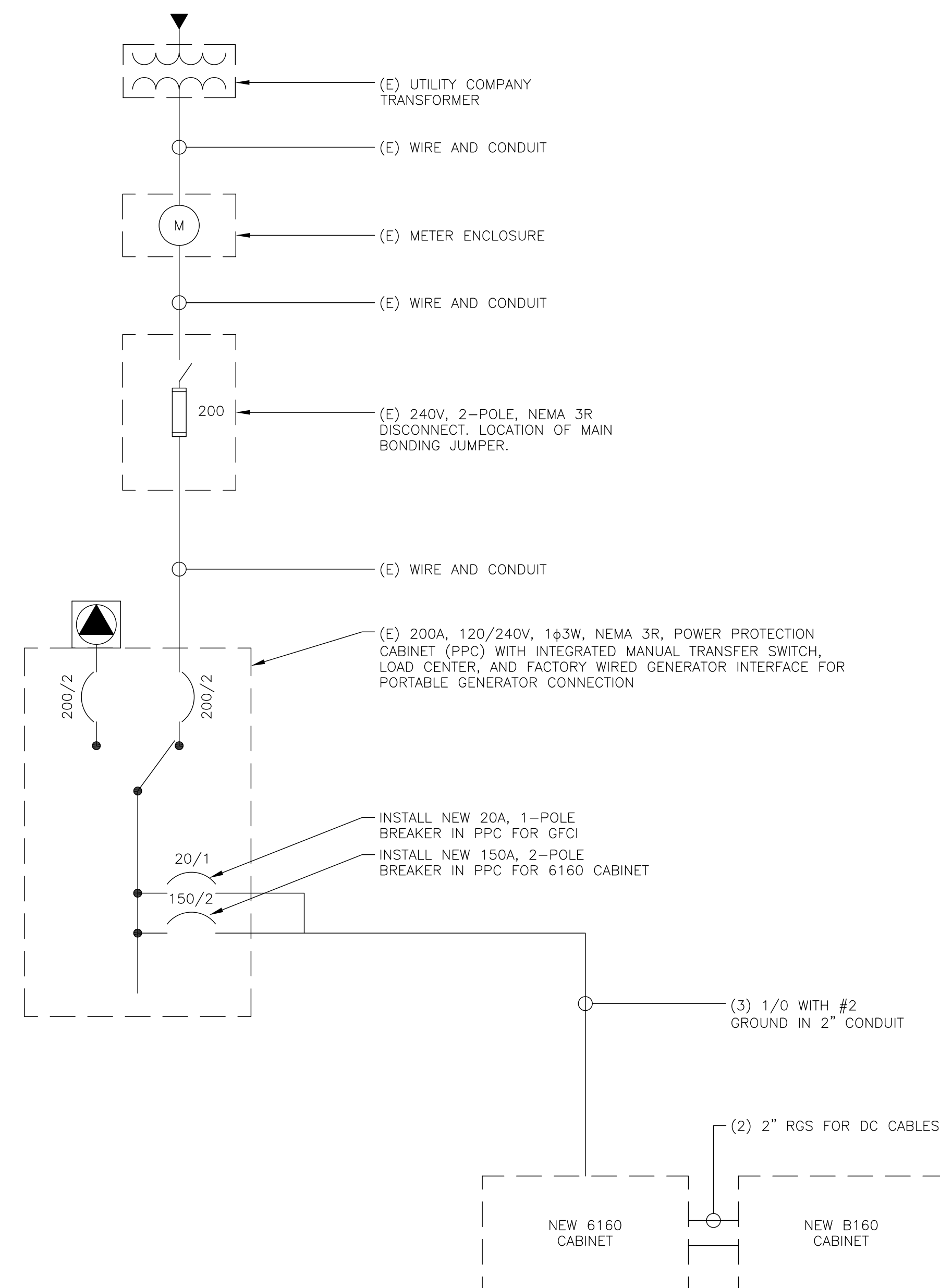
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E-1

REVISION:

2

PANEL INFORMATION NOT
AVAILABLE AT TIME OF ISSUE



NOTES:

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

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

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile

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CROWN CASTLE

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WOBURN, MA 01801

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T-MOBILE SITE NUMBER:
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BU #: 841793
WINDSOR PINE LANE

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WINDSOR, CT 06095

EXISTING
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ISSUED FOR:

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1	9/27/21	MTJ	CONSTRUCTION	MTJ
2	2/9/22	GAC	CONSTRUCTION	LR



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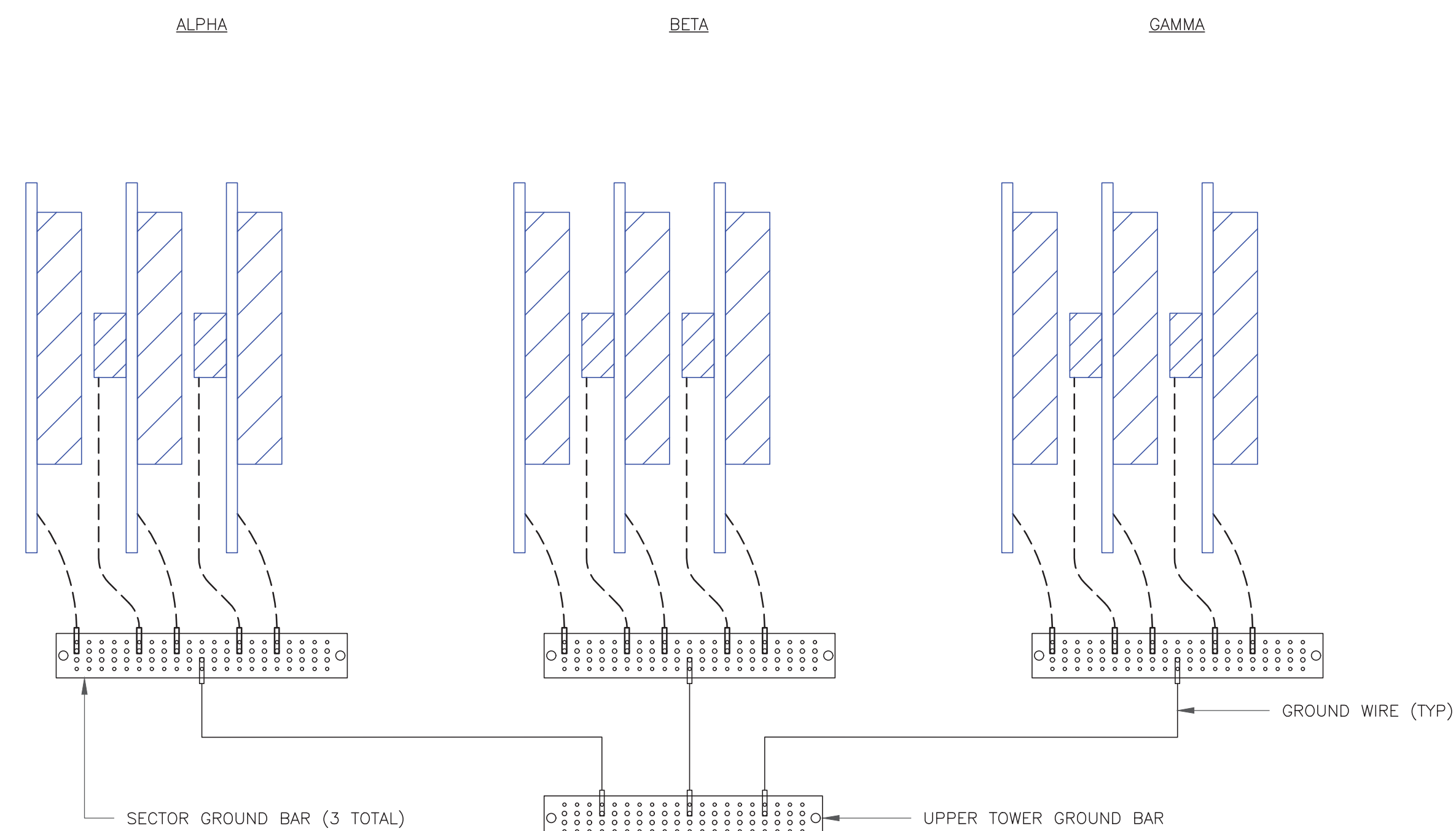
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G-1

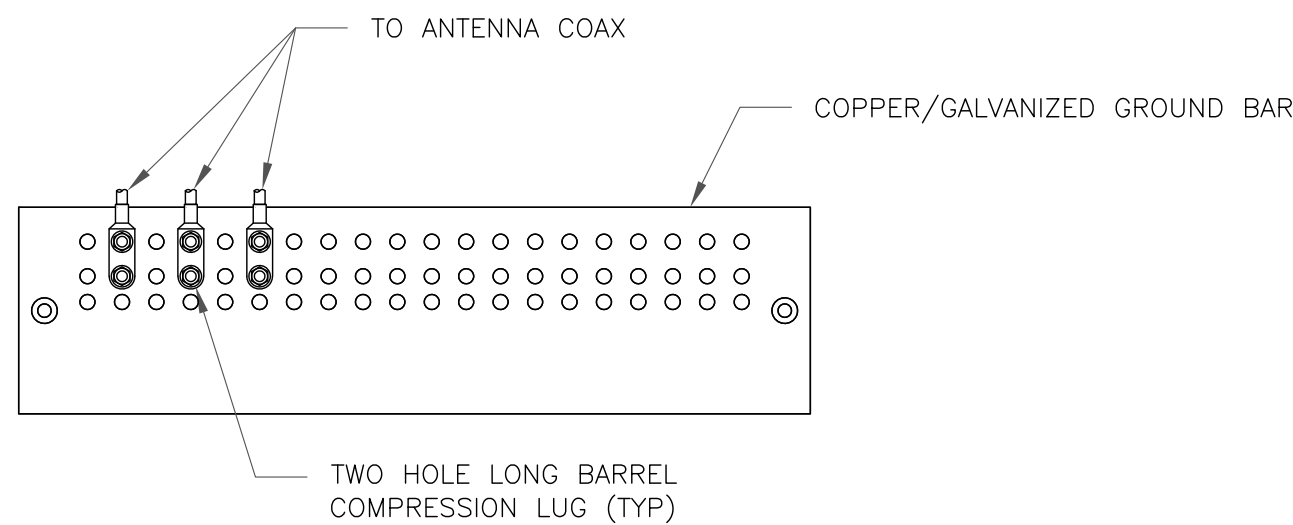
REVISION:

2



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

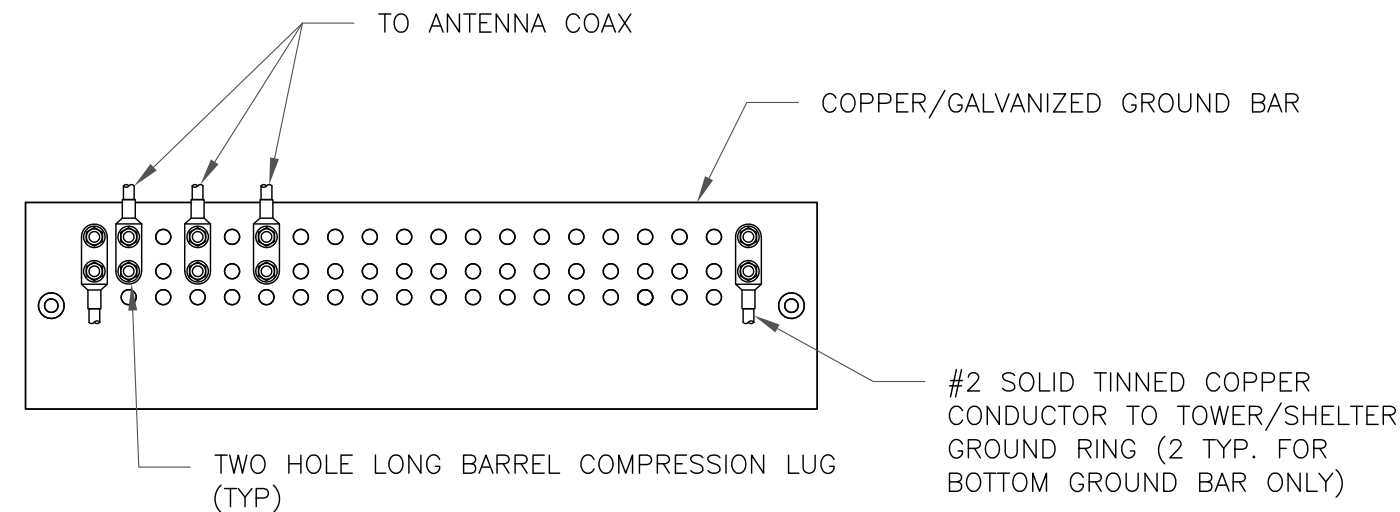
1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



NOTES:

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

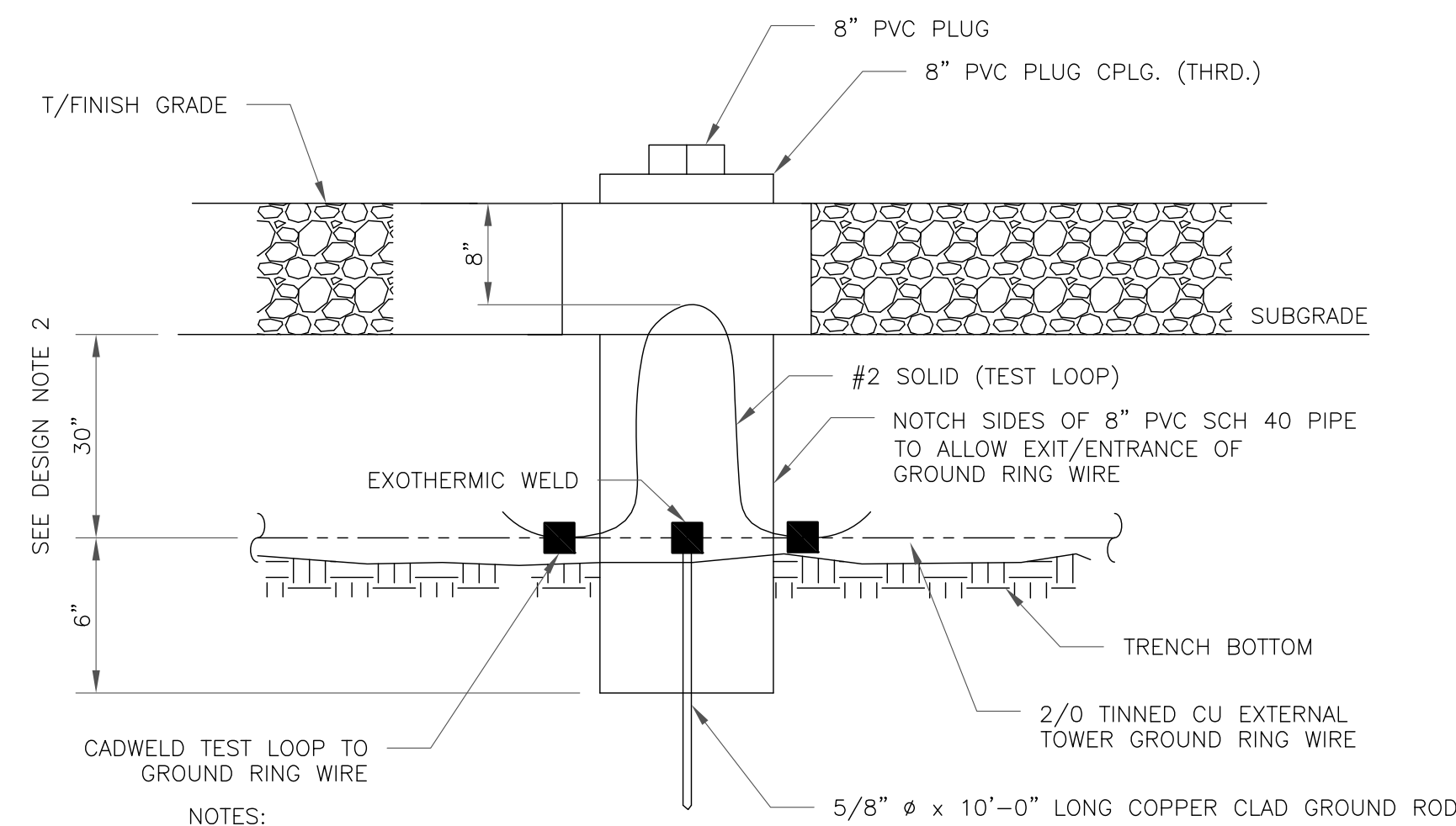
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

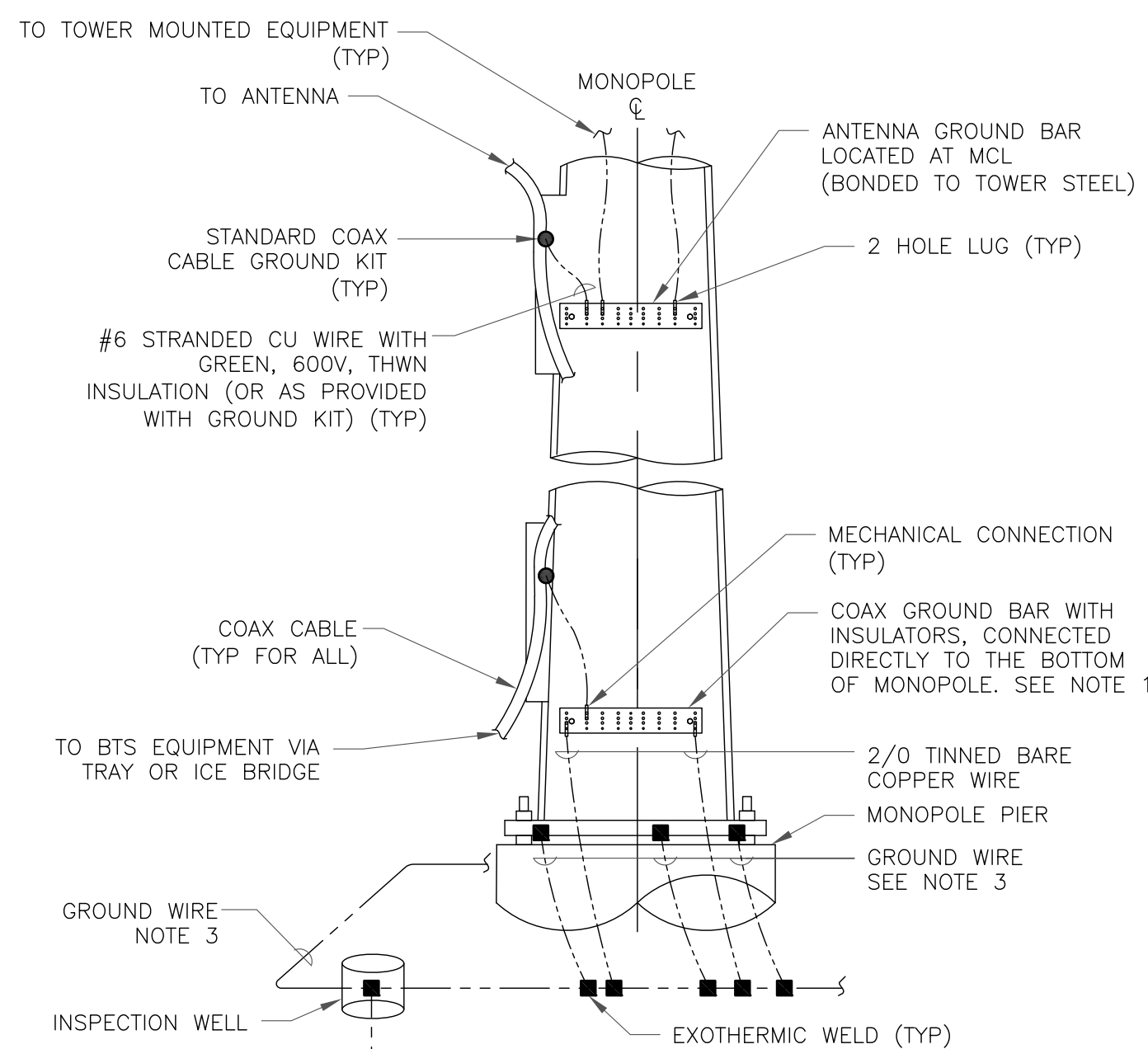
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

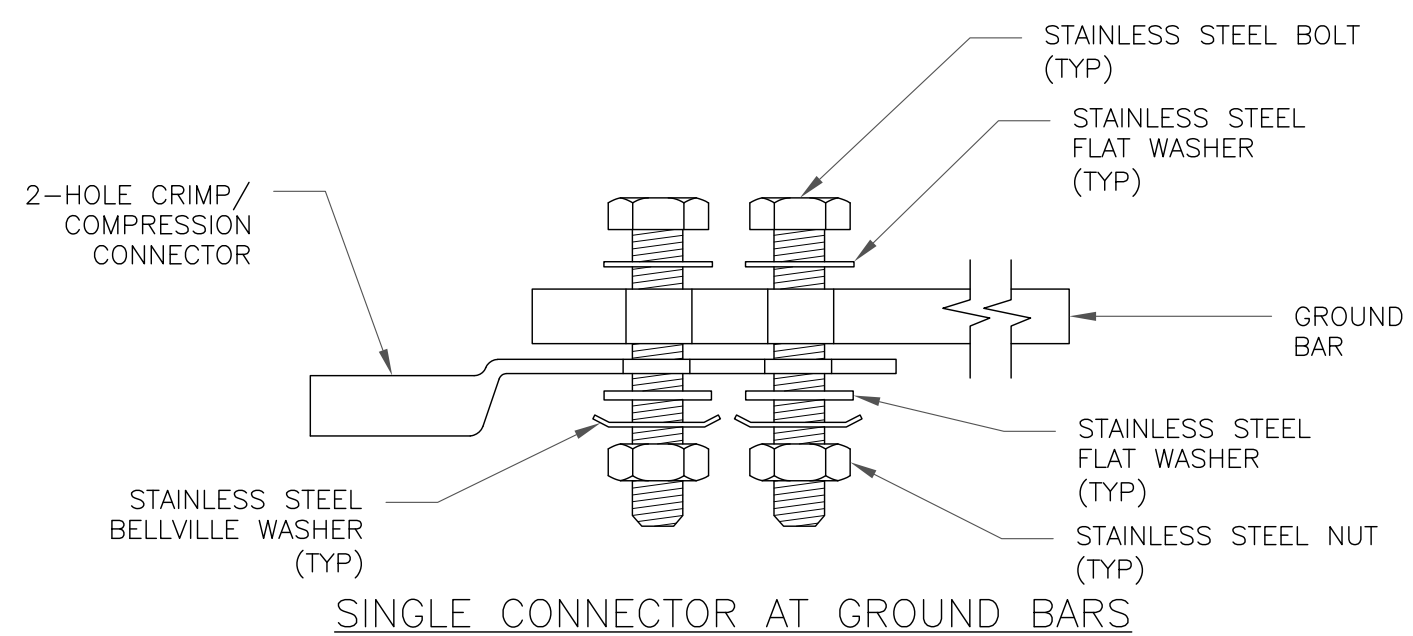
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



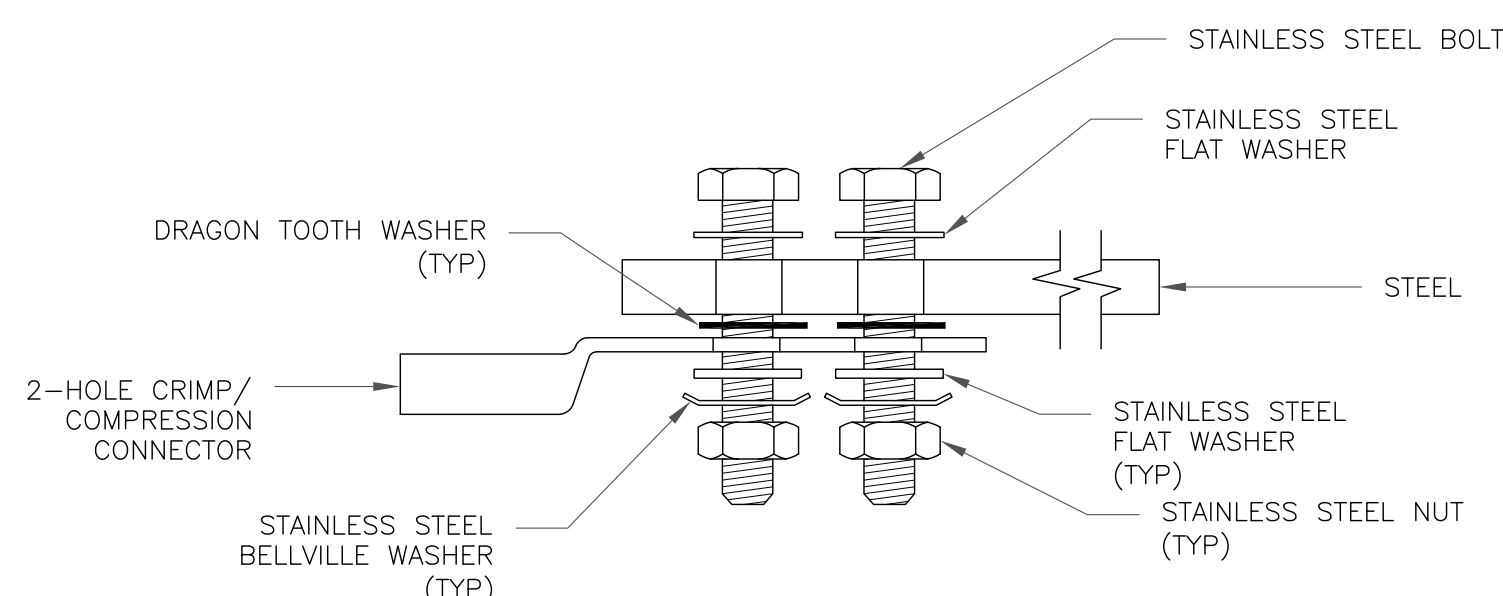
NOTES:

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

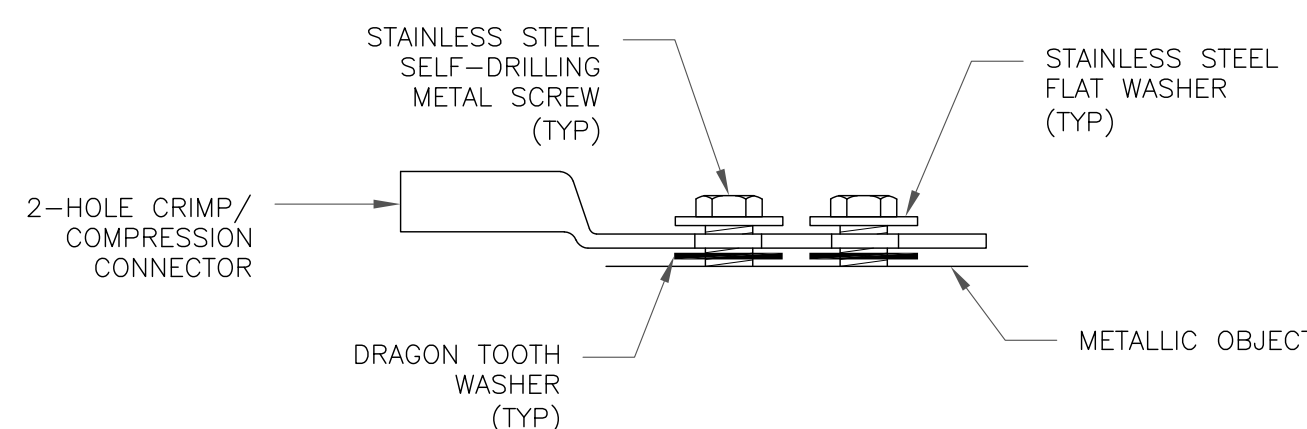
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

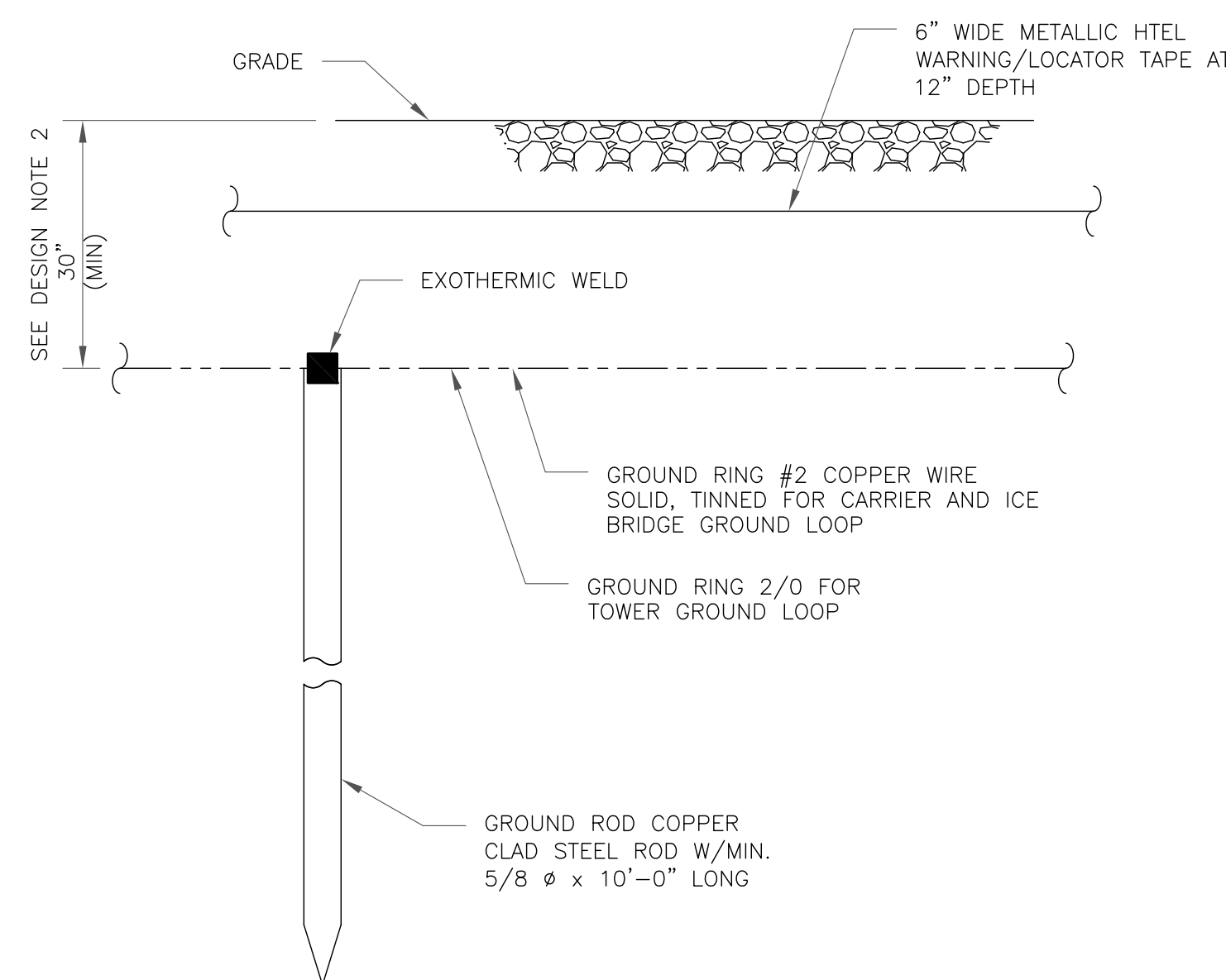


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

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

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

T-MOBILE SITE NUMBER:
CTHA846A

BU #: 841793
WINDSOR PINE LANE

50 PINE LANE
WINDSOR, CT 06095

EXISTING
148'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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1	9/27/21	MTJ	CONSTRUCTION	MTJ
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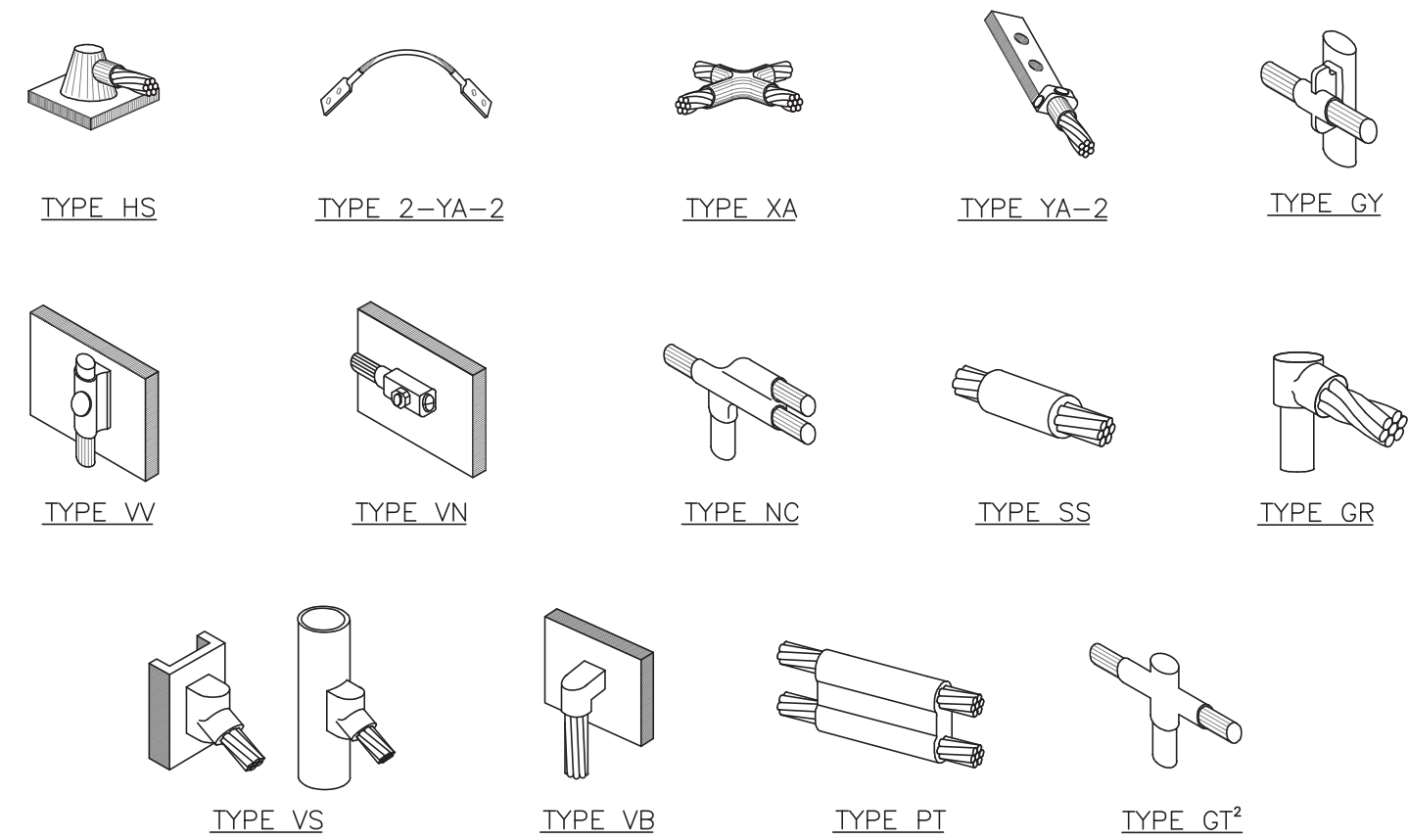
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SHEET NUMBER:

G-2

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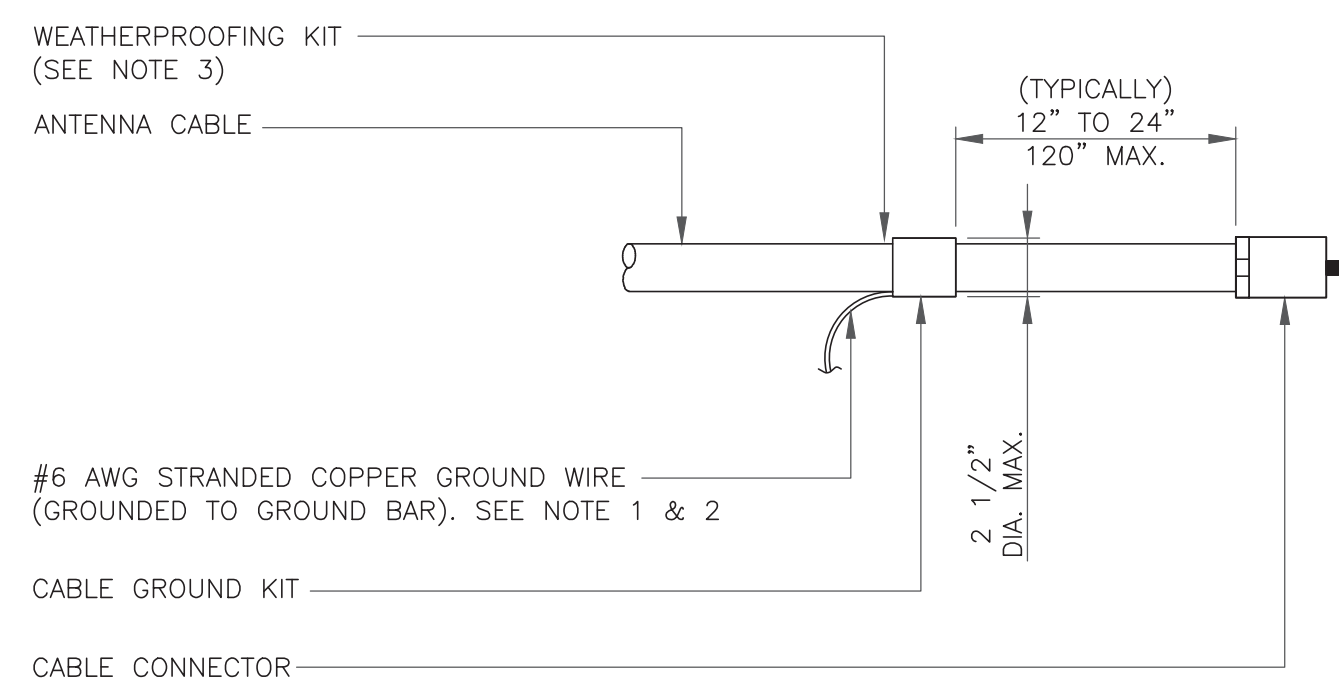
2



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.

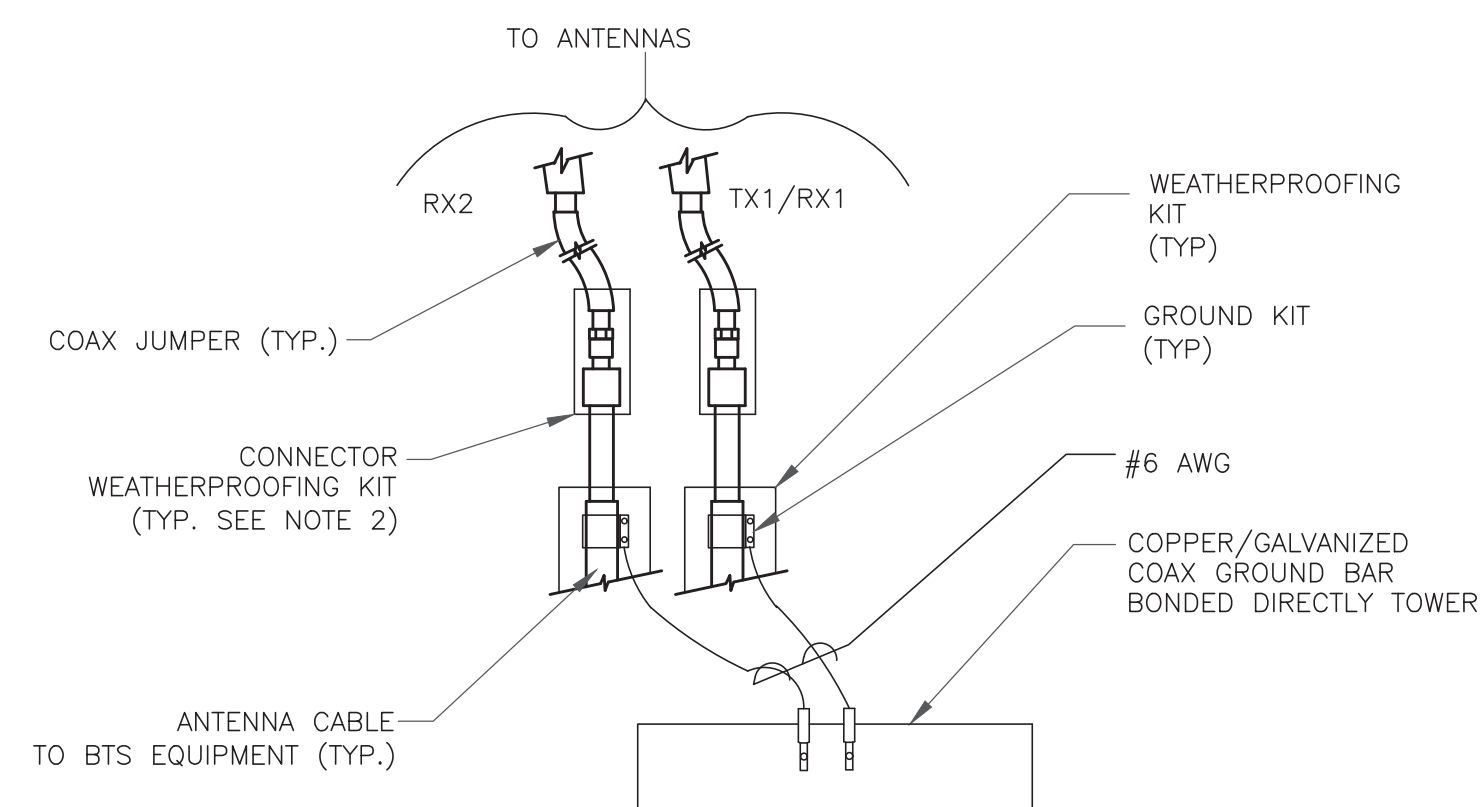
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



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.

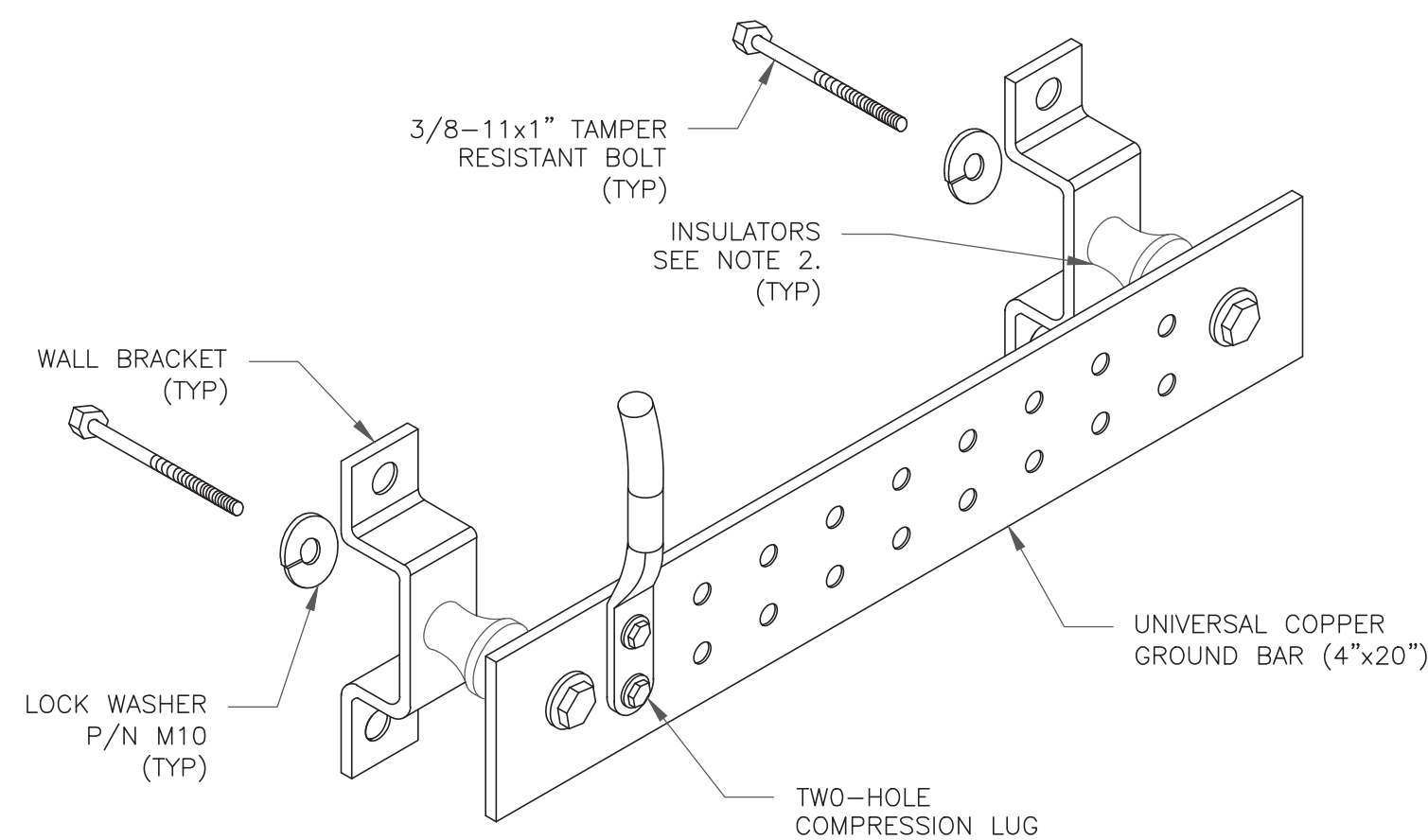
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



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.

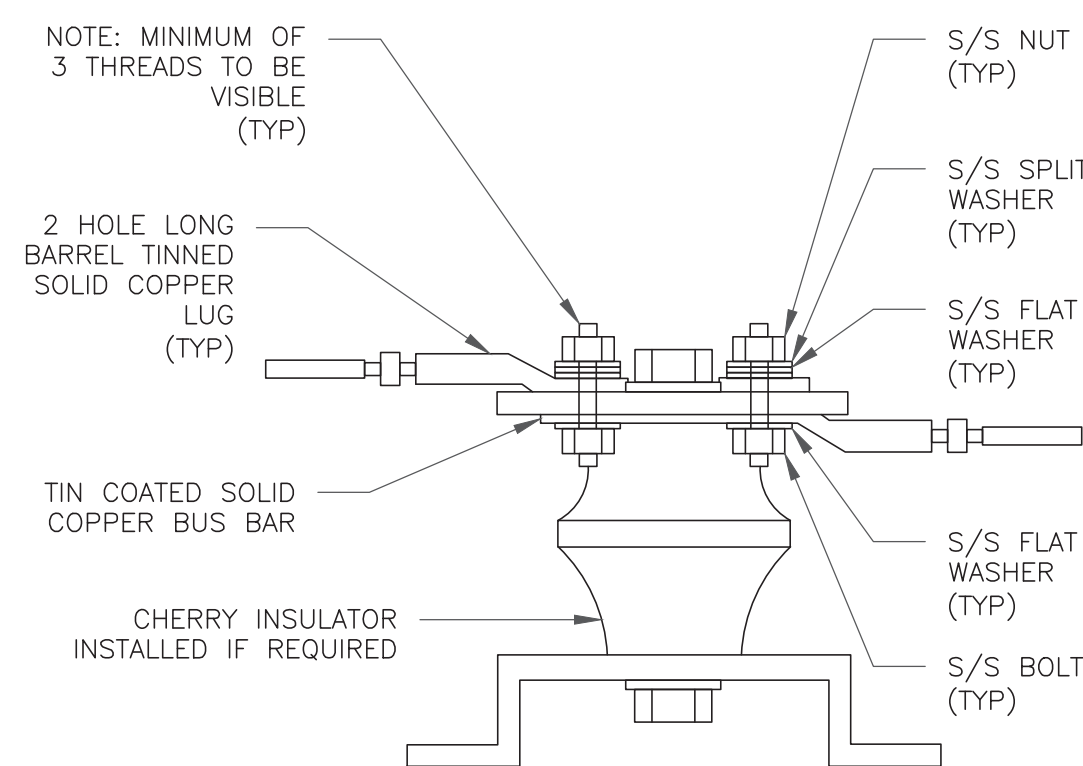
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

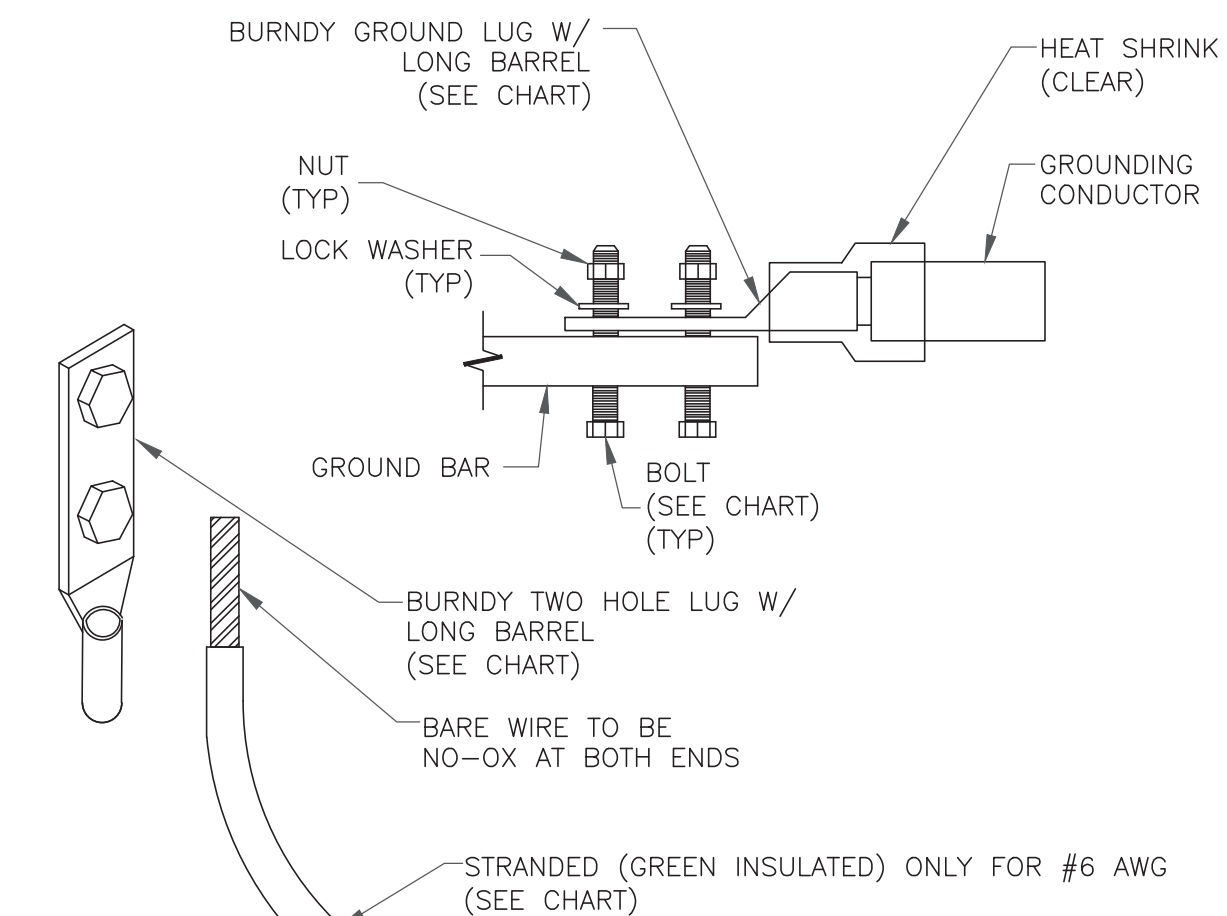
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION. CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

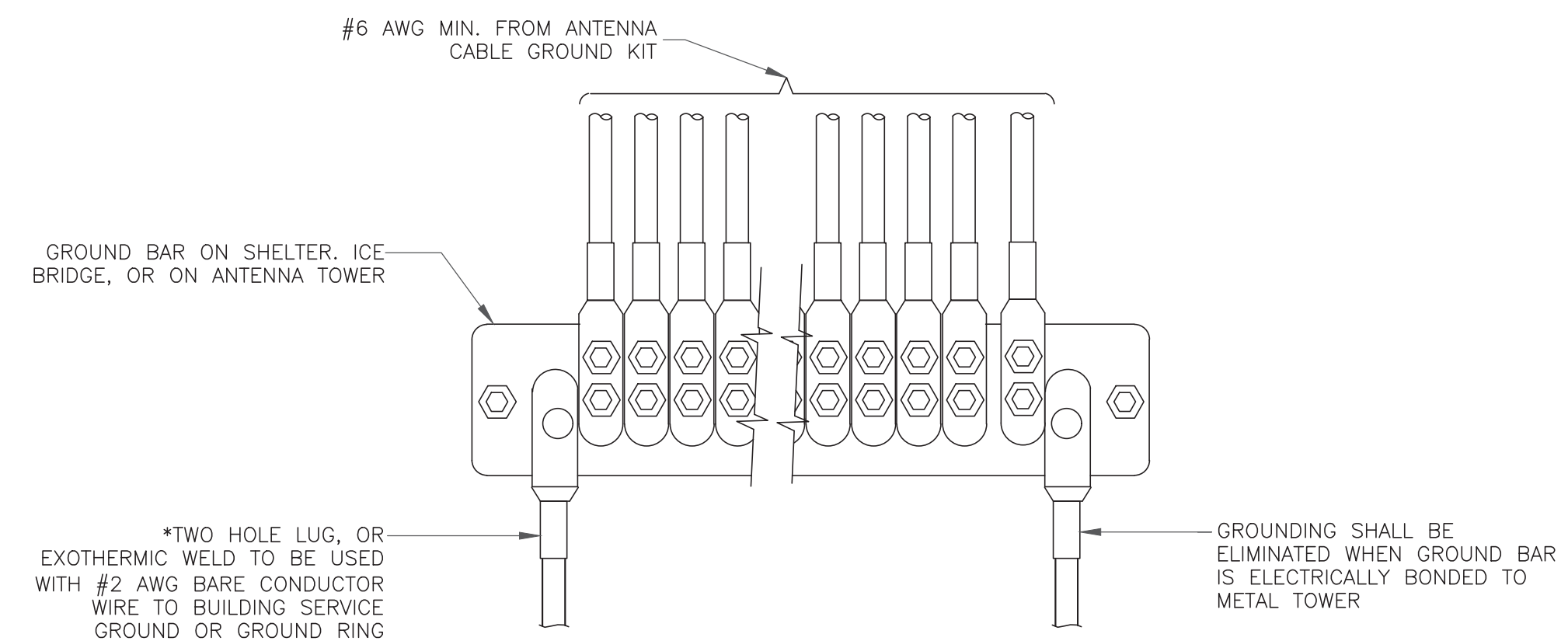
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



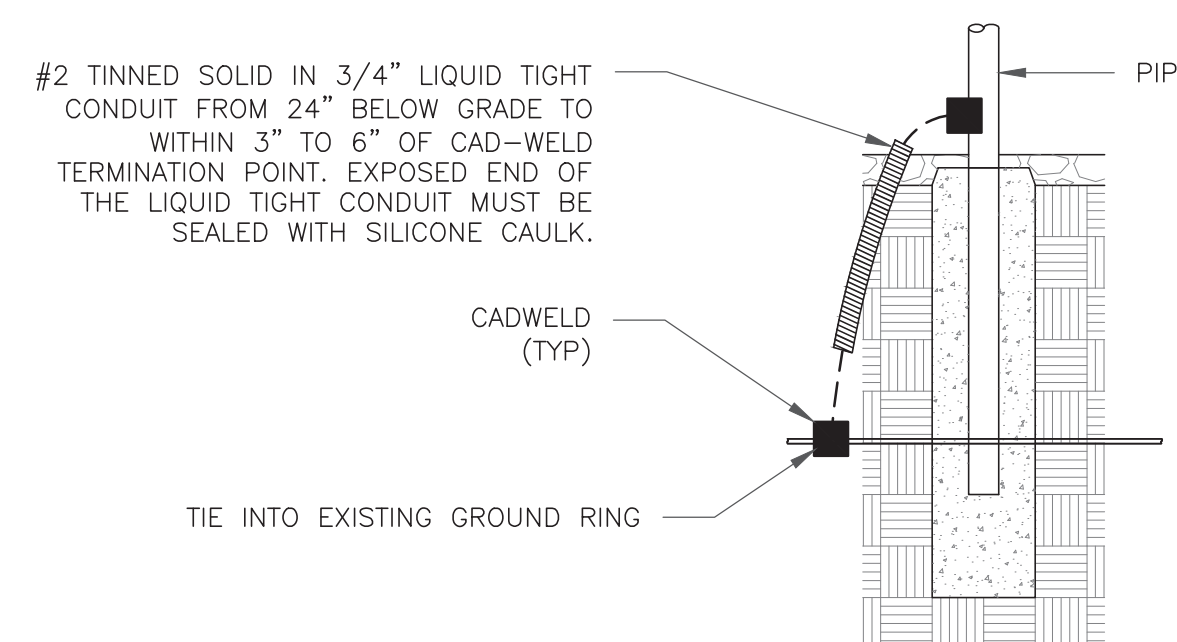
NOTES:

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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T-MOBILE SITE NUMBER:
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BU #: 841793
WINDSOR PINE LANE

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EXISTING
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ISSUED FOR:

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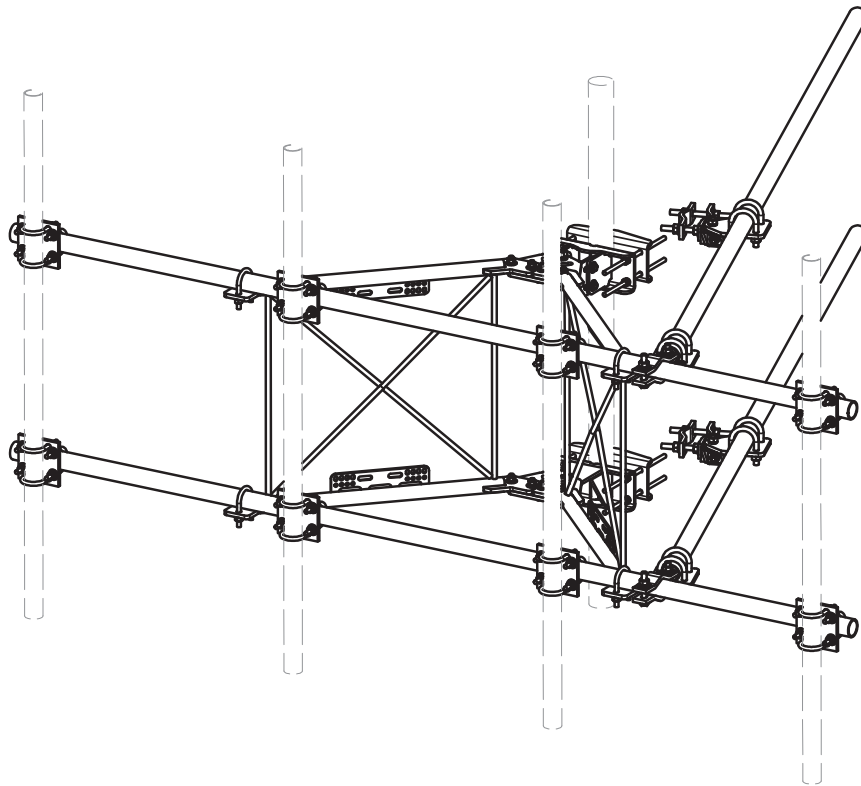
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SHEET NUMBER:

G-3

REVISION:

2



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFASD	SUPPORT ARM FOR STANDARD DUTY V-FRAME ASSEMBLY		45.34	90.69
2	1	X-SDTFLB	DIAGONAL SLOT WELDMENT FOR BCAM SD		15.08	15.08
3	1	X-SDMHTP	MULTI-HOLE TAPER PLATE WELDMENT		16.63	16.63
4	2	X-SDPP	PIVOT PLATE	11 1/16 in	9.09	18.18
5	2	X-LCBP2	BENT BACKING PLATE	12 in	8.86	17.73
6	1	X-SDCAMSS	STRAIGHT SLOT WELDMENT FOR BCAM		8.48	8.48
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-SDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM		1.43	1.43
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	29.67
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	4	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	163.01
14	4	A34214	3/4"-10 X 2-1/4" A325 BOLT	2 1/4 in	0.47	1.89
15	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
16	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
17	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
18	8	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	8.36
19	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
20	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
21	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
22	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
23	20	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.41
24	32	G58LW	5/8" HDG LOCKWASHER		0.03	0.83
25	36	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.68
26	8	G12R-15	1/2" x 15" THREADED ROD (HDG.)		0.84	6.69
27	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	23.86
28	2	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	0.82
29	1	G12045	1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD	4 1/2 in	0.30	0.30
30	8	G1202	1/2" x 2" HDG HEX BOLT GR5	2 in	0.18	1.41
31	85	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.90
32	98	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.36
33	99	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	7.09
					TOTAL WT. #	503.72

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 2 STIFF ARMS

SITE PRO 1
 Engineering Support Team:
 1-888-753-7446

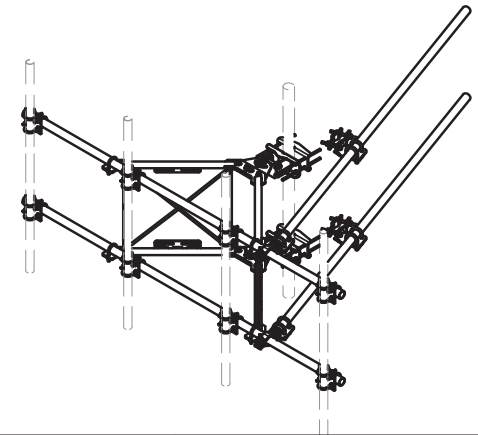
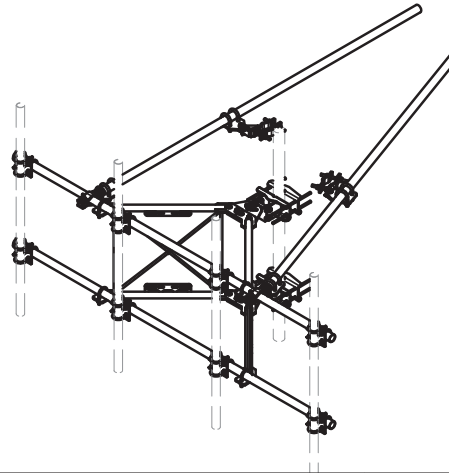
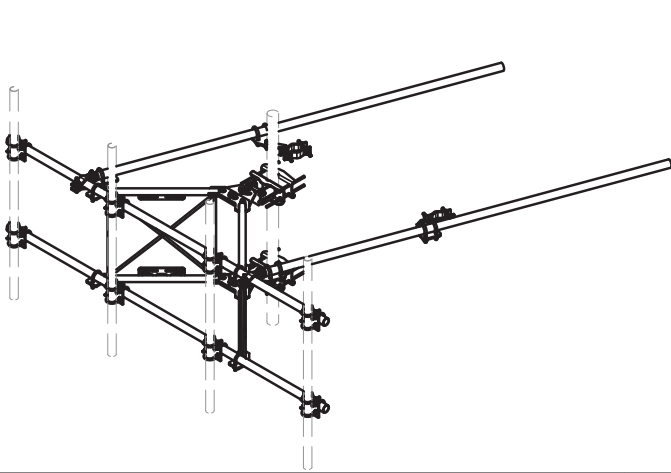
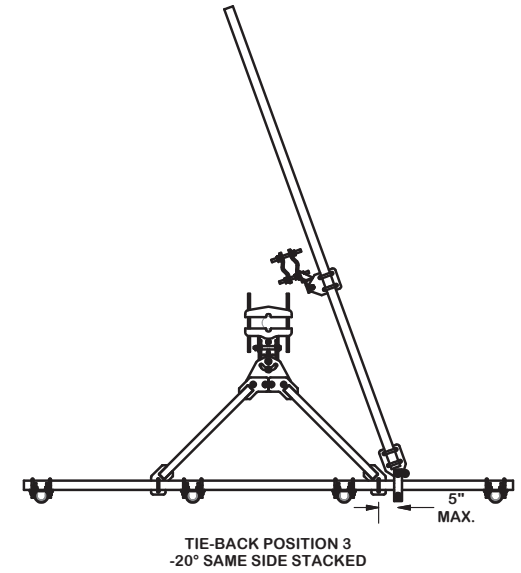
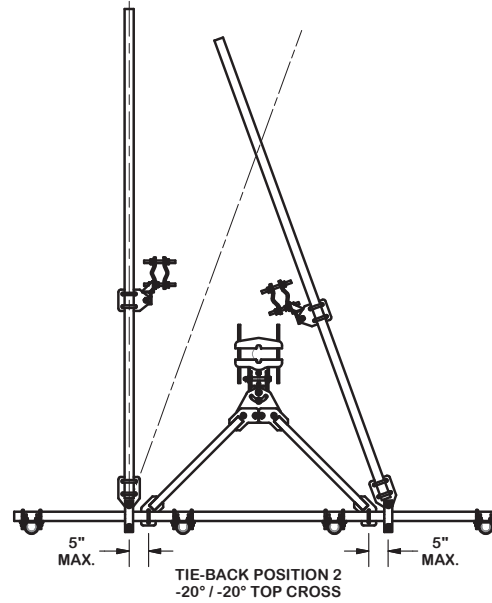
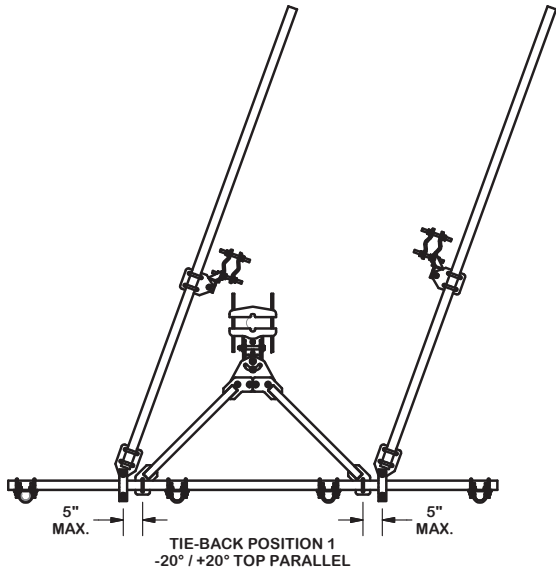
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CLASS 81	SUB 02	DRAWING USAGE CUSTOMER
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PART NO. VFA10-SD	PAGE 1 OF 5
DWG. NO. VFA10-SD	

TIE-BACK POSITIONS



TOLERANCE NOTES

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 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 2 STIFF ARMS

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CLASS 81	SUB 02	DRAWING USAGE CUSTOMER
	CHECKED BY BMC 11/18/2016	

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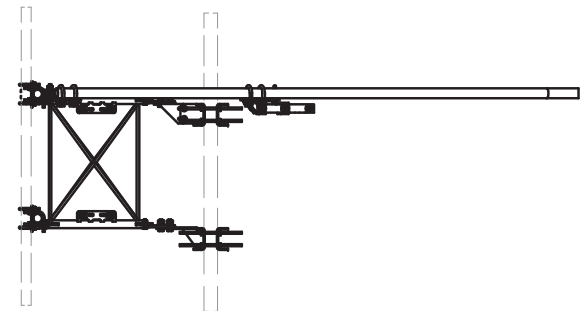
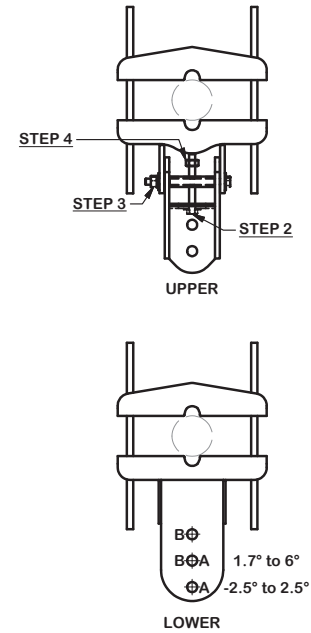
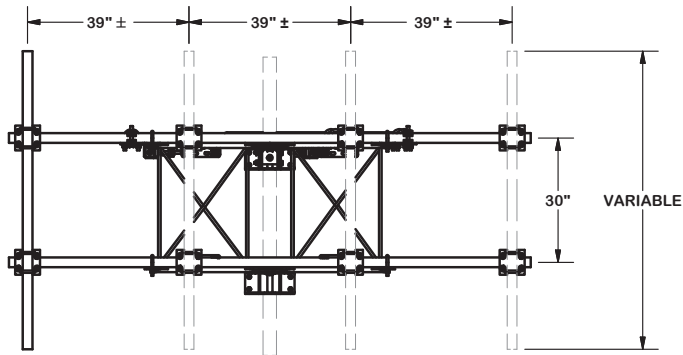
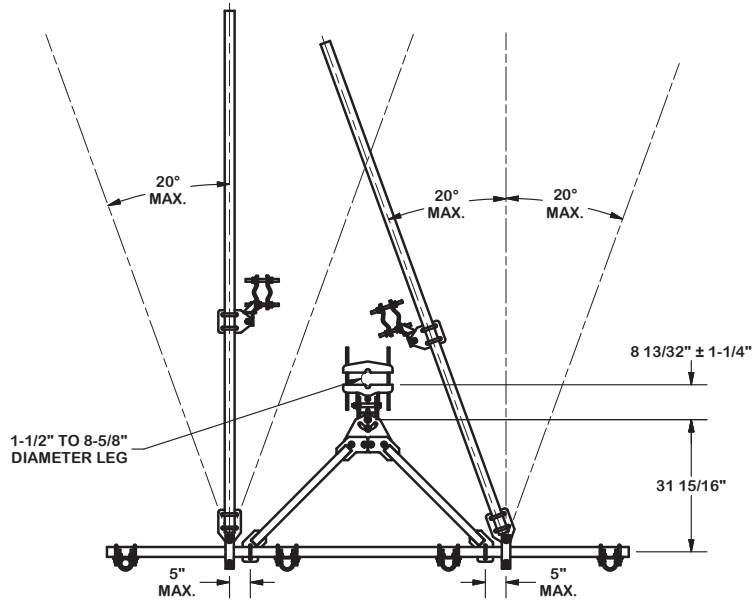
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PART NO.	VFA10-SD
DWG. NO.	VFA10-SD

ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
 - HOLE A = -2.5° TO 2.5°
 - HOLE B = 1.7° TO 6°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 50 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.



TOLERANCE NOTES

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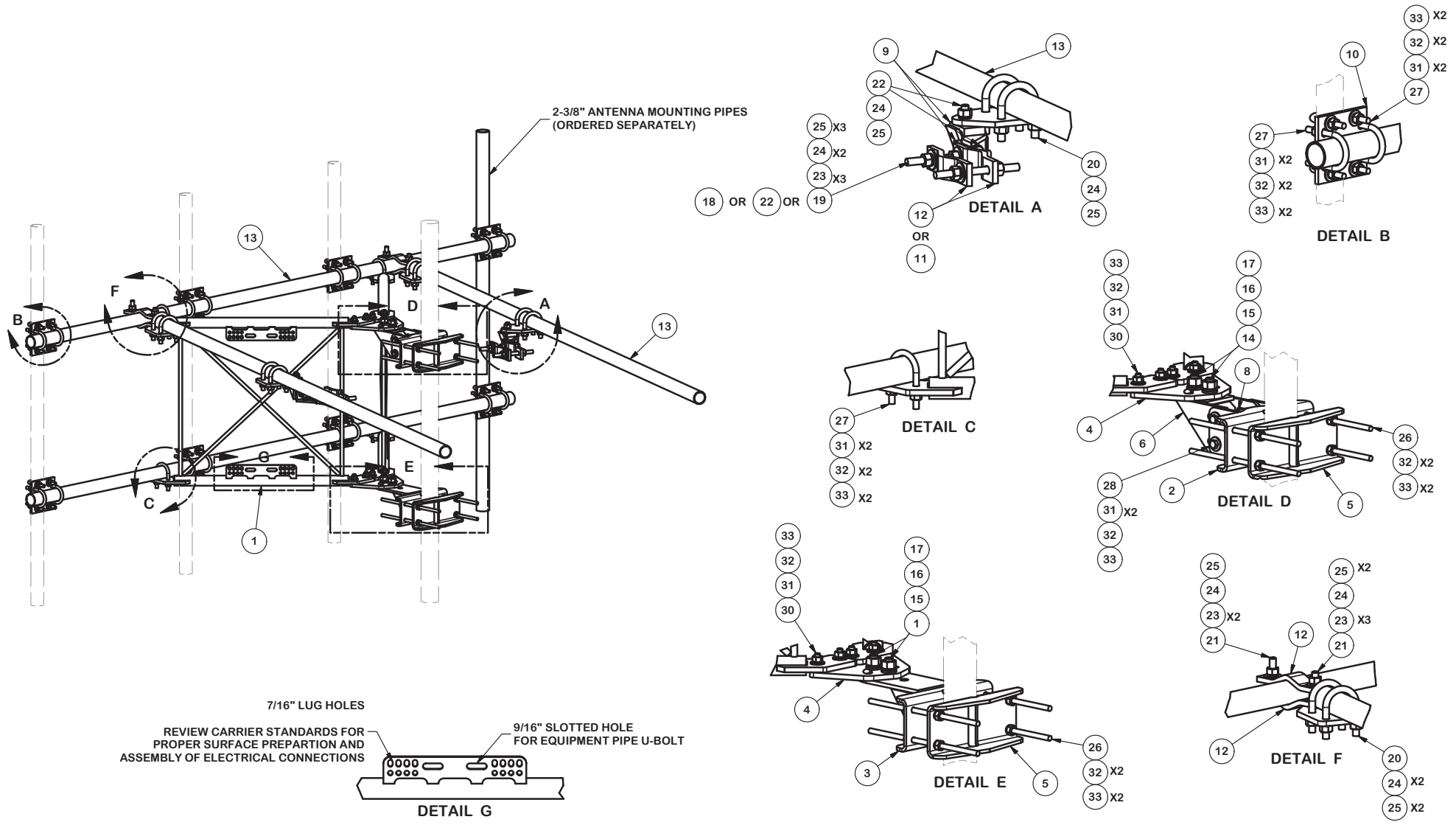
DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 2 STIFF ARMS

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PART NO.	VFA10-SD	PAGE 3 OF 5
DWG. NO.	VFA10-SD	



TOLERANCE NOTES

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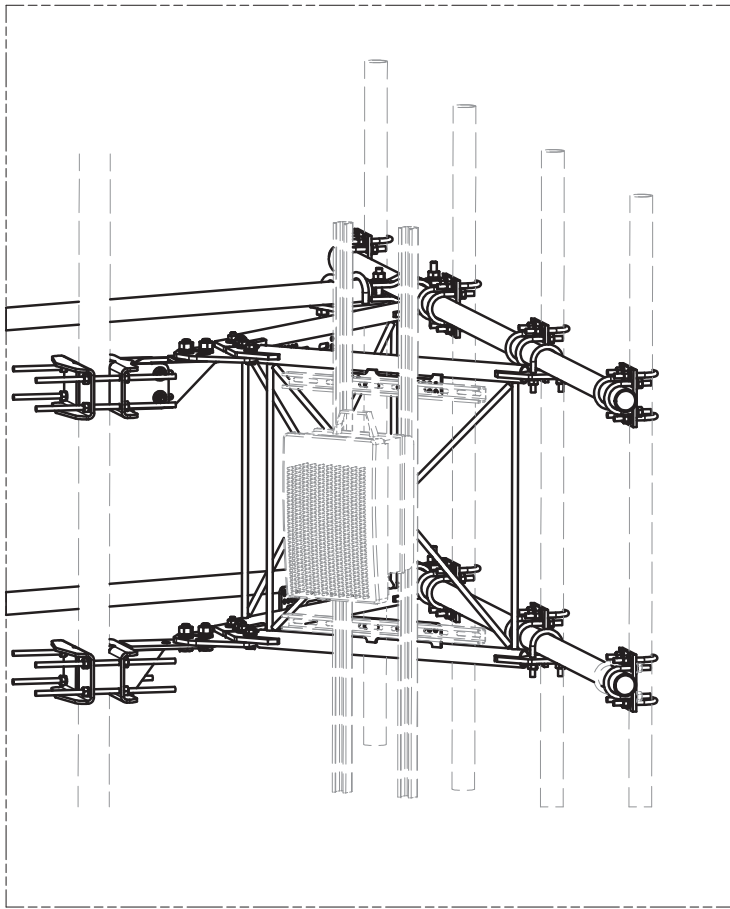
DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 2 STIFF ARMS

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 Engineering Support Team:
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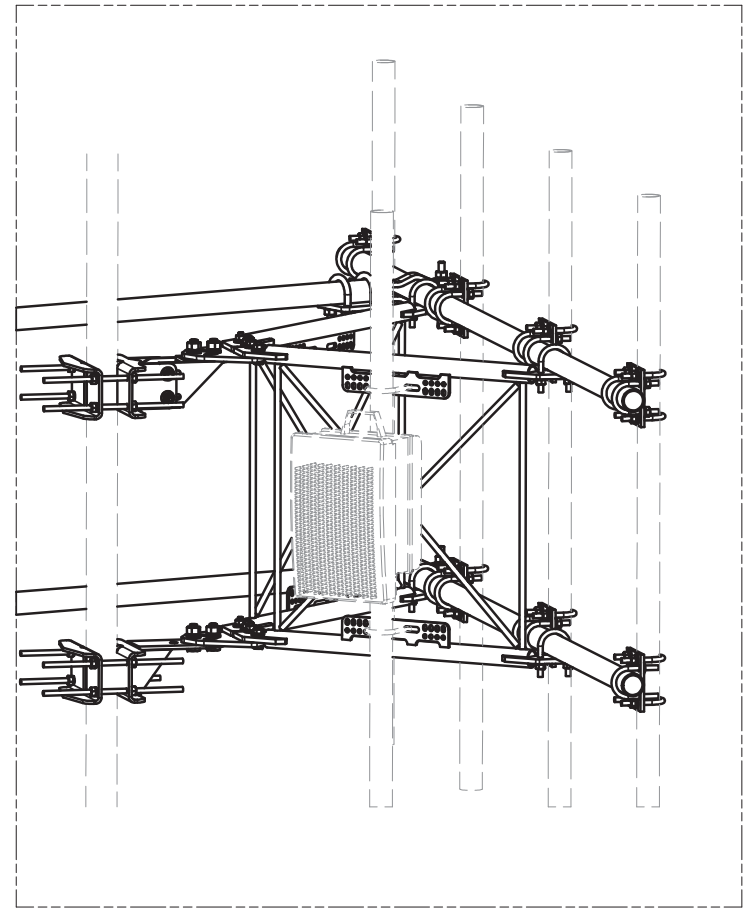
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CLASS 81	SUB 02	DRAWING USAGE CUSTOMER
	CHECKED BY BMC 11/18/2016	

PART NO. VFA10-SD	PAGE 4 OF 5
DWG. NO. VFA10-SD	



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

TOLERANCE NOTES

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DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
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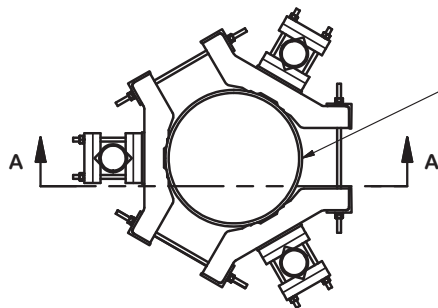
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CLASS 81	SUB 02	DRAWING USAGE CUSTOMER
	CHECKED BY BMC 11/18/2016	

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 A valmont COMPANY

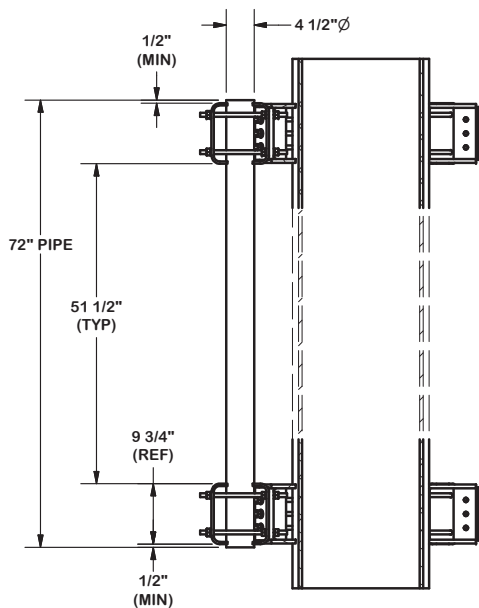
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PART NO.	VFA10-SD	PAGE
DWG. NO.	VFA10-SD	5 OF 5

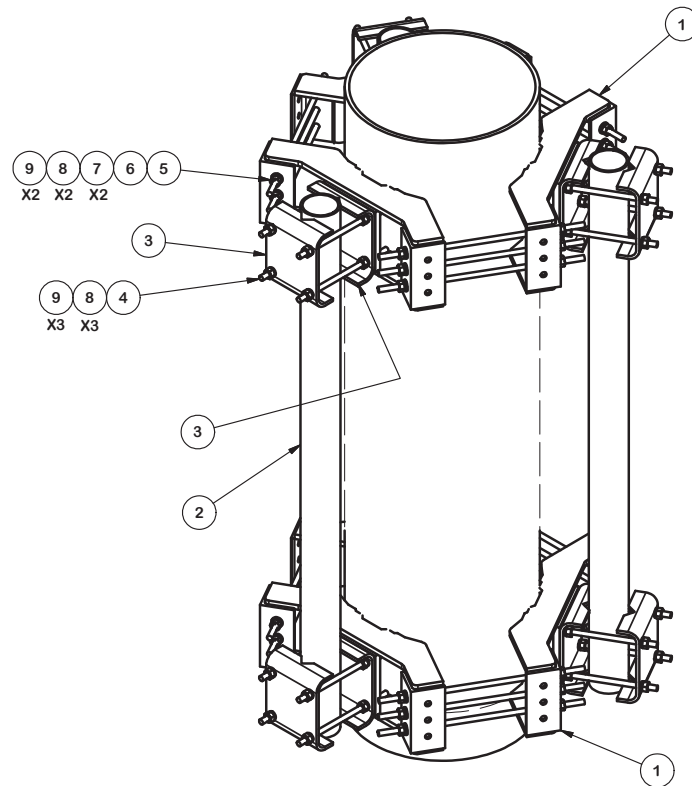


FOR POLES 12" TO 45" DIA.



SECTION A-A

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT
1	6	X-LWRM	RING MOUNT WELDMNT		68.16	408.96
2	3	P472	4-1/2" X 72" SCH. 40 GALVANIZED PIPE	72 in	64.89	194.68
3	12	X-214130	BENT PLATE V-CLAMP	12 5/8 in	11.43	137.16
4	24	G58R-14	5/8" x 14" THREADED ROD (HDG.)	14 in	0.40	9.57
5	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	.55	9.90
6	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	.55	9.90
7	36	A58FW	5/8" HDG A325 FLATWASHER		.03	1.08
8	108	G58LW	5/8" HDG LOCKWASHER		0.03	3.24
9	108	A58NUT	5/8" HDG A325 HEX NUT		0.13	14.04
TOTAL WT. #						788.53



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DESCRIPTION
MONOPOLE SECTOR FRAME ATTACHMENT ASSEMBLY

SITE PRO 1
 A valmont COMPANY

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CPD NO.	DRAWN BY KC8 3/18/2016	ENG. APPROVAL 3RD PARTY
CLASS 01	SUB 01	DRAWING USAGE CUSTOMER
		CHECKED BY BMC 5/2/2016

PART NO.	MSFAA	PAGE 1 OF 1
DWG. NO.	MSFAA	